IN THE UNITED STATES DISTRICT COURT
FOR THE SOUTHERN DISTRICT OF WEST VIRGINIA
HUNTINGTON DIVISION

Christopher Fain, individually and on behalf of all others similarly situated, et al.,

Plaintiffs,

vs. CIVIL ACTION NO. 3:20-cv-00740

William Crouch, et al.,

Defendants.

REMOTE VIDEOTAPED DEPOSITION OF DR. STEPHEN LEVINE

DATE: April 27, 2022
TIME: 8:00 a.m. CST
PLACE: Veritext Virtual Videoconference

REPORTED BY: KELLEY E. ZILLES, RPR (Via Videoconference)
JOB NUMBER: 5176996

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ALSO PRESENT: Kraig Hildahl, Videographer (Via Videoconference)

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(Original exhibits attached to original transcript. Copies attached to transcript copies.)

VIDEO TECHNICIAN: We're going on the record at 8:59 a.m. Eastern time on April 27, 2022. This is media unit No. 1 of the video recorded deposition of Dr. Stephen Levine, taken in the matter of Christopher Fain, et al. versus William Crouch, et al., from the U.S. District Court for the Southern District of West Virginia, Case No. 3:20-CV-00740.

This deposition is being held remotely. My name is Kraig Hildahl, I'm with Veritext Legal Solutions, I'm the videographer, the court reporter today is Kelley Zilles, also with Veritext.

Will counsel please identify themselves for the record.

MR. CHARLES: This is Carl Charles with Lambda Legal for the plaintiffs.

MS. BORELLI: Tara Borelli from Lambda Legal on behalf of the plaintiffs.

ATTORNEY SMITH: This is Avatara Smith-Carrington with Lambda Legal on behalf of the plaintiffs.

MR. DAVID: This is Caleb David with Shuman McCuskey Slicer on behalf of the defendants.

MS. CYRUS: Lou Ann Cyrus with Shuman McCuskey Slicer, also on behalf of the plaintiffs.

MS. BANDY: Kimberly Bandy with Shuman

McCuskey Slicer on behalf of the defendants.
VIDEO TECHNICIAN: Will the court reporter please swear in the witness and then we can proceed.
DR. STEPHEN LEVINE,
duly sworn, was examined and testified as follows:
COURT REPORTER: Go ahead.
MR. CHARLES: Thanks, Kelley.
EXAMINATION
BY MR. CHARLES:
Q. Good morning, Dr. Levine. So before we get started this morning I just want to go over some ground rules. I know you've been deposed many times, so I will try to keep this brief. So first of all, do you understand you are under oath today?
A. I do.
Q. Okay. And that requires you to testify truthfully?
A. Yes.
Q. You sat for deposition before many times, right, Dr. Levine?
A. Yes.
Q. Okay. Since the court reporter needs to transcribe everything that you and I say today, please do endeavor to answer my questions with a verbal response and not a, not a head nod or a gesture or a

mm-hmm, but a yes or a no as much as possible, okay?
A. Okay.
Q. Please try to wait to respond to my question until after I've completed the question, in turn I will also try to wait to start a new question until after you have finished speaking, okay?
A. Okay.
Q. If you need a break, please let me know, but if there is a question pending for you to answer I will ask that you respond to that question before we take a break. Does that make sense?
A. It does.
Q. Okay. If I ask a question that is not clear or that you don't understand, please let me know and I will repeat it or rephrase it, okay?
A. Okay.
Q. And, Dr. Levine, is there anything that would prevent you from giving full, complete and truthful testimony today?
A. Not that I can think of.
Q. Any medication you've taken that, that might prevent you from doing so?
A. No.
Q. Okay.
A. I can't imagine what medicine that would be,

but.
Q. So there, there isn't any that you can think of?
A. Correct.
Q. Okay. And just to, just to confirm again, Dr. Levine, that the oath you've taken as we started today, was that, was the same that you would take in a court of law, so you understand that the testimony you're providing today is under penalty of perjury?
A. I do.
Q. Okay. So before we get too far along today, I just want to note that we're going to be talking quite a bit about various types of medical care and I want to note the use of some terminology and just confirm that we can come to an understanding of what is meant by certain terms, which is not to suggest that you necessarily agree with that term in and of itself, but for the purposes of today I want to make sure we're on the same page. Is that amenable to you?
A. I don't exactly know what you're referring to at this point, but in general principle, yes.
Q. Okay. I'll be more specific. So if I refer to gender affirming care or gender confirming care, will you know that I'm referring to medical care, medical interventions commonly provided to transgender people for the treatment of gender dysphoria?

A. Is that all that refers to or is that just some of the things that it refers to?
Q. That's, that's how I'll be using it today. And, and we can get into the nuance of, of that later, but when I say gender affirming care I will be talking about medical care, medical interventions.
A. So you'll be talking about hormone treatment.
Q. Hormonal interventions, potentially puberty blockers, also surgical interventions.
A. Okay, I will try to remember that's what you mean.
Q. Okay. And I will, I will endeavor to be more specific if the, if the situation calls for it. So then similarly, if I refer to gender affirming surgery in this deposition, I will be referring to what people used to call sex reassignment surgery, does that make sense?
A. It does.
Q. Okay. Have you been retained as an expert witness by defendants in this case?
A. Yes.
Q. And you understand, Dr. Levine, that your report was submitted to the court by these defendants as expert testimony to advance their position against the plaintiffs?
A. I'm not sure I understood what happened to my

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report, but I, in general I think I agree that I understood something like you just said, yes.
Q. Okay. So the defendants in this case are using your opinion in support of their position that they do not need to cover gender affirming medical care in the West Virginia Medicaid Program, so I'm just asking if you're aware that your testimony has been submitted for that purpose?
A. It is not my exact understanding because it's my understanding that it's, that hormone treatment or what you would call gender affirming hormone treatment is being covered by West Virginia Medicaid, it is the surgery that is not being covered.
Q. Yes, that's right. That's what I said, that, that it's a ban on surgical interventions and your testimony has been submitted. So you're agreeing with what I said?
MR. DAVID: Object to the form of the question. But you can answer.
A. It's my understanding that your original question stated gender affirming care and you didn't say only surgery and I was just trying to point out that gender affirming care in your language is a broad term that includes hormone treatment. And so I, it was my understanding that, that the concern here is on genital

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surgery, breast removal, perhaps facial feminization surgery, et cetera, but not hormone therapy.
Q. Understood. And what were you specifically asked to do, Dr. Levine, related to this case? I'm sorry, what expert opinions were you asked to provide specifically related to this case?
A. I was asked to represent the state of science in this field.
Q. Okay. And what did you do to prepare for your deposition today, Dr. Levine?
A. I reread my, I reread my expert opinion report on several occasions in the last few days.
Q. Did you, did you review any, anything else other than your report?
A. Well, I'm constantly reading certain articles that I, I reread some of the articles in, that I referenced in the report.
Q. Okay. Did you read any of the rebuttal reports that were submitted in this case in response to your expert report?
A. I, I read, I mean, I have read the rebuttal reports, I didn't read all the rebuttal reports in preparation for today.
Q. Okay. But you have read them prior to today at some point?

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A. I think shortly after they were submitted.
Q. Okay. And can you just tell me, please, what articles you read to prepare for the deposition today that you recall?
A. I read Hayes' report, I read -- well, actually I read an article that was recently published, but not necessarily, it wasn't referenced in this report.
Q. What was that article, Dr. Levine?
A. It was the article published recently about, from the University of, from University of Washington - Seattle suggesting that puberty blocking hormones and cross sex hormones decrease the amount of anxiety, they decrease the amount of depression that the treated kids had, and I had previously read the scathing taking apart of this article and the shenanigans involved with limitations of the article. So I, I reread the original article last night.
Q. Do you recall the title of that article or the authors?
A. I think it was, it was multiple authors. I think it was Tartof or a name very much like Tartof.
Q. Okay. And then the criticism you said you read also, do you remember the authors or the title of that?
A. Singal, S-I-N-G-A-L.
Q. Oh, okay. Thank you. Did you, without telling

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me the substance of your conversations, did you speak with any of the attorneys for the defendants in preparation for today?
A. Oh, yes, I did. Last evening I had a 20-minute conversation with Mr. David, and the week before I had a several hour meeting with Mr. David, it was Wednesday evening one week ago with Mr. David and another lawyer Kim, I'm sorry, I can't, I think it's Grandell, but I'm not sure of her last name.
Q. Was it Kim Bandy, by any chance?
A. Dandy?
Q. Bandy, B as in boy?
A. Yeah, Bandy, Bandy, yes.
Q. Did you speak with anyone other than the attorneys for defendants in preparation for this deposition?
A. No.
Q. Okay. Dr. Levine, do you have the Exhibit Share program available on one of your screens, or a screen?
A. Not that I'm aware of.
Q. So that would be the program that we're going to use to introduce documents and have you review documents.
A. Well, then you're going to have to, I'm just in the Zoom call, I just opened up one program.

Q. Okay.
A. Perhaps I need to go back and open up --
Q. No, that's okay, hold on just one moment.
MR. CHARLES: Kelley, can we go off the record briefly.
VIDEO TECHNICIAN: We're going off the record at 9:14 a.m.
(A break was taken at 8:14 a.m.)
(Exhibit 1 marked for identification.)
VIDEO TECHNICIAN: We're going back on the record at 9:33 a.m.
BY MR. CHARLES:
Q. Okay. Dr. Levine, so you should be looking at what I have marked as SL01, do you see that?
A. No, my, I'm only on the exhibit screen now. I see me, I don't see you, I don't know if --
Q. Okay. So --
A. All I see is Exhibit 1 Fain Levine.
Q. Okay.
MR. CHARLES: Kelley, let's go back off the record.
VIDEO TECHNICIAN: We're going off the record at 9:33 a.m.
(A break was taken at 8:33 a.m.)
VIDEO TECHNICIAN: We're going back on the

record at 9:34 a.m.
BY MR. CHARLES:
Q. Okay. So, Dr. Levine, now do you see what has been marked Exhibit SL01?
A. Yes.
Q. Okay. So have you seen this document before?
A. Yes.
Q. And what is this document?
A. It's my expert opinion report.
Q. That you submitted in this case, right?
A. Yes.
Q. Okay. Did anyone besides you contribute to writing this report?
A. Well, I, the report is an evolutionary document between the attorneys and myself.
Q. Okay. Can you tell me what you mean by evolutionary document between yourselves and the attorneys?
A. Well, I have conversations with the attorneys, they have certain issues, they, they've read a prior expert opinion report and they ask me questions and make comments, they and their, I don't really know their entire staff and how many people at the attorneys' office are, are involved with this, but I communicate with one or two attorneys and it's a back and forth

process. That's what I mean, this, this report went through, I don't know, three or four different drafts.
Q. Okay. And did you send the attorneys a, one of your expert reports from another case to review first?
A. I can't recall if I, if I've done that. My other expert opinion reports are freely available and I, I don't know if, I don't recall if I sent them the previous report or they had a previous report.
Q. Okay. Did, did the attorneys though write any portion of your report?
A. No, no, they asked me, they ask me questions and make comments. If, if they, if they add a sentence, you know, I have to approve it, I put it into my language. It's mostly, it's mostly comments I think and questions.
Q. Okay.
VIDEO TECHNICIAN: Carl, I apologize for interrupting, this is Kraig. Doctor, can you tilt your monitor down a little bit so we can catch --
THE WITNESS: Yep, sorry.
VIDEO TECHNICIAN: Thanks, I appreciate it.
MR. CHARLES: No worries, Kraig. Thanks.
BY MR. CHARLES:
Q. Doctor, I'm going to introduce another exhibit, you'll see it in the folder in just a moment.
(Exhibit 2 marked for identification.)

Q. Okay.
MR. CHARLES: So for the record, I'm showing Dr. Levine what has been marked as SL02.
Q. Dr. Levine, can you see this document?
A. No, no, my SL1 is still up in front of me.
Q. Okay. So click the back arrow to go back on your browser.
A. And, and still that's the second item is not listed yet.
Q. Okay.
MR. DAVID: Doctor, go ahead and refresh your browser and see if it shows up then.
THE WITNESS: Refresh my browser. Okay, now I see it, yes. Thank you.
Q. Okay.
A. Click on it?
Q. Yes, please, so that you can view it.
A. Yes, my CV.
Q. Okay. So you do recognize this document then?
A. I do.
Q. And is this the CV that you submitted in this case as Exhibit A to your expert report?
A. Yes.
Q. Okay. And are you aware, Doctor, of anything sitting here today that needs to be updated or corrected

on, on your CV?
A. Probably, yes.
Q. And what are those things?
A. Well, I don't know, I can't recall the date in which I submitted this, it's probably early February. On March the 30th I had another deposition, let's see if I can look on where it says my depositions.
Q. Was that a deposition in the case BPJ versus West Virginia Department of Education?
A. Yes.
Q. Okay.
A. And probably on the, on my last invited articles, published articles, let me see, that would be on page -- oh, yes, this must be a very old CV because I've had additional publications. The most important publications that are missing from that are Archives of Sexual Behavior in November 2021 called Reflections, it starts with Reflections of a Clinician About the Treatment of Transgender Youth, something like that, that's not the exact title. And the more recent article in the Journal Marital & Sexual Therapy published in February of this year online called Reconsidering Informed Consent For the Treatment of Transgender Identified Children, Adolescents and Young Adults.
Q. Okay. So just to confirm, your report was

served in February with an incorrect version of your CV, an incomplete version?
A. Well, I think when I first made contact with, with this law firm this was a reasonably correct CV.
Q. I understand that. But you just identified an article that was submitted in November and this report was not served on plaintiffs until February, so I'm just confirming that --
A. This must be, this must be my mistake, this is not the attorney's.
Q. Okay. Dr. Levine, if you could just wait until I finish the question please before you respond.
A. Okay.
Q. So just to confirm what you just said, there's an article you said that was published in November of '21 that was not included on the CV which was submitted in February?
A. Well, it's not included here, so obviously that's right.
Q. Okay. Is there anything else that you can identify from the CV that might be missing or not accurate?
A. Well, you know, the CV is 21 pages, I don't know how much time you want me to go through.
Q. Fine, fair enough. Let me ask you a more

specific question. Did you, did you, were you a guest on a podcast in January and is that reflected on this version of your CV?
A. I was, I was, I did have a, that is not on here either.
Q. Okay.
A. I must have sent, yeah, that's true.
Q. Okay. But otherwise generally, Dr. Levine, this is a list of your publications, your experience and your other credentials, right?
A. It is.
Q. All right. Did you, Dr. Levine, submit a bibliography with your report in this case?
A. I don't think that's a, there is a bibliography in this case, I don't think I submitted it, I think it's a combination of things from other reports.
Q. So let me, let me clarify. You did provide citations in your report of course, right, Dr. Levine?
A. Yes.
Q. Okay. And I'm representing to you that there was no bibliography submitted in this report.
A. I haven't, I don't recall submitting a, an accurate list of everything that I cited in this report. It's not that it doesn't exist, it's that I don't, I don't think, I think it's a combination of previous

reports and additions, you know, in the --
Q. That's okay, Dr. Levine. What I just need to know is whatever you cited in your report is what you have relied on for your opinions in this case, right?
A. Yes.
Q. Okay. So then since the time you wrote and submitted this report, are there other records or documents that you read or relied upon besides the ones you mentioned earlier for those cited in your report?
A. I'm hesitating to answer the question because there's hardly a day that goes by that I'm not reading something or rereading something.
Q. I understand. Let me, let me rephrase. You've, you've not relied on anything not cited in your report for any opinions in your report?
A. Oh, yes, the opinions in my report are based upon things that I have cited.
Q. Okay, great. So going back to your CV, or more specifically to your CV, Dr. Levine, does that document accurately reflect your educational and employment history?
A. I would presume it does, yes.
Q. Okay. So on Page 3 of your report, not of your CV, but on Page 3 of your report you list a number of grants that you've been the recipient of over the course

of your career, right?
A. Yes.
Q. Okay. You listed 23 separate pharmaceutical company grants to study various pro-sexual medications, right?
A. Yes.
Q. Were any of these 23 grants related to the treatment of gender dysphoria in transgender people?
A. No.
Q. And were any of the grants related to the treatment, any kind of treatment of prepubertal children with gender dysphoria?
A. No.
Q. Or adolescents with gender dysphoria?
A. No.
Q. You also list in that same section in your report, Dr. Levine, that you received a U.S. National Institute of Health grant for the study of sexual consequences of systemic lupus erythematosus and that you were a co-principle investigator. Does that ring a bell, is that accurate?
A. It is accurate.
Q. Okay. And did this grant have to do with the study of anything related to gender dysphoria?
A. No.

Q. Or transsexualism?
A. No.
Q. Or the study of transgender adults?
A. No.
Q. Or transgender adolescents?
A. None of the above.
Q. Okay. Or prepubertal children with gender dysphoria?
A. I think you asked me that question already.
Q. I was speaking, Dr. Levine, with respect to this specific grant. I asked you with regard to the previous 23, but.
A. No, this grant did not involve knowingly transgender people.
Q. Okay. You also list that you received five separate grants from the private Sihler Mental Health Foundation, is that correct?
A. Yes.
Q. Of these five separate grants did any of them relate to the study or treatment of gender dysphoria?
A. No.
Q. And to the study or treatment of transgender adolescents?
A. No.
Q. Or prepubertal children with gender dysphoria?

A. Only to the extent that the grant helped us to set up the Center For Marital & Sexual Health. The Center For Marital & Sexual Health had a program called the Case Western Reserve Gender Identity Clinic, and so this was, this was not a grant for research, this was a grant for the establishment, the administrative establishment of our center that dealt with many sexual, all sexual things including trans phenomenon. We didn't in those days call it so much trans phenomenon, but we called it gender identity problems.
Q. Right. So one of the grants was used to start the Center for Marital & Sexual Health, but those five separate grants were not for the study or, or direct treatment under the Sihler Mental Health Foundation?
A. That's correct.
Q. Okay. But the Center For Marital & Sexual Health, as a clinician there you saw a wide range of patients there, right?
A. Yes.
Q. With a variety of problems related to sexuality or sexual well-being?
A. Yes.
Q. Okay. And did you treat any children with gender dysphoria at the Center For Marital & Sexual Health?

A. If I can clarify your question, by you do you mean me personally or do you mean under me as the supervisor of people who did that?
Q. Let's start with you personally.
A. Yes, I have only on a rare occasion personally treated or directly or indirectly treated a child. My center, however, over the years has, has seen children and, and I've been involved in the, the treatment as a supervisor of those children.
Q. Okay. So you've reviewed their cases by way of your supervision of clinicians at the center, but not individually?
A. That's right.
Q. Okay. And is that the same for any adolescents with gender dysphoria who were seen at the center? In the early years I'm talking about now, not in recent times.
A. Well, in the early years I occasionally saw personally an older teenager, older adolescent, but in the early years you must understand most of the patients were adults.
Q. Okay. So to your knowledge, Dr. Levine, have you received any grants to study the treatment -- I'm sorry, excuse me. Have you received any grants to study treatment for adults with gender dysphoria?

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A. The specific answer to your question is no, I did not receive grants from independent agencies to study gender dysphoria.
Q. Okay. And what about to, did you receive any grants to research or publish about the treatment of gender dysphoria?
A. I received a $5,000 grant to publish, to work on, to develop an article on informed consent which of course involves the treatment of people with gender dysphoria.
Q. And what's the name of that grant?
A. It's from the Society for Evidence Based Gender Medicine and I, I, I don't really have a, I don't know the answer any further than that, that is a grant number or something, I couldn't tell you.
Q. Okay. So is that, that's not a payment through, excuse me, that is not a grant that's received through a foundation?
A. No, it's, it was, it was a, a grant payment to work on a project to develop an article.
Q. Okay. And when did you receive that grant approximately?
A. I think I got, the grant was discussed probably beginning in January or February of 2021 and I think I received the payment or the check in May of 2021.

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Q. Okay. And the Society for Evidence Based Gender Medicine I'm going to refer to today as SEGM, will you know what I'm talking about when I use that term?
A. I will.
Q. And SEGM is not a National Institute of Health organization, right?
A. Correct.
Q. And it's not a philanthropic foundation as far as you're aware, right? And by that I mean it is not an organization that receives -- well, let me, let me, let me stop there. Go ahead and answer the question if you know, if you know the response.
A. It depends on what we mean philanthropic, I don't know what you mean by philanthropic.
Q. Yeah, okay. Did you say, Dr. Levine, you were, you received a check after you published the article?
A. No.
Q. So walk me through the timeline again. You were, the grant was presented to you when?
A. Let me clarify this word grant because grant generally refers to an amount of money given by, given to a 301, a 501(3)(c) organization to conduct a specific project, and so in, in medical literature, in the medical tradition, that's what a grant is, but grant has other meanings.

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So this organization, SEGM has, was interested in developing an article on informed consent. I had written previously about informed consent, I had published previously about informed consent, and SEGM contacted me about this and they had read some of my other writings and we were in discussion about, about whether this would be a useful contribution --
Q. I'm sorry, Dr. Levine, let me just, let me just stop you there. I, my question was when was the grant initially presented to you, and I appreciate your explanation that this is not a grant in the way that I'm using the word, so let's, let's not call it a grant. I'm going to refer to this as funding because what I was asking about previously were, were in fact 501(c)(3) grants from, from, you know, nonprofit, not for profit organizations.
A. Right.
Q. So, so let's call this a, a funding that you received from SEGM. When did you, you said previously they approached you in January of '21 with a proposal to write this article, is that right?
A. I, I can't, I'm not very confident about whether it's December or January. I do know that at the beginning of the year for no later than February I started writing draft reports, I started writing about

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informed consent. And the plan was to write an informed consent general piece and then a piece as it related to children and then a piece that related to young adolescents, a third piece about older adolescents, and then there was some question whether it would, we would have a separate piece on young adults.
Q. Okay. So let me, let me stop you there. There were four articles that were, that SEGM provided funding for you to --
A. No.
Q. -- write?
A. No. You, you've interrupted me and I haven't finished my explanation to the first question.
Q. Well, I asked about a timeline, Dr. Levine, and now you're telling me that there are four separate articles.
A. No.
Q. So I'm trying to clarify what you're saying here.
A. So if you would stop interrupting me, please, I don't mean to be impolite. I was trying to explain this. The original idea was that we might need four articles about informed consent because informed consent would be a little different in dealing with a seven-year-old and dealing with a 17-year-old.

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But as, so in, in, in February I began writing about this and the interactions of the writing with other members from SEGM, it led to a rapid evolution and a very, very different concept as, as the work unfolded. And so the idea of the four articles began to diminish as we added substance and we had more reading and more, more scholarship about, about the article.

So by the time I had started writing this in February and the payment for this writing arrived in my, at home in May I believe, I continued writing this and we submitted an article that was so substantially different than what we originally conceived, which is not an unusual thing when you are writing, that the idea of four, four separate articles seemed to have dissipated, it doesn't seem to be necessary.

So we submitted this, we submitted this for review I think in the late fall and it eventually got published online in late February of this year, so there was one payment. And the idea of four articles has gone up in smoke and, and we're still thinking about whether there needs to be a follow-up article, but the, but no decision has been made. So the grant was not for four articles, the grant was for this writing project.

Q. Okay. So the timeline was payment in May, writing began in February of 2021, it sounds like then

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was finally published in its, in its formal version in February of 2022, is that right?

A. Yes, online, yeah.

Q. Online. And which journal, was it in a journal online?

A. Journal, it was published Open Access.

Q. Okay.

A. In late February this year.

Q. And, and can you just tell me what Open Access means?

A. Open Access is a program that enables any reader who wants to download the article that they can download it for free. Open Access as opposed to the traditional way that publications have been handled until the last perhaps three years, maybe four years where the only people who could get access to the article were the subscribers to the journal and other people had to get it through a library system, a medical library system where they could pay the publisher for the, for the opportunity to get a copy of the article.

Q. I see.

A. So Open Access is a way of, of either of allowing more people to read the article without having to pass through a payment system.

Q. And, and so because it was Open Access, it

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didn't go through a peer review process in a traditional journal like you said?

A. No, that's incorrect. This article was peer reviewed, it was peer reviewed by three, at least three people.

Q. And those three people are members of SEGM?

A. No, no.

Q. Who was it peer reviewed by?

A. The journal sends out a submission, we submitted it to the journal, they sent it out to three people that we don't know the names of who provided a critique of the article. And, and we then responded to those critiques and then we resubmitted the article to, for re-review and we got comments back again from, from the reviewers and then we submitted a final version that was accepted by the editor and the reviewers and that is what is published online Open Access.

Q. So --

A. SEGM, SEGM had nothing to do with the peer review.

Q. Okay. So it was, it was published in a peer review journal is what you're saying?

A. Absolutely.

Q. And what was the name of that journal, I don't know that I heard you say that?

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A. I, I actually did say it, it's Journal of Sex & Marital Therapy.

Q. Did that journal, excuse me. Did that article involve any new data collection on your part?

A. Would you repeat that question, please.

Q. Yes. Did that article that you were just speaking about involve any new data collection performed by you?

A. No, this was a scholarly article synthesizing the literature. It was not inherently a research article where any experiment was done, it was the synthesis of multiple other articles, I think over 100, I think there were 107 articles cited.

Q. And you don't generally collect data in this field, right, Dr. Levine?

A. I collect clinical experience in this field and I have done data related articles in the past, but including in the '80s on transgenderism. And but in answer to your specific question, generally my work is much more synthetic, that is integrating what I understand from my clinical experience and what I understand from published literature.

If you look at my CV you could see that I've been the editor of a major handbook in clinical sexuality which of course integrates all kinds of

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information in multiple fields, including transgender.
Q. And so to be more specific, what I mean is you don't create, design and implement studies of large number of patients, large numbers of patients in trans medicine, right?
A. That's right.
Q. Do you collect clinical data from other clinicians?
A. Well, I have a team of clinicians that I've always worked with and so we have -- I'm hesitating because you use the word data. We, I think if you mean data in a strict scientific way, the answer is no. If you mean data in terms of accumulating clinical experience, the answer is of course that's what I've been doing all my life.
Q. Right. So you write about your own clinical experience and sometimes reflect on the work of other clinicians, right?
A. That's right.
Q. You don't yourself then, Dr. Levine, collect data through participant studies and analyze it and later publish it, right?
A. I haven't done that for a number of decades. I did that in my earlier career.
Q. Okay. Thank you. And you haven't been part of

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a published systematic review, right?
A. I don't understand that question.
Q. Let me be more specific. You have not been an author on a published systematic review of literature, scientific literature related to trans medicine?
A. That's not correct at all.
Q. Okay. What is the systematic published review that you have been involved with?
A. Well, the, the article that I just mentioned that's Open Access, and that has been downloaded as of yesterday 21,433 times, is in fact a systematic review of many aspects relating to informed consent. And the previous publications that I've had on, in this field also have involved the integration of published data and my, and my clinical experience, so I have systematically reviewed these things.
I don't think I'm permitted to talk in any detail about this, but I am a member of a Cochrane group out of Ireland that is participating, that is creating documents for the review of puberty blockers and, and cross sex hormones for children, for adolescents, but I'm not able to talk about the results of that at this point.
Q. Okay. Do you understand what a systematic review is in the way that researchers use that term?

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A. I don't understand what you mean by it, thus the answer, the previous answer to the question. Perhaps you could explain what you mean by it and I could give you a more refined answer.
Q. Okay. So I understand you're saying -- well, how do you understand that term?
A. Well, I understand it in two ways which is reflected in the answer I gave you. A systematic review based upon all of the available literature done by a committee of people, many of whom are not clinicians but who are methodologists, that's what the Cochrane reviews do. I am a member of that committee, so I have participated in the systematic review in that sense. But when you're writing an article expressing concerns, opinions or conclusions, of course it is based upon a systematic review of, of a literature, but perhaps little more selective literature. So I've answered the question by two different nuances of understanding of what systematic review means.
Q. Okay. Thank you. So I'm referring to the former, not the latter, a systematic review as a summary of the medical literature that uses explicit and reproducible methods to systematically search critically appraised and synthesize on a specific issue, that sounds like the former description that you were

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providing?
A. That's right.
Q. So you're saying, assuming a systematic review is what I just described, have you ever performed a systematic review under that definition?
A. I think I've answered that question already. Did I --
Q. Are you, so your, your answer to that is the Cochrane review?
A. Yes.
Q. And when, when did you -- sorry, let me back up. That Cochrane review has not yet been published?
A. That's right.
Q. When did you join that Cochrane review committee?
A. Sometime in 2021, probably middle.
Q. Okay. So other than that Cochrane review committee, any other systematic reviews that fit that description?
A. No, I have not been part of the commission or the group of people who have performed those reviews. This, the Cochrane is the only time I have been involved with that level.
Q. Okay. Thank you. So on Page 3 of your report, Dr. Levine, the last lecture that you list having given

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is on March 12th of 2021?
A. Yeah, this is --
Q. Can you see your report?
A. You're talking about my CV, right?
Q. No, I'm looking at Page 3 of your report that's Exhibit 1.
A. I have to get, you have to help me get back to that. Do I have to refresh?
Q. I would say try to back arrow and then try to refresh, yes.
A. Yeah, all right. All right. Page 3 you said?
Q. Yes, of your report.
A. All right.
Q. It's at the bottom of Page 3.
A. "Psychotherapy approaches, invited lecturer at the American Association." I'm sorry, this is really a, this is another aspect of -- I'm sorry, ask me your question again, please.
Q. Sure. So on Page 3 of your report at the bottom, it's Paragraph No. 6, it begins, "Over the years I have lectured frequently to professional groups," do you see that sentence?
A. Yes.
Q. Okay. "During the previous two years these lectures have included." So my question is, looking at

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the, the sub point No. 1, it's entitled, "The mental health professional's role with the transgender," do you see that?
A. Yes.
Q. So my question to you is, have you given any lectures since that March 12, 2021 lecture you list there?
A. Yes, I have.
Q. And, and can you please tell me the names of those lectures?
A. On January 26, 2022 I gave a four-hour workshop to the Harvard student health service faculty or staff on transgender issues. I'm in preparation, let's see, where else have I talked. I have, in June of last year I was invited to give three lectures on transgender issues at the Henry Ford Hospital in Detroit in June of 2022, so I'm in the process of preparing those lectures. I am blocking on several other lectures. If I could pull up, I don't know if I can, if I would, if I pulled up my CV, my current CV I could give you, I could answer that question more specifically.
Q. That's okay, Dr. Levine, the answer you provided is sufficient. And I have a few more questions on the report, so let's stay here for the time being.
A. Okay.

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Q. So I was going to ask you about the four-hour workshop at the Harvard Student Clinic, excuse me, Student Health Clinic at Boston in you said January 26th of this year?
A. Yes.
Q. What was that workshop about generally?
A. I was, it was generally about the chain of trust about, about, it was, it was raising -- well, let me start again. It was first about identity in general and then placing gender identity in the context of sexual identity in the context of human identity. So that was a very important beginning of, of talk about the characteristics of identity in general and how those characteristics apply to gender identity and orientation and, and the intention component of sexual identity.
And then it was about informed consent and it was about the mental wellness of transgender people, especially adolescents, because at Harvard University they're dealing with adolescents, adolescent Harvard students. So we talked about what is the basis of, what is the scientific basis and I discussed about the Dutch experiment and the limitations of that experiment.
I talked a little bit about language and how the effectiveness of WPATH's political advocacy and in educating mental health professionals and how the data

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that, that the treatment protocols for, for trans people have, are based more on precedent on history than they are about the scientific verification of the claims of those treatments. And that got summarized in terms of what I call the chain of trust upon that medical education rests upon, and that is every medical student or every psychiatrist or mental health professional has to learn over 200 different disorders and it's not possible for anybody to understand the scientific basis of the treatment recommendations. Education, medical education trickles down from policymakers from researchers to various teachers and the teachers take that information and then give it to their students and the chain of trust is based upon exactly that, trusting that --
Q. Okay. Dr. Levine, I said generally what the, what the workshop was about, we're now into specifics, so I think that's a sufficient answer. Can I ask, did you provide this workshop in person at Cambridge?
A. I was scheduled to do it in person and Jet Blue changed the time of my flight that made it impossible for me to get there, so it was virtual.
Q. I see. And you said this was a workshop provided to the clinical staff of that clinic?
A. Yes.

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Q. Okay. So as far as you understand, there were not any Harvard University students in attendance, right?
A. As far as I know of.
Q. And did they inform you about how many people, how many health student clinic staff were in attendance at your workshop?
A. I think there were about 50.
Q. Okay. But was that your estimation or did someone tell you that?
A. Well, I'm not sure, no, I had all these gallery views in front of me.
Q. I see. So you're estimating based upon the number of little boxes in the Zoom screen potentially?
A. I think the organizer told me too, but it's not something I committed to memory.
Q. Fair enough. And who was the organizer who invited you to give this workshop?
A. Barbara Lewis who's the head of, the head person of that unit, she's a psychiatrist.
Q. Thank you. So you mentioned before we started talking about this workshop that you are scheduled to give lectures at the Henry Ford Hospital department of psychiatry in Detroit in June of this year?
A. Yes.

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Q. Okay. So those lectures haven't happened yet, those are just ones that are on your schedule to happen?
A. Yes. I think I, I also gave grand rounds in the fall of 2021 at Akron General. Not at Akron General, at, yes, at Akron General Hospital, department of psychiatry and behavioral health.
Q. Yes, that's, that's listed here, Dr. Levine. But my question is, your, your report says you have given these lectures and the, the Henry Ford, I'm just confirming the Henry Ford lectures haven't yet happened, that's, that's my question?
A. That's correct, I think I made that clear.
Q. Okay. So on Page 5 of your report, just scrolling down from where we were, you list your experience as an expert witness. I just want to confirm that, I want to confirm the various cases that you have served and provided expert testimony either by deposition or trial testimony. So you've listed some cases that you've been involved with here on Page 5, but this is not an exhaustive list, right? What I mean by that is, this is not a complete and total list of all the cases of which you've provided testimony?
A. I think quite recently I, I became aware that it wasn't an exhaustive list and I, I think either the exhausted list would be 19 or 20 now. I was unaware, that's all.
Q. Okay. It doesn't have to be exhaustive and you didn't indicate it was, I'm just confirming for the record that that's accurate. So let me, let me just follow up on a few other matters I know you've been involved with, and after we go through this, Dr. Levine, we'll take a brief break for water and the restroom, okay?
A. Fine.
Q. So you've offered expert testimony in a case entitled Edmo v. Corizon in Idaho approximately 2019, 2020?
A. You know, I'm not clear about that case because I think my name was entered into that case. What I did was give a -- I'm sorry, let me just, I'm confused, that, that case confuses me. I think I might have given expert testimony in that case if that case is about athletics, but if that case is about a transgender prisoner, that's a whole other matter.
Q. Okay. So the case about athletics in Idaho is entitled Hecox, and that you can affirmatively say you provided testimony in, right?
A. That, yes, yes.
Q. Okay. But as far as Edmo v. Corizon, you're not sure that you affirmatively provided any testimony, but rather that your name was mentioned?
A. Yes, that's what I think, yes.
Q. Okay. That's fine. And what about the case out of California regarding a prisoner Norsworthy versus Beard, you submitted expert testimony in that case though, right?
A. I did just a report, I was never deposed.
Q. Okay.
A. Yeah.
Q. And a case in Florida, Klair versus Florida Department of Management Services, a case from 2019 about health insurance coverage?
A. Yes, I think I, I had a deposition in that case.
Q. And a case also in Florida, Keohane versus Jones in 2017 which was about gender affirming care for someone in prison?
A. I testified at trial.
Q. And I believe you also gave a deposition in that case as well, correct?
A. At the moment I don't recall, but I do recall being in trial.
Q. Okay. And then there was a case Soneeya versus Turco and you gave a number of different kinds of testimony in that case that includes two depositions and some trial testimony in 2019, right?

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A. Yes.
Q. And more recently, and by that I mean either in late '21 or early '22, were you deposed in a prison case in Connecticut, I believe the name is Clark versus Department of Corrections or something like that?
A. That's correct.
Q. Okay. And, and then as you said earlier today, you gave a deposition just about a month ago in the case BPJ versus West Virginia, a case about law banning trans children from playing on sports teams, right?
A. March 30th.
Q. March 30th, okay. And in that case was your testimony about athletics or what was your testimony about there?
A. That's a double question. It was not about athletics, my testimony was about the science of trans care.
Q. Okay.
MR. CHARLES: Let's go ahead and go off the record, Kraig and Kelley, please.
VIDEO TECHNICIAN: We're off record at 10:29 p.m.
(A break was taken at 9:29 a.m.)
VIDEO TECHNICIAN: This is media No. 2 in the deposition of Dr. Stephen Levine. Today is

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April 27, 2022. We're going back on the record at 10:36 a.m.
BY MR. CHARLES:
Q. Okay. Dr. Levine, talking about your writing credentials, you've testified previously that you were involved in drafting portions of the WPATH standards of care Version 5, right?
A. Yes, I was the chairman of that group.
Q. And besides that, have you developed -- let me back up. Have you helped to develop treatment guidelines for the treatment of children or adolescents with gender identity issues?
A. If you mean have I been part of a national or international group that tried to, to publish, that published guidelines about the treatment of these individuals, the answer is no. But in my November of 2021 article I gave, I offered my opinions about what the evaluation of adolescents and children ought to consist of. In that sense I'm hoping that would influence the guidelines of those committees who might function in the future.
Q. I see. When we spoke in September of 2021 for the Kadel vs. Folwell deposition, you said that you were working with SEGM to develop some treatment guidelines. What, what happened to those?

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A. They, I think they, I think they've been stalled in some way. The committee that I was part of no longer meets and I'm not exactly sure what SEGM is up to in terms of ever publishing guidelines. So I don't think I can answer that question other than the committee I was on no longer meets.
Q. And that was, just to confirm, that was the psychiatry committee?
A. No, it was, it wasn't, no. It was a group of mental health professionals, but they weren't all psychiatrists.
Q. Okay. Was there a formal name for that committee, do you know?
A. I think there was perhaps an informal name for it.
Q. Informal would be fine, thank you.
A. Yeah, I think it was probably called the treatment team or the psychotherapy team.
Q. And when --
A. That's the best I can do.
Q. That's fine, that's fine. Do you recall approximately when the last meeting you had with that committee occurred?
A. I, I don't think I can accurately tell you, but I would guesstimate in December of '21.

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Q. Okay. Thank you. Okay. Dr. Levine, I'm going to introduce another exhibit now.
(Exhibit 3 marked for identification.)
A. It's not on my list.
Q. It's taking a moment to load. Okay. Refresh the page and see if you can see it now.
A. I see it.
Q. Okay.
MR. CHARLES: So for the record, I'm showing the witness what has been marked as Exhibit SL03.
Q. Have you seen this document before, Dr. Levine?
A. Oh, that's my deposition. I don't, I don't know if I have read this deposition.
Q. But it, you understand it to be the transcript of your deposition from March 30th that we discussed?
A. Yes.
Q. Okay. So just to orient you to the document, Dr. Levine, the page numbers are located in the lower right-hand corner.
A. I see.
Q. Okay. Just a moment. Okay. We'll come back to this in just a moment, Dr. Levine, if you'll just leave that on your screen.
A. Mr. Charles, is there a way that I could

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actually see you when you're talking to me?
Q. So will you confirm that you are only working with one screen right now?
A. I, I have a picture of myself and I have a picture of document 3.
Q. I think unfortunately, Dr. Levine, because the deposition is being recorded, I don't know that you can view other windows.
A. Okay.
MR. CHARLES: Kraig, is that right?
VIDEO TECHNICIAN: That's, that's accurate, yes, unfortunately we have to spotlight the witness and to, to have a backup recording.
MR. CHARLES: Yeah, that's my understanding, so.
BY MR. CHARLES:
Q. Okay. So in your report in your CV, Dr. Levine, you talk about your employment experience as an assistant professor of psychiatry at Case Western Reserve University Medical School, is that right?
A. Yes, that's how I began with that distinction.
Q. But you're not currently full-time, a full-time employee at the University Medical School, right?
A. No, I'm not.
Q. And you haven't been since approximately 1993?

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A. Correct.
Q. And you don't teach graduate or undergraduate in the traditional understanding of that, right?
A. Right.
Q. But you do sometimes give workshops?
A. And grand rounds presentations.
Q. Seminars or lectures as well?
A. Yes. And I also have residents spend time with me seeing patients with me.
Q. So you do have a resident who might visit your clinic at DELR for a period of time, correct?
A. Yes.
Q. Okay. And you also lead two clinical case conferences per week where students, residents or members of the community come in and you discuss case studies, right?
A. We discuss people in treatment and most, most of the presenters are staff members, the residents are mostly just passive listeners.
Q. Say that again for me, the, the presenters are who?
A. They're members of the staff.
Q. Okay.
A. They're not in training any longer.
Q. Okay.

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A. They, they present their cases to, to this, to the group and I'm the leader of the group.
Q. I see. So just to make sure I understand, so the, the staff members at DELR who are other clinicians, psychiatrists, mental healthcare providers, they present the cases and the residents listen?
A. Yes, and on rare occasion I present a case.
Q. Okay. Do you, just offhand, do you recall the last time you did that?
A. Yesterday.
Q. Oh, okay. Were you in person or was it virtual?
A. I had a resident with me in my office and the staff was virtual, but they were all in their individual offices in our suite.
Q. So together, but separate?
A. Yes.
Q. Okay. Before your case presentation yesterday, Dr. Levine, do you offhand recall the last time you gave one of those?
A. To make this very simple, this is done Tuesdays and Thursdays every week.
Q. Thank you. I, I meant, you said on rare occasion you present yourself, so I was just wondering, you said you presented yesterday, but then that it was rare for you to do so because typically it's the staff

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who were presenting. So I was just wondering when offhand was the last time you did that since you said it's somewhat rare that you are the presenter?
A. One month ago.
Q. Okay. Thank you. When you were teaching at Case, excuse me. When you were working full-time at Case Western from 1974 to 1993 did your teaching take place in the, in the traditional way I just discussed as providing graduate or undergraduate courses?
A. I occasionally would give a lecture in someone else's semester long course, but most of my teaching had to do with case conferences and, and leadership in I think five separate sexual oriented clinics that we ran. So I'm not, in psychiatry psychiatrists are not teachers generally as college professors are teachers or people teaching graduate schools, it's much more service oriented. Teaching in the, in the provision of clinical services, in that sense I am a teacher.
Q. Teaching by doing it it sounds like more?
A. No, it's teaching by supervision, teaching by doing it and teaching by, by having people watch me do it, so to speak.
Q. Understand.
A. Yeah.
Q. And, and your work at Case Western from '74 to

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'93, it wasn't specifically about transgender people or gender dysphoria, it was about the whole spectrum of identity and sexuality, right?

A. But included, it included the Case Western Reserve Gender Identity Clinic which I founded in 1974 I think.

Q. Understand. I'm just confirming that your area of supervision and, and teaching was much broader, included many other things?

A. Well, yes.

Q. Okay. So if you would, I'm going to reference your report, if it would be helpful for you to have it in front of you. On Page 1 it references, or rather states that in 1974 you founded that gender identity clinic that you just mentioned and that you served as co-director since that time, is that right?

A. The answer to your question is that's right, but I'm looking at your Exhibit 3, but I don't think you're making reference to Exhibit 3 at the moment.

Q. No, I'm referencing your report. And if it would be helpful, you can hit the back button and refresh and go back to that exhibit. But I think you can probably talk about, you can probably answer my questions without looking at it, but if you would like to have it in front of you, it's Exhibit 1.

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A. Okay, all right.

Q. Did the, did the gender, was the Gender Identity Clinic ever synonymous with the Center For Marital & Sexual Health?

A. The Center For Marital & Sexual Health, when I left the University's geographic full-time employment status I established the Center For Marital & Sexual Health and the Center For Marital & Sexual Health continued the work in gender identity with gender identity problems.

Q. So that would be then what you were referencing in your report when you say that the Case Western Reserve University Gender Identity Clinic was renamed, moved to a new location and became independent of Case Western, right?

A. That's right.

Q. Okay. And that change came about because of some philosophical differences in the department or budgetary limitations?

A. I don't believe it had anything to do with philosophy. It had to do with budgetary problems and, I mean, I'd be happy to explain it, but I think you wouldn't be interested in the explanation ultimately.

Q. Yes, that summary is fine, thank you. And so did you change the name at some point when it became

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independent?

A. Yes, we were no longer the Case Western Reserve Gender Identity Clinic because that would have the imprimatur of the University and since we didn't belong to the University it didn't seem appropriate to change that, to use that name. And the, we didn't realize that, but the University wrote us a letter and, and told us about that and we just changed the name.

Q. Understood. And is that also the point at which you became clinical faculty at Case Western, right?

A. Yes. Sometimes the term geographic professor, meaning I'm on location and it means that I'm salaried, and clinical professor means that I retain my rank as professor and my, my relationship to the University, but I'm no, I'm no longer onsite, that is I'm not geographic and I no longer get a salary for my work.

Q. I see. And did you practice at any point, Dr. Levine, at the University Hospital there in Cleveland?

A. Well, I had from, from 1970 when I started my residency program and until I left the University I, I practiced onsite geographically, took care of patients in the hospital and in the outpatient department. And after I left I still had privileges to take care of people in the hospital, but eventually since I wasn't doing that I gave that up.

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Q. Okay. Thank you. Are you familiar with the University Hospital's LGBTQ and gender care program?

A. Not very much so, no. I know that there is a program there.

Q. Okay. And you haven't ever been affiliated with it though, have you?

A. Never.

Q. Okay. So you haven't evaluated or met with any adult or child patient through that program?

A. That's right.

Q. And you haven't ever been asked to consult with any of the psychiatrists at that program?

A. Never.

Q. And the DELR Private Gender Diversity Clinic has not been affiliated with the gender care services program at University Hospital, right?

A. Right.

Q. So again, I'll be referencing your report for a few moments here, Dr. Levine. But again, I don't, I don't think it's necessary for you to review it, but if you would like to put it on your screen, let me know. I'll be on Page 2, Paragraph 3.

A. Of my --

Q. Of your expert report.

A. 01, Exhibit 01, okay.

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Q. Yes, Exhibit 01.
A. Would you give me the pages again.
Q. Sure, Page 2, Paragraph 3, so that will be the top of Page 2, the paragraph does begin on Page 1.
A. Yeah.
Q. Okay. So in that paragraph your report states that, "During this era an occasional child was seen." By this era do you mean from around 1974 to 1993?
A. Yes.
Q. Okay. And by occasional do you mean infrequent?
A. Infrequent is a good word.
Q. So is it fair to say during that period your clinic did not see many children with gender dysphoria?
A. It's fair to say that.
Q. And in your deposition on March 30th you estimated that over the course of your career you've probably only seen regularly six prepubertal children, right?
A. It's an estimate, yes.
Q. And around 50 adolescents, give or take?
A. Give or take an unknown number, yeah, ten, 12, five.
Q. Sorry, so you --
A. I've had extensive experience talking to adolescents over the course of my career, adolescents

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with gender dysphoria.
Q. And, and those without?
A. Those without gender dysphoria?
Q. Yes.
A. Yes, I've seen adolescents without gender dysphoria.
Q. And sorry, I'm just trying to understand. You, you testified in your deposition on March 30th that you had seen, again, regularly, which means at least one visit, likely more, approximately 50 adolescents, is that, again give or take, accurate from your view?
A. It's an estimate, or I would say a guesstimate, G-U-E-S-S, estimate.
Q. Fair enough. So backing up a little bit, Dr. Levine. I used this acronym without confirming that we had a shared understanding of what it is, the term DELR which stands for DeBalzo, Elgudin, Levine & Risen, is that the name of your private practice, not yours, excuse me, the private practice where you work?
A. It is.
Q. Okay. And that's where you moved the Gender Identity Clinic after 1993, right?
A. Well, technically speaking we moved it to the Center For Marital & Sexual Health and in 2017 my partner and I sold the practice to DeBalzo and Elgudin,

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and so we renamed the practice DELR. And but continuously through the Center of Marital & Sexual Health and DELR we have been seeing trans teenagers, trans adults and occasionally a trans child.
Q. Okay. Thank you. I'm going to introduce another exhibit here.
(Exhibit 4 marked for identification.)
MR. CHARLES: Well, hang on a second, I did not stamp the exhibit. Kelley, can we do that afterwards or do I need to go back and stamp it now?
COURT REPORTER: We can do it afterwards.
MR. CHARLES: Okay.
BY MR. CHARLES:
Q. Dr. Levine, you may have to refresh your screen to see this. The title of the document is, "Special programs."
MR. CHARLES: And for the record, this will be labeled Exhibit SL04, but it is not yet so stamped.
A. Yes.
Q. Let me know when you can see that, Dr. Levine.
A. I will. It's still loading.
Q. Okay. Is it still loading, Dr. Levine?
A. It has not appeared yet.
Q. Okay.
MR. DAVID: Doctor, go ahead and try to

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refresh your browser, the page again.
THE WITNESS: Okay.
A. Okay, now it is here.
Q. Okay.
MR. CHARLES: So for the record, I'm showing Dr. Levine what will be marked Exhibit 4.
Q. Dr. Levine, I'll represent to you this is a printout from a page of the DELR Website. Have you seen this material before?
A. I didn't write it, it probably wasn't passed through my purview, so I'm not sure I ever saw it before. But, you know, I'd be happy to read it with you.
Q. Okay. Why don't you take a look at the gender diversity program section, it's the second paragraph on that page. Do you see that paragraph there?
A. Yes, I do. I'm reading it.
Q. Oh, yes, please, go ahead.
A. I'm finished.
Q. Okay. Thank you. So even though you did not draft this, or as you say, Dr. Levine, it didn't pass through you, would you say that this is still an accurate representation of the programs and services offered at DELR where you see patients?
A. Well, in a theoretical sense, yes, it's

accurate.
Q. What do you mean theoretical?
A. Well, I'm not so sure that we have a collaborative relationship with surgeons.
Q. What do you mean by that?
A. Well, in the, in the early days we had surgeons on our staff and we had endocrinologists and surgeons that occasionally attended our conferences. But since DELR has been in existence, we don't have anyone that we consider to be an affiliate member of our staff who's an endocrinologist, pediatric or adult, and we don't have a plastic or urologic surgeon that we regularly refer to. So when patients want to have those experiences we sometimes, you know, tell them where they might go to get an endocrinologic consultation, but they're not really members of our staff, those doctors, and surgeons seem to function independent of us.
Q. I see. So going back to Exhibit 2. I'm sorry, that would actually be Exhibit 1, your report.
A. I'm there, yeah.
Q. Okay. Actually, never mind. Give me just a moment, I'm having an issue here on my end with an exhibit. Okay. Actually, Dr. Levine, in Paragraph 2 of your report, not Paragraph 3, you mention that you are a distinguished life fellow of the American Psychiatric

Association and you explained last September that that is a, a distinction, and I'm paraphrasing here, but that's a distinction that they give most clinicians if they are practicing long enough and they're still alive, is that, is that how you described that?
A. Well, I don't have that in front of me, but I, that's my cynical view about this. I, I think the primary qualification is that you have never been disgraced and that you've been a member of the American Psychiatric Association for a large number of years, and there may be some additional criteria that is based upon contributions to the field, but I am not aware of that at the moment. Maybe I am more distinguished, maybe, maybe, you know, maybe the word distinguished means more like you've contributed in some way to the advancement of understanding or the, or the advancement of service delivery, but I'm not sure. I just accepted the accolade, or the new title.
Q. Okay. So going back to the practice at DELR. You've testified before that various staff at DELR accept a variety of kinds of insurance, is that right?
A. Yes.
Q. But you yourself only accept Medicare, is that right?
A. That's true.

Q. Not private insurance?
A. That's true.
Q. Or Medicaid?
A. Well, no one at our, our center accepts Medicaid.
Q. Okay. And that includes you, right?
A. Is that a question? Yes, it includes me.
Q. But there was a time in your career where you accepted private insurance for your services, right?
A. When I was at the University Hospitals I was on salary and, and so when I functioned as a clinician for University Hospitals I could see anybody with any kind of insurance, including Medicaid. And in fact, probably many of our early patients were Medicaid patients.
Q. And that was, as you say, before -- excuse me, that was as you say between '74 and '93?
A. Yes.
Q. Okay. And you, you've testified before that as a general matter you think it's nice for patients to be able to use their insurance coverage for mental health care when they need it, right?
A. I don't recall if I testified to that, but I think it's a nice idea, yes.
Q. And do you still think it's good that not affluent people or not wealthy people can access mental

healthcare?
A. Yes.
Q. And you testified in the Klair deposition that you provided that if you provide a letter of authorization to a patient for endocrine treatment, it's nice if they can access that treatment if it might be helpful to them, right?
A. Yes.
Q. And if you were treating a patient and determined that they understood the risks and you and the patient agreed the treatment would be -- actually, let me back up, sorry. When you authorize medical interventions for transgender patients, Dr. Levine, you don't use the word medically necessary, right?
A. I generally do not.
Q. Is it correct to say that you use the word psychologically beneficial?
A. Yes, it may be psychologically beneficial.
Q. Okay. So if you were treating a patient and determined, as I said before, that the patient understood the risks and you thought the treatment would be psychologically beneficial, you would want the patient to then be able to access that care, right?
A. Did you ask me this question expecting a yes or no answer?

Q. Let me ask the question again. If you were treating a patient and determined that they understood the risks and you thought the treatment would be psychologically beneficial and you provided letters of authorization to them, you would want the patient then to be able to access the care, right?

A. If after getting the letter of authorization the patient still wanted to do it, then I had already said to the endocrinologist or the surgeon it's okay with me to go ahead, that I've done my due diligence in this case.

But the reason I'm hesitating, Mr. Charles, is that I've had several experiences, more than several, where I write a letter of recommendation for a desired treatment and then the patient does not follow through as a reflection of ambivalence about what they're doing. So I don't want to say that if I wrote a letter of recommendation for a particular treatment that I would want him to have it. I would say that if the patient still wants to after they have the go-ahead from me who's worked with the patient for a long time, then they may go ahead and do it and they have my blessing. But I am aware of the ambivalence that people have that manifest itself only after they're on the verge of getting what they say they want, and so that's why I

want to not answer your question yes or no.

Q. I understand. And I, embedded in my question and what I can state explicitly is let's talk about the patient who, as you say, does not have that ambivalence, that as you said, you would give your blessing or you have authorized it?

A. Is that a question?

Q. Yes.

A. Well, No. 1, theoretically I think any reasonable human being would have ambivalence about changing their body, and so.

Q. Dr. Levine, sorry, I don't think you're understanding my question. Let me, let me restate it for you.

A. Yes, okay.

Q. So I, I appreciate what you've described the nuance, but I, that's not my question. The question is, you've provided the letter of authorization, you're not working with the patient who has ambivalence or who has changed direction or changed course rather in their desires, but rather a patient who has said yes, this is right for me. Given that hypothetical, you would then want the patient to be able to access that care provided there's not any of that ambivalence?

MR. DAVID: Objection to the form.

A. You know, you use the word given the hypothetical. If I give you, if I grant you that hypothetical, you need to grant me the hypothetical that even people who present themselves as having no ambivalence have ambivalence. And so --

Q. Dr. Levine, I'm, I'm asking, I'm asking the questions, right, and you are answering them in the form that I have provided. So I understand if you don't understand my question, I'm happy to rephrase it, but if your objection is that you would have asked a different question, that is not what is happening today.

A. Okay. I appreciate that. Thank you for the instruction. So the answer to your question is not, is that I would not strongly want the person to have that. I have already done my work, I've already written my letter, I've explained the patient's circumstances as far as I understand them to the endocrinologist or to the surgeon, and then what happens is determined by the patient and is, is determined by the doctor, the, you know, the consultant or the endocrinologist or the surgeon.

It's, I think I'm hesitating because you want me to say I want this to happen and I'm much more sanguine about that, I've done what I think is my ethical responsibility and the rest is up to fate, the doctor

and the patient.

Q. Okay. Thank you for that explanation. What if the only way that a patient could access that care was through a state sponsored healthcare plan like Medicaid?

A. Actually, I don't understand the question.

Q. So would your, would your, if the patient before you, again, you've, you've done your ethical responsibility, you're sanguine about the, you know, about your wish for them to access the treatment, but what if the only way that patient could access the treatment were through a state Medicaid program?

MR. DAVID: Objection to form.

Q. That is to say, what if the patient could not access the care which you authorized and which they still wanted, they could only access it through Medicaid, they could not pay out of pocket, they didn't have private insurance through an employer, their only means to access it was through Medicaid, a state Medicaid program?

A. Well, that would very much get to the point whether science has already established that, that this treatment is, is, will be beneficial both in the short-run and in the long-run for the patient. I actually don't feel like I have the credentials to determine what states should do or insurance companies

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should do about the whole problem of insuring people with this condition, I think it's beyond my expertise.
Given my medical knowledge and given my, what I would like to say my knowledge of the literature, given my knowledge of the patient, I recognize that there are lots of possibilities and I think it would be a shame for some people not to have access to that care and I think even though it's a shame, it poses new developmental challenges for the patient which they may, may very well rise to the occasion and find some other solution to their dilemma.
Q. Okay. So, so you're not offering an expert opinion about what insurance should or should not cover here?
A. Yeah, I believe that that's the policy level done at government level and insurance company level having to do with all sorts of decisions that no doctor, including Dr. Levine, has adequate background information to make that determination.
Q. But generally would it be fair to say you want what is best for your patients?
A. Yes, I do.
Q. Even if they're not wealthy or affluent, right?
A. Even if they're not wealthy or affluent or insurance covered.

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Q. Okay. And you said earlier today, Dr. Levine, that as a part of your practice, your private practice you supervise other staff members and clinicians, right?
A. I have stated that.
Q. If you had to estimate, how many staff members do you supervise?
A. Well, right now I supervise two people who aren't on my staff who, who come to me for supervision, and I would say I supervise everyone on my staff, and my staff varies from month-to-month between probably 12 and 13 people.
Q. Okay. The, the two people who aren't a part of your staff, are those residents?
A. No, they're, one is a child, a 60-year-old child adolescent psychologist who lives in New York and another is a local marriage and, LPC, a licensed professional counselor.
Q. And just, just to understand the, the supervisory, the nature of that supervisory relationship, are they, are they completing hours for some kind of credential with you?
A. No.
Q. Are they --
A. Sorry, I interrupted you.
Q. That's okay. Are they, are they paying you for your supervision?
A. Yes.
Q. Okay. So would you, are they paying you an hourly rate for the supervision?
A. Yes.
Q. Okay. But they are already licensed clinicians themselves?
A. Yes.
Q. Okay. And you also said earlier today that -- well, let me back up. You still see individual patients yourself separate and apart from your supervisory duties?
A. Yes.
Q. When we spoke in September of 2021 you said that in the last year you had seen zero patients under age 11 for gender identity issues. Is that still accurate now seven months later?
A. I just note that you said when we spoke, you and I have never spoken before, I think you must be making reference to something I said in a previous report.
Q. Oh, okay. So let me just, I'm going to introduce another exhibit, Dr. Levine, just a moment.
(Exhibit 5 marked for identification.)
Q. Okay. I've marked Exhibit 5, that would be SL5. I think you may need to refresh the document window.

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A. I got it.
Q. Oh, you can see it?
A. I got it now.
MR. CHARLES: So for the record, this is Exhibit SL05, deposition of Stephen B. Levine on September 10th, 2021 in the matter of Kadel, et al. vs. Folwell.
Q. And you, you said earlier today, Dr. Levine, you remember giving this deposition last year?
A. I did, I do.
Q. Okay. And if you'll just scroll to Page 2 there. Actually, no, that's okay, Doctor, just leave it open for a minute for me, if you would. The page numbers on this document are in the upper right-hand corner.
A. I see.
Q. Okay. So if you could please scroll to Page 51.
A. Getting close, 50, 51, I'm there.
Q. Okay. So then down at line 14, it's about halfway down the page, do you see that? The page, I'm sorry, the line numbers are on the left-hand side of the page.
A. I see it.
Q. Okay. So the question was, "And using that same framing of regular, how many children, so under age 11?

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Answer, in the last year? Question, yes, yes, in the last year. Answer, zero." So I just wanted to refresh your recollection of your testimony there and ask, have you seen, like has that number changed in the last seven months since you provided this testimony?

A. No.

Q. Okay. Let's see. And then on that same page, Dr. Levine, at line 19, it begins, "How many adolescents," do you see that?

A. Yes.

Q. Okay. It says, "How many adolescents in regular treatment for gender dysphoria would you approximate you've seen in the last five years individually, exclusive of your supervision of other clinicians?" At line 24, "Answer, if you ask me the question in the last year, I would have told you five or six, but since you've asked it as a five-year period, I'm at a loss to tell you whether it's 12 or 15." That's on the top of Page 52, do you see that, Dr. Levine?

A. I see it.

Q. Okay. So then has that -- so let me start first, in September of '21 you said in the last year you had seen about five or six adolescents, would that, has that number changed in the last seven months?

A. A little bit, yeah.

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Q. And can you just tell me what you mean by a little bit?

A. Probably, well, it's a little uncertain because sometimes parents come to see me and tell me about their child. And, for example, in the winter parents told me about their child and they scheduled me to see their child next week. Oh, I'm sorry, that's not true, they scheduled to have a follow-up appointment with me next week. I've seen I think two additional teenagers, new teenagers since September the 10th. But I need to tell you that these kind of questions can't be answered by me with any kind of certainty. I mean, I'm certain I haven't seen 25 kids since that time, but whether I seen two or three or four, I'm not really certain. This is not the kind of thing I keep track of.

Q. I understand. Thank you for, for the estimate. If you will scroll on that same document, Dr. Levine, to Page 54.

A. I'm here.

Q. Actually, will you go back to Page 53. Are you there?

A. Yes.

Q. Okay. And so at the top of Page 53, line 2, the question was, "What kind of treatment have you referred any of these adolescent patients for, additional

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treatment besides psychotherapy for the treatment of gender dysphoria? Answer, yes. Question, what kind of treatment have you referred them for? Answer, endocrine treatment." Any of the additional patients that you've seen since September of '21, Dr. Levine, have you authorized endocrine treatment for any of those new patients?

A. I don't think personally, no.

Q. Okay. And generally speaking you testified that in the last 12 or so years you've seen more adolescents than you did in the, in the prior years, right?

A. Yes.

Q. And have you to your recollection, and I'm talking about the whole 48, almost 50 years of your clinical practice, have you provided a letter of authorization for surgery for, for an adolescent? And I can clarify what I mean by adolescent if that would be helpful.

A. It would be helpful if you classified, or clarified what you mean by surgery too.

Q. Sure. So have you provided a letter of authorization for a double mastectomy for an adolescent?

A. I think many years ago the answer is yes. It was, what comes to mind as, as you, as we speak is a 16 or 17-year-old girl who had macromastia and gender

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dysphoria and the consideration was that in her desire to pass given the size of her breast tissue that we thought that surgery would be a requirement for her to actually live. And that was a reversal of the thinking in those days that first people should live in the gender role that they aspire to or that they felt that they belonged to before any, anything like surgery should happen, but this was a very special case based upon her unique anatomy. And I think probably this is 30 years ago I think we wrote a letter for breast removal.

Q. Okay. So was this, was this person a trans male identified person, a trans boy?

A. Yes.

Q. Okay. So let's go back to Page 51, and Page 51 at line 6, just let me know when you're there.

A. I'm there.

Q. Okay. Starting at line 6, "I'm thinking about the last year, approximately how many adult patients did you see? And let's use your framing of 'regular,' so that could be one, for one follow-up visit, or that could be for more, how many adult patients did you see for treatment of gender dysphoria? Answer, approximately six." So my question is, Dr. Levine, since September 10th, '21 have you seen additional adult

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patients for treatment of gender dysphoria?
A. Personally seeing as opposed to supervised?
Q. Yes, thank you.
A. Yeah. I have seen, I guess an 18-year-old would not be an adult by your definition, right?
Q. Not necessarily. Would you define an 18-year-old as an adult?
A. Well, the 18-year old himself describes himself as an adult.
Q. Okay.
A. But he's an adult for certain purposes. Again, these are, these are very difficult questions for me to answer with any degree of certainty. It seems to me I must have seen an adult or two, you know, I have adult patients who come to see me periodically, and whether they have come periodically since September the 10th, I, I can't recall.
Q. Okay. I understand the, I understand your explanation that this is an imprecise science for you, but just to the best of your recollection, let me narrow my question to say these would be new adult patients, so, you know, beyond the five or six that you are regularly seeing in September of '21 in the previous year.
A. I would say that the adult patients that I have

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seen since September 10th have been primarily through my staff and that is through presentation.
Q. Okay.
A. But I can't recall any brand-new person over 21 who has come to see me personally about a trans matter at the moment, and I could be wrong.
Q. Okay. Dr. Levine, we've been going about an hour, would you like to take a break or are you okay to continue?
A. If you give me a one-minute break, that would be fine.
Q. How about if we make it four minutes, we'll come back at 11:45.
A. Okay.
VIDEO TECHNICIAN: We're going off the record at 11:41 a.m.
(A break was taken at 10:41 a.m.)
VIDEO TECHNICIAN: This is media No. 3 of the deposition of Dr. Stephen Levine. Today is April 27th, 2022. We're going back on the record at 11:47 a.m.
BY MR. CHARLES:
Q. Okay. So, Dr. Levine, looking again at Exhibit 5, your, the transcript of your deposition in Kadel. Do you have that on your screen as well?

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A. Page 51.
Q. Okay. Can you please scroll to Page 55.
A. I'm there.
Q. Okay. So at line 13 on Page 55, "Question, okay, and I'm sorry, just by recent, when was the last time you wrote a letter of authorization for a gender affirming surgery for an adult? Answer, probably 12 months ago." So have you written a letter of authorization for a gender affirming surgery in the last seven months, Dr. Levine?
A. I think the last letter -- you, I need to, I need to help you qualify your question. I have in the last seven months given my, my approval to several letters for bilateral mastectomies for members in Mass at Framingham, the correctional institution in Massachusetts. I don't know if that would number two or three, but since September the 10th I believe at least two and possibly three letters. I haven't personally written the letter, but I am the consultant to a group of team that approves such surgeries, and so the answer to the question is yes.
Q. Okay. Thank you. And to your recollection, any, any such letter outside the, outside of that context?
A. Since September the 10th?

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Q. That's correct, yes.
A. Yes, I think the answer is that, no, but I believe at our center someone else has written one letter for bilateral mastectomies.
Q. Okay. Thank you. Dr. Levine, are you familiar with the, the exclusion for gender affirming surgical care in the West Virginia Medicaid Program that's at issue in this case?
MR. DAVID: Objection to form.
Q. You can answer.
A. I'm vaguely familiar that surgical care is excluded currently, but endocrine care is not excluded.
Q. Have you reviewed any documents that, that show that exclusion or was that information just communicated to you by counsel?
A. Verbally communicated.
Q. Okay. And so you're aware that there are categorical exclusions, which means that the exclusions prohibit surgical care related to the treatment of gender dysphoria regardless of a West Virginia Medicaid member's need for it or appropriateness for such intervention?
MR. DAVID: Objection to form.
Q. Let me simplify my question.
A. Thank you.

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Q. The categorical, the exclusion does not investigate or contemplate whether someone receiving West Virginia Medicaid needs or is an appropriate candidate for such intervention, it just prohibits it, period?

MR. DAVID: Objection to form.

A. The categorical exclusion would include surgery for teenagers and surgery for adults, so it would cover removing the breasts or removing the scrotum of a 15-year-old who feels like --

Q. Not my question, Dr. Levine. Let me, let me rephrase again. The, the West Virginia Medicaid Program and the exclusion it maintains, which excludes surgical care for members for whom it is appropriate, it, it just excludes it, you're, you're aware it just excludes it, there's no, there's no conditional considerations or any investigation done into the member's health at all, it just, there's no coverage for that care, you understand that?

A. I, I --

MR. DAVID: Objection to form.

A. I think that's what categorical means, so I think the answer is I understand that at the moment, yes.

Q. Okay. But you don't view your testimony here in

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your expert report as being in support of that exclusion or whether it should exist, right?

A. Yeah, it's my understanding that, that the lawyers who hired me wanted me to testify to the state of science in this field, and, and so I have not been involved with the legal questions, per se, or giving an opinion about those matters. As I sort of indicated to you before, I don't really feel that the, my expertise extends to how the insurance industry works and how governments and legislatives works and so forth. So I, I think the answer to the question is that I'm not considering myself to be expert on the question that you're asking me.

Q. Right. So you're, you, you are an expert about what your testimony is about though, right, and you're saying your testimony is not about whether or not that exclusion should exist?

A. Yes, I'm not offering an opinion about pro or con about that question.

Q. I see. Because you're, you're, as you say, you're not a politician or a law maker?

A. Or an insurance expert.

Q. Right. Or a public health expert, right?

A. Well, I'm a little more ambivalent about public health matters, yeah. I'm not as, I'm not, I really

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think that public health is the issue here and so I, I don't want to say I'm not an expert. I'm not an expert in public health, but I do have opinions about the long-term public health of people who are prematurely having their bodies changed because I do think this has public health implications for the future of each of these, these adolescence children and young adults.

Q. Understood.

A. And adults as well.

Q. And you, generally speaking, don't advocate to deny all forms of medical intervention to people with gender dysphoria though, right?

A. That's right.

Q. Okay. I'm going to introduce another exhibit, Dr. Levine, give me just a moment.

(Exhibit 6 marked for identification.)

Q. Okay. It should be now or shortly visible, you might need to refresh.

A. I now have Exhibit 6 here.

Q. Okay.

MR. CHARLES: So I'm showing Dr. Levine what has been marked as SL06.

Q. Dr. Levine, this is a short document, please just take a minute and scroll through it.

A. Okay, I, I've scrolled.

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Q. Okay. So I'm representing to you, Dr. Levine, this is a printout from the Case Western Reserve University Website which discusses various resources and services available to transgender staff, students and employees. Do you recall reviewing this material before either in this form or perhaps on the Internet?

A. I've never seen this before.

Q. Okay. So if you'll scroll to the second page, it's not numbered, but it, it's the second page if you scroll there.

A. Yes.

Q. And the title in the middle of the document there, "Transgender healthcare benefits for students and transgender health benefits for employees." Were you aware that Case Western University offers insurance coverage for gender affirming care including psychotherapy, hormone therapy and gender affirming surgery for students and employees?

A. I wasn't specifically aware, no.

Q. Okay. Okay. So turning back to this case specifically, Dr. Levine. Have you met with any plaintiffs in this case?

A. No.

Q. Have you interviewed any of the plaintiffs?

A. No.

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Q. And are you offering any opinions about the plaintiffs in this case?
A. No.
Q. Okay. Let's go back to your report, Dr. Levine, Exhibit 2 I believe.
MR. DAVID: I think it's 1, Carl.
MR. CHARLES: Oh, thank you, Caleb.
Q. Exhibit 1.
A. I am there.
Q. Okay. So if you would scroll to Page 11.
A. Okay.
Q. Okay. So Page 11 beginning at Paragraph 17, you write that Dr. Karasic states, "Aside from external genital characteristics, chromosomes and endogenous hormones, other factors related to sex include...gender identity and variations in brain structure and function," do you see that sentence?
A. Yes.
Q. Okay. So do you disagree that gender identity is related to sex at all?
A. No, I don't disagree because you said the word, the words at all.
Q. So you disagree that gender identity is related to sex?
A. Well, of course it's related to sex. We're here

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because the sex of a person and the gender identity of a person do not match, and so there's that relationship, it either matches extensively, it matches partially, or it matches not at all, so it's related to sex. We can't understand gender and we can't understand any of these cases with, assuming they're unrelated.
Q. Okay.
A. Dr. Karasic -- if I may go on.
Q. No, that's fine, I'm looking at the next section here. So continuing on Page 11 at Paragraph 18, about four lines up from the bottom of the page, do you see that the sentence begins, "Contrary to"?
A. Yes.
Q. "Contrary to the assertions of certain members of the medical community, the aspirations of some trans individuals to become 'a complete man' or 'a complete woman' is not biologically attainable." Is your view on that a reason to categorically ban surgical care for patients who give informed consent?
MR. DAVID: Object to form.
A. The statement is true that I made. Whether, whether it's a reason for categorical banning surgical care is a leap. Factually and clinically and subjectively from patients it's very clear that, that all the complete surgical care, hormones and surgical

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care do not make anyone into a "complete woman" despite their ability to pass better as and they're aspired to according to their gender identity. How that relates to categorical exclusion or categorical inclusion is really a complex matter with many intervening variables to be considered. So that's my, that's my answer to your question.
Q. Okay. I appreciate that. So but the, the, I just want to get some clarity here, and I understand the nuance that you're discussing, but that, that view that, one, you know, patients can't become a "complete man" or "complete woman," that's not, you're not saying that's a basis upon which to categorically deny hormone or surgical interventions?
MR. DAVID: Objection to form.
A. I think I've already answered that question. If a person wants to become, thinks they're going to become a complete man or a complete woman because they've had genital or breast surgery or some other form of surgery and then they discover that they can't be a complete man or a complete woman and in fact that they were wrong about their initial aspirations and, and that they've been misled perhaps in that belief by their affirmative therapist and doctors, then that may predispose them to be gravely disappointed. And as --

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Q. Sorry, Dr. Levine, it sounds like you're not understanding what I'm asking, so let me, let me rephrase the question here. You're saying in your report that the fact that someone cannot become a complete man or woman, I'm sorry, that that is not biologically attainable. So my question to you is, is that fact, accepting that what you're say is facts for the purposes of our conversation, are you saying that's a reason to deny surgical interventions to people who give consent, continue to want them, give authorization to do so?
MR. DAVID: Objection to form.
A. What I'm saying is that it is an idea that needs to be considered between the therapists and the doctor, or and the patient. It is an idea to be considered by the endocrinologist and by the surgeon, you see what the patient believes is going to happen as a result of this. And if there are beliefs that are not materially correct and cannot biologically be correct and therefore cannot be psychologically correct, then it gives pause to the idea that we should go ahead, full speed ahead affirming and, and providing therapy, various forms of therapy without understanding the implications of what we are doing for the person's long-term health and happiness.
And, and so these nuances, as you refer to them,

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are not simply nuances to me. They are the, the devil is in the details and the details here have to do with the nuances. And so when I say that one cannot be biologically a complete man or a woman as a result of all the best surgeries that we can do, that medical, the surgery has capacities to perform, that, that, that is a reason to pause and to be thoughtful.

And so I don't really want to answer your question yes or no because I am responsible for the nuances, I am a psychiatrist and, and I deal with the nuances of people's lives and the determination of their happiness and their, their post-operative depression and their post-operative suicide attempts and so forth, so.

Q. Okay. Dr. Levine, I appreciate that. Again, so, so your, let's say all of those players consider that idea in the way you suggest, that's, you're not suggesting that that is a reason to ban all access to this care?

MR. DAVID: Object to form.

A. I am not, I am not -- I guess I just don't know how to answer your question.

Q. Okay. Because you take a nuanced view, you wouldn't support a complete and total ban on surgical interventions, right?

MR. DAVID: Objection to form.

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A. A, a complete categorical surgical ban has to do with policymakers at the level of government and, and the insurance industry as they recognize what is known and what is not known. It is not for me to make that decision. It is for me to talk about what I know about the life course of people and the subject of experiences of people, that's what I know, that's where my clinical expertise lies, it is not in answering questions like you've just asked me.

Q. So further down in that paragraph after the very next sentence in the report it says, "It is possible for some individuals to 'pass' unnoticed as the opposite gender that they aspire to be, but with limitations, costs and risks." Aren't you saying that people should not conflate sex and gender?

A. I'm saying that the biological sex of an individual has implications for every day and every stage of their life and that if we can help people to pass in their, according to their current gender identity, it doesn't change, it doesn't change certain biologic facts, you see.

Q. Okay.

A. And so I don't, I don't think I can be more clear than that.

Q. Well, I'm, I'm just trying to understand what

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you're saying here, Dr. Levine, because you, you're talking about biological sex in the previous few sentences, and then in that sentence I just read you said it's possible for people to pass as the opposite gender. So I'm just, it seems like you're conflating sex and gender yourself, so I'm just trying to understand what you meant by that.

A. Well, I, I think you don't understand. I perhaps don't understand you and you don't in this instance understand me. What I'm saying is that sex is a reality based upon fundamental biologic matters. Gender is something that the expression of one's subjective gender can be changed with the help of careful grooming and hormones and surgeries, but those changes do not eradicate all the presence and the implications of the original biologic sex.

So I'm not conflating sex and gender, I'm saying that sex is a fundamental characteristic of human beings and gender is a fundamental characteristic of human beings, and those people who are incongruent between their, their anatomy and physiology and their gender identity have a certain considerable ongoing matter to deal with, and but I can and so can you separate the biologic sex from their gender identity, their current and evolving gender identity, they're separate and but

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related phenomenon.

Q. Okay. Thank you. All right. I'm introducing another exhibit here, but it did not get a stamp on it. It should be Exhibit 7.

(Exhibit 7 marked for identification.)

Q. Just let me know when you can see that.

A. Okay, I just pulled it up, "Considering sex is a biologic variable."

Q. So you cite this in the same paragraph of your report discussing -- actually, sorry, you cite that in Paragraph 17. So the, the second sentence of Paragraph 17 reads, "This directly contradicts a recent scientific statement by the Endocrine Society, which implores researchers to not conflate biological sex which is binary and straightforward in over 99 percent of the cases with a competent gender identity which can indeed represent a wide spectrum." And then, like I said, you cite to this article, "Considering sex is a biological variable." Have you, I'm assuming, Dr. Levine, have you read this article before?

A. I read this article several months ago.

Q. Okay. So if you'll scroll on the bottom of the first page, the title there is, "Abstract"?

A. Yes.

Q. Can you point to me where gender identity, where

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the phrase gender identity appears in this abstract?
A. Well, there's a term gender, but you said gender identity, right?
Q. Yes, that's correct.
A. I don't think the phrase gender identity appears through my quick cursory glance of the abstract.
Q. Okay. And are you aware that the word binary does not appear anywhere in this article?
A. If I don't --
Q. I'll represent, I'll represent to you that it doesn't.
A. All right. Well, I, I would trust your representation.
Q. Okay. And I'll represent to you the word conflate appears no times in this article as well.
A. I don't know.
Q. If you could scroll to Page 221, the page numbers are in the upper right-hand corner.
A. I'm there.
Q. Okay. And in the paragraph that is also in the upper right-hand corner, I'm just going to read that first sentence, "A simple biological definition of male and female satisfactory to all people is elusive," do you see that?
A. Yes.

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Q. Okay. So going back to your report, Dr. Levine, on Page 11 where we were.
A. Do you want me to go back, to leave this?
Q. Yes, yes, go ahead and leave that.
A. Great. And back to Exhibit 1?
Q. That's correct, yes.
A. Page 11. Okay.
Q. Okay. And then actually go ahead and scroll to the next page, Page 12. And I'm looking at Paragraph 20 which is in the middle of the page, do you see that?
A. Yes.
Q. Okay. I'm going to read from the, approximately the third sentence of that paragraph, "WPATH's core mission since its inception has been to destigmatize transgender identities and to advocate for easy access and broad insurance coverage for transgender related procedures." And let me, excuse me, let me start from the beginning of that paragraph actually to give the context, "Dr. Karasic misrepresents treatment recommendations from an advocacy organization of scientific facts. In his witness statement Dr. Karasic regards treatment recommendations issued by the advocacy organization, the World Professional Association of Transgender Health, as authoritative protocols," and then the sentence I just read follows. You agree that

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transgender people should not be stigmatized, right?
A. I agree.
Q. And the last sentence of that paragraph says, "While these guidelines have been influential in years past, they are increasingly coming under scrutiny with a growing list of countries abandoning their use." Do you have a citation for that assertion, there's not one here?
A. Well, I can provide you with many of them from Sweden, from Finland, from the UK and from France, I can provide you with articles that criticize the standards of care and --
Q. That's fine, Dr. Levine. I'm just confirming, they're, they're not listed here, right?
A. I'm sorry, they probably made the, I'm sure I made reference to them elsewhere in this, in my report.
Q. We may discuss them. I just wanted to make sure I wasn't missing something here. All right. I'm going to introduce another exhibit, if you'll give me just a moment.
(Exhibit 8 marked for identification.)
Q. Just let me know when you can see it.
A. We're Exhibit 8 now, right?
Q. Yes, Exhibit 8. Is this the, the paper that we discussed earlier today, Dr. Levine, the Open Access

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paper?
A. Yes, it's one of the two papers I mentioned that were not on the CV.
Q. Okay. And this is, but this is not the one that you said SEGM provided funding for?
A. That's right.
Q. The title of that, can you please remind me the title of that article?
A. "Reconsidering informed consent for transgender identified children, adolescents and adults."
Q. Aren't there people who are not just self-identified as transgender?
A. Oh, yes, all human beings have a composite of masculine and feminine identifications and some people struggle very much with the, for example, if I can only talk about males for a minute, some people struggle with the degree of feminization, feminine identities that they have and feminine, what they call feminine interests and they don't necessarily come out to a doctor and present with I'm a trans and I want this treatment or that.
I get, I spend a great deal of time with adults actually in psychotherapy who presented for depression or anxiety or alcoholism and so forth and eventually when I get to know them very well they start talking

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about their struggles about what I would call in general their sexual identities. And that often focuses on either their feminine identifications or their homoerotic desires or their kinky interests, their paraphilic interests, but these are shameful or at least private matters that has taken them a long time to, to broach the subject with me.

But they are not transgender identified, but they are speaking about phenomenon that are very closely akin to transgender identified people, that is they're struggling internally with how to balance their predilections and, and attractions to and participation in stereotypic female activities. So that's the answer to your question.

Q. Okay, okay. What I, what I also mean by that question is -- let me start over. There are people who just are transgender, not who self-identify as transgender, right?

A. No.

Q. So if someone tells you that they are a transgender, then in your view they are only self-identifying as transgender?

A. We need to ask ourselves how people come to label themselves in one way or another. And I think the answer is they reflect upon that which they think and

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feel that which they're attracted to and, and how they want to, how they categorize themselves.

You see, the whole concept of transgender is a relatively modern thing, we didn't even have the term say 70 years ago or 80 years ago. We believe that human beings haven't changed that much, but the available, the categories of human beings have changed dramatically. And so my quick answer to your previous question no implies to me that everyone who says that they're just transgender really are self-identifying as transgender based upon where they live, what they know, what they've read and what society is saying to them. 200 years ago society wasn't saying to people that you could be trans, you could have gender identity variations. We didn't have any language for this years ago, now we have a language for it.

So what I have said to you very quickly is that everyone who says that they're just a transsexual person identifies as a transsexual person. And embedded in that I'm just a transsexual person are a set of ideas or assumptions that they have about themselves and that they are, that it has no cause other than biology, than embryologic development and that they are just a trans person. But that, that is, I return to my quick answer to your question and that is no.

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Q. Okay. But you're not suggesting that those people don't experience gender dysphoria?

A. I'm not saying that at all.

Q. Okay.

A. Well, not everyone who identifies as trans is dysphoric.

Q. Right, but that wasn't my question. My question was you're not saying those self-identified trans people don't suffer from gender dysphoria?

A. I think you and I are at a cross, we're missing each other for a moment here.

Q. Okay. So let's, let's move on because I think you did answer it, you said no, that's not what I'm saying. You're not saying self-identified trans people don't suffer from gender dysphoria, so I just wanted to make sure I heard you. Let's go back to your report on Page 13.

A. You're not talking about my article, my report?

Q. No, you can, you can put the article to the side or, or navigate away from that.

A. Sorry. Page 13?

Q. Yes. At Paragraph 22 is where I'll start reading.

A. Wait a second, please.

Q. Sure.

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A. Okay, I'm there.

Q. Okay. "A newly revised draft of the upcoming SOC 8 Version of the guidelines appears to continue to suffer from a number of serious methodological problems that will limit its clinical use. It is perhaps not surprising that a growing number of countries are deviating from WPATH and Endocrine Society guidelines and are developing their own treatment guidelines that prioritize psychological treatments for use. They include such pioneers in gender affirming care as Sweden, Finland and the UK."

Okay, I'm going to introduce another exhibit now.

(Exhibit 9 marked for identification.)

Q. Okay. That should be up momentarily.

A. "One year since Finland broke."

Q. Mm-hmm, yes.

A. The trouble is that I can't really, I can't read it. I see the headline, but it's really very faint. But go on, please.

Q. If you move your --

MR. CHARLES: Actually, Kelley, can we go off the record for just a second.

VIDEO TECHNICIAN: We're going off the record at 12:33 p.m.

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(A break was taken at 11:33 a.m.)
VIDEO TECHNICIAN: We're going back on the record at 12:34 p.m.
MR. CHARLES: Okay. So I'm showing Dr. Levine what has been marked as SL09, an article from Society for Evidence Based Gender Medicine entitled, "One year since Finland broke with WPATH standards of care."
BY MR. CHARLES:
Q. Dr. Levine, do you see the date of publication in the left corner of that first page?
A. July 2nd.
Q. And, and the year is 2021, right?
A. Yes.
Q. So looking at the first paragraph there, I'm just going to read that, "A year ago the Finnish Health Authority (PALKO/COHERE) deviated from WPATH standards of care 7 by issuing new guidelines that state that psychotherapy rather than puberty blockers and cross sex hormones should be a first line treatment for gender dysphoric youth. This change occurred following a systematic evidence review which found a body of evidence for pediatric transition inconclusive."
And then the next paragraph, the first sentence, "Although pediatric medical transition is still allowed

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in Finland, the guidelines urge caution given the unclear nature of the benefits and the interventions, largely reserving puberty blockers and cross sex hormones for minors with early onset gender dysphoria and no co-occurring mental health conditions." Did I read that correctly?
A. Yes, you did.
Q. Okay. So as this article states, medical interventions are still available in Finland for youth experiencing gender dysphoria, right?
A. On a case-by-case basis I think.
Q. And --
A. I should say on a case-by-case basis and two research centers as opposed to in any practitioner's office throughout the country.
Q. Right. But it's, it's not been completely prohibited is what I'm asking?
A. Oh, it's been, it's been, the brakes have been put on.
Q. But it's not been completely prohibited is what I'm asking?
A. That's what you and I have agreed on, yes.
Q. So it's not been completely prohibited, right?
A. Right.
Q. So then in the third paragraph beginning with,

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"The qualifying criteria for gender reassignment of youth articulated in the 2020 Finnish treatment guidelines are consistent with the original Dutch protocol, but represent a significant tightening of the more recent practices promoted by WPATH." So the article describes it as a tightening of the standards which WPATH allows for, right?
A. Yes.
Q. So you, you've talked about in your report an idea of rapid affirmation treatment where you allege that diagnoses of gender dysphoria are being made in an hour and then, and then prescriptions provided for medical interventions, right?
A. Yes.
Q. Do you have, or I should say, your evidence for that is anecdotal in nature, right?
A. My evidence for that is what has been told to me by parents, what has been told to me by patients and what this, what the third paragraph of this document says.
Q. Right. So --
A. So I don't really think the answer is simply anecdotal, it's based upon a considerable consistent range of, of experiences, both of my personal experiences, of my patient's personal experiences, and

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of the personal experiences of many other therapists around the world. This is not to be dismissed as Dr. Levine's idiosyncratic views.
Q. I'm just trying to understand, Dr. Levine, you said you don't have scientific studies that provide this evidence, but you've heard from parents, right?
A. And patients.
Q. You've, you've, how many patients have you talked to who have told you --
A. As we're speaking I'm speaking of one person who -- well, actually I'm speaking of two recent people I've seen who got hormones upon the first visit, one is I think a 17-year-old and one a 20-year-old.
Q. Okay. But those, like I said, Doctor, that's clinical case information, that's not anything that's reflected in a peer reviewed journal or article?
A. Well, if you read, if you read my, my last article, it's, it's in that peer reviewed article.
Q. Dr. Levine, let me clarify. That's not, that data doesn't come from a study or a, a scientific collection of data that has been published, that's from your clinical experience?
A. Yes, and that's from my experience in giving, giving a talk to 35 parents who, who complain about these things and about the phone calls I get from

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parents about the repetitie with which their children are affirmed without, without any understanding of their autistic background or the problems that they've had and that their parents are hard to find anybody who isn't quickly affirming in their communities. This is not a Levine anecdotal experience of one or two cases, this has been going on everywhere.

Q. Okay. But you don't have a, a citation in your report with --

A. That's right. I have never seen a data bound analysis of, of what I am suggesting based upon my experience.

Q. And the, the 35 parents that you gave a talk to, I think you said in the BPJ deposition you were sitting in your easy chair while you gave that talk, is that right?

A. Well, I'm sitting in my easy chair as I'm talking to you at the moment.

Q. Oh, okay. So you were, you were providing that, you were having that conversation virtually is what I mean to ask?

A. Yes.

Q. Okay.

A. My legal things have been virtual as well.

Q. Okay, okay. Dr. Levine --

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MR. CHARLES: Actually, Kelley, Kraig, can we go off the record really quick.

VIDEO TECHNICIAN: One moment please. We're going off the record at 12:43 p.m.

(Lunch break taken from 11:43 a.m. to 12:16 p.m.)

AFTERNOON SESSION

VIDEO TECHNICIAN: This is media No. 4 in the deposition of Dr. Stephen Levine. Today is April 27, 2022. We're going back on the record at 1:16 p.m.

BY MR. CHARLES:

Q. Okay. Dr. Levine, before we left for lunch we were talking about the, the WPATH standards of care and we were on Page 12 of your report, which is again Exhibit 1.

A. Let me interrupt you, please. I now, I've done something to my screen and now I see all the participants, I see, I have gallery view and I need help in getting back to the exhibits.

Q. Okay.

MR. CHARLES: So, Kraig, can we go off the record again, please.

VIDEO TECHNICIAN: Yep. One moment. We're going off the record at 1:17 p.m.

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(A break was taken at 12:17 p.m.)

VIDEO TECHNICIAN: We're going back on the record at 1:18 p.m.

BY MR. CHARLES:

Q. Okay. So, Dr. Levine, we're, you were talking about WPATH standards of care and a second article, but if you could actually turn to page, turn to your report, Exhibit 1, you may have to navigate back and then refresh.

A. What page on my Exhibit 1?

Q. Page No. 12.

A. Okay.

Q. Okay. So then starting with Paragraph 21, which is at the bottom of Page 12, do you see that?

A. Yes.

Q. Okay. "A recently published systematic review found the current WPATH SOC 7 guidelines to be of very low quality and unfit tools for clinical decision making, noting incoherence within the recommendation." And that, that last part of that sentence continues onto Page 13, do you see that?

A. Yes.

Q. Okay. And for that proposition you're citing a paper by Dahlen entitled, Dahlen, et al., a number of different authors entitled, "International clinical

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practice guidelines for gender/minority trans people systematic review of quality assessment," do you see that there at the bottom of 13?

A. I do.

Q. Okay. So let me introduce another exhibit. I'm going to introduce that Dahlen paper.

(Exhibit 10 marked for identification.)

A. I should go to that, right?

Q. Yes. Give me just one moment, I'm adding the, the stamp right now. Okay. It should be available for you to see now.

A. Yes.

Q. Okay. And you've seen this, you've seen this research before, Dr. Levine?

A. I have.

Q. Okay.

MR. CHARLES: So I'm showing for the record what has been marked as Exhibit SL10, which is a paper entitled, "International clinical practice guidelines for gender/minority trans people, systematic review and quality assessment." First author on the paper named Sara Dahlen, D-A-H-L-E-N.

Q. Okay. The page numbers on this document are in the lower right-hand corner, so please scroll to Page 8. Well, I'm sorry, the page numbers appear to rotate from

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left to right, but they are both on the, they are both in the bottom corners.
A. Okay, I am on Page 8 now.
Q. Okay. So on the left-hand column there is a heading that reads, "Consistency of recommendations across the CPG's." And I will represent to you that CPG for the purpose of this study stands for clinical practice guidelines. Do you want me to scroll up and show you where it says that, Dr. Levine, or are you okay to agree on that?
A. I agree with you.
Q. So this paragraph here begins, I'm just going to go ahead and read if you'll follow along, "Online supplemental table W5 contains all extracted key recommendations where these could be distinguished. It shows little overlap of topic content across the CPG's, many recommendations in WHO 2011 and 2016 were similar, but not identical, the former being stood down after the latter was published. No statements were highlighted by the WPATH SOC Version 7 authors as key recommendations and have proved impossible for all six reviewers independently performing data extraction to identify them.
"The total number of extracted recommendations ranged between zero and 168 with little consistency or

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agreement on what passages were selected. Some extracted statements might have been intended as recommendations or standards, but many were flexible, disconnected from evidence and could not be used by individuals or services to benchmark practice.
"After discussion of this incoherence within WPATH SOC Version 7 and our inability therefore to compare recommendations across all CPG's, it was decided not to revisit inclusions post talk, but to abandon this protocol aim."
So before I ask you about that, let me, let's go back up to Page 1 of this study, Dr. Levine.
A. Okay.
Q. And the abstract there on the left-hand column, the objectives of this study are, "To identify and critically appraise published clinical practice guidelines regarding healthcare of gender minority and trans people." The design was that they used the agreed to, which is the appraisal of guidelines for research and evaluation tool, and the setting was that they used six databases and six CPG Websites that they searched and international key opinion leaders were also approached.
So generally speaking, this review was a systematic review in the sense that they used a tool to

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assess various recommendations across a number of different clinical practice guidelines for care for gender minority and trans people, is that your understanding?
A. Yes.
Q. Okay. Okay. So if you look at the results paragraph, the last sentence says, "Consistency between CPG's could not be examined due to unclear recommendations within the World Professional Association For Transgender Health standards of care Version 7 and a lack of overlap between other CPG's."
So let's go back to Page 8 and the same paragraph on the left-hand side, "Consistency of recommendations across CPG's."
A. I'm there.
Q. Okay. So the, you see the sentence where it says, it's the third sentence of that paragraph, it says, "No statements were highlighted by the WPATH standards of care Version 7 authors as key recommendations," right. So the authors of this study are offering that there were other components of CPG's that were styled as key recommendations, is that right?
A. I'm not sure, I don't know the answer to that question, I would have to look at those other recommendations. I, I don't remember if, I mean, if you

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tell me that's true, I will trust you, but I, I can't say definitively you're right.
Q. Right. So I'm taking that from, just for your reference I'm taking that from the first sentence of that paragraph where it says, "Online supplemental table W5 contains all extracted key recommendations where these could be distinguished"?
A. Yes, okay.
Q. Okay. So I'm just saying I understand that to mean that the reviewers were looking for essentially the word key recommendations from all of the clinical practice guidelines?
A. Yes.
Q. Okay. So your statement in your report says that WPATH, excuse me, that this study noted incoherence in the recommendations, but you're not suggesting that this document said that WPATH is incoherent, are you, you're just saying that the key recommendations didn't align with the, with what the reviewer's protocol aim was?
A. What I'm saying is that if you read this entire article, you will not come away with the idea that there is a great endorsement of the, of the reasonableness of the scientific basis or the coherence of 121 pages of text in the standards of care, that's my point.

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There is, there is, there is a bunch of pronouncements, but and what proposes, what has been interpreted by the consumers of WPATH standards of care as the treatment guidelines and the treatment recommendations, but in fact many of those people who testify or who believe that they're just following WPATH's protocol, they're, they might be following a sentence or two of WPATH's protocol and don't understand that in another section of these 121 pages there's something opposite or incomplete or hedging to that.

So WPATH has been greatly misunderstood and these people have, Dahlen, et al., have said that in investigating carefully these 121 pages there is contradiction or incoherence and a failure to, even though these are called standards of care, they are best guidelines, clinical guidelines and they make a distinction between standards of care and guidelines.

So, I mean, I read the Dahlen, et al. paper as not an endorsement of the legitimacy and the scientific validity of, of the various interpretations of the standards of care. I, I think you are trying to say something else, but I'm not sure what you're trying to say.

Q. Well, what I'm, what I'm asking is, this paper is not suggesting that the entire WPATH is incoherent,

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which I understand is what you're saying, but I'm, I'm pointing out that what they said in regards to actually using the word incoherence was that there were no words in WPATH that said key recommendations, and that's what they were looking for in, in this study, that's what they described, they said they were looking for key recommendations. Some CPG's had that language and some didn't, and WPATH didn't, so we didn't use that as a protocol that we assessed, so that's more what I'm asking about.

MR. DAVID: Objection to form.

A. Mr. Charles, your level of sophistication in reading this study and preparing for this deposition is very different than when I read this months ago and --

Q. Okay. Dr. Levine, thank you. That's not what I'm asking you. What I'm asking you is whether the word incoherence is used, it's about that the phrase key recommendations doesn't appear in WPATH and that you didn't take, that you were not directly quoting incoherence about WPATH more broadly, like that's not a quote that appears in this study?

A. Well, No. 1, you just pointed to a paragraph in this study and I, I don't remember what the other ten pages contain actually. And my understanding of incoherence was, was I think I would use the word

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contradictory. And, and if, if there were no key, if there were no key recommendations, the discussions at various times at least according to the author that I spoke with about this said they didn't, they were contradictory.

Q. Okay.

A. But you're talking about this paragraph and I'm really not familiar enough with all ten pages of the text, I would have to spend a couple hours studying this in order to answer your question more definitively.

Q. Okay. Let's go to Page 77 of your report. I'm sorry, Page 37, Paragraph 77.

A. I'm getting there. "The increased incidence," is that what you're talking about?

Q. Yes, that's the paragraph, yes. Okay. So the second sentence of that paragraph reads, "As the Dahlen, et al. study pointed out, standards of care throughout medicine have the ethical standard that no more than 30 percent of the formulating," hang on, "of those formulating the recommendations should earn their income based on the guidelines offered. Experts in methodology are required, in addition, to be clinicians. But the majority of WPATH's writer group, writers group were those whose income is derived from trans care. Their inconsistent recommendations did not flow from

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scientific evidence."

So looking just at the sentence of that paragraph where you say that the Dahlen study pointed out that standards of care throughout medicine have the ethical standard that no more than 30 percent of those formulating the recommendation should earn their income, excuse me, based on the guidelines offered, can you point me to where in this article, in the Dahlen article it says that?

A. Not at the moment I can't.

Q. Okay. Well, I'm representing to you the word, that that information does not appear anywhere in this article.

A. Well, then perhaps it appears in the article where, where the, where there's some reference to what, what are the standards of people who should be evaluating treatment guidelines. I don't, right now I can't, I don't recall where it came from. I'm pretty sure that's correct.

Q. Okay. But it's not, you don't recall where it is, in that article it is?

A. I don't recall, no.

Q. Okay. So let's, let's go back to your report, or maybe that's where you are already, on Paragraph 77. Okay. So we were talking earlier, Dr. Levine, that you

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said other countries, I believe you said Finland, Sweden, France, the UK are creating their own guidelines, right?
A. Yes.
Q. Okay. But as far as you know, none of those countries are completely banning all medical interventions for youth and adults, right?
A. No, but they're setting a different set of standards that are so different than the United States, so different, dramatically different, so much so that, that people in the United States need to pause and take a deep breath and make reference to these, these countries that have presented a methodologist, that have given, created commissions of methodologists to look at the data, you see.
In the United States we haven't done that, but other countries that are smaller and, and who are in fact one of the early adapters of the, of these protocols for, for giving hormones, these people have had a lot of experience and they have monitoring systems about what happens to these people. And those people, those countries have said wait a minute, let's not be going gangbusters about this.
Q. Okay. So thank you for that, Dr. Levine, but the, the crux of my question is those countries are not

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banning all medical interventions for use in adults, and you said no, and so my follow-up question is, Sweden is allowing access to puberty blockers and cross sex hormones in clinical trials only, but they're still available, right?
A. Right.
Q. Okay. And are any of these countries to your knowledge banning all surgical interventions for adults?
A. Not to my knowledge.
Q. Okay. And are you saying that, are you providing an expert opinion today that health insurance options for indigent people in those countries do not provide this care?
A. Those countries have universal health insurance, so they don't make a distinction about indigent people.
Q. Okay. So then they're, presumably based on that indigent people have healthcare coverage?
A. Rich people and indigent people have healthcare, universal healthcare coverage, as far as I know, in these countries.
Q. Okay. So that would mean regardless of whether someone is indigent or disabled, it would be possible for them to access these interventions?
A. If they qualify in a research protocol or for the younger people and if clinicians felt that this

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would be beneficial to them. You know, there have been a lot of studies, there have been studies published that have failed to show the long-term benefits of these, these, in Sweden, for example.
Q. Like you said, Dr. Levine, the, the crux of my question again is whether rich or poor in these countries with universal healthcare, yet these people are, you know, deemed through the proper protocols to be able to access this care, then they are able to access it, it's not, it's not prohibited?
A. I agree with you.
Q. Okay. Let's go to Page 13 of your report, please.
A. What paragraph?
Q. Paragraph 23.
A. Yes.
Q. Okay. "As the co-chair of WPATH SOC 5 committee, I have firsthand experience with the organization and the evolution toward its current state of advocacy at the expense of rigorous science. I would detail my experiences in a separate section of this document. My experience appears to be consistent with that of the incoming president of WPATH, a transgender woman and surgeon, Dr. Bowers, who recently admitted that activism within WPATH has taken over science and

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when I was in WPATH, any deviation from the hormonal and surgical gender affirming treatment model is currently not tolerated." Okay. So then, give me just a moment, I have an exhibit here.
Actually, before I introduce this, Dr. Levine, let me just finish one, I'm just going to read the rest of that. Okay. So the remainder of that sentence quotes at the bottom of Page 13, "There are definitely people in WPATH who are trying to keep out anyone who doesn't absolutely buy the party line that everything should be affirming and there is no room for dissent." And you cite a footnote, or I'm sorry, the citation is footnote 16 which is an article by Abigail Shrier entitled, "Top trans doctors blow the whistle on sloppy care, October 4, 2021." Do you see that there at the bottom of Page 14?
A. Yep.
Q. Okay. So then let me go back to my exhibit here.
(Exhibit 11 marked for identification.)
Q. Okay. Just let me know when you can see that.
A. I'm looking at Page 23 now.
Q. Actually, I've introduced a new exhibit. So if you could toggle back to either hit the back button or hit refresh and you should see Exhibit SL11.

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A. All right.
Q. Just let me know when you have that.
A. Yes, I see that.
MR. CHARLES: So for the record, I'm showing Dr. Levine what has been marked as Exhibit SL11.
Q. So are, are you aware that Dr. Bower has issued her own statement on her Website after that article you quoted was published?
A. No.
Q. Okay. So I'm representing to you, Dr. Levine, that this is that statement from Dr. Bower's Website. I'm going to draw your attention to a couple portions in particular. So looking at Paragraph 1, "Dear colleagues, clients and friends, regarding the 10/4/21 article by Abigail Shrier, I remain disappointed by the tone and intent of the article. My comments are taken out of context and used to cast doubt upon trans care, particularly the use of puberty blockers. Worse, Jazz Jennings was disrespectfully and erroneously portrayed as a puberty blockade failure based solely upon her television portrayal.
"That said, the author conveyed to me that she is not against the use of puberty blockade, but rather interested in better informed consent, a principle upon which we'd love to agree. I did believe that my

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comments would be conveyed fairly. My comments were limited to trans feminine persons, not trans masculine, a point not made.
"My concerns regarding consent included long-term sexual function data that we currently do not know, although patients retain sensation including clitoris and G spot. Sexual naivete is a potential concern, but not central to my argument, and it is far from central that patients will sustain permanent sexual dysfunction." I'm sorry, "It is far from certain," I said central, she wrote certain.
"It is possible that adults with a history of puberty blockade will go on to have a satisfying sexual life, but these patients need to be tracked and this measure documented. My concerns regarding fertility are secondary, a potential that many trans feminine persons are willing to forgo."
She said, "My concerns regarding puberty blockade and its negative impact on later genital surgery remain and are not allayed by new techniques of vaginoplasty including perinatal, peritoneal pull through. Complications and challenges for these patients are without a doubt increased.
"My hope is that colleagues, onlookers and members of the transgender community at large will

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recognize my long-term contributions to the field, my unwavering advocacy for patients, the one-off regarding this article, wrong time, wrong venue. Although my comments are my own professional opinions, I do recognize that as president elect I now speak for WPATH as well. I've learned from this experience and will be better. I also hope that my comments will help future clinicians, families and patients make more certain informed choices. I believe that this moment will spur studies, will inspire surgeons to seek better results, and encourage families to consider a bit of puberty when weighing treatment options.
"What I hope for most of all is that my out of context comments will not be excerpted to weaponize ongoing attacks upon transgender persons. We have been here since the beginning of time and will be here in the future. We must not allow the critics and skeptics to undue our legitimacy. Rather than attack one another, we are best served by our support of WPATH and its goal of establishing evidence based care that affirms gender identity as another important aspect of global diversity.
"For patients and families seeking guidance going forward I will say this based upon my own professional experience, consider consultation with a

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gender surgeon prior to blockers. Not all puberty blocked individuals will have insufficient growth going into blockers, their puberty may be deemed beneficial for some. And if you can possibly stand a bit of puberty, the extra genital skin growth, likely orgasm and potential fertility may be attractive enough to consider the option. Early and post pubertal kids in their early teens still transition extremely well.
"For doubters, conservatives, naysayers and haters that continue to misgender, mischaracterize and malign trans people around the globe, trans persons around the globe, you've lost credibility with me, and likely with God above." Did I read that correctly?
A. I presume you have read it correctly. I lost -- let me tell you, yes, you read it correctly.
Q. Thank you. So you were not aware of this statement made by Marcie Bowers after the Abigail Shrier article was published that you cited?
A. That's what I said.
Q. And you understand that she maintains that her comments were taken out of context and used with an intent that she did not intend, you understand that's what she's saying is what I should say?
A. That's what I understand what she is saying, yes.

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Q. Okay, great. Let's go back to your report, Exhibit 1, Dr. Levine, again at Page 14, but at Paragraph 24.
A. I'm sorry, wait a second. All right. Okay, Paragraph 24.
Q. Okay.
A. I'm not there, I'm not there yet. Okay.
Q. First sentence, "Of note in 2016, health and human services came under significant pressure from activists to adopt the WPATH 'standards of care' as the prevailing guideline for determining medical necessity considerations for gender affirming surgeries." Do you have, or what evidence do you cite to for support of the contention that they were pressured, came under significant pressure from activists?
A. I think that was in the beginning of the report.
Q. I'm sorry, which report?
A. The report that I'm citing.
Q. There's, but there's no citation after that sentence, so I'm asking what are you referring to for that contention?
A. Well, Medicare in 2016 reviewed I think 104 studies, or maybe 154 studies, something like that, a large number of studies and, and I think listed every study and the methodologic strengths and limitations of

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those studies and then concluded what I'm talking about in this paragraph.
Q. I understand that, but I'm saying where, where did they say that they were, came under significant pressure?
A. It was my understanding, at the moment today it's my understanding that I read that in the report.
Q. Okay. So let me, let me introduce that.
(Exhibit 12 marked for identification.)
Q. Okay, this should be --
A. You know, from the last sentence in that paragraph, it sounds like they were asked to mandate coverage by some group of people and they refused, so.
Q. I understand that, Dr. Levine. But I'm, I'm trying to figure out where you, where that came from, I'm just trying to figure out where that came from. So I've introduced SL12, Exhibit SL12. You should be able to see that now.
A. Okay.
Q. Okay. So looking -- first of all, can you read the text? You may need to zoom in.
A. I, I see, "Gender dysphoria and gender assignment surgery," that's what you're talking about, that's Number 12.
Q. Yes, the text is small, so I just wanted to make

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sure that you can see it.
A. I can, I can read it.
Q. Okay. So the first paragraph under decision summary, the second sentence says, "The Centers for Medicare and Medicaid Services is not issuing a national coverage determination at this time on gender reassignment surgeries for Medicare beneficiaries with gender dysphoria because the clinical evidence is inconclusive for the Medicare population."
And then in the second paragraph -- sorry, let me just, I'll just go from the second paragraph there, "In the absence of an NCD, coverage determinations for gender reassignment surgery under 1862(a)(1)(A) of the Social Security Act and any other relevant statutory requirements will continue to be made by the local MAC's on a case-by-case basis. To clarify further, the results of this decision is not national noncoverage, rather it is that no national policy will be put in place for the Medicare program. In the absence of a national policy, MAC's 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."

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So you see there that the coverage is, as explained by CMS here, is supposed to contemplate, "Whether it is reasonable and necessary for the individual after considering the individual's specific circumstances," right?
A. Right.
Q. Okay. And so you, you do understand that West Virginia's Medicaid Program doesn't even consider the individual circumstances of Medicaid patients in its contemplations of banning surgical care, right?
MR. DAVID: Objection to form.
A. Again, I don't think my expertise has anything to do with the determination of insurance or government policies, but I think what you're saying is that West Virginia based on this document has a, I don't know, West Virginia or it's the insurance carrier has to make policy and, and this document is not dictating the type of policy that, the type of policy decisions that they make. This is, I think this document is saying it has to be done on a state-by-state basis or on a local basis.
Q. No, it's saying -- so, okay, so a couple of things. The sentence there says that the, the MAC's, which is a, an acronym for --
A. Medicare --

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Q. Medicare --
COURT REPORTER: Hold on, I didn't get that, I didn't get that, you guys were talking at the exact same time. It's an acronym for what?
MR. CHARLES: Medicare Administrative Contractors. Thanks, Kelley.
Q. So that sentence there says, "In the absence of a national policy, MAC's 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."
So what I'm saying is, or what I'm asking you rather is that is different, that consideration of individual specific circumstances is not what happens when there's a categorical ban like in the West Virginia Medicaid Program?
MR. DAVID: Objection to form.
A. So I guess, you know, there's not a categorical ban on mastectomy in West Virginia. There's a categorical ban for mastectomy when a person is transgender identified and wants it for the purposes of diminishing their breast dysphoria where that component of gender dysphoria is caused by the presence of a

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breast.
So the individual surgeries, any particular individual surgeries that we may make reference to today are not categorically banned in West Virginia, but in my understanding is they are currently banned for when the indication for the surgery is trans, is to, is to diminish breast dysphoria or gender dysphoria.
Q. Right. Dr. Levine, that's what we're talking about, we're talking about categorical exclusion for surgeries for the purpose of treating gender dysphoria.
A. Yes. And I think that, you know, in some reading of this particular document they're leaving it to a case-by-case basis, but I kind of think there is some ambiguity here about medical, Medicare Administrative Contractors being the insurance, these are the insurance companies that we're talking about and when we're talking about Medicaid we're talking about every state and its relationship to Medicaid.
So I think in a sense, I understand your point that it, it looks like if an individual state's program does not want to provide transgender surgeries it may be categorical and it's inconsistent in that particular reading of this decision summary.
Q. Okay. So that, right, so that what I'm saying is you state in your report at the end of that

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paragraph -- actually, hang on a second. Dr. Levine, let's go ahead and go to Page 26 of your report, Exhibit 1.
A. Okay. Let me, I have to scroll back. Did you say page or Paragraph 26?
Q. That would be Page 26.
A. Okay, I'm on Page 26.
Q. Okay. Okay. So, Dr. Levine, you've testified previously that you generally provide care along some of the same guidelines as WPATH, right?
A. In a general way, sure.
Q. And the difference from your view is that you require psychotherapy for some not necessarily predetermined length of time for patients that you see before you will authorize any kind of like medical intervention, right?
A. I don't want to answer that question right or wrong because embedded in the question is the word psychotherapy and I don't know what you understand by psychotherapy, I mean, you're a lawyer and I'm a practitioner of psychotherapy. And I think when a lawyer uses psychotherapy it is a certain concept about I'm trying to achieve a certain aim, you see. And in the context of the question that you've asked, you could substitute an extended period of time with the patient

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to discuss the patient's current situation, the patient's past situation, and what the patient knows about the consequences of a decision to transition in one way or another, socially, endocrinally, surgically.
Q. Okay. Dr. Levine, I appreciate --
A. I'm a little hesitant to answer your question, I think you, you understand psychotherapy differently than I do.
Q. That's fine. I, I need a shorthand way to refer to the universe of what you just described that does not take three minutes to describe it. So I'm using psychotherapy, but please tell me what you mean by psychotherapy. I understand it to be what you just described and that's how I'm using it.
A. Right. I want to spend enough time talking with people so that I can understand the development of this person and how they got to this point, what they think the benefits of this new identity will be for them, and what they know about what is known and what is not known about the long-term consequences, the surgical complications and the lives of other people who have transitioned before. I'm happy to call that a psychotherapeutic process, but I know other people who don't believe in psychotherapy think that this is, they mischaracterize this process, they don't understand what

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I'm talking about and, and they often label me as an enemy or something.
Q. Okay. Well, I'm not doing that right now, Dr. Levine, I'm literally just asking what, first of all, what, what would you describe what you do with patients, is it not psychotherapy?
A. Yes, the insurance company calls what I do psychotherapy. I'm having, I'm forming a professional relationship with a person, I am listening to their concerns, I'm trying to help them understand the answers to the questions that I've just previously said, in other words, what are the developmental forces that have made you think that you are transsexual, that this is a good solution for you, do you know, do you have, do you have the facts that medical science has about this subject, you see. These are the conversations based upon a trusted relationship with a doctor, me, is what the insurance company calls and the culture calls psychotherapy.
Q. Okay.
A. There are, there are 200 forms of psychotherapy listed, you know, and so it's a generic term. And I appreciate that you need some short word to describe this. I'm doing the best I can to tell you the processes of psychotherapy with Dr. Levine when he's

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working with patients.
Q. Okay. So back to my question. On some, on some level that that is, that universe of care that you are providing, which again, I think I'm still going to call it psychotherapy, but I understand your explanation that it is, that encompasses a lot that you do in your, in your clinical practice, but again, the difference for you between the Levine way, if we can shorthand, and WPATH is that you cultivate, you engage in that process as a requirement before you will authorize any kind of medical intervention for a patient for the treatment of gender dysphoria?
A. That's true.
Q. Okay. Thank you. But even still as a part of your practice as we discussed earlier, you still occasionally write letters of authorization for medical interventions, like endocrine treatments or surgical interventions?
A. Yes.
Q. Okay. Okay. Let's go back to your report, please, to Page 35.
A. I am there.
Q. Okay. And looking at Paragraph 70, let's start with Paragraph 70. I take that back, let's go with Paragraph 71 at the bottom of the page, "In recent years

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WPATH has fully adopted some mix of the medical and rights paradigm discussed above. It has downgraded the role of counseling or psychotherapy as a requirement for these life-changing processes. WPATH no longer considers pre-operative psychotherapy to be a requirement. It is important to WPATH if the person has gender dysphoria, the pathway to the true, the development of this state is not. Cited Levine, Reflections, at 240. Two separate evaluations, one from Canada and one from the UK reviewed WPATH's guidelines and found them untrustworthy."
So for that footnote 113 you've cited the Dahlen study which we talked about and then there's also a citation here that says, "See also," and then there's a, a Web address, do you see that, the very last line?
A. Yeah, yeah, right.
Q. It says, "Gender report, CA"?
A. Yeah.
(Exhibit 13 marked for identification.)
Q. Okay. There should be another exhibit there for you, Exhibit 13. Just let me know when you can see that.
A. Okay. Okay.
Q. Okay.
A. Yeah, okay.

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Q. Have you, have you seen this article before either on the Internet or printed out perhaps?
A. The reason I cited it is that I had read it before.
Q. Okay. And this is not a peer reviewed journal, is it?
A. This is a journalist, but if you look very carefully at the, its length and its content, it's very impressive.
Q. Okay. Is this the review from Canada that you were talking about in that sentence --
A. Yes, yes, it is.
Q. Okay. But it's, it's not a systematic review like the one from the UK?
A. It's not systematic in that it wasn't done by a community of scientists, a committee of scientists.
Q. Okay. And the --
A. It is systematic and it is a review, but it's one person's review.
Q. Right. So it's more, we were discussing the difference between systematic reviews earlier today, it's a, it's, it's not a scientific committee that's done in a, in a formal way that we were discussing, it's more akin to that latter one person reviewing things kind of --

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A. It's an investigative report by a journalist.
Q. Right. And you see in the first page, Dr. Levine, it says, "The following investigative report was developed by @LisaMacRichards (a pseudonym)"?
A. Yeah, okay, right.
Q. Okay.
A. I see I'm wrong, she wasn't the journalist.
Q. So we, you don't know who this author is, right?
A. Well, her real identity?
Q. Correct, yeah.
A. No, I don't know who Lisa Mac Richards really is.
Q. Okay. So it's hard to know if she's an actual person?
A. If she's an actual person, is that what you said?
Q. What I mean to say is, because she's using a pseudonym, you can't confirm her identity is what she represents it is, right?
A. Well, she says it's a pseudonym, so I presume the rest of the paragraph is correct, that she works at a Canadian hospital and holds a master's of science degree and, yeah.
Q. But what I mean is there's no way to confirm that because we don't know what her name is?

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A. It could be written by a man, I don't know, it could be written by a committee, I have no idea.
Q. Okay. Okay. So going back to what we were talking about just a few minutes ago, Dr. Levine, about your approach versus WPATH. You, you've said before, not, not necessarily today, but you've testified in other depositions that your approach has the limitation that there's not any scientific evidence or long-term studies to support it, right?
A. I think in particular what I said is that, that the status of the outcome, the outcome status and the methodologic status of psychotherapy as a first line approach to the trans adolescent has, does not have a firm evidence base just as trans affirmative care does not have a firm evidence base.
So oftentimes that's, that's, I get a question just like you ask, you just posed sort of implying that there's no evidence that my, my recommendations have a scientific proven basis to it. And that is correct, except that all other psychiatric difficulties are treated with, in our society both European and American and Asian societies by a psychotherapeutic extended evaluation and treatment approach before, with or without psychiatric medications, you see.
And so we are trying to make a, you, some people

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were trying to make an exception of this psychiatric problem of the trans identity and saying we don't need to have psychotherapy, but we do need to have a psychotherapeutic approach to every other psychiatric developmental problem that we know of, you see. So we're making an exception for the trans people and Dr. Levine is saying why are we doing this, why are we making an exception.
This is a, this new identity is, is an evolution of a psychological process, maybe even contributed by some biological mysterious force, but why are we making an exception here. Why don't we approach this like, like we approach every other psychiatric problem in teenagers or adults, why don't we investigate it first before we make recommendations. In a one hour investigation or conversation focusing on gender identity is not what I consider, Dr. Levine considers an adequate psychiatric evaluation.
Q. Okay. I understand, I understand that, Dr. Levine. But the, the, you know, going back to what you were saying about how, you know, no psychiatric evaluation before intervention. Do you have, you know, what evidence do you have -- let me back up.
What, you know, you talk a lot in your report about how these gender affirming clinics and urban

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centers have cropped up that are providing affirming care in one hour, again, we talked about the 35 parents you had talked to, you've mentioned a couple of patients you've talked to, but you don't have, or I should say what evidence can you provide me today that is, is scientific peer reviewed published data showing that this is actually what's happening in these clinics?
A. Well, if I look at Exhibit 6. Do you know what the, the first name for this center was and the name of so many of the 50 or so centers are? And it has the term gender affirming care, the clinic, you see. If you look at all of the materials in Exhibit 6, it's about support and affirmation, it's not about investigation, it's not about psychotherapy. And, and you see, gender affirming care has been taken over, it's been taking over the world's sensibilities without any scientific, first demonstrating its efficacy with scientifically respectable methods.
Q. I understand that, Dr. Levine, but that's not my question. My question is, what evidence can you point to that these kinds of interactions are happening in clinics? Is your basis that the, are you basing that on the way these centers are named?
A. I'm basing it on what they're named and I'm looking at the document that you are, are talking about.

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Is there anything in this document that, that's saying wait a second, this may be a serious, that this may be a mistake for certain people, for example, the people who have the transition. This is the guide to transsex gender friendly clinics by region, you see. Transgender friendly doesn't mean, doesn't simply mean that we're not going to discriminate against you, call you names or tell you, make you feel unwelcome because you are transgender. That really means that we will affirm you immediately and get you as quickly as possible the treatment that you deserve, whether you --

Q. How do you, how do you know that, what are you basing that on?

A. How do you know that it's not true.

Q. How do you know that's happening just based on the name of the clinics?

A. Well, I've been in other, I've been involved in other lawsuits and have had opportunities to read the case reports of kids, teenagers and see what has happened to them and what kind of care they're getting and who's taking care of these people.

And so they're, everything that, all my, my collective experiences tells me that, that there is not, there is not a prudent psychotherapeutic, to use my words, process for many of these people in a transgender

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friendly especially designed specialty clinic. Those clinics exist to take care of trans people, to give them hormones and to get them surgery, that exists.

Q. But what you're describing --

A. It exists to do psychotherapy.

Q. Okay. And what you described, Dr. Levine, is the basis for your, for this opinion, right?

A. The basis for my opinion is my collective experience of dealing, watching, participating in the evolution of the study of transsexual care over, over since 1974.

Q. Okay. So your report states that you were involved with WPATH before it was called WPATH, when it was called the Harry Benjamin --

A. Can I help you?

Q. Yes. Harry Benjamin?

A. International Gender Dysphoria Association.

Q. Thank you. And you were involved around 1999 when the 6th version of the standards of care was released, right, we talked about that?

A. Yes.

Q. Okay. And it's, it's true that you helped to draft portions of that version, right?

A. Actually, my report misstates me as the co-chair. If I remember correctly, I was the chairman.

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Q. The chairman of that committee, okay. Thank you.

A. And most, with very little exception I had a significant editorial role in creating every sentence in that 21-page document.

Q. Okay. And you've testified in other depositions that even though the, there have been changes made to the standards of care in subsequent versions, you still continue to see your work reflected in those versions, right?

A. Yes, my language.

Q. Yes, mm-hmm.

A. Yeah, my language, right. In fact, the next version which came out I think three years later or two years later I think was pretty much word for word except for a requirement for one letter for endocrine treatment rather than two, which is what my committee of eight people recommended.

Q. Okay. And you've testified before that even Version 7, which is, you know, one more, obviously one more removed from Version 6, that that, as you read it much of the language you had actually still, it was still reflecting your language in that version even, even though it's a much longer document?

A. Well, yeah, I think the introduction section

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about what guidelines were and, and the problems of cross culture, cross country rules affecting the laws are different and the, that we wanted this to be a information guide for, for patients and parents and wives and husbands and so forth.

I think, you know, once, once we got, I mean, I don't have it in front of me and I'm not sure I could recognize every sentence I wrote anyway, but, but they did, they did continue to use some of my sentences, some of my concepts. It was my concept that there is a difference between readiness criteria and eligibility criteria, that was one of my contributions

Q. Thank you. And, and I think also you testified in the Soneeya trial that you had asked to be involved in helping to write standards of care 8 but were told that you, in order to do so you had to be a WPATH member, right?

A. Yes.

Q. And looking back at your report -- actually, give me just a minute here. Actually, Dr. Levine, let's --

MR. CHARLES: Sorry, Kelley and Kraig, can we go off the record real quick.

VIDEO TECHNICIAN: We're going off the record at 2:26 p.m.

(A break was taken at 1:26 p.m.)
VIDEO TECHNICIAN: This is media No. 5 in the deposition of Dr. Stephen Levine. Today is April 27, 2022. We're going back on the record at 2:32 p.m.
BY MR. CHARLES:
Q. Okay. Dr. Levine, let's go back to your report to Page 38.
A. 30?
Q. I'm sorry 38.
A. 38, okay.
Q. Okay. Paragraph 79 at the top of the page, you state that, "WPATH doesn't acknowledge the well documented phenomenon rapid onset gender dysphoria, now commonly occurring among adolescents, despite the fact that multiple clinicians report this is just what they are observing is happening." What, what citation do you have for that assertion that rapid onset gender dysphoria is commonly occurring among adolescents?
A. Oh, my goodness. The incidents of gender dysphoria in adolescents has increased dramatically, I am sure you are aware of this. It has increased dramatically among biologic males and biologic females, but in particular it has happened in girls who at puberty or shortly after puberty declared themselves to

be trans boys or trans males.
The historic pattern throughout most of the world was 3.5 to 4 biologic males who wanted to be women to biologic females who wanted to be men dominated dramatically for decades in the '70s and the '80s and the '90s and the early 2000s. But since 2005 there's been a growing incidence of request for services and particularly request for services from girls assigned at birth who wanted to be males.
Some of us have come to in recent years call this delayed or pubertal or rapid onset of gender dysphoria, meaning it's a pubertal phenomenon because there was no evidence prior to that except in the retrospective subjective histories given by these kids that they had any indication, parents and themselves, had no behavioral indications that they were trans identified or even sort of leaning in that direction.
Q. I understand that, Dr. Levine, and I'm not talking necessarily about the, the increase in referrals, I'm talking about this phenomenon that you referenced called rapid onset gender dysphoria. So not just adolescent onset gender dysphoria, which I understand you're saying has somewhat increased since 2005, but rapid onset gender dysphoria. And I'm specifically asking what peer reviewed studies, what

papers and what research would you refer me to or is referenced in your report as evidence that this hypothesis actually exists or that there's any scientific study to support it?
A. No. 1, this is not a hypothesis, this is a demonstrated fact.
Q. Okay. Based on what, Dr. Levine, that's what I'm asking, what are the peer reviewed studies?
A. If you look up the presentations of Kenneth Zucker, if you look at papers, I can't give you the authors at the moment from Europe, this has been documented by DiAngelo I believe in Australia, by Clayton in Australia.
It seems to me there is no disagreements about this except I've heard the cynical response that what rapid onset gender dysphoria really means is that the parents have suddenly discovered that their kids have been transgender, meaning to deny the parental reports that the children were not cross gender identified prior to that, even though the kids say, well, I was never comfortable with being a boy or a girl.
Q. Okay. So you, for this contention in your report you cite one thing and that is Midgen A. Hutchinson and her study is entitled, "In support of research into rapid onset gender dysphoria." So that

was published in 2020 and I don't, I'm not seeing here any of the other --
A. One, one of the reasons you're not seeing it is that I assume that everyone understands that this is true.
Q. Well, Dr. Levine, this is an expert report and you have to include all of your expert opinions, and you're also required under Rule 26 to disclose all of the data and research that you considered for those opinions. That's the purpose of our deposition today is for me to understand and to have you put on the record what you relied on to establish your opinions, so that's what I'm trying to get at. And, and I understand what you're saying that from your vantage point as a clinician outside of the legal sphere that there are things you think are givens, but we can't operate like that unfortunately. So I need to, I need to understand, and all I see here is the Midgen A. Hutchinson study that's asking for support of, that's offering that she wants to support research into this phenomenon, not that the phenomenon has been evidenced to exist. Does that make sense?
A. Yes. May I comment on that?
Q. On Hutchinson, yeah. Let me pull it up actually.

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A. No, about my deficiencies here, because I can provide you right now some additional places for you to look at if you, if you think that only one reference is, is inadequate. And I apologize, I don't think I understood as clearly as you stated what Rule 26 means or meant, or even consists of.

But if you look at all the things that I've already made mention to, like the Sweden report and the Finland report and the French report and the UK reports, all these reviews have all commented on the rising, the rising incidents of transgender requests for care. The very fact that there are now over 50, 50 trans clinics in the United States and probably growing is an indication of the rising incidence of transgender phenomenon in adolescents.

And so it seems to me that Rule 26 notwithstanding, anybody who's familiar with this field knows about the, about not the hypothesis, the hypothesis is about why it's happening, not whether it's happening, you see, it's fact. And it's been -- and so I, I, based on your definition I plead inadequate in writing this report, but it's not really the lack of evidence because I, I think even people at WPATH would recognize and probably has recognized the rising incidence. I think the standards of care draft No. 8

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makes reference to it as well. This is not to be denied.

So if you're questioning whether, whether this is really true, I think you're just simply wrong, but you're not, you may not be questioning that. I'm wrong and I didn't document adequately that sentence and I apologize, I stand corrected.

Q. Okay. So let's turn in your report, Dr. Levine, here to the following sentence which says, "There is also no chapter on detransition despite the evidence that a growing number of young people regret transition and wish to reverse it," do you see that, are you still on Page 38 there?

A. I do.

Q. Okay. So for this sentence here you have provided a couple of citations. The first is an article by Vanderbussche I believe, if I'm pronouncing it correctly, and then a second article by Littman. So let's, let's take each of those in turn. And I'll just introduce the Vanderbussche exhibit, give me just a moment.

(Exhibit 14 marked for identification.)

A. Is it up now?

Q. Let me know when you can see it.

A. This will be 14?

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Q. Yes, correct.

A. Okay. All right, I see it.

MR. CHARLES: So this is, for the record I'm showing Dr. Levine what has been marked as Vanderbussche article entitled, "Detransition related needs and support: A cross-sectional online survey, by Elie" -- oh, excuse me, it's Elie Vandenbussche, not Vanderbussche.

Q. And, and you've seen this article before, Dr. Levine?

A. Yes.

Q. Okay. Scroll please to the, the first page of text. Let me know if you can see that or if you need a minute to zoom in.

A. You mean, "Introduction"?

Q. Yes, it has, it's the page that has introduction on it, yes.

A. Okay.

Q. So from the abstract, the first sentence, the abstract is in a, set off in a blue box there at the top?

A. Yes, yes.

Q. It says, "The aim of this study is to analyze the specific needs of detransitioners from online detrans communities and discover to what extent they are

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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 means in relation to gender dysphoria, co-morbid conditions, feelings of regret and internalized homophobic and sexist prejudices. It also found that many detransitioners need medical support notably in relation to stopping/changing hormone therapy, surgery/treatment complications and reversal interventions." So the aim of this study as outlined here in the abstract is to analyze the specific needs of detransitioners, right?

A. Yes.

Q. Okay. Not to demonstrate that there is a growing number of young people who regret transition or wish to reverse it, right?

A. It's true. But you see, you're, you're taking the reference out of that sentence and missing the first phrase of that sentence. This sentence that you're drawing attention to is that WPATH's standards of care draft did not have any section on the phenomenon of detransition.

Detransition exists and detransition is a reflection of those adolescents or people, or adults who have at one time in their lives thought that they needed

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this care and then after they lived following the care they decided that their problems have not been solved and they decided to return to the gender expression --

Q. I understand that, Dr. Levine, and I'm not actually contesting the assertion in your, in your report that detransition exists at all.

A. All right.

Q. What I'm asking about is your assertion in the latter half of that sentence that says that there is a growing number of young people who regret transition and wish to reverse it. Again, I'm just trying to understand what you're saying here and on what basis you are making those assertions.

So I'm not asserting whether or not detransitioning exists, my question is, this study did not look at how many detransitioners are there now as opposed to any other time in history, it was not a qualitative or quantitative analysis. It was a study according to the abstract here, and I'm just asking you to confirm that, about the specific needs of detransitioners, both psychological, medical, other kinds of support, right? So that's what I'm saying is this study is not, the aim is not to quantify the number of, whether the number of detransitioners is growing or shrinking or staying the same, right?

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A. Yes, I can answer to your question, correct.

Q. Okay.

A. But it doesn't mean that -- I think you're missing the point. And, and by, by having me say yes, that it doesn't quantify the incidents of detransition, it's missing the point.

Q. I understand that, Dr. Levine. But if your point was, if your point in your report was detransition is a thing and here are the psychological supports that these people need, that's what you should have written, but that's not what you wrote. You wrote that a growing number of young people regret transition and wish to reverse it.

So my question to you about the article you rely on for that contention is, this article doesn't say that, this article is not a study of the growing numbers or small or diminishing numbers or staying the same numbers of people who detransitioned. That's what I'm asking you to confirm.

A. What I am confirming is that this particular paper talks about 237 people who have detransitioned and that WPATH has no serious discussion of detransition, there's no chapter on this, on this phenomenon which is extremely relevant to the care of transgender people, especially transgender young people.

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The reason I cited this is 237, and the reason, the next thing, Littman is another additional 100 people. And if you, if you read closely some of the references in this particular article, there is Exposito-Campos' article talking about subreddit and the number of people who were discussing detransition.

So what I'm saying if WPATH is responsible for, for providing a scientific basis for affirmative care, they must talk about the error rate as represented by detransitioned people. And four years ago we had no idea about the, the rate of detransitioned people and today we have two studies that have been published from the UK that begin to give us a rate of detransition.

And so to me you are making the wrong point and that I have not been in error. You just have misunderstood the difference of why I cited these particular papers. These particular papers just demonstrate that detransition is a real problem and, and it is a moral and ethical and scientific problem. And that WPATH if it's going to deal with the science of transition, it has to deal with the error rates and what happens to people who detransition, you see. And so I don't, I don't have nothing more to say about that, I just think your point is quite irrelevant.

Q. Okay. Well, I'm going to continue to ask you

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about evidence that you cite in your report that you use as support for assertions you're making, so I'm just going to flag that for you now. And again, this -- let's actually, let me, let me just ask one more time. This study does not speak to the numbers of people who have detransitioned now as opposed to any other time in history, right?

A. As far as I remember this paper, the answer to your question is right.

Q. Sorry, the answer to my question is -- okay, right, okay. So let's actually now that you mention it, let me just pull up really quickly the Littman study that you mentioned.

(Exhibit 15 marked for identification.)

Q. This will be Exhibit 15.

A. Okay.

Q. Okay.

MR. CHARLES: So for the record, I'm showing Dr. Levine what has been marked as SL15, "Individuals treated for gender dysphoria with medical and/or surgical transition who subsequently detransitioned, a survey of 100 detransitioners by Lisa Littman, received," well, published online 19 October '21.

Q. Okay. So looking at the abstract again, the

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first sentence, "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" -- oh, wait, let me stop there, just a second. And then the last sentence of the abstract -- oh, wait, hang on. So then actually if you'll look please to page -- okay, go to two pages down, Dr. Levine, it's going to be numbered Page 3355 in the upper right-hand corner.

A. Okay, I'm on the page.

Q. Okay. In the left-hand corner the paragraph starts on that page with, "Individuals," but I'm going to start reading from the second to last sentence. It begins, "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."

So again, my question here, Dr. Levine, is this study by design and by the admission of Lisa Littman is not about assessing the prevalence of detransition or

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whether or not the numbers of detransitioners are growing, right?

MR. DAVID: Objection to form.

A. You know, I, I don't know if I should just repeat what I said before. Detransition is a phenomenon, science is only now beginning to get, we have two studies that were published within the last I think four months or five months.

Q. Okay. So, Dr. Levine, are you refusing to answer my question because --

A. Not at all, I'm answering your question, I'm answering.

Q. No, you're not.

A. Well, then ask me the question again. I'm sorry, I apologize. You want to confine me to an answer and so, so set me up for the answer you want, please.

Q. Okay. What I'm asking is, this sentence by the admission of the author was not designed to assess the prevalence of detransition?

A. That's true.

Q. Okay. Instead the purpose of this study was to identify detransition reasons and narratives in order to inform clinical care and future research, right?

A. Correct.

Q. Okay. Thank you. Okay. Let's, I'm going to

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introduce another exhibit here, Dr. Levine.

(Exhibit 16 marked for identification.)

A. It hasn't yet appeared.

Q. I think this one is a larger file, so it's taking a minute.

A. Do we already have that one?

Q. Not that I'm aware of, "The endocrine treatment guidelines"?

A. Oh, no, I'm sorry, I highlighted something in error.

Q. Okay.

MR. CHARLES: So for the record, I'm showing Dr. Levine what has been marked as Exhibit SL16 entitled, "Endocrine treatment of gender dysphoric/gender incongruent persons and Endocrine Society clinical practice guideline."

Q. Okay. So I know the answer to this question, Dr. Levine, but I have to ask. You have seen this document before, correct?

A. I have.

Q. Okay. And this is the Endocrine Society's clinical practice guideline which was published in 2017, right?

A. Yes.

Q. Okay. On Page 51 of your report when you're

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discussing these guidelines you wrote that, "The guidelines were based on two systematic reviews which also found the evidence for hormonal use to be of very low and low quality, which translates to low confidence in the balance of risk and benefits." I can show you that in your report if you'd like to confirm that's the case, but I'll represent to you I just read it from Paragraph 104.

A. That's sufficient.

Q. Okay. So looking at Page 3873 of the endocrine guidelines exhibit.

A. Okay, I am on that page.

Q. Okay. There's a heading on the bottom left corner entitled, "Commissioned systematic review." Do you see that there in the lower left corner?

A. Yes.

Q. Okay. So starting, let's see. I could read you this entire paragraph, but I'm going to skip it and just go to the sentence that begins with, "However." It's the last word, second to last word at the bottom of that paragraph that says, "However, the," and then it goes to the top of that next column on the right-hand side beginning with, "Quality," do you see that?

A. Yes.

Q. Okay. So it says, "However, the quality of

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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 significantly, 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."

So I understand these to be the two systematic reviews that the committee commissioned. You described them in your report to be of very low and low quality, but I'm only seeing low and low. Were you, were you referring to something else for that very low reference?

A. I think I was referring to the things that I participated in and, and reading reports from the countries that I've already initiated, made reference to. And also the fact that I think I've seen reports and perhaps I've quoted some in this, in this, my expert witness report that had been done since 2017. And if

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this is published in 2017, it probably was done in 2016. And so some of these, you know, I guess -- well, I'm trying to think about what you're really asking me. You're asking me the difference between very low and low or --

Q. No, not the difference, Dr. Levine, just that this is a citation here for, for that assertion is the, is the guidelines. And so I, I'm seeing these two systematic reviews to be low and low, not very low. So I'm trying to figure out if that was a typo or what, what that was referring to from your report.

A. Mr. Charles, I think I cannot, I cannot say that this is a typo or it was not a typo.

Q. Okay.

A. I just don't know.

Q. All right.

A. At the moment.

Q. Okay. Let's, let's go to page, let's go to Page 3872, yes, of the Endocrine Society guidelines.

A. 3872, I bypassed it here.

Q. This page number for some reason is in the upper left-hand corner.

A. Yeah, okay.

Q. Okay. So starting, or I should say if you will look, please, at "The method of development of evidence

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based clinical practice guidelines," on the lower right-hand side of the, of the column on the right.

A. Yes.

Q. Okay. So beginning with, let's see. Okay. About the middle of that paragraph there's a sentence that begins, "In terms of the strength."

A. "In terms of the strength of the recommendations strong represents," okay.

Q. Yes. Do you see that there?

A. Yes.

Q. Also can you, are you having any trouble hearing me? There's some construction happening outside my window.

A. No. I hear the construction, but I hear you fine.

Q. Okay. "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," and I'm just describing what I see for the record because it's a figure, "Cross filled circles indicate the quality of evidence such that one circle with a cross in it and three empty circles denotes very low quality evidence; two circles with

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crosses in them and two circles without, low quality; three circles with crosses in them and one circle without, moderate quality; and four circles all with crosses in them, high quality."

MR. CHARLES: Kelley, does that make sense?

A. I understand.

COURT REPORTER: Got it.

Q. Thanks, Dr. Levine. I just want to make sure the court reporter gets what I'm saying.

MR. CHARLES: Kelley, does that make sense?

COURT REPORTER: I got it, yes.

Q. Okay. "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." Okay. You followed me there, Dr. Levine?

A. Yes.

Q. Okay. So your report says at Page 52, Paragraph 104 -- so, so let me back up here a little bit. Let's take a look at your report, I think that will be helpful. If you'll go to Page 52 of Exhibit 1.

A. Wait a second here, I, I got lost. All right. Page 52?

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Q. That's correct. At Paragraph 104 which starts at the bottom of 51 and spills over to 52.
A. I'm here.
Q. Okay. So about the middle of that paragraph there's a sentence you wrote that starts, "The guidelines' authors," do you see that?
A. Not yet. "The guidelines' authors," yeah, "had this to say," yeah.
Q. That's it, yes, "The guidelines' authors have this to say about what differentiates a weak recommendation from a strong one. 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. In other words, the Endocrine Society is saying we cannot be sure that on average the benefits of administering hormonal interventions will outweigh the harm for either adults or children."
Okay. So going back to the Endocrine Society guidelines, I'm trying to figure out here, I'm reading that, "Weak recommendations require more careful consideration of the person's circumstances, values and preferences to determine the best course of action."

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I'm wondering where in the guidelines it says what you wrote in your report, which is that, "They cannot determine on average the benefits of administering hormonal interventions will outweigh the harm for either adults or children"?
A. For weak recommendations?
Q. Yeah. So --
A. I'm quoting, I thought I'm quoting what you just read for me from the guidelines. I don't understand your question.
Q. Okay. Sorry. So look, look at the last sentence in your paragraph of 104.
A. "This is indeed a sobering notion"?
Q. No, the second to last sentence actually.
A. "The Endocrine Society is saying we cannot be sure on average the benefits of administrating hormonal interventions will outweigh the harm for either adults or children."
Q. Yeah. So the, I see the reference to benefit and harm in the strong recommendation explanation, but I don't see that in the weak recommendation explanation, so I'm trying to figure out where your other words are coming from.
A. Well, you have me very confused. It seems to me the, if there is four circles that are filled in, and I

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don't know if there are any recommendations that contain four circles that are filled in in that document, they mean that they think that it's very clear that their, the harm risk is going to be low.
Now I don't, and I think, I think what the Endocrine Society is saying that, and they said this in 2009 and they said it again eight years later, more research is necessary to increase the confidence that the expected benefits will actually occur. That kind of research has never really been done, there's not been controlled studies, there have not been careful follow-up studies. And, and now that we have some detransitioners, we don't know what level of certainty that the doctor who put the person on hormones or, put the person on hormones had, you see.
I think generally speaking the practitioners who follow these guidelines do not appreciate the nuances that these, that the committee has said about when there's one circle filled in, two circles filled. They just think that this is all, the Endocrine Society has recommended hormones. And so when you look very closely at what the Endocrine Society said, they are aware of the scientific limitation and nonetheless they believe that these were important things to do, even though scientifically they're not sure, they're not very

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certain about whether the benefits outweigh the risk and whether the risks are measured in short-term or in long-term.
And, you know, from a scientific point of view, hormones starting with children then, then with adolescents then leading to a lifelong hormone treatment in terms of cardiovascular, lipid problems, diabetes, weight gain and all the things that we, and blood clots, all the things that we know that happened at, at, to adults. These studies, these studies are very short-term studies. And, and so the Endocrine Society is aware of the scientific follow-up limitations and therefore they don't have these strong recommendations. And, and I just think as a physician I'm aware that when we, when we do these affirmative care, what we're really talking about is the impact on the rest of the person's life. And you may or may not know that there is some pretty convincing evidence that on average the life expectancy of --
Q. Okay, okay, Dr. Levine, hang on. What I'm asking is the, the, you quote the guidelines from the portion that I just read that describes the meaning of the strong recommendation versus the weak recommendation. The strong recommendation says that clinicians are -- sorry, "The task force who created the

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guidelines has confidence that persons who receive care according to the strong recommendation will derive on average more benefit than harm." The following sentence says, "Weak recommendations require more careful consideration of the person's circumstances, values and preferences to determine the best course of action." That sentence does not say weak recommendations mean that we're, mean that so and so is going to derive more harm than benefit or so and so, we're not sure if they're going to derive more harm than benefit. It says there, "Weak recommendations require more careful consideration of the person's circumstances, values and preferences to determine the best course of action." So my question is, where are you getting that weak recommendations mean what you are saying it means in the second to last sentence of your report?

A. Because I interpret that sentence, which we agree upon, you see. What, what that sentence really means to me, Mr. Charles, is that science cannot answer the question because we haven't done the appropriate studies and there is this issue of the long-term consequences. So reading our sentences, reading my reports we should, we're not, we don't have, we don't have to rest on science now, science can't help you, what can help you is what the patient prefers, what the

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doctor's values are and what the patient's values are.

Q. Okay. So, Dr. Levine, that's your editorializing, it's not based on what the, what the, what the actual words of the guidelines are saying.

A. Well, you know, every reader, especially every professional reader integrates the scientific or these consensus documents with his own values and personal clinical experiences and what he knows in terms of other data. And so even though you say it's my personal interpretation, I, I don't want that to be demeaned. Lots of people --

Q. I'm not, I'm not demeaning it at all, Dr. Levine. I'm just making sure that you and I are reading the same words from the guidelines and that you aren't quoting something that I'm not seeing from the guidelines, that's what I mean, I'm not demeaning your professional experience at all.

A. Right. Well, thank you for that.

Q. So let me, let me ask one follow-up. You said that you thought some people read these recommendations, some, some clinicians read them and said, oh, the Endocrine Society is recommending hormones and without any, without any nuance or, or without really say understanding the various, in my view, pretty, pretty nuanced things that this guideline says. What evidence

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do you have or can you point to that that's how people are interpreting it?

A. I read Dr. Karasic's report and when --

Q. Where in his report does he say that?

A. Right now I don't have it, I don't know. But I'm telling you that I've had a lot of experience and, and it -- I, I forget the number of pages this Endocrine Society thing is, is it 40 pages, something like that, it's a long document. And so it's asking, it's asking me, too much of me to, to say, to point to one paragraph or one sentence and say is there any, is this, is this what the basis of my conclusions are.

And given the fact that it's really hard, you've now presented 16 documents to me, many of them, you know, I read at one point in my life, in the last six months. And when, when I think of people who are not as academic and interested and they're just wanting to do, to provide care, they don't really read these reports and they don't appreciate the subtleties that you're making reference to. And it, it seems very clear to me that the average professional who's giving hormones is not very well acquainted. They often say, at least in testimonies they often say, well, I follow the Endocrine Society or I follow WPATH, and they don't really know the details of --

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Q. Well, I understand, I understand that.

A. That's my opinion and that's my, that's my impression.

Q. Okay, okay. So let me, let me, let me help, let's have a look at some other guidelines here really quickly.

A. I'm sorry, am I supposed to be doing something now?

Q. I'm just waiting on an exhibit to load, so it might be visible now to you, it's Exhibit 17.

(Exhibit 17 marked for identification.)

A. Okay. Oh, yeah.

Q. Okay. So does that mean you see it?

A. I see it.

MR. CHARLES: All right. So for the record, I'm showing Dr. Levine what has been marked as Exhibit SL17, the document entitled, "Pediatric obesity, assessment, treatment and prevention, Endocrine Society clinical practice guideline."

I'll represent to you, Dr. Levine, this was published, well, the copyright says -- oh, no, it does say, "First published online, 31 January 2017," so approximately the same year as the guidelines we just looked at. Scroll please to Page 712.

A. 712 of a 49-page document.

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Q. Oh, no, yeah, sorry. So the, that will be 712, page number is in the upper left-hand corner.
A. I have it, I have it, Mr. Charles.
Q. Okay. So was that, were you making a joke?
A. No, I was just saying I notice that it's a 41-page document.
Q. Oh, okay, gotcha.
A. This is in keeping with what I said about the human mind's capacity to keep 41 pages in mind.
Q. I see. So kind of a joke.
A. No, it's just, I'm just making reference to my prior point about --
Q. That's okay, that's all right, moving on. At the bottom of 712, "Method of development of evidence based clinical practice guidelines."
A. Yes.
Q. It's on the left-hand column just a few sentences up from the bottom.
A. Yeah, I got it.
Q. Okay. So starting there. Actually, let's see here. I'm going to start actually in the column on the right, the first paragraph. I'm looking at the sentence that begins, "In terms of the strength of a recommendation."
A. Yes, it looks like it's the same language as the

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previous.
Q. It is, yeah. I will represent to you, Dr. Levine, this is identical language that is both in the guidelines we just looked at and in your report.
A. Yes.
Q. Do you want me to read it to be sure out loud?
A. No, I trust you, Mr. Charles.
Q. Okay. So these, I point that out to you to say that this language and the explanation of the strength of the recommendation is used in more than one guideline from the Endocrine Society. Does that appear to be the case here to you?
A. Yes.
Q. Okay. So then please scroll up to Page 710 and look at, there's a title about the middle of the page, "Prevention of obesity, 3.0, prevention of obesity."
A. Okay.
Q. So looking at 3.2, "We recommend that clinicians prescribe and support healthy eating habits, such as avoiding the consumption of calorie-dense, nutrient-poor foods; e.g., sugar sweetened beverages, sports drinks, fruit drinks, most fast foods or those with added sugar or added table sugar or high fructose corn syrup, high fat or high sodium processed foods."
A. Yes, I read it, I see it.

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Q. Okay. And then the second bullet point there is, "Encouraging the consumption of whole fruits rather than fruit juices." And that recommendation there is a one which is a strong, one denotes strong, a strong recommendation, right, that's a sure understanding from the graded scale?
A. No, actually I think two, two filled in circles is low.
Q. Oh, I understand that, Dr. Levine. I'm saying there are -- do you see the corresponding numbers next to the circles?
A. Yes.
Q. So those reflect either a, always a one or a two?
A. I see.
Q. Okay. And the one or the two, a one denotes a strong recommendation and the two denotes a weak recommendation. I can show you that in what we, do you want to see that or do you just want to --
A. No, no, I trust you.
Q. Okay.
A. But what we have here is a one which is the Endocrine Society is strongly recommending using whole fruits rather than these derivatives that were discussed in the previous paragraph.

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Q. Correct.
A. And they evaluate the evidence for their strong recommendation as very low.
Q. I think two, so two circles is actually low and one circle is very low, so this --
A. I'm sorry, I misspoke, it's low.
Q. Yeah.
A. So the science is low, but the recommendation is strong.
Q. Correct.
A. And therefore the discrepancy between the low science and the strong recommendation must be based on other things, which was probably consensus reasonableness, it's the intuitive sense of reasonableness.
Q. Right.
A. So we have a very strong recommendation even though the science trails the recommendation significantly.
Q. And so you described that as a, well, you just said something there, you said something about reasonableness, so they can make a strong recommendation with low quality of evidence because of something else, did you say what that something else was?
A. Well, it's their current sense of, of what's

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reasonable. They believe even though the science is lacking that it makes sense to eat whole fruit rather than sugar derived, you know, commercially derived sweet, sweet, the fruit juices.

Q. Okay.

A. So it's, it's, it's recognizing the discrepancy between the lack of scientific evidence and our current beliefs about this. So No. 1 is a belief system and the circles are a science system.

Q. Well, I don't know that I would agree with that description. Let's see, I'm going to go back and look. It says, if you go back to the method of development of evidence based clinical practice guidelines on Page 712 where we just were.

A. Okay.

Q. "The, the task force used the best available research evidence to develop the recommendations." So I don't, I don't know that, what I would represent to you is that the guidelines are saying that the, that the recommendations are developed through research evidence, not, not separate, not based on a belief system.

A. Mr. Charles, if you were correct, if you were correct the circles would be all filled in, all four of them.

Q. No, no, Dr. Levine, hang on. You're, you're

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misunderstanding the distinction here. Are you on Page 712?

A. Yes.

Q. Okay. So at the, at the top of the right-hand column, first paragraph, basically the second sentence on that page, or on that column, excuse me, says, "The task force used the best available research evidence to develop the recommendations. The task force also used consistent language, graphical descriptions of both the strength of a recommendation and the quality of evidence. In terms of the strength of a recommendation, strong recommendations use the phrase 'we recommend' and the number 1; and weak recommendations use the phrase 'we suggest' and the number 2."

A. Mr. Charles, you have not convinced me that I'm wrong.

Q. I'm not trying to convince you that you're wrong.

A. I don't agree with you, I don't agree with you. I understand that the Endocrine Society is making a strong recommendation to encourage the use of whole fruits in the diet instead of fruit drinks, but the fact that they have four circles and they only fill in two, they after reviewing the science they recognize that there isn't a scientific enormous strength in this, in

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the recommendations, nonetheless they recommend it because their best judgment is this is a very smart thing to do, and that's judgment, that's all.

Q. Dr. Levine, I need to, the second sentence says, or the sentence about the cross filled circles says, "Cross filled circles indicate the quality of the evidence."

A. Yes, the quality of the evidence is low.

Q. Yeah, but you said the, you said the development of recommendations -- or I'm sorry. You said the, that recommendations were based on a belief that the task force has as opposed to the best available research evidence which is what they just said, which is what I just read to you, do you see that?

A. The best available research evidence --

Q. To develop the recommendations, so it's not --

A. -- is of low quality, they wish they had higher quality evidence to make the recommendation, but nonetheless, for other reasons they make the recommendation.

Q. Okay. But I just, I need, I, what I'm asking is you are not offering an opinion that the recommendations are based on subjective beliefs, because this sentence says the task force used the best available research evidence. Answer this and then we'll move on, I, I, I

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just, I'm just trying to understand, you're not saying that people are pulling their beliefs out of nowhere, this, this --

A. No, no, I'm not saying they're pulling their beliefs out of nowhere. But I am also not denying that subjective beliefs play, don't play a role. If, if I believe that the science dictated the policy, I think you would see and you would be very pleased to see four circles filled in.

Q. Okay. So you, you understand the sentence I'm referring to, "The task force used the best available research evidence to develop the recommendations"?

A. Yes, that's what they, yes, I understand that.

Q. All right. Dr. Levine, let's take a quick break, we'll come back at 3:36.

MR. CHARLES: Kelley and Kraig, let's go off the record. Sorry, I should have said that first.

VIDEO TECHNICIAN: We're off the record at 3:31 p.m.

(A break was taken at 2:31 p.m.)

VIDEO TECHNICIAN: This is media No. 6 in the deposition of Dr. Stephen Levine. Today is April 27, 2022. We're going back on the record at 3:39 p.m.

BY MR. CHARLES:

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Q. So, Dr. Levine, we were reviewing the pediatric obesity guidelines from the Endocrine Society and talking about how it's possible to have a strong recommendation with low quality evidence. And so my question is that the phenomena of strong recommendations with low quality evidence is not something that is limited to Endocrine Society guidelines for the treatment of gender dysphoria, that is something that is evidenced at least in one other guideline, and I would argue more, but at least in this other guideline I've showed you?

A. I'm sorry, is that a question or is that a comment?

Q. Yeah. So, so let me rephrase. So the phenomena of a high recommendation, a strong recommendation with low quality evidence is not a phenomena limited to the pediatric, to the Endocrine Society guidelines to the treatment of gender dysphoria?

A. Yes, as you know, either you nor I are an expert in the medical care of obesity, but obesity is a well known problem, especially in young people, that has an outcome that is adverse. And, and so what may be a strong recommendation with low quality evidence for something that is known to cause osteoporosis, diabetes, shortened life expectancy, low self-esteem, depression

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and, and premature death from various cardiovascular diseases is a separate kettle of fish from taking a biologically healthy person who has psychological --

Q. Okay, okay, Dr. Levine, not my question. My question is, it is possible, we have, I have just showed you evidence that the phenomena of a strong recommendation with low quality evidence from the, from the Endocrine Society is not something limited to the guidelines for the treatment of gender dysphoria, it's something that exists in other treatment guidelines from the Endocrine Society, right?

A. If you want me to answer that question right, I can answer right, but please note that I'm making a distinction between some well recognized thing that --

Q. I understand, Dr. Levine. I'm not making that distinction, I'm showing you two sets of guidelines and I'm asking, that phenomena is not limited to one, it's evident in both of those guidelines?

A. And if you noticed, I've already answered you you, you once.

Q. Well, you said no and then you kept talking. So what I need to ask is just answer my question, please.

A. If I just answer your question, the answer is correct.

Q. Okay. Thank you. So looking back at your

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report, Exhibit 1, let's go to Page 50.

A. Okay, I'm on Page 50.

Q. Okay. And looking at Paragraph 102. 102 is at the bottom of Page 50.

A. I'm looking at it.

Q. Okay, great. It says right there that, "The public health authorities in Sweden and Finland have done systematic reviews of evidence of gender affirming interventions with the focus on youth and both came to the same conclusion as the systematic reviews above. The evidence of benefit was found to be unconvincing." So for this contention you cite to, the footnote there is first footnote 163 and footnote 164, do you see that at the bottom?

A. Yes.

Q. Okay. So let me introduce another exhibit. So the first, I'm going to be asking you a question about the first citation there which says the title is, "Gender affirmation surgery for gender dysphoria, effects and risks, health technology assessment review 2018, Swedish Health Authority published online 2018," and then there's a Web address there, do you see that, much of which is like digits?

A. Yes, I see it. Are you going to, is that going to be an exhibit?

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Q. Yes, mm-hmm.

A. All right. I'll turn to the exhibit page. Okay. So that will be 18 when it's on?

Q. Yes, correct.

(Exhibit 18 marked for identification.)

A. It's on, okay.

Q. Okay. So when I went to try to find that citation I copied and pasted that link in entirety I'll represent to you about six times and each time this is what I, this, this exhibit is what I received. So have you, I mean, was this a document that you reviewed?

A. I must have reviewed it at some time.

Q. Okay. Do you remember what the document looked like?

A. No.

Q. Okay. So the second footnote -- I'm going to introduce another exhibit.

(Exhibit 19 marked for identification.)

A. Now come on, where am I here, what have I done.

Q. The exhibit is loading, but it is a large file. It should be available now.

A. I'm, I'm again having trouble with getting lost and I'm now on a previous exhibit and I can't get back to my general screen.

Q. Okay.

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A. Let me see what I can do here. I'm on Exhibit 14 and I'm going to refresh. When I refresh I get the same thing, I go forward, nothing happens, go backwards, nothing happens.
Q. Okay.
MR. CHARLES: Kraig, let's go off the record real quick.
VIDEO TECHNICIAN: We're going off the record at 3:47 p.m.
(A break was taken at 2:47 p.m.)
VIDEO TECHNICIAN: We're going back on the record at 3:47 p.m.
MR. CHARLES: Okay. For the record, I'm showing Dr. Levine what has been marked as SL19.
BY MR. CHARLES:
Q. So, Dr. Levine, this is a document that came up when I looked for --
A. All right. So this probably, I, I didn't realize that my reference was to a Swedish document. I have seen a translation of this document, I gave you the wrong reference, I'm sorry.
Q. Okay. So this, this is actually Finnish I learned.
A. Oh, Finnish?
Q. Yes. This, this is I believe --

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A. This is --
Q. Well, let me just ask you, Dr. Levine, you don't speak Finnish, do you?
A. I'm an American, which means I have one language.
Q. Okay. Okay.
A. I only speak English.
Q. Okay. Are you saying you have read a translation of this document at some point?
A. Yes.
Q. And do you know if it was an official translation, a certified official translation?
A. I don't know if it was a certified one. I think I, I accessed it through SEGM.
Q. Okay. All right. Let's go, let's go back to your report, Exhibit 1.
A. God, I'm having the same damn problem again. All right. Exhibit 1, I'm going to get there. All right, here I am.
Q. Okay. And you, you said earlier that the UK was also changing some of their guidelines with regard to medical interventions for the treatment of gender dysphoria, right?
A. Yes.
Q. Give me just a second here. But the UK has also

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not completely banned all medical interventions, right, they're just adjusting them?
A. That's correct, you're correct.
Q. And then are you aware of the Cass review?
A. Yes.
Q. That the UK is doing?
A. Yes.
Q. Okay. And, and as a part of that review you're aware that the, that the national, what do they call it, the National Health Service acknowledges that some children do experience gender dysphoria and will need clinical support and interventions?
A. Yes.
Q. Okay.
A. That's the clinical perception around many people, yeah.
Q. Okay. All right. Let's take a look, hopefully you still have it up, Page 51 of your report, Paragraph 103.
A. Getting there. Okay, I'm here.
Q. Okay. So in Paragraph 103 you're talking about a review by Professor, excuse me, Professor Carl Heneghan, the editor of the British Medical Journal. And the citation provided to that review is at the end of the paragraph, do you see that, footnote 165?

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A. Yeah.
Q. Okay. And again, this is, this is the kind of review we talked about earlier, right, not a committee of scientific researchers doing a systematic review of the literature, but rather an individual doing their own independent look --
A. Right.
Q. -- of the available research? Okay. Let me just put an exhibit here real quickly.
(Exhibit 20 marked for identification.)
Q. Okay. I think that's available. Let me know when you can see it.
A. I'm sorry, is that another exhibit?
Q. It is, yes, it should be Exhibit 20.
A. And do you want me to open it?
Q. Okay.
A. It's very hard to read, I'll have to --
Q. Use the zoom function.
A. Yeah.
Q. Okay. So the citation you provided to Dr., I'm sorry, Professor Carl Heneghan's review, I'll represent to you that Exhibit SL20 is a screen shot of that citation.
A. Yeah.
Q. Entitled, "Gender affirming hormone in children

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and adolescents." And you can see there that in the title, this is a blog, right?
A. Yes.
Q. Okay. And it says off to the right there, "Insights and opinions from BMJ EBM's readers, authors and editors," right?
A. Mm-hmm, yes.
Q. Now I'm going to introduce the blog that I -- just a second.
(Exhibit 21 marked for identification.)
Q. Okay. There's another exhibit, Dr. Levine, if you refresh I think you'll see it. It's Exhibit 21, do you see it yet?
A. Mm-hmm, yes, I see it.
Q. Okay.
MR. CHARLES: So I'm showing Dr. Levine what has been marked as SL21, "Gender affirming hormone in children and adolescents," posted on the 25th of February 2019.
Q. And, Dr. Levine, go ahead and scroll to the, there are no page numbers here, so you're just going to have to look for the heading, "Disclaimer."
A. Okay. Before we do that, Mr. Charles, I just want to point out that the first chart in this on Page 1 shows the question you were sort of implying I didn't

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have any strong evidence that there was an increase in the incidents of these problems, and here it is showing you the incidents, it's just another reference to it for the UK GID services.
Q. Okay.
A. So we wanted to go to what, what section?
Q. It's going to be one, two, three, four, five, six, it's if you count down from the first page it's the seventh page as you're scrolling and you're looking for a section entitled, "Disclaimer."
A. Okay.
Q. Okay. So that section reads, "The views and opinions expressed on this site are solely those of the original authors. They do not necessarily represent the views of the BMJ and should not be used to replace medical advice. All information on this blog is for general information, is not peer reviewed, requires checking with original sources and should not be used to make any decisions about healthcare. No responsibility for its accuracy and correctness is assumed by us and we disclaim all liability and responsibility arising from any reliance placed on such commentary or content by any user or visitor to this Website or by anyone who may be informed of any of its content. Any reliance you place on the material placed on this site is therefore

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strictly at your own risk." Did I read that correctly?
COURT REPORTER: Can you slow down when you read, please.
MR. CHARLES: Oh, Kelley, I am so sorry.
COURT REPORTER: You're fine, just going forward. Thank you.
MR. CHARLES: Okay. Kelley, do you want me to read that again more slowly?
COURT REPORTER: No, I'm good. I'll get it from the exhibit.
MR. CHARLES: My apologies again.
BY MR. CHARLES:
Q. Okay. Dr. Levine, did I read that correctly and too fast?
A. You read it very rapidly and correctly.
Q. Okay. All right. So as, as you saw on the disclaimer there, this is not a peer reviewed source, right?
A. You see, among in the United States, among the most respected opinion makers are the editors, are the long-standing editors of major medical journals, the New England Journal of Medicine in the United States, for example, and the British Medical Journal and Lancet in the UK.
So this disclaimer is, sounds like it was

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documented, it was put in there for legal purposes. I don't know if other, other blogs have that same disclaimer, I don't know. To me it would be a very interesting question whether every blog has this disclaimer or whether this particular one because it deals with a subject which is such a contentious subject and is, has been known to create, you know, political dissent that sometimes sort of doesn't become very mannerly, that's why this disclaimer is here. But, you know, I read this, this is a very legalistic term paragraph.
Q. Fair enough. But be that as it may, Dr. Levine, the, the paragraph here does say, "All information on this blog is for general information and is not peer reviewed," can we agree that's what that says there in the disclaimer?
A. That is true.
Q. Okay. So, Dr. Levine, your report discusses in many places, moving away from this exhibit so you don't need to continue to look at it, your report discusses in many places that trans adolescents are being seen, and we, you've said it a few times today as well, that trans adolescents are being seen one time and being given a prescription in an hour for, you know, puberty blockers or cross sex hormones. And you testified in your

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deposition on March 30th that your only evidence for that assertion is a meeting that you had with 35 parents on a Zoom call and that you don't actually know how many parents you've talked to who have said that that kind of "rapid care" is happening, right?

A. In one year, maybe 2019, I saw six parents who told me the same thing.

Q. And you --

A. So I really, I think you're not accurately summarizing my previous comments about this. You're, what you're saying --

Q. I understand. Hang on, let's, let's go look at your testimony from that transcript and I want you to be refreshed on what you said. So I think that is exhibit, let me look at the exhibit list really quickly here. That's going to be Exhibit 3. I think in the folder you can just click on it.

A. Okay, I have it up.

Q. Okay. So you're going to scroll to Page 123 again, the page numbers in this document are in the lower right-hand corner.

A. I'm currently on Page 80. I'm getting there.

Q. It's a long document.

A. Page 180?

Q. No, that would be 123, Page 123, 1-2-3.

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A. 123. I am on Page 123.

Q. Okay. And now that you've gotten there, I revise my statement. Please go to Page 121.

A. Okay.

Q. Okay. Starting at line 4, do you see that there at the top of the page?

A. Mm-hmm.

Q. Okay. "So how many parents have you talked, how many parents have you talked to about their concern with what you call the rapid affirmation model? Answer, well, I gave a talk to 35 parents probably a year ago, in 2017 I think I wrote about it in the article that the last four or five cases that I was involved with the parents all said the same thing, that is, they were horrified that after one hour their child was diagnosed and had recommend, had recommendations that horrified them. Question, sorry, how, where was the talk that you gave to the 35 parents, where was that? It was in, it was in my easy chair in my bedroom. Question, what was the convening, what was the venue for that? It was a group of parents who invited me to give a talk and what I gave a talk on was the aspects of what I know about human identity, not just gender identity. Was that, was this group of parents affiliated with an organization or how did they, say, how did they present themselves as an

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organization? Answer, a woman contacted me and said that she belongs to an organization of concerned parents of trans teenagers or children. She sent me an analysis that she made, a little research that she had done demonstrated a very high intelligence of all the children in this group and very high incidence of autism and other developmental problems. She sent me that data, she wanted some advice from me about how that got published and then she invited me to give a talk. When we talked she said she will get back to me and she got back to me and invited me to give a talk to the parent group, so that's what happened."

Skipping down to Page 123, Dr. Levine, at line 2, "I'm just going to try to, so I appreciate what you've explained. Could you tell me how many actual parents have described to you personally an experience where their child was diagnosed and prescribed treatment in an hour? Answer, well, if, some people it would be two hours, okay. Question, let me just start with one hour. How many parents had told you directly that their child has been prescribed, diagnosed and prescribed treatment in an hour? Answer, I would say perhaps 50 percent of the people who have consulted me. Question, and how many people have consulted you? Answer, I can't really say or I really can't answer.

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You know, if I told you 11, if I told you 16, if I told you four, I would, I would have no conviction that that answer is correct. I'm telling you I have the impression" -- okay, let's stop there actually.

So, so that's what you, that's what you testified to a month ago on March 30th, just about a month ago, Dr. Levine, on March 30th. And that's still an accurate reflection of your awareness of this rapid affirmation analysis?

A. Mr. Charles, I think this deposition was in September of 2021, if I'm --

Q. The one you're looking at?

A. The one that you're quoting from.

Q. No, no, this is BPJ from March 30th.

A. Oh.

Q. Are you looking at, are you looking at Exhibit 3?

A. Yeah, I am.

Q. Yeah, yeah, this is from March 30th.

A. Okay, I'm sorry. So, I'm sorry, what is your question again?

Q. Oh, so I'm just, I'm saying has, has any of this changed, has your, your answer to any of this changed in the last 30 days basically?

A. Let's see, today is Wednesday. On Monday at

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12:30 I spoke to a parent who is the former dean of a medical school, the former dean of a medical school who told me about his masculine autistic son who's brilliant and who went off to law school and decided apropos of nothing the parents understood that he was trans and was able to get a recommendation for hormones after an hour with a new therapist.

Q. Okay. So, so that's, that's one, one account that you've heard of from a parent in the last 30 days, right?

A. In the last 48 hours.

Q. Right. But, I mean, since the time you gave this deposition that we were just looking at?

A. March 30th. I'm just trying to think if there was somebody, some other experience in the last 28 days, 29 days. Yes, there is another, there's another family where I was called from an out of state family because they, they lived in New Jersey and they, they consulted a number of people. And, and I think three different people told them that they believed that affirmative care is the best treatment and that they would affirm their trans 17-year-old who's, who for the last three months has been saying that he's trans. And the, the parents were panicking about this and talked to me about this. So --

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Q. When you say --

A. I can't think of anything else in the last 30 days or 29 days.

Q. Okay. When you say those folks were worried about affirming, do you mean, you didn't, did they explain to you what, what was being proposed to them?

A. Yes, that, that, and inquiring, talking to the therapist, to three different therapists. They all said they all believed in affirmative care and the best thing to do with a 17-year-old, however long he's had this concept of his gender, was to affirm it.

Q. Okay. But they, they didn't say they were going to give hormones to the child in an hour, right?

A. Oh, no, no, because it's -- no, of course not.

Q. Okay. Okay. Just making sure. Okay. So, so we, we've talked a lot today about your, your understanding that some, you know, your belief that some providers out there are moving too quickly. But this work on behalf of, of -- let me back up. So you've, you've testified earlier today that you believe that there are providers who are moving too quickly, that there's rapid affirmation with, you know, immediate access to hormones. It is possible for this work to be done deliberately and with adequate safeguards though, isn't it?

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A. That's, it is possible.

Q. Okay.

A. It is possible. That's what I'm advocating, you know.

Q. Okay. And, and so, and exactly, okay, perfect. Let's, let's take a look, Dr. Levine, do you -- give me just a minute here. Okay. So you, you've talked some today, Dr. Levine, and in other testimony you've provided that in your experience there, there are some children who persist in their asserted gender identity through puberty, right?

A. Yes.

Q. And you've had some patients like that, right?

A. Yes.

Q. And you've testified that you've heard in some cases positive reports from these patients and from time to time from their families as well, right?

A. Yes.

Q. Okay. And you've testified previously that you think -- well, sorry, let me back up. Okay. So you've also testified previously that you think the majority of your patients persist in transitioning, right? I can narrow, I can narrow the question a little bit, I understand that's a large universe.

So for the patients you have who you have

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authorized, you know, provided a letter in accordance with the standard practice to authorize either endocrine or surgical interventions, for those patients, the majority of them you have testified continue forward with those interventions, as far as you know?

A. Well, I wrote a letter of recommendation for hormones with a very good explanation of who this person was and what his struggles were. I had seen him in psychotherapy for about a year and a half and I had promised him that when he turned 18 if he still persisted he would, I would write him a letter. I did, he turned 18 in August and he got hormones very quickly thereafter that based on my letter.

He then went off to college as a trans person, he had just came out as a trans person, he had great trouble at this college because he couldn't find a roommate. And finally there was one other trans incoming fresh-person and, and the two of them roomed together. They didn't get along at all and he then left college and started college at Ohio State instead. And while he was at college, and was never doing this before, he started using heroin and he died in his dorm room from a heroin overdose on March 17th, 2021 in his freshman year.

So, you see, that's an example, that's an

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example of somebody who I have given hormones to and --
Q. Yes, but again, Dr. Levine that's not my question. And I want to be clear that I have heard that story from you and I'm very, very sorry and I'm sorry for the loss of that young person, I'm sorry for the loss, the loss to that young person's family, and I want to be extremely clear about that point. But I also, you know, want to return to my question which is a question about the majority of your patients, not the outliers and not the exceptions.
I'm asking are the majority of the patients who you authorize care for who are, you know, before they, before they go out and as you say you never hear from them again because the lack of follow-up, I'm saying when you authorize that care for them do the majority of them persist in pursuing that care?
A. Well, I, there's just another person that I, based on his request I, based on her request, excuse me, I wrote a letter for orchiectomy and the patient never had the orchiectomy.
Q. I understand that, Dr. Levine. Again, I'm not asking about --
A. The answer to the question has to do with the denominator, you see. I don't know the denominator to use when you say the majority of my patients, that would

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mean 51 percent of my patients, and I don't really have a clear denominator. I need to ask you a question.
Q. No, no, Dr. Levine, hang on. We don't have to, we don't have to get into percentages or specifics in that regard.
A. Well, you were asking me a question about majority, that's a, that's a mathematical concept, it needs a denominator which I can't tell you.
Q. Okay. So let me ask you this, more often not, more patients than not in your estimation pursue transition, it is, it is not, it is, these are exceptions that you are identifying for me. And I'm asking you at a 30,000-foot view from a general overview.
A. I would say about the majority of teenagers that I've seen, I have not had follow-up to know the answer to your question. For the majority of adults that I have seen, the majority of them persist in their transgender life.
Q. Yeah. I, my question is even more, even more narrow than that and I appreciate that you answered it, so thank you for that. But what I'm saying is, you know, folks persist, patients that is, you know, persist in going through with the transition, right, so they, they, whether or not they, I'm not asking do they

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continue to identify as trans for the, you know, for the rest of their natural life and continue with the medical transition through X, Y steps. I'm saying from your vantage point at the point of which you authorize that care for them, do the majority, and we don't have to use majority, more, more than not do they go ahead and make those steps, and what I hear you saying is yes.
A. Mr. Charles, what you need to understand is people come to people like me to undergo a process in order to get say a letter of recommendation. They often promise to come back and see me and the vast majority of them almost never come back and see me, and that's why I can't really answer whether they persist or not. And this has been a problem in all of the research about the loss to follow up.
People come with this idea that they want this particular treatment and they need a letter, and so if they work with me I give them a letter, and I want to follow them up. You know, in Sweden it was recommended that everyone have lifelong psychiatric follow-up care, but in America, and I think in Sweden we don't have that either.
So people come to us with a treatment in mind and if they meet our eligibility and readiness criteria we give them a letter and then they, then they are often

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lost to follow-up. And so it makes it very difficult for me to answer authoritatively your question and I want you to understand that.
Q. I do understand that, thank you. And you've testified before about your frustrations with the lack of follow-up. Okay. So I'm going to go ahead and introduce another exhibit, give me just a moment.
A. Is it in?
Q. Just a minute, I'm having an issue with the introduction, it will be just a moment. Okay. Dr. Levine, let's actually go back to your report. Can you hear me okay?
A. Yes.
Q. Page 26, Paragraph 51.
A. I lost it a second, what did I do. Somehow I just got on this Finnish thing. All right, my report, all right, I'm on my way.
Q. Okay.
A. All right. 21, is that what you said?
Q. Page 26.
A. 26, got it.
Q. Okay. And looking at Paragraph 51.
A. Yeah.
Q. Okay. So in this paragraph you talk about the treatment costs associated with puberty blockers and you

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list that those are between $6,000 and $4,000 per year per child. Do you, do you know, Dr. Levine, how cost sharing works between West Virginia Medicaid Program and the federal government?
A. I presume that Medicaid patients who are insured by Medicaid don't pay for their medications.
Q. Okay. But I guess what I'm asking is, do you know what percentage or do you know what the cost is to West Virginia Medicaid versus what the cost is to the federal government, CMS, HHS that subsidizes the West Virginia Medicaid Program?
A. Oh, no.
Q. Okay. So you're not offering an opinion about the cost of puberty blockers under the West Virginia cost sharing plans, right?
A. You mean to the insurance company?
Q. Correct, yeah.
A. Oh, yeah, no. This is, this kind of information is very kept, very carefully kept from physicians.
Q. Okay. So not, no, making no representations in this report about the ultimate cost to the program or even to the patient, right?
A. No, we physicians don't know about things like that.
Q. Okay. So then the, in the same paragraph at the

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bottom of Page 26, going into Page 27 you say, "The cost of surgeries, reoperations and occasional requests to reverse the surgeries for those who request the interventions are in the tens to hundreds of thousands of dollars with some cases reaching into the millions." But again, you're not offering an expert opinion here about the cost of surgical care for the treatment of gender dysphoria under the West Virginia Medicaid Program, right?
A. No, I'm just saying that physicians like myself have a hard time keeping up with our fields of expertise and, and Dr. Karasic is probably no exception. And when he assures the world that this is cost-effective care, I don't really think he has any basis for knowing that, for the same reasons that you are, you know, pointing to my deficiencies of knowledge.
Q. Fair enough. And, and you also don't represent that you know how much the federal government subsidizes surgeries that West Virginia excludes or doesn't exclude from its coverage under the Medicaid program?
A. I don't, I don't know at all.
Q. Okay. And you're not offering an opinion about which members or how many West Virginia Medicaid recipients might need surgery, right, for treatment of gender dysphoria, let me be clear?

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A. Well, I don't think West Virginia is an exception to the international phenomenon of increasing numbers of gender, cross gender identified adolescents.
Q. Oh, no, but I'm, Dr. Levine, I'm asking about surgery specifically. You, you're not offering an opinion about how many West Virginia Medicaid members may need or be indicated for surgery for gender dysphoria, that's not an opinion you're offering here?
A. I still want to say that West Virginia is probably no exception and if we increase the number of people getting treatment and given, you know, some professionals' concepts about how to ideally treat these individuals, I wouldn't be surprised if more West Virginia citizens would be requesting surgery.
Q. But you don't know how many West Virginia Medicaid member recipients may need surgery?
A. Oh, no, I don't know that.
Q. Okay. And you can't, you can't then also know like what particular surgeries any of those people might need?
A. Oh, yes, oh, yes, I do, I can.
Q. No, no, I'm saying the individual people, you can't know what, what they need because you don't --
A. Oh, if I know if they're females --
Q. Dr. Levine, I'm talking about you're not

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representing that you know what individual members might need as per their specific individual treatment? I'm not asking do you know the range of types of surgeries, that's not my question. My question is, you are not offering an opinion that you know what individual West Virginia Medicaid members, what kinds of surgery they may or may not need?
A. So if you tell me there's a person named Jane Doe and John Doe in West Virginia and that they're 20 years old and they're persistent in their transgender identity for eight years, I, you know, I can, as you said, I could pretty much predict what the first surgery would, that would be requested would be. But I would, I couldn't guarantee that I would be right because someone may want a rhinoplasty when I think they want, they would want an orchiectomy. But, you know, but I don't want to, you know, I mean, these, this is not rocket science because there are only a limited range of surgeries that could possibly be done.
Q. Okay. I guess what I mean is, treatment for transgender people for the treatment of gender dysphoria is individualized, so you're not saying I know what this particular person needs because you haven't met with them, right?
A. Well, that's right. But on the other hand --

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Q. That was what I was asking, I just wasn't asking it very clear, so.
A. Okay.
Q. So you, let's see. Let's see, let's go to Page 27.
A. I think that's where I am, right.
Q. I was still on 26. So 27, oh, yes, we did go to 27, that's right. Okay. So the, this paragraph here talks about the costs of fertility preservation that must be factored in, adults undergoing cross sex hormonal and surgical interventions have either diminished or lost fertility, but you, are you aware that West Virginia Medicaid doesn't cover fertility preservation under its plan?
A. I would be surprised if they did.
Q. All right. So you're not offering an opinion of what the cost might be even if they did, right?
A. Except that, you know --
Q. I'm sorry, let me clarify. About what the cost might be between the federal cost sharing between West Virginia Medicaid and the federal government?
A. For a service it doesn't, it's not covered and it's not covered for cisgender people either.
Q. Right.
A. Yeah. So this is, this belongs to the, you

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know, fee for service private sort of practice --
Q. Correct.
A. -- or dash on the line business.
Q. Okay. So looking at Page 28 now, beginning there with Paragraph 53. So just very quickly, you say in the first sentence, "These costs have to be considered in the context of the rapid rise of the rate of trans identification especially among youth." Actually, scratch that, that's not the sentence I meant to read.

I meant to read the second sentence which says, "Although not all trans identified individuals will choose to undergo medical interventions, the majority do, and this proportion will only increase when such interventions are provided at no cost to the patient and when access to noninvasive treatments with psychotherapy is effectively curbed as unethical."

So there's no footnote citation there for that sentence, so my question is what are you, what peer reviewed scientifically collected data are you citing to for the assertion that the majority of trans identifying individuals choose to undergo medical interventions?
A. Maybe I can correct that or refine that a little bit better for you. Almost everyone who has a trans identity thinks about medical treatment and surgical

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treatment, they think about it seriously, they think about it recurrently and they undergo an internal discernment process over time, hopefully over time where they, they may want one and not another or they want none or they want all of the above. And if they want all of the above then they go through the first step, say endocrine treatment, they may then change their mind that they don't want all of the above. If they have an intimate physical relationship, sexual relationship with somebody they may decide having, keeping their body is not such a bad idea.

So when you ask me what scientific articles, what peer reviewed scientific articles, again, I'm saying I've had a lot of clinical experience, I know these people pretty well and I know them better than those people who are rapidly affirming them. And so I'm saying that they, I don't know whether the majority will in fact, but the majority do think very seriously about it. It almost is an inseparable concept, I'm transgender from shall I change my body, shall I change my physiology.
Q. Okay. So looking at the next paragraph beginning with, "The data already show," Paragraph 54 there.
A. Mm-hmm.

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Q. "The data already show that the numbers of individuals seeking transgender interventions on West Virginia Medicaid" --

MR. CHARLES: Sorry, Kelley. Slowing down.

Q. "The data already show that the numbers of individuals seeking transgender interventions on West Virginia Medicaid increased from 30 individuals in 2016 to 686 individuals through the end of September in 2021 at 2,300 percent increase in less than five years." Dr. Levine, do you know how many participants there are in West Virginia Medicaid?
A. No.
Q. Okay. Are you aware that defendants in this case have disclosed that there are 618,000 West Virginia Medicaid participants?
A. Well, I think if the answer, the first question is no, the answer to the second question must be no.
Q. Okay. Let me put another document up very quickly.

(Exhibit 22 marked for identification.)

Q. It's a large file, so it's taking a long time to come up. Okay. You should be able to see it now, it's Exhibit 22.
A. I can't see it. Let me try refreshing once again. Yep, 22.

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Q. Okay.
MR. CHARLES: So this is, for the record, I'm showing Dr. Levine what has been marked as SL22. It's the transcript, excuse me, the transcript of the remote deposition of Commissioner Cynthia Beane from March 29, 2022.
Q. Dr. Levine, if you'll just scroll to Page 109.
A. Okay. I'm almost there. 107, okay, 109.
Q. Okay. Then looking at, let's begin at line 10. And I'll just represent to you this is the testimony of, the deposition testimony of an official both in her individual and her organizational capacity as the, well, the Commissioner of the Bureau for Medicaid Services I believe in West Virginia. So at line 10, okay. And the column at the bottom of the table shows the total number of members enrolled in all Medicaid plans by month, correct, so in December 2021 there were a total of 618,691 members, is that right?
A. Correct.
Q. Okay. So I, I was slightly off, Dr. Levine, it's 618,691 members of Medicaid, and you see that reflected there in that official testimony, right?
A. I see it.
Q. Okay. So then do you know, do you know what percentage 686 is of 618,000?

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A. Do you want me to use my calculator and tell you exactly?
Q. I mean, I will represent to you the percentage if you'll agree to it, but it's up to you.
A. If you're good in math, I'll accept it.
Q. I'm not good at math, that's why I went to law school, but I will do this on my calculator and tell you that --
A. Okay.
Q. -- it is, it is .001 or 100th of a percent.
A. .001.
Q. And you can, I mean.
A. You mean if it's .001 it's one thousands.
Q. Oh, okay, 1/1,000 of a percent, okay. And this, this percentage is not, or the calculation is not in your, anywhere in your expert report, right?
A. Right.
Q. Okay. So where did you get the 686 individuals through September 2021 data from?
A. From my lawyer.
Q. Okay. But you didn't disclose that data you received from the state or the source anywhere in your report, did you?
A. I don't know, I don't know the source of that data, it's just some of the information is provided for

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me.
Q. Right. But again, the parameters of Rule 26 require that you have to disclose all the facts and data you considered in drafting your report. So you didn't disclose where you got this number from, right?
A. I didn't realize I had to, but that's my deficiency. I didn't go to law school.
Q. So I'm going to introduce another exhibit here.
MR. CHARLES: Actually, let's, I'm going to take a brief break right here. Kraig, Kelley, let's go off the record.
Q. Dr. Levine, we'll come back at 4:50 p.m. Thank you.
VIDEO TECHNICIAN: We're going off the record at 4:43 p.m.
(A break was taken at 3:43 p.m.)
VIDEO TECHNICIAN: We're going back on the record at 4:54 p.m.
BY MR. CHARLES:
Q. Okay. Dr. Levine, let's --
THE WITNESS: It's 4:56 on my clock.
Q. Let's look at, I'm going to put another exhibit here. Okay, it should be available, let me know when you can see it.
A. I've got it.

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(Exhibit 23 marked for identification.)
Q. Okay. Dr. Levine, you talk in your report, let's see here, it's going to be Page 42 of your report about, "That many professionals are unfamiliar with these 11 research studies indicating a high natural resolution rate of gender dysphoria," I think that's supposed to say gender dysphoria in children, but it just says, "gender dysphoria children by late adolescence," do you see that?
A. I don't see it, but I don't think I want to go to the report.
Q. Okay.
A. It just takes time.
Q. Okay. That's fine. I'll just represent to you that's where I'm reading that from. And your citation is to this study here, or this article rather by James M. Cantor.
MR. CHARLES: And for the record, I'm showing Dr. Levine what has been marked as SL23, "Transgender and gender diverse children and adolescents: Fact checking of AAP policy."
Q. And the 11 studies you mentioned, Dr. Levine, are included by Mr. -- I'm sorry, I don't know if it's Dr. Cantor, is it Dr. Cantor, do you know?
A. Yeah, I definitely know, it's Dr. Cantor.

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Q. Okay. Thank you. The 11 studies are referenced by Dr. Cantor in this article in an appendix, but let me point you to the sentence where he says that. So it's --
A. I have the appendix in front of me.
Q. Okay, perfect. Let's just look at that. Okay. So looking at that list of studies, the, the, how do I say this, the, the oldest study is listed first, so that's a study by P.S. Lebovitz published in 1972, do you see that?
A. Yes.
Q. Okay. And then the second study by B. Zuger?
A. Yes.
Q. Published in 1978. A study by J. Money and A. Russo published in 1979?
A. I see all those.
Q. Okay. I just, I'm just confirming the dates of publication. So C.W. Davenport was published in 1986; R. Green was published in 1987; it looks like R.J. Kosky was published in 1987; Cohen-Kettenis and M. Wallien was published in 2008; Drummond, et al. was published in 2008; Singh, unpublished doctoral dissertation was published in 2012; and lastly the Steensma, et al. was published in 2013, right?
A. That's, although you didn't ask, I should tell

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you that the Singh, et al. article, this 2012, has been published now that it's, there's more years, it was published in Frontiers of Psychiatry in April 2021.
Q. Okay.
A. And so, you know, that's --
Q. I'll, I'll, thank you for that, I'll turn to that in a minute. So I just want to confirm, these studies were all published, with the exception of Steensma, they were all published before 2013, right?
A. Yes, these were follow-up studies, these are long-term follow-up studies.
Q. And the datasets, none of the data that was collected in any of these studies was collected after 2013, right?
A. Even after the DSM-V criteria.
Q. None of them, none of the data was collected after 2013, right?
A. None of the original.
Q. Which, which data of any of these studies was collected after 2013?
A. Oh, I see what you mean.
Q. Yeah.
A. I see. All right.
Q. I, I agree with you they are follow-up studies, they, they follow youth sometimes as far back as the

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late '60s all the way through as I understand it the latest was corrected in 2011. So I just, I'm confirming that that's your understanding of the scope of the follow-up studies as well?
A. Yeah, I confirm.
Q. Okay. And the, let me, the Singh dissertation which was later published in the Frontiers of Psychiatry, that did not include any data that was collected after 2013, right?
A. I don't remember one way or the other.
Q. Okay. Let's, I'll just, we'll just take a look really quickly.
(Exhibit 24 marked for identification.)
Q. Okay. That should be available to you, Dr. Levine --
A. Okay.
Q. -- as a new exhibit, it will be Exhibit 24.
A. The Singh article.
Q. That's correct, yeah, from Frontiers of Psychiatry.
A. Oh, good.
Q. Okay. And you can see that now?
A. I do.
Q. Okay. So then just looking at the first page.
A. The abstract or the instruction?

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Q. It's, I don't see a label abstract, but I'm assuming that's what it is, just that intro paragraph on the first page.
A. Mm-hmm.
Q. Okay. So I'm assuming, Dr. Singh, et al. is writing this. And, let's see, we've got, okay. So, "This study reports follow-up data on the largest sample to date of boys clinic-referred for gender dysphoria (n=139) with regards to gender identity and sexual orientation. In childhood, the boys were assessed at a mean age of 7.49 years with a range of 3.33–12.99 at a mean year of 1989 and followed up at a mean age of 20.58 years with a range of 13.07–39.15 at a mean year of 2002." Do you see that, have I read that correctly?
A. You did.
Q. Okay. Let's go to page -- give me just a minute here.
MR. CHARLES: Kraig, let me go off the record real quickly.
VIDEO TECHNICIAN: Okay. One moment, please. We're going off the record at 5:04 p.m.
(A break was taken at 4:04 p.m.)
VIDEO TECHNICIAN: We're going back on the record at 5:08 p.m.
BY MR. CHARLES:

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Q. Okay. So, Dr. Levine, back to the Singh article. And if you would, please, scroll to Page 4, and you're looking for the heading, "Method."
A. I'm there.
Q. Okay. So there in the first paragraph, "The participants were 139 boys ('birth-assigned males') who in childhood had been referred to and then assessed in the Gender Identity Service, Child, Youth and Family Program at the Centre for Addiction and Mental Health (CAMH) in Toronto, Ontario between 1975 and 2009 (mean year of assessment, 1989) and were adolescents or adults at follow-up (mean year at follow-up, 2002)"
Continuing on there to the second paragraph, "Participants entered the follow-up study through two methods of recruitment. The majority of participants (77%) were recruited for research follow-up. There were two main waves of participant recruitment through research contact, from 1986 to 1993 (n=32), and then from 2009 to 2011 (n=71)."
So just, I just wanted to confirm with you that's the, that's the same dataset that Dr. Singh, then Ph.D. candidate Dr. Singh, presented in the dissertation as well. So there, there was a, a follow-up collection period from 2009 to 2011, but nothing beyond 2011, is that, that's your understanding there of that, of those

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sentences?
A. So isn't it -- let's see. During the period of data collection 32 patients recontacted service for clinical reasons and they were informed about the opportunity to participate in a follow-up site. Okay. So some were purely research, they agreed to participate, and some asked for various services from CAMH again.
Q. Right. And that collection in total, both the initial contacts that was either patient initiated or follow-up research requested, that all happened before, collectively before 2013?
A. Yep.
Q. Okay. And let's take a look at one more article here.
(Exhibit 25 marked for identification.)
Q. This should be available, Dr. Levine, if you refresh your screen.
A. Are we done with the Cantor article?
Q. Oh, yes, you can put that to the side. Thank you.
A. Okay. Okay.
Q. And do you see what's been marked as SL25?
A. Yes.
Q. Okay. And this article is entitled, "Gender

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dysphoria in childhood, Jiska Ristori and Thomas D. Steensma, published 2015." Oh, sorry, published, yes, published online January 2016, accepted October 2015. You cite this and the Singh article we just looked at in your report for the, for the proposition that, "The majority of children," and you put in parentheses, "between 61 and 98 percent of them who identifies transgender will reidentify with their sex before reaching maturity absent interventions." So I just wanted to locate that in context, in the context of your report. So let's take a look at this article. Okay. So if you would scroll to page, it's the third page of this article, but it's numbered Page 15.
A. Okay, I'm on Page 15.
Q. Okay. And you'll see that the, this study is listing the follow-up studies it's referencing in the Table 1 at the bottom right-hand corner, do you see that?
A. Yes.
Q. Okay. And do you see any overlap between the studies cited in Dr. Cantor's article and this table here in terms of on the left-hand side the, the names of the authors and the year of publication?
A. Well, the Bakwin, was the Bakwin article in Cantor?

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Q. Now that you mention it, I don't think it was.
A. Yes.
Q. Okay.
A. And, and what about the Davenport?
Q. Yeah, Davenport was there, that was the follow-up study of ten boys.
A. Yeah, I see. Of course Green was, yeah, and the girls weren't in there because, yeah, all right.
Q. Okay. So is, is it your understanding that this study is also looking at that, again that historical dataset that begins back in the late '60s, early '70s and continues through at the latest point 2011, right, for the follow-up?
A. I'm going to trust you on that.
Q. Okay. Okay.
MR. CHARLES: Kraig, can we go off the record.
VIDEO TECHNICIAN: Yeah, one moment please. We're going off the record at 5:15 p.m.
(A break was taken at 4:15 p.m.)
VIDEO TECHNICIAN: We're going back on the record at 5:25 p.m.
EXAMINATION
BY MR. DAVID:
Q. Dr. Levine, I'm going to be as brief as I

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possibly can, but I do have a few questions for you. And first I'd like to go to Exhibit 10, please.
A. I'm there.
Q. Okay. And if you'll go to Page 8, which is denoted in the bottom left-hand corner of that page.
A. I got it.
Q. Okay. And you were asked questions specifically about the section that has the heading, "Consistency of recommendations across the CPG's," do you remember those questions?
A. Yes.
Q. Okay. Now you were asked questions specifically about this section as it related to a citation in your report that the WPATH standards of care 7 were incoherent, do you remember that?
A. Yes.
Q. Okay. I'd like you to take a second and read this paragraph or this section again, just the section that's, "Consistency of recommendations across the CPG's," and let me know when you're done reading it.
A. I'm sorry, oh, you mean read it privately, not read it out loud?
Q. Yes, just read it privately and, and let me know when you're done reading it.
A. Okay.

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Q. After reading that paragraph can you tell me what you were referring to in your report when you stated that this document said that these Wpath standards of care 7 were incoherent?
MR. CHARLES: Objection.
A. It was my understanding from reading the report that the 121-page standards of care had statements that seemed to be recommendations that were contradicted by different places in the, in the document and that some of them were contradictory, some of them seemed to be recommendations, but they were so qualified that they, they, they were not clear and these six independent reviewers could not, could not discern the clarity of the recommendations and many of them pointed to the contradictions between, I'm just making up pages now, Pages 21 and Pages 49.
And so in the sense that there were, it was incoherent, it wasn't consistent, it wasn't clear, and it was an indication that is, that there is considerable uncertainty about how to take care of transgender people, even among the 36 authors of the, maybe it's 34, 36 authors of the standards of care in 2011.
Q. Thank you, Doctor. If you'll go next to Exhibit 11.
A. Exhibit 11, "Dear colleagues and friends," oh,

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yes.
Q. And this is the statement that was made by Dr. Marcie Bowers regarding an article by Abigail Shrier in which she was quoted, is that right?
A. Yes.
Q. Okay. And this entire article was read, or statement was read into the record and you were asked some questions about that, do you remember that?
A. There weren't very many questions asked about me, I think Mr. Charles wanted me to see that, that Dr. Bowers made a second statement, and to me this is a political statement to as many politicians come out and say things and then they realize there's a blow-back and they modify their position. I don't recall too many questions other than did you see that, did you read that, so forth.
Q. Do you remember that this exhibit was introduced in relation to part of your report in which you cited a quote by Dr. Bowers related to exclusion of individuals from WPATH if they dissented to the gender affirming model?
MR. CHARLES: Objection.
A. I think you're right, I do remember.
Q. And, and in the review of Exhibit 11 and it being read into the record did, is there anything in

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here that you recall showing that Dr. Bowers was recanting in any way the comments she made about people dissenting from the gender affirming care model?
MR. CHARLES: Objection.
A. No.
Q. Okay.
A. Did I misunderstand your question?
Q. No, you did not. Let's go to Exhibit 12, and that is the decision memo from Centers for Medicare and Medicaid Services. Do you have that in front of you now?
A. I do.
Q. And you were, do you remember being asked some questions about Exhibit 12?
A. Yes.
Q. Okay. In your review of Exhibit 12, does this decision memo mandate that Medicaid covered gender affirming surgery?
MR. CHARLES: Objection.
A. No, it does not.
Q. If you'll next go to Exhibit 15. And this is the paper by Lisa Littman titled, "Individuals treated for gender dysphoria with medical and/or surgical transition who subsequently detransitioned, a survey of 100 detransitioners," do you have that in front of you

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now?
A. I do.
Q. Okay. And do you recall being asked questions about this article and specifically your statement in your report that there is a growing number of detransitioners?
A. Yes.
Q. Okay. I'd like you to again privately read the first two paragraphs of that introduction and let me know when you are finished reading that.
A. You said the first two paragraphs, right?
Q. Yes, please. Do you know what, I think it's actually just one, but I was looking at it as two, but.
A. Okay. I read the first paragraph, I read the first paragraph.
Q. Okay. Is that first paragraph what you were citing to in your report talking about the growing number of detransitioners when you cited to Littman?
A. Yes. And to me it, and to me it was the verification of, one verification of my, the first phrase of that sentence and I didn't think I could get Mr. Charles to understand what I meant. But Dr. Littman certainly has documented the rise in awareness about detransition, even though Dr. Littman was not talking about in her article the rate of, the rate, her hundred

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people did not represent rate, it represented 100 of the, of the phenomena that she has listed in the first paragraph. So to me the first paragraph is very accurate support for the, the first, the first phrase in that sentence that Mr. Charles highlighted.
Q. Thank you. If you'll go to Exhibit 16 now.
A. Okay.
Q. And this is the Endocrine Society guidelines from 2017, is that right?
A. Yes.
Q. Okay. I'd like to direct your attention to page, and it's denoted in the top right-hand corner, of Page 3871.
A. Okay, I'm on the page.
Q. Okay. Do you recall being asked questions about statements in your report related to the Endocrine Society guidelines that stated that there was very low or low quality evidence for hormones?
MR. CHARLES: Objection.
A. Yes.
Q. And actually, if you'll read it out loud, would you read it out loud and into the record recommendation 2.5?
A. "We recognize that there may compelling reasons to initiate sex hormone treatment prior to age of 16 in

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some adolescents with gender dysphoria or gender incongruence, even though there are minimal published studies of gender affirming hormone treatments administered before age 13 and a half to 14 years. As with the care of adolescents equal to or greater than 16 years of age, we recommend that an expert multidisciplinary team of medical and mental health professionals manage this treatment," and then there is a strong recommendation with a low quality evidence one circle filled in.
Q. Okay. And I want you to then go to 3872, so the very next page. And in the bottom right-hand corner there's, "Method of development of evidence based clinical practice guidelines," do you see that?
A. I do.
Q. Okay. And if you'll go into that paragraph where there is depicted the cross filled circles?
A. Yes.
Q. Okay. And it says, "Cross filled circles indicate the quality of evidence such that one cross filled circle and three empty circles denotes very low quality evidence," is that correct?
A. I can't exactly, I don't see where you're reading, but it's all very familiar to me, yes.
Q. Okay. Well, can you find that on Page 3872

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where there are the actual cross filled circles?
A. Yes.
Q. Okay. And do you see the sentence that starts, "Cross filled circles indicate"?
A. I'm looking. "Cross filled circles," yes, okay, I got it.
Q. And it says, "Cross filled circles indicate the quality of the evidence such that one cross filled circle, three empty circles denotes very low quality evidence," do you see that?
A. Yes.
Q. Okay. If you go back up to recommendation 2.5, how many cross filled circles are there?
A. I think there's one.
Q. And as you just read, what does one cross filled circle denote?
A. Very little, very low quality evidence.
Q. Okay. Now you were also asked some questions about these guidelines as they compared to the guidelines from the Endocrine Society for pediatric obesity, do you remember that?
A. Oh, yes.
Q. Okay. Do you know what the recommendations are from the Endocrine Society related to pediatric bariatric surgery?

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MR. CHARLES: Objection.
A. I would have, I would have to look it up, Mr. David.
Q. Okay. That's Exhibit 17, if you can go there.
A. Okay, I'm scrolling through that article now.
Q. If you'll go to Page 712, it's in the top left-hand corner.
A. Okay.
Q. And then if you look at 4.10, do you see that there?
A. "We suggest a clinician should discontinue medication," is that what you're --
Q. Oh, I'm sorry, 4.11. And go ahead and, and since it's a longer one, go ahead and read it to yourself and let me know when you're done reading it.
A. Okay. Okay.
Q. What is the level of recommendation for recommendation 4.11?
A. It's a two with two filled in circles.
Q. Okay. So what does the two denote?
MR. CHARLES: Objection.
A. We have to go back to the specific language. It's not a strong recommendation, I think it might be recommendation, but low, low quality evidence.
Q. Okay. If you'll look at the, the right-hand

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side of that same page you'll see that information over there, do you see that where it talks about one and two and the cross filled circles?
MR. CHARLES: Objection.
A. Oh, "We suggest," right.
Q. So can you go ahead and read that and tell us what the two denotes.
A. Okay. "In terms of the strength of recommendations, strong recommendations use the phrase 'we recommend' and the number 1, and weak recommendations use the phrase 'we suggest' and the number 2."
Q. And what was the recommendation for 4.11?
A. Weak recommendation, two with low quality research behind it.
MR. CHARLES: Objection.
Q. Now, Doctor, you were, at the end of Mr. Charles' questioning you were asked a lot of questions about datasets before 2013, do you remember those questions?
A. Yes.
Q. Okay. When was the DSM-V published?
A. 2000 -- May I think of 2013.
Q. And can you tell us what the differences are as it relates to the diagnosis of gender dysphoria between

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DSM-IV and DSM-V?
MR. CHARLES: Objection, objection.
A. Well, I would like to answer that question by reading the DSM-IV and DSM-IV-TR and DSM-V divides gender dysphoria into two different sections for children, for prepubertal children and for adolescents and adults, so there are separate ones. And so you must be -- can you, can you clarify what you're asking about, which, which group, or are you asking me about both? I think you might be asking me about just for children.
Q. Well, and let's start there. So for children are there differences between the diagnostic criteria under the DSM-IV and the DSM-V?
MR. CHARLES: Objection.
A. There are different language, there's different language. Actually, I don't think I can quote the differences to you without having to review them myself.
Q. Sure.
A. And I don't have them in front of me, I don't have access to them.
Q. That's okay, Doctor. Doctor, are you aware of any reviews or literature that's been published related to the prevalence of diagnoses for gender dysphoria under DSM-IV versus DSM-V?
MR. CHARLES: Objection.

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A. I'm aware there's been a lot of discussion about criticism or trying to conjure the ethical problem raised by Cantor's article and sort of operationalized by Debries and their Dutch protocol where there was a very distinct clinical recognition that the majority of children who are cross gender identified in grade school years will desist. And this is one of the reasons why the Dutch protocol did not start puberty blocking hormones until there was a development of puberty and an increased distress about puberty.
And so they were providing cross, cross gender, I'm sorry, puberty blocking hormones at the minimum age of 14 because they were recognizing that with the truth of what the Cantor studies had shown that the majority of cross gender identified children, whether they met the DSM-IV or DSM-III criteria or not, they couldn't be predicted, the kids could not be predicted of who would persist and who would not persist.
And so the Dutch were very careful about allowing children to go into puberty, to become more distressed. And then if they came from families that were psychologically supportive and families and children who would go through psychotherapy while they were getting puberty blocking hormones, then they would give those 70 children puberty blocking hormones.

So what's happening today unfortunately is that the Dutch protocol, which was very careful in who was included and who was excluded, this is not what is happening in America today. In America today kids as young as eight and nine are being given puberty blocking hormones and, and many of the kids who are given cross sex hormones are what we call rapid onset gender dysphoria. And some of these girls, biologic girls are having their breasts removed as young as 13 and 14.

And this is totally not in keeping with the ethical problem of being unable to predict who's going to desist and who's not going to desist. So this a major problem in part of the grand controversy here which somehow I wasn't able to speak to during the interrogation earlier today.

Q. Okay. Doctor, I don't have any further questions for you, but Mr. Charles might have some follow-up.

MR. CHARLES: Let me take a -- actually, I think we're good.

THE WITNESS: Thank you.

VIDEO TECHNICIAN: Are we done?

MR. CHARLES: Yes, Caleb. I mean, Kraig, yes.

VIDEO TECHNICIAN: We're going off the

record at 5:50 p.m.

(Proceedings concluded for the day at 4:50 p.m., 04-27-2022)

REPORTER'S CERTIFICATE

STATE OF MINNESOTA)
) ss.
COUNTY OF WASHINGTON)

I hereby certify that I reported the Zoom videotaped deposition of Dr. Stephen Levine on the 27th day of April 2022, and that the witness was by me first duly sworn to tell the whole truth;

That the testimony was transcribed by me and is a true record of the testimony of the witness;

That the cost of the original has been charged to the party who noticed the deposition, and that all parties who ordered copies have been charged at the same rate for such copies;

That I am not a relative or employee or attorney or counsel of any of the parties, or a relative or employee of such attorney or counsel;

That I am not financially interested in the action and have no contract with the parties, attorneys, or persons with an interest in the action that affects or has a substantial tendency to affect my impartiality;

That the right to read and sign the deposition by the witness was reserved.

WITNESS MY HAND AND SEAL THIS 27th day of May 2022.

Kelley E. Zilles, RPR
Notary Public, Washington County, Minnesota
My commission expires 1-31-2025

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May 11, 2022

To: Ms. Bandy

Case Name: Fain, Christopher Et Al v. Crouch, William Et Al

Veritext Reference Number: 5176996

Witness: Dr. Stephen Levine Deposition Date: 4/27/2022

Dear Madam:

Enclosed please find a deposition transcript. Please have the witness review the transcript and note any changes or corrections on the included errata sheet, indicating the page, line number, change, and the reason for the change. Have the witness' signature notarized and forward the completed page(s) back to us at the Production address shown above, or email to production-midwest@veritext.com.

If the errata is not returned within thirty days of your receipt of this letter, the reading and signing will be deemed waived.

Sincerely,
Production Department

NO NOTARY REQUIRED IN CA

DEPOSITION REVIEW
CERTIFICATION OF WITNESS

ASSIGNMENT REFERENCE NO: 5176996
CASE NAME: Fain, Christopher Et Al v. Crouch, William Et Al
DATE OF DEPOSITION: 4/27/2022
WITNESS' NAME: Dr. Stephen Levine
In accordance with the Rules of Civil Procedure, I have read the entire transcript of my testimony or it has been read to me.
I have made no changes to the testimony as transcribed by the court reporter.

_____ _____
Date Dr. Stephen Levine

Sworn to and subscribed before me, a Notary Public in and for the State and County, the referenced witness did personally appear and acknowledge that:

They have read the transcript;
They signed the foregoing Sworn Statement; and
Their execution of this Statement is of their free act and deed.

I have affixed my name and official seal

this _____ day of_____, 20____.

_____
Notary Public

_____
Commission Expiration Date

DEPOSITION REVIEW
CERTIFICATION OF WITNESS

ASSIGNMENT REFERENCE NO: 5176996
CASE NAME: Fain, Christopher Et Al v. Crouch, William Et Al
DATE OF DEPOSITION: 4/27/2022
WITNESS' NAME: Dr. Stephen Levine
In accordance with the Rules of Civil Procedure, I have read the entire transcript of my testimony or it has been read to me.
I have listed my changes on the attached Errata Sheet, listing page and line numbers as well as the reason(s) for the change(s).
I request that these changes be entered as part of the record of my testimony.

I have executed the Errata Sheet, as well as this Certificate, and request and authorize that both be appended to the transcript of my testimony and be incorporated therein.

_____ _____
Date Dr. Stephen Levine

Sworn to and subscribed before me, a Notary Public in and for the State and County, the referenced witness did personally appear and acknowledge that:
They have read the transcript;
They have listed all of their corrections in the appended Errata Sheet;
They signed the foregoing Sworn Statement; and
Their execution of this Statement is of their free act and deed.
I have affixed my name and official seal
this _____ day of_____, 20____.

_____
Notary Public

_____
Commission Expiration Date

ERRATA SHEET
VERITEXT LEGAL SOLUTIONS MIDWEST
ASSIGNMENT NO: 5176996

PAGE/LINE(S) / CHANGE /REASON

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_____ _____
Date Dr. Stephen Levine

SUBSCRIBED AND SWORN TO BEFORE ME THIS _____
DAY OF _____, 20_____ .

_____
Notary Public

_____
Commission Expiration Date

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Federal Rules of Civil Procedure

Rule 30

(e) Review By the Witness; Changes.

(1) Review; Statement of Changes. On request by the deponent or a party before the deposition is completed, the deponent must be allowed 30 days after being notified by the officer that the transcript or recording is available in which:

(A) to review the transcript or recording; and

(B) if there are changes in form or substance, to sign a statement listing the changes and the reasons for making them.

(2) Changes Indicated in the Officer's Certificate. The officer must note in the certificate prescribed by Rule 30(f)(1) whether a review was requested and, if so, must attach any changes the deponent makes during the 30-day period.

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VERITEXT LEGAL SOLUTIONS
COMPANY CERTIFICATE AND DISCLOSURE STATEMENT

Veritext Legal Solutions represents that the foregoing transcript is a true, correct and complete transcript of the colloquies, questions and answers as submitted by the court reporter. Veritext Legal Solutions further represents that the attached exhibits, if any, are true, correct and complete documents as submitted by the court reporter and/or attorneys in relation to this deposition and that the documents were processed in accordance with our litigation support and production standards.

Veritext Legal Solutions is committed to maintaining the confidentiality of client and witness information, in accordance with the regulations promulgated under the Health Insurance Portability and Accountability Act (HIPAA), as amended with respect to protected health information and the Gramm-Leach-Bliley Act, as amended, with respect to Personally Identifiable Information (PII). Physical transcripts and exhibits are managed under strict facility and personnel access controls. Electronic files of documents are stored in encrypted form and are transmitted in an encrypted fashion to authenticated parties who are permitted to access the material. Our data is hosted in a Tier 4 SSAE 16 certified facility.

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Exhibit
SL 02

Curriculum Vita

Stephen B. Levine, M.D.

Introduction:

Dr. Stephen B. Levine is Clinical Professor of Psychiatry at Case Western Reserve University School of Medicine. He is the solo author of four books, Sex Is Not Simple in 1989 (translated to German in 1992 and reissued in English in 1997 as Solving Common Sexual Problems); Sexual Life: A Clinician's Guide in 1992; Sexuality in Midlife in 1998 and Demystifying Love: Plain Talk For the Mental Health Professional in 2006; Barriers to Loving: A Clinician's Perspective in October 2013. He is the Senior Editor of the first (2003), second (2010) and third (2016) editions of the Handbook of Clinical Sexuality for Mental Health Professionals. He has been teaching, providing clinical care, and writing since 1973 and has generated original research, invited papers, commentaries, chapters, and book reviews. He has served as a journal manuscript and book prospectus reviewer for many years. From 1993 to 2017, he was co-director of the Center for Marital and Sexual Health/Levine, Risen & Associates, Inc. in Beachwood, Ohio. He and two colleagues received a lifetime achievement Masters and Johnson's Award from the Society for Sex Therapy and Research in March 2005.

Current Private Practice & Clinical Consultation:

DeBalzo, Elgudin, Levine, Risen LLC
23425 Commerce Park, Beachwood, Ohio 44122-5402
Phone: 216-831-2900 x 13
Fax: 216-831-4306
Email: s.levine@delrlc.com

Education:

- 1963 BA Washington and Jefferson College
- 1967 MD Case Western Reserve University School of Medicine
- 1967-68 internship in Internal Medicine University Hospitals of Cleveland
- 1968-70 Research associate, National Institute of Arthritis and Metabolic Diseases, Epidemiology Field Studies Unit, Phoenix, Arizona, United States Public Health Service
- 1970-73 Psychiatric Residency, University Hospitals of Cleveland
- 1976 Board Certification American Board of Neurology and Psychiatry
- 1974-77 Robert Wood Johnson Foundation Clinical Scholar

Appointments at Case Western Reserve University, School of Medicine:

- 1973- Assistant Professor of Psychiatry
- 1979-Associate Professor
- 1982-Tenure
- 1985-Full Professor

- 1993-Clinical Professor

Honors:

- Summa Cum Laude, Washington & Jefferson
- Teaching Excellence Award-1990 and 2010 (residency program)
- Visiting Professorships
  - Stanford University-Pfizer Professorship program (3 days)–1995
  - St. Elizabeth's Hospital, Washington, DC –1998
  - St. Elizabeth's Hospital, Washington, DC--2002
- Named to America's Top Doctors consecutively since 2001
- Invitations to present various Grand Rounds at Departments of Psychiatry, Continuing Education Lectures and Workshops
- Masters and Johnson Lifetime Achievement Award from the Society of Sex Therapy and Research, April 2005 along with Candace Risen and Stanley Althof
- 2006 SSTAR Book Award for The Handbook of Clinical Sexuality for Mental Health Professionals: Exceptional Merit

Professional Societies:

- 1971- American Psychiatric Association; fellow
- 2005-American Psychiatric Association- **Distinguished Life Fellow**
- 1973- Cleveland Psychiatric Society
- 1973-Cleveland Medical Library Association
  - 1985-Life Fellow
  - 2003-Distinguished Life Fellow
- 1974-Society for Sex Therapy and Research
  - President 1987-89
- 1983- International Academy of Sex Research
- 1983- Harry Benjamin International Gender Dysphoria Association
  - 1997-98 Chairman, Standards of Care Committee
- 1994- 1999 Society for Scientific Study of Sex

Community Boards:

- 1999-2002 Case Western Reserve University Medical Alumni Association
- 1996-2001 Bellefaire Jewish Children's Bureau
- 1999-2001 Physicians' Advisory Committee, The Gathering Place (cancer rehabilitation)

Editorial Boards:

- 1978-80 Book Review Editor Journal Sex and Marital Therapy
- Manuscript Reviewer for:
  - Archives of Sexual Behavior
  - Annals of Internal Medicine
  - British Journal of Obstetrics and Gynecology

  - JAMA
  - Diabetes Care
  - American Journal of Psychiatry
  - Maturitas
  - Psychosomatic Medicine
  - Sexuality and Disability
  - Journal of Nervous and Mental Diseases
  - Journal of Neuropsychiatry and Clinical Neurosciences
  - Neurology
  - Journal Sex and Marital Therapy
  - Journal Sex Education and Therapy
  - Social Behavior and Personality: an international journal (New Zealand)
  - International Journal of Psychoanalysis
  - International Journal of Transgenderism
  - Journal of Urology
  - Journal of Sexual Medicine
  - Current Psychiatry
  - International Journal of Impotence Research
- Prospectus Reviewer for:
  - Guilford
  - Oxford University Press
  - Brunner/Routledge
  - Routledge

Expert Witness Appearances:

- US District Court, Judge Mark L.Wolf's witness in Michelle Kosilek vs. Massachusetts Dept of Corrections et al. case (transsexual issue) in Boston 2007
- Deposition in the Battista vs. Massachusetts Dept of Corrections case (transsexual issue) in Cleveland October 2009
- Witness for Massachusetts Dept. of Corrections in their defense of a lawsuit brought by prisoner Katheena Soneeya. March 22, 2011 Deposition in Boston
- Witness for Florida Department of Corrections in Keohone case, July, 2017

Consulting:

- Massachusetts Department of Corrections—evaluation of 12 transsexual prisoners and the development of a Gender Identity Disorders Program for the state prison system.
- Monthly consultation with the GID treatment team since February 2009 and the GID policy committee since February 2010
- California Department of Corrections and Rehabilitation; 2012-2015; education, inmate evaluation, commentary on inmate circumstances, suggestions on future policies
- Virginia Department of Corrections –evaluation of an inmate

- New Jersey Department of Corrections—evaluation of an inmate

Grant Support/Research Studies;

- Principal Investigator of approximately 70 separate studies involving pharmacological interventions for sexual dysfunction since 1989.
- TAP–studies of Apomorphine sublingual in treatment of erectile dysfunction
- Pfizer–Sertraline for premature ejaculation
- Pfizer–Viagra and depression; Viagra and female sexual dysfunction; Viagra as a treatment for SSRI-induced erectile dysfunction
- NIH- Systemic lupus erythematosis and sexuality in women
- Sihler Mental Health Foundation
    - Program for Professionals
    - Setting up of Center for Marital and Sexual Health
    - Clomipramine and Premature ejaculation
    - Follow-up study of clergy accused of sexual impropriety
    - Establishment of services for women with breast cancer
- Alza–controlled study of a novel SSRI for rapid ejaculation
- Pfizer–Viagra and self-esteem
- Pfizer- double-blind placebo control studies of a compound for premature ejaculation
- Johnson & Johnson – controlled studies of Dapoxetine for rapid ejaculation
- Proctor and Gamble: multiple studies to test testosterone patch for post menopausal sexual dysfunction for women on and off estrogen replacement
- Lilly-Icos—study of Cialis for erectile dysfunction
- VIVUS – study for premenopausal women with FSAD
- Palatin Technologies- studies of bremelanotide in female sexual dysfunction—first intranasal then subcutaneous administration
- Medtap – interview validation questionnaire studies
- HRA- quantitative debriefing study for Female partners os men with premature ejaculation, Validation of a New Distress Measure for FSD,
- Boehringer-Ingelheim- double blind and open label studies of a prosexual agent for hypoactive female sexual desire disorder
- Biosante- studies of testosterone gel administration for post menopausal women with HSDD
- J&J a single-blind, multi-center, in home use study to evaluate sexual enhancement effects of a product in females.
- UBC-Content validity study of an electronic FSEP-R and FSDS-DAO and usability of study PRO measures in premenopausal women with FSAD, HSDD or Mixed FSAD/HSDD
- National registry trial for women with HSDD
- Endoceutics—two studies of DHEA for vaginal atrophy and dryness in post menopausal women

- Palatin—study of SQ Bremelanotide for HSDD and FSAD
- Trimel- a double-blind, placebo controlled study for women with acquired female orgasmic disorder.
    - S1 Biopharma- a phase 1-B non-blinded study of safety, tolerability and efficacy of Lorexys in premenopausal women with HSDD
- HRA – qualitative and cognitive interview study for men experiencing PE

Publications:

Books:

1) Pariser SR, Levine SB, McDowell M (eds.), Clinical Sexuality, Marcel Dekker, New York, 1985
2) Sex Is Not Simple, Ohio Psychological Publishing Company, 1988
    (a) Translated into German as Angstfreie Sexualitat: Gluck und Erfullung in der Liebe, Wilhelm Heyne Verlag, Muchen, 1992
    (b) Reissued in paperback as: Solving Common Sexual Problems: Toward a Problem Free Sexual Life, Jason Aronson, Livingston, NJ. 1997
3) Sexual Life: A Clinician's Guide. Plenum Publishing Corporation. New York, 1992
    (a) See review in Archives of Sexual Behavior 28(4): 361-363,1999
4) Sexuality in Midlife. Plenum Publishing Corporation. New York, 1998
    (a) See review in Am Journal of Psychiatry 156((9):1468, 1999
    (b) See review in Contemporary Psychology APA Review of Books 44(4):293-295, 1999
    (c) See review J Sex Education and Therapy January, 2000
    (d) See review J Sex and Marital Therapy, Winter, 2000
5) Editor. Clinical Sexuality. Psychiatric Clinics of North America, March, 1995.
6) Editor, (Candace Risen and Stanley Althof, associate editors) Handbook of Clinical Sexuality for Mental Health Professionals. Routledge, New York, 2003
    1. see review American Journal of Psychiatry April, 2005
    2. 2006 SSTAR Book Award: Exceptional Merit
    3. see review in Archives of Sexual Behavior 35(6):757-758
    4. see two reviews in Journal of Sex and Marital Therapy 33(3):272-276
7) Demystifying Love: Plain Talk For The Mental Health Professional. Routledge, New York, 2006
    (a) See review in Psychiatric Times, August 2008 by Leonore Tiefer
    (b) See review in Journal of Sex and Marital Therapy 34(5)-459-460.
8) Senior editor, (Candace B. Risen and Stanley E. Althof, Associate editors), Handbook of Clinical Sexuality for Mental Health Professionals. 2nd edition Routledge, New York, 2010. See review by Pega Ren, J Sex &Marital Therapy
9) Barriers to Loving: A Clinician's Perspective. Routledge, New York, 2014.

10) Senior editor Candace B. Risen and Stanley E. Althof, Associate editors), Handbook of Clinical Sexuality for Mental Health Professionals. 3rd edition Routledge, New York, 2016

Research and Invited Papers:

(When his name is not listed in a citation, Dr. Levine is either the solo or the senior author)

1) Sampliner R. Parotid enlargement in Pima Indians. Annals of Internal Medicine 1970; 73:571-73
2) Confrontation and residency activism: A technique for assisting residency change: World Journal of Psychosynthesis 1974; 6: 23-26
3) Activism and confrontation: A technique to spur reform. Resident and Intern Consultant 173; 2
4) Medicine and Sexuality. Case Western Reserve Medical Alumni Bulletin 1974:37:9-11.
5) Some thoughts on the pathogenesis of premature ejaculation. J. Sex & Marital Therapy 1975; 1:326-334
6) Marital Sexual Dysfunction: Introductory Concepts. Annals of Internal Medicine 1976;84:448-453
7) Marital Sexual Dysfunction: Ejaculation Disturbances 1976; 84:575-579
8) Yost MA: Frequency of female sexual dysfunction in a gynecology clinic: An epidemiological approach. Archives of Sexual Behavior 1976;5:229-238
9) Engel IM, Resnick PJ, Levine SB: Use of programmed patients and videotape in teaching medical students to take a sexual history. Journal of Medical Education 1976;51:425-427
10) Marital Sexual Dysfunction: Erectile dysfunction. Annals of Internal Medicine 1976;85:342-350
11) Articles in Medical Aspects of Human Sexuality
    (a) Treating the single impotent male. 1976; 10:123, 137
    (b) Do men enjoy being caressed during foreplay as much as women do? 1977; 11:9
    (c) Do men like women to be sexually assertive? 1977;11:44
    (d) Absence of sexual desire in women: Do some women never experience sexual desire? Is this possibility genetically determined? 1977; 11:31
    (e) Barriers to the attainment of ejaculatory control. 1979; 13:32-56.
    (f) Commentary on sexual revenge.1979;13:19-21
    (g) Prosthesis for psychogenic impotence? 1979;13:7
    (h) Habits that infuriate mates. 1980;14:8-19
    (i) Greenberger-Englander, Levine SB. Is an enema an erotic equivalent?1981; 15:116
    (j) Ford AB, Levine SB. Sexual Behavior and the Chronically Ill

Patients. 1982; 16:138-150

(k) Preoccupation with wife's sexual behavior in previous marriage 1982; 16:172

(l) Co-existing organic and psychological impotence. 1985;19:187-8

(m) Althof SE, Turner LA, Kursh ED, Bodner D, Resnick MI, Risen CB. Benefits and Problems with Intracavernosal injections for the treatment of impotence. 1989;23(4):38-40

12) Male Sexual Problems. Resident and Staff Physician 1981:2:90-5

13) Female Sexual Problems. Resident and Staff Physician 1981:3:79-92

14) How can I determine whether a recent depression in a 40 year old married man is due to organic loss of erectile function or whether the depression is the source of the dysfunction? Sexual Medicine Today 1977;1:13

15) Corradi RB, Resnick PJ Levine SB, Gold F. For chronic psychologic impotence: sex therapy or psychotherapy? I & II Roche Reports; 1977

16) Marital Sexual Dysfunction: Female dysfunctions 1977; 86:588-597

17) Current problems in the diagnosis and treatment of psychogenic impotence. Journal of Sex & Marital Therapy 1977;3:177-186

18) Resnick PJ, Engel IM. Sexuality curriculum for gynecology residents. Journal of Medical Education 1978; 53:510-15

19) Agle DP. Effectiveness of sex therapy for chronic secondary psychological impotence Journal of Sex & Marital Therapy 1978;4:235-258

20) DePalma RG, Levine SB, Feldman S. Preservation of erectile function after aortoiliac reconstruction. Archives of Surgery 1978;113-958-962

21) Conceptual suggestions for outcome research in sex therapy Journal of Sex & Marital Therapy 1981;6:102-108

22) Lothstein LM. Transsexualism or the gender dysphoria syndrome. Journal of Sex & Marital Therapy 1982; 7:85-113

23) Lothstein LM, Levine SB. Expressive psychotherapy with gender dysphoria patients Archives General Psychiatry 1981; 38:924-929

24) Stern RG Sexual function in cystic fibrosis. Chest 1982; 81:422-8

25) Shumaker R. Increasingly Ruth: Towards understanding sex reassignment surgery Archives of Sexual Behavior 1983;12:247-61

26) Psychiatric diagnosis of patients requesting sex reassignment surgery. Journal of Sex & Marital Therapy 1980; 6:164-173

27) Problem solving in sexual medicine I. British Journal of Sexual Medicine 1982;9:21-28

28) A modern perspective on nymphomania. Journal of Sex & Marital Therapy 1982;8:316-324

29) Nymphomania. Female Patient 1982;7:47-54

30) Commentary on Beverly Mead's article: When your patient fears impotence. Patient Care 1982;16:135-9

31) Relation of sexual problems to sexual enlightenment. Physician and Patient 1983 2:62

32) Clinical overview of impotence. Physician and Patient 1983; 8:52-55.
33) An analytical approach to problem-solving in sexual medicine: a clinical introduction to the psychological sexual dysfunctions. II. British Journal of Sexual Medicine
34) Coffman CB, Levine SB, Althof SE, Stern RG Sexual Adaptation among single young adults with cystic fibrosis. Chest 1984;86:412-418
35) Althof SE, Coffman CB, Levine SB. The effects of coronary bypass in female sexual, psychological, and vocational adaptation. Journal of Sex & Marital Therapy 1984;10:176-184
36) Letter to the editor: Follow-up on Increasingly Ruth. Archives of Sexual Behavior 1984;13:287-9
37) Essay on the nature of sexual desire Journal of Sex & Marital Therapy 1984; 10:83-96
38) Introduction to the sexual consequences of hemophilia. Scandanavian Journal of Haemology 1984; 33:(supplement 40).75-
39) Agle DP, Heine P. Hemophila and Acquired Immune Deficiency Syndrome: Intimacy and Sexual Behavior. National Hemophilia Foundation; July, 1985
    (a) Translated into German
    (b) Translated into Spanish
40) Turner LA, Althof SE, Levine SB, Bodner DR, Kursh ED, Resnick MI. External vacuum devices in the treatment of erectile dysfunction: a one-year study of sexual and psychosocial impact. Journal of Sex & Marital Therapy
41) Schein M, Zyzanski SJ, Levine SB, Medalie JH, Dickman RL, Alemagno SA. The frequency of sexual problems among family practice patients. Family Practice Research Journal 1988; 7:122-134
42) More on the nature of sexual desire. Journal of Sex & Marital Therapy 1987;13:35-44
43) Waltz G, Risen CB, Levine SB. Antiandrogen treatment of male sex offenders. Health Matrix 1987; V.51-55.
44) Lets talk about sex. National Hemophilia Foundation January, 1988
45) Sexuality, Intimacy, and Hemophilia: questions and answers . National Hemophilia Foundation January, 1988
46) Prevalence of sexual problems. Journal Clinical Practice in Sexuality 1988;4:14-16.
47) Kursh E, Bodner D, Resnick MI, Althof SE, Turner L, Risen CB, Levine SB. Injection Therapy for Impotence. Urologic Clinics of North America 1988; 15(4):625-630
48) Bradley SJ, Blanchard R, Coates S, Green R, Levine S, Meyer-Bahlburg H, Pauly I, Zucker KJ. Interim report of the DSM-IV Subcommittee for Gender Identity Disorders. Archives of Sexual Behavior 1991;;20(4):333-43.
49) Sexual passion in mid-life. Journal of Clinical Practice in Sexuality 1991

6(8):13-19
50) Althof SE, Turner LA, Levine SB, Risen CB, Bodner DR, Resnick MI. Intracavernosal injections in the treatment of impotence: A prospective study of sexual, psychological, and marital functioning. Journal of Sex & Marital Therapy 1987**;** 13:155-167
51) Althof SE, Turner LA, Risen CB, Bodner DR, Kursh ED, Resnick MI. Side effects of self-administration of intracavernosal injection of papaverine and phentolamine for treatment of impotence. Journal of Urology 1989;141:54-7
52) Turner LA, Froman SL, Althof SE, Levine SB, Tobias TR, Kursh ED, Bodner DR. Intracavernous injections in the management of diabetic impotence. Journal of Sexual Education and Therapy 16(2):126-36, 1989
53) Is it time for sexual mental health centers? Journal of Sex & Marital Therapy 1989**;**
54) Althof SE, Turner LA, Levine SB, Risen CB, Bodner D, Kursh ED, Resnick MI. Sexual, psychological, and marital impact of self injection of papaverine and phentolamine: a long-term prospective study. Journal of Sex & Marital Therapy
55) Althof SE, Turner LA, Levine SB, Risen CB, Bodner D, Kursh ED, Resnick MI. Why do so many men drop out of intracavernosal treatment? Journal of Sex & Marital Therapy. 1989;15:121-9
56) Turner LA, Althof SE, Levine SB, Risen CB, Bodner D, Kursh ED, Resnick MI. Self injection of papaverine and phentolamine in the treatment of psychogenic impotence. Journal of Sex & Marital Therapy. 1989; 15(3):163-78
57) Turner LA, Althof SE, Levine SB, Risen CB, Bodner D, Kursh ED, Resnick MI. Treating erectile dysfunction with external vacuum devices: impact upon sexual, psychological, and marital functioning. Journal of Urology 1990;141(1):79-82
58) Risen CB, Althof SE. An essay on the diagnosis and nature of paraphilia Journal of Sex & Marital Therapy 1990; 16(2):89-102.
59) Althof SE, Turner LA, Levine SB, Risen CB, Bodner DB, Kursh ED, Resnick MI. Through the eyes of women: the sexual and psychological responses of women to their partners' treatment with self-injection or vacuum constriction therapy. International Journal of Impotence Research (supplement 2)1990;346-7.
60) Althof SE, Turner LA, Levine SB, Risen CB, Bodner DB, Kursh ED, Resnick MI. A comparison of the effectiveness of two treatments for erectile dysfunction: self injection vs. external vacuum devices. . International Journal of Impotence Research (supplement 2)1990;289-90
61) Kursh E, Turner L, Bodner D, Althof S, Levine S. A prospective study on the use of the vacuum pump for the treatment of impotence.International Journal of Impotence Research (supplement 2)1990;340-1.
62) Althof SE, Turner LA, Levine SB, Risen CB, Bodner DB, Kursh ED,

Resnick MI. Long term use of intracavernous therapy in the treatment of erectile dysfunction in Journal of Sex & Marital Therapy 1991; 17(2):101-112

63) Althof SE, Turner LA, Levine SB, Risen CB, Bodner DB, Kursh ED, Resnick MI. Long term use of vacuum pump devices in the treatment of erectile dsyfunction in Journal of Sex & Marital Therapy 1991;17(2):81-93

64) Turner LA, Althof SE, Levine SB, Bodner DB, Kursh ED, Resnick MI. A 12-month comparison of the effectiveness of two treatments for erectile dysfunction: self injection vs. external vacuum devices. Urology 1992;39(2):139-44

65) Althof SE, The pathogenesis of psychogenic impotence. J. Sex Education and Therapy. 1991; 17(4):251-66

66) Mehta P, Bedell WH, Cumming W, Bussing R, Warner R, Levine SB. Letter to the editor. Reflections on hemophilia camp. Clinical Pediatrics 1991; 30(4):259-260

67) Successful Sexuality. Belonging/Hemophilia. (Caremark Therapeutic Services), Autumn, 1991

68) Psychological intimacy. Journal of Sex & Marital Therapy 1991; 17(4):259-68

69) Male sexual problems and the general physician, Georgia State Medical Journal 1992; 81(5): 211-6

70) Althof SE, Turner LA, Levine SB, Bodner DB, Kursh E, Resnick MI. Through the eyes of women: The sexual and psychological responses of women to their partner's treatment with self-injection or vacuum constriction devices. Journal of Urology 1992; 147(4):1024-7

71) Curry SL, Levine SB, Jones PK, Kurit DM. Medical and Psychosocial predictors of sexual outcome among women with systemic lupus erythematosis. Arthritis Care and Research 1993; 6:23-30

72) Althof SE, Levine SB. Clinical approach to sexuality of patients with spinal cord injury. Urological Clinics of North America 1993; 20(3):527-34

73) Gender-disturbed males. Journal of Sex & Marital Therapy 19(2):131-141, 1993

74) Curry SL, Levine SB, Jones PK, Kurit DM. The impact of systemic lupus erythematosis on women's sexual functioning. Journal of Rheumatology 1994; 21(12):2254-60

75) Althof SE, Levine SB, Corty E, Risen CB, Stern EB, Kurit D. Clomipramine as a treatment for rapid ejaculation: a double-blind crossover trial of 15 couples. Journal of Clinical Psychiatry 1995;56(9):402-7

76) Risen CB, Althof SE. Professionals who sexually offend: evaluation procedures and preliminary findings. Journal of Sex & Marital Therapy 1994; 20(4):288-302

77) On Love, Journal of Sex & Marital Therapy 1995; 21(3):183-191
78) What is clinical sexuality? Psychiatric Clinics of North America 1995; 18(1):1-6
79) "Love" and the mental health professions: Towards an understanding of adult love. Journal of Sex & Marital Therapy 1996; 22(3)191-202
    (a) Reprinted in Issues in Human Sexuality: Current & Controversial Readings with Links to Relevant Web Sites, 1998-9, Richard Blonna, Editor, Engelwood, Co. Morton Publishing Company, 1998
80) The role of Psychiatry in erectile dysfunction: a cautionary essay on the emerging treatments. Medscape Mental Health 2(8):1997 on the Internet. September, 1997.
81) Discussion of Dr. Derek Polonsky's SSTAR presentation on Countertransference. Journal of Sex Education and Therapy 1998; 22(3):13-17
82) Understanding the sexual consequences of the menopause. Women's Health in Primary Care, 1998
    (a) Reprinted in the International Menopause Newsletter
83) Fones CSL, Levine SB. Psychological aspects at the interface of diabetes and erectile dysfunction. Diabetes Reviews 1998; 6(1):1-8
84) Guay AT, Levine SB, Montague DK. New treatments for erectile dysfunction. Patient Care March 15, 1998
85) Extramarital Affairs. Journal of Sex & Marital Therapy 1998; 24(3):207-216
86) Levine SB (chairman), Brown G, Cohen-Kettenis P, Coleman E, Hage JJ, Petersen M, Pfäfflin F, Shaeffer L, vanMasdam J, Standards of Care of the Harry Benjamin International Gender Dysphoria Association, 5th revision, 1998. International Journal of Transgenderism at http://www.symposion.com/ijt
    (a) Reprinted by the Harry Benjamin International Gender Dysphoria Association, Minneapolis, Minnesota
    (b) also published in:
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IN THE UNITED STATES DISTRICT COURT
FOR THE WESTERN DISTRICT OF WEST VIRGINIA
CHARLESTON DIVISION

B.P.J. by her next friend and mother, HEATHER JACKSON,

Plaintiff,

vs. No. 2:21-cv-00316

WEST VIRGINIA STATE BOARD OF EDUCATION, HARRISON COUNTY BOARD OF EDUCATION, WEST VIRGINIA SECONDARY SCHOOL ACTIVITIES COMMISSION, W. CLAYTON BURCH in his official capacity as State Superintendent, DORA STUTLER, in her official capacity as Harrison County Superintendent, and THE STATE OF WEST VIRGINIA,

Defendants,

LAINEY ARMISTEAD,

Defendant-Intervenor.

Exhibit
SL 03

VIDEOTAPED DEPOSITION OF
STEPHEN LEVINE
Wednesday, March 30, 2022
Volume I

Reported by:
ALEXIS KAGAY
CSR No. 13795
Job No. 5122884
PAGES 1 - 289

IN THE UNITED STATES DISTRICT COURT
FOR THE WESTERN DISTRICT OF WEST VIRGINIA
CHARLESTON DIVISION

B.P.J. by her next friend and mother, HEATHER JACKSON,

Plaintiff,

vs.

WEST VIRGINIA STATE BOARD OF EDUCATION, HARRISON COUNTY BOARD OF EDUCATION, WEST VIRGINIA SECONDARY SCHOOL ACTIVITIES COMMISSION, W. CLAYTON BURCH in his official capacity as State Superintendent, DORA STUTLER, in her official capacity as Harrison County Superintendent, and THE STATE OF WEST VIRGINIA,

Defendants,

LAINEY ARMISTEAD,

Defendant-Intervenor.

No. 2:21-cv-00316

Remote videotaped deposition of STEPHEN LEVINE, Volume I, taken on behalf of Plaintiff, with all participants appearing remotely, beginning at 9:09 a.m. and ending at 5:46 p.m. on Wednesday, March 30, 2022, before ALEXIS KAGAY, Certified Shorthand Reporter No. 13795.

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Also Present:

MITCH REISBORD - VERITEXT CONCIERGE

Videographer:

KIMBERLEE DECKER

INDEX

EXHIBITS

Wednesday, March 30, 2022

9:09 a.m. A.M.

THE VIDEOGRAPHER: We are on the record at 9:09 a.m. on March the 30th of 2022.

All participants are attending remotely. 06:09:27

Audio and video recording will continue to take place unless all parties agree to go off the record.

This is media unit 1 of the recorded deposition of Dr. Stephen Levine, taken by counsel for 06:09:39 the plaintiff, in the matter of B.P.J., by her be- -- by her next friend and mother, Heather Jackson, versus West Virginia State Board of Education, filed in the U.S. District Court, for the Southern District of West Virginia, Charleston Division, Case 06:09:59 Number 2:21-cv-00316.

My name is Kimberlee Decker from Veritext Legal Solutions, and I am the videographer. The court reporter is Alexis Kagay.

I am not related to any party in this action, 06:10:16 nor am I financially interested in the outcome.

Counsel and all present will now state your appearances and affiliations for the record. If there are any objections to proceeding, please state them at the time of your appearance, beginning with the 06:10:31

noticing attorney.

MS. HARTNETT: Good morning. I am Kathleen Hartnett from Cooley, LLP, and I represent the plaintiff B.P.J.

I will let my co-counsel introduce themselves, starting with my colleagues at Cooley. 06:10:40

MR. BARR: Good morning. Andrew Barr from Cooley, LLP, for the plaintiff.

MS. VEROFF: Good morning. This is Julie Veroff from Cooley, LLP, for Plaintiff. 06:10:53

MS. KANG: Good morning. This is Katelyn Kang from Cooley, LLP, for Plaintiff.

MS. PELET DEL TORO: Good morning. This is Valeria Pelet del Toro of Cooley, for Plaintiff.

MS. REINHARDT: Good morning. This is Elizabeth Reinhardt at Cooley, for Plaintiff. 06:11:00

MS. HELSTROM: Hello. This is Zoe Helstrom from Cooley, LLP, for Plaintiff.

COUNSEL SWAMINATHAN: Good morning. This is Sruti Swaminathan from Lambda Legal, for Plaintiff. 06:11:26 And I have a paralegal at Lambda, Maia Zelkind, with me as well.

MR. BLOCK: Good morning. This is Josh Block from the ACLU, for Plaintiff.

MS. DENIKER: Good morning. Susan Deniker 06:11:44

from Steptoe & Johnson, PLLC, representing Harrison County Board of Education and Superintendent Dora Stutler.

MS. MORGAN: This is Kelly Morgan on behalf of the West Virginia Board of Education and Superintendent Burch. 06:11:58

MS. ROGERS: This is Shannon Rogers on behalf of the West Virginia Secondary School Activities Commission.

MR. TRYON: This is David Tryon. I'm with the West Virginia attorney general's office, representing the State of West Virginia. 06:12:12

MR. BROOKS: This is Roger Brooks with Alliance Defending Freedom, representing the intervenor Lainey Armistead and defending Dr. Levine today in this deposition. With me is my colleague and law clerk, Lawrence Wilkinson. 06:12:28

THE VIDEOGRAPHER: Thank you.

Will the court reporter please swear in the witness. 06:12:41

STEPHEN LEVINE,

having been administered an oath, was examined and testified as follows:

EXAMINATION

BY MS. HARTNETT:

Q Good morning, Dr. Levine.

A Good morning.

MS. HARTNETT: Before we start, I'm just going to put a housekeeping matter on the record that the attorneys discussed before we went on the record and that is that objection to form preserves all objections other than privilege and that the parties will make an effort to use "form," "scope" and "terminology" as the shorthand objections. In addition, an objection by one defendant is an objection for all defendants. 06:13:01 06:13:13

Could any counsel for the defense let me know if they have any disagreement with that?

MR. BROOKS: We have agreed, in fact. 06:13:30

MS. HARTNETT: Thank you very much.

BY MS. HARTNETT:

Q So again, my name is Kathleen Hartnett, and I'm with the law firm called Cooley, LLP.

Can you hear me okay? 06:13:41

A I do. At this point, yes.

Q Okay. Please let me know if that changes.

I use she/her pronouns.

Would you please state and spell your name for the record. 06:13:53

A Stephen Barrett Levine, S-T-E-P-H-E-N B-A-R-R-E-T-T L-E-V-I-N-E.

Q And what pronouns do you use?

A He/him.

Q Thank you. Dr. Levine, you've been deposed many times before; correct? 06:14:07

A Yes.

Q Was the most recent deposition that you gave in September of last year, 2021?

A No. 06:14:21

Q What was the most recent deposition that you gave?

A In -- within the last month, I was deposed in a Connectica- -- a Connecticut case involving a transgender prisoner. 06:14:41

Q Do you know the name of that case?

A Probably Clark versus the department of corrections in Connecticut. Connecticut Department of Corrections (sic).

Q Okay. And what was your -- the nature of your testimony in that Connecticut case, this recent deposition that you gave? 06:15:01

A Well, I provided a psychiatric evaluation of the patient and made recommendations. It -- it was -- I'm hesitating because -- I provided a thorough 06:15:28

psychiatric evaluation of the developmental history and the in prison history of the patient and the -- the psychology of his new transgender identity.

Q And you say "new transgender identity."

Was the new identity of -- male or female? 06:16:02

A The -- the new identity as a transgender woman.

MR. BROOKS: And -- and, Counsel, I will caution that obviously any detail about a psychiatric evaluation of an individual prisoner is a matter 06:16:18 covered by confidentiality that Dr. Levine is not free to get into detail about.

MS. HARTNETT: I hear you. I -- this is not a disclosed matter on his CV and is a recent deposition, so we'll have to just determine whether we need more 09:16:23 information, but thank you.

BY MS. HARTNETT:

Q Could you let me know what -- without giving any personal identifying -- or, I guess, any more detail than you believe appropriate, could you tell me 09:16:33 what the nature of any recommendations you made were in that matter?

A My recommendations were to provide a pathway towards further evaluation so that eventually a decision could be made about whether sex reassignment 09:16:56

surgery would be appropriate.

The -- the reason I'm hesitating is that that really did not come to be the subject of the deposition. The subject of the deposition really was the contents of my evaluation, which was done two years 09:17:24
before, and -- so lots of things had happened in the two years since I saw the patient or interviewed the patient and -- so I was not able to make recommendations based on current knowledge of the patient, and so I did not. 09:17:43

Q And was the -- prior to this recent deposition in Clark, was the most recent deposition before that the deposition in September of last year?

A Yes.

Q Thank you. And I'm asking that by way of 09:18:03
introduction just because I want to make sure we're on the same page about the ground rules for the deposition, and it sounds like you've been through this before, but I'll just let you know my basic ground rules and make sure we're on the same page. 09:18:18

So I will ask questions, and you must answer the questions unless your counsel instructs you not to answer.

Do you understand that?

A I do. 09:18:26

Q And if your counsel objects, you'll still need to answer my question unless you've been instructed not to answer.

Do you understand that?

A I do. 09:18:35

Q If you don't answer (sic) my question, could you please let me know, and I'll be happy to try to rephrase it or make it clear for you?

Does that make sense?

A I'll try to remember. 09:18:48

Q And if you answer, I will assume you understood the question.

Do you understand that?

A Yes.

Q I'm going to ty -- try to take a break every hour or so. If you need a break at a different time, please let me know. 09:19:00

Do you understand that?

A I understand.

Q And if I've asked a question, you'll need to provide an answer before we take a break. 09:19:11

Do you also understand that?

A I do.

Q I will do my best not to speak over you -- and please use verbal answers so the court reporter can 09:19:25

transcribe your answers. Nodding or shaking your head can't be captured on the transcript.

Do you understand that?

A I do, but I can guarantee you you'll have to remind me of that. 09:19:36

Q Well, you may have to do the same for me, but we'll try.

I also just want to explain what I'm going to mean when I use a couple of terms today.

For purposes of this deposition, when I say "cisgender," I will mean someone who's gender identity matches the sex that was recorded for that person at birth. 09:19:51

Do you understand that?

A Yes. 09:20:02

Q And then when I say the word "transgender," I will mean someone whose gender identity does not match the sex for which was recorded at birth.

Do you understand that?

A Yes. 09:20:13

Q And when I say "B.P.J.," I'm referring to the plaintiff in this case.

Do you understand that?

A Yes.

Q Do you understand that you are testifying 09:20:21

under oath today just as if you were testifying in court?

A Yes.

Q Is there anything that would prevent you from testifying truthfully today? 09:20:32

A No.

Q Are you taking any medication that would affect your ability to give truthful testimony?

A Well, I took a sleeping pill last night, but I feel reasonably alert today. 09:20:48

Q Okay. So you don't -- you don't have a belief that that medication you took last night will affect your ability to give truthful testimony today?

A I -- I don't think it will.

Q Do you know what case you're being deposed in today? 09:21:06

A Well, I -- yes.

Q What case is that?

A B.P.J. versus Department of Education.

Q And do you know what jurisdiction this case is from? 09:21:19

A West Virginia.

Q And do you have -- sorry.

Do you have an understanding of the issue presented by this case? 09:21:35

A I have an understanding. I'm not sure it is the correct understanding, but I do have an understanding.

Q Understood. What is your understanding of this case? 09:21:47

A The plaintiff and next friend and mother wish the young person to be able to compete in athletics according to their current gender identity and apparently the State Board of Education is -- disagrees. 09:22:13

Q Okay. Thank you.

So we already touched on that you had been deposed previously. I just want to ask you about a couple of specific depositions you gave to see if you recall those? 09:22:29

There was a matter in North Carolina called Kadel that you gave a deposition in September of 2021 regarding state employee healthcare.

Do you recall giving that deposition?

A Would you repeat -- regarding what? I didn't hear that last phrase. 09:22:41

Q I'll try to speak more slowly.

That was regarding -- so let me just start that one again.

So do you recall giving a deposition in a 09:22:51

North Carolina matter called Kadel in September of 2021 regarding state employee healthcare?

A Yes.

Q Do you recall giving a deposition in a Florida case in December of 2020 called "Claire"? That was also about state employee healthcare. 09:23:07

A Yes.

Q There also was a case called Keohane in Florida where you gave a deposition in 2017 and that was a prisoner case. 09:23:21

Do you recall that?

A Yes.

Q Did you give true and correct testimony in those depositions?

A Yes. 09:23:31

Q Have you always given true and correct testimony in your depositions?

A To the best of my knowledge, yes.

Q Thank you. And you've had depositions in cases involving prisoners who were seeking care for gender dysphoria; is that correct? 09:23:45

A Yes.

Q Have you ever testified in favor of a prisoner who was seeking medical care for gender dysphoria?

A Yes. 09:23:59

Q Can you describe those instances where you've testified in favor of a prisoner seeking medical care for gender dysphoria?

A In the last case involving a prisoner by the name of Soneeya, S-O-N-E-E-Y-A, I recommended transfer to a female prisoner and -- sorry -- transfer to a female prison and the opportunity to have sex reassignment surgery if, after a year of adaptation there, there were no significant decompensations or problems. 09:24:14 09:24:44

Q And do you remember what year you made that recommendation?

A I think it was 2019.

Q Okay. And can you -- are you aware of any other examples of you having testified in favor of a prisoner seeking medical care for gender dysphoria? 09:25:05

A I'm hesitating because medical care includes many things. And so the answer is yes. It involves accommodations to their current gender identity in terms of canteen items, for example, and it includes the prescription of cross gender -- cross-sex hormones. So I've been involved in the provision of those kind of things repeatedly over the years for prisoners. 09:25:35

Q Have you ever, other than in the Soneeya matter, recommended that a prisoner -- sorry -- 09:26:04

testified that a prisoner should receive gender confirmation surgery?

A I'm hesitating to answer the question because it's about testimony. In my work as consultant, I have repeatedly recommended both surgery and, more -- more commonly, hormone treatment, electrolysis treatment, canteen item treatment. Most of -- the vast majority of these cases never come to trial. 09:26:25

Q When is the last time that you recommended that a pres- -- a prisoner should have hormone treatment? 09:26:46

A It would have been the third Thursday in March, this year.

Q And where is that prisoner located?

A Massachusetts. 09:27:06

Q Can you estimate how many prisoners you've given a recommendation about through the course of your career?

A That would be very difficult. I've been the consultant to the department of corrections gender identity committee since, I think, 2008 and every month since that time, with less than one handful of exceptions, I've been present at discussions, and we've recommended accommodations in prison to people who declare identity as a trans woman. And I would say 09:27:30 09:27:58

probably, and I ask you not to hold me to this number, 40 times.

Q Sorry, 40 times describes what?

A That -- that I've joined a group of people who decided to provide electrolysis, canteen item -- 09:28:25
special privileges for canteen items, that is, female canteen items, the ability to shower alone, the ability to be tapped down or searched by a female attendant, not a male attendant, a correction officer, hormone -- the beginning of hormone treatment and -- and, of 09:28:52
course, bilateral mastectomies and -- and on several occasions, male gender confirming surgery for biologic males who are living as trans women. In other words, the whole gamete of services.

Q So 40 times you've recommended something -- or 09:29:19
joined in a recommendation for something for -- a prisoner to receive medical care, as you've broadly described that term?

A Yes.

Q And then how many times can you estimate where 09:29:34
you had made a recommendation that the prisoner should not receive medal care, as you've broadly defined it?

A I don't think I've ever recommended that no treatment be offered to this person. The -- the -- because the treatment involves that entire array of 09:30:07

matters that I just delineated.

And so prisons -- or at least Massachusetts, where I work as a consultant, has been very -- eventually, by 2008, has been -- have been very interested in providing individual services to -- to help these people diminish their pain about their incongruence, and I have been one of the people who devised the program. 09:30:26

Q The prisoner that you reco- -- you recommended -- sorry -- that you were referring earlier to, the one in the Clark matter, do you recall us discussing that? 09:30:49

A I do.

Q And that person identifies as female; correct?

A Yes. 09:31:00

Q Do you view that person as a female?

A I view that person as a trans woman.

Q You have just testified that you've never recommended that a -- no treatment be offered to a prisoner for gender dysphoria; is that correct? 09:31:22

A I'm hesitating because "no treatment" includes -- would include all of the above, of the array I previously listed, and at this moment, I don't recall ever saying no treatment should be given to this individual, no accommodation should be given to this 09:31:47

individual.

Q Do you recall if you've ever recommended that no surgery be permitted for an individual in prison?

A Oh, yes, I have. I have said that I didn't think sex reassignment surgery -- in those days, that's what we called it, but it's now called gender confirming surgery -- I have said I did not think sex -- that kind of surgery was indicated or necessary -- medically necessary. 09:32:06

Q And so how many times did you say that surgery was medically necessary? 09:32:26

A Would you repeat that, please.

Q How many times did you say that surgery was medically necessary for a prisoner?

MR. BROOKS: Objection; ambiguous. 09:32:45

THE WITNESS: You may or may not know that I do not like the term "medically necessary." I prefer to use the term "would be psychologically beneficial to this person." So that's the reason I'm hesitating answering your question. 09:33:12

I generally avoid using the term "medical necessity." Instead, I try to make a determination whether I think, in the -- in the long run, this particular intervention that we're talking about would be psychologically beneficial to the patient. 09:33:29

BY MS. HARTNETT:

Q My question is whether you've ever recommended any gender confirming surgery as medically necessary for a prisoner.

A Yes, I -- I have signed my name to such documents, such recommendations, because where I work, in Massachusetts, this is the way that the -- most of the staff and -- and -- that -- that is the common term used to -- to justify that kind of intervention. 09:33:47

Q How many times have you signed your name to that kind of intervention for a prisoner? 09:34:10

A Perhaps five times.

Q And you referenced the Soneeya matter; correct?

A Correct. 09:34:38

Q And years earlier than the 2019 recommendation that you just described, you testified against surgery for that prisoner; correct?

A That is not correct.

Q What's not correct about that? 09:34:50

A That I did not testify -- I did not testify against sex reassignment surgery.

Q Did you testify against something earlier in that matter?

A I testified the recommendation to -- to have 09:35:05

what the judge called a soft landing, like first transferring the person to a female facility, and then, based upon her adaptation there, to have sex reassignment surgery.

In fact, that was really -- the issue was not whether the person should eventually have sex reassignment surgery, but -- but whether it should be done before transfer to the female facility or after transfer. 09:35:29

Q Did that prisoner seek sex reassignment surgery before transfer? 09:35:46

A Please repeat that.

Q Did that prisoner seek sex reassignment surgery before transfer?

A She did until we presented this idea to her, and she jumped at the idea. She thought it was a very good idea when we interviewed her. And by the time this case got to court, her attorneys were arguing for immediate sex reassignment surgery. But -- 09:36:04

Q So she -- by the time you were -- oh, pardon me. Please complete your answer. 09:36:27

A So we were aware that, because we were in the room when we -- I discussed this with her, she was very happy with the idea of transfer with the -- because she was very positive that she would have a fine adaptation 09:36:41

among women prisoners, and she was delighted.

And then months later, when this came to trial, the -- her attorney arg- -- was arguing against that.

Q So you testified against her wishes as expressed by her attorney at trial; correct? 09:37:05

A I never conceived that I was testifying against Soneeya. You may do that, but I -- that's not my concept.

Q In the cases where you've given testimony about employee healthcare coverage, you were testifying against the employee healthcare coverage for gender dysphoria; correct? 09:37:24

A Incorrect.

Q What's incorrect about that? 09:37:38

A What I was testifying to is my understanding of the state of science. I was not taking a stand that people should not have healthcare coverage. I was trying to inform the Court about what we knew about this subject and what we don't know about this subject. 09:37:58

I didn't take a position that -- that I knew what should be done. I was just here as a -- to offer what I understood about the state of science, about various aspects of surgical and medical and psychological care for the trans population. 09:38:18

Q Are you aware in the Kadel and the Claire matters -- those are the North Carolina and Florida employee healthcare coverage matters -- your testimony was submitted by the defendants in that case against the relief being sought? Are you aware of that? 09:38:37

A I was aware that -- who employed me and what their purposes were, but -- but I was not enjoining psychologically with the idea that I was doing anything but offering the Court what I hope to be an objective appraisal of the state of knowledge based upon 09:39:01 literature and, you know, participation in trans care over the years.

Q So were you, in those two matters, agnostic as to whether the employees received the healthcare coverage or not? 09:39:21

A Agnostic?

Q That you didn't have a view.

A Would you -- would you mind explaining that term? I'm -- I usually understand that in terms of religious notions. 09:39:34

Q That you did not have a view -- in those cases, Kadel and Claire, is it fair to say you did not have a view as to whether the healthcare coverage should be extended or not?

A I felt insufficient to make a societal 09:39:47

decision. I'm not an expert in the insurance industry at all. I -- I am certainly not an expert in the political processes in any particular state. The only -- the only knowledge base that I feel I have comes from the study of the literature and the participation in trans care, both in the community and in prison systems. 09:40:05

And so the fact that the State used my testimony does not really equate, in my mind, with my position on whether or not people should have healthcare insurance. 09:40:31

I -- again, to repeat, my understanding is I am somewhat knowledgeable about the state of science in this area and that the various people on law -- on the side of -- in -- in -- in judicial issues -- judicial matter want somebody who can articulate the state of -- of knowledge. And that's what I do. 09:40:48

The state of knowledge should be applied, in my view, to both sides of the issue, not just, you know, the State or the Board of Education. It should be -- it should be established -- it should be relevant to the plaintiff's side. 09:41:09

Q Were you paid by the State in the North Carolina and the Florida matters for your testimony? 09:41:27

A Ultimately, I think I was paid by the State, but the check did not come from the State. The check came from the lawyer who employed me.

Q Understood. Have you ever provided testimony with your -- what you've described as your expertise in favor of -- on the side of extending the healthcare coverage to tran- -- to people seeking care for gender dysphoria? 09:41:46

A No attorney representing that side of the issue has ever hired me, but if they would, I would be happy to present my knowledge or -- to, and they can do what they want with that testimony. 09:42:03

Q You were deposed in at least one child custody matter in Texas where a child wanted to transition; is that correct? 09:42:26

A I was.

Q And you testified in trial at that matter, too?

A I did.

Q And was your testimony in that case in opposition to the desired transition? 09:42:37

A The testimony in that case was to present the state of knowledge about this matter. I did not take a position that a child should or should not have a particular treatment. I was just informing the Court, 09:42:56

as I previously described to you. I thought I was a witness about the nature of knowledge about trans children.

THE WITNESS: Could you get me some water, please. 09:43:16

BY MS. HARTNETT:

Q Sorry, is your testimony that you, in that case, in the -- this is the Younger matter; is that correct?

A Yes. That's what I understand you to be referring to. 09:43:23

Q And your testi- -- your testimony today is that you were not testifying in opposition to the transition that the child -- of the child in the Younger matter? 09:43:36

A I was hired by the lawyer who was representing the father who did not want his son to be transitioned to a little girl, socially. But I was not testifying that the child should not be transitioned. I was testifying -- I had no knowledge of that -- I wasn't asked for that question. That -- that was never asked of me, Ms. Hartnett. What was asked of me was what we knew about this subject. And, therefore, I felt comfortable sharing the state of knowledge and -- and what is missing from our knowledge. 09:44:02 09:44:23

Again, it -- it has the appearance that I was testifying against the socialization of the child, but I think if you look closely at that, what I was doing was telling the Court what was known and what was not known and what the consequences were, the implications of treating the child one way versus another. 09:44:45

Q So you did not testify in that matter that desistance was preferable to affirmation?

A I actually don't recall if I made that statement. It's -- I just don't recall. 09:45:09

Q Okay. Has your testimony -- oh, sorry.

Have you testified in any other matters of -- similar to the Younger matter, in which parents were disputing the proper care of their child who sought care for gender dysphoria? 09:45:37

A Yes. There was a case that I believe is sealed in the Tucson court. I don't know if I'm allowed to give the name. I presume I can give the name. I don't know.

MR. BROOKS: If -- if it's sealed, I would not give any identifying information. 09:45:56

THE WITNESS: But the answer to your question is yes.

BY MS. HARTNETT:

Q And in that matter, did your -- was your 09:46:05

testimony used by the party who was opposing the treatment for gender dysphoria for the child?

A In that particular matter, it was the parents, who hired me, who objected to losing custody of their child when the child was hospitalized for a suicide gesture and told the people in the hospital that her evil parents were preventing her, at age 13, from transitioning to being a boy. And her parents -- 09:46:38

MR. BROOKS: I'm just going to interrupt and caution the witness. I'm not part of that case, but I -- nor do I want Dr. Levine to violate any confidentiality obligations. 09:47:03

So as you answer, whatever level of generality you think is appropriate, just be very careful not to disclose information that you believe you received in confidence and that remains confidential given the conduct of that case. 09:47:18

So I -- I don't want us in our proceedings to violate any obligations of that proceeding.

THE WITNESS: Well, given that, I actually think anything I would say about this would violate the confidentiality rule here, and I think I've told you enough about the case. 09:47:35

MS. HARTNETT: Well, I don't want to waste our time on the record discussing this, but we have a right 09:47:51

to discovery into your testimony, so we will follow up with counsel to figure how to get it.

BY MS. HARTNETT:

Q When was this testimony given?

A In the spring of 2021. And if I'm wrong, it was in the spring of 2020. 09:48:13

Q Thank you. And, sorry, what -- was the testimony given in deposition or trial or some other fashion?

A In juvenile court. 09:48:32

Q In what form did the testimony take?

MR. BROOKS: Objection; vague.

BY MS. HARTNETT:

Q Just, sorry, meaning written or oral.

A Oh, in person? I was in -- I was in person by video, and I was cross-examined, you know. 09:48:50

I also submitted a report of the psychiatric evaluation.

Q Any other testimony that you've given in a case involving parents and the potential care of a child with gender dysphoria? 09:49:13

A I submitted a rebuttal to a report in a case in Cincinnati I think the first week of January of this year. The case is called Siefert, S-I-E-F-O-R-D (sic), or E-R-T, something like that. Siefert versus Hamilton 09:49:49

County, which is the Cincinnati county.

So that would be the answer to your question.

Q And what's the nature of that matter, the Siefert matter?

A The -- the child, who was identifying as a trans male, were treated -- the parents were treated during the hospitalization as persona non grata and the hospital refused to discharge the patient even though the patient did not meet criteria for continued hospitalization and -- so the -- the parents were objecting to the loss of parental rights. 09:50:08 09:50:46

Subsequently, the child reidentified as a female and -- so I don't know what the outcome has been legally. It's in process.

And I just commented on the limitations of the -- another expert who felt that it was justified to keep the child in the hospital against the parents' wishes, for two and a half months. 09:51:07

Q In the Tucson matter that you discussed, which, again, we will follow up on, but can you just tell me if that's been resolved? Do you know if that's reached a conclusion? 09:51:34

A Yes, that -- the -- the particular judicial issue was -- was resolved. Whether or not the parents are going to continue to sue the -- the child welfare 09:51:56

organization, I -- I don't know. I haven't heard -- I haven't had any follow-up on the case since it was adjudi- -- since it was resolved.

Q Thank you. Has your testimony ever been excluded by a court? 09:52:18

A Yes.

Q When?

A 2015.

Q What matter was that?

A It was in the matter of a prisoner named 09:52:33 Noseworthy (sic) in California.

Q And what is your understanding of how your testimony was excluded?

A Well, I didn't actually have testimony. I submitted a psychiatric evaluation and a 09:52:50 recommendation, and I was never invited to a -- a courtroom for that.

The judge -- I presented, in my written deposition, an account of a female prisoner who had a very extremely negative outcome from genital surgery, 09:53:12 and the judge -- the judge thought I was lying about this case, and he also did not think that -- that I followed the Harry -- the WPATH standards of care, and he dismissed my -- without asking me one question, without asking me do I have any evidence to show that I 09:53:39

wasn't lying about this case, he -- he dismissed my recommendation.

So I'm aware that judges have their -- judges can make mistakes. Because I, in fact, have in my possession the case history, I saved the case history that was presented to me by the California Department of Corrections, and that -- no one seems to know that. Or at least the judge did not inquire about that. I never had a chance to defend myself and -- so that's -- that's when my testimony was dismissed. 09:54:01 09:54:24

Q Thank you. Is there any other time where your testimony has been excluded by a court?

MR. BROOKS: Objection; vague.

THE WITNESS: Well, I believe that the impact of that judge in the Noseworthy -- Norsworthy case has influenced two other cases to discredit my position, at least whatever I said on those other cases -- on one other case. 09:54:48

One of the cases that -- that my name gets brought up about, I actually never submitted any testimony to, but someone quoted what I had taught in a workshop; and, therefore, the judge dismissed that testimony. 09:55:10

You should understand that since that time and even before that time, my testimonies have been 09:55:29

accepted by various courts, and -- for example, in the district court of Arizona, in a case involving insurance coverage, the judge quoted my testimony. That -- that was appealed to the Ninth Circuit Court, and the Ninth Circuit Court made -- made a reference to, but did not name my testimony. 09:55:49

And so it seems to me that since -- before 2015, in that particular case, and subsequent to 2015, my testimony has been accepted by various courts, in various matters involving, you know, trans issues that I am asked to opine about. 09:56:10

Q Thank you. Is there any other example you can think of where your testimony has been excluded by a court?

MR. BROOKS: Objection, vague. 09:56:37

THE WITNESS: Well, I'm aware of the Noseworthy case, the -- the Edmo case, and there's a Hecox case.

But again, all these exclusions were objections to my expertise derived from the judge in the Norsworthy case. 09:56:58

And the answer to your specific question, I am not aware of any other situation where my testimony was excluded.

Q Thank you. For the Noseworthy case, you did 09:57:13

submit an expert report; correct?

A I -- I -- yes.

Q So you understand this case involves sports; correct?

A Yes. 09:57:42

Q What, if any, prior testimony have you given, whether by declaration or report or oral testimony, about transgender participation in sports?

A I believe that both in the Connecticut case and in the Hecox case the expert opinion report that I 09:58:09 gave about the state of knowledge in this field has been submitted for the Court's consideration.

I am not an expert, as you probably know, in matters of athletics and physiology. I am only providing information that I feel I know about, which 09:58:41 is the knowledge and the lack thereof about certain issues related to trans care.

So I -- I've never really, as far as I know, as far as I remember, made an opinion about this should happen or this should not happen. I'm just providing 09:59:06 information to the courts about what I know and what is not known by society or by science.

Q Thank you. So in this case, for example, B.P.J., is it fair to say you do not have an opinion as to whether she should be permitted to play sports? 09:59:25

A I do not have an opinion.

Q Have you -- setting aside the context of transgender participation in sports, have you ever given any testimony of any kind in a matter related to sports? 09:59:51

A I can't think of any.

Q Have you given any prior testimony, whether by declaration, report or oral testimony, about prepubertal trans- -- transgender children?

MR. BROOKS: Let -- let me ask you to restate that question. Not to rephrase it, necessarily. I just want to hear it back. 10:00:16

MS. HARTNETT: Sure.

BY MS. HARTNETT:

Q Have you given any prior testimony by declaration, report or oral testimony involving prepubertal transgender children? 10:00:22

A I'm hesitating because I have written about informed consent and -- and that my writings about informed consent have covered all trans, beginning with prebu -- prepubertal children. But your question is about giving testimony about that. I would imagine that in the Younger I may have raised the issue of -- of what we know -- I mean, I did raise tissue of what was known and what is not known. 10:01:02 10:01:38

So I would imagine the answer to your question must be yes.

And the Arizona case that is sealed is not about a preber -- prepubertal child. But, of course, in taking a history of any child in adolescence, we certainly take histories of their prepubertal period and the behaviors evidenced during that time. 10:01:55

So I just find the answer to your -- I'm not actually sure what the answer to your question should be. 10:02:13

Q Did the Younger case involve a prepubertal child?

A It did.

Q And the Arizona case did not involve a preber -- prepubertal child; is that correct? 10:02:26

A That's -- that's correct.

Q And how about the Cincinnati case you mentioned, was that a prepubertal child?

A No.

Q Can you think of any other -- and I'm setting aside your nonjudicial work, but any -- any testimony -- and I -- that was my question. Thank you for focusing on that -- but any testimony you've given other than these examples that you consider to be related to prepubertal transgender children? 10:02:34 10:02:57

A The key word to your question is "testimony." And so I have played -- I have -- I have offered opinions to lawyers that never rose to the point of testimony. So the --

Q And let me be clear. 10:03:25

A The answer to your question must be no.

Q And for this question, I was just trying to be clear when I said "testimony," whether by written declaration, written report or oral testimony.

And so I want to -- just using that 10:03:41 understanding of "testimony" for this question, other than the Younger case, have you given any prior testimony regarding a prepubertal -- in a case involving a prepubertal transgender child?

A I'm trying to be helpful and -- and 10:03:55 informative to your question.

I think the -- I think the -- the -- to the best of my knowledge, the answer is no, but people use my knowledge, in my previous publications, and call me sometimes and ask me opinions about matters -- the 10:04:24 lawyers, I mean, or guardian ad litem persons -- and -- but it's not testimony per se. I guess it would be consultation.

Q Thank you. And then just again sticking with testimony, which for this question I'm meaning to be 10:04:52

written or oral testimony in a judicial proceeding, have you given any testimony about a case involving a transgender adolescent, other than the Arizona case and the Cincinnati case?

A At the moment, I can't think of any. 10:05:21

Q And have you -- and this is, again, for the purposes of this questions meaning -- "testimony" to mean written or oral testimony in a judicial proceeding. Have you ever given testimony in support of a transgender party? 10:05:40

A In support of a transgender what?

Q Party.

A Party. Please repeat that question.

MS. HARTNETT: Could the reporter read that back. I'm not sure I could do it. 10:05:50

(Record read.)

THE WITNESS: I guess the key word in your question is "support." And I want you to know that when I testify about the state of knowledge, I actually think that because my perspective is a long-term life 10:06:48 cycle perspective, I think of that my knowledge base sometimes suggests that I'm actually being quite supportive in -- in trying to have people understand what the consequences of -- of, quote, affirmative or supportive care actually may mean, what the risks are. 10:07:11

So I believe your understanding of the word "support" is different than my understanding of the word "support."

But once again, I want to repeat, I conceptualize what I'm doing is accurately stating the state of science, of what is known, what is not known and what we need to do in order to get the answers to the unknown questions. That's what I'm doing. 10:07:32

I'm not supporting this or supporting that. I'm not against this. I'm not against that. I'm trying to give an appraisal of what we know, in a scientific sense. Because of the one principles of medical ethics is that science should lead our therapeutics. 10:07:52

BY MS. HARTNETT: 10:08:07

Q Dr. Levine, you understand that your testimony in this matter has been provided by the State, the defendants, in support of their position; is that correct?

A Yes. 10:08:15

Q And so when I use the word "in support of," in the context of a judicial proceeding, you understand that your testimony, what has been submitted in these proceedings, is submitted in support of one party or in support of another party; correct? 10:08:36

A Yes. But that has to do with legal processes. What -- what I am supporting is to inform the court of what is known and what is not known. If you were to hire me to tell what -- the Court what is known and not known, I think I would be giving the same testimony. 10:08:58

Q Let me ask you again, then. Which of -- have you ever previously given written or oral testimony that was submitted in support of the transgender party in a judicial proceeding?

MR. BROOKS: Objection. 10:09:16

THE WITNESS: You asked that question before, so I'm going to answer it in the same way I answered it before. It depends on your notion or my notion of "support."

BY MS. HARTNETT: 10:09:36

Q I'm using the notion of "support" that we just discussed, which is -- like, for example, your testimony in this matter is being submitted in support of the defendants. You understand that?

A I do. 10:09:44

MS. DENIKER: This is Susan Deniker. I just want to place on the record an objection to the form.

BY MS. HARTNETT:

Q And using that understanding of "support," do you agree with me that you have not previously had your 10:10:00

testimony submitted in a judicial proceeding in support of the transgender party; correct?

MR. BROOKS: Objection.

THE WITNESS: Incorrect. I already told you that I have recommended transfer to a female prison and ultimate sex reassignment surgery and that -- for -- for the Soneeya case, and there were -- there was another case -- another prisoner at the same time that we made the same recommendation for. 10:10:10

And I've already told you that I have -- I -- I -- I have participated in the support of -- of bilateral mastectomies for female prisoners, but that -- none of those cases have gone to court. So I -- I guess that's not relevant to your question. 10:10:33

BY MS. HARTNETT: 10:10:51

Q Right. I was asking about whether you've submitted, in a judicial proceeding, an opinion on the side of the transgender party. Have you?

MR. BROOKS: Objection.

THE WITNESS: I already answered that question three times about Soneeya. 10:11:10

BY MS. HARTNETT:

Q Can you please answer my question?

Have you ever submitted an expert opinion on the side of the transgender party? 10:11:20

MR. BROOKS: Objection.

THE WITNESS: In your narrative --

BY MS. HARTNETT:

Q In a --

A In your -- 10:11:32

Q Sorry, I'm just trying to be really clear since I understand you're disputing the term "support," which I thought was clear, but I -- I -- I'm listening to you, and now I'm asking you whether, in a judicial proceeding, you've ever submitted testimony on the side 10:11:43 of the transgender person, the formal side of the case.

MR. BROOKS: Objection. Experts don't themselves submit anything in court.

You may answer, if you recall.

THE WITNESS: I may answer? 10:12:09

MR. BROOKS: If you recall.

THE WITNESS: I -- I find myself unable to answer that question.

MS. HARTNETT: Okay. I'm going to introduce an exhibit now, so we'll see how this Exhibit Share 10:12:22 works for you. Just a moment here.

MR. BROOKS: Tell me when you've placed it in the folder, and I will then refresh the folder --

MS. HARTNETT: Will do.

We're starting with 86. Okay. Just one 10:12:49

moment, please.

(Exhibit 86 was marked for identification by the court reporter and is attached hereto.)

MR. BROOKS: Are you doing all right, or do you want to take a break? 10:13:02

THE WITNESS: Well, she said we would have a break in an hour. It's a little over an hour.

MR. BROOKS: If you're -- you're about to introduce a document and you're taking a little time to get that straight, let's take a short break. 10:13:07

MS. HARTNETT: That works for me. Thank you.

MR. BROOKS: All right.

THE VIDEOGRAPHER: We're off the record at 10:13 a.m.

(Recess.) 10:22:57

THE VIDEOGRAPHER: We are on the record at 10:23 a.m.

BY MS. HARTNETT:

Q Now, Dr. Levine, you've been retained as an expert witness in this case, B.P.J.; correct? 10:23:20

A Correct.

Q Who retained you?

A Initially, David Tryon.

Q And was there someone who retained you after that? 10:23:37

A I -- I think David Tryon, in the matter and means that I don't understand, created a liaison with Alliance for Defending Freedom, Mr. Brooks, and then they became -- so then I am -- I've been recruited by both Mr. Tryon and Mr. Brooks, their -- their particular institutions. 10:24:10

Q And with respect to Mr. Brooks, he's affiliated with the Alliance for Defending Freedom, is that your understanding?

A Yes. 10:24:29

Q Have you previously worked with the Alliance for Defending Freedom on any matter?

A Yes. I -- I think of it as working with Mr. Brooks.

Q And I don't want to -- 10:24:45

A Mr. Brooks is associated with the Alliance for Defending Freedom, so I guess the answer to your question is yes.

Q When did you first work with Mr. Brooks?

A In the Young -- Young -- in the Younger case. 10:24:57

Q And that was the Texas matter we discussed?

A Yes.

Q And I think you testified in your deposition in the Claire matter, that's the Florida case, that you worked with a lawyer from the Alliance Defending 10:25:17

Freedom to write your report in Younger; is that right?

A In -- the question is a little confusing to me because you brought up the Florida case, and I don't -- could you repeat the question and ask me just one question? 10:25:36

Q Sure. I was trying to orient you that I understand that you gave a deposition in that Florida matter of Claire; correct?

A I did.

Q And in that case, you were asked some questions about your report. Do you remember that? 10:25:44

A You mean my report in the Younger case?

Q Correct.

A I don't remember that. I'm not denying it, but I just don't remember that. 10:26:00

Q Yeah, was just curious about the kind of genesis of your report in this case, and so what -- I guess what I'll ask you is, is it -- is it fair to say that you worked with a lawyer from the Alliance for Defending Freedom to prepare your report in the Younger matter? Correct? 10:26:14

A Yes.

Q And then your report in the Claire matter in Florida was derivative of the Younger report; correct?

A I don't think that's correct. 10:26:27

Q What's not correct about it?

A I think the Florida case was about three -- the plaintiffs, I think, were three adults. The Younger case was about, as we established before, a very young child. 10:26:53

Q Okay. So your testimony is that the report you submitted in the Claire case was not a derivative of the report that was submitted in Younger; is that right?

MR. BROOKS: Object to the form. 10:27:06

THE WITNESS: It's -- it's very difficult for a person like me to know how my clinical activities and my consulting activities interplay and influence one another.

I am a very busy person, doing a lot of 10:27:28 different things, and I often think about, in a very pleasing way, how my various activities cross-fertilize my -- and stimulate my views, and what I read in one case for one particular matter may stay with me and help me understand yet another matter. 10:27:48

So this cross-fertilization is a very intellectually stimulating process, but it makes me very unable to answer the question about what influenced what. You know, sometimes I read a novel and it influences, I think. 10:28:08

But it's hard -- I -- I can't really track, with any degree of certainty, what influences what.

Perhaps if you had specific -- more specific questions, I may be able to give you an opinion. But based on what you just said, I -- I -- I'm at a loss to answer it definitively. 10:28:29

BY MS. HARTNETT:

Q So I think my -- just to be clear for the record, then, you cannot answer definitively whether the report you submitted in the Claire case was a derivative of the report that was done in the Younger case; is that fair? 10:28:44

MR. BROOKS: Objection; vague.

THE WITNESS: Based on how I currently think at the moment, I think it's correct. 10:28:59

BY MS. HARTNETT:

Q Sorry, correct that you -- you can't take a view on that?

A It is correct that I don't know whether the Younger case influenced my -- a specific -- I mean, I -- I probably wrote many, many pages for the Florida case, and so, you know, maybe there's a sentence or a paragraph or two that, in my mind, was conceptualized in part because of -- of my experience in the Younger case. 10:29:18 10:29:38

But at this moment, I cannot tell you definitively this influenced me or this did not influence me.

Number one, that was a couple of years ago. Lots of things have happened in my brain in the last couple of years. 10:29:51

Q Did any novels affect your expert opinion in this case?

A Not that I can think of.

Q You mentioned that you first encountered Mr. Brooks on behalf of ADF in the Younger case. 10:30:03

Can you tell me how you got connected with him in that matter?

A He called me. He had read two papers, I believe, that I had published, and he wanted to talk to me. 10:30:22

Q So for this case, B.P.J., what were you asked to do in terms of presenting an expert opinion?

A He wanted me to present the state of knowledge, what is known and what is not known, about trans care as a background for this particular case. But he was aware, and -- and I told him very clearly -- that he was quite aware. I didn't have to tell him. I just reminded him that I am not an expert in the physiology of estrogen and testosterone blockages for 10:30:47 10:31:11

athletic capacities, I'm not an expert in lung volumes and cardiac capacities. And -- and I asked him why -- why he would --

MR. BROOKS: I'm going to instruct you not to disclose the substance of conversations with your attorneys. 10:31:28

THE WITNESS: All right. Thank you.

BY MS. HARTNETT:

Q Was that a conversation you had before you were retained in this matter, Dr. Levine? 10:31:36

A Was that a conversation?

MR. BROOKS: Counsel, the -- the witness can answer that question, but any conversations surrounding the retention, I will instruct the witness not to answer. 10:31:53

THE WITNESS: I wondered why he needed my testimony in this case. He provided an answer for me.

BY MS. HARTNETT:

Q Do you view your testimony as relevant to this case? 10:32:07

MR. BROOKS: Objection.

THE WITNESS: Insofar as you make claims -- you -- that your side may make claims that is not -- that are not scientifically correct or established, it may very well be relevant. 10:32:29

But that is not a question for me to decide. That's a question for lawyers on both sides and for the judge.

Again, I'm just -- I'm just -- I just have a certain limited understanding and knowledge which I believe the Court might benefit from having. 10:32:44

BY MS. HARTNETT:

Q Did you prepare for the deposition today?

A Yes.

Q What did you do to prepare? 10:33:03

And please don't disclose your communications that you had -- the substance of the communications that you had with counsel.

A I reread my report Sunday evening. I met with counsel yesterday afternoon. 10:33:17

Q How long did you meet for yesterday afternoon?

A I'm sorry, how long, did you say?

Q Yes, how long did you meet with counsel yesterday afternoon?

A Between 1:30 and quarter to 7:00. 10:33:30

Q Did you review any documents to prepare for this deposition other than your expert report?

MR. BROOKS: And you -- you can answer that question yes or no without identifying specific documents. 10:33:44

THE WITNESS: Yes.
BY MS. HARTNETT:
Q Did you review the rebuttal report of Dr. Safer?
MR. BROOKS: I'm going to instruct the witness not to answer questions about what specifically he reviewed with counsel yesterday. 10:33:52
MS. HARTNETT: I believe I have a right to know what, if any, additional documents he's reviewed before the deposition other than his report. 10:34:08
MR. BROOKS: On the contrary. I believe that selection is my work product. And I stand by my instruction.
BY MS. HARTNETT:
Q Outside the presence of your counsel, is there anything other than the expert report that you reviewed to -- before your deposition? 10:34:15
MR. BROOKS: On your own, outside our session yesterday, did you review anything else in preparation for your deposition? 10:34:32
THE WITNESS: No.
BY MS. HARTNETT:
Q Do any materials other than those cited in your expert report inform your opinion in this matter?
MR. BROOKS: Objection. 10:34:49

THE WITNESS: As was -- if you have read my curriculum vitae, I have recently published two papers about issues. One is titled the Reflections of a Clinician about the trans -- the care of trans youth that was published in November, in the Archives of Sexual Behavior. And about 16 days ago, a new article appeared online about informed consent, Reconsidering Informed Consent in the Treatment of Trans Children, Adolescents, and Young Adults. 10:35:19

And so I can't really separate the processes of writing these papers from, you know, the submission of documents in this particular case. 10:35:46

But in a literal answer to your question, did I -- did I review any particular documents in -- in -- in preparation for this testimony today, this deposition today? The answer is no. But the process of writing articles is a deep, you know, dive into all kinds of issues and -- so I'm busy with this -- these sub- -- these topic areas. 10:36:07

But I guess the answer to your question is no. 10:36:31

BY MS. HARTNETT:

Q Thank you. And what I need to understand and -- and find a way to get that information from you, notwithstanding your counsel's objection, but he should make any direction he sees fit to make, in -- in your 10:36:46

expert report, you refer to certain materials in this case that you had reviewed as a basis for your opinion.

Do you recall that?

MR. BROOKS: Do you want to direct the witness's attention to what you're referring to? 10:37:03

MS. HARTNETT: Yeah, I can do that, I guess.

BY MS. HARTNETT:

Q You reviewed Dr. Adkins' and Dr. Safer's declarations before you -- as part of your materials that you rely on in your expert report; correct? 10:37:13

A Yes.

Q And what I'm trying to understand is whether or not you are going to rely on Dr. Adkins' or Dr. Safer's supplemental declarations as part of your expert opinion in this matter. 10:37:29

MR. BROOKS: Counsel, let me -- I'll object and, I think, make a suggestion.

The -- is your question whether he has considered those rebuttal reports submitted by Dr. Adkins and Safer? Or did you mean something else? 10:37:47

MS. HARTNETT: I would like to know if he has reviewed the expert -- supplemental expert report of Dr. Adkins.

Will you allow him to answer that question?

MR. BROOKS: I will. 10:38:02

THE WITNESS: I think at one point I did.

BY MS. HARTNETT:

Q Do you understand that Dr. Adkins wrote an initial report and then a rebuttal, including to your report? 10:38:13

A Yes.

Q Have you reviewed Dr. Adkins' rebuttal, including to your report?

A Not -- not in preparation for this deposition, no. 10:38:23

Q And did you review Dr. Safer's rebuttal declaration in this case, ever?

A I think I have. Yes, I --

Q And have you --

A I -- 10:38:36

Q Okay.

A I have, yeah.

Q And have you reviewed the declaration of Aron Janssen in this matter?

A Of Aron who? 10:38:43

Q Janssen.

A I can't recall that. I may have.

Q He's a physician at Chicago Children's Hospital. Is that ringing a bell?

A No. 10:39:02

Q Okay.
A It's ringing a faint bell.
Q All right. If you could go into your "Marked Exhibits," there should now be a marked Exhibit 86.
MR. BROOKS: I have that on the screen. 10:39:23
MS. HARTNETT: Thank you, Roger.
And this is a document that starts with the page that says "Exhibit A," and then it goes on to -- it's an attached expert declaration.
BY MS. HARTNETT: 10:39:38
Q Do you see this document, Dr. Levine?
A We're scrolling through it here.
Expert declaration of Dr. Levine. Robert Ferguson -- Tingley, yeah, okay.
Q And so what -- what is this document, if you know? 10:39:54
A This is something I submitted several years ago of -- I think it was about an attempt to censor a psychologist who wanted to provide a certain exploration with a patient, and -- and so I was offering an opinion about, I guess, the psychotherapeutic evalua- -- the evaluation of pyscho- -- the psychotherapeutic processes involving patients. 10:40:19
Q And just turning to page 2 of this document, 10:40:38

do you see it says -- are -- are you on page 2 of the PDF?

A Let's see. How do I know that?

Q The page after the page that says "Exhibit A."

A I -- I'm on the page that is the title page that says, Expert Declaration of Dr. Stephen Levine. 10:40:54

Q And, Dr. Levine, the caption of this page says "Expert Declaration of Dr. Stephen B. Levine in Support of Plaintiff's Motion for Preliminary Injunction"; correct? 10:41:14

A Correct.

Q And I know we had some discussion before the break about what the word "support" means. In this case, did you understand that your declaration was being submitted in support of the plaintiff challenging the practice that you were referring to? 10:41:25

A I guess I now understand that, yes.

Q Okay. And just flashing back to the end of -- this is a declaration that was submitted in a matter in court in Washington State. 10:41:46

Do you see that?

A Yes.

Q And then at the -- it's -- you can page through, but it appears that you signed this declaration on May 10th, 2021; is that correct? 10:41:57

MR. BROOKS: Well, we'll go to the end and see what we see.

THE WITNESS: Let's see. May 2021.

BY MS. HARTNETT:

Q Okay. And what -- what, if any, additional involvement have you had with the Tingley matter other than submitting this declaration? 10:42:17

A I think none.

Q Okay. Now, just turning back to the first page or any page, frankly, in this document, you can see there's a caption on the top of the page there. 10:42:41

Do you see "Case 2:21-cv-00316"? Do you see that?

A Yes.

Q And that, I would represent, is the caption for the current case, B.P.J. 10:42:51

And this was Exhi- -- this -- this declaration, the version that I put before you, is actually the version that was attached in opposition to plaintiff's motion for preliminary injunction in this case. 10:43:11

Did you have an understanding that your declaration from the Washington case was going to be submitted as an attachment in support of the defendants in this matter at the preliminary injunction stage? 10:43:25

MR. BROOKS: Objection.

THE WITNESS: No.

BY MS. HARTNETT:

Q Were you asked to -- for permission before the defendants in this case attached your Washington declaration to the opposition to the preliminary injunction motion in this case? 10:43:44

A No.

Q Do you recall whether you were asked to submit an expert declaration at the preliminary injunction phase of this case? 10:43:58

A Would you clarify that question? I'm not exactly sure what you're asking.

MS. HARTNETT: Could the reporter read back my question. 10:44:29

(Record read.)

MR. BROOKS: Objection.

THE WITNESS: I don't know what the preliminary injunction phase was. I don't know the -- who the implied person who might have asked me. I -- I -- I'm -- I'm a psychiatrist. I am not a -- I'm not very knowledgeable about your -- about the law and the legal processes. 10:44:38

So I -- I just can't answer the question because I don't I understand the terms. 10:44:56

Perhaps you can simplify the question for me.

BY MS. HARTNETT:

Q What I'm trying to understand -- and thank you for -- for that.

I'm trying to understand whether you are aware that your declaration from the Tingley matter was submitted in opposition to the plaintiff's motion for preliminary injunction in this case. 10:45:09

MR. BROOKS: Objection; asked and answered.

THE WITNESS: I thought I already answered that question. 10:45:23

By MS. HARTNETT:

Q Okay. Right. And you said, I think, that you were not aware. And then what I'm asking you is, were you asked to prepare a declaration specifically for this case at the preliminary injunction phase? 10:45:30

MR. BROOKS: Objection; asked and answered.

THE WITNESS: Again, I don't know the phases of this case. And the preliminary injunction phase is -- I don't understand specifically what that means in terms of the long process of adjudication in this case. 10:45:49

I was asked to submit a report for this case, but I was not told it was for a preliminary injunction or what- -- an injunction that's not preliminary. 10:46:05

I simply don't know the answer to your question.
BY MS. HARTNETT:
Q Thank you. When were you retained in this case, B.P.J.? 10:46:15
MR. BROOKS: Objection.
If you recall.
THE WITNESS: I presume it was sometime in 2021, but I don't recall the specific date. I -- you know, I could find out, but right now, I -- I -- I 10:46:33 can't tell you a specific date. I would presume in the last half of 2021.
BY MS. HARTNETT:
Q Do you have any objection to your declaration from one case being submitted in another case without 10:46:51 your approval?
MR. BROOKS: Objection.
THE WITNESS: Personally do I have an objection for people using my previous testimony? Yes. I don't -- I don't think that's fair to me because 10:47:06 every case is somewhat different. And it feels like it's my work product and that -- but the truth is that I'm naive about the -- about the legal processes, and I think when -- the first time I submitted an expert opinion report, I was shocked that people had read it 10:47:30

who weren't involved in the case.

So there was this problem with Dr. Levine not being a forensic psychiatrist, just did not understand about what is public and what is not public when it comes to legal documentations. 10:47:51

I think I subsequently learned that -- that lots of people read my reports who have nothing to do with the matter at hand because lawyers are looking for experts and precedents and so -- and arguments and so forth. 10:48:12

So in a -- in a personal sense, I have some kind of objection to that. It doesn't feel fair to me, but it's also a reflection of my naivety about this -- my past naivety about this matter -- about legal matters. 10:48:28

BY MS. HARTNETT:

Q Thank you. I have added a different -- another exhibit that I would like to introduce into the folder, if you could refresh.

MR. BROOKS: 87? 10:48:44

MS. HARTNETT: That's correct.

MR. BROOKS: Shall I open that now?

MS. HARTNETT: Yes, if you would.

(Exhibit 87 was marked for identification by the court reporter and is attached hereto.) 10:48:48

BY MS. HARTNETT:

Q And, Dr. Levine, I've marked as Exhibit 87 your expert report and declaration in this matter dated February 23rd, '22.

Could you please just take a moment to look through the document. 10:49:04

MR. BROOKS: Well, Counsel, the document, I think we'll all agree, is perhaps, what, 70-some pages long, plus bibliography.

Would you -- what do you mean by asking the witness to look through the document? 10:49:17

MS. HARTNETT: I was just giving him the courtesy of making sure he agrees it's his expert report.

THE WITNESS: Well, my -- my signature is on the first page. 10:49:28

BY MS. HARTNETT:

Q Excellent. So what is this document, Dr. Levine?

A Well, I believe it is the report that I submitted at the end of February about -- in this matter. 10:49:34

Q Okay. And did you prepare this report?

A Yes.

Q And do you notice that this one has the 10:49:50

caption for this case on it, on the first page; correct?

A It does, yeah.

Q How much time did you spend preparing this report? 10:50:06

A I could -- I would say approximately 20 to 25 hours. I would say closer to 25 hours.

Q And were you -- as a basis for this report, did you use a kind of prior report that you had submitted in a different case? 10:50:35

A Yes.

Q What was the basis -- like, the prior report that you used as a basis for this report?

A Well, as I've told you already, I have provided reports about the nature of what is known and 10:50:51 what is not known in a scientific sense about this whole matter and -- so that's just part of my thinking. And one report is a sort of modern refinement of a previous report that -- that is selected, added to or deleted from based upon the relevance to the case in 10:51:22 point.

So every -- every submission that I have made, in a sense, has contributed to the -- to this current report with the understanding that things have been added and things have been deleted every time that I -- 10:51:44

I submit a report for a case.

I hope that's an answer to your question.

Q Thank you, yes. I guess what I'm trying to get at is was there a particular past report that you used as a template to work from as you made your refinements and edits for this report? 10:52:03

A No. That's -- that's -- I think the answer is my -- my -- my knowledge -- my -- I think the answer is to all, all my reports. I guess the answer to your question is no, there's not a particular one, but there are a series of reports, and I sometimes will select from various reports. 10:52:38

Well, for example, this -- the -- the simplest thing is if -- in the beginning of the report, when I provide my credentials, for much of that, there is a cut and paste phenomenon and -- and it doesn't much matter which report I cut and paste from, but I only added to it or subtract to it depending on, I think, the relevance. 10:52:58

So, for example, if you looked at my report on the North Carolina matter, probably there's much similarity in the beginning of the report. 10:53:20

Q Thank you. So this document indicates that the -- at least by my reading of it -- the only documents specific to this case, B.P.J., that you 10:53:39

reviewed in preparing your report were the Adkins declaration and the Safer declaration; is that correct?

A I think so.

Q Are you familiar with the concept of a reasonable degree of scientific certainty? 10:53:57

A I hear it as "medical certainty." Is this a reasonable degree -- can you offer this with a reasonable degree of medical certainty, Doctor? And when I've asked what that -- what that meant, I've been told 51 percent certainty. 10:54:17

Q Okay. What is your understanding of -- so your understanding of a reasonable degree of medical certainty means 51 percent certainty?

A No. I think that's my understanding of the legal definition of medical certainty. My clinical 10:54:35 idea and my scientific idea would be very different.

I -- I often smile when I think that -- if I'm correct -- that in the legal world, medical certainty refers to 51 percent.

Q And what is, in contrast, your clinical 10:54:58 standard that you were referring to?

A Repeat that, please. What is what?

Q The -- I think you were contrasting it with a clinical standard; is that correct?

A Right. Oh, clinical or scientific. 10:55:14

You know, in -- in science, we have -- in clinician, we have the idea of what is the risk of a false positive and what is the risk of a false negative, and it's a complicated statistical balance between the ability to get it right or to get it wrong. 10:55:31

And I am -- I am one who is very humbly impressed by the inability to be certain about things, and I distrust certainty because facts change in medicine.

And -- and if I could just tell you a -- an 10:55:52 experience that I've had. As a young person, I was interested in becoming a physician, and I went to a premed program at the University of Pittsburgh, and somebody in that program held up Harrison's textbook of medicine, which requires considerable arm strength to 10:56:13 lift over your head because it's probably, you know, 900 to a thousand pages. And he said, This is what you have to learn when you're in medical school, by the time you graduate medical school. I want to tell you, ladies and gentlemen, that 90 percent of the things in 10:56:33 this book are probably not true. They probably will not prove to be true in time. The trouble is I and other people in medicine can't tell which of the 10 percent -- which of the facts are correct and which of the facts are not. This is the nature of medical 10:56:48

science as it -- and clinical science as it moves forward. We have, at any given time, a set of facts, a set of principles and -- and controversy occurs, people disagree and studies are done, and the facts disappear and new facts take their place. 10:57:12

That was my introduction to medical science.

And as I've spent most of my -- the majority of my years in this field, I still believe that that little example remains to be -- remains salient and something that all of us need to remember. 10:57:32

And so I say to you, 51 percent medical certainty is a joke to me. It -- it -- I always smile.

Q Thank you. That -- that's helpful.

If we could just go through your CV attached to your report, we can -- I have a few questions on that, and then I'll turn to your report. 10:57:52

You'll have to page down a bit. It starts repaginating about page -- after page 81.

MR. BROOKS: We are at the beginning of where it says "Brief Introduction," "Curriculum Vita." 10:58:20

MS. HARTNETT: Okay. Thank you.

BY MS. HARTNETT:

Q Dr. Levine, is this your CV?

A It is.

Q Are you aware of anything, sitting here today, 10:58:27

that needs to be updated or corrected?

A Probably if you scroll to the end of the articles, article 151 -- publication 151.

MR. BROOKS: We're scrolling. We're scrolling. 10:58:51

MS. HARTNETT: I think it might be 147.

MR. BROOKS: There's a lot. Pardon me. 86. Here we are at -- just before --

THE WITNESS: Oh --

MR. BROOKS: -- where it says "Book Chapters." 10:59:00

THE WITNESS: I'm sorry, 147. 147 is -- I can -- you know, today -- if I were to give you my CV today, I would give you the exact citation of that article.

And if we scroll down to the end of the CV, I will show you something else. 10:59:34

MR. BROOKS: I'm not sure there's a further question --

THE WITNESS: Oh.

MR. BROOKS: -- pending. 10:59:46

Or is there a question pending?

MS. HARTNETT: Well, yeah, I can -- I can ask one.

BY MS. HARTNETT:

Q So I take it that 147 has now been published. 10:59:51

Is that the difference?

A Yes.

Q Did you -- is there a -- a more updated version of your CV that goes up to 151?

A I think last week, I -- I rearranged the numbers and somehow -- I may be -- I may -- I may not be accurate at 151. 11:00:03

Q Okay. And then 146 there is what you were talking about earlier, the November piece about the reflections on a clinician's role? 11:00:26

A Yes.

Q Thank you. And is there anything further on here you'd like to draw my attention to is in need of updating?

A I don't know if -- if this -- this thing has a -- this CV has a -- my -- a podcast I participated in. I never -- unlike many of my colleagues, I never put in my CV the talks I give and the -- you know, and now there's this whole thing about podcasts. I -- I gave a -- I didn't -- I was invited to give a podcast recently and -- so I think it's on my CV, but I'm not sure. 11:00:40 11:01:04

Q That was in January of this year?

A Was it in January? It was -- it was within several months ago, yeah. 11:01:20

Q Have you given any podcasts other than the one you gave in January of this year?

A The -- the answer to that question is I don't know. I mean, sometimes people come and talk to me and -- and film me on camera and I never know what happens to -- what hap- -- what -- what -- that happens. I never know what happens to it. 11:01:46

Q Are you aware of any other -- sorry.

A The answer to your question is I'm not aware that I have been in any other podcast, but, you know, you may dig up some other conversation that is -- that I've had somewhere along the line. 11:02:04

Q Thank you. If we could just turn back to the first page of your CV, I would appreciate it.

Let me know when you're there. 11:02:26

MR. BROOKS: Yeah. We're there.

MS. HARTNETT: Okay.

BY MS. HARTNETT:

Q So on page 1, it notes that you are -- board certified in -- in June of 1976; correct? 11:02:39

A Yes.

Q In neurology and psychiatry; is that correct?

A That's the name of the board that psychiatrists get certified in. It's a little bit of a joke that I'm -- that any psychiatrist is certified as 11:02:59

a neurologist.

Q Have you been recertified with that certification?

A No. I don't need to be. I'm grandfathered in, as they say. 11:03:13

Q Thank you. Do you have any other board certifications?

A No.

Q So you are not board certified in child and adolescent psychiatry; correct? 11:03:27

A No, I'm not board certified.

Q Do you have any specialized training in child development?

A Yes.

Q Can you describe that? 11:03:36

A I'm a psychiatrist. All psychiatrists are trained in child development. I, in particular, have been interested in the whole process of adult -- of -- of development throughout the life cycle and have -- I think I quoted in my expert opinion report that 11:03:57 Tom Insel, who was the head of the NIH, NIMH, said that 75 percent of adult psychopathology, that is, suffering as a result of mental disorders, have their origins in childhood.

So it's hard for me to conceive that any -- 11:04:16

any -- any psychiatrist is not knowledgeable about the processes of growing from birth to death. And I, in particular, am interested in that process. I often say to my -- to other people that I -- development is my field. In fact, when -- when people talk about 11:04:40 psychoanalysis and psychodynamic psychiatry, I like to rephrase those terms as developmental psychology.

Q Thank you. I just -- my -- my question, though, was whether you have any specialized training in child development. 11:04:57

Do you have any specialized training?

A Well, of course, I rotated through child psychology when I was a resident. For the purpose- --

Q Anything else?

A For the purposes of questioning my expertise, 11:05:12 I have no specialized credentialed, certificated training in child psychi- -- in -- in child development.

However, what I'm saying to you is that my understanding of being a psychiatrist and listening to 11:05:27 people's stories about their development all day long, I don't need a special certificate to testify that I am trained in -- in -- in child, adolescent, young adult, middle-aged and older-aged development.

Q And would the answer be the same if I asked 11:05:49

you whether you had any specialized training in -- in children or adolescents with gender dysphoria?

A Specialized training? I was in on the ground floor of these things when there was no specialized training. I was part of the -- I was part of the process that was trying to figure out what this all was about, you see. And -- 11:06:12

THE WITNESS: Sorry.

-- I very much object to that term "specialized training" because I have an understanding of what that really -- the connotation of that term is, and I don't accept that -- the legitimacy of specialized training. 11:06:30

I feel what you may mean is indoctrination training. I'm -- I like to distinguish between indoctrination and education. 11:06:50

BY MS. HARTNETT:

Q Are you an endocrinologist?

Are you an endocrinologist?

A No. 11:07:17

Q And you would not hold yourself out as an expert in endocrinology; correct?

A I'm not an expert in endocrinology.

Q And are you an expert in sports medicine?

A No, I'm not an expert in sports medicine. 11:07:33

Q Are you an expert in athletic performances?

A I've already testified to that. The answer is no.

Q Yeah, I'm asking because I think your attorney at some point indicated that might be part of your privileged conversation. That's why I'm asking you again. 11:07:44

Do you have any -- have you ever had any complaints made against you related to your medical practice? 11:07:56

A Yes.

Q Could you tell me about those?

A Yes. We had a trans adult who wanted hormones, and I was supervising a psychology intern, and the -- we decided the person was mentally unstable and was not in a position to be given hormones just yet, and the patient threatened to murder the psychology intern who told her that -- who told the patient that answer. 11:08:17

And I -- when she told me that, I went in and I saw the patient, and I told the -- and I discharged the patient. And I said that patients have obligations and doctors have obligations and you have justified the rule, you have crossed over the line, and I cannot allow you to continue to get care here. 11:08:36 11:08:59

The patient then left and then reported me to the State Medical Board, and the State Medical Board investigated and -- and found -- and found that I was perfectly justified in what I did.

That is the only awareness that I have of -- 11:09:21
of complaints to the State Medical Board about my work.

Q Thank you. Just back to the point, we -- we were discussing the notion of specialized training a minute ago.

Do you recall that? 11:09:40

A I recall.

Q So do you -- do you accept the legitimacy of the notion of specialized training in child and adolescent psychiatry?

A For people who are interested in having a more 11:09:58
extensive experience and plan to spend their lives with young -- young people only or primarily, I think it's a fine thing to -- to -- to -- it's just one of the many houses in the big -- in the mansion of medicine and one
of the -- one of the subspecialties in psychiatry. I 11:10:20
have no objection to people becoming child and adolescent psychiatrists.

Q And just to be clear, that's not a specialty of yours; correct?

MR. BROOKS: Objection. 11:10:40

THE WITNESS: It's not formally. I -- I don't define myself as a board-certified child and adolescent psychiatrist, but I do define myself as a psychiatrist.

And as -- as I've already stated, I believe that psychiatrists, over the -- during the course of their training and -- that is, their initial education and their subsequent life education, practicing psychiatry, comes to understand or should come to understand the influence of childhood positive and negative experiences on their subsequent mental life and behavioral life. 11:10:51 11:11:09

BY MS. HARTNETT:

Q In your mind, are the concepts of having an understanding of child psychology and actually working with child patients distinct notions? 11:11:25

A Well, I think they're -- they are to be separated. One's -- one's theoretical understanding of the processes of development, the stages of development and understanding childhood adversities that -- that we hear about all the time from adolescents and from adults, that's different than actually, you know, seeing five-year-old children or six-year-old children. 11:11:49

So I make a distinction between that, sure.

Q And how much of your practice throughout your career has involved actually seeing children or 11:12:12

adolescent patients?

A Well, I -- I spend a lot of time with adolescent patients, and I spend much less time with -- with children per se. I spend an enormous amount of time talking about children to their parents. I mean, 11:12:30
conversations about childhood are about the -- my -- my older patients, about their childhood, and the parents that I see about their children's processes, that's a -- I would say a daily occurrence in my practice.

Q How many child patients have you had in your 11:12:56
career?

MR. BROOKS: Objection; vague.

THE WITNESS: I -- I would have a very hard time answering that question. I've had -- you know, when -- when parents talk to me about their children, 11:13:26
for insurance purposes, the patient is the mother or father or both; right? But the subject of our conversation is the child.

So I don't know -- you see, and one of the therapeutic activities that I do, I call "parent 11:13:47
guidance." And so parent guidance involves the focus on the child's environment and how to improve the child's anxiety problems or whatever, you see.

So I don't know if I -- if that constitutes how many children. Can I answer that question in terms 11:14:08

of parent guidance?

I have a pediatrician, for example, as an adult patient now, and he and I have spent a lot of time talking about his daughter and -- and some of the things I've said to him have really helped his daughter overcome a problem. But he's my patient, you see. 11:14:25

I don't -- so I can't answer your question with numerical terms and --

BY MS. HARTNETT:

Q Children can be patients; correct? 11:14:39

A Children can be patients, certainly.

Q And so I'm just asking you how many actual children patients you've had over your career, if you could estimate that.

MR. BROOKS: Objection; vague as to the term "children." 11:14:51

THE WITNESS: Can you clarify whether -- what a child is versus what a teenager is?

BY MS. HARTNETT:

Q Yeah, I'll ask you for two categories. 11:15:04

I'll ask you for prepubertal children.

How many prepubertal children have you had as a patient in your career, approximately?

A And if I saw that prepubertal child one time, would that -- would that constitute a patient? 11:15:20

Q Why don't you give me your estimate of how many prepubertal children you've ever seen as patients, and then we can ask more questions.

A I would say a handful. Six.

Q And how many of those -- of those approximately six did you see more than one time? 11:15:35

A I can't recall one.

Q And then I'll ask the same question about adolescents, which I'll mean minors from puberty through being a minor. 11:16:00

How many adolescent patients have you had in your career, approximately?

A 50.

Q And how many of those have you seen more than once? 11:16:14

A Most.

Q And were most of those, of the adolescent patients you've seen, late adolescence?

A No.

Q Turning back to your CV, you list yourself -- you're listed as a clinical professor at Case Western Reserve University School of Medicine; correct? 11:16:27

A Yes.

Q Do you work at Case Western Reserve University School of Medicine full-time? 11:16:51

A No. No.

Q When did you stop working full-time?

A In 19- -- November 1992.

Q Are you currently teaching any classes at Case Western? 11:17:09

A I've never taught classes per se. That's not how my teaching has ever been. If you think about a college course, I have never -- I don't teach college courses or graduate school courses. I provide seminars sometimes. I've written articles about the sex 11:17:32 education of doctors and -- so over the years, I've taught a number of seminars to our residents in psychiatry. I teach -- I give workshops.

I recently, for example, gave a four-hour work- -- a four-hour workshop at the Harvard 11:17:59 student health service for their mental health professionals where I presented, you know, ideas to them, and we had discussions.

So I teach -- I teach sometimes by giving grand rounds. I -- there -- there is a named 11:18:20 lectureship in my honor at Case Western Reserve, and once a year, I invite someone to give a talk from another university about some sexual topic.

So I have residents who come to spend -- for -- I can't -- for probably -- probably -- since 11:18:44

1992, 1993, I've always had a resident with me who comes and sees my patients with me, and they usually spend six months with me, sitting in and seeing my patients together.

So my teaching is not in the classic sense that -- that the average layperson would think of teaching classes. It's -- it's much more -- you know, coming in and seeing how an older doctor does work, has, quote, therapy. 11:19:03

I also, since 1977, have led two clinical case conferences a week, and residents and medical students, depending on the year, medical students, residents and members of the community come in to those conferences and we discuss cases. 11:19:26

So I have multiple avenues, multiple ways of being a teacher, but none of them are through coursework per se. 11:19:45

Q Thank you.

A I forgot to tell you. I also sometimes am invited to give continuing education lectures. And, for example, at the -- I've given courses, for seven years in a row, at the American Psychiatric Association on sex and love, mostly love I use as -- as the title, and we talk about sexual problems and the barriers to loving. 11:20:02 11:20:25

And this year's APA meeting, I -- I am presenting a symposium with three colleagues on whether or not this is time to reexamine the best practices for transgender youth.

So all those things are -- in my review, are -- are my teaching. 11:20:39

Q I was going to ask you about the May presentation.

Who are your copresenters for that?

A Sasha Ayad, Lisa Marciano and Ken Zucker. 11:20:55

Q Thank you. When is that expected to be presented?

A May 24th.

Q And do you know if there are other panels or presentations regarding the care of transgender patients at that conference? 11:21:15

A There probably are, but I'm -- I haven't seen the entire program. But -- but there are usually -- there usually are one or two presentations.

Q And you said it was Sasha Ayad, Ken Zucker. 11:21:29

And who was the third person?

A Lisa Marciano.

Q Right. So I just had one -- a couple of follow-up questions about the discussion we were having about seeing prepubertal and adolescent patients. 11:21:46

When is the last time you saw a prepubertal child patient?

A Physically saw?

Q Or -- or virtually. I mean, as your patient.

A Maybe two years ago. 11:22:20

Q And how about an adolescent, meaning puberty while -- through being a minor?

A Three weeks ago.

Q And what was the age of that patient?

A 17. 11:22:44

Q Okay. Let's just turn to page 2 of your CV. I had a couple of questions there.

MR. BROOKS: Just checking --

MS. HARTNETT: I'm just --

MR. BROOKS: Since it's been an hour, I was just checking. The witness says he's fine and doesn't need a break yet. 11:23:00

MS. HARTNETT: Okay. Please let me know. This is --

MR. BROOKS: We're on -- 11:23:08

MS. HARTNETT: So --

MR. BROOKS: -- the next page. If you'll direct -- I can't fit the whole page on the screen at a time, so you have to direct me to portions of it.

MS. HARTNETT: Okay. It's -- I'm looking 11:23:16

at -- under "Professional Societies."

MR. BROOKS: All right. I have it up.

BY MS. HARTNETT:

Q Dr. Levine, on page 2 of your CV, you list professional societies; correct? 11:23:28

A Yes.

Q Is the Cochrane Collaborative a professional society?

A Is the what?

Q The Cochrane Collaborative. 11:23:40

A I don't know the answer to that question. The Cochrane Library, you're talking about?

Q The Cochrane Collaborative.

A Cochrane Collaborative.

Well, I -- the word "Cochrane" is -- is what comes to mind. It -- the second word changes from whomever is using it. 11:23:54

I don't think it's a society. It's an organization that does objective appraisal of -- of scientific questions or controversies. And I -- I don't -- I never thought about that as a society; therefore, it's not listed there. 11:24:13

Q Okay. And I apologize. I believe I misstated the name of it. It's on paragraph 4 of your report, which you can look back to, but it then will require 11:24:31

flipping forward again.

You discussed being an invited member of the Cochrane Collaboration subcommittee, and so I was just trying to understand whether the Cochrane Collaboration is a professional society. 11:24:42

A Well, it's an organization, and it's an organization devoted to the objective appraisal of issues that are controversial in medicine, throughout medicine, every branch of medicine, every specialty of medicine. It's an older institution, and it's among 11:25:02 the most highly respected institutions about objective scientific appraisal of clinical work, and I -- I am on the -- one of their committee- -- I'm on two of their committees, actually.

Q Which committees are you on? 11:25:20

A It's the evaluation of puberty blockers and the evaluation of cross-sex hormones for transgender teens.

Q Do you know how many committees the Cochrane Collaboration has? 11:25:35

A No. I think it's many decades old, and it -- that's -- but the answer to your question is I don't know.

Q Are you a member of the Cochrane Collaboration? 11:25:53

A I'm a member of those subcommittees.

Q And can you describe your work on those subcommittees? What does that entail?

A I'm hesitating to answer that question because you're going to ask a follow-up question, and it is my understanding that until the publication of our work is finished -- is published, our work is published, that we are not to discuss the processes and the content of -- of that. 11:26:12

So I -- I feel constrained to, you know, ask you not to ask me more questions about that. 11:26:35

MR. BROOKS: Well, I -- I'm -- I'm not going to instruct the witness either way. I will advise the witness that we can, I'm sure with counsel's agreement, designate a portion of the transcript as confidential and kind of proceed question by question as you are comfort- -- as you are -- as you feel able, given -- I -- I don't know the nature of your commitments to the organization. 11:26:50

But we can designate a portion of the transcript as confidential, which will make it available to attorneys representing parties in this case but would prevent it from being published generally. 11:27:04

So I -- I -- I offer that. I don't -- I don't 11:27:18

represent Dr. Levine, and I don't know that in connection with that -- that professional activity, and I don't know the nature of the obligations, but I'd just advise the client of that pos- -- of that -- Dr. Levine of that possibility. 11:27:37

If you want --

BY MS. HARTNETT:

Q Does your work with the Cochrane -- does your work with the Cochrane Collabor- -- Collaboration affect your -- sorry. 11:27:46

Has your work on the Cochrane Collaboration informed your opinions in this matter?

A My work with the Cochrane group, in reading about the evidence on those two -- on that subject of puberty blockers adds to my -- I should say there's -- 11:28:17 I'm hesitating because I really don't know whether I should be saying anything about this, even answering your reasonable question.

Q I appreciate that, but --

A Pardon me? 11:28:51

Q -- we do need to know this for you views, and so I would ask if we -- could you -- could -- are you able to answer my questions and we can designate this portion of the transcript as confidential, meaning it would not be publicly disclosed? 11:29:03

A There's nothing that I have -- there's nothing that I have seen in my work with Cochrane that has led me to modify what is in that report.

Q Can you please generally describe what the nature of your work is with Cochrane? 11:29:20

A It is to read and respond to summaries of the data, various studies. It has been to help conceptualize what the issue is and what measurements we need -- are needed in order to answer the question in the future about a more -- to provide data in the 11:29:43 future if -- based on studies. It's been about trying to limit the number of issues that need to be measured to -- in outcome studies in order to be practical versus comprehensive.

So my work has been to participate with other 11:30:06 people in Zoom discussions after we read documents and to given our opinions about draft documents.

And you may or may not know how Cochrane works, but it's a series of -- like, our subcommittee goes through a number of other committees above them to 11:30:31 be consistent and -- with the traditions of Cochrane.

And so I'm not, you know, privy to the committees above the subcommittee. I just sometimes hear about, learn about, their -- their responses to druff -- draft reports. 11:30:54

So I think that's my answer to your question.

Q Okay. Are you a member of the Society for the Scientific Study of Sexuality?

A The -- oh, no longer.

Q What is the Society for Scientific Study of Sexuality? 11:31:19

A It's a bunch of clinicians who are interested in -- it's a bunch of clinicians who are interested in providing services for people's sexual problems. 11:31:36

Q And you ended your membership there in 1999?

A Yes, apparently so.

Q Why?

A Apparently so. I -- I -- if I hadn't looked at my CV, I wouldn't have been able to answer your question. 11:31:56

Q Okay. I'm sorry, I was asking why you stopped being a member in 1999.

A Oh. Because I felt that the majority of the membership thought very differently than me. They weren't -- they were mostly Master's prepared people. They included people who were sexual surrogates. It was a potpourri of people interested in human sexuality that did not have my academic interest in sexuality. 11:32:15

I was interested, I guess -- back then, in the 11:32:39

'90s, there was the -- there was the Society for Sex Therapy and Research, and there was this society. Quadruple S, it's called. And this was -- and there was another society called AASEC- -- AASECT. And the -- the range of professional degrees, the people who had -- the people in those societies had different ranges of professional degrees, and they had different interest in -- sort of an understanding of sexual disorders and in research, and I thought that the society for scientific study of sex really -- I thought that the activities of the organization did not rise to the level of -- of the title of their organization, that it really wasn't scientific. 11:32:59 11:33:23

And, you know, it is amazing to me what -- what people call -- who wrap themselves in the mantle of science that really don't have a concept of science. 11:33:49

So I -- you know, when I was younger, I wanted to be part of the scene and -- and when I got into part of the scene, I didn't want to be part of the scene.

Q Are you aware of the Society for Evidence Based Gender Medicine? 11:34:06

A Yes.

Q And does that go by an acronym?

A Is what?

Q Does that go by an acronym? 11:34:15

A Yes. SEGM.

Q SEGM. Are you a member of SEGM?

A I contributed -- when I -- when I learned about SEGM probably a year and a half ago, two years ago, I -- I felt that I -- I wanted to support that because they were interested in evidence, in scientific evidence, so I sent them a check for $200. 11:34:35

So I don't know if I'm a supporter of it or -- but I -- they consider me to be an integral and important member of their society. So I guess, based on the fact that I gave them a one-time check of $200 and they hired me to write a -- to -- to develop a paper and they put me on a subcommittee to talk about psychotherapy of adolescents, so I guess I am a member of SEGM. 11:35:02 11:35:21

I think I'm a valued member of SEGM.

Q Understood. Sorry, you said you were on the psychotherapy -- child psychotherapy subcommittee?

A I think we should call it an adolescent -- it doesn't exist anymore. We met -- we met every two weeks for almost a year, but I certainly was an active participant of that. 11:35:45

Q And what -- what was the work of that subcommittee?

A It was talking about what -- it was talking 11:36:01

about how to develop case histories that would teach mental health professionals, in general, on how to approach a -- an -- an approach to transgender children and adolescents.

As you probably know, there has been, in the last ten years, a dramatic increase in the number of teenage children who are declaring themselves to be trans people. And so the number of, quote, experts -- the epidemiology is such that there is enormous pressure on a -- on the few people who say they're interested in gender, taking care of gender cases. 11:36:33 11:36:53

So SEGM was trying to develop concepts that could be taught to people in the community who are not experts. We are trying to interest them in providing psychiatric services, psychological services to families and to the -- the patients themselves. 11:37:14

And so we were talking about how to -- how to achieve that, whether we should publish -- whether we should give a conference, whether we should -- they just -- they talked about various ways of -- of informing -- of getting more mental health professionals to -- to stop ignoring this problem and to be interested in -- in how to help these kids and their families. 11:37:32

Q Okay. Thank you. 11:37:56

So you said that that subcommittee is no longer meeting?

A That particular committee is no longer meeting, as far as I know. But that -- but SEGM sponsors many things that I'm totally unaware of. 11:38:07

Q Was there a work product that came out of that committee?

A Well, in some sense, my paper, my most recent paper, didn't come out of that committee, but it came out of the deliberations of that committee because one 11:38:24 of the strategies that SEGM had is that they wanted to -- they wanted to put things in the literature that -- that were based on evidence rather than based on precedent.

And so I think that led to the publication of 11:38:45 my -- of 147.

Q What do you mean, precedent?

A Well, as you may or may not know, there's a 60-year history of -- of trying to find treatments for transgendered individuals and -- so there has been a 11:39:08 precedent of treatment over the years that has preceded the -- the -- the scientific demonstration of the efficacy and the long-term outcomes of that treatment.

So I would say that precedent is a -- is a very important influence in how transgender people are 11:39:30

being treated today and -- so that's how I use the term "precedent." That is, we have patterns or fashions of treatment that have gone in -- far in advance of the scientific demonstration of the efficacy and were the -- and the long-term outcomes of those treatments. 11:39:55

So that's the term precedent, as I -- as -- as how I use it or how I think about it.

Q And was your -- I think your testimony was that you were in the kind of ground floor of starting that precedent; is that correct? 11:40:10

A I -- well, if -- well, the ground floor really began in the '70s, and I was --

Q I'm sorry, did your counsel say something?

MR. BROOKS: No. I looked at him. He looked at me. I didn't say anything. 11:40:28

THE WITNESS: Yeah.

MS. HARTNETT: Just for the record, the counsel and the witness appeared to be exchanging some sort of a glance, but please continue.

THE WITNESS: So the ground floor has to do 11:40:37 with the Harry Benjamin International Dysphoria Association, which I think I joined in 1974 or something like that, and I was in that program or in that -- that associ- -- whatever you call that, a society or something. I was in that professional 11:41:02

organization for many, many years. And in 19- -- when the fifth standard of care was being thought about, I was named to be the chairman of the writing group that made what was called the Fifth Edition.

So -- 11:41:25

BY MS. HARTNETT:

Q So you were part of creating the precedent; correct?

A Yes. The only objection I had, what is ground floor. That's the only word I was responding to. I 11:41:34 didn't know what ground floor meant.

Q Fair enough. So back to SEGM. Were you part of helping to develop treatment guidelines for the treatment of gender dysphoria with SEGM?

A I don't know that SEGM has ever issued 11:41:52 treatment guidelines. In a sense, my latest publication is -- is probably in that ballpark.

What we're trying to do is to -- I think what we are trying to do is -- is create treatment guidelines. 11:42:19

You know, Sweden, Finland, the UK and France have all come out and said that -- let's slow this down, let's be very careful. Even -- even in the United States, there are people who used to be on this -- sort of on a different -- they had a -- they 11:42:46

had a different treatment guidelines.

There's been a wave of objectivity --

Q I'm sorry to interrupt. I'm sorry to interrupt you, but I -- I really need to ask you to answer my question. And I -- I think we're -- my -- my question was just whether SEGM is developing treatment guidelines. 11:42:57

A I think it's the aspiration of SEGM to develop development treatment guidelines in keeping with what is happening scientifically and -- in terms of objective reviews. 11:43:13

So I'm not so sure that SEGM has published treatment guidelines yet, but I do think they're interested in -- in providing a different set of guidelines that may have dominating the United States and European countries in the past. And Australian and compani- -- countries in the past -- 11:43:34

Q Are you part -- are you part of any effort at SEGM to develop treatment guidelines on a going-forward basis? 11:43:55

A No, not directly, but I do --

Q Are you involved --

A I do believe that my recent article will be read by people and considered by people who are going -- if -- if they do develop treatment guidelines. 11:44:12

Q Is -- is -- am I understanding correctly that your article was an effort, in conjunction with SEGM, to affect the practitioner community about how you view treatment should be provided?

A To the extent that treatment should be provided based upon a thorough informed consent process, that my article describing informed consent would be affirmative answer to your question that I -- I'm hoping that the influence of my article will influence all treatment guidelines in the future, regardless of who issues those guidelines. 11:44:35 11:45:01

MR. BROOKS: Counsel, when --

BY MS. HARTNETT:

Q Are you --

MR. BROOKS: When you come to a convenient point, let's take one more break and have one more stint before lunch. I don't mean to disrupt the line of questioning, but when you come to a point, it would be good. 11:45:10

MS. HARTNETT: I appreciate that. I have a couple more questions on this, and then we can take a break. 11:45:20

BY MS. HARTNETT:

Q Are you actively involved in any SEGM work currently? 11:45:29

A No.

Q Do you know where SEGM receives its funding from?

A I believe that -- that the hundred or so people that are, quote, members contribute something, but it's something as modest, perhaps, as I gave, $200. There must be a large donor or set of donors. 11:45:55

And the answer to your question is I don't know the answer.

Q Is there someone at SEGM that you think would know that answer? 11:46:15

A Yes.

Q Who is that?

MR. BROOKS: Objection.

THE WITNESS: There are several people. 11:46:26

May I answer that question?

MR. BROOKS: You may answer.

THE WITNESS: Stephen Beck, Dr. Stephen Beck, and Ema Zane, E-M-A Z-A-N-E.

MR. BROOKS: And, Counsel, we will designate the testimony about finances of SEGM as confidential. 11:46:47

MS. HARTNETT: We can -- oh, we can provisionally do that. That's fine.

BY MS. HARTNETT:

Q You mentioned -- I have just one more. 11:46:59

You -- you mentioned you were a valued member of SEGM. Is that just your -- is there a special group of people that are valued, or do you just kind of view yourself as having a valued role in the organization?

A Well, I was asked to develop this paper or a series of papers on informed consent, and to me, I considered that a compliment, and it was based upon my previous publications about this matter. 11:47:12

And in the concept -- and in the discussions of the committee on psychotherapy, I just got the sense that -- I offered an opinion and people really -- they often said that was helpful or clarifying or, you know, really good or "Can I use that term?" or whatever. 11:47:41

So whatever the subjective appraisal I was making of my role, my status, among these very respected people, I believed that I was a valued member. You know, I could be -- 11:48:04

Q Do you think you're the most --

A -- delusional about that.

Q Do you think you're the most -- are you the most highly credentialed professional in SEGM? 11:48:18

A No.

Q Huh?

A No.

MS. HARTNETT: Okay. I think this is a good 11:48:34

time for a break.

MR. BROOKS: All right.

THE VIDEOGRAPHER: Off the record at 11:49 a.m.

(Recess.) 12:00:19

THE VIDEOGRAPHER: We are on the record at 12:01 p.m.

MS. HARTNETT: Thank you.

BY MS. HARTNETT:

Q Welcome back, Dr. Levine. 12:00:40

A Thank you.

Q I think I want to turn from your -- we were talking through your CV a bit and now just go to your report. So if you could -- I'm going to be asking a question about paragraph 5, if you want to pull up that 12:00:53 page?

MR. BROOKS: We now have paragraph 5 on the screen.

MS. HARTNETT: Great.

BY MS. HARTNETT: 12:01:14

Q So you, in the first sentence of paragraph 5, say you first encountered a patient suffering with what -- sorry -- "what we would now call gender dysphoria in July 1973."

Do you see that? 12:01:30

A Yes, I do.

Q Who was that patient?

MR. BROOKS: I will, of course, object to the extent you're asking the doctor to disclose confidential -- 12:01:43

THE WITNESS: Actually --

MR. BROOKS: -- identifying information.

THE WITNESS: Actually, the patient and I wrote a paper together and -- and so the patient has used the name, so I feel like I can tell you the name. 12:01:52

BY MS. HARTNETT:

Q That's why I was asking.

A Yeah. So the name was Rutherford Shumaker.

Q And did you refer to the patient as "Rutherford" or some other name? 12:02:07

A Well, the name of the -- the name of the article was Increasingly Ruth: Towards an understanding of sex reassignment surgery.

And so Rutherford, in, I think -- became Ruth. So Ruth and I published that paper, and then I wrote a 12:02:32 follow-up to that paper after Ruth committed suicide in her family's home. But that was 1983. I'd have to check the CV.

So that was my -- the man coming to me as Rutherford, who eventually became Ruth, came to me in 12:02:56

July of 1973.

Q And do you recall how long after you first encountered that patient you encountered your next patient that was suffering from what we would now call gender dysphoria? 12:03:11

A Oh, it probably -- it was probably a couple of months.

The answer to your question, I don't specifically recall, but --

Q Okay. 12:03:26

A -- I -- I -- there was enough pressure by patient request for care that we started this -- this clinic.

Q Understood. And you note here, on your paragraph 5, you also founded the Case Western Reserve University Gender Identity Clinic; correct? 12:03:37

A Correct.

Q And you note, later in that paragraph, that in 1993, the Gender Identity Clinic was renamed.

A In 1993, I left full-time employment at Case Western Reserve, and I continued the program, but we changed the name of the program, but our work evaluating and providing services for trans individuals continued. 12:03:52

Q And what did you change the name of the 12:04:15

program to?

A Well, I think we just called it the Gender Identity Clinic of Levine, Risen -- Althof, Levine and Risen, which was the name of our clinical practice, Althof, Levine and Risen. So it -- 12:04:34

Q Okay.

A Gender Identity Clinic at ALR.

Q And when you -- when the university kind of discontinued -- or you discontinued the affiliation with the university in 1993, did you consider that to 12:04:50 be a dark day in the department, in the politics of the department?

MR. BROOKS: Objection; compound question.

THE WITNESS: Number one, I did not discontinue my affiliation. I changed my affiliation. 12:05:06 That is, I was salaried until 1993, and then I left the university and personally, for a while, I did consider it a -- a great disappointment that I left the university.

BY MS. HARTNETT: 12:05:30

Q Did you consider it a dark day in the department, in the politics of the department, at the university?

A That per se wasn't the source of the darkness. That day wasn't it. In my view, it's a very 12:05:43

prejudicial view, the dark day came when a new chairman was selected, who came aboard, who then basically ran the department into a great debt, and then I and several other program- -- my program and several other programs needed to be cut from the department in order to get the department back into solvency. 12:06:07

So the fact that one day I left was the by-product of things that had happened over a three-year period.

So the dark days began, I think, on day one when the chairman came. 12:06:25

Q Thank you. Are you familiar with the University Hospitals?

A The department of psychiatry was part of the University Hospitals of Cleveland. 12:06:41

Q And you did your psychiatric residency at the University Hospitals of Cleveland?

A Yes.

Q Do you have an affiliation there now?

A I do. I'm a clinical professor. 12:06:52

Q And how often do you -- if at all -- do you go to the University Hospitals?

A Not very frequently. The -- the resident comes to me, and I -- but I am probably going to be teaching a seminar at University Hospitals in the next 12:07:13

three months because I'm part of a committee to plan the curriculum on sexuality and gender.

Speaking of education, the university -- other -- other institutions also asked me to teach about this subject. And on August -- on April 7th, I'm going to Akron to teach -- or virtually I'm going to teach a three -- a two-and-a-half-hour seminar. 12:07:39

And I forgot to mention to you before, and I'd like you to hear this, that when you were questioning me about my credentials or not having a certificate about -- in child psychiatry, you should know, I forgot to tell you that Cleveland Clinic, department of child psychiatry, and the University Hospitals, the department of child psychiatry, sends residents to be with me as part of their training in child development and child clinical issues, child and adolescent clinical issues. 12:07:57 12:08:18

So I think -- I just forgot to mention that.

Q Are you familiar with the University Hospitals' LGBTQ and gender care program? 12:08:48

A I'm aware that it exists, yes.

Q Have you ever talked to any clinicians in that practice?

A No one has ever talked to me in that practice. The only time I have interaction with them is when -- 12:09:00

if I present grand rounds, some of those people ask me a question. But they've never consulted me whatsoever in the formation of their clinic and in the ongoing work of their clinic.

Although, Cleveland Clinic has a very similar program, and they have called me up and -- for some advice sometimes. 12:09:20

But my -- my, quote, own University Hospitals' place I don't really think has any people from child psychiatry in it, but I'm not sure because they have kept me away. 12:09:38

Q What do you mean they have kept you away?

A Just what I explained. They have never communicated with me. It is -- you know, other people know me as being published in this area. You know, I think I've written 20 articles on this -- you know, I have 20 or so publications in this area. You would think that they would invite me or consult with me or ask me questions, but I think they recognized that they are part of what is called affirmative care and what I would say, rapidly affirmative care, and -- and they sense that I'm not so interested in rapid, that -- that I believe that -- that I have long believed that people who have this kind of dilemma need some patient time in talking about this matter. 12:09:54 12:10:18 12:10:45

And while I can't tell you how they feel about me, I can only deduce that they're not interested in my concepts because --

Q Have you --

A -- they must be different than their concepts. 12:10:57

Q Have you offered your -- your services to them?

A No.

Q You said your understanding is that they provide rapid affirmative care; is that correct? 12:11:10

A I presume so. I -- you know, I can't understand why -- why the organizers and the leaders of those -- that team are not interested in anything I have to say because they've never asked me.

Q So just because someone hasn't asked you for your view, do you assume that they're not interested in what you have to say? 12:11:29

A This -- I wouldn't say as a general principle, but I would say in this case, I have long assumed that, correctly or incorrectly. 12:11:44

Q It sounds like you don't agree with rapid affirmative care; is that fair?

A Yes. I don't believe that people, after meeting someone for an hour, for example, ought to be given a firm diagnosis and a prescription for hormones. 12:12:00

Q Is that your definition of rapid affirmative care?

A That would be one definition, yes.

Q Can you give me a more general definition of what rapid affirmative care is? 12:12:17

A It would be -- it would be a commitment to be affirmative in -- in being a cheerleader for social transition or taking hormones or having one's breasts removed after what I would consider to be an inadequate evaluation. 12:12:34

So it begins with an adequate evaluation. It -- it requires having an understanding of the elements of informed consent. And in dealing with minors, it has to do with working with not only with the patient but with the parents. 12:12:51

So rapid affirmative care would be care that does not meet my criteria for thorough evaluation, including a developmental history, a process of informed consent and involvement, over time, with the parents so they consider the weighty -- the weighty implications of -- of what affirmative care represents. 12:13:10

So anything short of deliberation in this and careful consideration I would kind of dismiss as rapid.

Q If affirmative care is given with deliberation and informed consideration, do you disagree with that? 12:13:33

A No. No. I think parents -- parents have a weighty decision to make, but they ought to be informed about the state of science. The -- the health tour benefits have to be understood in terms of the scientific likelihood of achieving those benefits. And they have to understand the short-term medical but more important the long-term psychosocial risk of what they're doing. 12:13:51

And if those competent parents, knowing the child as they know them, decide, after they're informed, they -- they have my blessing to socialize their child in the opposite gender. 12:14:09

Whether I think in that particular case it's a wise thing or not, it's not my decision to make. I don't actually believe that people like me ought to be recommending. I think we ought to be educating, evaluating and informing and the parents and the child make the decision with my supportive help, both on the positive side and the negative side. 12:14:29

I am to be the trustee, informer of what science knows, and I believe that clinicians who don't know science, who actually think they can evaluate this in a -- in -- in a -- in an hour, I just think that's not good care. 12:14:45

Q Is your view that the clinicians at the 12:15:06

University Hospitals LGBTQ and gender program don't know science?

A I don't know what they know. I don't know what they know. I have no views about that because I have no means of knowing, only that I get to see people brought to me after they've gone to various affirmative care programs and the parents are horrified at the recommendations that are being made. So -- 12:15:22

Q How many -- sorry. Go ahead.

A But in answer to your specific question, since I don't even know the people there and I don't know what they're doing, I'm not -- I would just -- I would just -- I pose these standards, and I don't know whether they meet them or not. 12:15:44

I have not been impressed in general that affirmative care programs in various cities that I get to hear about meet those criteria. 12:16:04

I'm just trying to help people, you know, realize the importance of trans care and -- and trans care, to me, includes careful evaluation and -- and addressing the comorbidities that are frequently present in these kids. 12:16:19

And by "kids," I mean even teenagers.

Q Have you had -- sorry, so you -- but your understanding is that the University Hospitals LGBTQ 12:16:39

and gender care program does provide the rapid type of affirmative care; is that right?

MR. BROOKS: Objection.

THE WITNESS: I already --

MR. BROOKS: Asked and answered. 12:16:48

THE WITNESS: -- answered that question. I'm not -- I'm not aware of what they do. I -- I am --

BY MS. HARTNETT:

Q Okay. Sorry, I thought you had said you thought that they provided rapid affirmative care, 12:17:01 which is why I was asking.

A I wouldn't be surprised if their definition of inadequate evaluation is different than my evalua- -- my -- my definition of an adequate evaluation.

Q Do you know what their definition is of an 12:17:20 adequate evaluation?

A No. And because I don't know, I don't want to endorse them, nor do I want to condemn them.

Q What is the basis for your understanding that there is kind of rapid transition care being provided 12:17:32 out there?

MR. BROOKS: Objection; vague.

BY MS. HARTNETT:

Q Sorry, let me just use your term.

You said rapid affirmation. 12:17:42

A Well --

MR. BROOKS: I was objecting to the outlier as vague. I'm not sure what you -- are you referring to the clinic you've been discussing or something else?

BY MS. HARTNETT: 12:17:52

Q What is your basis for your view that there are clinicians in the United States performing rapid affirmation care?

A Thank you for asking that question.

I have been in contact with -- that is, 12:18:03 parents -- there -- there are parent groups who cannot find -- there -- there are groups of parents who brought -- were brought together, who came together, bounded -- bound together in organizations who are objecting to what they call rapid affirmation and the 12:18:27 inability to find a therapist in their community who is willing to just do psychiatric care like they would do psychiatric care if a child presented simply with anxiety or depression or substance abuse or some other behavioral problem. 12:18:48

The -- the basis for -- for my -- the answer to your question is parents, both Cleveland parents, national -- parents from all over the country and parents from the UK. I am aware that parents are particularly perturbed by rapid affirmation and its 12:19:07

treatment, and they -- they have complaints that their child is not understood; that is, their problems have not been understood.

Q How many parents have you talked -- how many parents have you talked to about their concern with what you call the rapid affirmation model? 12:19:26

A Well, I gave a talk to 35 parents probably a year ago. In 2017, I think I wrote about it in the article that -- the last four or five cases that I was involved with, the parents all said the same thing; that is, they were horrified that after one hour, their -- their child was diagnosed and -- and had recommend- -- and had recommendations that horrified them. 12:19:53

Q Sorry, how -- where was the talk that you gave to the 35 parents? What -- what was that? 12:20:10

A It was in -- it was in my easy chair in my bedroom.

Q What was the convening? What was the venue for that? 12:20:23

A It was a group of parents who invited me to give a talk, and what I gave a talk on was -- the aspects of what -- what I knew about human identity, not just --

Q What was -- 12:20:38

A -- not just gender identity.

Q Was this group of parents affiliated with an organization, or how did they -- how did they present themselves? As some sort of an organization?

A A woman contacted me and said that she belongs to an organization of -- of concerned parents of trans teenagers or children. I'm not sure which. Mostly teenagers. She actually sent me an analysis of -- of -- of -- that she made, a little research that she had done that demonstrated a very high intelligence in -- of their -- all the children in this group and very high incidents of autism and other developmental problems and -- so she sent me that data, and she wanted some advice to -- from me about how to get that published. 12:20:50 12:21:10 12:21:37

And -- and then she invited me to give a talk. When we talked, she then said she would get back to me, and she got back to me and invited me to give a talk to the parent group. And so that's what happened.

Q Is the parent group called Genspect? 12:21:51

A No. I think -- it -- it might -- it -- this was an American group of people and --

Q What was the parent's name that did the research?

A You know, I -- I would have to look that up. 12:22:15

I don't remember.

Q I'm just going to try to -- so I appreciate what you've explained.

Could you tell me how many actual parents have described to you, personally, an experience where their child was diagnosed and prescribed treatment in an hour? 12:22:29

A Well, if -- some people, it would be two hours, okay?

Q Let me just start with one hour. 12:22:46

How many parents have told you directly that their child had been prescribed -- diagnosed and prescribed treatment in an hour?

A I would say perhaps 50 percent of the people who -- who have consulted me. 12:22:59

Q And how many people have consulted you?

A I really can't answer. You know, if I told you 11, if I told you 16, if I told you four, I would -- I would have no conviction that I -- that -- that that answer is correct. 12:23:19

I'm telling you I had the impression that over and over again parents complain about this. They complain about affirmation. They're afraid of affirmation, what that will mean to their child's future. And they complain that they can't get their 12:23:35

point of view to influence their thera- -- the -- the person -- their gender expert that they took their kid to and -- and that they can't find anyone else who has -- who has the courage, they say, to just talk to their kid without saying they believe in affirmation because that's the right thing to do. 12:23:55

Q Thank you. I -- I just -- you've talked about the importance of scientific data; correct?

A Correct.

Q And you've made the representation that there is a practice of rapid affirmation happening in the United States; correct? 12:24:09

A As -- as far as I know, yes.

Q And what I'm trying to understand is the basis for your understanding that there is a phenomenon of rapid affirmation happening in the United States. 12:24:22

And so --

A Well --

Q -- I guess my question is -- sorry.

A -- the basis. And I've tried to answer the basis is -- is that the parents who consult me all tell -- pretty much all tell me the same story. It is multiple patient reports. 12:24:33

And when I -- when I was on that committee that we talked about before, of psychotherapy, people 12:24:52

in Australia, people in Ireland, people in London, in various parts of the UK and -- let me think where this is a source of -- and the United States have all reported to me the same thing. Everyone says the same thing, that the parents complained to them about going to specialty care which rapidly confirms the diagnosis and recommends affirmation and tends to make the parents feel like they're -- they're doing a terrible thing by resisting transition. 12:25:18

Q You mentioned -- 12:25:39

A So the answer to your question is multiple sources, both directly in my clinical practice, both -- what I read about sometimes in these legal proceedings, legal documents and in -- and -- and from my colleagues. 12:26:01

I -- I just want you to know that if -- that professionals all claim to do thorough evaluations, but I -- I'm not sure that our definition of thorough evaluation is -- is correct.

Q Have you talked to any gender-affirming professional to learn what their practice actually is? 12:26:18

A Well, I've read Dr. Adkins, for example, reassurance about the thorough evaluations done in her clinic.

And -- have I talked to any affirmation -- 12:26:40

well, I did talk to the Cleveland Clinic people and -- who are -- were sharing with me their angst about what they should do with these borderline personality kids, kids who aren't doing well, who don't want to focus on anything but their transgender state. So they consult me about these -- these case- -- you know, they consulted me about this. 12:26:57

So I guess the answer is yes.

And if you ask me the number, I would say it's not a large number. I don't -- and I don't -- 12:27:14

Q Sorry, other than Dr. -- other than Dr. Adkins and whoever you talked to at the Cleveland Clinic, have you -- are you -- sorry.

You've never talked to Dr. Adkins; correct?

A I've never personally spoken to her, no. 12:27:25

Q So other than the people at the Cleveland Clinic that you referred to, have you spoken to any other gender-affirming professionals about their practices?

A Well, in these various legal matters, 12:27:37 oftentimes I'm asked to review case material, and I -- and I -- I haven't visibly, virtually, talked to -- the answer to your question is no, but I -- I certainly have seen materials that indicate the -- the quality of the interactions that have been between the affirming 12:28:09

and the professional and the patient and sometimes the parents.

Q And you mentioned -- you mentioned multiple patient reports, I think, when you were saying what the basis was for your review. 12:28:24

Do you recall that?

A Yes.

Q Are you -- and there, you're talking about the patient would be the -- the parent of the child that's being cared for; right? 12:28:30

A Yes. I think if --

Q In other words, you were -- you were not getting complaints from the -- the child or adolescent that was being discussed; you were getting the complaint from the patient parent; is that right? 12:28:45

A Oh, I've heard -- I -- I've heard patients say that they were a little surprised by the rapidity of things, yes.

Q Sorry, one of your child or adolescent --

A So it's -- 12:28:58

Q -- patients --

A It's not entirely parents, but it's largely parents.

Q And then I've asked you how many parents you've directly heard reports of -- let's just say 12:29:10

two-hour or less diagnosis and treatment. How many parents have you heard that from directly?

MR. BROOKS: Objection; asked and answered.

THE WITNESS: I would say 15 sets of parents. And if you allow me to accept the reports of the people on the committee, probably it's over a hundred. But, you know, as I already answered, I can't really -- I'm just giving you numbers because you're asking for numbers. 12:29:31

BY MS. HARTNETT: 12:29:54

Q Well, isn't it important to have good data?

A You're right, it is important to have good information. And data varies in its nature. And parental reports that are consistent over time, to me, is good data. That represents good data. That are good data, rather. 12:30:10

Q Have you ever had a parent report to you a positive experience from an affirming practitioner, as you describe them?

A Ever had a positive experience. 12:30:35

Well, last Sunday morning, I gave a talk at a church, and a grandmother told me that her very disturbed granddaughter has transitioned to a -- living as a boy and she's far less disturbed and much happier and she's beginning to restart her life as a student 12:30:50

now, when she couldn't function as a student before.

So if a grandparent -- I mean, it's -- it's -- today's Wednesday. So that was Sunday morning.

So I think -- that is not the first time I've ever heard from somebody. I've also heard from grandmothers who were deeply concerned about their grandchild. 12:31:05

And, actually, come to think of it, I had an interview -- yes, I -- I have heard about a -- another trans male teenager who is doing very well now as -- and much better than they were doing living as a -- as a distressed female. 12:31:23

So I do have positive reports of people doing well.

And in -- in my years of taking care of -- of adults, I've seen some people, at least who have came back in follow-up after transition, who seem to be doing very well in life. 12:31:39

I'm not saying that -- so I -- you know, I get both sides of the coin here. 12:32:01

Q You haven't undertaken a scientific sampling, though, to figure out what parents' experiences are with affirming practitioners; correct?

A I -- no, I have no follow-up study on this. I am like other people who don't have follow-up studies. 12:32:18

Q And it could be that parents that are having negative experiences are the ones that are seeking you out; correct?

A Yes. There's always a selection by a -- in -- in clinics. When -- when you have data coming from any clinic, one of the methodologic questions is, What is the selection bias? 12:32:35

And so I -- I represent a person who has some kind of unknown or known reputation in the community, and so people come to see me because they think I have knowledge or attitude that is consistent with their position. 12:32:54

But, you see, in the -- in the fundamentals of -- of the use of statistics and creating scientific methodology, selection bias is a well-known problem, and that's one of the reasons why some studies need to -- that's one of the advantages of having multisite studies and multicultural -- studies from multiple countries, is -- is what we're going to do about selection bias. 12:33:12 12:33:31

Q I believe earlier you said that your view is that the doctor's role isn't to recommend the treatment for the minors who may be experiencing gender dysphoria but, rather, to provide information to the parents and the children and the parents and the children should 12:33:47

make the decision; is that fair?

A Yes. This is the idea that I am trying to educate the world about, that, actually, doctors don't know what the best treatment is for a particular child and that they shouldn't pretend to know because there's no follow-up data that are -- there's no compelling follow-up data. There's just anecdotal reports like you and I were just discussing. Or anecdotal reports. 12:34:06

And so given the fact that -- that people believe doctors and they believe that doctors know things and that I know doctors don't know things, you see, what I'm saying, what I'm trying to influence the world to think about is that we should make a -- we -- we recommend that you go to surgery for appendicitis because we know the consequences of not having surgery. You're going to die from this condition if you don't have surgery, you see. 12:34:24 12:34:44

So we -- based on the consequences, we know what is indicated medically to save life or preserve function. 12:34:59

But in this particular area, the long-term follow-up of children or adolescents or even adults who undergo transition are not known. And I -- they're not -- they're simply not known.

And because we are -- some doctors make 12:35:15

recommendation to transition a seven-year-old or transition a 14-year-old or remove the breasts of a 14-year-old, and I would say that what is the scientific basis of your recommendation to tell parents, who are often trusting of your knowledge base, what is the scientific basis of your recommendation? 12:35:36

And I say, given what we know about science, I'm not opposed to transitioning a child or transitioning a teenager or an adult. What I'm saying, that we should be able to educate, objectively, the parents and the child themselves, you see, so that they know the issues here. 12:35:54

And it's their child. They are legally responsible and they're morally and ethically responsible for the welfare of their child. And so I think they need to be informed. 12:36:11

And -- and what I'm saying is, in the past, doctors have recommended things, and I'm -- so I'm questioning the wisdom of making a strong recommendation because it's based on the allusion that we know what is best for this kid or this adult. And I'm saying, please, doctors, please be humble about what your knowledge is here. Please respect the limitations of your knowledge. That's all I'm saying. 12:36:25

So I -- I am objecting. I'm trying to teach 12:36:47

the world. If -- I know that sounds rather grandiose, but I'm trying to teach the world that based on our lack of information about the long-term follow-up, we can give options for the treatment of this condition and that option includes what you would call affirmative care. 12:37:03

But we should understand the scientific basis of affirmative care, you see, and we should understand the limitations, and we should understand that even the advocates of -- of gender-conforming surgery have published two papers recently saying that the -- the long-term psychosocial outcomes are not clear, that the benefit of -- of -- of genital surgery or breast surgery, in the long run, is not -- they're not clear. 12:37:17

And so people have undergone -- undertaken two studies in the last year or two years to prove that there are benefits. So why are we, in 2020 (sic), doing studies to prove there are benefits if -- if we already know the answer. 12:37:38

We don't know the answer. And I say because we don't know the answer, there's an ethical responsibility, a professional responsibility, to teach the parents, teach the adult what is known and what is not known. 12:37:56

What they decide is their business. It's 12:38:12

their prerog- -- it's their prerogative. It's their child. It's their seven-year-old. It's not my seven-year-old. See? It's not your seven-year-old. It's not your 14-year-old. It's theirs. And it's a weighted decision. And the idea that it's not a 12:38:25
weighted decision requires you to be an ostrich and bury your head in the sand.

Q Do you think that politicians should be making that decision?

MR. BROOKS: Objection. 12:38:36

THE WITNESS: Well, I -- I do ask myself the question who should be making decisions about the delivery of medical care, you see. And I do realize that in some circumstances, politicians make decisions that influence medical care and medical treatment. 12:38:55

I don't know the answer to that question, but I don't know that doctors per se who are not informed about the -- about the state of science really should be making these decisions with the illusion that they know best. I am not sure politicians know what's best. 12:39:16
I mean, when it comes to politicians, you know, we -- we all have skepticism.

But nowadays, what -- who is making decisions are -- are judges, you see. I don't think juries as much as judges and -- and state legislature and 12:39:35

governors are making decisions. I don't like that either.

I would prefer that an informed medical professional -- I would -- I would prefer that doctors make these decisions based upon accurate scientific information and not political ideology and not mixing up civil rights concerns with medical decision-making. 12:39:54

So I realize we're in a -- this is a morass, and I -- all I -- all -- my point to you today is let's look at the science and let -- let the doctors decide or let the politicians decide, let the governors decide, let the judges decide, but on the basis of science. 12:40:21

Q And are you aware of any scientific study showing that affirmative care practitioners in the United States are providing rapid affirmation, a scientific study, not just anecdotal reports? 12:40:40

A There was a study out of the UK about 20 years ago. I kind of think the author of the study was M-O-L-E. I'm not certain. And they did a follow-up study of people who were given sex reassignment surgery immediately because they asked for it, with -- with very little screening, versus people who were treated as usual, because in that days, people had psychiatric evaluation and psychotherapy, and I think they found in 12:41:10 12:41:33

the small numbers of patients that they operated on versus the people who weren't operated on, that there seemed to be -- they seemed to be happier in the short term after surgery than the people who didn't have surgery. 12:41:49

But you know what I've been saying to you in -- well, maybe I haven't quite said it yet. What I'm saying is, when we come to evaluate the impact of these treatments, we need to agree upon -- we have to have a consensus, and it should be an international 12:42:07 consensus, about what is the ideal way to evaluate the effects of these treatments.

Should it be, like, at six months, at twelve months, should it be at six -- two years, five years, ten years. And we should agree upon the 12:42:28 mecha- -- the measurements that we're going to use prior to actually doing the study so that we all agree upon both -- both the strengths and the limitations of the methods.

So what I'm -- 12:42:42

Q Yeah, maybe my question --

A What I'm trying to do is to refine the requirements to answer your question.

Q Thank you. And I think maybe my question may have been unclear. 12:42:55

What I'm trying to figure out is that you've testified about a perception that there's this widespread practice of providing rapid affirmation service in the U.S.; is that fair?

A Yes, I do have that perception. 12:43:05

Q And what I'm trying to figure out, is there any kind of scientific or other -- otherwise kind of an analysis of a -- of that healthcare market to determine whether in fact that is actually happening or in fact whether these are just anecdotal occurrences that 12:43:22 you've learned of?

A There -- your question is one of a series of questions that I would have to answer as far as I know, there are not -- there are not respected scientific methods demonstrating my -- my impression. 12:43:44

Q Thank you. If you could turn to page -- paragraph 6 of your -- or it's probably on the same page you have there, but I'm going to just ask a question about paragraph 6 of your declaration -- or your report. 12:44:02

And you talk about -- you can read the whole thing. I'm not trying to misread it into the record, but I wanted to focus on the sentence that says (as read):

I have at one time or another 12:44:13

recommended or prescribed or supported social transition, cross-sex hormones, and surgery for particular patients, but only after extensive diagnostic and psychotherapeutic work." 12:44:26

Do you see that?

A I do.

Q Have you ever recommended cross-sex hormones for a minor patient?

A No. 12:44:37

Q Have you ever prescribed cross-sex hormones for a minor patient?

A Is that a different question than you just asked me?

Q Well, you have recommended or prescribed or supported, and so I could go into asking you what the difference is, but I just figured I'd ask you -- is there a differences between recommended, prescribed and supported? 12:44:53

A Oh, yes. I feel like my view of my role is to write a letter of recommendation describing the patient in detail, the -- the diagnosis, the patient's sensibilities, whether I think this would be beneficial to the patient at this time in his life. 12:45:08

The last person that I wrote, I was doing 12:45:26

psychotherapy with a young person, starting at age 16, and saw this person over the course of a year and a half. I promised that if they continued talking to me, at the end of the time, I -- if patient still wanted hormones, I would give hormone- -- I -- I wrote a letter of recommendation. 12:45:47

And I did write a letter of recommendation, and the patient did take hormones. He went off to college, failed miserably at college, transferred college, and I sadly I tell you, and I -- I sadly tell you, this person died of a heroin overdose in his dorm room at Ohio State University. 12:46:01

And I know from the parents, postmortem, that he acquired a girlfriend, and he then said that it's not so bad -- he's rethinking this matter. It's not so bad being -- being a male and having sex with someone. 12:46:23

But I don't know whether -- I -- his heroin overdose, which was his third heroin overdose, was accidental death or suicide.

So I have provided hormones. I do have that really negative taste in my mouth from that experience. I don't -- I don't -- I don't have remorse about giving hormones to this person because I promised that if -- that it is his decision. 12:46:40

His parents weren't happy with that decision, 12:47:02

but they also agreed with the decision. And now they're, of course, in perpetual mourning for their deceased 18-year-old child.

So, yes, listen, I also have given hormones to someone else who is living okay, who is not made any suicide attempts. But it is, as I described in that paragraph, after I get to know these people. And to tell you, I -- as best as I can tell, they appreciate that. 12:47:20

Q Thank you. I'm just -- sorry for the -- for the person that you -- your -- your patient that you mentioned, the -- the 18-year-old, I'm -- I'm sorry to hear about that. 12:47:35

Sorry, when was that? What -- what time period? 12:47:47

A That was --

Q Datewise.

A -- March 17th, 2021.

Q And did you prescribe the -- or, sorry, write a letter for the hormones before the person was 18 or only once they were 18? 12:47:58

A I think the person turned 18 in August or September, and I think I wrote the letter right near the person's birthday. Whether it was before or after, I'm not sure. 12:48:19

Q How about social transition, have you ever recommended or prescribed or supported social transition for a minor?

A A minor being someone less than 18?

Q Correct. 12:48:34

A Have I ever recommended, prescribed -- I have never prescribed. I have met people who already had social transition, and I had supported them even in the face of their parents' objection. But I don't think I have ever prescribed social transition to a person. I 12:49:00 cooperate with it. I recognize that -- I recognize that it is the patient's decision. And while I may not have thought it was a wise decision to transition or to surreptitiously take hormones, you know, from China or something, I -- I don't interfere with it. I just talk 12:49:30 about it.

So -- but if you're really asking have I said, oh, Parents, you should transition your child, I think the answer is no.

Q Yeah. So I'm trying to -- that's -- thank you 12:49:43 for clarifying that. I -- I'm trying to figure out if you've supported the transition of a -- the social transition of any minor patients.

A Yes.

MR. BROOKS: Objection; vague. 12:49:53

BY MS. HARTNETT:

Q When was the last time you supported the social transition of a minor patient?

A Two years ago, I'm guessing.

Q Okay. Let me -- do you know who B.P.J. -- B.P.J. is the plaintiff in this case. 12:50:08

Do you know if B.P.J. is a girl or a boy?

A I know nothing about B.P.J.

Q So you've reviewed none of her medical records or anything like that? 12:50:32

A Yeah, I would presume that this is a trans boy -- a trans girl who was born a -- a boy, but I wouldn't -- I have no certainty.

Q What makes you presume that?

A Well, because trans -- trans girls generally -- I mean -- how should I say it? Trans girls -- trans adolescent girls generally don't -- wait a -- I'm getting confused here. Excuse me. 12:50:47

I presume that B.P.J. is an -- was born and assigned and is a natal -- was a natal male. 12:51:17

But if it's a natal female, I -- I've not heard anything where a natal female becomes a trans boy and wants to compete against boys. If there is a lawsuit like that, that has been raised, I am unaware of it. 12:51:43

When I read these things in the newspaper, it's -- it's -- they're -- they're always about natal boys who live as trans women or girls and want to compete against women. So that's why I presume that B.P.J. must be a natal male. 12:52:04

But because my role in this case had nothing to do with the athletic side, it's just to -- to provide some basis of -- some background basis on the science of transgender knowledge and the lack of knowledge, I didn't spend time investigating that. 12:52:23

Q Okay. And are you familiar with the law that's being challenged in this case that's called H.B. 3293?

A No.

Q Could we just turn to page 20 of your declaration, paragraph 50 -- or your -- sorry, I'm saying declaration. I mean report. 12:52:42

MR. BROOKS: We're getting there.

MS. HARTNETT: No, take your time. Page 20, paragraph 50. 12:53:00

MR. BROOKS: Let's see. This is under -- just simply -- since I can't fit it all on the screen at once, it's under the heading that says, "The affirmation therapy model (model #4)." And now, under that, I have paragraph 50 showing on the screen. 12:53:14

MS. HARTNETT: There is a way to, I believe, make that -- I don't know if he needs that to be that large to read it, but there is -- if you hover over the document, you can zoom in or out.

MR. BROOKS: Perhaps. But this is, I think, much smaller, and it would be hard to read. 12:53:31

THE WITNESS: I have the entire paragraph 50 in front of me.

BY MS. HARTNETT:

Q Okay. Thank you. 12:53:41

So I was looking through your report, trying to see if there was a connection to the context here, which is this sport -- whether the plaintiff can play sports, and I'm just looking -- you can look at all of paragraph 50, if you need to, but I'm going to be focused on -- well, feel free to take a look. 12:53:51

But you're -- under this part called "the affirmation therapy model." That's the heading that's above paragraph 50.

Do you see that? 12:54:04

A Yes.

Q And you're referring to -- what -- you say that -- you're referring to some advocates and practitioners that go much further. That's in your second line there. And then I'm going to just read one 12:54:14

sentence in the middle of the paragraph. (As read):

"They argue that the child should be comprehensively resocialized in grade school to (sic) their aspired-to gender. As I understand it, this is asserted as a reason why male students who assert a female gender identity must be permitted to compete in girls' or women's athletic events."

Did I read that correctly? 12:54:37

A Yes, you did.

MR. BROOKS: And I will -- well, you can ask a question. I'm going to ask the witness to read the entire paragraph so we don't lose the --

MS. HARTNETT: He should feel free. I'm not -- this is not a trick. 12:54:50

MR. BROOKS: Nope.

BY MS. HARTNETT:

Q Let me know when you're ready.

A I've read the paragraph. 12:55:22

Q Do you know whether the law being challenged in this case applies to grade school?

A I don't -- I don't know the law being challenged here.

Q So you don't know whether the law at issue 12:55:35

requires that transgender youth be comprehensively resocialized; is that fair?

MR. BROOKS: Objection.

THE WITNESS: When I talk about comprehensively resocialized, it was not in relationship to this law; it was in relationship to the American Academy of Pediatrics' recent study, I think in 2018, by Rafferty, et al., where it was asserting -- they were asserting such things that I'm summarizing here. 12:55:51 12:56:18

And, see, for them, participation in athletics just follows their fundamental assumption that they know what's best for these children even though they have no long-term -- they don't even have adolescent follow-up, let alone adult follow-up. 12:56:35

And so I just think that the case of athletics -- the issue of athletics is a secondary derivative issue about the more fundamental matter of when and how, to what extent, and before -- what requirements are necessary before we socialize a child, you see. 12:56:55

So if you think about the -- your issue today about athletics, it's what I would call a downstream issue, downstream from the fundamental thing that we were talking about before the last break about what are 12:57:15

the requirements to ethically enable parents to make this decision without doctors pretending like they know what's best for a seven-year-old or an eight-year-old or a 12-year-old or a 15-year-old, you see.

So this is a downstream question about which I feel I have no legitimacy to pretend expertise. 12:57:34

So I think every question you ask me about this, I'm going to have to say, listen, this is not my -- this is not my wheelhouse. This is not my knowledge base. My knowledge base is about what we were talking about, you know, about the evaluation of children and teens. 12:57:54

BY MS. HARTNETT:

Q So here, where you say, "this is asserted as a reason why male students who assert a female gender identity must be permitted to compete in girls' or women's athletic events," when you say -- asserted by whom? Is it the American Academy of Pediatrics? Is that who you're referring to there? 12:58:07

A No, I don't think it's entirely that. I think it has to -- you know, this is a -- this is a big cultural issue in many, many states. They made -- the NCAA, you know, the high school athletic associations, whatever the names, the acronyms of those organizations, they have made policies based upon 12:58:23 12:58:48

information that they've gotten from various, quote, expert groups, and -- and there is this -- in education services today, there is this enormous emphasis on diversity and support for all forms of diversity, and so I -- I think the answer is not it's just from the 12:59:12
American Academy of Pediatrics. I think the American Academy of Pediatrics is influenced by these larger social trends that have recognized how much harm we've done to various -- to women, for example, or to African Americans or to Asians, and we are trying, as a 12:59:34
society, to make things more open and to -- to represent more people in the public discourse in arts, in music, in the theater and so forth.

So there's just a broad, broad cultural trend towards being much more inclusive, you see, and -- and 12:59:52
I just thing the trends -- athletic issue must be viewed in terms of the larger social questions that are being answered in a political sense in our culture.

MR. BROOKS: Counsel, when you get to a breaking point, I think it is one o'clock, and it would 01:00:10
be a good time to take a lunch break.

MS. HARTNETT: We can break now. I have a couple more questions on this paragraph, but we can pick it up after lunch. What would you prefer?

MR. BROOKS: You can finish up the paragraph. 01:00:27

MS. HARTNETT: Sure.

BY MS. HARTNETT:

Q So -- so is it your view that allowing a transgender youth to participate on the team of their -- the sex that they present as, is that a psychotherapeutic intervention that would dramatically change the outcome for that child? 01:00:39

A I'm not certain.

Q What is your concern -- I'm sorry, please.

A I think if -- I think if a child, let's say a 14-year-old, wants to run track or play a sport as a member of a female -- the female side of the sport and if the school or the -- the State or the -- the organization that -- that organizes high school athletics or junior high school athletics says, no, you can't because you were a natal male and you -- trans is not accepted as -- for athletic purposes, I think that person would be disappointed. I think that would be disappointed. And disappointment may look like depression. It may increase the person's anxiety for a while. But like many, all of us get disappointed in life, and, you know, we deal with it. And sometimes we grow from our disappointment. 01:01:02 01:01:31 01:01:52

So I would think they would be disappointed. Whether that is to be considered harm, you see, I don't 01:02:12

think we would -- we should, just on the basis of disappointment, refer to that as harm. Harm is a different concept, you see.

And -- so I guess the answer to your question is I'm not sure. 01:02:32

Q But do you think that permitting them to play with -- in that example, allowing the 14-year-old person that identifies and is a girl to play with the girl team, do you believe that that would make them more likely to continue to identify as transgender when 01:02:50 they otherwise would not?

MR. BROOKS: Objection; ambiguous.

THE WITNESS: They would otherwise continue -- you -- you mean -- if I understand --

BY MS. HARTNETT: 01:03:05

Q I'm sorry, I'll ask a better questions.

I'm just trying to figure out if your opinion is that allowing transgender, let's just say, adolescents to play on sports teams that match their gender identity will cause them to continue to identify 01:03:15 as transgender when they otherwise would not.

A I have no idea the answer to that question. I would imagine that they would continue to identify as a trans female, but I don't know what would happen to their identity if they didn't. That was the other side 01:03:40

of your question, the last part of your questions.

So I guess I can answer part of the question.

It would be my opinion, if we allowed a child who currently identifies as a trans girl to participate in a girl's athletic -- organized athletics, that that would do nothing -- that would -- that would reinforce the idea that she continues -- that she is a trans girl. Not that she is a girl, but that she's a trans girl. That's -- I think that would be my opinion. 01:03:57

About the other aspect to your question, I don't know the answer. 01:04:20

Q But is your opinion that there's a -- is that a -- in your opinion, is there something wrong with reinforcing the girl being on -- sorry -- the girl's gender identity of being on the team? 01:04:33

Like, do you have a problem with that, or are you okay with the 14-year-old girl playing on the -- transgender girl playing on the girls' team if the rules allow it?

MR. BROOKS: Objection; vague, compound. 01:04:42

THE WITNESS: If you -- if you look narrowly at the individual girl, we get one set of considerations.

If we look at fairness, if we look at the perspective of the other girls, the natal girls who are 01:05:07

participating, we get another perspective.

If we look at the parents' perspective of the very talented athletes who are natal girls who may be defeated by these trans girls, we get yet a third or fourth perspective. 01:05:31

BY MS. HARTNETT:

Q Well, that's not your area of expertise; correct?

A But you -- you just anticipated what I was going to say. I mean, you're asking me opinions that I have no legitimate expertise to answer. I -- I'm just -- I'm separating the perspectives for you. And I say your -- your question is not as simple as it sounded because there are these other perspectives to be considered which people other than me are going to consider. 01:05:39 01:05:57

There is -- shall I repeat?

There is the child --

Q No, I don't think so. I don't think you should repeat. But what I do -- would like would be before we have lunch, just an answer, which is do you object -- 01:06:08

MS. HARTNETT: Can you -- can the reporter read back my last question, please.

THE REPORTER: Yes. 01:06:15

(Record read.)

MR. BROOKS: Objection; compound, form of the question, vague.

You can answer, if you are able and know what the question is. 01:07:02

MS. HARTNETT: That's -- enough coaching.

THE WITNESS: Pardon me? I didn't hear what you just said.

BY MS. HARTNETT:

Q I was telling your counsel to please stop coaching you. And I can ask a better question. 01:07:07

A Oh.

Q Is it your perspective that allowing a transgender girl to participate on a girl team, consistent with her gender identity, is harmful to the transgender girl? 01:07:18

A No, I don't think it's harmful in the short run to the transgender girl. In the long run, if the transgender girl detransitions, say, in five years, I wonder what he will now think about what happened five years before when she was competing against girls as a girl. 01:07:36

But in the -- I presume your question is in the short term, you see? And I guess in the short term, I don't think it would harm the child to the 01:07:58

extent that it reinforces their current identity.

But as you may or may not know, gender identity can evolve over time. And so when people detransition and return to presenting themselves as a boy and thinking of themselves as a boy, they then have to -- they then have to consider what happened when they were -- when they were presenting themselves as a girl and believing that they were a girl. They no longer believe that they're a girl, but they did back then, you see? 01:08:20 01:08:39

So I don't know, I don't think anybody knows, what implications, what harm, might come from their -- what retrospective view of the harm that -- that they cause themselves by presenting -- by competing against girls. So -- 01:08:58

Q Does anybody know the implications of the disappointment that the transgender girl might experience from exclusion, or is it similarly indeterminant?

MR. BROOKS: Objection. 01:09:09

THE WITNESS: Well, I -- I think I've already answered the question, that disappointment -- I would expect it if a -- if the girl -- the trans girl wanted to participate and was prohibited by some larger force from participating, they would be disappointed, and it 01:09:24

may have -- it may have -- it -- and I couldn't predict the outcome of the disappointment, whether it would precipitate depression or whether it would precipitate giving up their trans identity, as being unrealistic, that other people are saying I am very unrealistic 01:09:47 and -- and this is unfair and I'm asking for an unfair advantage.

So, you know, I can't -- I don't -- these are not areas that I -- that anyone has had any experience with, you see. And -- and I -- it's hard for me to 01:10:01 give you a simple answer.

It feels to me, Ms. Hartnett, that you are trying to get me to answer a question in a certain way, and I'm just trying to say I think it's more complicated. And I think you're asking me to give an 01:10:16 opinion about which I don't have adequate knowledge, and I don't -- that's all. Period.

Lunch.

MS. HARTNETT: Let's go to lunch.

THE VIDEOGRAPHER: We are off the record at 01:10:35 1:11 p.m.

(Lunch recess.)

THE VIDEOGRAPHER: We are on the record at 2:11 p.m.

MS. HARTNETT: Thank you. 02:11:22

BY MS. HARTNETT:

Q Welcome back, Dr. Levine.

I think before the break, we had -- I'm not sure what page you have up, but I -- I'm at paragraph 50 of the declaration. 02:11:31

A So are -- so am I.

Q Okay. Let's -- I was trying to -- and the reason why we were talking about that is there was a mention of athletic events there, and the other mention of athletic events in your declaration is at 02:11:43 paragraph 130. So if you could go to 130, I'll have a question about that.

Let me know went you get to 130, please.

MR BROOKS: We are at 130, which fits on the screen. 02:12:14

BY MS. HARTNETT:

Q Great. So here in this paragraph, you say, in the third sentence, the following (as read):

"It is evident from the scientific literature that engaging in therapy 02:12:26 that encourages social transition before or during puberty——which would include participation on athletic teams designated for the opposite sex——is a psychotherapeutic 02:12:37

intervention that dramatically changes outcomes."

Do you see that?

A I do.

Q And you don't know if H.B. 3293 applies to prepubertal kids; right? 02:12:46

A I'm sorry, would you repeat that question.

Q You don't know if H.B. 3293 applies to prepubertal kids?

A I already testified that I don't know the content of the deal. 02:13:03

Q So is it your opinion that allowing transgender children and adolescents to play on sports teams will continue -- will cause them to continue to identify as transgender? 02:13:21

A I think it -- well -- well, you know, my hesitance is because you used the word "cause."

Q I'm just trying to --

A A child --

(Simultaneous speaking.) 02:14:10

BY MS. HARTNETT:

Q Oh, sorry, go ahead.

A That's why I have taken so long. I'm -- I'm thinking about the word "cause" and its implications in my mind. I -- I do think that various aspects of 02:14:20

social transition tend to continue the child on a life course consistent with trans life, whether or not they're aware of the risk that they're entailing or not.

I think that's as close to an answer I can give you. 02:14:45

Q Are you aware of any research indicating that by preventing children from playing on sports teams consistent with their gender identity that will prevent them from continuing to identify as transgender going forward? 02:14:59

A I'm not aware of research literature about athletic teams and its impact, positive or negative, at all. I'm totally unaware.

Q Okay. Do you think that by excluding transgender girls from playing on the girls' team the law that's being challenged in this case stigmatizes transgender girls? 02:15:14

MR. BROOKS: Objection.

THE WITNESS: I think it may disappoint transgender girls. Stigma has another concept. You know, it has to do with social things. 02:15:48

I -- I think a reasonable mental health professional could assume that if a child wanted something and was prohibited from it, they would be 02:16:03

disappointed, at least initially.

Other than that, I -- I don't care to comment.

BY MS. HARTNETT:

Q Well, say a child wants a cookie and they aren't allowed to have it. That's disappointing; right? 02:16:23

A Yes.

Q Is the disappointment that a transgender child would have from being excluded from a sports team consistent with their gender identity essentially that, equivalent of the cookie denial? 02:16:31

MR. BROOKS: Objection; calls for speculation.

THE WITNESS: I don't know if you even put my smile into the text.

Obviously, you know, there -- there are degrees of disappointment in the universe. And to equate that with a cookie, I don't know. I prefer not to even answer that question. 02:16:57

BY MS. HARTNETT:

Q Well, your -- your point of view is that people that experience being transgender also generally experience a wide range of other distressing feelings and conditions; correct? 02:17:10

A My point of view is what?

Q That people who are transgender also 02:17:27

experience a wide range of other concerns and -- and issues; correct?

A Yes, I think -- yes.

Q That they're subject to serious mental health issues, that's your point of view; correct? 02:17:47

A I think they're apt to encounter a number of frustrations in their future lives that could add to their social anxiety, their sense of pervasive sadness and it lead to solving the problem in ineffective ways, like substance abuse. 02:18:13

So, yes, I do think that being transgender, for -- for many, many people, poses adaptive challenges in the present and in the future.

Q How do you know that that's based on being transgender as opposed to how the transgender people are being treated, or do you not distinguish between the two? 02:18:34

A Because -- because some of the -- in children, some of the psychiatric problems that they have are -- occur well before there's any awareness of the society. 02:18:54

And in every cross-sectional study of adults in the transgender community have shown that the -- that they're a vulnerable population and they're vulnerable to many psychiatric difficulties, and the common explanation for that, among trans advocates, is 02:19:19

that it's entirely due to social discrimination whereas I think if you look at the premorbid and the accompanying psychiatric difficulties of many trans people, these -- these -- the social discrimination has only added to the -- the internalized conflicts about what they're doing. 02:19:37

So I think it's far more complicated than it's merely a result of stigma, so to speak. "Discrimination" would be a better word, I guess.

Q Yeah, I'm -- thank you. And I'm trying to reconcile that view with the notion that excluding a transgender youth who, in your view, might be subject to these various preexisting psychological problems, why -- where you're having -- where -- what is the basis for you believing it would just be a simple source of disappointment for the trans youth to be excluded from a team, consistent with their gender identity, as opposed to a more severe harm? 02:19:54 02:20:09

MR. BROOKS: Objection.

THE WITNESS: Number one, I don't think there's any research in this area. So whatever -- whatever you would like to conclude, I think there's no basis for it. 02:20:22

I'm just trying to understand, based on my knowledge of human beings, that for one person, it 02:20:37

would be a major disappointment and it might lead to harm for that person, and for another person, it might be a major disappointment that leads to no harm, and for another person, it might be, oh, well, so what, and it's not a big -- not a big deal. 02:20:52

Every study of human beings shows the variety of human beings. And we can't predict that if you exclude a child from anything on the basis of their gender identity, that it's going to cause -- automatically, you can guarantee it will cause harm. 02:21:12 There's just no reason to think that.

It doesn't mean there isn't a child who might not be harmed, but it doesn't mean that all the children will be harmed, and it doesn't mean that the harm will follow in the same manifestation. 02:21:27

Human beings have a variety of responses to everything.

BY MS. HARTNETT:

Q So is your view for the trans girls that would be excluded under a policy of not allowing them to play 02:21:43 on the team consistent with their gender identity, that they should just toughen up and stomach the disappointment?

MR. BROOKS: Objection.

THE WITNESS: You're putting words in my 02:21:55

mouth. That's not my view. That's not how I was -- that's not how I have spoken about it. You're summarizing it in a very negative way for me. I don't accept your language. It's not me.

BY MS. HARTNETT: 02:22:09

Q Okay. You don't have to.

How would you put it?

A I already put it.

MR. BROOKS: Objection.

BY MS. HARTNETT: 02:22:15

Q You mentioned before the break that you also, in your view, had to look at the potential harms or the effects on the other people at issue, and I think you mentioned the other girls on the team; is -- did I hear you right? 02:22:26

A I think I did mention that.

Q Are you giving an expert opinion in this case about the harm to girls on a team where they would have to include a transgender girl?

A I don't know how many times, Ms. Hartnett, I have to tell you that I don't consider myself having an expert opinion on this subject. I have stated what I stated, but I don't -- I don't -- I don't feel like I represent an expert. 02:22:41

And so the answer to your question is, no, I 02:22:59

don't have an expert opinion on that.

Q Thank you. I have a few questions about your expert report. I'm just going to go back to the beginning and go through sequentially, and I'll -- please feel free to read the paragraphs I cite to you while I'm asking you questions. 02:23:16

My first one is going to be back on paragraph 5, page 2.

MR. BROOKS: Getting there.

Paragraph 5 is on the screen. 02:23:36

MS. HARTNETT: Yeah, we were there before.

BY MS. HARTNETT:

Q I just had a question about -- so I was comparing this report to the declaration that was submitted at the beginning of the case. That was the one from the Washington State declaration that had been attached to an earlier motion in the case. And that's something I introduced as Exhibit 86. So if you need to refer to it, feel free. 02:23:47

But I will just represent to you that in the version of paragraph 5 that was in your earlier declaration, you had certain language that's no longer in this report. I'll read it to you and then -- just curious as to why you removed it. 02:24:02

You -- this is the declaration that you signed 02:24:15

in May of 2021. (As read):

"As the incidence of gender dysphoria has increased among children and youth in recent years, larger numbers of minors presenting with actual or potential gender dysphoria have presented to our clinic. I currently am providing psychotherapy for several minors in this area. I also counsel distressed parents of these teens." 02:24:29 02:24:41

Do you know why you removed that language from your -- this report?

MR. BROOKS: And, counsel, are -- asking that question, are you representing that that or similar language doesn't appear somewhere else in the report? 02:24:54

MS. HARTNETT: I was unable to find that language in this report. It was in paragraph 4 of the PI declaration, which is now paragraph 5 of this report, and I was not able to find that language. 02:25:09

THE WITNESS: I would imagine the answer to the question is I didn't think it was relevant to this particular document.

Please understand, in preparing this document, I did not read the -- Exhibit 86. 02:25:29

BY MS. HARTNETT:

Q Is it true that larger numbers of minors have been presenting with actual or potential gender dysphoria to your clinic?

A No. It's true that across the world larger numbers of minors are requesting services for gender. That's an epidemiologic phenomenon that exists on four continents. 02:25:46

Q Is it true that you are currently providing psychotherapy for several minors in this area? 02:26:07

A Yes.

Q How many?

A It depends on what era you're -- what month, what week, what -- what year you're talking about. If you're talking about within the last year, I would say probably four or five kids. 02:26:22

Q Can you give me the ages of those kids?

A Probably from 14 to 17.

Q And how many of those have you seen more than one time? 02:26:41

A Each of them.

You should -- well, okay.

Oh, one of them I've seen once, I'm sorry. I -- let me correct that.

Q For the other four, do you see them on a 02:27:01

monthly basis?

A No. I -- I tend to see them more often.

Q Are there any of those patients that you have seen on a monthly or less basis, other than the one you only saw once? 02:27:21

A Well, I hear from patients I see in the past periodically, sometimes. I hear from their parents. I sometimes hear from them. But it's -- it's not anything regular.

Q Yeah, I'm -- thank you. I'm just trying to understand. There was a statement made in your May 2021 declaration that you were currently providing psychotherapy for several minors in this area, and I'm just trying to figure out, is that actually true today? 02:27:45

A No, it's not true today to the same extent that it was when I wrote the original -- the Tingley declaration. 02:27:59

Q Thank you. Moving down in here, you have on page -- paragraph 7 and paragraph 8, you identify a couple of cases where you previously provided testimony. 02:28:15

A Yes.

Q There's the -- the case in the Eastern District of Massachusetts, in the First Circuit, that you refer to in paragraph 7. 02:28:29

Do you see that?

A Yes.

Q And then there's the Younger litigation in paragraph 8.

Do you see that? 02:28:37

A Yes.

Q And you do cross-reference your CV list and then the Tavistock case.

Do you see that?

A Yes. 02:28:47

Q Why did you choose to highlight the Massachusetts and the Younger case here?

A Well, the Massachusetts case, under Judge Wolf, Judge Wolf asked me to be a judge's witness. That was the beginning of my legal 02:29:10 involvement in that whole area of transgenderism. So I think that that's noteworthy. It's also noteworthy because that became -- among the DOC attorneys across the nation, that's a very landmark case, and it's often quoted in various other legal matters. 02:29:29

So it seemed to me that you ought to know that I began in that area in 2006 with Dr. -- with Judge Avery.

And what was the second part of your question?

Q Oh, the Younger case and why you included that 02:29:49

here.

A I included that because that was my entry case into transgender children and the -- when parents don't agree on the treatment of their trans child and -- and courts are involved and -- I mean, that is not just happening in the Younger case. That's happening in other jurisdictions as well. And so I -- 02:30:10

Q In the Younger -- oh, sorry.

A That that's the kind of thing you wanted to know. That is a credential, in a sense. Or I thought that you would like to read that case, if you could. 02:30:26

Q Are you aware the jury rejected the father's claim in the Younger case and awarded the decision-making to the mother?

MR. BROOKS: Objection; mischaracterizes the record. 02:30:43

THE WITNESS: One of my complaints about my participation is I -- I often am not informed about the outcome and the progress of the cases that I've testified in. 02:30:55

I did -- I did hear something like you -- what -- what you said, but it seems to me that it was a more complicated decision than you summarized.

BY MS. HARTNETT:

Q Are you aware that -- of the more recent 02:31:14

litigation in Texas regarding a directive from the attorney general about the investigation of the -- sorry -- by the directive of state officials to investigate those providing transgender care for child abuse? Does that ring a bell? 02:31:30

MR. TRYON: Objection.

THE WITNESS: I only know about that because I read it in the papers. I have not --

BY MS. HARTNETT:

Q Okay. That's what I was going to ask you. 02:31:40

Were you involved in that? Were you asked to provide an expert opinion in that case?

A Never.

Q Is there a reason why you didn't include the Nosewor- -- Norsworthy case when you were summarizing 02:31:50 your background here in paragraph 7 and 8?

A The Noseworthy case is one of, I don't know, seven or eight cases. I -- if you look at my CV, I'm sure it's listed in my CV.

This is a prisoner case. I didn't think it 02:32:22 had to do with -- it just didn't seem it had to do with athletics and -- and teenagers.

Q Are you aware that your testimony was partially excluded in a case called Claire in Florida that was about the -- it was precluded with respect to 02:32:40

the testimony about the motivations that plaintiffs had for seeking gender confirmation surgery.

A I was not --

MR. BROOKS: Objection.

THE WITNESS: I was not aware. 02:32:51

BY MS. HARTNETT:

Q Just flashing forward to paragraph 13 here. This is a paragraph where you're discussing, in part, Dr. Adkins' declaration. And my first question is, at the end of this paragraph, you talk about a life course 02:33:15 perspective?

A Yes.

Q I'm just curious if that's a term that you coined or that's from somewhere else in the literature.

A If I took credit for coining that term, I 02:33:36 think it would be -- I didn't -- I didn't coin the term "life perspective."

I'm a -- I'm a psychiatrist, and I see people throughout the life cycle, and so I am constantly confronted with the consequences of early life 02:33:54 decisions and of behavioral patterns.

I have a natural life perspective on matters. I certainly didn't -- I don't believe I coined the term.

Q Well, I ask because it's in quotes, and so I'm 02:34:10

just wondering if it's something that you refer to your method as the life course perspective or if that's a method I could look to in the literature somewhere.

A I think it's in quotes -- I think it's in quotes because I wanted to emphasize the perspective 02:34:25 that this whole question about how to take care of trans youth needs to be understood, not does it make them happy in the current life, but what will it do to the whole course of their life.

And so by putting it into italics (sic), I -- 02:34:46 I -- perhaps -- perhaps I shouldn't have done that, but I was just trying to bring the reader's attention to the perspective here that the decisions that are made in teenage years, for example, or in their 20s or in their 30s have implications, serious implications, for 02:35:08 10 years, 20 years, 30 years down the pike.

And as an adult psychiatrist who deals with people, you know, from 96 down, I certainly see the impact of previous life decisions on their current suffering. 02:35:32

And so that's all it refers to, that -- and I do believe that if you spend your time in pediatrics, you probably don't have as -- as sharp a focus on the life perspective that an adult person -- adult -- a per- -- specializes in adults or who has a lot of 02:35:50

experience with adults have. That's all I'm trying to say.

Q Is it your view that Dr. Adkins' approach is to make the young person happy as opposed to creating a happy, high-functional, mentally healthy person for the next 50 to 70 years of life? 02:36:06

A I believe that Dr. Adkins has hope that she is going to create a happy, functional human being for the next 70 years of life, but I do believe she's influenced, primarily, on making her child -- her current patients happy. 02:36:20

The question is does Dr. Adkins have any evidence whatsoever that the decisions that she has been making with teenagers and younger children, does -- does she know that creates happiness in ten years or in five years. And certainly, I don't think she knows what happens in 30 years. 02:36:38

But I think as a society, you and I as representatives of society, can recog- -- recognize the relevance of the question. 02:36:56

We want to separate, at all times, physicians' beliefs from the evidence that supports those beliefs.

Q What's the basis for your notion that Dr. Adkins lacks an understanding of how to create a happy, highly functional, mentally healthy person for 02:37:15

the next 50 to 70 years of life?

A Because she's a pediatric endocrinologist. Because she's a busy person dealing with young people. Because she doesn't follow-up her patients, I'm sure, for 30 years. 02:37:31

Q Do you follow-up your patients for 30 years?

A Some of them, yes. You know I published a paper about a 30-year follow-up of a trans person. Maybe you don't know. I published a paper about returning to the male gender role after 30 years. 02:37:48

Now, I can't say that I have, you know, 20 patients I've followed for 30 years, but I -- I have certainly written about that case, and in -- in writing about that case, I have raised certain issues that are germane to your questioning right now. That is, a life 02:38:05 perspective, a life course perspective is something that's reasonable and that an educa- -- a physician needs to be thinking about the long-term outcome of what is being done today.

Q What is the basis for you -- but you're -- 02:38:24 sorry, I think you've already stated it, but I -- is there any other reason you have to believe that Dr. Adkins is not informing herself about the consequences of her actions on her patients 30 -- 30 years from today? 02:38:39

A Only that she could not know what happens. She hasn't been practicing 30 years, I don't believe. And I don't believe she is in a position, considering the work that she does, to have systematic follow-up, even for shorter periods of times, on her patients. 02:38:54

If, for example, she has systematic follow-up on 80 percent of the patients she's ever given a hormone treatment for, that should be in the literature. And she knows, she should know, given the -- the -- what's absent from the literature, how 02:39:15 welcome such a study would be, such a report would be. But as far as I know, she hasn't published that information.

Q So your testimony is that you're basing your assumption that Dr. Adkins doesn't conduct systematic 02:39:28 follow-up on her failure to publish a study showing her systematic follow-up?

A I'm sorry, you'll have to repeat that. Too many similar phrases.

MS. HARTNETT: Can the -- well, I'll try. 02:39:42

BY MS. HARTNETT:

Q Is the basis for your assumption that Dr. Adkins doesn't engage in systematic follow-up of her patients her failure to publish research indicating her systematic follow-up? 02:39:52

A No. I am sure Dr. Adkins follows her patients, but she's a pediatrician, basically, and usually, and I can't be certain about this, that at 18, pediatrics people turn the kids over to adult endocrinologists. 02:40:23

And so I think just in the nature of being a pediatric endocrinologist, although she may see some kids into their 20s, I would imagine that the usual trend in pediatrics is to hand kids off, when they're 18, to other practitioners; and, therefore, she 02:40:37 probably has limited systematic follow-up after 18.

And if you extend that by years, like five years and ten years and so forth, I would imagine that she may have a case or two that she follows or knows about, but it would not be anything like systematic. 02:40:55

So the answer to your question is the basis -- did she not publish, and that's the basis. I'm giving you an additional basis.

Q Thank you. You mentioned one patient you had followed up over the course of 30 years, and I think 02:41:10 said something like maybe 20 or -- how many patients, overall, do you feel like -- do -- do you believe that you followed up with over a period of decades in your practice?

A Very -- very few. Because I exist in America, 02:41:26

and in America, we have no means of guaran- -- of -- of insisting on follow-up.

And on -- in -- another reason why is that when people transition, they -- they want to get rid of their professionals who dealt with them, and they don't naturally come back. 02:41:47

In fact, all attempts at follow-up, not just in my clinic, but elsewhere, we -- we reach -- we reach very few people.

For example, in a 2002 study of everyone who had sex reassignment surgery by one surgeon, only 30 percent of the people who ever had surgery by this one surgeon actually were available for follow-up. 02:42:02

And all follow-up studies -- very few follow-up studies can have a hundred percent of the data of all the patients. 02:42:22

Follow-up is a problem. It's a much better problem -- it's solved much better in Scandinavia than it is in the United States. The United States have 50 states. They have different rules. Nobody -- I don't think we -- we don't publish follow-up studies in the United States very often. 02:42:39

Q What do you do to try to follow up with your patients?

MR. TRYON: I think we have a connection 02:43:08

problem.

MS. HARTNETT: Is that me? It could be me.

THE VIDEOGRAPHER: We're just going to pause and see if he -- there he is. He's back.

MR. TRYON: There -- he came back. 02:43:15

BY MS. HARTNETT:

Q Sorry, I think you froze.

Did you hear my question?

MR. BROOKS: No, I think we don't -- we did not hear a pending question in this room. 02:43:32

Can you hear us now?

MS. HARTNETT: Okay. Sorry. The video froze from your end.

MR. BROOKS: We -- we see --

BY MS. HARTNETT: 02:43:40

Q My question was, what do you do to follow up with your patients?

A I ask them to follow up with me after their surgery, for example, or after their consultation with another person, another professional, and they actually 02:43:54 rarely do.

Q Do you try to find them if they don't come back to you --

A Yes.

Q -- afterwards? 02:44:07

A Yes.

Q How?

A I write them notes. I write them a letter. Sometimes I write them a cute little postcard reminding them of who I am. But they know what I mean. 02:44:15

Q If you have such limited follow-up with your own patients, how do you know your method has -- what the effect of your method is on people 30 years later?

A I don't know. And I -- I am like other people in this field. I don't know the 30-year implication of 02:44:47 what we're doing. I don't know the 20-year implication of what we're doing. I'm just raising the question, shouldn't we be concerned about a life course perspective.

I don't know and the people who are advocates 02:45:05 don't know, you see. I don't know how they can be so sure that they're going to create a happy life.

Q So for all you know, your method could actually be harming your patients more than the other methods; is that fair? 02:45:24

A You mean in the long run I may be harming them by talking with them, say, for six months about their decision, what -- what they should go -- what -- what they want to do?

I can't imagine that -- that my 02:45:48

psychotherapeutic -- my relationship with them that is helping them to consider their thoughts, their feelings and their futures is -- is harming them and in 30 years they're going to have some terrible result of my intervention, you see. 02:46:07

What you're trying to contrast is talking to a person, say, for six months, every -- twice, three times a month for six months with socializing them in a new gender or supporting, giving them hormones and -- and saying yes to genital surgery or mastectomy or 02:46:24 sterilizing procedures, you see.

You're comparing Dr. Levine or psychotherapeutic talking, conversation, extended evaluation, with major biologically sterilizing, sexually dysfunction in causing interventions. 02:46:44

I really think -- we're not talking about apples and oranges here. I think we're talking about apples and zebras.

Q Your report discusses four competing models of therapy; correct? 02:47:13

A Correct.

Q So you have the apple, the zebra and two other things in that; correct?

MR. BROOKS: Objection.

THE WITNESS: No. 02:47:20

BY MS. HARTNETT:

Q The four competing models are watchful waiting, sub 1; sub 2, psychotherapy; and the affirmation model.

That's what you've set forth; correct? 02:47:30

A That's right.

Q And I'm asking you whether, for all you know, the psychotherapy model may be creating more harm for people than the affirmation theory model. You just don't know? 02:47:46

A I think I've already testified that it's hard for me to even conceptualize that I'm causing harm. Sometimes I'm causing frustration because "I want hormones now" and you're 14, and I'm sorry, we have -- I want to talk about this. 02:48:14

But I don't really think that's harm in the way that when I look at the cross-sectional data on adults who have transitioned and -- and the comorbidities that they have, I consider those to be manifestations of harm, you see. 02:48:32

I don't really think that talking briefly and -- and honestly and examining things is -- is a source of harm.

It is --

Q But your -- your practice isn't to talk 02:48:46

briefly to someone. You're talking -- right?

The -- the -- the model that you're setting forth is to talk with them at length and get to know them; correct?

A Yes, this used to be the model -- before 2011, this was the endorsed model by the World -- by WPATH, you see. I'm not talking -- I'm not inventing a new model here. This was the model we had in the '60s, the '70s, the '80s and the '90s and in the 2010s and -- 02:48:55

Q And it's your view that the psychotherapy -- 02:49:14

A The view model changed.

Q It's your view that the psychotherapy model cannot, by its nature, harm anyone?

A I know some people think that it harms people. I don't believe that, actually. 02:49:28

Q Well, let me give you an example.

Say you're meeting with a patient and they want to talk you about their need or their perceived need for cross-sex hormones and you don't agree or choose not to support them with a letter. 02:49:45

Do you -- is that a fair -- just assume that, okay?

And that person then goes on to stop seeing you, has been taken off course from getting the cross-sex hormones, ends up becoming distraught at 02:49:55

their condition and commits suicide.

Is that a situation where the psychotherapy model might be responsible for causing harm?

MR. BROOKS: Objection; calls for speculation.

MR. TRYON: Objection. 02:50:08

THE WITNESS: If that -- such a patient goes to me -- comes to me and after -- in the first session wants a letter and I refuse to provide it, I will help that person -- if the person doesn't know, I will refer them to clinics -- to other resources. 02:50:26

The idea that my refusal would cause them to suicide is enormous and deep that leaves out so many intervening factors as to make me say I can't possibly agree with what you said.

BY MS. HARTNETT: 02:50:43

Q But it's possible that your patients, for example, have higher rates of suicide than other patients that have gone through a different model; correct? You just don't know?

MR. TRYON: Objection. 02:50:52

THE WITNESS: It's equally possible that the patients have a lower rate of suicide that have gone through Dr. Levine's care.

BY MS. HARTNETT:

Q But it's also possible that they have had a 02:51:04

higher rate of suicide going through Dr. Levine's care; correct?

MR. BROOKS: Objection --

MR. TRYON: Objection.

MR. BROOKS: -- calls for speculation. 02:51:13

BY MS. HARTNETT:

Q You said it's possible that they have a lower rate. It seems that the flip side of that is it's possible that they had a higher rate; is that correct?

A You're -- 02:51:23

MR. BROOKS: Same -- same objection.

THE WITNESS: You're asking me to speculate about something you know I don't have the answer to, so why should I give you an answer that I don't have? Why are you asking -- 02:51:32

BY MS. HARTNETT:

Q You testified that it's possible that --

MS. HARTNETT: I'm going to ask for an answer to my question without coaching, please.

BY MS. HARTNETT: 02:51:37

Q My -- I asked if it's possible that the patients of Dr. Levine have a higher rate of suicide than patients going through another method, and then you responded it's possible that they have a lower -- lower rate. That's an answer. 02:51:49

I'm asking you, is it possible that they also have a higher rate?

MR. BROOKS: And I have objected to the question as calling for speculation.

BY MS. HARTNETT: 02:52:01

Q Please answer.

A In order to -- in order to have an answer to a rate question, one has to have a denominator and numerator. I have neither a denominator or numerator; and, therefore, I can't really ask -- in any expert 02:52:23 way, I cannot answer a question about the rate.

You're asking me theoretical possibilities, and there probably are at least three theoretical possibilities, and I could probably think of more, but -- 02:52:40

Q What are the three?

A There would be no difference in the rates, right? The rates could not be ascertained because the denominator -- the numerator and the denominator couldn't be determined. And then the fifth one would 02:52:52 be because the numerator can't be determined.

So if you ask me a question about rate, it's a mathematical question. It's a scientific question. But you're not asking it in a scientific way at all. And I can't answer it. 02:53:07

To the extent that I have any expertise, it's on the science. It's not on the speculation side of things.

Q Your expert opinion is that the affirmative model is more harmful than the psychotherapy model; correct? 02:53:18

A My -- my expert opinion is that the affirmative model does not have the scientific justification to declaim -- to -- to declare it to be the best practice. That's my expert opinion that -- 02:53:35

Q Does the psychotherapy model have any more justification than the affirmative model?

A Only the tradition that if any other psychiatric problem presented in a 14- or 15-year-old, no one, no one would object to an extended evaluation, 02:53:53 a psychotherapeutic exploration and the use of a medication to a drug -- to address some comorbidity.

It's just that when a -- when the child declares themselves trans, we want to create a whole different approach to this situation. That's my point. 02:54:12

Q And just to make sure that we close the loop on the other point, because I'm not quite sure what the answer was there, is it your testimony that it's possible that your -- that Dr. Levine's patients could have lower rates of suicide than other methods? 02:54:29

MR. BROOKS: Objection; calls for speculation.

THE WITNESS: I'm afraid -- although you don't understand my answer to the question, I feel like I've answered the question repeatedly already.

BY MS. HARTNETT: 02:54:46

Q Well, you've said that it could be -- I thought you -- I thought I understood you to say you could have lower rates, you could have a missing numerator or denominator or equivalent, but I didn't hear whether or not you think another possibility is in 02:54:54 fact that the rates of suicide could be higher from your patients.

A Well, perhaps you missed the implication of what I said, that it could be higher, it could be lower, it could be the same, it could be indeterminant 02:55:06 because of the denominator issues, and it could be indeterminant because of the numerator issues.

Q I appreciate that. Thank you.

We've talked about Dr. Adkins a bit here. I just wanted to ask you -- this is flashing back to -- I 02:55:22 think we're in paragraph 13.

You then go on, in paragraph 16, to talk about Dr. Safer. Let me know when you're there.

A Got it.

Q Other than reviewing Dr. Safer's expert 02:55:43

report, do you have any other familiarity with Dr. Safer's practices?

A I believe he's the head of a New York gender team, clinic.

Q Have you ever met him before? 02:55:58

A Not that I am aware of.

Q Have you ever been to his clinic?

A No.

Q Have you ever spoken to any of his patients?

A Not that I'm aware of. 02:56:11

Q How about Dr. Adkins, have you been to her clinic?

A No.

Q Have you spoken to any of her patients?

A Not that I'm aware of. 02:56:23

Q So do you know whether or not Dr. Safer's approach is focused on creating a happy, healthy -- sorry -- happy, highly functional, mentally healthy person for the next 50 to 70 years?

A Ms. Hartnett, I think everyone in this field is hoping that what they're doing is creating that outcome. I would presume that Dr. Safer believes that and Dr. Adkins believes that. I just go back to the fact that we don't know the answer in what they're doing and what they're doing is a rather dramatic 02:56:42 02:57:04

interventions in a person's biology, their physiology, their anatomy and their social roles, and it seems to me that if we're making such a very, very life-changing -- or cooperating with such a life change, a profound life change, that's going to effect every aspect of their lives, or most aspect of their lives, we ought to at least acknowledge that we don't have the follow-up data to match our belief systems. 02:57:21

And as I wrote about in the most recent publication, I do think that ethically we have a responsibility to inform people of what science knows and what we as professionals believe, but it's not supported by science. 02:57:40

So in answer -- to summarize my answer, I believe that your experts believe that they are creating a happy, healthy, functional life, even in the face of the fact that they -- cross-sectional studies of adults who are transgender and those who have had complete medical surgeries have significant problems. 02:57:58

And so what I have been saying, in summary, is that we -- we should separate our beliefs from what science knows. 02:58:18

Q You said "cross-sectional studies." You're just saying that those are lacking to -- to -- to -- to substantiate their approach. Is that what you're 02:58:37

saying?

A Please repeat that. You sort of -- I couldn't understand.

Q Sorry. You had -- yeah, fair -- fair enough.

I think you said something about cross-sectional studies being lacking to support their approach. Is that what you were saying? 02:58:44

A Yes. Not only cross-sectional studies failed to support the idea that everyone is living happily ever after or the majority are living happily ever after, the -- the Swedish study that was published in 2011 that had outcome data on everyone who had sex reassignment surgery over a 30-year period. You may know that as the D-H-E-N-J-A (sic) study, et al. They demonstrated -- the -- the recommendation of that study is that everyone after sex reassignment surgery should have lifelong psychiatric care because the suicide rate was 19 times higher after this than the general population. The death rates were higher of cancer and of heart disease, the criminal rates were higher, and the admission rates to psychiatric hospitals were higher, after, then general population. 02:59:04 02:59:26 02:59:45

So that group in Sweden, in 2011, said, wow, these people are not necessarily doing so well as a group; that is, everyone that was -- everyone who had 03:00:01

sex reassignment surgery was in that. So we wouldn't -- we wouldn't call that a cross-sectional study. We would have a life perspective study, you see. You are aware --

Q Was that -- was that comparing it to the general population, though? Not transgender people that had gone untreated, right? 03:00:14

A That study did not include people who were not treated with surgery, that's right.

Q Right. So to figure out if surgery makes a difference, wouldn't you study a population that had had surgery versus the population that had not had surgery, all of transgender people? 03:00:26

A Yes, I often wondered why the authors of that study did not study those people that they had records on who didn't have surgery. It's one of the missing issues about that. It doesn't take away from the fact that relative to non-transgender people of either sex, these people don't do nearly as well in life. But it doesn't answer the question that you're raising, and that's been amazing -- that's an amazing absence. One wonders why that is absent. I don't know why. 03:00:39 03:00:59

Q So just to be clear, the -- the thing that's absent is testing whether or not it's actually the medical interventions with the transgender people that 03:01:16

are accounting for the difference in suicide from the -- is that what you were saying?

MR. BROOKS: Objection; vague.

THE WITNESS: I'm saying that it would have been nice to have four control groups. And they only had three control groups. And I don't -- 03:01:35

BY MS. HARTNETT:

Q Right.

A I don't understand why there wasn't the fourth control group that you are raising because it does -- you know, I already testified that nothing is certain, but this would have increased our conviction about whether or not people are dying of cancer and heart disease and HIV and suicide and so forth at a higher rate compared to those who are transgender but who weren't getting the surgery. 03:01:43 03:02:08

So I don't know the answer.

Q Could I go to -- paragraph 18 has several subparagraphs. I just have a couple of questions on this. The first is on paragraph 18A. 03:02:28

I just had a -- it was a minor reference, but I'm just curious about your own use of terminology. You had, here in the second sentence of 18A (as read):

"While hormonal and surgical procedures may enable some individuals 03:02:45

to 'pass' as the opposite gender during some or all of their lives..." And the sentence continues.

In the declaration you had -- that had been filed, your declaration that was filed at the PI stage, 03:02:55 the words "female identifying male" were used instead of "some individuals."

Is -- is there a reason why that would have been changed?

A In the original -- what was in the original 03:03:15 draft that you looked at?

Q It said "a female identifying male" as opposed to "some individuals."

MR. BROOKS: I'll object to the question as characterizing that as original. 03:03:24

BY MS. HARTNETT:

Q Well, it was the declaration -- I compared the declaration that was apparently submitted without your knowledge on your -- in -- in the PI stage of this case with the report, thinking that you had done both of 03:03:36 them, and I'm -- what I'm just observing was that the words "female identifying male" had been used in this paragraph and then now has been replaced by "some individuals," and I'm just curious as to why that change was made, if you know. 03:03:47

A I don't know. I don't remember that phrase. That seems like -- that seems like a rather awkward phrase, you know, that you quoted.

Q Yeah, why -- is that a phrase you use -- "female identifying male," is that a phrase that you use? 03:04:00

A I -- I may have at one time or another used that phrase.

Obviously, for everyone concerned, the language -- the vocabulary -- the -- the -- the socially acceptable vocabulary in this field changes so often. 03:04:12

So, you know, as I told you, I spent probably 25 hours developing this, and there are numerous changes here and there which I could not possibly recall. 03:04:33

And I can't answer your question. I really don't know the answer.

Q Okay. Well, I'll ask one more in that vein, and then we'll move on. 03:04:42

For paragraph 18L, which is at the top of page 8 -- and this a paragraph where you're describing -- you say that (as read):

"Hormonal interventions to treat gender dysphoria are experimental in 03:05:01

nature and have not been shown to be safe, but rather put an individual at risk of a wide range of long-term and even life-long harms..."

And then you go on to list all that. 03:05:10

A Yes.

Q The prior version of this -- in the same place had -- had language that said -- I'm going to just read it to you. (As read):

"Putting a child or adolescent on a pathway towards life as a transgender person." 03:05:21

And that has been removed. I'm just curious as to why that was removed.

MR. BROOKS: Late objection. 03:05:28

THE WITNESS: I actually -- I can't give you a specific answer to the question. I have no memory of -- of -- of making that editorial change.

I -- I -- I am sensitive to and actually have a preference to not using the same phrase endlessly in any document. And one of my concerns about previous documents has been the redundancy of phrases, and so I -- I try not to repeat certain powerful phrases. I -- I think they actually have more impact on the reader if they read them once or twice and not 15 03:06:01 03:06:26

times. So that may have been an example of that.

As a writer, I'm very sensitive to redundancy, and I prefer to have things done short -- in shorter versions than in longer versions, but that is not always in keeping with legal requirements. 03:06:46

Q Turning to paragraph 19, this is -- I'm not going to -- there's a couple of questions I had about -- or, sorry, not -- 20. You're talking about biological sex.

Do you see that? 03:07:01

A Yes.

MR. BROOKS: Sorry, you want 19 or 20?

MS. HARTNETT: I'll move to 20.

BY MS. HARTNETT:

Q You say that (as read): 03:07:08

"Sex is not 'assigned at birth' by humans visualizing the genitals of a newborn; it is not imprecise.

Do you see that?

A Yes. 03:07:17

Q Do you have any experience with the process of assigning sex to newborns at birth?

MR. BROOKS: Objection.

THE WITNESS: You know, I -- probably for a week in my medical school pediatrics rotation I was 03:07:32

part of the newborn nursery and delivery -- and in obstetrics. The newborn delivery room phenomenon of saying, Mother, your -- you have a daughter. Or, Mother, you have a son. So I guess that's part of my experience. I'm a parent, so I've had that experience. 03:07:52
What I -- period. I think that's an answer.
BY MS. HARTNETT:
Q Thank you. You also say in this paragraph, among other things, that sex is determined at conception; correct? 03:08:06
A Yes, when -- yes, I do -- that's when sex is determined, yes.
Q You say that at the end of the first sentence of -- sorry -- the second sentence of paragraph 20. And the source that you cite in this 03:08:22
paragraph for everything in this paragraph is a document that says "NIH 2022."
Do you see that?
That's at the top of page 9.
A Yes. 03:08:34
Q What is NIH 2022?
A I think the first author's name is Aditi B-H-R-A-R- -- Bhar- -- Bhargara or something like that, but it has probably 15 authors, the paper.
Q So that's a paper that you were citing? 03:08:55

A Yes.

Q Okay. Let me move down to section D. So that starts on page 14 of your report.

MR. BROOKS: We have it.

BY MS. HARTNETT: 03:09:26

Q And you -- this is your section about "Three competing conceptual models of gender dysphoria and transgender identity."

Do you see that?

A Yes. 03:09:35

Q Is this your construct, these three models?

A Yes.

Q Paragraph 37, you describe the developmental paradigm, I guess; is that fair?

A Yes. 03:09:50

Q I was comparing the declaration submitted at the earlier stage of the case with the report here, and I noticed that some language was deleted, and I will double-check to represent to you that it is not still here. 03:10:09

But the language that was deleted from paragraph 37 is as follows (as read):

The developmental paradigm does not preclude a biological temperamental contribution to some patients' 03:10:22

life (sic); it merely objects to assuming these problems are biological in origin. All sexual behaviors and experiences involve the brain and the body." 03:10:31

Is there some reason that you removed this language from this report?

A Well, I think I said it in a different way. I said (as read):

"The developmental paradigm is mindful of temperamental, parental bonding, psychological, sexual, and physical trauma influence (sic), and the fact that young children work out their psychological issues through fantasy 03:10:42 03:10:53 and play and adolescents work out their issues by adapting various interests and identity labels."

This is -- this is the material that I prepared as the expert witness report for this 03:11:07 particular case.

Over time, you see, I have a different -- I -- I say things more efficiently, I believe.

I could elaborate that, but I don't think it's relevant. 03:11:27

Q No. Thank you. I appreciate it.

But you agree, sitting here today, that all sexual behaviors and experiences involve the brain and the body?

A I agree that all behaviors involve -- well, the brain and the body is really one thing, you know. They're just part of the biology of a -- of the human -- of human beings, and that -- those biology -- multiple biologic factors interact with other psychosocial factors throughout life to shape our feelings and our behaviors and so forth. 03:11:38 03:12:03

Q In paragraph 38, you refer to a Littman 2018 study.

Do you see that?

A Paragraph 38, yeah. 03:12:17

Yeah.

Q Are you aware that that article was -- had to be withdrawn and corrected and republished?

MR. BROOKS: Objection.

THE WITNESS: I am aware that there was a lot of political brouhaha about that and that various trans advocates accused that author of bad things or whatever but that the restatement of the study really did not -- did not amount to a great change. 03:12:32

But -- but, in fact, there was a brouhaha by 03:13:01

the publication objecting to her methods so to speak, but really were -- they were objecting to her conclusions.

BY MS. HARTNETT:

Q Was her method an anonymous survey of parents? 03:13:16

A Her -- it was a survey of parents, right.

Q Do you know if they were anonymous or not?

A At this moment, I don't know.

Q You go on in section E here, starting on page 16, to talk about four competing models of care. 03:13:32

MR. BROOKS: Sorry.

BY MS. HARTNETT:

Q I also was wondering --

MS. HARTNETT: Oh, sorry.

MR. BROOKS: I hit the wrong thing, and the document disappeared off the screen. Let me -- I'm not sure what's going on here. 03:13:38

Okay. Sorry, I -- it accidentally closed as I tried to get rid of some pop-up on the screen, and we will get us back. 03:14:04

And, I'm sorry, what paragraph were you at?

MS. HARTNETT: It's section header E, page 16.

MR. BROOKS: Page 16.

BY MS. HARTNETT:

Q I'm just asking whether the four competing 03:14:25

models of care is your schema.

A I think it borrows from other things in the literature. I wouldn't want to claim, you know, authorship for that per se. It's really hard for me to know where all my ideas come from because I read so much and go to meetings and so forth, and I hear things, and it influences me. 03:14:54

I -- I -- it's my summary of -- when we think about what are the options that we can offer to people, this is all I think of. Maybe tomorrow -- 03:15:11

Q Okay.

A -- I'll think of a fifth option.

Q Can you go down to paragraph 53?

And this is after you walk through the watchful waiting model, A and B, a psychotherapy model and then the affirmation model and then coming to paragraph 53. 03:15:25

MR. BROOKS: Let me just find the heading above it.

So we're under the affirmation therapy model number 4, if I'm scanning the -- 03:15:38

MS. HARTNETT: Yeah.

MR. BROOKS: Okay.

MS. HARTNETT: That's correct.

And then paragraph 53. 03:15:46

MR. BROOKS: Okay.

BY MS. HARTNETT:

Q Out of these four models, you do not know what proportion of practitioners are using which model; is that correct? 03:15:57

A Yes.

Q Okay. Oh, sorry, I had one question about 49, which was within the psychotherapy model area, if you could flip up to there.

MR. BROOKS: Yes, let me just find the heading again so we understand how much material --the psychotherapy model begins at the top of page 18, and you now want to direct us to paragraph 49? Was that the paragraph you mentioned? 03:16:11

MS. HARTNETT: Correct. 03:16:29

MR. BROOKS: All right.

BY MS. HARTNETT:

Q And is the psychotherapy model the model you follow, Dr. Levine?

A It's the model that I approach new patients with, and depending on the situation of the patient in the family's life, I then go from there. So individual patients, I may counsel the support of the -- I may counsel parents to support the transgender identifications of their child. 03:16:43 03:17:09

But it begins with trying to figure out what's going on here and going on here with the child and the child's history and the parents and their history and the interactions between the -- the parents and the child. 03:17:25

So it's not my model for all therapy. As I've said, I think earlier, that I have supported trans care for individuals, affirmative care for individuals. But if you ask me how I begin, I don't not -- I do not begin with the affirmative model. I begin with let's 03:17:44 investigate this situation thoroughly so we can eventually make a prudent decision.

Q You say in paragraph 49 (as read):

"To my knowledge, there is no evidence beyond anecdotal reports that 03:18:01 psychotherapy can enable a return to male identification for genetically male boys, adolescents, and men, or return to female identification for genetically female girls, adolescents, 03:18:13 and women."

Do you see that?

A I do.

Q And you stand by that statement?

A Yes. 03:18:24

Q Paragraph 50, this is at the beginning of the affirmative therapy model, on the next page. I think we've already covered this, so we don't need to belabor it, but here, you -- among other things, you say that, under the affirmation therapy model, practitioners -- 03:18:44

and I'm going to read from the first sentence. And I'm not reading the whole sentence, but you can obviously read whatever you want. I'm reading from the middle of it. (As read):

"...promote and recommend that any expression of transgender identity should be immediately accepted as decisive..." 03:18:58

I'm just going to stick on that part, the "immediately accepted as decisive." 03:19:08

What is your basis for believing that the affirmation model proceeds with an immediate acceptance as decisive?

A Because --

MR. TRYON: Objection. 03:19:19

Go ahead.

MR. BROOKS: Mr. Tryon is objecting.

You have to give him time.

THE WITNESS: In a previous -- in a -- in a previous portion of this informed consent, I said that 03:19:29

it is my impression that many people in the affirmative model have a number of beliefs that I don't think are scientifically accepted or acceptable or correct and including the fact that this is biologically dictated, that anytime a person, any stage in life, declares a transgender identity, it's because prenatally that was determined and it merely unfolded at a different rate at different times. 03:19:52

So the -- the justification for immediate affirmation is based upon this idea, one, that it's biologically dictated; and, two, that it's unchangeable. 03:20:13

BY MS. HARTNETT:

Q Yeah, I'm sorry, I think -- just given that we're -- have only so much time and I -- I think my question, though, was what was your basis for understanding that the practitioners engage in this practice. 03:20:25

MR. BROOKS: Objection; vague as to "this practice. 03:20:36

BY MS. HARTNETT:

Q Well, the practice of immediate acceptance as decisive.

A I think I've already testified how many parents have told me these things and how many patients 03:20:43

have told me these things and -- and -- well, I won't repeat what I began to tell you about.

Q No. Thank you. That -- that just helps me connect that that -- that basis of evidence is the same that's at issue here. 03:20:59

Paragraph 56, I had a question there.

MR. BROOKS: And, Counsel, we should take an hourly break soon.

MS. HARTNETT: Now is fine.

MR. BROOKS: All right. Now is it -- now it is. 03:21:14

THE VIDEOGRAPHER: We are off the --

MS. HARTNETT: Come back at --

THE VIDEOGRAPHER: Off the record at 3:21 p.m.

(Recess.) 03:35:28

THE VIDEOGRAPHER: We are on the record at 3:36 p.m.

MR. BROOKS: And -- and --

MS. HARTNETT: Thank you.

MR. BROOKS: -- Josh, if you would turn off your camera, you will -- will be able to see the questioner better. 03:35:34

There we go. Thank you.

MS. HARTNETT: Okay. Great.

///

BY MS. HARTNETT:

Q Before the break, we were talking, at least a bit, about the four models that you had in the psychotherapy model, and I was asking you if you follow that, and we were having a discussion. And I want to make sure I don't misconstrue your approach. 03:35:54

Is it fair to say that you kind of follow the psychotherapy model, but also not to the exclusion of providing medical care or recommending medical care, if it's appropriate, after some course of psychotherapy? 03:36:07

A Yes, I -- to summarize, the initial approach to a patient, I believe my model, what I endorse, is an extended evaluation, an opportunity to talk over time in what I call psychotherapy. Other people may call it extended evaluation. And then depending on what I understand about the patient and his or her life and their aspirations and their capacities to understand the present and the future and the past, then I may in fact say, you know, Fine. You know, do what you -- do what you -- use your best judgment. And I will write a letter for you, you know, telling your -- the surgeon or telling the endocrinologist about you. 03:36:34 03:36:55

And I do that.

Q And was that general approach extended to minors as well? 03:37:17

A Well, if -- if minors are children, I actually have never recommended socialization of a child in that -- that is, in a new gender. I have seen -- I have never recommended that.

When it comes to teenagers, the closer they get to 18, the more I'm willing to talk to them about the possibility of hormones and being supportive of it after a certain period of time. 03:37:36

When it comes to older people, it's -- it's not as broad a question. 03:37:57

Q And how long is your -- when you discuss an extended evaluation, how -- how long is that?

A It doesn't have a definable length.

Q Is there -- and I'm just trying to really understand. Is it a matter of hours, days or longer? 03:38:13

A It's certainly -- a -- a psychotherapeutic hour is typically one; right? But when people come to Cleveland for an evaluation, I often spend two days. And so I may spend, you know, four hours over two days or maybe even more with a patient and then separately with their parents and sometimes together with their parents. 03:38:37

But when I'm talking about an extended evaluation, I mean that in two terms. One is for people who want to come for an intense evaluation that 03:38:53

at the end of two days will give some -- give some feedback to them and -- but the usual sense for people who live in Cleveland, where I reside, that is over weeks and months of talking over time, considering various -- the things I've already articulated. 03:39:14

Q Have there been situations where after the sort of intense extended evaluation, the two days and -- four hours over two days period, where you've supported or recommended any medical treatment after that period? 03:39:33

A Well, about -- about a year ago, a -- a -- a -- a college student who wasn't doing very well, who got actually hormones on a one-hour visit, to the student health service, the -- we recommended that the patient could decide whether to continue hormones or not. The parents did not want the person to continue hormones, and the patient continued hormones. And we just made a recommendation. We thought there was an advantage to stopping and reconsidering life, but it was the patient's choice, you see. It wasn't the parents' choice. It wasn't my choice, you see. But it's the respect for the patient's autonomy. 03:39:53 03:40:12

Q Did you write a letter there or some sort of authorization for him to get the hormones?

A No. He already had the hormones. As I said, 03:40:29

he got the hormones after one hour with a person who knew nothing about his background, really, that -- what I would say, relatively nothing.

Q Where was that treatment?

A That was at the University of Rochester. 03:40:40

Q Okay. So -- and then my question is just for kind of -- I guess, what's the shortest period of extended evaluation that you've performed after which you've written a letter for someone to get transgender medical care? 03:41:00

A I'm going to elaborate your question into me or my staff because in some --

Q Thank you.

A It's a whole -- it's a committee of work, a group of people. 03:41:13

I would say four hours.

Q Thank you. You had mentioned your -- the recently published article about the -- the reconsidering informed consent piece; correct?

A Yes. 03:41:32

Q And in there, you note that -- kind of -- you're talking about the affirmation -- what you characterize as the affirmation approach; right?

A Correct. There's a section on that, yeah.

Q And then you note that the "research about 03:41:46

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."

Does that --

A Yes.

Q Is that something you have in the article?

A I think I made the same point in -- in this document that I gave to you. 03:42:10

Q Right. I was just trying to connect the two.

So that's basically the same point you've been making, that -- the kind of lack of evidence, from your perspective, as to which approach is kind of scientifically based; is that right? 03:42:26

A Yes.

Q Okay. If we could flip forward, I -- sorry, going backward for a minute and then we'll go forward again, in your declaration, but I had a question about paragraph 18, little L. Sorry, that's not right. It is 18, little -- sorry, one second. 03:42:36

I'll try again.

Can I direct your attention to paragraph 18H, on page 7? 03:43:03

MR. BROOKS: And let me just first start on the top of 18 so we know what the major proposition here -- a summary of key points. All right.

And, I'm sorry, you said H?

MS. HARTNETT: Correct. 03:43:18

BY MS. HARTNETT:

Q So I'm going to direct your attention to paragraph H, on page 7, which you talk about administration of puberty blockers not being a benign, quote, pause of puberty. 03:43:31

Do you see that?

A I do.

Q And this, I noticed, was something newly added to this declarations from the one that you had submitted at the preliminary injunction stage. 03:43:42

My question for you is what the basis is for your qualification, in your perspective, to talk about the effects of puberty blockers.

MR. BROOKS: Object to the form of the question. 03:43:57

THE WITNESS: What is the basis of my objection to the use of puberty blockers?

BY MS. HARTNETT:

Q Sorry, the basis for your understanding of whether -- how they function on the body and whether 03:44:04

they're a benign pause of puberty or not.

A The initial justification for puberty blockers being a benign thing is that it merely was a pause and that if it was fully reversible, puberty would -- would return when puberty blockers were removed, if they were chosen to be removed. 03:44:32

I often reacted to that word "pause" because I was aware that I was unaware of the rich biological details that puberty changes every organ in the body. Puberty not only causes growth of bones, but puberty causes growth of the liver, of the lungs, of the heart, of the brain. You name the organ, and the pubertal changes are occurring, and they occur in a sequence. And one of the developmental aspects of development is that there are windows of opportunity for development, and when the window closes, we're not sure whether things can be totally reversed. 03:44:53 03:45:15

And I noticed that there was a benign connotation to the word "pause" which did not strike me as true or possibly true or certifiably true. 03:45:35

And so I began looking at various statements from various authors about saying this.

And in the early years, people talked about complete reversibility and it's only a pause, but I realized, in reading their subsequent sentences, that 03:45:56

they didn't consider -- they were talking about bone. They were talking about the onset of puberty. They weren't talking about the subtle changes of -- of, say, for two or three years of interfering with the processes that were naturally happening in your and my 03:46:11 children and the children of society.

So -- and then I looked closer at it, and I said, what about the impact, the psychological, social, sexual impact of having one's peers have these major changes in every aspect of their body while the person 03:46:31 was paused in a puerile state, has anyone considered that when they said it's completely reversible.

Nowadays, I think people are not certain it's completely reversible, and they're beginning to articulate the possibility that I just articulated. 03:46:53

They're beginning to say we don't know what the psychosocial impact of being puerile while your peers are pubertal.

And while your peers are pubertal, you're getting -- you're starting to deal with your sexual 03:47:10 feelings and your sexual conflicts, and you're getting to operationalize your -- what the early orientation aspects of early puberty are, you see. And the puerile child is not.

And so I thought the word pause was a kind of 03:47:23

rhetoric that -- that justified doing something that was much more complicated and had not been articulated well by the people who began using it.

I'm not sure that today's people are talking in the same way that they did when -- 20 -- ten years ago. 03:47:41

Q When did you come to --

A I think they're more sophisticated today.

Q When did you come to this understanding or view about the -- your kind of concern with using the term "pause"? 03:47:53

A I think it's been evolving in my mind over the last two or three years.

Q Do you know whether the pubertal response would be the same -- basically, if the puberty blockers were used and then a child were to go off the puberty blockers, do you know whether it would be the same pubertal response that would have been had without the blockers? 03:48:06

A Well, I think endocrinologists have said that it's same, but I don't know if they have even the -- I don't know that -- I don't know that I trust that they're right about that. I don't know that they're wrong. I just don't know that they're right. Because in concepts of development -- for example, if you 03:48:21 03:48:43

don't -- if you don't hear at a certain stage in life, say the first two years of life, and even if we do a cochlear implant, and we put -- we -- you can hear starting at age three or age four or age five, you can't speak as clearly as you and I can speak. 03:49:01

So, you see, there's a window of opportunity when the brain is changing and we -- it's -- that -- that other -- other aspects of life develop. And I think this is probably true throughout life as a principle. 03:49:18

So the idea that, oh, we can give a kid for three years or four years and keep them paused while they decide what they want to do, whether they want to go cross-sex hormones or not, and then if they decide not to go the cross-sex hormone route, that they will just go into puberty and everything be normal, I just think that's a naive idea. But I was proposing that, you see. I can't prove it and either can -- either can the endocrinologist prove it. That's my point. 03:49:33

Q Thank you. 03:49:47

MS. HARTNETT: I've put in the "Marked Exhibits" folder Exhibit 88. If you -- your counsel could look at that.

Let me know if you see that.

(Exhibit 88 was marked for identification 03:50:05

by the court reporter and is attached hereto.)

MR. BROOKS: I do see it now.

BY MS. HARTNETT:

Q This is -- Dr. Levine, do you see -- this is testimony that you gave to the Pennsylvania legislature in March of 2020. 03:50:11

A Okay.

Q Do you recall giving this testimony?

A I recall testifying, yes.

Q Okay. I'm -- I have a question that -- you had your kind of prepared remarks, and then you got some questions from the legislators, and what I would like to do is ask you about something on page 61, which was your response to a question about puberty blockers, if you could page forward to 61. 03:50:19 03:50:33

MR. BROOKS: Will you direct us to the question?

Let me see here. I -- I --

MS. HARTNETT: Okay. If -- yeah. It's a question from Representative Zimmerman, and it's asking about the reversibility of puberty blockers, on page 61. 03:50:47

MR. BROOKS: Oh, the question on 61 is fragmentary; right?

"If puberty blockers are started," is that the 03:51:06

question you're referring to?

MS. HARTNETT: You can feel free to look above, but I'd like to ask about the passage on 61.

He asked a two-part question, and he had then asked to be reminded about the second part of the question. 03:51:21

And Representative Zimmerman said, "Yes. If puberty blockers are started."

And then Dr. Levine said, "Oh, reversible, yes, sorry." 03:51:30

And what I'd like to ask him is to read this passage -- hear his testimony and just whether he continues to believe what he's testified to.

THE WITNESS: I've read the paragraph.

MR. BROOKS: The -- 03:52:06

BY MS. HARTNETT:

Q I guess, just --

MR. BROOKS: Just continue --

THE WITNESS: Oh, you want me to continue?

MR. BROOKS: I want you to read to the end of that answer. 03:52:11

MS. HARTNETT: Correct. Thank you.

THE WITNESS: Okay.

BY MS. HARTNETT:

Q Do you stand by the testimony that you gave in 03:52:32

these two paragraphs?

A I don't see a -- a major difference between what I just said to you except -- than what I said here. Here, I was talking about one year. And -- and it depends on -- you know, if you give a puber- -- an eight-year-old child a puberty blocker versus a nine-year-old child versus a 14-year-old child. I think we're talking about different phenomenon, you see. The -- not only biologic phenomenon, but psychosocial phenomenon. Because if you give it to an eight-year-old, their peers are still puerile, you see. And -- and when -- if you give it to 14-year-old or a 12-year-old, their peers are rapidly growing and changing and being involved in all kinds of psychosocial and -- processes that -- that a nine-year-old is not, the eight-year-old is not. 03:52:51 03:53:09 03:53:23

So I think today's testimony elaborates upon what I was saying in a less sophisticated way to Mr. Zimmerman.

Q Thank you. You talk about desistance at length in your report; correct? 03:53:37

A I hope so, yes.

MR. BROOKS: Counsel, do you want me to take down 88 or leave it up?

MS. HARTNETT: You can take down 88. 03:53:50

BY MS. HARTNETT:

Q Do you believe that desistance should be the goal of treating patients with gender dysphoria?

A I think I previously stated that the goal of treating gender dysphoria is to have an informed consent process in a brain -- for a person whose brain is old enough to consider the possibilities about the risks, and the goal of -- of their gender expression has to rely primarily on them and their process of coming to grips with what it needs, not just in fantasy, but in reality, for them to portray themselves as a trans person. 03:54:05 03:54:24

So I don't -- your question has previously been answered by me. Parents would very much like me to be able to return their child efficiently and quickly to a tran- -- to a cis state, but I can't promise that as a goal. I can't even hold that out as a goal. What I hold out is what I just said to you. 03:54:44

Q If you could -- you -- so you don't believe it's possible to talk somebody out of being transgender; is that fair? 03:55:08

MR. BROOKS: Objection.

THE WITNESS: It's not the language that I would ever use. I don't talk people out of things. I don't talk people out of getting married to a person. 03:55:22

I don't talk people out of going to this college versus that college.

I -- I -- I sort of elicit their feelings. I help them see where there is conflict. I help them articulate the pluses and minuses, as we can predict the future. I look at trends.

I don't talk people out. It's not what a -- what Dr. Levine, the psychiatrist, does, talk people out of X, Y or Z. And Z may be transgender identity.

Q If you could treat everyone to have them cease being transgender who -- sorry. 03:55:58

For the transgender patients you have, if you were able to treat them such that they would no longer be transgender, would that be your preferred outcome?

MR. TRYON: Objection. 03:56:19

THE WITNESS: It depends what cost it would have to be -- to return to living as a cisgender person. It would not be my goal if it would cost them their sanity, for example, if it would cost them continued anguish. My goal is -- is stated to -- I've already stated my goal. 03:56:38

The -- there is a belief that life is hard enough as a cisgender person, you see. But these things -- you see, I -- I -- I'm interested in what it is about being a cisgender person that is so hard for 03:57:08

you, you see. Why is it that this is so difficult for you. What is it about femaleness or maleness or your -- your -- your sex, your original sex, you know, your sex, what it is about it that is so offensive and offending to you. Why is there such incompatibility. 03:57:30
Tell me. Teach me.

Q But using the language from your -- at least your declaration earlier in the case where you had described, you know, the -- the risks and harms that would come from, quote, putting a child or adolescent 03:57:44
on the pathway towards life as a transgender person -- I'm just trying to understand if -- if you, Dr. Levine, could put all the young people that were experiencing gender dysphoria on a pathway toward being non-transgender, would you do that? 03:57:59

A What I would say about that, if I could put them on a pathway of being non-transgender, I would expect that the vast majority of them would end up to be homosexual in their orientation. And the cisgender with -- you know, if they were males, they 03:58:16
would probably be cisgender with a little feminine aspects to them, but they would be homosexual. And if they were biologic females, they would be cisgender lesbians with a little touch of masculine patterns and so forth. 03:58:35

So that would be cisgender to me, but I wouldn't be cisgender heterosexual. I think we already know scientifically the outcome of gender atypicality. Cross-gender atypicality in boys and girls is homosexual orientation. 03:58:52

Q Is it your opinion that it's better to be a cisgender homosexual than a transgender heterosexual?

MR. BROOKS: Objection to the form of the question.

THE WITNESS: Well, you do no harm to your stability. You do no harm to your anatomy. You do no harm to your physiology. In that sense, I think -- you don't -- you don't risk any of the complications of cross-sex hormones, and you don't risk any of the complications of surgery. And I think it's probably -- although I can't tell you the facts, but I do believe it's probably easier to be a gay person in society than to be a trans person. And I don't mean it's easy to be any sexual minority in our society. 03:59:09 03:59:24

BY MS. HARTNETT: 03:59:43

Q Do you know what autogynephilia is?

A I -- I didn't understand what you just said.

Q Apologies. Do you know what autogynephilia is?

A Yes. 03:59:56

Q What is autogynephilia?

A Well, "autogynephilia" is a word that means love of the self as a woman. It's a characteristic of internal life that was popular in the trans literature, beginning in about 1988. It was a concept suggested by Ray Blanchard of Toronto. It was a supposition that -- that autogynephilic trans people had a form of paraphilia and that it -- I think it was a concept that replaced pretty much the concept of fetishistic transvestism that had existed since the 1900s, early 1900s. 04:00:11 04:00:44

So at about -- the trans community objected to the idea of autogynephilia, very profoundly objected to the idea.

Anne Lawrence, who is a transsexual researcher, wrote a book on men who are trapped in men's bodies, and it was all about gyne- -- autogynephilia, men who -- who recognized that they were autogynephilic. 04:01:06

I recently had a patient who came to see me because he couldn't find anyone who knew anything about autogynephilia. 04:01:15

But I think you don't find that word used in the literature -- in the modern literature anymore. Because I think with 2011 standards of care, there was 04:01:29

much less interest in the pathways to transgenderism and more interest in the treatment of transgenderism, and so it became too many advocates, politically irrelevant and obnoxious to -- to even use the term "autogynephilia." 04:01:55

Q Do you find autogynephilia to be a helpful concept?

A For some people.

Q Have you ever heard it said that transgender people are either gay, mistaken or have autogynephilia? 04:02:06

MR. BROOKS: Objection.

THE WITNESS: I don't recall hearing that sentence before.

BY MS. HARTNETT:

Q Do you think that that -- is that something that you would agree with, that being transgender -- people think that transgender are either gay, mistaken or have another malady, like autogynephilia? 04:02:19

MR. BROOKS: Objection.

THE WITNESS: It's not something that I would summarize by saying. Those three options seem pejorative and unscientific. 04:02:32

BY MS. HARTNETT:

Q Do you think the term --

A I'm sorry, I -- I object to the idea of 04:02:50

mistaken.

Q Do you think the term or that use of autogynephilia is obnoxious?

A No.

Q Do you think that being transgender is a paraphilia? 04:03:07

MR. BROOKS: Objection.

THE WITNESS: To the extent that -- to the extent that autogynephilia is a paraphilia and that some men develop a transgender identity as a consequence of autogynephilic behaviors, that was -- that may be one pathway towards transgender identity. 04:03:18

But I wouldn't certainly -- I -- I certainly would not say that at all transgenders or most transgendered people are autogynephilic. 04:03:38

BY MS. HARTNETT:

Q I mentioned the -- one possible formulation that people that are identifying as trans are just gay, mistaken or have a malady like autogynephilia, and I think you said that you took issue with the notion of, among other things, the idea of it being a mistake; is that fair? 04:03:55

A I -- yeah, I take -- I take issue with that, yeah.

Q Why? 04:04:05

A A mistake is something that a patient decides after they've trans- -- detransitioned and they say it was a mistake to do that.

It's not something I would say. I would say that they -- they have a current gender identity, and I'm not sure they're -- I'm not sure anyone's gender identity is not going to evolve in some way in the future. Especially I would like to say that about young adolescents. 04:04:21

But please don't -- please don't quote me because I have never authored that sentence. 04:04:38

Q Thank you. Do you think that transgender identity is something that can be cured?

A Can be cured?

Q Yeah. 04:04:54

A Is that what you said?

MR. BROOKS: Objection.

BY MS. HARTNETT:

Q Cured.

A If you read the end of my paper on the patient who trans- -- detransitioned 30 years ago, I think I said something like even though medical psychiatric knowledge does not know how to transform a person from a trans state to a cis state or a previous state, it doesn't mean that life doesn't transform people into 04:05:02 04:05:25

detransitioned people.

We need to understand the modesty and the differences between what we know how to do to create behavioral change, which is quite modest throughout psychiatry and what happens to people over time if we take a life course perspective. 04:05:44

So my case illustration in that case was Dr. Levine did not change his -- did not cause his detransition at all; right? Life processes, which he described in great detail in the that paper, changed, and it took him years to make that change, years of anguish, years of the sense of inauthenticity as a woman, which at first he tried to deny. 04:06:02

So I would -- I would refer you to the last paragraph in that paper if you wanted to find out how I said it. I can't -- I can't quote it. I'm just paraphrasing it if for you. 04:06:22

Q But is that an example of someone that you think was cured?

MR. BROOKS: Objection. 04:06:41

THE WITNESS: It was an example of a person who changed their presentation and now is terribly embarrassed about what he had -- I can call him "he" now -- what he had done, or what she had done; right? And now -- and it is now a person who -- I think I'm 04:06:57

quoting -- hates all the advocates of the -- in the trans world for, he believes, misleading people that they can have a happy life.

But that's just one person's opinion, you know. 04:07:13

But if you read the paper, I think, you know, there's lots to think about in the paper.

Q Is it embarrassing to be transgender?

A In -- in some settings, it probably is, yes.

Q Do you think that transitioning, for a transgender person, is something that you find to be an embarrassing concept? 04:07:28

A No.

Q Well, you said that your -- I'm just -- I'm not putting your patient's words in your mouth, but you were describing him as having been embarrassed by the whole thing. I -- I took that to mean he was embarrassed by having transitioned; is that right? 04:07:38

A Yes, he's now angry at himself and angry at those who facilitated his original transition. 04:07:52

But that's one person, you know.

Q But do you feel embarrassment for your patients that have to go through transition?

MR. BROOKS: Objection.

THE WITNESS: Do I feel embarrassment? No. I 04:08:09

feel --

BY MS. HARTNETT:

Q I'm just --

A No. That's -- that would not describe a dominant feeling I have. I have concern for my patient. I have worry about this, but I'm not embarrassed by it. 04:08:20

Q Is shame one of the feelings?

MR. BROOKS: Objection.

Of whom? 04:08:35

BY MS. HARTNETT:

Q Do you (technical difficulty) shame for them?

MR. BROOKS: Objection.

THE WITNESS: I'm a little hard of hearing, and I actually could not discern what you said. 04:08:43

BY MS. HARTNETT:

Q Sorry, I'll speak up.

I was asking if you felt shame for your patients experiencing transition.

A No, I'm not -- am I ashamed? 04:08:52

Q Yes.

A No.

Q Do you think that people can change their sexual orientation?

MR. BROOKS: Objection; outside the scope of 04:09:10

this witness's testimony.

THE WITNESS: I think the work of Lisa Diamond has demonstrated that among women who are -- who assert a lesbian identity, that that lesbi- -- there is a lot of two-way traffic between a heterosexual identity and a homosexual identity, or orientation, we would say, and -- so I don't know how to change a person's sexual orientation, but I do think, especially among natal women, sexual orientation is -- people experiment with different ways of life and that there are -- there's more two-way traffic between lesbian and a heterosexual life among women. There's much more bisexual behavior and bisexual eroticism among natal born females than there is among natal born males. 04:09:43 04:10:06

So that would be my answer to your question, without a yes-or-no answer. 04:10:29

Q Do you agree that gay people, on average, have a harder time than straight people, on average, just navigating life?

A Yes. 04:10:40

MR. BROOKS: Objection.

BY MS. HARTNETT:

Q Do you have similar views to those you've expressed about caution before encouraging youth to be transgender -- or to inhabit their transgender gender 04:10:51

identity? Do you have similar views about youth expressing homosexuality?

A No.

Q Why not?

A Well, again, I think I'm going to make a distinction between homosexuality as it occurs in men, as it occurs in women, and the eroticism of a person is a bunch of fantasies and thoughts and attractions that makes sex comfortable or anxious and makes romance easy or hard to -- to participate in, and given the power of orientation, I believe that people have to come to grips with -- with who they are attracted to and -- and what is easy for them and what is difficult for them. 04:11:03 04:11:37

And so I just think that that's part of the human landscape and that people can -- can -- they know -- they know their orientation, and then they have to choose how -- how to act or not act on their orientation, and it's a very personal, private and often difficult decision, and I respect that, and I'm happy to hear about it when it comes up in my gay patients. 04:12:03 04:12:23

And, you know, I see a lot of people who have orientations that are not heterosexual.

Q I'm just curious why the same principle doesn't hold for people that have a gender identity of 04:12:37

transgender, if they have an innate sense that that's their identity, why would you not approach that the same way you approach homosexuality.

MR. BROOKS: Objection.

THE WITNESS: Because homosexuality does not involve the -- it's not against the first principle of medical ethics; above all, do no harm. 04:12:51

It doesn't involve changing the body's reproductive capacity. It doesn't change the body's sexual physiology, you see. It doesn't change the ability to find a love partner, a stable mate. It -- it -- it doesn't -- trans- -- we're talking about here changing the anatomy, changing the physiology, creating the inability to have a child, interfering with the ability to have sexual pleasure as we understand it in the general population as, you know, orgasm. 04:13:08 04:13:32

So -- so we understand -- transsexuality is exposing yourself to surgical complications. And surgical transformation of a teenager, before a child has lived long enough to -- to come to grips with the multiple dimensions of being an older person, that is, a 20-year-old or a 19-year-old, and romance and so forth, that's why it's different. It's not the same. 04:13:51

You're trying to take a principle and -- and apply it to a group of people that -- that you're 04:14:10

talking about the possibility of harming them. Not just their -- their -- their reproductive capacity, but harming them in numerous ways. And they have to take responsibility for that choice, and they -- I just have been saying all morning and all afternoon, I just want them to be informed. 04:14:29

And, you know, 13-year-old passionate kids cannot be informed easily.

Q I'm glad you brought that up.

Could you turn to paragraph 202 of your declaration, page 69. 04:14:49

MR. BROOKS: Yeah. And it was long. I didn't think it was that long.

Page 69. Let's see here.

You said 202. Yes, we have that on the screen. 04:15:13

BY MS. HARTNETT:

Q Yeah, I wanted to ask you, these are within a larger section, well, about various harms that come from, I guess, treating or -- or validating a transgender person's identity. But this paragraph 202 talks about harm to family and friendships, and then 203 talks about sexual-romantic harms. 04:15:26

Do you see that?

A Yes. 04:15:41

Q And my question is, the harms you set forth in these paragraphs -- first of all, you cite your -- only your own publications for these two paragraphs; is that correct?

A Yes, it's my only citation. 04:15:49

Q Is there any other basis for these assertions?

A Well, there's an article in the Archives of Sexual Behavior about being the fetish object, when -- a transsexual adult talking about -- a survey of transsexual adults, that they get really upset that 04:16:10 people want to have sex with them because they're what they call a fetish object, that they're -- they -- they have attractions to transsexuals and they want to have an experience.

And so it's really about the frustration of 04:16:25 adult tran- -- sexually active transsexual, I think -- transsexuals who are complaining about difficulties in romantic relationships because they feel they're being used by people with perverse adventures, some curiosities, as opposed to genuine romantic 04:16:47 relationships.

So I was happy to read that article because it had confirmed one of the stories that I had been hearing from many patients over the years by --

Q Can you direct me -- 04:17:00

A Sorry.
Q What article is that? Can you direct me --
A I -- I certainly can get you the reference. It's in the Archives of Sexual Behavior. It's probably within the last two years. And I think the first author's name is either -- starts with an A, B or C.
Anyway, I -- you -- it's about tran- -- in the title, there's something like "transgender and fetish objects." So I -- 04:17:13
Q Okay. 04:17:38
A I can -- if you want, I will eventually give you the exact reference, yeah, but --
Q That's --
A -- you're -- you're not interested in wasting time, I'm sure. 04:17:48
Q No, no, I -- I -- I just want to know the basis for these -- these paragraphs, so I appreciate you telling me that.
My question is -- you know, I read 202 and 203, and you say -- you list various perceived harms and challenges from being transgender; is that fair? 04:17:58
A Yes.
Q What I'm confused about is, is this premised on the notion that there's a way to dissuade someone from being transgender so that they don't have these 04:18:14

outcomes?

A Exactly. I -- this is what I'm trying to do. This is why I say to parents, you know, we have to support and love this child regardless of what -- what -- what they pass through because mental health is 04:18:35 determined, in part, by the ability to -- to be valued by your family before you can be valued by other people.

And I think the outcomes -- I mean, so many of my patients have in fact been alienated from their 04:18:53 families. And -- sorry -- you've heard about runaway kids and throwaway kids and -- and I --

Q Well, why isn't -- sorry, why isn't that the family's --

MR. BROOKS: Counsel -- Counsel, the witness 04:19:08 is busy talking, in the middle of his --

MS. HARTNETT: Yeah, I'm aware of that, but he's also taking a long time to respond to straightforward question.

BY MS. HARTNETT: 04:19:18

Q My question is whether or not --

MR. BROOKS: Counsel, the witness is entitled to finish his answer.

MS. HARTNETT: He's not entitled to filibuster. 04:19:23

MR. BROOKS: He's not filibustering; he's answering your question.

MS. HARTNETT: I've been very permissible all day with his answers, but I'm happy to have him finish his answer. 04:19:35

MR. BROOKS: Thank you.

If you have -- if you feel that you haven't finished, you may finish.

THE WITNESS: I have heard considerable stories over the years about family relationships, 04:19:43 about alienations, about isolation. And in answer to your question, in -- in hearing those stories, it has led me to counsel both the patient and the parents to do whatever they can to maintain their relationships, despite what the child or the grownup, the adult, has 04:20:02 decided because I know the suffering of mothers and fathers and grandmothers and grandfathers and of patients.

And so it's an adverse outcome to have family alienation. And from the very beginning, I say the 04:20:19 first principle evaluation is to preserve family relationships, and I think you can read that in my 2021 paper.

BY MS. HARTNETT:

Q My question is -- so in the example of the 04:20:31

child who's -- or the adolescent who's experiencing gender dysphoria and would like to be affirmed and the parents that are horrified, why isn't the answer to try to work with the parents to be more tolerant and understanding rather than to try to change the child? 04:20:48

A I think I do work with the parents. I do. But it's not an either-or thing. It's not an either-or phenomenon.

And just because --

Q Is your -- 04:21:07

A Just because we work with a parent doesn't mean I'm capable of changing the parent's behavior, changing the parent's values, changing the parent's knowledge of the child and changing the parent's fear for their future. 04:21:22

Q I'm just puzzled by these paragraphs because it strikes me that the person is going to be transgender regardless if they get transgender healthcare and, therefore -- I don't understand the point that giving them healthcare is going to harm them 04:21:37 more than they would have otherwise been harmed if they were transgender, but just without healthcare.

MR. BROOKS: Objection; assumes facts not in evidence, argumentative.

THE WITNESS: I accept the fact that you don't 04:21:47

understand.
BY MS. HARTNETT:
Q Can you explain to me why -- so, I guess -- let me ask you this: Do you disagree that these people are transgender even if they don't get the healthcare? 04:21:56
MR. BROOKS: Objection.
THE WITNESS: I agree that the patient who says that "I'm transgender" is currently transgender. That's what I believe. They're currently transgender.
Do I believe they will always be transgender? 04:22:14
No.
Can I predict which ones will be transitioned and not? Not -- not with any certainty, no.
But, you see, I believe that many of the assumptions behind your questions is that 04:22:28
transgenderism is a fixed phenomenon, it never changes, and I -- if I am correct that that is your assumption, then you and I disagree.
BY MS. HARTNETT:
Q And do you agree that there's no evidence 04:22:44
to -- assuming those are different assumptions, that there's not evidence out there that would prove either of us correct on that one?
MR. BROOKS: Objection.
THE WITNESS: No, I don't agree with that at 04:22:53

all. Not at all.

BY MS. HARTNETT:

Q Do you believe that --

A I -- and -- and I give you evidence of detransition. 04:22:59

Q Is there anything other than anecdotal evidence to say whether or not gender identity is fixed versus not labeled?

MR. TRYON: Objection.

THE WITNESS: You know, you and I have 04:23:13 different ideas of what is anecdotal.

Is Lisa Diamond's work anecdotal, about homosexuality? Is that anecdotal?

And -- and, you know, there is something called a proof of concept study that if you can 04:23:29 demonstrate that it is possible, for example, to cure a particular cancer with a new drug that has never been tried before, that proof of concept then leads to more definitive studies.

And we're in -- we're -- we already have proof 04:23:47 of concept that -- that there are many people who detransition.

In fact, if you look at the UK studies, the two UK studies that have been done in the last, I think, six months, we all now have a rate of 04:24:07

detransition. We now, for the first time, have a rate of detransition data.

And so I would say it's not anecdotal. It's -- it's an emerging new branch of transgender science, so to speak, or knowledge that the error rate in trans -- in -- in -- in affirmative care is now becoming more clear than it ever was. 04:24:24

Q You are aware that some transgender -- many transgender people have fulfilling romantic relationships and family relationships; correct? 04:24:37

MR. BROOKS: Objection.

THE WITNESS: I am aware.

BY MS. HARTNETT:

Q In paragraph 203, you say (as read):

After adolescence, transgender individuals find the pool of individuals willing to develop a romantic and intimate relationship with them to be greatly diminished." 04:24:47

A Yes. 04:24:57

Q Do you have any basis for making that statement other than your own anecdotal experience?

A Well, if you look at -- if you look at cross-sectional data about the percentage of people who are married and cohabitating among trans people versus 04:25:09

cis people, there are -- there are far less marriages, and there are far less stable relationships.

If you look at a series of psychosocial histories of -- of patients, many of them do not come to us with stable functional relationships. I don't -- 04:25:31

Q You --

A I actually -- I actually don't think this is -- this is anecdotal, but it is perhaps impressionistic based upon 50 years of taking care of these people. 04:25:50

Q Is it possibly also dated?

MR. BROOKS: I'm -- I'm sorry, I couldn't hear the question.

BY MS. HARTNETT:

Q Is the notion also possibly dated? 04:25:57

A Well, the big hope in the trans advocate community has been as society improves, the lives -- society recognizes and accepts transgender people, there will be less suffering and less isolation in trans people. That -- that is -- you can find that in 04:26:15 many, many studies that -- that articulate the -- the frequency of psychiatric problems. And there's the hope that as -- the whole idea of the minority stress theory is that if we improve society, fewer people will suffer. 04:26:40

I don't know whether that -- I hope it's true that as society has improved its defense of -- of gender diverse people, that more gender diverse people will be able to have satisfying, intimate, stable relationships. I hope that is true. And I hope it will be worked through in ten years. 04:26:56

Q Thank you. In the paragraph 202, you say, in the middle of that paragraph (as read):

"By adulthood, the friendships of transgender individuals tend to be confined to other transgender individuals (often 'virtual' friends known only online) and the generally limited set of others who are comfortable interacting with transgender individuals." 04:27:11 04:27:24

Do you see that?

A Yes.

Q Is there a basis for that beyond your own -- you cite yourself for that, but are you aware of whether or not that actually represents the lived experience of transgender individuals in 2022? 04:27:39

A Well, I think in that sentence, if I could edit it, I would emphasize rather than "by adulthood," I would say "during adolescence." And the basis is not 04:28:00

just my clinical experience. The basis is the clinical experience of the people in the psychosocial therapy group that I mentioned earlier this morning. That seems to be a broad consensus, that many of their trans people are -- have social isolation problems in their friendships and their romances, and I've seen this in my practice. They really are occurring through -- through the Internet. 04:28:19

And when they're not occurring through the Internet, they're occurring with people in the sexual minority community, other people who may not be trans themselves, but who are excited by their trans and supportive of their trans status. 04:28:34

So that's the basis of it.

Q You've referred to the trans community, at times, in our conversation today; correct? 04:28:53

A I'm sure I've said that, yes.

Q Are you aware that the trans community, as a general matter, takes issue with your viewpoint?

MR. BROOKS: Objection. 04:29:08

THE WITNESS: Yeah, I am aware that there are members in the trans community who find me a hateful person and who believe that I'm against medical, surgical and social care and against the civil rights of transgender people. 04:29:28

I can't control what they believe about me, you see. But I am aware that some people are very appreciative of me and other people think I'm an enemy.

BY MS. HARTNETT:

Q If 95 percent of trans people opposed your methods, do you think that they would make sense to continue suggesting them for trans people? 04:29:47

MR. BROOKS: Objection --

THE WITNESS: What was the --

MR. BROOKS: -- lack of foundation, calls for speculation. 04:29:56

THE WITNESS: What was the last part of your sentence?

BY MS. HARTNETT:

Q I'm just trying to ask you if -- like, say, assuming 95 percent of trans people opposed your methods, would you have concern for continuing to promote them? 04:30:04

MR. BROOKS: Objection.

THE WITNESS: To promote my methods? 04:30:13

BY MS. HARTNETT:

Q Towards --

MR. BROOKS: Objection.

BY MS. HARTNETT:

Q -- trans people. 04:30:17

A My method of -- of informed consent and my method of -- of being thoughtful and considerate about -- about -- about the sources and the consequences?

I don't believe that -- that a person thinks -- misunderstands my position would make me give up my position. If you show me that -- that my position is not tenable in a -- in a -- in a -- in a strong scientific basis, I'm certainly able to change. 04:30:32

The fact that public opinion, in some commun- -- some sectors of the community, you know, think -- misunderstand me and -- and don't really know what I'm saying, you see, that -- that wouldn't make me give it up. 04:30:53

And I don't know how you could assume that 95 percent of people, you see. I don't know -- you're just presuming things. 04:31:09

Q Are you opposed to civil rights for transgender people?

A Absolutely not. I am not -- 04:31:20

Q Do you understand --

A I am not --

Q Sorry?

A -- opposed to civil rights for transsexual people. 04:31:26

Q Do you know that your opinion in this case is being used to support excluding an 11-year-old transgender girl from a middle school track team that wants her to play on it?

MR. BROOKS: Objection. 04:31:36

MR. TRYON: Objection.

MR. BROOKS: Foundation.

THE WITNESS: I already told you I don't know the details of this particular case, the B.P.J.

BY MS. HARTNETT: 04:31:50

Q I know. And I'm going to tell you that your opinion is being used by some of the defendants in this case to seek to deny an 11-year-old transgender girl from playing on a girls' cross-country and track team where her school otherwise would be willing to have her 04:31:57 play, with the support of her parents and family.

MR. BROOKS: Objection.

There's no question pending, so far as I understand.

BY MS. HARTNETT: 04:32:12

Q Do you know that that's what your opinion is being used for in this case?

MR. BROOKS: Objection.

THE WITNESS: I am not aware.

///

BY MS. HARTNETT:

Q Do you object to your opinion being used to deny an 11-year-old girl the ability to run on a track team at her middle school in West Virginia when she's already otherwise socially transitioning and is supported by her family and her school? 04:32:26

MR. BROOKS: Objection; mischaracterizes the witness's opinions.

THE WITNESS: I've heard the objection that you're -- you're mischaracterizing my opinion. 04:32:41

I -- I don't understand.

My opinion has to do with the things I've testified to. I did not testify to anything about an 11-year-old girl.

And what you are telling me about, I trust you're telling me the truth. 04:32:54

I actually don't think about -- when I think about civil rights, I am thinking much more about, I think, older people, you know, housing, educational discrimination in colleges and things like that, vocation, right to vote. 04:33:18

You will have to -- it's a -- it's a new thing for me to even think about the civil rights of a six-year-old or a seven-year-old or an eight-year-old.

///

BY MS. HARTNETT:

Q Well, your -- I'll help you.

Your opinion was also submitted in the case of Lindsay Hecox, a college student who was seeking to run consistent with her identity, gender identity, on her college cross-country and track team. 04:33:39

A Yes.

Q You're aware that your -- your testimony was submitted in support of prohibiting her from running on the team? 04:33:51

MR. BROOKS: Objection; mischaracterizes that case.

THE WITNESS: Again, my testimony --

MS. HARTNETT: I'm counsel of record in that case, and I can tell you that I'm accurately characterizing the case, which is that Dr. Levine's declaration was submitted in support of a motion to ban -- to -- to uphold a statute that would not permit Lindsay Hecox to run, consistent with her gender identity, on a college sports team. 04:34:03 04:34:15

And I'm asking him, in light of his statement that he does not oppose transgender civil rights, how he can reconcile that with having his testimony used in this manner.

MR. BROOKS: Objection; argumentative. 04:34:26

The witness has explained that his opinions are about science.

MS. HARTNETT: Please stop testifying.

MR. BROOKS: Please stop arguing.

BY MS. HARTNETT: 04:34:35

Q Dr. Levine, how can you reconcile --

(Simultaneous speaking.)

MR. BROOKS: This is not a debate. This is a deposition.

MS. HARTNETT: And this -- you're not the witness, either. I'd like to ask Dr. Levine and get an answer as to how he can reconcile having his testimony be filed to oppose the participation of a college student on her college team consistent with her gender identity. 04:34:45 04:34:59

THE WITNESS: I don't find it easy to reconcile -- this is just part of some of the great conflict embedded in -- in -- my -- my knowledge is about science. And I do recognize that people interpret what I say in various ways and -- but I don't think I'm responsible for how that is interpreted. I'm just making statements based on my knowledge, based on my clinical experience. And I am uncomfortable, at times, with various aspects of what people make of -- of what I have said. 04:35:25 04:35:46

I -- I am uncomfortable, to some extent, by how the lawyers have used some of my -- you know, at times. And I am certainly uncomfortable at how the trans community has used some of what they think I stand for. 04:36:04

I'm trying to be clear what I -- what I think and what I stand for. And I am somewhat uncomfortable, at times, about many things, including this, but --

BY MS. HARTNETT:

Q Do you understand that you're being paid as an expert witness in both the Hecox case and in this case by the defendants in order to submit testimony that will be used against the participation of the transgender students? 04:36:16

MR. TRYON: Objection. 04:36:31

THE WITNESS: I don't think I fully understand that. I don't think -- I don't think that's -- I -- I guess the answer to the question is I don't fully understand it.

BY MS. HARTNETT: 04:36:48

Q Okay. Because I -- I'm -- I'm genuinely perplexed because you've said that you're supporting transgender civil rights and you wish for a time where there's less discrimination and that -- yet your submission is not being submitted in a neutral manner 04:36:59

in this case; it's being submitted in support of the side of the case that's seeking to defend the exclusion of the transgender student.

And so we don't need to belabor the point, but I'm just trying to -- I'm happy to tell you that. And if you have something you would like to say on the record as to how you can reconcile the use of your testimony for that, with the views you've expressed in this deposition about seeking to make the world better for transgender people, I would appreciate your chance to respond to that. 04:37:11 04:37:24

MR. BROOKS: Objection; mischaracterizes --

MR. TRYON: Objection.

MR. BROOKS: -- testimony and is outside the scope of this witness's expert opinions. 04:37:30

THE WITNESS: Well, I thank you for pointing that out. I will think about it more.

MS. HARTNETT: Thank you.

I think we can take a break now.

THE VIDEOGRAPHER: We are off the record at 4:38 p.m. 04:37:46

(Recess.)

THE VIDEOGRAPHER: We are on the record at 4:55 p.m.

MS. HARTNETT: Thank you. 04:55:19

BY MS. HARTNETT:

Q Hi, Dr. Levine. We discussed the SEGM organization earlier.

Do you recall that?

A I do. 04:55:25

Q And you described it as an evidence-based organization; correct?

A Yes. That's the title, yes.

Q And you view them as an organization that strictly adheres to the facts; correct? 04:55:35

A Well, facts are interpreted, but, yes, they have a basis in facts.

Q In January, you earlier, in the deposition, mentioned that you did a podcast; correct?

A I did. 04:55:53

Q And that podcast was with two of the lead advisors of SEGM; is that right?

A I don't think they're the lead advisors. They're -- they were members of the psychotherapy group. I don't -- I don't -- I wouldn't describe them 04:56:10 as lead advisors to SEGM, no.

Q Okay. They're -- are they affiliated with SEGM in some way?

A They're members of SEGM, yeah.

Q And that would be Sasha Ayad and Stella 04:56:21

O'Malley; is that right?

A Yes.

Q Were the thoughts that you shared with them during that podcast all truthful?

A I hope so. 04:56:32

Q Okay. I'm just going to -- and I referenced, before we went on the record, uploading a few audio files. I've excerpted some excerpts from the talk you gave, which was, for the record, available at https://gender-a-wider-lens.captivate.fm/episode/60- 04:56:53
pioneers-series-we-contain-multitudes-with-Stephen -- S-T-E-P-H-E-N -- Levine, dated January 28th, 2022.

Dr. Levine, do you recall whether the podcast was -- the conversation you had with Ms. O'Malley and Ms. Ayad actually took place on January 28th? 04:57:38

A I think it did, yes.

Q Okay. So I'm going to just play for you an excerpt, and I'll ask you a question about it.

MS. HARTNETT: Could you please play Exhibit 89. 04:57:56

(Exhibit 89 was marked for identification by the court reporter and is attached hereto.)

THE WITNESS: I'm not hearing anything.

THE VIDEOGRAPHER: Just -- just a moment. I believe he's working on it. 04:58:22

MR. REISBORD: Were you unable to hear that?
THE VIDEOGRAPHER: Correct.
MS. HARTNETT: We did not hear that.
MR. REISBORD: Let my try one more time.
(Video Clip Played.) 04:58:40
"In 1973" --
MR. REISBORD: Are you able to hear that?
MS. HARTNETT: Yes.
THE WITNESS: Yes.
MR. REISBORD: Okay. 04:58:45
(Video Clip Played.)
"In 1973, after 30 days in -- in practice, I was at a department of psychiatry and had a halftime private practice. I got a man who told me he was sitting in the backyard with a gun in his mouth, under 04:59:00 his oak tree, and he decided either to kill himself" --
MS. HARTNETT: We can't hear it anymore.
(Video Clip Played.)
-- "see a psychiatrist who used to be my supervisor a month ago, and my supervisor said, Well, 04:59:17 there was an expert in human sexuality down at the university. Why don't you go see him?
"And that was the beginning of my career working with people who wanted to change their sex.
"You know, he almost killed himself at that 04:59:33

point in 1973."

BY MS. HARTNETT:

Q Dr. Levine, was that the patient that you were referring earlier to in the deposition?

A Yes. 04:59:48

Q Rutherford or Ruth; correct?

A Yes.

MS. HARTNETT: Could you play tab 40, please.

MR. REISBORD: Tab 40 would be Exhibit 90.

MS. HARTNETT: Oh, sorry, thanks. 05:00:07

(Exhibit 90 was marked for identification by the court reporter and is attached hereto.)

(Video Clip Played.)

"And -- and nine years later, he in fact did kill himself after he changed his gender and left his 05:00:11 family and left his country and then returned back to live in America and just decided to end his life. So that was my introduction, my nine-year introduction, to adults who wanted to change their sex.

"This was a highly accomplished man. He was 05:00:30 the head of our county library system. He had a degree in divinity. And he was a joy to talk to. And he -- one day, about four years before he actually killed himself, he slashed his -- at his neck, and when he was admitted to the hospital, he -- he told me that I was 05:00:55

deficient as a therapist because I failed to investigate how angry he has been all of his life at his parents."

BY MS. HARTNETT:

Q Dr. Levine, is what was just played an accurate account of -- I'm sorry, is -- is what -- do you stand by the account that you provided to SEGM, as just played in that sequence? 05:01:10

MR. BROOKS: Objection to the description.

THE WITNESS: Are you asking if -- if -- if I said these things that you're recording -- 05:01:28

BY MS. HARTNETT:

Q Yeah, thank you, I'll ask a better question.

Is that what you said on the SEGM podcast earlier this year? 05:01:40

A I don't call this "the SEGM podcast." This is a --

Q I'm sorry.

A -- podcast of these two women who have a business in providing information to others who are interested. 05:01:47

So I --

Q Okay.

A -- did say these things, as you -- as is obvious, I said these things. 05:01:56

Q And they were truthful; correct?
A Was I telling the truth? Yes --
Q Yes.
A -- I was -- I tell --
Q Okay. 05:02:06
A -- the truth.
Q Sorry, it's partially a formality of -- I'm just trying to confirm that what you were saying to them is also true today, and so that's why I'm asking you the question, but I won't refer to it as "the SEGM 05:02:17 podcast."
MS. HARTNETT: Could you please play tab 41, Exhibit 91.
(Exhibit 91 was marked for identification by the court reporter and is attached hereto.) 05:02:24
(Video Clip Played.)
"It was quite an educational experience for me, both as a he and as a she, and -- and she and I wrote a paper in the Archives of Sexual Behavior in 19-, I think, -83 called Increasingly Ruth: Towards an 05:02:37 understanding of sex reassignment surgery.
And then in 1984, when he died, I wrote a letter to the editor about Ruth's suicide.
Q Dr. Levine, was that a recording of you speaking to the podcast earlier this year? 05:03:03

A Yes.

Q You mentioned that you wrote a letter to the editor after Ruth's death, and in that letter, you said that Ruth's unfortunate legacy to those who invested in her is psychologic injury due to her abandonment of them; is that correct? 05:03:18

A Would you repeat that? I don't recognize those words.

Would you repeat them slowly?

Q I'm sorry. Ruth's unfortunate legacy to those who invested in her is psychologic injury due to her abandonment of them. 05:03:30

A Yes, that was --

Q Did you write that?

A Yes. I don't want to give you more information than you're asking for, but -- the answer to your question is yes. 05:03:39

Q Thank you.

MS. HARTNETT: Could you play tab -- Exhibit 92, please. 05:04:01

(Exhibit 92 was marked for identification by the court reporter and is attached hereto.)

(Video Clip Played.)

"So I've been accused of being very conservative on this issue and biased by -- by that 05:04:06

experience, and, in fact, I plead guilty. I am -- I -- I -- that was my introduction."

Female: "Yeah."

"And it -- and, unfortunately, it's not the only case of -- of people who have aspirations who think that their troubles as a person will disappear if -- if they change their gender presentation and change their bodies and -- and only to discover that life is not as easy as they imagined, and they didn't escape much. 05:04:21 05:04:44

"So I plead guilty to being biased, and I think all of us have a kind of bias, and we ought to own it."

BY MS. HARTNETT:

Q Dr. Levine, were those your statements on the podcast earlier this year? 05:04:55

A Yes.

Q And were they your truthful statements?

A Yes.

MS. HARTNETT: Could you please play Exhibit 93. 05:05:10

MR. TRYON: This is Dave Tryon. I'm going to object to --

(Video Clip Played.)

"I have a Mas-" -- 05:05:16

MR. TRYON: I'm going to object to to playing these excerpts without the full context.

MS. HARTNETT: And I will just say for the record that there is -- I think the -- the person that gave the podcast knows the context, and I've given the web URL for anyone to look at the full context. There's not a written transcript online. 05:05:26

MR. TRYON: My objection stands.

MS. HARTNETT: Of course. Thank you.

Could you play Exhibit 93, please. 05:05:43

(Exhibit 93 was marked for identification by the court reporter and is attached hereto.)

(Video Clip Played.)

"I have a Master's prepared person, just got out of her -- her internship, who told me how you're supposed to treat transgender people, and I was just astounded. 05:05:48

"I gave a seminar two years ago to residents who told me -- residents in psychiatry -- who told me how trans people ought to be treated. 05:06:05

"See, they had a chain in trust. Somebody taught them, and they believe it, the passion, they believe it. They have the zeal of the new -- of the convert to being a psychiatrist or being a counselor, whatever it is. And -- and -- and when I give them 05:06:21

facts, they think I'm an outlier or they think I'm an old fuddy-duddy, there's something wrong with me. They don't believe me.

"Because the truth is that trans is normal, you see, and -- and that they can have highly successful lives, just like anybody else. 05:06:33

"And it's not based on experience. It's certainly not based on any scientific scrutiny, you see.

"And so what I'm really saying is that so many of the doctors just practice how they've been taught to practice. They -- they -- we -- we -- none of us have the brain power -- we take care of so many different things, we can't be experts in -- in -- in the original train of -- that chain of trust at all, you see. 05:06:46 05:07:05

"So of course we oversimplify everything.

"And, you know, there -- we rely on -- on a few skeptics like -- like the three of us."

BY MS. HARTNETT:

Q Dr. Levine, was that clip of you speaking on the podcast earlier this year? 05:07:22

A It is.

Q Was that your truthful statements?

MR. TRYON: Objection.

///

BY MS. HARTNETT:

Q Sorry?

A I said --

Q I --

A -- those things that you heard on the podcast, yes. 05:07:44

Q And were they your truthful statements?

A Yes.

MS. HARTNETT: Okay. Could you play Exhibit 94, please. 05:07:53

(Exhibit 94 was marked for identification by the court reporter and is attached hereto.)

(Video Clip Played.)

"And then three years later, there was the six standards of care that was almost word for word for what our group did except for one letter was necessary. That is, he wanted to make it easier to get transgender." 05:07:59

BY MS. HARTNETT:

Q Dr. Levine, was that you speaking on the podcast earlier this year? 05:08:15

A Yes. And it's my truthful statement.

Q Thank you. You used the term "get transgender" on that clip. I was just wondering what you mean by that. 05:08:27

A I think that was referring to hormones, access to hormones.

We used to have a standard that two independent individuals or one group committee were required to write a recommendation for hormones, and Dr. Richard Green, who was the head of the organization at the time, didn't like that at all. He was a strong advocate of immediate care. And he told me so, he didn't like it. And -- and he reconstituted -- accepted the fifth standards of care, and he formed a new committee with the -- you know, with the charge to get rid of that criteria for hormones. 05:08:44 05:09:05

Q Do you typically use the term "get transgender"?

A No. This was a spontaneous conversation. I don't -- it's a funny phrase. I don't know. It came out of my mouth. I don't know why. That's -- 05:09:24

Q Okay.

A -- not my usual language.

But again, this was not a paper I was delivering that I, you know, worked on. This is something that happened rather spontaneously. 05:09:33

Q I understand.

MS. HARTNETT: Could you please play Exhibit 95. 05:09:49

(Exhibit 95 was marked for identification by the court reporter and is attached hereto.)

(Video Clip Played.)

"I think it's time for a re-examination of the wisdom of affirmative care. I'm not saying affirmative care doesn't help some people, but I'm not so sure how many people it harms." 05:09:55

BY MS. HARTNETT:

Q Dr. Levine, was that your truthful statement on the podcast earlier this year? 05:10:09

A It --

MR. TRYON: Same objection as before.

Thank you.

You may answer.

THE WITNESS: I -- it is my true statement. 05:10:18

I'm still not sure what percentage of people are ultimately harmed and how to measure those harms and when to measure those harms.

MS. HARTNETT: Thank you.

Could you play tab -- sorry -- Exhibit 96, please. 05:10:33

(Exhibit 96 was marked for identification by the court reporter and is attached hereto.)

(Video Clip Played.)

"The problem is that we do not have rigorous 05:10:38

follow-up studies of people who made the transition."

BY MS. HARTNETT:

Q Dr. Levine, is that your truthful statement made earlier this year?

MR. TRYON: Objection. 05:11:00

THE WITNESS: Yes.

MR. TRYON: I just want to place on the record evidence rule 106. Thank you.

Go ahead and answer.

BY MS. HARTNETT: 05:11:05

Q Dr. Levine, do you agree that there is not rigorous follow-up studies of people who have made the transition?

A Yes. I believe I testimony -- I testified to that earlier today. 05:11:24

Q And for all of these statements that I've asked you about, do you stand by those statements, sitting here today?

A Number one, I have said those things, and I believe them to be essentially correct today, yes. 05:11:36

Q And, thank you, I'm asking only to -- in light of the objection, not to repeat my questions to you.

MS. HARTNETT: Could you please play Exhibit 97.

(Exhibit 97 was marked for identification 05:11:48

by the court reporter and is attached hereto.)

(Video Clip Played.)

"The people who come to me who are depressed, you know, those -- those -- after transition, those are just anecdotal reports. I have no idea what the -- what the denominator is, you see." 05:12:00

BY MS. HARTNETT:

Q Dr. Levine, do you agree with the statement that was just played?

A Yes. 05:12:10

MS. HARTNETT: Could you please play Exhibit 98.

(Exhibit 98 was marked for identification by the court reporter and is attached hereto.)

MR. TRYON: Counsel, before you play it -- 05:12:19

MS. HARTNETT: Yes.

MR. TRYON: Counsel, will you just agree to give me a standing objection to these excerpts?

MS. HARTNETT: Yes.

MR. TRYON: Thank you. 05:12:28

(Video Clip Played.)

"And -- and because we don't know, because we don't know, I think we have to say why do we have all this enthusiasm, why do we have all this chain of trust passion that this is the best treatment. We don't know 05:12:46

is the best treatment, you see."

BY MS. HARTNETT:

Q Dr. Levine, do you agree with that statement that you made earlier this year?

A I do. 05:12:58

MS. HARTNETT: Could you please play Exhibit 99.

(Exhibit 99 was marked for identification by the court reporter and is attached hereto.)

(Video Clip Played.) 05:13:05

"Now, I want to quickly say that while I'm an advocate of someone who thinks or wants to be or considers themselves a transgendered person, I think they ought to have a psychotherapeutic approach before they make any -- any life-changing decisions, but I 05:13:22 admit that I have no follow-up. This is not on the basis of randomized control study. I am in the same difficult position that the affirmative care doctors are in, only I have more faith based upon a hundred years of doing psychotherapy as a tradition, you see, 05:13:42 and they only have a few years, with no follow-up."

BY MS. HARTNETT:

Q Dr. Levine, is that your truthful statement?

A Yes.

MS. HARTNETT: Could you please play 05:14:02

Exhibit 100.

(Exhibit 100 was marked for identification by the court reporter and is attached hereto.)

(Video Clip Played.)

"So -- so what I'm saying is that in the early studies, the death rates from cancer and cardiovascular disease and -- and accidents were -- were elevated and what -- and what that really means is that the lifestyle things predispose them to physical diseases. 05:14:05

"So, you know, if you're a parent, you -- you -- you want to die -- you want to die before your children, you see. 05:14:27

"So for many -- for many of these kids, they're going to be sick.

"And I just saw a slide of the famous -- Jazz Jennings. Do you know that name? 05:14:41

Female: Yeah.

"Apparently Jazz Jennings was a very thin, very attractive person when she had surgery, and in the postoperative time, she's now grossly obese. She is -- I saw a picture of her. She is grossly obese. 05:14:58

"So, you know, this is one of the -- this is one of the things that never gets talked about, what are the physical manifestations, what are the psychological manifestations, what are the outcomes." 05:15:13

BY MS. HARTNETT:

Q Dr. Levine, is that your truthful statement?

A Yes.

Q Is it your contention that Jazz Jennings is grossly obese because she had gender confirmation surgery? 05:15:29

A No. She became grossly obese after gender confirmation surgery. In addition, she had -- she had other problems as well, I think.

I only know that because Jazz Jennings is a public, you know, celebrity, so to speak, and people talk about her and people showed me pictures of her. 05:15:50

So I've never -- that's -- that's what I know.

Q But you've never met Jazz Jennings; correct?

A I have never met Jazz Jennings. 05:16:09

MS. HARTNETT: Could you play Exhibit 101, please.

(Exhibit 101 was marked for identification by the court reporter and is attached hereto.)

(Video Clip Played.) 05:16:19

"And the -- the affirmative care doctors like to blame all these comorbidities and the shortened lifespan on minority stress, and you would -- I think -- I think we recognize that it is stressful to be -- to belong to a sexual minority, but -- but 05:16:32

children who are cross-gender identified, who have separation anxiety and depression and so forth, they're not -- they're not having minority stress.

"And -- and the kids who -- you know, if you -- if you walk in -- if you walk in and see your postpartum depressed mom hanging from the rafters and then you decide three weeks later that you're going to change your gender, this is not minority stress."

BY MS. HARTNETT:

Q Dr. Levine, is that your truthful statement? 05:17:07

A Yes.

Q Are you aware of any example of an actual kid who walked in and saw their postpartum depressed mom hanging from the rafters and three weeks later decided to change gender? 05:17:22

A Absolutely.

Q Can you tell me what -- where is that example?

A I think that case was presented to me.

Q By whom?

A One of my staff. Or it was presented to me, you know, by somebody else. 05:17:33

Occasionally, I supervise other people.

But that came -- that -- that came from a recent -- a recent January 20th case history that I heard. 05:17:53

It -- it has to do, you see, with not taking a history, giving people, very quickly, affirmative care and not appreciating the forces that might have shaped this -- that -- that may be very -- that may play out and may -- very difficult to have a happy, successful life as a trans person. 05:18:15

So I -- I can't give you the -- I can't tell you at the moment who told me that, but I can tell you I am not telling -- I am telling the truth. This is what I recently heard prior -- 05:18:34

Q Was that as a -- sorry.

A Pardon me.

Q Was that -- was that an anecdote that came to you from somebody in your clinic?

A As I said before, it might have been someone in my clinic; it might have been some other professional who talked to me about that. 05:18:43

Q Do you know if the person at issue, the -- the -- that was seeking a transition, whether they had any signs of gender dysphoria prior to the mom hanging from the rafters? 05:18:58

A I think the implication was that they hadn't, but I don't remember enough details to -- I couldn't tell you the case history. That's the aspect of the case history that I recall. 05:19:18

Q Thank you.

MS. HARTNETT: Can you play Exhibit 102, please.

(Exhibit 102 was marked for identification by the court reporter and is attached hereto.) 05:19:26

(Video Clip Played.)

"Lots of girls have temporary eating disorders, and some of them end up overcoming it, but they overcome it sometimes by becoming vegetarians or vegans. So it's okay, and it's much better. It's much 05:19:42 better than having an eating disorder."

BY MS. HARTNETT:

Q Dr. Levine, was that your truthful statement?

A Yes.

Q What point were you trying to make by drawing 05:19:59 an analogy to eating disorders and vegetarians and vegans?

A I think you would have to play for me what preceded that, but off the top of my head today, two months after I made that statement, more than two 05:20:14 months after I made that statement, I was probably making reference to the fact that among adolescent girls who declare themselves to be trans boys, a large percentage of them have a pre- -- a predeclaration eating disorder, that this is part of the -- the 05:20:35

psycho- -- the -- if we can agree that an eating disorder is a true problem and not just a dietary of something or other, the -- this evidence of the psychopathology that precedes transgender identification, the crystallization of a trans identification, eating disorder is just another way of self-harm where -- where one cannot live comfortably in the self as it is developing. 05:20:59

So that's probably what I was making reference to, the pre-crystallization of a transgender, the problems that are some- -- that are often seen in girls prior to their coming out as a trans boy. 05:21:18

Q Is it your view that you could correct the eating disorder and the person may stop identifying as transgender? 05:21:38

A Well, I think most eating dis- -- what I was saying -- I think you misunderstood -- is the -- the prelude to the eating disorder was transgender. I will say if you could help the person understand the motivation for the eating disorder and help her to come to grips with what she's doing is harmful to herself in the short and in the long run, then it wouldn't -- it may prevent -- it may help her to find another solution, for example, becoming a vegan or -- that would be a benign -- a less -- less problematic 05:22:00 05:22:25

solution than having to become transgender, forget her eating disorder and focus on something else in a way that dominates her life.

So you -- you dominate your life by thinking that you're too fat when you're 93 pounds, and now you're domi- -- you give that up, and then you dominate your life because you're really a boy trapped in a girl's body and -- 05:22:43

So I'm telling you, as a psychiatrist, life is complicated and histories are complicated and our ability to predict things is not very good, and I just want us to rely on science, as -- whatever the limitations of sciences are, I want to rely on science and not something shorter than science, you know, fervent, passionate beliefs, whatever. 05:22:57 05:23:19

Q So in that instance -- I'm just trying to make sure I understand -- your -- the idea would be that it's better to end up being vegan than transgender?

A If -- if you put it in that way, if you reduce everything to that simplicity, I guess the answer is it would be better to have a -- that would be a better supplementation of your original concerns about yourself and your body and the sexual meaning of your body than it is to repudiate your femininity entirely and try to remove your breasts surgically and take 05:23:35 05:23:56

hormones and so forth, yes.

MS. HARTNETT: Could you play Exhibit 103, please.

(Exhibit 103 was marked for identification by the court reporter and is attached hereto.) 05:24:04

(Video Clip Played.)

"It's your current sexual identity --

Female: Yeah.

-- "you see. I mean, I'm sure I've had identities -- I used to be a stamp collector, you know. 05:24:15

I had an identity as a stamp collector. And I don't collect stamps anymore."

BY MS. HARTNETT:

Q Dr. Levine, are those your truthful statements? 05:24:28

A I was a stamp collector.

Q I was a baseball card collector.

Is being transgender like being a stamp collector?

A No. 05:24:38

MS. HARTNETT: Could you play tab -- Exhibit 104, please.

(Exhibit 104 was marked for identification by the court reporter and is attached hereto.)

(Video Clip Played.) 05:24:55

"I think the doctor's responsibility is to diagnose this, understand the factors that is pushing the child in that direction and the family in that direction and to inform what -- the parents and the child of what is known and what is not known and what the alternative treatments are, and the parents and the child make the decision, not the doctor. The doctor does not have the data to make the decision." 05:25:10

BY MS. HARTNETT:

Q Dr. Levine, is that your truthful statements? 05:25:28

A That is, although I'm embarrassed, but I used the wrong -- I should have said "are" and not "is" in the first sentence.

Q I think I just did the same thing.

I have one more excerpt to play. 05:25:42

MS. HARTNETT: Could you play Exhibit 105, please.

(Exhibit 105 was marked for identification by the court reporter and is attached hereto.)

(Video Clip Played.) 05:25:48

"So if I'm an expert in something, it's a very narrow topic I'm an expert in. Even though I'm a doctor and you -- somebody may think, well, he's a doctor; right? But the doctor doesn't know much about most things. 05:26:01

"And -- and there is the wisdom, I think, is the difference between demagoguery, which I think many affirmative care doctors are demagogues, and experts, many of whom are just uneasy about what is not known."

BY MS. HARTNETT: 05:26:23

Q Dr. Levine, were these your truthful statements from earlier this year?

A Yes.

Q Do you consider yourself to be a demagogue or an expert? 05:26:36

A I consider myself, on this issue of the scientific basis of -- of trans delivery -- care delivery, to be an expert in this very narrow field because my definition of an expert, knows the difference between what is known and what is not known, 05:26:53 you see.

On many subjects that I have to work on every day as a psychiatrist, I -- I have -- I -- I'm not sure what -- the difference between what I know and what is known by more expert people in the field. 05:27:10

I seem to have enough to have credentials as a practicing doctor, but I'm not an expert in most things I take care of.

When it comes to the data about this matter of trans care, I feel I'm a relative expert, and I think I 05:27:28

have more perspective and more basis for that perspective than many people who have been taught how to take care of transgender people.

Q Do you believe Dr. Adkins is a demagogue?

A I don't know Dr. Adkins well enough to -- to make that decision. I don't want to be insulting at all to my colleagues, but if -- if Dr. Adkins believes this is genetically determined and if she believes that it's fixed and if she believes she's helping and she has evidence that she's helping people live happy lives for the next 40 years, I believe she is much more closer to my definition of a demagogue than, say, a person who can't distinguish between what she knows and what is known versus an expert. 05:27:49 05:28:11

But I don't want to pass judgment on her because, you know, I've just read her report, that's all. 05:28:27

Q How about Dr. Safer, would you have the same view there, that -- do you believe he's a demagogue, or you wouldn't want to pass judgment? 05:28:39

A You know, one of the ethical principles of being a doctor is to speak respectfully of one's colleagues.

I -- I would say, I just want to repeat, that most practicing doctors have a belief system that 05:28:58

they're working on the side of angels, and that's a different set of ideas than what science has already demonstrated.

So to the extent that people believe, passionately believe, that what they are doing is ensuring a -- a -- a productive, successful, asymptomatic, fulfilling life and there's no evidence for it, well, I think they're not -- they shouldn't be certain about that. 05:29:10

And they're closer to an ordinary physician or a demagogue than they are to an expert. 05:29:30

Q Thank you. Could you just -- I have a -- hopefully, a couple of final questions about your expert report.

Could you pull that back up? That was Exhibit 87. 05:29:44

MR. BROOKS: Coming, coming.

BY MS. HARTNETT:

Q And I'm going to be just going to paragraph 81. 05:29:54

MR. BROOKS: Which is on.

MS. HARTNETT: It's on -- take your time, but page 31, paragraph 81.

MR. BROOKS: What heading are we under here?

MS. HARTNETT: You are under -- 05:30:10

MR. BROOKS: I see it. I see the heading at the top of page 30.

Is that the right heading? Am I missing anything --

MS. HARTNETT: Correct. 05:30:23

MR. BROOKS: -- or is that --

Under "Opinions and practices vary widely..." Okay.

And then you said paragraph 81?

MS. HARTNETT: Right. And this is a paragraph 05:30:29 about -- Dr. Levine is describing a Lichenstein article; is that correct?

MR. BROOKS: Let me just say, Dr. Levine, if you want to look at any paragraphs between the heading and this one, for context, you should feel free to, or 05:30:46 if not -- if you don't feel the need, then you don't need to.

THE WITNESS: Okay.

BY MS. HARTNETT:

Q So this paragraph is talking about, in your 05:31:09 words, the "loose standards" at Dr. Safer's clinics at Mount Sinai in Columbia; correct?

A Yes.

Q And do you say that he's -- I'm just reading from the first sentence, but you a say at least one 05:31:22

prominent clinic, quote, is quite openly admitting patients for even surgical transition who are not eligible under the criteria set out in WPATH's Standards of Care.

Do you see that? 05:31:36

A Yes. The last sentence, right.

Q Is it your understanding that patients were receiving care there without meeting the WPATH standards?

A WPATH standards are just one set of standards, 05:31:53 and I guess Dr. Safer has a different set of standards.

I don't think that WPATH needs to be followed, you know. I don't think they're -- they are in fact the standards of care. They are just an organization that is providing some guidelines, which they call 05:32:19 standards of care, but aren't true standards of care. They're just guidelines from a professional organization that is -- that is an advocacy organization for -- for the treatment -- for affirmative treatment. 05:32:36

Q But are you aware that Mount Sinai went through the process of having those people satisfy the WPATH standards before they had surgery notwithstanding that they would have also met the other standards set forth by Sinai? 05:32:47

MR. BROOKS: Objection.

THE WITNESS: I'm -- I'm not deeply involved in the process of how Dr. Safer has done his work. This would be not an area of my expertise about -- about his criteria. 05:33:04

BY MS. HARTNETT:

Q I guess my question for you is whether you know, sitting here today, whether in fact Dr. Safer's center allowed patients to have surgery under what you call the "loose standards" without satisfying WPATH. 05:33:17

A Well, it was my understanding from the quoted study that -- that he was providing -- or giving permission for surgical care for people who may not have met the few criteria that -- that we have -- had organized in 2000- -- in, you know, the seventh edition. 05:33:44

Q Did you read the Lichtenstein article before citing it here?

A I must have read it, but it's probably one of hundreds of articles, and right now, I can't recall the details. 05:33:54

Q Thank you.

MS. HARTNETT: Could I take a -- go off -- I think I'm almost -- or -- done, if not done.

But could we go off the record briefly for me 05:34:06

to collect my nets and then hopefully we'll be done?

THE VIDEOGRAPHER: We are off the record at 5:34 p.m.

(Recess.)

THE VIDEOGRAPHER: We are on the record at 5:45 p.m. 05:44:53

MS. HARTNETT: Thank you, Dr. Levine. I have no further questions, but reserve the right to any recross if there's further questioning of you.

THE WITNESS: You're welcome. 05:45:12

MS. HARTNETT: Thank you.

MR. BROOKS: Speaking for the -- Roger Brooks, speaking for the intervenor, I have no questions for the witness.

MR. TRYON: This is Dave Tryon on behalf of the State of West Virginia. 05:45:20

Dr. Levine, thank you for your time.

I have no questions.

MS. MORGAN: This is Kelly Morgan on behalf of the West Virginia Board of Education and Superintendent Burch. I have no questions. Thank you. 05:45:29

MS. DENIKER: Dr. Levine, this is Susan Deniker, counsel for defendants Harrison County Board of Education and Superintendent Stutler, and I have no questions for you.

Thank you for your time.

THE WITNESS: You're welcome.

MS. ROGERS: Dr. Levine, this is Shannon Rogers on behalf of the West Virginia Secondary School Activities Commission. I have no questions either. 05:45:53

Thank you.

THE WITNESS: You're welcome.

MS. HARTNETT: Dr. Levine, thank you for your time.

THE VIDEOGRAPHER: Thank you. 05:46:00

We are off the record at 5:46 p.m., and this concludes today's testimony given by Stephen Levine, Dr. -- Dr. Stephen Levine.

The total number of media units was seven and will be retained by Veritext Legal Solutions. 05:46:16

Thank you.

(TIME NOTED: 5:46 p.m.)

I, STEPHEN LEVINE, do hereby declare under penalty of perjury that I have read the foregoing transcript; that I have made any corrections as appear noted, in ink, initialed by me, or attached hereto; that my testimony as contained herein, as corrected, is true and correct.

EXECUTED this _____ day of _____, 20____, at _____, _____.
(City) (State)

_____
STEPHEN LEVINE

VOLUME I

I, the undersigned, a Certified Shorthand Reporter of the State of California, do hereby certify:

That the foregoing proceedings were taken before me at the time and place herein set forth; that any witnesses in the foregoing proceedings, prior to testifying, were placed under oath; that a record of the proceedings was made by me using machine shorthand which was thereafter transcribed under my direction; further, that the foregoing is an accurate transcription thereof.

I further certify that I am neither financially interested in the action nor a relative or employee of any attorney of any of the parties.

IN WITNESS WHEREOF, I have this date subscribed my name.

Dated: April 15, 2022

ALEXIS KAGAY

CSR NO. 13795

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Federal Rules of Civil Procedure

Rule 30

(e) Review By the Witness; Changes.

(1) Review; Statement of Changes. On request by the deponent or a party before the deposition is completed, the deponent must be allowed 30 days after being notified by the officer that the transcript or recording is available in which:

(A) to review the transcript or recording; and

(B) if there are changes in form or substance, to sign a statement listing the changes and the reasons for making them.

(2) Changes Indicated in the Officer's Certificate. The officer must note in the certificate prescribed by Rule 30(f)(1) whether a review was requested and, if so, must attach any changes the deponent makes during the 30-day period.

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DELR offers a comprehensive evaluation for individuals accused of crossing sexual and other ethical boundaries in their professional lives. This evaluation is often requested or mandated by various licensing boards, employers, or other groups to whom a professional may belong, as a condition of their remaining in their chosen vocation. The evaluation process includes multiple interviews and psychological testing focusing on the nature of the boundary crossing, the psychological/emotional issues underlying the misconduct, and the professional's ability to competently and safely continue in their chosen profession. The result of the evaluation is documented in a written report and is submitted to the requesting agency. Recommendations for further training, supervision, mentoring, or personal therapy, and any restrictions or limitations in ongoing practice are included in the report.

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Attitudes have changed dramatically towards the desire to live one's life in a new gender presentation, but for many individuals this crucial decision is not an easy one before, during, or after transition. DELR staff has been providing care for transgender children, adolescents, and adults for over forty years. Care involves thorough psychiatric evaluation, psychotherapy, and support for parents, their children, adolescents, and adults and their spouses. We are committed to ongoing support for those contemplating transition, undergoing it, coping with new life challenges, and for those considering de-transitioning. We maintain a collaborative relationship with a network of competent endocrinologists and surgeons for those undertaking hormonal and surgical assistance. Because every person's life circumstance is unique, decision for referrals to these professionals are made on a case by case basis following a process of getting to know our patients well and partnering with them to make the decision that best fits their life circumstances.

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DELR staff has a longstanding expertise in the evaluation and treatment of problematic sexual behaviors including sexual addictions and compulsions, infidelity, and unconventional sexual preferences. The program offers the individual a safe and non-

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VERITEXT
LEGAL SOLUTIONS

Exhibit
SL 05

Deposition of:

Stephen B. Levine , MD

September 10, 2021

In the Matter of:

Kadel, et al vs. Folwell

Veritext Legal Solutions
800-734-5292 | calendar-dmv@veritext.com |

IN THE UNITED STATES DISTRICT COURT
FOR THE MIDDLE DISTRICT OF NORTH CAROLINA

~~~~~~~~~~~~~~~~~~~~

MAXWELL KADEL, et al.,

Plaintiffs,

vs. Case No. 1:19-cv-272-LCB-LPA

DALE FOLWELL, in his official capacity as State Treasurer of North Carolina, et al.,

Defendants.

~~~~~~~~~~~~~~~~~~~~

Video Deposition of
STEPHEN B. LEVINE, M.D.

September 10, 2021
9:05 a.m.

Taken at:
Veritext Legal Solutions
1100 Superior Avenue
Cleveland, Ohio

Tracy Morse, RPR

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~ ~ ~ ~ ~

ALSO PRESENT:

Joseph Vandetta, Videographer

TRANSCRIPT INDEX

EXHIBIT CUSTODY
EXHIBITS RETAINED BY COURT REPORTER, 1-21
(No Exhibit 16)

INDEX OF EXHIBITS

INDEX OF EXHIBITS (Continued)

VIDEOGRAPHER: We are now on the record. The date is Friday, September 10, 2021. The time is 9:05 a.m. The caption of this case is Maxwell Kadel, et al. versus Dale Folwell, et al. The name of the witness is Stephen Levine, MD. At this time the attorneys present and those attending remotely will identity themselves for the record.

MR. KNEPPER: John Knepper. I am an attorney representing Dale Folwell, et al. and I am defending the deposition of Dr. Levine.

MR. CHARLES: I am Carl Charles with Lambda Legal for plaintiffs, Max Kadel, et al.

MR. McINNES: On the phone is Alan McInnes, M-c-I-n-n-e-s, representing North Carolina Department of Public Safety.

MS. BORELLI: This is Tara Borelli with Lambda Legal on behalf of all plaintiffs.

MR. WEAVER: Michael Weaver with McDermott Will & Emery on behalf of all plaintiffs.

VIDEOGRAPHER: Will the court reporter please swear in the witness.

STEPHEN B. LEVINE, M.D., of lawful age, called for examination, as provided by the Federal Rules of Civil Procedure, being by me first duly sworn, as hereinafter certified, deposed and said as follows:

EXAMINATION OF STEPHEN B. LEVINE, M.D.

BY MR. CHARLES:

Q. All right. Good morning, Dr. Levine. My name is Carl Charles and I'm counsel for the plaintiffs. So I want to go over some ground rules first today. I know you've been deposed many times, but I'll go through some of the key ones and then we can move on. First, you understand you're under oath today?

A. I do.

Q. Okay. And of course that requires you to testify truthfully, correct?

A. Correct.

Q. Okay. As an estimate, Dr. Levine, how many times have you sat for deposition? An estimate is perfectly acceptable.

A. An estimate?

Q. Yes, sir.

A. Six or seven.

Q. Okay. Do you have a rough memory of the cases that you sat for deposition in?

A. I didn't review them. I guess so, yes, I have a rough memory.

Q. Okay. Can you list for me the ones that you remember being deposed in?

A. Shall I -- just deposition as opposed to court testimony?

Q. Correct, yes, please.

A. There's a case called -- a Soneeya case in Massachusetts I've been deposed on. I think that was on two separate depositions. I've been deposed in a Florida case.

Q. Was that case maybe Claire versus Florida Department of Management Services?

A. Could you speak up, please? I'm hard of hearing.

Q. Yes. Was that Claire versus Florida Department of Management Services, the Florida case you mentioned?

A. It probably was. I generally don't remember the names of the cases --

Q. No worries. We can move on.

A. -- I remember the states that I've been in.

Q. No problem.

A. I've -- I'm sure there have been more. Most of my work has not -- I think has been writing expert opinions as opposed to being deposed --

Q. I understand.

A. -- so it's a little confusing for me.

Q. We can move on. So since Tracy, the court reporter, needs to transcribe everything, I'll just ask that your responses are verbalized instead of head nods or another kind of assent or opposition. Does that make sense?

A. Yes. You'll probably have to remind me again.

Q. I will. No problem. No problem. Please do wait to respond to my questions until after I finish them. And on a similar note, I will wait to start a new question until you finished your response. Okay?

A. Okay.

Q. All right. If you need a break, please say so, but I will request that we finish the question that's on the table before

we break. Mr. Knepper has informed us that you have a call at noon today. So we will take a break at 11:45. We will make that our lunch break so that you can take that call.

A. Thank you.

Q. Okay. If I ask a question that is not clear or that you don't understand, let me know and I will repeat it. I will restate it. Okay?

A. (Nodding.)

Q. And finally --

A. Okay.

Q. Is there anything today that would prevent you from giving full and complete and truthful testimony?

A. Not that I can think of.

Q. Okay. No medication or anything of that nature?

A. Oh, I take medication, but I don't think it's going to interfere with my verbal responses.

Q. Perfect. So before we get too far down the road today, Dr. Levine, I just want to note for you that we are going to talk quite a bit today about health care commonly used to

treat gender dysphoria. And so I wanted to note for you that if I refer to that care as, "Gender affirming," or perhaps, "Gender confirming," will you know that I am referring to medical care provided to transgender people to treat gender dysphoria?

A. By, "Medical care," do you include psychiatric care?

Q. I may, yes, that may be included. So you'll understand my use of that term today --

MR. KNEPPER: Objection, form.

Q. -- not that you necessarily agree to the use of that term, but you'll understand what I'm referring to?

A. Yes.

Q. Okay. And similarly, if I use the phrase, "Gender affirming surgery," in this deposition, you will know that I am referring to what some people called or continue to call, "Sex reassignment surgery"?

A. Yes.

MR. KNEPPER: Objection, form.

Q. Have you been retained as an expert witness by defendants in this case?

A. Yes.

Q. Okay. And what expert opinions were you specifically requested to provide in this case?

A. I don't have a succinct list of those opinions. I was asked to represent the state of science in the field.

Q. And what would the field be that you're referring to, Dr. Levine?

A. The treatment of people with transgender identities --

Q. Okay.

A. -- and the medical treatment, including the psychiatric treatment, of those individuals.

Q. Thank you. Were you asked to also provide a discussion of different views among mental health professionals as to the appropriate treatment of gender dysphoria?

A. Not specifically.

Q. Okay. Thank you. And what did you do to prepare for this deposition today?

A. I met with my attorney last evening, Mr. Knepper. And of course I've been working in this field for 48 years. And so I

can't begin to answer that question, other than everything I've read, all of my clinical work, the papers I've written and the preparation of this particular document that I provided.

Q. Were there any specific articles or reports that you reviewed within the recent past? I understand certainly your prestigious career would prepare you, but specifically related to this deposition.

A. Well, two nights ago, I re-read the critiques of the -- the published critiques of the Branstrom-Pachankis report. I re-read the critiques of Turban's -- 22 of Turban's papers, but in the run-up for -- in the preparation, I would say, in the five months preparation for this morning, I'm sure I reviewed at least 75 papers.

Q. Okay. I will not ask you to relay those 75 papers.

A. Thank you.

Q. Did you, by any chance, review any association positions?

A. "Association positions?"

Q. Yes.

A. Well, I'm aware of WPATH and I

recently reviewed the paper by Dahlen, et al. in BMJ open, which reviewed WPATH's -- the quality of the WPATH standards.

Q. Could you say -- the lead author on that was Dahl. Could you spell that?

A. No. D-a-h-l-e-n.

Q. Oh, okay.

A. Dahlen, Conley, someone else and --

Q. That's fine.

A. Yeah.

Q. And you said that was with, "BMJ open."

A. April.

Q. Okay. Thank you. Did you speak with anyone, besides Mr. Knepper, in preparation for this deposition?

A. Mr. Knepper and his staff.

- - - - -

(Thereupon, Deposition Exhibit 1, 4/28/2021 Declaration of Stephen B. Levine, M.D. With Attachment, was marked for purposes of identification.)

- - - - -

Q. Okay. Okay. So I'd like to mark

the first exhibit. So I'm marking for the record Exhibit 1, which is Dr. Stephen Levine's expert declaration in this case. Have you seen this document before, Dr. Levine?

A. Yes.

Q. Okay. Is this the expert declaration that you wrote in this case? Please take as much time as you need to look at it.

A. Well, I would assume it is.

Q. Okay. And did anyone, besides yourself, contribute to the writing of this report?

MR. KNEPPER: Objection to the extent that it inquires into --

MR. CHARLES: Yes, excluding attorney privilege.

MR. KNEPPER: -- excluding Mr. Knepper and his staff.

MR. CHARLES: Correct.

A. No.

Q. Okay. Dr. Levine, will you turn in that report, please, for me to page 11. And the pages, I believe are back to back, so it may be on the backside of one page.

And on page 11, if you'll look at paragraph n. It's about halfway down that page. Do you see that?

A. Paragraph what?

Q. Paragraph n. as in Nancy.

A. Oh, that's an, "n"?

Q. Yes. It's a lower case, I believe.

A. Yeah.

Q. So since the time that you wrote and submitted this report, are there other documents that you read and relied upon, other than the ones we discussed earlier, to help inform the opinions in this report?

A. Yes. There was an article published -- oh, I'm sorry. I have read subsequent articles after this report, but that was not your question.

Q. It was. Let me ask it again. So this report was submitted April 28 of this year.

A. Yes.

Q. So between April 28 and today, which I believe is September 10, have you reviewed -- that is the question. Does that make sense?

A. Yes.

Q. Okay.

A. I reviewed a recent article within the last month from the New England Journal of Medicine which documented the very high prevalence of substance abuse of people in sexual minority communities. I mentioned the Dahlen article to you. I reviewed a Griffin article. And, I'm sorry, I didn't prepare for that particular question --

Q. That is --

A. -- I'm sure there are other things. I'm constantly -- you know, I'm constantly being confronted by additional, evolving information.

Q. Thank you. You mentioned Griffin and the Dahlen study or article. Excuse me. Do you recall, by any chance, any of the authors of the New England Journal regarding substance abuse in sexual minority communities?

A. No, but it -- it is in one of the August issues. And if I'm wrong, it will be in the last issue of July.

Q. Okay. And in submitting this report, you did not attach a bibliography. Is

that correct?

A. Well, the bibliography is embedded in the report.

Q. Thank you.

A. If I may answer the previous question. I also reviewed a study in JAMA, "Surgery," I think by Almazan and Keuroghlian. You know, that's not pronounced correct, but he's a frequent author in this field.

Q. And do you remember the topic of that JAMA study?

A. Yeah. It was an attempt to demonstrate the positive outcome of gender conforming surgery.

Q. Okay. And your CV, which is attached -- I'm sorry. Is your CV attached as Exhibit A to this report? It will be at the very end.

A. Yeah, I see my CV is attached.

Q. Thank you. And does that accurately reflect your educational and employment background?

A. Yes.

Q. Okay. So if you'll turn on page 1 of your report -- I'm sorry. Page 1 and 2, but

beginning with page 1, your report states that you received 23 separate pharmaceutical company grants to study various pro sexual medications. Is that correct?

A. Yes.

Q. And were any of these 23 grants related to the treatment of gender dysphoria?

A. No.

Q. Okay. And were any of these grants related to the treatment of transgender people?

A. No.

Q. Okay. You mentioned a U.S. national -- I'm sorry. Your report mentions a US National Institute of Health grant there at the bottom of page 1 for the study of sexual consequences of systemic lupus --

A. Erythematosus.

Q. Thank you. And the report says you were the co-principal investigator in that grant. Is that correct?

A. Yes.

Q. Okay. And did that study have to do with gender dysphoria?

A. No.

Q. Or transsexualism?

A. No.

Q. Okay. And then on page 2, the report lists you received five separate grants from the private Sihler Mental Health Foundation. Do you see that?

A. Yes.

Q. Okay. Of those five separate grants, did any of them relate to the treatment of gender dysphoria?

A. Only indirectly in that one of the grants enabled us to set up The Center For Human Sexuality or what we called The Center For Marital and Sexual Health and The Center For Marital and Sexual Health included a clinic for the treatment of -- well, we didn't call it transgender in those days, but --

Q. And do you remember what year you started that center, The Center For Sexual and Marital Health?

A. That has two iterations. It began in 1973. And in 1992 or 1993, twenty years later, it had a separate location and had a separate name. It was called then The Center For Marital and Sexual Health. Before it was The Center For Human Sexuality.

Q. So is The Center For Marital and Sexual Health synonymous with The Gender Clinic that you mention in your report?

A. The Gender Clinic was just one of five or six clinics that were under the heading --

Q. I see.

A. -- of either The Center For Human Sexuality and subsequently The Center For Marital and Sexual Health.

Q. Do you -- oh, I'm sorry.

A. I'm sorry.

Q. Okay. Do you recall any of the other sub-clinics that were within The Center For Marital and Sexual Health?

A. Yes. There was a center for marital therapy. There was a center for male sexual problems, for female sexual problems. There was a center for paraphilia. And a center for -- and we had a program called the program for professionals for high level people who were accused or sexual boundary violations. In other words, The Center For Marital and Sexual Health in its previous form was a comprehensive look at human sexuality and all

of its problematic and developmental forms.

Q. Was that Center For Marital and Sexual Health in its initial iteration beginning in 1973, affiliated with Case Western Reserve University?

A. Yeah. It was an integral part of the department of psychiatry.

Q. Okay. So just going back to grants you've received. Have you received any grants not listed in your report to research and publish about the treatment of adults with gender dysphoria, accepting it may have been called something else in the past?

A. I think the answer to your question is, not specifically to do research. We did research in the 1970s and '80s, but that wasn't grant supported. It was supported by the university, you know, through salaries, et cetera, but not specific grants from outside agencies, with the exception of the Sihler Foundation.

Q. Correct, which provided for the establishment of The Center of Marital and Sexual Health center.

A. Yes.

Q. Okay. And so then were there any external grants to research and publish about the treatment of children or adolescents --

A. No.

Q. -- with gender dysphoria?

Okay. Is that a, "No," when I included the, "Gender dysphoria," as well?

A. That is a, no.

Q. Okay. Thank you. Okay. So on page 3 of your report -- actually, I'm sorry. It's going to be the bottom of page 4 and to the top of page 5. Your report lists your experience as an expert witness, which we talked about a little bit earlier. I just -- I'm wondering if you would confirm this is not an exhaustive list of your experience as an expert witness either via deposition or report.

A. I wouldn't want to testify that this is absolutely complete, given the fact that I don't keep a list compiled. This is kind of compiled retrospectively from memory and documents. And so this is the best I could have done on April of 2021 --

Q. Understood. Thank you. So --

A. -- you might find something else.

Q. Understood. So you have also offered expert testimony in a case called, Edmo versus Corizon in Idaho. Is that right?

A. I'm not going to be a hundred percent sure about my answer, but I believe my name is associated with that case because I gave a workshop to the Department of Corrections in Idaho. And the person who -- the person for the Department of Corrections testified that he was following the advice of Dr. Levine in the workshop. I think that's how my name is associated with that.

Q. I see. Thank you for that clarification. Do you recall submitting a report in a case called Norsworthy versus Beard in California?

A. Yes.

Q. And in a case from Florida called Cohane --

A. Yes.

Q. -- versus Jones? Okay. And you mentioned the Soneeya case.

A. Yes.

Q. Do you recall being deposed in approximately 2011?

A. For the Soneeya case?
Q. Yes.
A. That's a ballpark figure --
Q. Yes, sir.
A. -- for my first deposition in the Soneeya case.
Q. Okay. And do you recall giving a second deposition in that case?
A. Yes.
Q. Approximately 2018?
A. Yeah, I would say three years ago.
Q. Okay. And then finally, there was a few day's worth of trial testimony in that same Soneeya case in approximately 2019. Do you recall that?
A. Oh, my answer to your previous question was recalling my testimony in the courtroom --
Q. Oh, I see. Okay.
A. -- so if you have records that I was deposed in 2018, I will trust your records.
Q. Okay. Okay. So going back to page 2 of your report, Dr. Levine.
A. (Witness complies.)
Q. At the bottom of page 2,

subparagraph c. It's a lower case, "c," there at the bottom. Do you see that?

A. c?

Q. Yes, sir.

A. "Seven years..."?

Q. Correct. It states you provided, "Seven years of six-hour Continuing Education Courses at the American Psychiatric Association Meetings on Love and Sexuality." Do you see that?

A. Yes.

Q. Do you recall approximately which seven years those were? Was it consecutive, separate?

A. They were seven consecutive years in the -- I would say, in the 2000 teens, but whether they began in 2009 or 2010 or 2011, I don't know.

Q. Understood. And do you remember any of the titles of those courses?

A. Well, I would say what I wrote in c. is pretty much -- those words were probably in each of the titles. Sometimes, sexual problems, were in the title, but I like to emphasize that -- in my teaching, that while

love is a big issue in human life and human development, in medical professions, in particular in psychiatry, we avoid that topic.

And I like to bring the topic back up as manifested by the barriers to loving that arise. And so sometimes maybe, the barriers to loving, might have been a title. The course is somewhat different from year to year and certainly the title may vary from year to year. But, you know, it's Dr. Levine talking seven years in a row and he only has a few concepts and he -- it's old wine in new bottles, you know.

Q. Which sometimes still ages well, so. Do you recall -- and I understand you said the topics all generally had to do with one of those two words, "Love," or, "Sexuality."

A. Yes.

Q. Do you remember a course specifically focused on treatment for gender dysphoria?

A. I'm sure gender identity is part of these courses and the varieties of gender identity. I don't know if I listed it in this or not in this document or not the fact that I

have participated in a symposia at the American Psychiatric Association specifically on the treatment of gender dysphoria --

Q. Okay. Thank you.

A. -- in addition to other societies, I've given talks on gender dysphoria.

Q. I believe you listed some of those in your report. So moving on to page 3, looking at paragraph 1, again, at the bottom of page 3. Your report states that you're, "An infrequent or occasional reviewer for 25 other journals in various medical specialties and psychological and sociological journals on topics related to human sexuality." Do you see that?

A. I do.

Q. And it ends there on page 3. Are any of these journals dedicated solely to the study and treatment of gender dysphoria?

A. Yes.

Q. Which ones?

A. The International Journal.

Q. That's The International Journal --

A. Let me --

Q. Sorry.

A. I'm sorry. I think I've answered that wrong. I have written -- I have had invited articles in that journal. I have an article in that journal. I don't think they've asked me to review for that journal, but I certainly have reviewed many articles for other journals on the topic of, we'll just call it transgenderism.

Q. And just for clarity, Dr. Levine, it's The International Journal on Transgenderism. Do you recall the full title?

A. International Journal of Transgender Health, I think it's called --

Q. Okay.

A. -- its name has changed over the years, too.

Q. I'm sensing a theme there.

A. I'm sorry?

Q. I said, I'm sensing a theme on the change over the years. So you clarified to say you didn't review articles for that journal, but you did submit articles to that journal.

A. Yes.

Q. Besides the WPATH standards of care version 5, have you developed or helped to

develop treatment guidelines for the treatment of gender dysphoria?

A. Yes. I'm in the process at the moment.

Q. And are those guidelines associated with an organization?

A. Society -- yes. For the Society for the -- Society For Evidence-Based Gender Medicine.

Q. Do you have a -- is there an estimated publication date for those guidelines?

A. Had you asked me that question in April, I would have said, in July. If you ask me that question today, I would say, I don't know.

Q. Why is the estimated publication date unclear at this time?

A. Because the amount of work that has become available and was thought to be necessary in order to shape these recommendations or guidelines has expanded enormously and the -- and the scope has become far more multinational. And there is a movement afoot to bring back science into the

treatment of transgender medical treatments, to use your term, and there's so much information that needs to be collated and processed that I -- that I just think everyone is so busy that we can't get it done in the naive estimations that we first put out.

Q. Approximately how many people would you, again estimate, are involved working on these guidelines?

A. Well, I -- it's hard for me to know the answer to that question. I was on a conference call two days ago with 14 people from multiple countries. That wasn't specifically for these guidelines. It was for a Cochran analysis of the question of puberty blocking hormones, but there is such an overlap between the purposes of the review of the scientific principles in the Cochran scientific findings, in the Cochran analysis and in segments of publications, future publications that it makes it difficult for me to answer. I'm on a subcommittee for SEGM, the Society For Evidence Gender Based Medicine, and I think there are twelve people and about ten of them are different than the people I was in the

committee with yesterday.

Q. What's name of the subcommittee you just mentioned?

A. Psychotherapy subcommittee.

Q. If you have to estimate, how many members constitute the Society For Evidence Based Gender Medicine?

A. That's what I don't know --

Q. Okay.

A. -- because I keep discovering new members. I -- I think if you look at their website, they may have an approximate membership. They're looking for new members. And that's one of their goals, is to incorporate psychotherapists who are interested in this problem. We're trying to increase the number of people who feel qualified to help children and adult -- teenagers and adults with gender dysphoria.

Q. Do you remember when you first became officially involved with -- I'll use your shortening. Well, I'll just say the full name -- Society For Evidence-Based Gender Medicine?

A. SEGM.

Q. SEGM. Thank you.
A. I would say, it's about mid 2020 --
Q. Okay. And --
A. -- perhaps -- maybe spring of 2020.
Q. Do you know when the society was first started?
A. No, but it wasn't too many years before that. Perhaps two years before that.
Q. If you'll give me just a minute. Thanks for your patience. As a part of the guidelines that you're working on with SEGM, Dr. Levine, does that include the treatment of children and adolescents who may express gender discordance?
A. At this point it's primarily among -- it's for adolescents.
Q. It's primarily for adolescents?
A. It's -- let me correct my answer, please. It's divided into children from 3 to 11 of early adolescents and adolescents who are of the age of majority and young adults. So there are children into adolescents and then sort of emancipated adolescents. And, "Emancipated," only means legally. And young adults probably to 25, 26.

Q. And do the guidelines include any recommendations on treatment for adults from, say, 26 and older?

A. I don't think -- that is not the subject of SEGM at this moment.

Q. Thank you. Do those -- understanding the guidelines are still being drafted, at this point do those guidelines recommend no treatment for any of those groups of children and adolescents you mentioned?

MR. KNEPPER: Objection, form.

A. Absolutely not --

Q. Okay.

A. -- "Absolutely not," meaning we do not recommend no treatment.

Q. Okay. Do the guidelines recommend no medical treatment for children or adolescents?

MR. KNEPPER: Objection, form.

A. Number one, the guidelines are not formulated yet --

Q. Understanding that, yes.

A. -- so I don't think I can answer that question with any kind of validity.

Q. Okay. Let's go back to your

report. And I'd like to -- we discussed a few moments ago, Dr. Levine, but your report mentions on page 4 at the top there, paragraph number 3 that in 1974, you founded the Case Western Reserve University Gender Identity Clinic. Do you see that?

A. Yes.

Q. Okay. And then your CV listed as Exhibit A mentions that around that same time, you became an assistant professor of psychiatry at Case Western Reserve University medical school. Is that correct?

A. Yes.

Q. And you became a full professor in 1985ish?

A. Yeah, ish.

Q. Okay. And, "Full professor," does that denote that you received tenure that year?

A. Yes. I was tenured at the same time.

Q. Okay. Do you recall how much of the teaching you did from 1974 to 1993, was specifically about gender dysphoria?

A. As I was running six clinics, I would say, 16 percent.

Q. Okay. That's a very specific percentage.

A. And let me just add, because teaching of sexuality involves all aspects of human development and sexual expression during various stages of development, even when we were not teaching about the treatment specific of transgender individuals, we certainly were talking about identity, formation and evolution throughout the life cycle. So my answer of 16 percent is with an asterisk. It probably could be more.

Q. Understood. Do you recall any classes that were specifically titled, The study of gender identity development in adults?

A. No. I didn't generally teach -- I occasionally gave lectures to departments of psychiatry across, you know, the region and the nation. But in my ordinary teaching at the university, it was mostly through supervision and through seminars, not classes per se. Like a college course that meets three times a week, that's not how my teaching went.

Q. How did your teaching go? Can you explain more about --

A. I would have a seminar on a topic. Cases would be presented to me. We would read the relevant papers and with the trainees, residents of psychiatry, interns in psychology, fellows in mental health work, nurses and so forth, they would, you know -- it would be case oriented.

Q. Just so I understand it. When you said -- not an MD, as you may have guessed -- a case study would come to you meaning you would learn about a particular patient in the community and you would present that to residents or fellows and then you would read relevant papers related to that specific case?

A. Sometimes it was that way. And sometimes it was the resident who presented the case --

Q. Oh, I see.

A. -- or the trainee who presented the case.

Q. So can you describe for me the difference between that work that you were doing in, you know, approximately the years 1974 to 1993 versus the work you did after '93 as a clinical professor?

A. Well, from 1977 on, my colleagues and I have had one or two, usually two conferences, case conferences a week to help our colleagues, both young and at the same level, present their cases and talk about the cases in group. We have found over the years, this is the most powerful educational experience that our trainees and our colleagues have ever had, as everyone seems to think that and attends these conferences eagerly.

And so transgender individuals were presented occasionally in those case conferences about impotent men and premature ejacula and inorgasmic women and, you know, people having sex with dogs. These kind of things were presented to us. And so to pick up with what you said before, sometimes we would then integrate that with something in the literature. It's a very powerful, sophisticating -- clinically sophisticating process that enables mental health professionals, even after they are trained officially, to feel comfortable in their role.

When you graduate psychiatric residency or psychology internship, although the world

thinks you're credentialed, you damn well know that you don't know a lot. So it's very helpful to talk to your peers, especially peers who are a little more experienced than you, to understand what needs to be done and what is the real problem and how you might use yourself to be helpful to this particular individual.

Q. Thank you. So you said from 1977 onward, that was the general formulation of your work?

A. So in the second iteration of our work, those things continued.

Q. Okay. So from -- I guess what I'm asking: Is there a distinction -- or, I'm sorry. Let me start over. What, if any, is the distinction between your work as a full professor versus your work as a clinical professor?

A. Well, in the full professor time, not only some of my colleagues and my staff were at these two conferences a week but medical students and psychiatric residents and psychology interns were around the table. There were more people around the table. After 1992, we had a resident -- one or two

residents only and our staff. So in the first, say, twenty years, the focus was primarily on the younger colleagues; and on the last twenty years, it was on the staff colleagues with an occasional medical student and occasional person from the community. We also invite people from the community to these conferences, when they present their cases to us, for guidance.

MR. CHARLES: Thank you. Why don't we take a six-minute break. Would that be amenable?

MR. KNEPPER: That would be fine.

MR. CHARLES: Okay. And we'll come back at 10.

Does that work for you, Dr. Levine?

THE WITNESS: Fine.

MR. CHARLES: Great.

VIDEOGRAPHER: Off the record 9:55.

(Recess taken.)

VIDEOGRAPHER: On the record 10:07.

BY MR. CHARLES:

Q. Dr. Levine, going back to the gender identity clinic, still on page 4 of your report. You testified previously today that

you founded The Center For Marital and Sexual Health, which had the sub-clinic of The Gender Identity Clinic. And your report also states that in 1993, that clinic was renamed and moved to a new location and became independent of Case Western University. Is that correct?

A. Yes.

Q. How did that change come about?

A. I left the University. And because we weren't part of -- I wasn't paid any longer from the University, we changed the name of the clinic.

Q. So the University was not subsidizing any of the work of the clinic at that point?

A. Not after 1993.

Q. Okay. And is that why they asked you to change the name?

A. Yes.

Q. Okay. And what did you change the name to at that time?

A. The Gender Identity Clinic.

Q. Where was that clinic then housed?

A. About 25 minutes east of the University --

Q. Was it --

A. -- in a commercial building where our clinic was. It was just, you know, a conference room in our clinic.

Q. And that was within -- was that within a business --

A. It was --

Q. -- a psychiatric practice?

A. I'm sorry. I interrupted you.

It was within The Center For Marital Health, which was a business that I and two other people started and owned and ran. And in that business, we continued the same kind of work we did with the University minus the large number of trainees.

Q. You mentioned that after '93, you were not being paid by the University. Were you providing your clinical psychiatric professorship gratuitously?

A. Meaning without pay? Yes.

Q. Okay. Do you know if, after you moved the clinic away from Case Western Reserve, if Case Western Reserve University Medical School created a separate gender identity clinic?

A. Years later they did --

Q. Oh, sorry.

A. -- I would say, they created a separate clinic perhaps in 2017, 2016.

Q. Do you know the name of that clinic?

A. I don't think it's in the department of psychiatry. I think it's in the department of pediatrics. And the answer to your question is, no.

Q. Does The LGBTQ and Gender Care Program sound familiar?

A. No.

Q. But have you -- sorry. Have you evaluated any patients through that separate clinic that Case Western Reserve has?

A. No. Much to my dismay, that clinic was formed and maintained without any input from me, who I thought was one of the experts in the field.

Q. Do you know if they have psychiatrists, within that clinic?

A. I -- I'm not knowledgeable about the composition of that clinic. There is a very strong liaison between our department of

psychiatry and the child psychiatry division of our department and pediatrics. They have programs together. So I wouldn't be surprised if one of the child psychiatrists or the child psychiatry residents, what they call fellows, may be involved, but I have no definitive knowledge about that and I may be quite correct or quite wrong.

Q. Understood. When you say, "Our," you mean Case Western Reserve's department of child psychiatry and --

A. Yes. "Our," means the -- the department of psychiatry has a division of child psychiatry, a separate training program for fellows in child psychiatry.

Q. I'm just confirming you don't mean, "Our," to mean the separate business that you run with your colleagues.

A. Yes. Well, see, part of my identity is I'm a professor at Case Western Reserve. So I still feel an affiliation and part of that team. I just am not paid by it. I'm not geographically located there. I still teach there. In fact, they have a professor -- they have an annual lecture called The Stephen

Levine Lecture -- Stephen Levine Lecture in Sexuality.

Q. So when you say you still teach there, it is akin to what you discussed earlier about one or two residents discussing a case with you on a somewhat infrequent basis?

MR. KNEPPER: Objection, form.

A. Your --

Q. Let me rephrase that. Is it what you discussed before about going over cases with one or two residents?

A. I see you don't understand what I said before, so I'm going to clarify it.

Q. Thank you.

A. Continuously, since the -- I moved, our team moved, I've had residents rotate with me at least one day a week or one half day a week minimum, sometimes one day a week and sometimes two residents spending a half or one day a week seeing patients with me and attending those conferences. That's been rather continuous since 1993. And that then continued the process of the previous twenty years.

They present cases, but they see -- they

see my patients with me. And almost every year, I present Grand Rounds to the entire department of psychiatry at Case Western Reserve. So I am involved as an educator and as a teacher for the, not just residents but for the faculty as well. So when I say, you know, "My department," or, "Our department," it's a reflection of what I do even though I'm not full-time in the department.

Q. Understood. Thank you. Is it correct to say you're continuing your work, just not in as large scale capacity as you were as a full professor?

A. That would be correct.

Q. Okay. So looking at your report again, page 4, paragraph 3, you mentioned that, "Over the years, our clinic evaluated and treated hundreds of patients who were experiencing a transgender identity." Do you see that? You don't need to see that, but do you see that?

A. That's correct. That statement is correct.

Q. Okay. You also write, "An occasional child was seen during this era."

What do you mean by, "This era"?

A. Before 1993.

Q. Okay. And what do you mean by, "Occasional"?

A. I would say that 95 percent of the patients that we saw were 16 and 17, 18 and up. We could debate what the word, "Child," means, but to me an 11-year-old is a child, even a 13-year-old is a child, especially when my children were 13. And so we -- in the first twenty years, transgender issues were primarily an older teenager and adult, mostly adult issues. In recent years, I would say, 12, 15 years, the number of adolescents appearing in gender clinics at our place and everywhere as far as I can see has increased exponentially, especially the number of teenage girls who are declaring themselves trans boys.

Q. So how many -- sorry. So the first twenty or so years, you said approximately 5 percent of all patients were children.

A. Were younger -- on the younger end of the spectrum --

Q. Right.

A. -- yes.

Q. And then you've noted in your clinic, an increase in children and adolescents in the last 12 to 15 years.

A. In our clinic, there's been a dramatic increase in teenagers and --

Q. Okay. And I guess how would you -- what percentage of the patients regularly being seen at your separate clinic would you say are adolescents?

A. Repeat that question.

Q. So your clinic now that is separate from Case Western --

A. Yes.

Q. -- your private practice, what percentage of patients being routinely seen would you estimate are adolescents?

A. Ninety.

Q. You said, "Ninety percent," of all patients?

A. Yes. I think ninety percent of our patients are now adolescents, new patients coming in.

Q. Okay. So let me -- how many currently returning -- or, I should say, how many regularly returning patients are you

seeing at your clinic who are adults?

A. Number one, I don't keep track of the numbers. There are like ten different therapists in our clinic. And not all of them are in our gender diversity clinic, but even those who aren't sometimes have adult patients who trans identify. I don't really know what numbers and therefore I don't know what percentage. I can just tell you about the people who are coming these days to see us are largely adolescents, some of whom are 14, some of whom are college age, freshmen or sophomores.

I see people, because I've written articles. Parents sometimes read articles and they call me and have a consultation with me with or without their child. But almost all of those -- one recent exception was a 22-year-old person, but I never actually met the person. I just met with the parents. So it's hard for me to answer that question and -- but I would just say the predominant -- say in the last two years, the predominant person who comes to see us is a teenager.

Q. Okay. I understand you saying it's

hard to answer that question as regards to adults, but you offered a fairly definitive answer as to adolescents of approximately 90 percent. So as a part of your work at your private practice, do you supervise other clinicians?

A. Yes.

Q. Approximately how many?

A. There's six members of our gender diversity team. And at our conferences, I'm the most supervisory person there.

Q. And are you still seeing individual patients in addition --

A. Personally?

Q. Yes.

A. I am.

Q. Approximately how many patients do you see regularly?

A. I don't mean to be cute, but, "Regularly," could be once a year, but I think you're asking about how often -- how many people do I see frequently; that is, regularly at weekly or twice a month intervals. I see lots of people who do come back for a follow up, you know, in six months or when they need

it, you see? But at this moment -- this week, I have one patient that I see weekly, who is a transgender teen. My staff -- if I can be presumptuous to call them, "My staff" -- our staff sees more.

Q. And thinking about the last year, approximately how many adult patients did you see -- and let's use your framing of, "Regular." So that could be one, for one followup visit or that could be for more -- how many adult patients did you see for treatment of gender dysphoria?

A. Approximately six.

Q. And using that same framing of, "Regular," how many children, so under age 11?

A. In the last year?

Q. Yes, yes. In the last year.

A. Zero.

Q. How many adolescents in regular treatment for gender dysphoria would you approximate you've seen in the last five years individually, exclusive of your supervision of other clinicians?

A. If you ask me the question in the last year, I would have told you five or six,

but since you ask it as a five-year period, I'm at a loss to tell you whether it's twelve or fifteen. I --

Q. An approximate is fine. Thank you.

A. -- let's just say a dozen with an asterisk, very approximate.

Q. And jumping a little bit more in terms of time. How about the last ten years?

A. Again, using the same asterisk, I would say, double it.

Q. Okay. And you said zero people under age 11, so children this last year. What about in the last five years?

A. Oh, two years ago, we had this charming little 6-year-old. One of my colleagues specializes in children and I get to hear about these cases. Occasionally I get to meet the parents, but I personally have not delivered a psychotherapeutic care or evaluation directly of a child with the exception of this one person that I was involved with.

Q. And that was this last year, you said?

A. That was -- I think it was probably

two, two and a half years ago.

Q. Oh, okay. And what kind of treatment -- I should say, have you referred any of those adolescent patients for additional treatment, besides psychotherapy, for the treatment of gender dysphoria?

A. Yes.

Q. And what kinds of treatment have you referred them for?

A. For endocrine treatment.

Q. Okay. And approximately what percentage of those adolescent patients have you referred for endocrine treatment?

A. Give me the timeframe of that question, please.

Q. Sure. So you said a few moments ago, in the last five years, you saw maybe, asterisk, 12 to 15 adolescent individually yourself. Of those 12 to 15, what would be the approximate percentage you referred for endocrine treatment?

A. I'm hesitating to answer the question, because some of those children have been taking testosterone or estrogen surreptitiously from their parents. And while

I didn't refer them for the treatment, I was seeing them while they were taking the treatment. So if we're only talking about adolescent -- referrals of adolescents for hormones, I would say a very small percentage of those, say, I guess you would say 10 percent.

Q. Fair enough. Have you had yourself individually as a clinician, have you had any non-transgender children who you have made a referral for endocrine treatments related to other conditions?

A. No.

Q. Okay. So then zooming out 30,000 foot view of your 48-year career now, would you say overall, you have provided treatment -- that is, psychiatric treatment -- to mostly adults experiencing gender dysphoria, gender identity issues?

MR. KNEPPER: Objection, form.

A. I would say that throughout my career, we should divide my career into the first twenty years where mostly adults were seen by our team and myself. And then we ought to talk about the last ten or fifteen years

where the number of adults has diminished and the number of adolescents has increased dramatically.

Q. Okay. Thank you. So as a part of your private practice, do you write letters of authorization for endocrine treatments?

A. Yes.

Q. And do you write letters of authorization for gender affirming surgeries?

A. I have. I have not recently, because most of my patients are 13 or 15 or 16, you know.

Q. Okay. And I'm sorry. Just by, "Recent," when was the last time you wrote a letter of authorization for a gender affirming surgery for an adult?

A. Probably twelve months ago.

Q. Okay. And over the course of your career focusing on your treatment of adults experiencing gender identity issues, for what percentage of those patients would you estimate you wrote a letter of authorization for gender affirming surgery for?

MR. KNEPPER: Objection, form.

A. Again, I would like to put an

asterisk to whatever I answer this question as. I have not kept track of those figures. I have written -- I've written or cosigned letters for hormone treatments and for gender confirming surgeries for many people. There were more people in the '70s and '80s than in recent decades. In part as a reflection of my own evolution of understanding of these problems and in part it's a reflection of the demography of patients who are coming to see me. I really would not like to answer that question, only because I don't know if the word, "Fifteen," or the word, "Twenty-five," or the word, "Thirty-five," is more accurate --

Q. Understood.

A. -- but I can tell you, I have written letters, especially in the early years, for the things that you're making reference to.

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(Thereupon, Deposition Exhibit 2, 12/21/2020 Zoom Deposition of Stephen B. Levine, M.D., was marked for purposes of identification.)

- - - - -

Q. Okay. For the record, I'm showing

Dr. Levine what has been marked as Exhibit 2. So this is Zoom deposition of Stephen Levine from Monday, December 21, 2020. Have you seen this document before, Dr. Levine?

A. Never.

Q. Okay. Do you recognize the title on the first page of this document?

A. Yes.

Q. And what does it say there in the caption?

A. The, "Zoomed Deposition of Stephen Levine."

Q. And was this from your deposition in the Claire versus Florida Department of Management Services case?

A. I presume so.

Q. Okay. So if you would please turn to what is marked as page 29. And I'm going to start reading at line 10. And if you'll just follow along with me and let me know if I'm reading too quickly.

So, Question: "Okay. What sorts of treatments do you provide for your patients with gender dysphoria?"

Answer: "Psychiatric evaluation of the

patient and the family, the parents and the other siblings; psychotherapy to further the process of understanding this whole phenomenon; recommendations for hormones and occasionally recommendations for -- depending on the biologic sex of the patient, for genital or breast surgery."

Question: "How many patients have you recommended hormone therapy for?"

Answer: "You mean over 47 years?"

Question: "Let's start with 47 years, yeah."

Answer: "I don't know. Can I give you a gross estimate?"

Question: "Sure."

Next page, page 30.

Answer: "Thirty-five."

Question: "Okay."

Answer: "Maybe now that's probably too low. Probably 75."

Question: "Okay. Again, just for clarity, that's of the four to five hundred, which is itself an estimate; is that right?"

Answer: "Yes."

Question: "Okay. How many would you say

in the past year you recommended for hormones?"

Answer: "In your sentence, 'you' refers to me as an individual therapist and me as a supervisor of other therapists. Okay?"

Question: "Okay."

Answer: "I would say five."

Question. "Okay. And in your previous answer where you said 75 as a gross estimate over the 47 years, was that personally or you plus you as a supervisor?"

Answer: "The latter."

Question: "Okay. Same question but about surgery. How many -- over the 47 years, how many individuals have either you or you as a supervisor -- sorry, together, both you and you as a supervisor, recommended for surgery?"

Answer: "Again, this is -- I'm estimating here" -- top of page 31 -- "Twenty."

"Okay. And then in the past year, how many have both you individually and you as a supervisor recommended for surgery?"

Answer: "Again, surgery would be mastectomies for biologic males who are trans males. I would probably say two."

Question: "Okay. Since you mentioned

the specific surgery mastectomy, can you tell me what other surgeries, if any, you have recommended in the past?"

Answer: "It would be genital surgery."

Question: "In the sense of -- can you name the specific surgeries?"

Answer: "What you called it...earlier today, gender-conforming surgery where the penis is removed and a neovagina is made where the scrotum turns into a labia."

Question: "Okay" -- actually, let's stop there. Dr. Levine, did I read that correctly?

A. Yes.

Q. Thank you. So of the patients that you have seen regularly during your career, could you give me an estimate of how many returned for followup care with you?

MR. KNEPPER: Objection, form.

A. The recommendation for followup care is almost universal. The number of people who follow through with followup care is minimal. And this is not just true for me. This has been a problem throughout the field forever. So I do see people, sometimes thirty years after, sometimes ten years after. They

come in. Sometimes they come in with depression and sometimes they come in to tell me how well they're doing. So I -- I just would say it's a very small percentage. It's not because I don't welcome them. I'm delighted to see them in follow up. In fact, I sometimes call people who have seen me in for a follow up and they almost never return my phone calls.

Q. Going back to your private practice. Is the name of that practice DeBalzo Elgudin Levine & Risen? I apologize for butchering some of those names.

A. I will pronounce it correctly for you.

Q. Thank you.

A. The name of the practice is DeBalzo Elgudin Levine & Risen.

Q. Okay. If I use the acronym, "DELR," will that be understood to mean your practice?

A. Yes.

Q. Okay. And is this the private practice to where you moved the gender identity clinic in '93?

A. No. The private practice that I moved my gender identity and all my other work was called Levine, Risen & Associates. That practice existed for -- until 2017, at which time the owners, which were reduced to two owners because a previous owner married and moved to Florida, we sold the practice to DeBalzo and Elgudin. And in order to maintain the reputation of the practice, they kept the names, "Levine & Risen." So that DELR is a relatively new entity. It employs me. I no longer am the boss and that's where I stand.

Q. Thank you for that. So, "Levine & Risen," at the end --

A. Risen.

Q. Thank you. "Levine & Risen," at the end of that title does not connote co-ownership of that practice?

A. Correct.

Q. Thank you.

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(Thereupon, Deposition Exhibit 3, Typewritten Three-Page Document Entitled, "Special Programs," was marked for purposes of

identification.)

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Q. So for the record, I'm showing Dr. Levine what has been marked as Exhibit 3. It's a two-page printout from the DELR website, "Special Programs," tab. Have you seen this material before, Dr. Levine?

A. I might have, but I have no recollection --

Q. So --

A. -- I didn't -- I didn't write it.

Q. Okay. You anticipated my next question. Could you look at the middle of that page, please, the, "Gender Diversity Program." That is the title there. Do you see that?

A. I can.

Q. Is that a synonym for The Gender Identity Clinic at the private practice now?

A. It's the current name of the program.

Q. And that's the program still continuing to do the work we discussed earlier?

A. Yes.

Q. Okay. For patients coming to -- let's start with DELR generally. For patients

coming to the practice generally, is commercial insurance accepted by at least some of the clinicians at DELR?

A. Yes.

Q. Would you say it's accepted by most of the clinicians at DELR?

A. Yes.

Q. Okay. Do you accept commercial insurance?

A. I accept Medicare only.

Q. Only. Okay. So not private insurance or Medicaid?

A. No.

Q. And was there a time in your career that you accepted -- excuse me. Was there a time in your career where you accepted private commercial insurance aside from Medicare?

A. When I was at the University, the clinics I ran accepted all insurances. My personal private practice, I think at one time did but the reimbursements were so low that I needed to earn a living. So in my private practice, I stopped accepting commercial insurance.

Q. And when you say, "In your private

practice," does that note approximately 1993 or a different time?

A. In 1973, I was hired as an assistant professor of psychiatry to develop programs both educational and clinical programs for human sexual concerns. And half of my time I -- my salary was $30,000 for half of that time and the other half I was able to have a private practice where I could earn more than $30,000 a year.

Q. I see. When approximately did you stop accepting commercial insurance?

A. I'm guessing. 1980.

Q. Okay. Can you just tell me about your choice to accept Medicare?

A. Well, I like the concept of Medicare. And there was a time I became a Medicare insuree. And I felt like if I was going to my doctor handing them my Medicare card, I at least should be able to do the same thing for my patients.

Q. Understood. I'm sorry. I didn't mean to interrupt you.

A. So I would say, at least 14, 15 years ago.

Q. Do you think as a general matter that it's good for patients who come to DELR for services related to gender dysphoria to be able to have insurance coverage of that care?

MR. KNEPPER: Objection, form. Beyond the scope.

A. Well, the people who come to DELR are generally coming for evaluation and psychotherapy services. And I believe it's very important that people have access to mental health care and that mental health care for many of our patients are not wealthy, affluent people. And the fees that even masters prepared people charge can become prohibitive. And so I think it's a very nice idea, the psychiatric services, mental health services evaluation and ongoing treatments, with or without medication, it would be nice to be able to cover those things, yes. I think that's a long answer, yes.

Q. Understood. And thinking about the treatment that you refer patients out for, the endocrine treatments in particular, do you think it is generally good if you provide authorization for that treatment that the

patient be able to afford it?

MR. KNEPPER: Objection, form.

A. May I say, of course?

Q. You may. You may say anything you would like.

A. Of course.

Q. Thank you. Well, anything you would like within reason.

If you make a letter of authorization for a patient for the treatment of gender dysphoria specifically related to a surgical treatment, do you think it is good that they be able to access that treatment that you've authorized?

MR. KNEPPER: Objection, form.

A. Not to be cagey, I want to talk about one word you just used in that sentence. I need you to understand that historically in our clinic for those 47 years, our clinics for 47 years, we are not in the business and we have never been in the business of recommending surgery or recommending hormones. We recommend a continued evaluation so that we -- the person can make up their mind how to proceed.

It is not our knowledge base to know who's going to do better and who's going to do

worse and who is not going to have any difference at all with hormones or with surgery. So what we do is we say, we will write a letter of support for endocrine treatment or for hormones if this is what you want. And we say what our concerns are. We tell the endocrinologist and we tell the surgeon what our concerns are and that we see -- we have reservations about this, and these are our reservations, but the patient has decided this is what he or she wants to do.

And so we write a letter of support, but I don't -- every time you use the word, "Recommendation," there's part of me that wants to say, no, we do not recommend. We have never recommended. We have not had the knowledge base. We have not had the clinical experience and the knowledge base to say, I'm a doctor. I know this field. This is what I recommend to make you better. We do not talk that way. We do not think that way. And so I may want to always put an asterisk to any sentence that you use the word, "Recommend." I need you to understand that that's where I'm coming from.

MR. CHARLES: Thank you,

Dr. Levine.

Excuse me just a moment. Can you read back my question. I don't recall if I used, "Recommend." I thought I used, "Authorization." I just want to make sure.

(Record was read.)

MR. CHARLES: If we could just go off the record for a second.

VIDEOGRAPHER: Off the record 10:52.

(Discussion held off the record.)

VIDEOGRAPHER: On the record 10:53.

BY MR. CHARLES:

Q. Okay. Thank you for that clarification, Dr. Levine. I'll be more careful about using terminology more close to, "Authorization," rather than, "Recommendation," and I understand your distinction in your practice. So do you, though, think it's good, if you are authorizing a treatment, a patient has said, This is the treatment I would like, and you have done an evaluation and determined that you will write, as you said, a letter of support, do you then, as a practitioner, think it's good that they can access it, that they can afford it?

MR. KNEPPER: Objection, form.

A. Yes.

Q. And similarly, if you were treating this patient and you determined they understood the risks and, again, you were providing a letter of authorization and you thought the treatment would be psychologically beneficial --

MR. KNEPPER: Objection --

Q. -- would you want that treatment to be covered by insurance, if that were the only means by which a patient could access it?

MR. KNEPPER: Objection, form.

Q. I can revise my question, if that would help.

A. I understand your question. I'm just thinking about your questions, how to answer your question. I work in the state of Ohio. Many of my patients do not have insurance for these -- for example, for these kind of surgeries. They know they don't have insurance for these kind of surgeries and they save up for these kind of surgeries. This is part of their determination, that they have enough money to pay for the surgery. If I

believed that the surgery was beneficial and was going to create a lifetime of happiness and at least an equal chance to create a full, successful life, I would answer your question, yes.

I'm skeptical about the answer to, does this particular surgery enable this particular person to have a full and successful life. I'm skeptical. I'm uncertain of whether this is true. I'm uncertain whether it's worth, for example, saving up $30,000 to have genitals redone with a high risk of problems in those genitalia. And so I don't want to answer your question, I believe each ought to have insurance coverage.

I believe we should establish scientifically the efficacy of these treatments and we should know the number -- we should know the impact of these treatments, not only on their anatomy and their physiology, but we should know the impact of these treatments on their capacity to live a functional life. I don't know the answer to that question in a scientific way and therefore, I hesitate slowly -- I hesitated to answer your question

immediately.

Q. But if the only way that the patient could access that surgery were through insurance, as an agent of the patient, would you want them to be able to do that?

MR. KNEPPER: Objection, form.

A. As an agent of the patient, I explain to the patient what I know about the long-term outcome of members of trans communities. That's how I am the agent of the patient, to teach them what is known about this subject and to separate fantasy from reality as is known in an objective appraisal. For example, the New England Journal of Medicine and other major medical journals refers to the trans community as, Marginalized and vulnerable," and vulnerable -- then they list ten different areas of vulnerability.

So I am the agent of the patient. I am the agent of the patient's current happiness and future happiness, their current health and their future health. And what I know about the future health of many people in the trans community is very worrisome to me. And so I am the agent of the patient, but, you see, my

concept of agency and being a doctor, I think is different than the implication of your question.

Q. Is the worrisomeness for a patient's future health, is that a reason to deny all medical care for gender dysphoria?

A. Absolutely not.

Q. Dr. Levine, I'd like to return back to, I believe it's Exhibit 2, the Claire deposition. And please, if you would turn to page 156.

A. I'm sorry. 150 what?

Q. Page 156. And beginning at line 10 on page 156, Dr. Levine, I'll read it, if you'll just follow along, please.

Question: "Are you aware that this case concerns an insurance exclusion that is categorical at preventing" --

Skipping to line 15.

"-- hormones and surgery as a treatment for gender dysphoria?"

Answer: "I am aware that your plaintiffs are suing to get coverage for -- that is not provided by their particular insurance. I am aware of that."

Question: "Do you think that exclusion is appropriate?"

Answer: "I've already answered that question. I" --

Turning to page 157 --

-- "believe."

Question: "What is the answer?"

I'm sorry. Dr. Levine, are you there?

A. Yes.

Q. Okay. On line 3, Question: "What is the answer?"

Line 4, Answer: "That it's a political decision that varies from state to state, and it belongs to the process of political science and the courts and not doctors."

Question: "And if you yourself were treating them and determined that they understood the risks and you thought the treatment would be psychologically beneficial and provided letters of authorization to them, you would want that treatment to be covered by insurance; is that correct?"

Answer: "I am an agent of the patient, I want what's best for the patient, and especially if the patient couldn't otherwise

afford it, I would wish for my patient to have it, yes."

Okay. Did I read that correctly, Dr. Levine?

MR. KNEPPER: I'm going to object, because you left out portions of the transcript --

MR. CHARLES: Okay.

MR. KNEPPER: -- so, you know, there are a number of objections as to form by the attorney there that we don't know the full content of those objections, but, you know, the purpose is to note that the answer might not actually reflect -- there might be issues, either inconsistencies or otherwise within the questions being asked, so. I mean, I will admit that you read the -- I don't have any problem stipulating --

MR. CHARLES: I can go back and re-read it with the objections.

MR. KNEPPER: If you want to, that's fine, but I just -- I don't want him to admit to something that's manifestly incorrect, at least as to the text of the document.

MR. CHARLES: Sure, no problem. I

can redo that.

BY MR. CHARLES:

Q. Okay. One more time, Dr. Levine.

Starting at page 156, line 10.

Question: "Are you aware that this case concerns an insurance exclusion that is categorical at preventing --

Ms. Coles: Form.

By Mr. Tilley:

-- hormones and surgery as a treatment for gender dysphoria?

Ms. Coles: Form."

Answer: "I am aware that your plaintiffs are suing to get coverage for -- that is not provided by their particular insurance. I am aware of that.

By Mr. Tilley:

Do you think that exclusion is appropriate?

Ms. Coles: Form."

Answer: "I've already answered that question, I believe.

By Mr. Tilley:"

Question: "What is the answer?"

Answer: "That it's a political decision

that varies from state to state, and it belongs to the process of political science and the courts and not doctors."

Question: "And if you yourself were treating them and determined that they understood the risks and you thought the treatment would be psychologically beneficial and provided letters of authorization to them, you would want that treatment to be covered by insurance; is that correct?"

Ms. Coles: Form."

Answer: "I am an agent of the patient, I want what's best for the patient, and especially if the patient couldn't otherwise afford it, I would wish for my patient to have it, yes."

Did I now read that more correctly, Dr. Levine?

A. I didn't have an objection to your original reading. I don't understand the legal aspects of this.

Q. Fair enough. But from what I just read, did I read it correctly?

A. You did an excellent job --

Q. Okay.

A. -- I give you an A.

Q. Okay. All right. Are you familiar with the insurance exclusions that plaintiffs are challenging in this case, Dr. Levine?

A. Only vaguely.

Q. Okay. So have you reviewed them? Excuse me. Have you reviewed those exclusions on paper?

A. I don't think so. I may have.

Q. Perhaps have they been shown to you in the insurance plan document booklet.

A. I don't think so.

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(Thereupon, Deposition Exhibit 4, 1/1/2019-12/31/2019 North Carolina State Health Plan Benefits Booklet, Bates Numbers PLAN DEF0001785-0001900, was marked for purposes of identification.)

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Q. Okay. For the record, I'm marking -- excuse me. I'm showing Dr. Levine what has been marked as Exhibit 4, which is the North Carolina state health plan for teachers and state employees, a division of the

department of state treasurer, 80/20 PPO plan, benefits booklet, January 1, 2019 to December 31, 2019. You said you have not seen this document before, Dr. Levine?

A. I now can tell you, I have not seen this document.

Q. Okay. Does it appear to you to in fact be the benefits booklet for the state health plan for teachers and state employees for the year 2019?

A. It appears to be so.

Q. Okay. If you -- just a moment. Sorry.

Dr. Levine, if you would first turn to page 42. And the page numbers are at the bottom of these pages rather than at the top, if that's of any use to you.

And, Dr. Levine, if you would, please, look, I would say, roughly halfway down the page, there is a bullet point that begins with, "Psychological." I know that's somewhat vague but not --

A. I see it --

Q. Okay.

A. -- "Psychological assessment and

psychotherapy treatment in conjunction with proposed gender transformation."

Q. Okay. So that is correct. And then if you would, please, turn to page 52. In the T subcategory there, the very last bullet. It reads, "Treatment or studies leading to or in connection with sex changes or modifications and related care." Do you see that there?

A. No. Where is it?

Q. I'm sorry. Page 52 on the left-hand side. Do you see letters going down the left hand column?

A. Yes.

Q. Look at the letter, "T."

A. "T?"

Q. "T," as in Tom.

A. Yes.

Q. And the very last bullet point in that section.

A. Oh, I see it.

Q. And then just to confirm I'm reading it correctly. "Treatment or studies leading to or in connection with sex changes or modifications and related care." Did I read that correctly?

A. A.

Q. It's very meaningful from a professor to always have that positive feedback, so thank you for indulging me.

Okay. So are you aware, Dr. Levine, that these exclusions in the healthcare plan exclude from coverage any kind of hormonal; that is, endocrine or surgical care, related to the treatment of gender dysphoria for adolescents and adults?

MR. KNEPPER: Objection, form.

A. I'm becoming aware of that, yes.

Q. Do you think such an exclusion is appropriate, given what you know about treatments for gender dysphoria?

A. Since hormone treatment and surgical treatment actually represent an enormous change in body physiology and anatomy, and the ethical principle that governs physicians is, above all do no harm, the first principle, and these tissues and these functions are normal. They're not diseased. And the problem with gender dysphoria is a mental issue about the incongruence between one's current gender identity and one's bodily

anatomy and physiology.

And as a result of the fact that these treatments have been initiated and devised prior to establishing their impact, their long-term impact and whether the associated mental disturbances of the person are improved by these. I would say that there should at best be a great hesitance about using these treatments that are unproven, not FDA approved and have never been subject to sophisticated scientific methods of establishing their efficacy.

I understand that insurance companies who have to pay for events and -- all kinds of events are hesitant to underwrite and pay for treatments that are not proven to be efficacious. I know there's a disagreement about whether it's efficacious, but in my field, in the science field, disagreements are handled by data. And data is generated, not by simply clinical experience but by randomized controlled studies or by careful followup studies with predetermined means of assessing in follow up the impacts of the treatment.

None of these things are true when it

comes to the treatment of adolescents with hormones. And none of these things are actually true when it comes to the treatment of adults and adolescents with surgery. So I think the failure to cover these what is called erroneously sex change, I think there's a reasonableness to saying, I don't -- we're not covering this until you show me the evidence that it's real, that the impact of the treatments are very positive and the number of people who don't have positive is so small that the good outweighs the bad so to speak, the bad outcomes are not the predominant outcomes.

We don't know the answer to these questions. And my expertise is not on the answer to your question, should insurance cover it, or, do they wish they covered it for my patients. My expertise has to do with what I just said, the absence of convincing evidence after -- when it comes to gender surgery, you need to understand over fifty years -- these things have been going on for over fifty years and they began and they continued without any controlled follow up, any serious sophisticated methologic (phonetic) scientific attempts to

demonstrate their efficacy. This is the problem.

This is the essence of the problem. This is, I think the essence of my testimony with you today. It's not whether I personally as a doctor would like this patient to have insurance to cover their hormones. It's about, is this the right thing to do for this person and can I help the person see clearly what the dangers are and what the benefits are. That's the issue for a doctor, for Stephen Levine as a doctor. I hope that's a cogent answer --

Q. It is --

A. -- to your question.

Q. -- it is cogent. Thank you.

Given all of that, is that -- so you just explained, testified that there are complications, some lack of -- and I'm summarizing here, so I will confirm that this is an accurate summary of what you just shared, but I can't possibly repeat all of that. Given all of those concerns that you have, is that a reason to deny all medical interventions to people with gender dysphoria?

MR. KNEPPER: Objection, form.

A. No, but that's not -- that's a separate question about insurance.

Q. Yes, it is a separate question. So now I'm asking: Are those concerns you raised justifications in your mind for denying medical interventions to all people with gender dysphoria?

MR. KNEPPER: Objection, form.

A. You know, I'm not advocating denying endocrine treatment or surgical treatment. I'm just saying that we as a medical profession need to walk the walk that we talk. We say as a principle of ethics that our interventions should be based upon the best current knowledge, it should be based on science. It should not be based on politics. It should not be based on fashion. It should not be based on civil rights considerations. They should be based on the kinds of studies that I just described to you with predetermined outcome majors that are agreed upon --

Q. Sorry?

A. -- period.

Q. I was --

A. I forgot to put the period.

Q. That's okay. Did you just say, Dr. Levine, you're not an expert in health insurance?

A. I am not an expert in health insurance.

Q. Okay. Or what insurance should or should not cover?

A. Yes.

Q. Do you recall what the insurance billing code typically is for psychotherapy for gender dysphoria? I know it's been a long time since you've accepted commercial insurance, so I'm not sure if the billing codes are the same, but do you recall --

A. The billing code is 90837.

Q. Okay. Is there a code that you're familiar with that is F64.0?

A. That's not a billing -- that's diagnostic code --

Q. Thank you.

A. -- there's a separate code for diagnosis and a separate code for procedure.

Q. I see. So F64.0 is a diagnostic code?

A. Yes.

Q. And how might you use that diagnostic code in your practice? I'm sorry. How might you use that diagnostic code in your practice?

A. How might I use it?

Q. How do you use it?

A. Well, when a patient who is struggling with this matter and they qualify for the diagnosis of gender dysphoria in DSM-5, I write, "F64.0." If there's some threshold for that, they have some features but they don't meet all the criteria, I give them an F64, point, something else; usually 8. If I get rejected, as I commonly get rejected from commercial insurance for that -- you see, I don't accept commercial insurance, but my patients use their commercial insurance. Can you understand that?

Q. I do understand.

A. So what often I have to do -- and this is one of the great lies and paradoxes that pervades the medical profession -- is that we code things, not accurately; that is, we don't give them an F64, point something diagnosis, because when we've done that, their

insurance company has rejected that. All right. So we give them another code. Now, you know, coding, distress or anxiety or depression or substance abuse or attention deficit disorder, which they will cover. So there's a game that all mental -- that all professionals play. It's this residence between the insurance company and the doctor and with the patient in mind, get the person covered. Now, of course in hospitals, they have special people who code the encounter to maximize the reimbursement for the hospital. That's not how we do it in private practice. We just want -- even if they're my patients and I don't accept issuance, they're getting paid by their insurance company directly. I'm not getting paid, you see?

Q. I see.

A. So I am interested in their getting paid something, so I learned how to play the game. So oftentimes when someone has an F64 diagnosis, I give them two diagnoses, one of which I know will be covered. But this whole thing is just junk.

Q. Do you think it would be better if

that were not an obstacle for mental health professionals, that mismatched coding problem that you just described?

MR. KNEPPER: Objection, form, scope.

A. Well, since the medical ethics principle is that doctors are supposed to be honest, this compromises our honesty.

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(Thereupon, Deposition Exhibit 5, Lesbian Gay Bisexual Transgender Center Document Entitled, "Transgender Resources," was marked for purposes of identification.)

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Q. For the record, I'm showing Dr. Levine what has been marked as Exhibit 5. It is a printout from Case Western Reserve University, their website, a page entitled, "Transgender Resources." Dr. Levine, have you seen this material before?

A. No.

Q. Okay. It's not very long, so if you would just take a moment to look at it and please take as much time as you need.

A. Okay.

Q. Dr. Levine, does this appear to be -- I'm sorry. Is this a printout from the Case Western Reserve University web page entitled, "Transgender Resources"?

A. I have to trust you that it is.

Q. I appreciate that. If you could turn, please, to the second page. It's just on the back of the first page, as you might imagine. And the second bolded section is titled, "Transgender Health Care Benefits For Students." Do you see that?

A. Yes.

Q. Okay. And do you see below it another heading, "Transgender Health Benefits For Employees"?

A. Yes.

Q. Okay. And were you aware that Case Western University offers insurance coverage for gender affirming care, including psychotherapy, hormones and gender affirming surgery for students and employees?

A. No.

MR. CHARLES: If we could go off the record, please.

VIDEOGRAPHER: Off the record 11:26.

(Recess taken.)

VIDEOGRAPHER: On the record 11:31.

BY MR. CHARLES:

Q. Okay. Dr. Levine, in your report, you stated that you had not met with any of the plaintiffs in this case, correct?

A. Yes.

Q. Okay. And you have not interviewed any of the plaintiffs in this case, correct?

A. Correct.

Q. And so you are not offering any opinions about the plaintiffs in this case, correct?

A. Correct.

Q. Okay. And that would include the veracity of their experiences of gender dysphoria, correct?

A. Yes, correct.

Q. And that would not include the accuracy of their gender dysphoria diagnoses, correct?

A. Correct.

Q. Okay. You're not offering any opinions about their mental health histories?

A. Correct.

Q. Nor any of the affects of the gender affirming treatment they may have received?

A. Correct.

Q. Okay. Thank you. Let's return to your report. I don't know if you have that --

A. My report?

Q. Yes. You can put away that document in your hand.

So if you would, please, turn to page 6 of your report.

Okay. So on page 6, paragraph a. at the bottom of the page there, Dr. Levine. The report states that this is one of the opinions you're offering, which is, "Sex as defined by biology and reproductive function cannot be changed. While hormonal and surgical procedures may enable some individuals to 'pass' as the opposite gender during some or all of their lives, such procedures carry with them physical, psychological, and social risks, and no procedures can enable an individual to perform the reproductive role of the opposite sex." Did I read that correctly?

A. Yes.

Q. Please say, yes. Sorry. Are those risks that you mentioned there, Dr. Levine, a sufficient reason not to give medical care to someone with gender dysphoria who might need that medical care?

MR. KNEPPER: Objection, form.

A. Those risks are such that they need to be understood -- explained, understood and integrated by the person over time so that they can take personal responsibility for the consequences, positive and negative, the benefits and the risks or the negative consequences that ensue once they undergo these treatments, period.

Q. Period. Okay. Thank you. When you provide a letter of authorization or a letter of support, as you described it earlier, do you establish those parameters you just described, that someone I believe, you said understands --

A. They're knowledgeable about -- may I speak?

Q. Please.

A. They're aware of their -- they can

state that, these are the risks, and they've had time to personally integrate --

Q. Integrate.

A. -- think about these risks as they apply to themselves. "This won't happen to me, Dr. Levine. I'm too smart for that." That is not an integration of what I have just said to them, although I hear that all the time.

Q. So would it be correct to say that before you will provide a letter of authorization, you are sufficiently satisfied that a person has understood, integrated those risks into their ongoing analysis?

A. I will say that I have explained those risks. We have discussed them over time. And if the person has said repeatedly what I just quoted, I will put that in my report, which would help the endocrinologist or the surgeon understand that he or she is taking ethical responsibility for delivering this care and there is some doubt whether the person really is able to contemplate the risk to him or her of these dangers.

Q. Sorry.

A. I forgot to say, period.

Q. I'm learning the cadence of your speech as we are here today, so I'm trying not to interrupt you. And in the incident -- or, sorry. In the circumstance that you have a patient who doesn't -- that is to say a patient who does exhibit an understanding of integration in what you experience or perceive as a reasoned, thoughtful approach, would you also put that in your letter to the surgeon or the endocrinologist?

A. Yes.

I want to add, though, that right now as we're speaking, two patients come to mind that I've written letters of support to surgeons. And people said they understood and they were willing to accept the risks and neither one of these people actually went through with the procedure. So, you see, there is a developmental process. As the opportunity to actually undergo surgery gets closer, the apprehension of the patient sometimes leads them to make a different decision than they did when they asked me for the letter of recommendation.

I just think we all ought to understand

that. Just because someone gets a letter of recommendation and says, "I accept the risks," the process is not complete, you see? Because what I have seen is people have had surgery and then they get deeply depressed and so I'm trying to avoid that.

Q. Understood. And so is the opposite of those two people then also true in your experience; that there are people who, you know, make those statements to you of understanding and integration, accept the letter of authorization and then do follow through with the treatment?

MR. KNEPPER: Objection, form.

A. Yes.

Q. If you would, please, Dr. Levine, turn to page 12 of your report. Under the heading, Section 2, "Background in This Field," subsection a, "The Biological Baseline of Sex." Do you see that there?

A. I do.

Q. Okay. It states at paragraph 9 that sex is permanently assigned -- oh, sorry. Would it be a correct summary to say that your reports states in that section that sex is

permanently assigned on the basis of a person's DNA at birth in conjunction with their designated reproductive function as either male or female?

A. No.

MR. KNEPPER: Objection, form.

Q. Okay. Can you tell me what --

A. The word, "Assigned," is put in quotes.

Q. Oh, I see, in quotations. What is the word you would use instead of, "Assigned"?

A. Sex is determined at conception.

Q. And is it in conjunction with chromosomes, in your opinion?

A. It's in conjunction with strictly biologic processes. Hormones are just -- I'm sorry. Chromosomes are the carriers for genes and the sequence of gene interaction is nothing short of miraculous and not completely understood. But what is understood is the sex as male or female of the new form of life is determined at conception. And that's why I use the word, "Assigned." We're not assigning it. We're determining. We're discovering it.

Q. So is it just the chromosomes then

that --

A. No.

Q. -- that determine --

A. I'm sorry.

Q. I'm sorry. That we -- I forget the word you just used -- discover, I think is the word.

A. Determined.

Q. Okay. So is it just chromosomes then that determine sex or is it other -- are there other components involved?

A. There are other components.

Q. And what are some of those?

A. Genes and the sequence of genes turning on their function and turning off their function. And those genes determine the dimorphic that is two forms, either one form or another, that which will be recognized as either a male fetus or a female fetus. And that, you know, in case of conceptions that lead to death and that the earliest embryos are histologically examined, the sex of that, you know, aborted embryo is determinable.

Q. So beyond that, are there any other components that you would identify as part of

sex, as you understand it?

A. Well, the miracle of development in nine months gestation has numerous -- I mean, enumerable forces, endocrine forces, pathways of the lines that the cells follow in their growth pattern, the -- you know, when 96 percent of newborns appear in the world and are declared by the pediatrician to be entirely healthy, there probably have been several million episodes, several million operations that have worked perfectly. So chromosomes are the carriers of the genetic information that creates the miracle of development and actually the course of life.

Q. Forgive me for moving past the very poetic description you just provided, which I do appreciate.

A. I'm sorry. Was what?

Q. Forgive me for moving past the very poetic description that you just provided.

A. Oh.

Q. No, no. I mean that sincerely. But I guess my question is: When the infant is determined to be healthy and alive, right, what are the other components of the sex of that

infant as opposed -- so I understand the DNA and the chromosomes piece.

A. I mean, obviously you don't have to be a physician to look at the genitalia of a newborn and say, This is male or female, or, I don't know what this is.

Q. So it would then be for you the chromosomes, the pathways of the cells and the external genitalia?

A. Yes.

MR. KNEPPER: Objection, form.

Q. Okay. Would you agree there are some scholars who define, "Sex," differently than the way you just described it?

A. I don't know that I would call them, "Scholars," but there are people in this field who probably define it differently, although I couldn't tell you how.

Q. Are there people with your same level of credential -- Ph.D.'s in psychiatry, M.D.'s in psychiatry -- who describe, "Sex," differently?

A. I think the difference is whether, "Sex," is construed as including gender. And in what one considers primary, basic,

unchangeable about a person. You know, the layperson doesn't distinguish clearly on their own between sex and gender. And even the medical profession didn't have a concept of gender until relatively recently. So it wouldn't surprise me that there are some people who are more or less knowledgeable about these things, even though they have PhD degrees or MD degrees. I mean, having an MD or a PhD degree does not mean that you are a rationale and scientific individual. It just means you've passed certain academic credentials and you got degreed --

Q. All right.

A. -- it seems rather basic to me that all fields that have biologic -- all fields that have a biologic understanding would agree with my concept of, "Sex."

MR. CHARLES: We'll stop there for the phone call. Thanks, Dr. Levine.

MR. KNEPPER: Okay.

MR. CHARLES: Off the record.

VIDEOGRAPHER: Off the record 11:47.

(Recess taken.)

VIDEOGRAPHER: On the record 12:47.

BY MR. CHARLES:

Q. So, Dr. Levine, in your report, you discuss your involvement with WPATH until 2002. It also states you were the chairman of the committee for the drafting of the standards of care 5 and then you decided to not be a member any longer. Is that correct?

A. Yes.

Q. Okay. And do you continue in your current practice to follow the WPATH standards of care?

A. More or less. Mostly less.

Q. And less in the sense that you follow them, but do you use a more conservative approach?

MR. KNEPPER: Objection, form.

A. The standards of care were last issued as the 7th edition. And in the 7th edition, they no longer think a mental health professional is necessary prior to medical treatment; and they are necessary only to make a diagnosis of gender dysphoria, which does not take a sophisticated human being, a sophisticated clinician. And so that changed everything in the field whereby people whose

current gender identity was trans could much more easily have access to endocrine treatment.

And so what I do with patients and what our clinic has done with patients is not follow that standard of care. We do believe in a thorough psychiatric evaluation. And when it comes to adolescents, we believe in talking to the parents and getting a developmental history beginning sometimes before pregnancy. So in that sense, I don't follow the standards of care.

Q. The version 7 that you mentioned of the standards of care, does that version still incorporate much of the language that you wrote from previous versions?

A. Certain paragraphs are my -- well, my -- if I can refer to the 5th edition as, "Our," or, "My standards of care," meaning that I was the chairman of that writing group. And I actually wrote most of the words in that 21-page document, but more or less the current standards of care are over 120 pages. And so certainly I can identify a paragraph or two that I think I wrote, but most of it is not my writing.

Q. Okay. And did you ask to be involved in the writing of the standards of care version 8 which is still forthcoming?

A. Did I ask to be involved, no.

Q. So at no point did you try to be involved in the drafting of the standards of care version 8?

MR. KNEPPER: Objection, form.

A. No. I might add, I wasn't invited.

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(Thereupon, Deposition Exhibit 6, 4/8/2019 Soneeya v. Turco Trial Transcript, Day 1, was marked for purposes of identification.)

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Q. So for the record, I'm showing Dr. Levine what has been marked as Exhibit 6, which is the transcript of the bench trial, day one, Soneeya, S-o-n-e-e-y-a, versus Turco from April 8, 2019. Dr. Levine, if you could, please turn to page 1-90.

Beginning at line 10, Question --

A. I'm sorry. Did you say, "190"?

Q. Yes, correct. In the upper right-hand corner 1-90.

A. Yeah.

Q. And then looking at line 10, I'll begin the question: "And as you understand it, there's going to be an eighth version coming out soon, correct?"

Answer. "Yes."

Question: "And you're not involved in drafting that version, correct?"

Answer: "I am not."

"And you requested to be participate in drafting that version, correct?"

Answer: "I'm not sure that's correct."

A. Excuse me, but --

Q. Just one second.

A. -- what you're reading is not --

Q. Dr. Levine, please just let me finish and then I'll ask you a question.

Answer: "I'm not sure that's correct."

Question: "You did not ask to be involved in drafting that version?"

Answer: "I think -- I think I actually might have, now that you bring it up, but I was told I had to be a member of WPATH."

Did I read that correctly?

A. It's not where you -- this is

not what -- when I interrupted you, I wanted to tell you that what you're reading is not on line 10 of page 190, so I didn't -- I was just, you know, confused.

Q. Okay.

MR. KNEPPER: I think the change here is 1-90 and I think the witness might be on page 190.

MR. CHARLES: My apologies.

MR. KNEPPER: Unfortunately, this transcript actually goes that high, so.

Q. My apologies, Dr. Levine. So it would be 1-90.

A. Oh, I'm sorry. Okay. So line 10?

Q. Yes, line 10.

Question: "And as you understand it, there's going to be an eighth version coming out soon, correct?"

Answer. "Yes."

Question: "And you're not involved in drafting that version, correct?"

Answer: "I am not."

Question: "And you requested to participate in drafting that version, correct ?"

Answer: "I'm not sure that's correct."

Question: "You did not ask to be involved in drafting that version?"

Answer: "I think -- I think I actually might have, now that you bring it up, but I was told I had to be a member of WPATH."

Now did I read that correctly?

A. Yes.

Q. Okay. My apologies for the mixup on the page numbers.

Okay. And then, Dr. Levine, if you could, please, turn to 1-100.

A. I'm there.

Q. Okay. And then -- sorry. Give me just a second here.

Okay. Sorry about that. Beginning at line 13 on that page, Dr. Levine.

"The Court: I'm less interested in what the court found on that than I am the substantive question.

Does he -- well, do you subscribe to the WPATH standard of care?

The Witness: I subscribe to it as guidelines. I subscribe to it in many ways, but there are subtle objections that I have to

it, and --

The Court: Would it be fair to say those are refinements of the Standards of Care as they exist now?

Yes."

Did I read that correctly as well, Dr. Levine?

A. Yes.

Q. Okay. And the standards of care is still published in a peer-reviewed source, right?

A. The standards of care are developed by consensus agreement in a committee of people who are all involved in the transgender healthcare system. If it is sent to a journal, like The International Journal of Transgenderism, all of the people who are on that committee of the journal are actively involved in transgender care. The standards for guidelines on various medical treatments say that 30 percent maximum of people involved in writing guidelines need to be -- need to be members of that specialty or that activity.

So 70 percent need to be, you know, people interested in science and educated in

methodology and are capable of critically reviewing the literature. So your statement is true on the most superficial level, but is totally incorrect when it comes to scientific standards of care for issuing guidelines for the medical profession. So I don't know how to answer the question. On the surface, the answer is, yes. And underneath the surface, the answer is, no.

Q. So the International Journal For Transgender Health is still a peer-reviewed source, though, right?

A. It's peer reviewed by people who make their living supporting transgender care.

Q. But it's still peer reviewed, right?

A. It's peer reviewed --

Q. And as for your --

A. -- I think it's peer reviewed.

Q. Okay. Understood. And as for your more conservative approach, can you cite to any studies or research that resulted in better outcomes than people who adhere strictly to the WPATH standards of care version 7?

A. No. This is part of the problem in

the field for -- although there are alternative approaches, there's no randomized controlled study of any approach, including those which the standards of care seem to endorse. But the alternative approaches are equally deficient scientifically and are just like many people who are advocates are based on anecdotal evidence.

Q. Sorry. I missed the last part of that. You said your approach as well is not -- has no controlled studies or support in that way?

MR. KNEPPER: Objection, form.

A. Not only does it have no controlled studies, it has no systematic follow up based upon prior agreements about how we're going to evaluate those things.

Q. Excuse me. So then given that there are not peer reviewed -- I'm sorry. Given that there are not studies or data to support either approach, how are you and SEGM developing treatment protocols then?

MR. KNEPPER: Objection, form.

A. We begun first by reviewing the scientific support for WPATH recommendations.

We reviewed -- we are in the process and continue to look for evidence that supports the efficacy of hormonal treatment and surgical treatments. And it's not just SEGM, but there's a growing community in the last three years of scientists who have looked at and questioned the outcomes of these studies; and recognizing the colossal degree of uncertainty after fifty years of these treatments about whether they're efficacious or not and how many people are harmed and what are the consequences to the trans community in terms of public health measures.

So given this skepticism, given the uncertainty and given the worrisome signs in the trans community, the vulnerable, marginalized population, we're looking to see, is there another approach. And the prudent approach for every other psychological condition is a psychotherapeutic beginning to look at what is the problem, what are the apparent sources of the problem and what are the apparent solutions.

So although there's no peer-reviewed controlled studies of an extended psychiatric

evaluation leading to a therapeutic process, it seems prudent, given the fact that we are changing people's bodies, especially teenagers' bodies, and they are not of developmental sophistication yet that court systems or at least one court system thinks they're certainly too young to make these life-altering decisions. So people in SEGM are biased in the direction of being conservative and providing psychotherapeutic evaluations of the child, of the teenager and of their parents, of their family systems to see if we can find a way to help them be informed about what is going -- what they think they want to do in their future.

Q. And so when you provide letters of authorization for hormones or for surgery, do you do so in accordance with the WPATH standards of care?

A. Yes. That is the standard, to provide a letter of recommendation.

Q. Okay. So turning back to your report, Dr. Levine. You can go ahead and put away the trial transcript there.

A. I'm sorry. Did you say, "Turning

back to my report"?

Q. Yes, sir. And turning to page 16 and then looking at the middle of the page, paragraph 15.

A. Yes.

Q. It begins with, "To avoid the methodological error of confirmation bias, clinicians and researchers generate and test alternative hypotheses. It is currently unclear how many new gender discordant patients have been influenced by social contagion processes." Did I read that correctly?

A. You continue to get an A.

Q. All right. Is a, "Hypothesis," an unconfirmed theory about why something is the way it is?

A. A, "Hypothesis," is a synthesis of information that is not confirmed or has not been repeatedly confirmed to the point that it would be considered a fact, a trustworthy fact.

Q. Has a hypothesis been confirmed at all?

MR. KNEPPER: Objection.

A. Well, if it's a hypothesis, it's not confirmed.

Q. Okay. So is a, "Hypothesis," an idea about why something happens, but doesn't provide evidence for why something is happening?

MR. KNEPPER: Objection, form.

A. A, "Hypothesis," generates the pursuit of evidence.

Q. Has social contagion as an explanation for increased cases of gender dysphoria been scientifically proven yet?

A. No. But when you seek -- when you see -- actually see patients and talk to them about their friends and hear about the influence of the Internet and the gurus on the Internet who tell 13 and 12-year-old children who are concerned about menses or concerned about breast development or concerned about their bodies changing and then they're told that they're transsexual by somebody that they've never met that they talked to on the Internet, that would be social contagion or social education.

Or when you hear about a friend who declares themselves trans and then your patient six months later declares themselves trans, you

wonder about the -- the interpersonal, psychological link between best friends in young puberty, young years of puberty and how one can identify with one's friends and that would be a social contagion. Those are 3the kinds of ideas that people like me get when we sit with people week after week talking about their lives. You see, that's not science.

But that is clinician and this is the kind of thing that leads to intuition, clinical intuition and that's the source of the generation of the hypothesis. But we think as clinicians, when we hear -- I mean, I don't think I've ever seen a teenager trans person who hasn't been heavily involved and influenced by the Internet, for example, but I have not done studies to document that in a way that would be scientifically acceptable. There are other people who have.

And I doubt very much if you'll ever find a clinician on any side of this issue, you see, who would say, oh, no most of my patients have never talked to anyone on the Internet about transgender. The Internet is just part of life today and -- but transgender teenagers spend

hours and hours of their time getting counseled or participating with the virtual trans community. That's a hypothesis.

Q. So no scientific citation?

A. When we use the word, "Scientific," in the best sense, yes, the answer to your question is, no scientific.

Q. Okay. No studies of citations you can point to today to support that hypothesis?

A. Oh, I think Lisa Littman's studies are in the literature and/or in press that documents this.

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(Thereupon, Deposition Exhibit 7, "Correction: Parent reports of adolescents and young adults perceived to show signs of a rapid onset of gender dysphoria," Article, was marked for purposes of identification.)

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Q. Okay. For the record, please note I'm showing to Dr. Levine what has been marked as Exhibit 7. "Correction: Parent reports of adolescents and young adults perceived to show

signs of a rapid onset of gender dysphoria," by Lisa Littman published March 19, 2019. Have you seen this material before, Dr. Levine?

A. I've seen of it. I don't think I've read it.

Q. Okay. Were you aware that the Lisa Littman article had to be withdrawn, corrected and republished?

A. Yes.

Q. Okay. And were you aware that the initial article was based on a survey of parents --

A. Yes.

Q. -- of purportedly transgender children and the parents were recorded -- I'm sorry. Let me start over. Were you aware that the Littman article was based on a survey of parents who were recruited through some parent groups?

MR. KNEPPER: Objection, form.

A. I knew it was a survey of parents.

Q. Okay. And did you know there were no report-outs from the young adults of those parents in the article?

A. It was a report of parents'

observations.

Q. Right. Not of the children themselves?

A. Yes.

Q. Okay. And were you aware that the Littman article recruited its subjects from websites that expressed cautious to negative views about medical and surgical interventions for gender dysphoric adolescents and young adults?

MR. KNEPPER: Objection, form.

A. The answer to your question is, no.

Q. Do you believe that this is a circumstance in which a descriptive study may be infected by confirmation bias?

MR. KNEPPER: Objection, form.

A. I've never met parents who were not concerned about their trans identity. Some more sophisticated and educated parents have bound together --

Q. I'm sorry. Dr. Levine, that's not my question.

A. I know. I'm just giving you background for the answer to your question.

Q. Okay.

A. Maybe you could repeat your question.

Q. Sure. Do you believe that this is a circumstance in which a descriptive study may be infected by confirmation bias?

MR. KNEPPER: Objection, form.

A. You mean, Lisa Littman's confirmation bias? Whose confirmation bias are you referring to? The parent's confirmation bias?

Q. Correct.

A. Well, the parents are not -- the parents, they're not scientific. They're telling you their concerns --

Q. Sure. Let me rephrase.

A. -- and observations. I don't think the question makes any sense.

Q. Okay. So do you believe this is a circumstance in which a descriptive study may be infected by the confirmation bias of the author?

MR. KNEPPER: Objection, form.

A. No.

Q. Okay. So I'm going to read beginning with the section that is entitled --

so it's slightly -- I apologize the text is so small on this reprint, but the section I'm going to be reading from starts with, "Emphasis that this is a study of parental observations." It's on the first page. Sorry.

A. Yes.

Q. Okay. "This study of parent observations and interpretations serves to develop the hypotheses that rapid-onset gender dysphoria is a phenomenon and that social influences, parent-child conflict, and maladaptive coping mechanisms may be contributing factors for some individuals. Rapid-onset gender dysphoria...is not a formal mental health diagnosis at this time. This report did not collect data from the adolescents and young adults...or clinicians and therefore does not validate the phenomenon. Additional research that includes AYAs, along with consensus among experts in the field, will be needed to determine if what is described here as rapid-onset gender dysphoria...will become a formal diagnosis. Furthermore, the use of the term, rapid-onset gender dysphoria, should be used cautiously by clinicians and

parents to describe youth who appear to fall into this category. The term should not be used in a way to imply that it explains the experiences of all gender dysphoric youth nor should it be used to stigmatized vulnerable individuals. This article has been revised to better reflect that these parent reports provide information that can be used to develop hypotheses about factors that may contribute to the onset and/or expression of gender dysphoria among this demographic group." Let me pause there. Did I read that section correctly?

A. Yes.

Q. Thank you. Okay. The next section beginning with, "Because this is a study of parent reports."

"Because this is a study of parent reports, there is some information about the AYAs that the parents would not have access to and the answers might reflect parent perspectives. Examples where parent answers reflect their perspectives of the AYA include answers concerning the child's mental well-being, the parent-child relationship, and whether the child has high expectations about

transitioning. However, it is...important to note that there are other survey items where the parent would have direct access to information about their child and that those answers reflect items that can be directly observed." Did I read that correctly?

A. Yes, you did.

Q. All right. Your report also cites as support for the social contagion hypothesis to an article from Medscape.com written by Becky Mccall and Lisa Nainggolan as support for the social contagion theory. Is that correct? I'm sorry. It's not going to be on this article, Doctor.

A. I don't know that article.

Q. Okay.

A. You haven't asked me a question about this. Did I misunderstand something?

Q. No, no. Sorry. We're just --

A. You haven't asked my opinions about that, yeah.

- - - - -

(Thereupon, Deposition Exhibit 8, "Transgender Teens: Is the Tide Starting To Turn?" Article, was

marked for purposes of identification.)

- - - - -

Q. Yeah. So, for the record, I'm showing Dr. Levine what has been marked as Exhibit 8. "Transgender Teens: Is the Tide Starting To Turn?" by Becky McCall and Lisa Nainggolan, April 26, 2021. Dr. Levine, you said you have not reviewed this article before?

A. Which one are you referring to?

Q. I'm sorry. That one to your left.

A. This?

Q. Yes. Take your time.

A. Have I reviewed it, no. You know, I've seen the picture of Keira Bell. I've seen news reports of this in the past, but they were just news reports, yeah.

Q. Do you know if either of the authors of this article is a scientist?

A. I have no idea.

Q. Okay. Or a psychiatrist?

A. (Indicating.)

Q. I'm sorry. Could you make your responses verbal? I'm forgetting.

A. I have no idea.

Q. Okay. Thank you. Have either of them ever treated transgender children or adolescents?

A. I would have no idea.

Q. Okay. To your knowledge, is the information provided on Medscape.CA subject to peer review?

A. I don't know how Medscape works. I've heard there have been retractions, but I don't know how their peer reviewed is made. Perhaps people write in that, This is ridiculous what you've been teaching or what you've been saying, but whether they're peer reviewed or not, I have no idea.

Q. So you probably -- I'm sorry. So do you know if this article has been published in a peer-reviewed journal to your knowledge?

A. "Transgender teens: Is the Tides" -- that article?

Q. Yes.

A. I don't know. I don't know this article. I don't know where it's from.

Q. Okay. So your report includes a quotation from this article. "The vast majority of youth now presenting with gender

dysphoria are adolescents who suddenly express revulsion with their sex from birth and 70% of them were born female. Many of them have comorbidities such as anxiety, attention deficit hyperactive disorder, autism spectrum traits, and depression, Malone explains, which need to be considered."

A. I quoted this article --

Q. Yes.

A. -- verbatim --

Q. Yes. I need --

A. -- as opposed to vice-versa?

Q. I need to find --

MR. KNEPPER: Page 18 --

Q. Page 18.

MR. KNEPPER: -- in your report there's a sentence in there that says, "See also."

Q. Yeah. It's about a quarter of the way down the page.

A. Oh, I see --

Q. Okay.

A. -- I see. So I must have read this report. I have a picture and I have a collection of articles and there's a picture --

this picture is in it, but I don't recognize the rest of it just by memory, yeah.

Q. Okay. So for that statistic, Dr. Levine, that's quoted there in your report on page 18, the corresponding quotation in the article is on page 2, if you could turn to that. So it's this article on page 2 at -- it's the third paragraph from the bottom.

A. Yes. Okay.

Q. So the quote is there. And it says, as I read, "The vast majority of youth now presenting with gender dysphoria are adolescents..)," and it ends with, "Malone explains, which need to be considered." Do you see a citation after that for that --

A. For, "Malone explains"?

Q. Yes.

A. Yeah.

Q. Do you see any citation for that statistic?

A. In the article?

Q. In the article and also in your report.

A. I presume there is no citation, if you asked me that question.

Q. Okay. So do you know what evidence the person quoted in the article is relying on to make that assertion?

A. No, but it's totally in continent with my clinical experience and the clinical experience of colleagues.

Q. Okay. But you don't know of a citation or study that is being cited for that assertion?

A. Oh, no. The -- there have been a number of studies that have demonstrated that, including from the (inaudible) clinic itself. And I just read one. The Griffin study also has data about that. I mean, there's hardly a recent publication that has a section on epidemiology that doesn't emphasize the preponderance of adolescent girls presenting as trans boys; and the fact that by parental report they did not show any evidence of cross-gender identification prior to puberty; and that the children themselves haven't been somehow potentially coached on what to say about how long they've been uncomfortable about their gender identity. This is not, you know, speculation alone. This is such a broad

multi-continental set of observations from Europe, from Australia, from North America --

Q. Okay.

A. -- it almost doesn't even need citations it's so clinically apparent.

Q. Okay. But there's no citation in your report?

A. In my report, yes.

Q. Okay. So on page 18, going back to your report, at the bottom of page 18, you use a term, "Transgender Treatment Industry." Is this the first time you have used this term?

A. In this report?

Q. No.

A. You mean, did I ever use it in another report?

Q. Yeah, yeah.

A. I'm not sure. If this is -- if it's not the first, it might be the second.

Q. And where did the term originate?

A. I think it -- the term originated from Dwight Eisenhower at the end of his -- when he was leaving the presidency in 1952, he warned the people about the military industrial complex and that there was a very comfortable

two-way door between the military and the people who made military equipment. And that we in America needed to watch out for policy that is based upon the mutual interactions of those two industries.

And since I -- since I was just a child when that happened, but it's been in my mind ever since I became a professional wondering how medicine works and how the relationship between doctors themselves and the pharmaceutical industry and the makers of medical equipment like EKG machines and so forth, what is their relationship and does it have possible -- any way of distorting what we do as doctors.

So the idea that, for example, a hundred percent of people who wrote the standards of care are involved in transgender work and the financial support for WPATH comes from grants that are pro transsexual and who believe in these treatments are life saving and enhance people's lives, it's sort of like -- I don't -- I don't know how to say the transgender pharmaceutical -- I don't know how to -- I don't know how to find words for that, but you

see I've been very, very aware for a number of years that WPATH has sent out educators to the field to influence mental health professionals and pediatricians and various physicians promulgating what they call, competent care.

And, "Competent care," means care based on the principles that they have asserted without factual basis, only on clinical basis. And all the people who are recommending these treatments who have disregarded or put the treatments ahead of the scientific establishment of their efficacy, to me it's reminiscent of what Eisenhower said. And this, you know, I don't -- there are problems with this term. I'm just trying to say that between the surgeons, the endocrinologists, certain pediatricians now and various master prepared in Ph.D., prepared in MD, prepared mental health professionals who have been educated to believe that this is what science has dictated.

There is a treatment industry -- it's not a behind the scenes, let's have a scheme -- it just has come together as a force within medicine that has put the cart before the horse. The horse is science establishing by

the methods we made reference to before, the efficacy of the treatment and the downsides of the treatment. But because WPATH is an advocacy organization and the scientific establishment of the efficacy of their treatments are not important to them, what they are doing is teaching young mental health professionals and medical professionals as a whole what their ideology is. They say it's scientifically established.

I'm here to tell you to the extent that I understand science, it is not scientifically established. In a sense, there is an industry that has different elements that feed each other; that's the transgender treatment industry. I think if we put our heads together, we could find another term.

Q. So did you coin that phrase then?

A. No --

Q. Okay.

A. -- no.

Q. Have you seen it used before in any peer-reviewed articles?

A. Not in a peer-reviewed article. I've seen it used in these kind of expert

opinion -- (Indicating.)

Q. Okay.

A. -- I would -- you know, if I had time and I had a committee of people, I -- I would probably find a different term for it. But I don't mean it in a disparaging way. I mean that this is a group of compassionate people trying to help other people who actually believe that the science has established the best practices when in fact they're not well informed.

Q. Do you need a sip of water after that?

A. No. I'm just a long-winded guy.

I want to add, if I may, that we should make a distinction between education and indoctrination. Education can be based on science. Indoctrination is based on preferred beliefs that, if you allow me to use this term again. The transgender treatment industry is heavy on indoctrination and has declared, if you look at the standards of care, if you don't believe these systems, you're not a competent -- you're not competent to take care of people. That of course is the height of

nonscientific reasoning.

Q. So your report on page 20 -- or, I'm sorry. If you would, please, turn in your report to page 20, paragraph 18 beginning with -- I'm sorry. Your report discusses in that paragraph, paragraph 18, that, "In complex, experimental, and little understood fields," it is common to explore alternative hypotheses to alleviate the suffering of patients. And that, "One such alternative is to teach coping and resilience...to gender discordant children."

Are there any children or adolescent patients that you have individually had or that you've supervised clinicians as having whose gender dysphoria was not sufficiently addressed by teaching coping and resilience?

MR. KNEPPER: Objection, form.

Q. I can rephrase.

A. Can you simplify that question for me?

Q. So have you had -- let's start with you individually. Have you individually, as a clinician, had children or adolescent patients whose experiences symptoms of gender dysphoria

was not cured by teaching coping and resilience skills to them?

MR. KNEPPER: Objection, form.

A. The word, "Cure," is a problem for me.

Q. Let me rephrase. So have there been any children or adolescent patients whose gender dysphoria was not sufficiently addressed? So not cured but it persisted beyond teaching those resilience and coping skills.

MR. KNEPPER: Objection, form.

A. I don't know what's going on, but I don't understand your question --

Q. Okay --

A. It's --

Q. -- let me back up a little bit. So if you look at paragraph 18, I'll just read the first couple of sentences there. "In a complex, experimental, and little understood field such as transgender medicine, generating and exploring alternative hypotheses is essential to our efforts to help alleviate the tragic suffering of our patients. One such alternative is to teach coping and resilience

skills to gender discordant children."

Do you understand your reference there to, "Alternative is to teach coping and resilience skills"?

A. We-- we don't have to specify dysphoric children. We could just use the word, "Children." Children including dysphoric children often come from family systems --

Q. But I'm not asking about all children, Dr. Levine. I'm just asking about children with gender dysphoria.

A. Yeah, now, are you asking if I've taught coping and resilience skills to gender dysphoric children and they didn't get better? Is that what you're asking?

Q. Yes. Where their gender dysphoria persisted.

A. Oh, yes, yes, yes. See, by the time a teenager, for example, establishes a current identity as a trans person, it's a very tenacious identity, like all aspects of identity are pretty tenacious. What we're trying to do is to teach them, not about their gender identity but try to teach them about the forces that are shaping their lives and

teaching them how to express themselves with words and to address the adversities they've lived there. We're not teaching them coping skills to cope simply with being transgender.

We're talking about helping them deal with the forces that are swirling about, around them and within them. And coping with and understanding the body, the discomfort with the body that is normal for a 13 year old, you see? It's not about curing gender dysphoria. It's about helping them be a more psychologically capable human being by knowing themselves and being able to be courageous enough to describe their feelings about their parents and their parent's interactions with each other and with them. It's addressing their personhood in all dimensions. And maybe that answer will help explain why I didn't understand your questions.

Q. So teaching coping and resilience skills is not a treatment that you employ to treat gender dysphoria in adolescents or children?

A. It's to treat the suffering adolescent.

Q. Not their gender dysphoria?

A. No. Their gender dysphoria may be a product, you see, of these other things. For example, if you have someone who has been sexually abused by her stepfather and becomes a trans person in adolescents, we want to talk about the sexual abuse and the process between that person and what fears for the present and the future that has caused the child. And we're not attacking their trans identity. We're trying to help them understand where they came from and what they're coping with and why they're so fearful or so distressed by their body changing.

Q. And their gender dysphoria could be separate and apart from that traumatic experience?

A. Theoretically it could be, yes.

Q. And if it persisted sufficiently enough, you would consider a letter of authorization for --

A. Yes.

Q. -- hormones?

A. Yes.

MR. KNEPPER: Objection, form.

Q. Okay. If you would, please, turn

in your report, Dr. Levine, to page 22. Okay. My apologies. Actually beginning at the very bottom of page 21.

A. Okay.

Q. So the report states, "[The recently released National Guidelines for Gender Dysphoria patients" -- now on to 22 -- "from Sweden and Finland do appear to be moving towards a much greater emphasis on alternative methods including psychosocial support, therapy, and long-term psychosocial evaluations -- perhaps for years -- prior to engaging in any 'affirmation' medical interventions (hormones or surgery)." I'm sorry. Did I read that correctly?

A. Yes.

Q. Okay. I promise it's one of those legal things that I just have to do. I know it seems very tedious, but I appreciate your patience.

A. I agree it's very tedious.

Q. I appreciate your patience.

So your report for that section there cites to an article entitled, "Finland Issues Strict Guidelines For Treating Gender

Dysphoria." Do you see that there? It's just the next sentence.

A. Is that a question?

Q. Yes. Do you see the citation there?

A. Yes.

- - - - -

(Thereupon, Deposition Exhibit 9, "Finland Issues Strict Guidelines for Treating Gender Dysphoria," Article, was marked for purposes of identification.)

- - - - -

Q. Okay. For the record, showing Dr. Levine what has been marked as Exhibit 9. "Finland Issues Strict Guidelines for Treating Gender Dysphoria." Have you seen this material before, Dr. Levine?

A. If I have, it hasn't been in this form.

Q. When you say, "This form," do you mean --

A. I think I probably read it on --

Q. -- do you mean online you probably read it?

A. Yeah.

Q. In the online form.

Okay. So this article discusses Finland's counsel for choices in healthcare in Finland and the recent expert group that evaluated the clinical guidelines concerning medical treatment for people with gender dysphoria. Does that sound right, based on your review of that article.

A. Um-hum, yes.

Q. Okay. You can go ahead and put that aside.

- - - - -

(Thereupon, Deposition Exhibit 10, "Recommendation of the Council for Choices in Health Care in Finland (PALKO/COHERE Finland)," Article, was marked for purposes of identification.)

- - - - -

Q. For the record, I'm showing Dr. Levine what has been marked as Exhibit 10. "Recommendation of the Council for Choices in Health Care in Finland...," "Medical Treatment Methods for Dysphoria Related to Gender

Variance in Minors." Have you seen this material before, Dr. Levine?

A. Yes.

Q. Okay. If you would, please, turn to -- sorry. The page numbers are a little screwy, so I want to make sure I send you to the right place. So you're looking for in the upper right-hand corner 9 and in parentheses there's a 14. So I would call that page 9, but -- do you see that?

A. I have it.

Q. And at the bottom -- or, I'm sorry. Let's start in the middle where the title for that section is, "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."

And then looking at paragraph number 2 under that heading. Do you see that section?

A. Yes.

Q. Okay. And then beginning with the second sentence of that paragraph, "Based on these assessments" -- do you see that?

A. Yes.

Q. Okay.

-- "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." Did I read that correctly?

A. Yes.

Q. Okay. And then looking at -- sorry. Let me pause there. So this treatment recommendation says that puberty suppression treatment may be initiated on a case-by-case basis, correct?

A. Yes.

Q. Okay. Which is to say treatment -- I'm sorry -- puberty suppression treatment is not categorically banned according to the Cohere Finland recommendations, correct?

A. Yes.

Q. Okay. And then beginning at paragraph 4, which is at the bottom of the page, "Based on a 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 the identity as the other sex is of a permanent nature and causes severe dysphoria. In addition, it must be confirmed 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." Am I reading that correctly?

A. Yes.

Q. Okay. Thank you. So according to this recommendation of the Cohere guidelines, hormonal interventions for people under 18 years of age may be initiated, correct?

A. Yes.

Q. Okay. So taken together, the Cohere recommendation guidelines do not completely prohibit all gender affirming care for children and adolescents in Finland, correct?

MR. KNEPPER: Objection, form.

A. I think that's a very carefully worded statement that ignores --

Q. I know, Dr. Levine, but I would

like your answer to that carefully worded statement. So do the Finland Cohere recommendations not completely prohibit all gender affirming care for children and adolescents?

MR. KNEPPER: Objection, form.

A. It doesn't permit -- it doesn't prohibit every treatment -- every child from getting treatment --

Q. Perfect.

A. -- it does, however, provide many contraintra -- the opportunity for contraindications, which have not been even mentioned in this part of our deposition.

Q. Going back to your report, Dr. Levine, page 22. You can put that aside.

A. (Witness complies.)

Q. So closer to the bottom of page 22, I would say, the bottom quarter of the page, you cite -- or excuse me -- your report cites, "See also, a Swedish National Investigative Report regarding cases of gender incongruence in children and young people, Article number 2021-3-7302." Do you see that sentence?

A. Yes.

- - - - -

(Thereupon, Deposition Exhibit 11, "Stod och utredning vid konsinkongruens hos barn och ungdomar," Article, was marked for purposes of identification.)

- - - - -

Q. Okay. And so then for the record, I've handed to Dr. Levine what has been marked as Exhibit 11. Do you have it?

A. Yes.

Q. Okay. Great. And that would be Swedish National Investigative Report article, number 2021-3-7302 published March 2021. Have you seen this article before, Dr. Levine?

A. It's in Swedish. I didn't see it in Swedish.

Q. Okay. It has been published in English?

A. It has been translated, I think.

Q. Okay. But Sweden also does not block all access to gender affirming treatment for adolescents with gender dysphoria?

A. Yeah, Sweden allows them if they're in a scientifically valid research protocol.

Other than that, it's my understanding that they are not giving puberty blockers or cross-sex hormones to Swedish children who are transgender identified. They have to be referred to a particular hospital that is the center of the research and they have to be part of a protocol.

Q. But it's not indicated to give children cross-sex hormones ever, right?

A. I'm sorry?

Q. It's not ever indicated to give children cross-sex hormones, right? You just said they don't give children cross-sex hormones.

A. Adolescents.

Q. Adolescents. Okay. Okay. You can set that aside.

If you would please turn to page 27 of your report.

MR. CHARLES: Actually, before we do that, would you all mind if we take a short break?

MR. KNEPPER: Sure.

MR. CHARLES: Okay.

VIDEOGRAPHER: Off the record 1:56.

(Recess taken.)

VIDEOGRAPHER: On the record 2:09.

BY MR. CHARLES:

Q. So, Dr. Levine, we're on page 27 of your report. About a third of the way down the page, there's a sentence that begins, "One has to wonder why the suicide rate is reportedly so very high for patients who received trans genital surgery."

So my question about your statement there is: Highest compared to whom?

A. I'm sorry. What's your question about this?

Q. The sentence says, "One has to wonder why the suicide rate is reportedly so very high for patients who received trans genital surgery." And my question is: Highest compared to whom?

A. The general population.

Q. Okay. And on what study or scientific research are you basing that assertion on?

A. Probably the best study that's ever been published out of Sweden, a thirty-year followup of everybody who has ever had sex

reassignment surgery over a thirty-year period and tracking the suicide rate compared to both male and female populations born in the same month, in the same year in Sweden where the suicide rate was 19.1 times higher than either of the control groups --

Q. Are you referring to the --

A. -- excuse me. And there's a similar study of everyone in sex reassignment surgery who had over a thirty-year period in Denmark, where the suicide rate was also high. And Sweden also published a newer study that showed the suicide rate compared to the general Swedish population was 3.5 times as high. And a recent study also has confirmed the higher suicide rate. And certainly those study -- you know very well the Branstrom and Pachankis study also documented the suicide rate after sex reassignment surgery. So this is not a controversial issue.

Q. Okay. That's fine, Dr. Levine. I just wanted to know about the studies. The 3.5 suicide rate study out of Sweden, you're not referring to the, I believe it's pronounced Dhejne study, D-h-e-j-n-e?

A. No, no. No one can pronounce that name who doesn't live in Sweden.

Q. That's comforting. At least I'm not outside the norm on that pronunciation.

A. So if you say the name, I won't recognize it because --

Q. I'll just spell it for you.

A. That's right.

Q. So -- sorry. The 3.5 times higher suicide rate out of Sweden study is not that one. Do you recall the name of the 3.5?

A. I don't know if it's in my report somewhere, but it was -- it was a Swedish council report. I'm sure it's in my study somewhere.

Q. Okay.

MR. KNEPPER: Objection, form. One thing, Carl, I think the witness said that it was 3.5 in Denmark.

THE WITNESS: No.

MR. CHARLES: He said, "Sweden."

A. It was Sweden. It was like the year 2018 or 2019, the suicide rate of trans identified people was 3.5 times the general population --

Q. And then --

A. -- which is an improvement over the Dhejne study.

Q. Well, I like that Dhejne study. And then after that study, you mentioned one more. You said, another recent study out of Sweden. Do you recall what that study was you were referring to?

A. I'm sorry. I just read it. I wonder if -- I'm not sure. I think it might be the Griffin study summarized some of the data.

Q. Is Griffin out of Sweden or Griffin might have just reviewed that?

A. No. It's Griffin and four other people and they weren't all from Sweden --

Q. Oh, okay.

A. -- it was reviewing the Swedish data along with other kinds of data. This is everybody's concern. It's not just on my side, so to speak.

Q. Sorry. Just to back up for a second. The control group in the Dhejne study consisted of controls from the general population, not transgender people with gender dysphoria who did not undergo surgery, correct?

A. That is correct. And may I add that it's very, very difficult to understand. The natural question would be, how do you compare the general population with the trans people who did not have surgery with the trans people who did have surgery.

Q. Thank you, Dr. Levine. That's not my question, though. I just wanted to confirm that was not the control group. You mentioned this study later in your report, page 66 beginning at paragraph 74. Do you see that?

A. Um-hum.

Q. Okay. And basically that -- well, here, let me point you exactly. The sentence starts with, "Similarly," about halfway down the page, third sentence of that paragraph.

A. Um-hum.

Q. And, as you mentioned, you cite the Dhejne study and I believe -- or I should ask: Is the Denmark study you're referencing the study directly after it --

A. The Simonsen study.

Q. -- the Simonsen study?

A. Yes.

Q. Okay. So beginning with the Dhejne

study, do you think because that study showed that some people committed suicide after gender affirming surgery that no patient should be able to access gender affirming surgery?

MR. KNEPPER: Objection, form.

A. That would be illogical.

Q. Okay. Dr. Levine, I understand you said that would be illogical, but just to be clear. You're not recommending -- sorry. I'm not using that word. You're not saying that the fact that some people commit suicide following gender affirming surgery means that there should be a ban on access to that surgery. Is that right?

A. Not for that reason, no.

MR. KNEPPER: Objection, form.

Q. Not for that reason. Okay. Are you recommending that there would be bans on gender affirming surgery for any reason?

A. I think there are -- you know, I think most prudent people in this field, just to use the example of what you read out loud about the Finland study, a case-by-case basis. That's how doctor need to decide things, but there are many, many reasons to be cautious

about anyone having sex reassignment surgery until we can demonstrate by scientifically acceptable methods internationally agreed upon how we're going to evaluate to what extent gender dysphoria is improved and to what extent the life quality is improved of these individuals.

So what I'm saying is, science should have led this field. Science did not lead this field. And what we're going to do about the future of gender confirming surgery is uncertain. It is my hope that we will -- we will as a result of what has been happening in the last three years, we will get together in an international committee and design a study, a definitive study that will be a long-term prospective study with agreed upon parameters of evaluation. And then at a given time, a separate committee will evaluate whether or not it's justifiable.

Q. But at this time you're not recommending bans on all gender affirming surgery?

A. At this time I'm recommending putting science in front of the therapeutic

fashion and to be very hesitant about going forward.

Q. But you're not recommending total bans on gender affirming surgery?

A. I'm not recommending total bans. I'm aware of the individual circumstances of individual people's lives and their commitment to transgender living. And I don't want to be draconian about this. I want to be compassionate about this.

Q. I understand. I appreciate that. I just want to make sure I'm understanding you correctly.

- - - - -

(Thereupon, Deposition Exhibit 12, "Long-Term Follow-Up of Transsexual Persons Undergoing Sex Reassignment Surgery: Cohort Study in Sweden," Article, was marked for purposes of identification.)

- - - - -

Q. So for the record, I'm presenting to Dr. Levine what has been marked as Exhibit 12. "Long-Term Follow-Up of Transsexual Persons Undergoing Sex Reassignment

Surgery: Cohort Study in Sweden," February 2011. Dr. Levine, have you seen this document before?

A. Yes.

Q. Okay. Thank you. If you would, please, turn to page -- sorry. Just a moment.

Okay. If you would please turn to page 2, the column on the left-hand side all the way at the bottom, the paragraph beginning with, "Here."

"Here, we assessed mortality, psychiatric morbidity, and psychosocial integration expressed in criminal behaviour after sex reassignment in transsexual persons, in a total population cohort study with long-term follow-up information obtained from Swedish registers. The cohort was compared with randomly selected population controls matched for age and gender. The adjusted for premorbid difference regarding psychiatric morbidity and immigrant status. This study design sheds new light on transsexual persons' health after sex reassignment. It does not, however, address whether sex reassignment is an effective treatment or not."

For the 22nd time today, did I read that correctly?

A. It's the 23rd time.

Q. Oh, okay.

A. Yes.

Q. I was hoping you weren't counting, but, okay. Did you testify earlier today that the limitation of the Dhejne study is that the controls were not transgender persons who had not undergone gender affirming surgery?

A. Yes.

MR. KNEPPER: Objection, form.

Q. Okay. You can set that aside, Dr. Levine.

- - - - -

(Thereupon, Deposition Exhibit 13, 2017 "On Gender Dysphoria," Booklet From Department of Clinical Neuroscience, Karolinska Institutet, Stockholm, Sweden, was marked for purposes of identification.)

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Q. For the record, Dr. Levine has an exhibit that has been marked as Exhibit 13. "On Gender Dysphoria," by Cecilia Dhejne from

the department of clinical neuroscience, Karolinska Institutet, Stockholm, Sweden, 2017. Have you seen this material before, Dr. Levine?

A. No.

Q. Okay. So if you please take time if you need to review it.

A. I don't know -- I don't know --

Q. That's okay.

A. -- this is a Ph.D. --

Q. Thesis.

A. -- thesis.

Q. Yeah.

A. What do you want me to do, read it?

Q. No. Please don't. That will take longer than we have.

A. Yeah.

Q. So this is the thesis for Cecilia Dhejne, the -- well, the lead author on the Dhejne study we were just looking at.

A. Right.

Q. And if you would, please, turn to page 65. The pages are on the bottom right-hand corner, I believe.

A. I'm on page 65.

Q. Oh, you're there. Okay. So the

title of that section is, "On The Impact of Research Findings." I'm, again, reading there. "Researchers are happy if their findings are recognized and have an impact. However, once published, the researcher loses control of how results are used. Study III is the first long-term cohort study of mortality and psychiatric inpatient care following gender transition (Dhejne et al., 2011). This paper has also" been used -- I'm sorry -- "has also had an impact outside the scientific world. Our findings have been used to argue that gender-affirming treatment should be stopped since it could be dangerous (Levine 2016). But the results have also been used to show the vulnerability of the group and that better transgender health care is needed."

I'm sorry.

"Despite the paper clearly stating that the study is not designed to evaluate whether or not gender-affirming care is beneficial, it has been interpreted as such. But we do not know what would have happened without gender-affirming treatment; the situation may have been even worse. As an analogy, similar

studies have found increased somatic morbidity, suicide rates, and overall mortality for patients treated for depression and bipolar disorder. This is important information, but it does not follow that antidepressant or mood stabilizing treatment cause the mortality. Most of the articles that use the study to argue against gender-affirming health care are published in non-peer reviewed papers and the public media in general."

Did I read that correctly?

A. Yes, you did.

Q. Okay. And your testimony today is not that the provision of gender affirming surgery increases suicide ideation in transgender people, right?

MR. KNEPPER: Objection, form.

A. You seem to have lost of the -- what you just read. Do you want me to comment on what you just read and -- or excuse me --

Q. No.

A. -- did you just want to read that?

Q. No. That's okay. I'm just wondering if your testimony is today that gender affirming surgery increases suicide

ideation in transgender people.

A. Well, you know about the Branstrom-Pachankis study and the criticism of the study --

Q. But I'm not talking about the study.

A. -- and part of the study demonstrated that it increased suicidal ideation and attempts in the first two and a half years after surgery, especially in the first year --

Q. Right. Is your testimony --

A. -- so I'm not testifying that. I thought you were asking me about this, which I need to comment on, because this is not an accurate depiction of my statement in the reference. (Indicating.)

Q. Well, that's not what I'm asking about, Dr. Levine.

A. Well, you're reading this and I'm misquoted here. So I don't want you to imply that she is accurately representing my views, because I did not say that gender affirming treatment in general should be stopped. I've never said that. This is an article about

prisoners that she's quoting.

Q. Okay. Returning to the -- you can set that document aside.

A. Okay.

Q. Okay. So back to your report, Dr. Levine, on page 66. We're in the middle to the end of paragraph 74 still. The sentence there is, "The Swedish follow-up study found a suicide rate in the post-Sex Reassignment Surgery population 19.1 times greater than that of the controls after affirmation," surgery; "both studies demonstrated elevated mortality rates from medical and psychiatric conditions."

So just keeping that sentence in mind there.

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(Thereupon, Deposition Exhibit 14, "Long-Term Follow-Up of Individuals Undergoing Sex-Reassignment Surgery: Somatic Morbidity and Cause of Death," Article, was marked for purposes of identification.)

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Q. For the record, I'm showing Dr. Levine what's been marked as Exhibit 14.

"Long-Term Follow-Up of Individuals Undergoing Sex-Reassignment Surgery: Somatic Morbidity and Cause of Death," March 2016.

So after that sentence, Dr. Levine, as we discussed before, you cited the Dhejne study and then this study that I've handed you here. Have you seen this study before?

A. This is the Simonsen study. Yes.

Q. Great. I just want to clarify. You're not citing this study for the 19.1 times greater --

A. No, no. The 19.1 comes from the Swedish study --

Q. Okay.

A. -- I think in this study, there was two known suicides.

Q. Out of a total group of 104, correct?

A. Maybe a little -- it was something about the 104 wasn't quite right, but it's pretty close. It was 2 percent over -- it was two known suicides, I think in that study. I haven't read this for a number -- for a long time, so.

Q. Fair enough. We'll just take a

quick look at it. On page 1 there, so just on the back of the title page.

A. 104.

Q. Yeah. So there in the introduction, second sentence. "Accordingly, the present study investigated mortality and somatic morbidity using a sample of transsexual individuals who comprised 98%...of all surgically reassigned transsexual individuals in Denmark."

A. Oh, that's the 98 percent as opposed to 100 percent.

Q. And that 98 percent represented 104 total in the study, right?

A. I don't remember.

Q. And I think you just mentioned this, but you said 2 of those 104 were death by suicide, right?

A. They were known to be death by suicide, yeah --

Q. Okay.

A. -- I don't know if I remembered that accurately. Do you know if I remembered that accurately?

Q. I believe you did, but I am double

checking.

A. What I like about this study is it gives another demonstration that people die young.

Q. And, Dr. Levine, the years that they were studying of persons who underwent sex reassignment surgery was from 1978 to 2010. That's on the second page there under, "Aims." Do you see that?

A. I'm sorry. What was the final year that you said?

Q. 2010.

A. Yeah.

MR. KNEPPER: You said third page, correct?

MR. CHARLES: Sorry. You're saying --

MR. KNEPPER: I think page e62 is the page you're looking at. Is that correct, with, "Aims"?

MR. CHARLES: No. Sorry. I'm still on the second page.

MR. KNEPPER: Okay. I didn't see a header named, "Aims."

MR. CHARLES: Yeah. Under the,

"Abstract."

MR. KNEPPER: Okay. Yes.

BY MR. CHARLES:

Q. Okay. And then just to the, "Conclusion," section there also on page 1 -- I'm sorry -- page 2, Dr. Levine, in the, "Abstract." Oh, I'm sorry. Actually, let's go to e65. Do you see, "Conclusion," in the lower right-hand corner?

A. Yes.

Q. Okay. So beginning at the very bottom, the last sentence on page e65, "No firm conclusions can be drawn," turning over to e66, "from the present study, because the present study design does not allow for determination of causal relations between HT or SRS" --

A. It's hormone therapy.

Q. -- or sex reassignment surgery and somatic morbidity or mortality."

Did I read that correctly? It's a trick question. It's not. It's not a trick question.

A. For the 24th time, yes.

Q. I thought we were on 25. Okay. You can set that aside.

A. I gather that wasn't a question.
Q. No. I just wanted to --
A. You just wanted to read that into the record?
Q. Um-hum. You got it.
A. I see. Do you want me to comment on it?
Q. Not at this time.
A. Okay.
Q. Thank you.
A. Please note that you may not ask me to comment on it in the future, but I have a comment on it.
Q. Okay. I appreciate that. Thank you.
Okay. Dr. Levine, have the majority of your patients, to your knowledge, persisted in their transgender identity? Key phrase, "To your knowledge."
A. Well, my knowledge is limited about the long-term follow up of my patients. And I'm aware of those who haven't persisted, because they come back, but I'm not aware of those who may or may not have persisted. It's very hard for me to answer that question, other

than as I just did.

Q. Okay. How many -- let's go back to: How many patients specifically for issues related to gender dysphoria or gender identity have you treated in the past year?

A. In the past how many years?

Q. In the past one year, so twelve months back from now.

A. Asterisk, ten to twelve.

Q. Okay. And did any of those approximated ten to twelve patients in the past year decide not to transition?

A. Well, one died of a heroine overdose --

Q. I'm sorry to hear that.

A. -- and one has stopped his transition far less than what he used to say he wanted to do, but is still living in a trans way. If you extend it to 15 months, then the answer is one has returned to living as a male.

Q. Of the patient who you said has not continued their transition to the extent they initially said, you said they were still living in a trans way. Does that mean they're a person who's still living as a woman --

A. Yes --

Q. -- in the world?

A. -- is living as a woman.

Q. Okay. Would you say that -- let's look at the last five years. Would you say that your patients generally with gender dysphoria or gender identity issues, that most of them decide to transition in some capacity?

MR. KNEPPER: Objection, form.

A. Mr. Charles, you'll forgive me, but I wish I had a long opportunity to talk to you and your staff about the nature of gender identity. Gender identity is a more complex subject than gender dysphoria and whether one is trans or cis, you know. And I spend a lot of time as a psychotherapist talking to people in depth over time.

People who are cis on their -- on their presentation but internally, mentally have identifications as feminine or masculine or as heterosexual or homosexual as kink and they don't present themselves in this way. So I distinguish between the erotic and the internal and the private and the behavioral. And so when you ask me this question, I'm a little at

a lo -- I'm a little at sea. I don't know exactly how to answer your question --

Q. Sure. Let me rephrase it.

A. -- because I'm not sure what you understand about your question. I certainly understand your question in a way that may not be the same as you and your team understand your question --

Q. That's fair. Let me --

A. -- so help me out, please.

Q. Sure. Would you say that of your patients with gender dysphoria or gender identity issues, that the majority of them ultimately decide not to transition?

A. I don't know what the majority of them ultimately decide. You see, people see a psychiatrist like me for a period of time in their life. We talk about their issues. Then they go away. I don't know what happens to them, unless they choose to come back to me. When they choose to come back to me, it's usually because they have a problem again. It may not be gender dysphoria per se. It may be depression or substance abuse or whatever.

Q. Okay. I realize you have a great

deal of paper in front of you, but I need to -- oh, never mind. I need to do something different.

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(Thereupon, Deposition Exhibit 15, 5/15/2017 Telephonic Deposition of Stephen B. Levine, M.D., was marked for purposes of identification.)

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Q. Okay. For the record, I've shown Dr. Levine what has been marked as Exhibit 15, which is Keohane, K-e-o-h-a-n-e, versus Jones, the telephonic deposition of Stephen Levine, M.D., May 15, 2017.

A. I forgot I gave a deposition. I forgot this.

Q. Do you recognize the title page of this document, Dr. Levine?

A. I do.

Q. Okay. And do you remember now giving a deposition in this case?

A. I remember being in the courtroom about this case. I don't actually remember the deposition yet, but I'm sure I will as you go on.

Q. Okay. If you would, please, let's first turn to page 19.

A. 19?

Q. 19, 1-9.

A. (Witness complies.)

Q. So beginning at line 15. Actually, I'm sorry. Let's go to page 20, 2-0. I'm sorry, Dr. Levine. We do need to start on page 19 at the very bottom, the very last line starting with the word, "Okay," at line 25. Do you see that there?

A. Yes.

Q. "Okay. And how many of your ten or so" -- turning the page to page 20 -- "patients in the past year determined after real-life experience not to transition?"

Answer: "I'm sorry. You ask how many of the patients in the last year decided not to transition?"

Question: "Yes."

Answer: "Well, one."

Question: "Just one. And the rest went forward with their process of transitioning?

Answer: "Well, some of the people, you know, I've seen in the last year I've seen for

a number of years."

Question: "Uh-huh."

Answer: "Let me modify that. I just thought, there's a second person. So two."

Question: "Two. And would you say, of your patients generally with gender dysphoria or gender identity issues, that the majority of them ultimately decide not to transition, or is that more the exception?"

Answer: "No. I think the majority of them persist in transitioning."

Did I read that correctly?

A. Yeah, yes.

Q. Okay. So you can set that aside for the time being, Dr. Levine. We might come back to it so I would leave it on the top of the pile.

Okay. Let's go back to your report beginning at page 40, 4-0.

A. My report?

Q. Yes, sir. Okay. And at paragraph 54, about halfway down the page on page 40. "A distinctive and critical characteristic of juvenile gender dysphoria is that multiple studies from separate groups and

at different times have reported that in the large majority of patients, absent a substantial intervention such as social transition and/or hormone therapy, gender dysphoria does not," continue, "through puberty."

So there are some children who persist in their asserted gender identity through puberty, correct?

MR. KNEPPER: Objection, form.

A. Correct.

Q. And some who persist in wanting to transition via medical treatments?

MR. KNEPPER: Objection, form.

A. Yes. Some of the children have learned about medical treatments somewhere along the line and they feel instantly that this is for them.

Q. And then looking at paragraph 56, which is on page 41, so just the very next page on the bottom, the second sentence in that paragraph. "I observe an increasingly vocal online community of young women who have reclaimed a female identity after claiming a male...identity at some point during their teen

years."

But there are some patients who assert a male gender identity in their teen years and continue to assert it into adulthood, correct?

A. Yes.

MR. KNEPPER: Objection, form.

Q. Okay. Can social transition be used to treat gender dysphoria in adults? Not looking at your report, now, Dr. Levine. Sorry. Can social transition treat gender dysphoria in adults?

A. Yes. As a matter of fact, that used to be the recommendation in the '70s and '80s, prior to taking hormones, was to try living, what was sometimes called the real-life experience or the real-life test for one year. And then if when you confront the new issues of confronting you in your new neo gender, if you still want to do that, then we'll come back and we'll think about using hormones to facilitate your transition. But in the 7th edition of the standards of care that was removed. There's no real-life experience, real-life test anymore. If persons want it, they should have it. Patient autonomy was valued far greater than

any kind of concerns about patients and about doctors and parents and the patient's own concerns.

Q. Are there some patients who still use -- what did you call it? -- real-life experience as a treatment, though, even though, as you said, it may not be required by the standards of care?

MR. KNEPPER: Objection, form.

A. Well, are there some people somewhere in the universe who do that? I'm sure there are. Sure. I mean, people live in -- you know, we don't necessarily call them transgender quickly, but there are people who are female impersonators and who choose to live their lives in the opposite gender role, even though they don't have medical assistance at all. So the answer to your question must be, yes, but, again --

Q. Oh, yeah. I was --

A. -- your question could be elaborated for a half hour.

Q. Sure. I just meant transgender people particularly and largely because -- or I guess what I'm asking is: Treatment for

transgender people is individual based, right?

A. Well, it's both --

MR. KNEPPER: Objection, form.

A. -- yes, that's partially true. And ideally that's true, but it's obviously not entirely true. It's why we're here, is it's categorically based.

Q. Let me rephrase that. You design treatment for your patients based on what that patient in front of you, what they need, what they want, what you determine -- sorry. Not what you determine, but what you might authorize?

MR. KNEPPER: Objection, form.

A. What the patient and I discern together.

Q. Thank you. Okay. Let's jump to, again, still in your report, page 68.

A. We've left 40 and 41? 68.

Q. Okay. Looking at the bottom of page 68, Dr. Levine, paragraph 78. It states, "Similarly, the American Psychological Association has stated because approach" --

A. Sorry.

Q. I apologize.

A. Where are you?

Q. I'm at paragraph 78 at the bottom of page 68.

A. It doesn't say anything about American Psychiatric Association in my --

Q. Oh, sorry. Give me just a moment.

Okay. My apologies. We actually need to go to page 52. I'm sorry. Page -- I'm sorry. It's going to be page 56 looking at paragraph 68. Just let me know if you see that.

A. I see it.

Q. Okay. Let me try again. About halfway down that paragraph, beginning with, "Similarly."

A. Um-hum.

Q. "Similarly, the American Psychological Association has stated, '...because no approach to working with [transgender and gender nonconforming] children has been adequately, empirically validated, consensus does not exist regarding the best practice with prepubertal children.' See, American Psychological Association, Guidelines For Psychological Practice with Transgender &

Gender Nonconforming People (2015)."

So is that lack of consensus that you discuss a justification to categorically ban social transition for children as a treatment for gender dysphoria?

MR. KNEPPER: Objection, form.

A. By, "Children," you mean 6 and 7 year olds?

Q. Those for whom medical intervention is not indicated.

A. Is that a reason to ban it?

Q. Correct, social transition.

MR. KNEPPER: Objection, form.

A. The reason to -- so let me qualify that. There's a, yes, answer, there's a reason to ban it. And the reason to ban it is both a developmental and an ethical reason. There have been eleven studies of these cross-gender identity children who are not socially transitioned and the vast majority of them de-transition by the time they're mid adolescents or older adolescents. They become homosexual individuals usually or bisexual individuals, but they are cis gender.

So if we take a 6-year-old child and

transition them, because he says he wants to be a girl, he likes to play as a girl or a boy. You know, I don't want to have to always go back between two sexes. And we know that, let's say -- let's just pick a number -- 85 percent of them, if we do nothing, are going to detransition. Then why in the world would we transition them, knowing that once we do transition them, by the time they're 10 years old, they're going to persist and stabilize in their cross-gender identity they have committed their lives to living and portraying themselves for four years as a girl, as a girl?

And their rates of detransition in adolescents are reduced from 85 percent to about 20 percent. That is an ethical problem. It pervades everyone who thinks about this. There's no escaping the ethics that we may be preventing -- trying to prevent, inadvertently perhaps, the development of homosexuality in adolescents. And so the answer is, that's one of the reasons for doing it.

The other reason for doing it -- for prohibiting it is, until it has been demonstrated that these children who are

transitioned grow up to have full lives, we know they're going to want to have surgery. They're going to want to be on hormones for the rest of their lives. And we need to find out whether twenty years later, those children are having productive lives. They're not on welfare. They're not uneducated. They're not drug abusing.

So the idea that because a child is identified cross genderly at age 6, that we are going to commit that child to a life as a transgender person, that is -- that is when it's scientifically not established. Nobody has lived twenty years. We don't have any study of a twenty-year follow-up of this thing. And this is what has been going on in pediatrics recently, you see?

That we've been saying, the best treatment for these children is to transition them. We don't know it's the best treatment. We don't know the outcome. The best outcome we have is that those children are almost the same as their peers, their siblings when they're 9 or 10. We don't have a followup study even into adolescents, so. That's my answer to your

question --

Q. Okay.

A. -- come on, let's say science should lead, not fashion, not politics. Science. And science requires followup studies. And the natural history is -- the concept in science of the natural history of disease is very important. We don't -- we know the natural history. That's desistance. We don't know the natural history of treatment.

Q. So if you would, please, find the Claire deposition for me, Dr. Levine. I'm not sure where in your stack of documents it's going to be, but it's Exhibit --

A. Claire?

Q. Claire, yeah.

A. Oh, that Florida deposition?

MR. KNEPPER: Yeah, I think it's Exhibit 2.

A. I haven't got the neatest desk in the world here, so.

Q. I don't have it either, so. Oh, got it.

A. Is that the Tilley or --

Q. Yeah, that's the one.

A. Okay. I have some of those pages. I don't know where the rest are. Oh, here, I have it.

Q. You have it?

A. Yeah, I have it. They're not in order. They're left out in 157.

Q. We're not going far from that. We're going to page 150.

A. 150.

Q. Actually, let's start on page 149.

A. On page what?

Q. 149.

A. I'm going to get there.

Here, I am.

Q. All right. Page 149 beginning at line 22. Question: "Okay. Okay. At the bottom of page 15, you say, 'Consensus does not exist regarding best practice with prepubertal children."

Line 25, "Do you see that?"

A. I do.

Q. Sorry. I was reading the transcript, which says, "Do you see that," but I'm glad you see that. Now to page 150 at the very top.

A. Yes.

Q. Okay. Yes. I'm sorry.

Answer: "Yes."

Question: "In your view, does that lack of consensus justify a categorical ban on social transition for gender dysphoria for prepubertal children?"

Answer: "It doesn't justify it. I just think it's -- I don't think -- you see, I am not -- I am not recommending" -- I'm sorry. "You see I am not -- I am not recommending bans." Did I read that correctly?

A. Number 26.

Q. Okay. I have an undefeated record. Okay. So relatedly in some cases, so looking at not 6 or 7 year olds. Older. Could puberty delaying medication be indicated or appropriate treatment for youth with gender dysphoria? Sorry. Could you hear me?

A. I heard you --

MR. KNEPPER: Objection, form.

A. -- but I'm trying to link what you just read to your question, because you didn't ask me a question about what you read --

Q. Oh, yeah.

A. -- nor you didn't ask me to comment on that.

Q. It was related to what you had said before. So this is related but not related to what we just read. So you can put that aside.

A. Okay. But your next question was about puberty blocking hormones, which are not being used for 6-year-old's and 7-year-old's --

Q. Correct, yes, a separate group of people.

A. -- so we're on a different category.

Q. Yes.

A. Okay. So you asked me if I think puberty blocking hormones should be used on a case-by-case basis?

Q. Correct, yes.

A. I don't think so.

Q. So that is to say, there are no circumstances you would advocate for a total ban on that intervention?

MR. KNEPPER: Objection, form.

A. Number one, I've never seen a child where that has come up where I thought it was a good idea. In the cases I've seen, it was like

a treatment for the mother's pathology, not for the child. And it's like a warning sign, boy, be careful. You see, if you see one case like that, you wonder -- and it's so conspicuous, you wonder in the next case, if the same thing is going on in a more subtle way.

Is the child acting out the ambitions of the mother or the father? I just think prudence -- I think considering the child has not gone through puberty or has not gone far into puberty and puberty brings all kind of psychological, physical and social changes to a child and those changes lead to desistance in many, many children, to put them into a state where all their peers are developing physically and they're going to be poirot (phonetic).

And then most of those children have social anxiety problems and they avoid -- they don't have friends, right. And this is going to make them even more different than their peers and it's gone to deprive them of the sexualization of their mind and the discovery of masturbation and the discovery of sexual desire for partners, you see. This is only going to increase the child's difference from

her peers or his peers and I don't think this is a prudent idea.

And if you wanted me to suggest a ban on anything, it would be a ban on using puberty blocking hormones, especially when the evaluation of those children are focused on the gender dysphoria of the child and not on the background of the child and not on what's going on. So I think that's an answer to your question.

If we're going to use these drugs, if we're going to use social transformation of children, if we're going to use puberty blocking hormones, it should only be used in a carefully designed protocol. And follow up has to be guaranteed so in one year and in two years and in three years and before we start giving cross-gender hormones we have data --

Q. Sorry.

A. -- so the answer to your question is, I would consider banning puberty blocking hormones even for children who have been cross-gender identified for four years to give them a chance to desist, which is exactly what the Dutch protocol did, by the way.

Q. Sorry. So you just said you would ban -- you would recommend a ban on --

A. If --

MR. KNEPPER: Objection, form.

A. -- look, I'm a doctor. I'm not a policy maker --

Q. I understand, yes.

A. -- if you ask me my political opinion about, should we ban this, is that a reasonable thing, I think there's a very strong argument for banning puberty blocking hormones.

Q. Okay. And, right. So you're here as an expert offering an expert opinion. So are you separating that from -- like are you saying your political views that you would advocate for bans or are you saying your expert opinion you're offering in this case is you would recommend ban?

MR. KNEPPER: Objection, form.

A. I would recommend ban. To what extent it's from my politics or from my being a parent or from my being a doctor, I don't know. I would recommend we not use puberty blocking hormones.

Q. In Claire, in this case that we

just looked at in December of 2020, which is not even a full year ago, you testified differently. So what has changed in nine months?

MR. KNEPPER: Objection, form.

A. What has changed in nine months? In nine months, I've reviewed a lot of the literature. I've heard the arguments. I've talked to pediatric endocrinologists. I've read articles, new articles. I've seen the lack of follow-up. I've seen the misinformation that puberty blocking hormones were entirely reversible, even in the face of the fact where people making those claims could not even conceptualize the psychosocial implications of remaining poirot (phonetic). So a lot has changed in nine months. And I don't think nine months ago I was exactly gung-ho on these treatments, but I think I'm just a little more strong today.

And I just need to tell you that one of the great advantages of being a professional is that one spends one's life learning and evolving and changing. And the fact that five years ago or ten years ago, I thought this and

today I think this, it may be a problem in the legal profession, but it's not a problem in the medical profession. We expect doctor's concepts to evolve with clinical experience in advance of science. And we also know that politics affects a lot of things that happen in medicine. And certainly the politics has changed in this field.

And what is happening, we've had one direction of the politics of transgender life until the last two and half years, three years and suddenly the politics are changing again. And they're changing as a result of science, some of the things you've been -- in these exhibits, you see. And so we're -- I'm allowed to, in my view, without being embarrassed, I'm allowed to have an evolution in my views as certainly -- you know, if you quote one sentence here and one sentence here and another sentence out of context there, it appears that, oh, my god, I'm inconsistent, but what I am is in evolution, in developmental, professional evolution, which is an ideal thing both in a lawyer and in a physician.

Q. All right. Very quickly and then

we'll take a break. Will you just turn to page 157 of the same document that you have in your hand. 157.

A. Got it.

Q. All right. So turning to line 19 at the bottom of 157 there.

Question: "I know you said you are not about categorical bans, but let me ask you about minors again.

Would you support a categorical ban on access to puberty blockers to treat gender dysphoria?"

Ms. Coles: Form."

Turning the page to 158.

Answer: "I actually think it's in a vast, vast majority of cases a terrible idea.

By Mr. Tilley:"

Question: "To provide puberty blockers?"

Answer: "Right."

Question: "So you think it's a bad idea in the vast majority of cases. Does that mean you think it's an acceptable idea in very limited cases?"

Answer: "Yes."

Question: "What cases would those be?"

Answer: "Where we had a healthy mother and father, an intact family who was psychologically informed and who has -- where a child has come out of toddlerhood acting consistently in a gender atypical fashion, and where the parents are not homophobic..."

Question: "The parents are not what kind of people?"

Answer: "Homophobic."

For the 27th time, did I read that correctly? Did I read that correctly?

A. Yes.

MR. CHARLES: Okay. All right. Let's go ahead and take a break for a few minutes.

VIDEOGRAPHER: Off the record 3:20.

(Recess taken.)

VIDEOGRAPHER: On the record 3:38.

BY MR. CHARLES:

Q. So, Dr. Levine, before the break, you were talking about 6 and 7 year olds and you mentioned there were eleven studies. Can you identify which eleven studies from your report you're referring to?

A. Cantor, the reference Cantor lists

the eleven studies and these eleven studies have been done over probably thirty years.

Q. Okay. So Cantor was one review of eleven studies?

A. Cantor was a review of the eleven studies. I can't list to you the eleven individual studies. The latest one is written by Singh, S-i-n-g-h. It was published in April of 2021, in the Frontiers of Psychiatry. And that perhaps is the most comprehensive of them. And that's the one that confirms -- that's a study of boys and it confirmed that 12.2, I think percentage of them persisted over a thirteen-year period.

Q. So that was one -- that was the Singh study that came out. Is that same study mentioned in the Cantor review?

A. (Nodding.)

Q. Okay. And you said that established that 12.2 percent of prepubertal boys persisted into adolescents? Okay.

A. Yes. This harkens back to the ethical issue that I talked about before. You know, if you know that 88 percent of them are going to persist -- desist, why in the world

would you assume you know which ones? Because we don't know which ones will persist. And why would you change their fate? And why would you expose them to a lifelong of hormonal care, surgery, social problems and all the things that we know the adult trans community has.

Q. Okay. Okay. So thinking of the patients you've seen for gender dysphoria or gender identity disorder, when it was called that, how many of those people who have come back do so because they have detransitioned or are considering detransition?

MR. KNEPPER: Objection, form.

Q. Did you hear me?

A. How many have come back to talk about detransition?

Q. Yes.

A. In my quick recall memory of listing in my head privately the names of people, four.

Q. And of those four, obviously without any identifying information, what did it mean for them to detransition?

A. A return to living and presenting themselves in their biologic sex. And they've

come to understand there's a broad range of ways of being and that they consist of both male and female identifications and what they call stereotypic interests and patterns. And many of them have recognized they thought boys we not allowed to have emotions.

And now that they've grown up and they understood that human-beings have emotions, regardless of the nature of their genitalia, and that they give themselves the full range of expressions of themselves; and some of them are heterosexual and some of them are asexual and some of them are homosexual. And, you know, this is all part of the human family, the human landscape of the evolution of all of our gender identities. Everyone's gender identity evolves, according to Dr. Levine.

Q. Thank you. And did any of them retransition again --

A. No --

Q. -- of those four?

A. -- not as far as I know. If they did, they didn't consult with me about it.

Q. Okay. Sorry. Let's go to paragraph 35 of your report, which is on

page 32.

A. Okay.

Q. Paragraph 35 starts at the top there. Let's go to -- so, first, in your report, you wrote, "To my knowledge, there is no credible, reliable-valid scientific evidence beyond anecdotal reports that psychotherapy can enable a return to male identification for genetically male boys, adolescents, and men, or return to female identification for genetically female girls, adolescents and women. Controlled studies have never been attempted. On the other hand, anecdotal case report evidence of such outcomes does exist; I and other clinicians have witnessed reinvestment in the patient's biologic sex and some individual patients who are undergoing psychotherapy. The Internet contains many such reports."

Skipping down, Dr. Levine, to the last sentence of that paragraph beginning with, "Recently." Do you see that there?

A. Yes.

Q. Okay. "Recently, a paper reviewing the phenomenon of detransition has been published in which the authors claim to have

identified 60,000 case reports world wide on the Internet. See Exposito-Campos..." --

A. That is an error, by the way.

Q. Sorry. Which part of that is an error?

A. That, "60,000," is my error. It should say, "16,000."

- - - - -

(Thereupon, Deposition Exhibit 17, "A Typology of Gender Detransition and Its Implications for Healthcare Providers," Article, was marked for purposes of identification.)

- - - - -

Q. Okay. So for the record, I'm showing Dr. Levine what has been marked as Exhibit 17. "A Typology of Gender Detransition and Its Implications for Healthcare Providers," Pablo Exposito-Campos, 2021. Okay. Have you seen this study before, Dr. Levine?

A. Yes.

Q. Okay. So on page 1 of this report, about halfway through the very first paragraph in the introduction beginning with, "As a consequence." Do you see that there?

A. Yes.

Q. Okay. So the quote is, "As a consequence, our understanding of this issue is still limited and primarily based on anecdotal evidence, which comes from a variety of sources such as personal testimonies shared on the internet, parental reports, informal surveys carried out by detransitioners, media outlets, support groups, documentaries, case studies and the experiences of clinicians who work with this cohort."

Are personal testimonies shared via the internet valid, reliable, credible, scientific data or research?

A. If you will look carefully at the sexologic studies that have been done in recent years, since the onset of the internet, the internet is the frequent method of acquiring information in all kinds of sexologic and perhaps other forms of research --

Q. Well --

A. -- there are a lot of concerns about the validity --

Q. That's not my question, Doctor.

A. -- you were asking me about the

validity --

Q. No. I'm asking you --

A. -- is it a valid, scientific method.

Q. -- are personal testimonies on the internet valid, credible scientific data?

MR. KNEPPER: Objection, form.

A. The answer to your question is, one testimony does not make validity and -- but 16,000 perhaps makes one generate a hypothesis, you see, that is more compelling. So as your question stands, the answer is, no, but it needs an asterisk to that. And I don't want you to force me into making statements I don't believe.

Q. I'm not forcing you into making statements --

A. Well, then --

Q. -- I'm just clarifying my questions.

A. -- that's why I'm explaining that to you --

Q. Okay. Well --

A. -- if you just look at journals, how many articles are being published today

based on internet information including many of the pro trans articles that purport that surgery helps people in their lives, they're based on internet surveys of, you know, 26,000 people or 6,000 people and so forth --

Q. Okay.

A. -- so, yes, there are limitations. There are distinct advantages, big numbers, and there are distinct scientific limitations where you don't know who your subjects are.

Q. Okay. So you mentioned earlier that, "60,000," was an error on your part and that that should read, "16,000." Is that correct?

A. Yes.

Q. Okay. So if you could turn to page, it's going to be page 273 in the study. And the page numbers are in the upper right-hand corner. Do you see that page there?

A. Yes.

Q. Okay. Going down under the subheading, "Further clarifications" --

A. Um-hum.

Q. -- beginning at the second paragraph of that section. "It is also

important to note that this typology does not suggest two clear-cut categories, for a secondary detransition can lead to a primary detransition" -- oh, sorry. Let me start over. Sorry.

Okay. Let me start from a different place, Dr. Levine. The second sentence. "In r/detrans" --

And there's an HTTP address --

A. Okay.

Q. Okay. You see that.

-- "a subreddit for detransitioners to share their experiences with more than 16,000 members, one can find several stories of people who call their transgender status into question after stopping transitioning due to medical complications or feeling dissatisfied with their treatment results"?

Do you know what a, "Subreddit," is, Dr. Levine?

A. I believe it's just a division of a larger website where people, you know, with similar interests.

Q. Okay. Do you understand this sentence to be suggesting that all 16,000 of

those members have offered a story of detransition?

MR. KNEPPER: Objection, form.

A. I think -- I think it may be true that either they have offered a personal story or they're fascinated because of their own considerations of that story. They're thinking about it themselves, which would be in keeping with the idea that even people who have transitioned begin to doubt whether they made a wise decision and they're considering detransition. I'm not so sure it means that all 16,000. I would have no way of ascertaining that. You know, in my worry, I would lean towards most of them are seriously considering or have detransitioned. And in my skepticism, I would say I'm not sure whether it's 15,000 or 12,000 or 8,000.

Q. But you have no way to confirm that --

A. I have no way.

Q. -- if it's all of them or a few of them or three of them?

A. You're absolutely right. I have no way of confirming that.

Q. Okay. You can set that aside.

Okay. Do you use the DSM-5 in your clinical practice in any capacity?

A. Yes.

Q. Okay. Do you discuss it in your supervision of other clinicians at your practice?

A. Not often but sometimes.

Q. Do you have knowledge that clinicians in your practice use the DSM-5?

A. Yes.

Q. Okay. And in your teaching as a clinical professor, do you discuss the DSM-5?

A. Sometimes.

- - - - -

(Thereupon, Deposition Exhibit 18, DSM-5: Frequently Asked Questions, was marked for purposes of identification.)

- - - - -

Q. Okay. For the record, showing Dr. Levine what has been marked as Exhibit 18, a printout from the American Psychiatric Association entitled, "DSM-5: Frequently Asked Questions."

MR. CHARLES: Did you get a copy?

MR. KNEPPER: I did, I did. I for some reason marked it as Exhibit 17, but I'm sure you're right. I'll figure it out.

MR. CHARLES: Yeah, 17 was the typology.

MR. KNEPPER: Yes. The means I'm off by one somehow, but I'll figure it out. I apologize. Go ahead.

MR. CHARLES: Okay.

BY MR. CHARLES:

Q. Dr. Levine, have you seen this material before?

A. I don't think so, not that I recall --

Q. Okay.

A. -- this is just published in 2021?

Q. Correct. It's a -- well --

A. On the back page it says, "2021."

Q. Yes, that is correct. It's a printout from the American Psychiatric Association, the DSM-5 frequently asked questions. And you're currently still a fellow of the American Psychiatric Association, right?

A. I'm a distinguished fellow.

Q. I'm sorry. Distinguished fellow. Thank you. And is that a distinction that continues in perpetuity like once one receives that --

A. Unless I do something that's so terrible.

Q. Okay. My question is: Are there things you have to do to continue that distinction?

A. Oh, please don't be impressed.

Q. Okay.

A. If you belong to the APA long enough, if you've written a paper however the quality, you know, you get to be a fellow. And then a distinguished fellow. And if you survive fifty years, if you don't die of cancer, you get to be honored for your long membership. And I don't know what they'll -- soon they'll call me emeritus, I don't know --

Q. Fair enough.

A. -- or they'll call me, The late Dr. Levine, a distinguished fellow. It's not a great accomplishment, in other words.

Q. Understood. So returning to this document here, do you see the heading at the

bottom of the page, "What was the process that led to the new manual?" It should be on the first page --

A. Oh, yeah, yeah.

Q. -- I hope. Okay. So then starting there. "The APA prepared for the revision of DSM for nearly a decade, with an unprecedented process of research evaluation that included a series of white papers and 13 scientific conferences supported by the National Institutes of Health. This preparation brought together almost 400 international scientists and produced a series of monographs and peer-reviewed journal articles."

Turning to the next page --

A. (Witness complies.)

Q. -- "The DSM-5 Task Force and Work Groups, made up of more than 160 world-renowned clinicians and researchers, reviewed scientific literature and garnered input from a breadth of advisors as the basis for proposing draft criteria.

"The APA board of trustees, which approved the final criteria for DSM-5 on December 1, appointed a Scientific Review

Committee of mental health experts to review and provide guidance on the strength of evidence of proposed changes. The Scientific Review Committee evaluated the strength of the evidence based on a scientific template of validators. In addition, the Clinical and Public Health Committee reviewed proposed revisions to address difficulties experienced with the clinical utility, consistency and public health impact of DSM-IV criteria."

A. So you don't misunderstand, when it says, "December 1," it means December 1, 2012, because the DSM was issued in the following May of 2013. This is not --

Q. Just before -- I'll let you continue, but can you just let me know that I read that accurately?

A. You have.

Q. Okay. Now, please continue. You said that was 2012, and that it was released widely in 2013.

A. Right.

Q. Okay. So the development of the DSM includes evaluation of scientific evidence. Is that right?

MR. KNEPPER: Objection, form.

A. Yes.

Q. Okay. You also make reference in your report to a statement by Thomas Insel, the then director of the National Institute of Mental Health, that it would be reorienting its research away from the DSM categories. Is that right?

A. Yes.

Q. Okay. Do you understand that Dr. Insel's statement pertained to -- actually, hold on just a minute. Sorry. You can set this exhibit aside, Dr. Levine.

So with regard to Dr. Insel's statement, were you aware that two weeks after that statement you reference, Dr. Insel issued a joint statement with the APA stating that, "The APA diagnostic and statistical manual of mental disorders along with ICD represents the best information currently available for clinical diagnosis of mental disorders"?

A. I was aware of that. I was aware of the political storm that occurred when Dr. Insel made his report two weeks earlier. And actually, Dr. Insel did not change his

research priorities for the National Institutes of Mental Health, but he needed to quell the storm coming from the APA, which was considerable, by modifying and making the statement that you just said.

I think Dr. Insel was making -- was saying that all this, quote, scientific process, quote, scientific process, really established the interreliable -- interrater reliability of psychiatric diagnoses, not the validity of psychiatric diagnoses. And he was interested in figuring out the biological background and causes and consequences of mental illness.

And in his view, the NIH put more emphasis on the symptoms of people who are mentally ill. And he noted that, for example, anxiety and depression are part of almost every psychiatric diagnosis, even though we sometimes call things, "Anxiety disorders." And he said, we needed -- he used an example, I believe of catatonia in that he wanted to know the mechanisms of catatonia. I don't think I need to explain that to you, just that that's a psychiatric condition where people can't move.

And he said that must have a neurobiology and you can see catatonia in various psychiatric diagnoses. So he wants to figure out the mechanism of catatonia, not when people are depressed and catatonic versus when people are schizophrenic and catatonic or when they just found out their mother died and they're catatonic. So that's sort of the kind of thing that was going on back in May and June of 2013, and it was quickly fixed from a public relations point of view. Less you think psychiatry is free of political influences, I want to emphasize what I just said.

Q. Thank you. So you mentioned that Dr. Insel was interested in understanding components of -- conditions related to brain structure or neuro origination?

A. He would be interested in anything about the brain, whether it's the anatomy or structure of the brain or whether it's the activity of the brain or the biochemistry of the brain or the electrolyte milieu of the blood circulating through the brain and the blood brain barrier and how genes are turned on and off and affect brain function. That would

be called, as you said, neuroscience.

Q. Is it fair to say you understood his statement -- his initial statement, not the joint statement that came out later, his initial statement pertained to the research domain criteria project and its goal to understand mental illness as disorders of brain structure and function that implicate specific domains of cognition, emotion, behavior?

A. Yes.

MR. KNEPPER: Objection, form.

MR. CHARLES: Okay. Just pausing. I did mis-number an exhibit. There was an exhibit I numbered that I did not introduce. So that's why you're off --

MR. KNEPPER: That's fine.

MR. CHARLES: -- so I will try to figure out how to remedy that.

MR. KNEPPER: We can also stipulate that there is no such exhibit. I often lose track, so I thought it was me. And to find out that it's not is great -- I thought it was only me. To find out it was not only me is a great relief.

MR. CHARLES: All right. I'll keep

going.

MR. KNEPPER: We can fix it later.

MR. CHARLES: Okay.

BY MR. CHARLES:

Q. All right. Dr. Levine, if you would please turn in your report, your report, which I think is still in front of you, to page 49. Just let me know when you've got there.

A. I'm there.

Q. Okay. And beginning at paragraph 66, you're discussing the 2009 and then the 2017 Endocrine Society guidelines, right, in that paragraph?

A. Yes.

Q. Okay. Do the Endocrine Society guidelines require that any child treated with puberty delaying medications must later receive hormones?

A. No.

Q. Okay. Do the Endocrine Society guidelines supersede a clinician's careful judgment or assessment of a patient in their care?

A. No.

Q. And are the Endocrine Society guidelines published in a peer-reviewed journal?

A. They may be published in a peer-reviewed journal, but when institutions like the Society -- I doubt very much they're peer reviewed. They're thought to be peer reviewed by the society itself; that is, it's a consensus document based on a lot of work of a committee. So they publish it and then some journal says, That's good enough for me. It's not like they have independent endocrinologists looking at the guidelines. That's what I suspect, but I cannot say that with certainty.

Q. Okay. So you're not -- that's your suspicion, but you can't confirm that the guidelines were not --

A. Well, I've just seen -- I've seen guidelines get published very quickly --

Q. Understood.

A. -- and I've been told that this will get published in -- you know, if I write this and so it gets published.

Q. So with regard to these guidelines specifically, though, you're not aware that

they weren't peer reviewed before they were published in a peer-reviewed source?

A. I am aware that other endocrinologists are horrified by these guidelines and have complained about the lack of -- they wondered how they got published.

Q. But you're not aware --

A. I am not aware that this is peer reviewed or not peer reviewed.

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(Thereupon, Deposition Exhibit 19, "Endocrine Treatment of Gender-Dysphoric/Gender-Incongruent Persons: An Endocrine Society Clinical Practice Guideline," Article, was marked for purposes of identification.)

- - - - -

Q. Okay. For the record, I'm marking Exhibit 19. "Endocrine Treatment of Gender-Dysphoric/Gender-Incongruent Persons: An Endocrine Society Clinical Practice Guideline," 2017. Okay. So in this paragraph -- or really just now in your testimony, Dr. Levine, you critiqued the evidence in the most recent

Endocrine Society guidelines, correct?

A. What was the first part of your question? Did I critique it?

Q. The quality of evidence.

A. Well, it's not my critique of the quality of evidence. It's their critique of the quality of evidence. I think you need to emphasize that. They're the ones that said it's a low quality evidence throughout. That's the whole idea throughout this paper, is that they're assessing, we have a rank order about what is -- we have a hierarchy of evidence-based medicine in medicine. And we have what is low quality.

For example, my opinion is the lowest -- the expert opinion is the lowest level on the hierarchy of trustworthy scientific information. So this represents -- and not only a set of recommendations but an evaluation of a grading of the degree of certainty about the scientific basis of these recommendations. Even though there's a low quality to these recommendations on the part of the endocrinologist, because they do know something about science, they still persist in

recommending if you're going to treat -- if you decide to treat, this is how you treat.

Q. I see. Okay. So taking a look here at Exhibit 19. Do you recognize this material?

A. I do.

Q. Okay. So this is the, "Endocrine Treatment of Gender-Dysphoric/Gender-Incongruent Persons," as released by the, "Endocrine Society Clinical Practice Guideline."

A. Yes.

Q. Okay. So would you agree that as listed in this guideline and -- well, as listed in this guideline that 1, by its very nature, has better support than a 2 recommendation?

A. No. I would have to consult the grading system whether like 5 is better than 1 or 1 is better than 5.

Q. And what is the grade system?

A. Well, I'm sure it's listed in here --

Q. Okay.

A. -- I don't remember it offhand. You see, there's a number and then there's a

line and then there's a circle and they're either filled in or not filled in on page 3871?

Q. Yes.

A. So these are the grading systems. And some things are ungraded and some things are graded. You know, I probably -- I probably once knew the answer to whether 1 is best or -- I would presume 1 is the least, but we would have to find their system. It's too detailed for my aging brain to remember. But the point is that the endocrinologists themselves and the people who review the state of science have all agreed. It's not like people like me think that the quality of the science is low.

The people at WPATH know that the quality of their science is low. And the people at WPATH know that -- wish they had controlled studies, randomized controlled studies. And the people in this field like myself but who are even more in the field, they wish they had excellent followup studies. It's not like these endocrinologists think that they're absolutely certain that this is the right thing to do and what the outcome of their treatments are. They don't know what the outcome of their

treatments are. So if you just take an example from this document --

Q. Okay. If you'll just pause for just a moment, Dr. Levine. I want to give you one other document to look at alongside that one.

- - - - -

(Thereupon, Deposition Exhibit 20, "Pediatric Obesity-Assessment, Treatment, and Prevention: An Endocrine Society Clinical Practice Guideline," Article, was marked for purposes of identification.)

- - - - -

Q. Okay. So for the record, I'm marking Exhibit -- or I'm introducing to Dr. Levine what has been marked as Exhibit 20 entitled, "Pediatric Obesity-Assessment, Treatment, and Prevention: An Endocrine Society Clinical Practice Guideline."

Okay. Looking at the first document, the Endocrine Society Clinical Practice Guideline for the Treatment of Gender-Dysphoric and Incongruent Persons. Could we -- would you be willing to assume that the, "1," next to some

of the recommendations means that that is a high recommendation?

MR. KNEPPER: Objection, form.

A. I am not. Until we find out the key, I'm not willing to make any assumptions.

Q. Okay. So then let's take a look at the second document, "Pediatric Obesity-Assessment, Treatment, and Prevention: An Endocrine Society Clinical Practice Guideline." Have you seen this document before?

A. Never.

Q. Okay. So let's first look at this document. If you'll just turn to page 711.

A. Okay.

Q. Actually, I'm sorry. Let's go to page 722 looking at the paragraph marked 3.2. It's on the right-hand side, the second column.

A. Yes.

Q. Okay. So 3.2 states, "We recommend that clinicians prescribe and support healthy eating habits such as:

"Avoiding the consumption of calorie-dense nutrient-poor foods..."

And then the second bullet point, "Encouraging the consumption of whole fruits

rather than fruit juices."

Did I read that correctly?

A. Yes.

Q. Okay. And do you see next to that recommendation a number, "1," and two of the four circles have been marked with a cross through them?

A. Yes.

Q. Okay. So keeping that in mind, let's turn back to the other document and please turn to page 3881.

A. 81?

Q. 3881. Then if you look on the right-hand side, the second column that is -- I'm looking at what's been labeled 2.3 --

A. I see it --

Q. -- do you see that?

A. I see it -- it has the same signal.

Q. It does. So it means something.

A. We don't know what it means, but it means something --

Q. Yeah, so I'll go ahead and read that.

A. -- we can establish it means something.

Q. I'll go ahead and read that. It says, "We recommend that, where indicated, GnRH analogues are used" -- oh, I'm sorry. Do you see that there?

A. I do.

Q. Okay.

-- "GnHR analogues are used to suppress pubertal hormones."

So is, "GnRH" -- what is, "GnRH"? Are you familiar with that term?

A. I am.

Q. Okay. What does that mean or what is that referring to?

A. Gonadotropin-releasing hormones.

Q. Commonly referred to as, puberty delaying medication?

A. Puberty blockers, whatever.

Q. Okay. So would you say that it appears there are other Endocrine Society guidelines that offer the same level of recommendation and quality of evidence as the Endocrine Society treatment guidelines for gender dysphoric persons?

MR. KNEPPER: Objection, form.

A. Yes. They're all low -- yes, low

quality evidence. We recommend that where indicated -- now, you see, where indicated goes back to writing a letter of support for hormone treatment. And the endocrinologist may not feel secure enough to make the decision by him or herself and wants a letter from a mental health professional to say, you take responsibility, I recommend -- you take ethical responsibility for giving this kid. I recommend -- I'll take ethical responsibility that I think this is a good idea to put this 11 year old, this 10 or 1 child, 10 or 2 child on hormones.

So the endocrinologist, per se, may or may not require of such a letter, but most of them I know would love a letter because that takes them off the ethical hook. The psychiatrist said it's appropriate to do this, so it's indicated. The endocrinologists themselves are not equipped to evaluate the developmental history and the different diagnosis and the defensive nature of some cross-gender identifications. And so, you see, there's a qualification in that sentence and you must understand that qualification,

although just reading it, you wouldn't. Hopefully a doctor would understand it.

Q. So the strength of the recommendation and the quality of the evidence supporting this guideline -- the guideline pertaining to healthy eating habits -- is the same as the strength of the recommendation for the quality of evidence that puberty blockers be used for treatment of gender dysphoria in adolescents?

MR. KNEPPER: Objection, form.

A. Just think, we have a very overweight child and we don't need more evidence that obesity is not good for long-term health, you see. So we don't need a lot of evidence to say, tell the children not to drink Coca-Cola. It makes a lot of sense to even parents; don't drink sugar infused drinks. Now, we're talking about changing a person's life dramatically when indicated needs a mental health professional to say, I think this is a good idea, I believe that trans people can live happily ever after and they don't have increased mortality. When indicated -- that's what when indicated need to think about.

When I'm reassured that I'm doing the right thing by a mental health professional whom I recognize may know more about the development of the human soul and the human psyche than I do. You're aware in my report that I quoted somebody, a Dutch person whose name I can't pronounce -- it starts with a V -- that was a survey of pediatric endocrinologists expressing a series of unanswered questions that made them feel uneasy.

Q. Can you turn to, Dr. Levine, for me to page 58 in your report, please.

A. Page?

- - - - -

(Thereupon, Deposition Exhibit 21, "Practice Parameter on Gay, Lesbian, or Bisexual Sexual Orientation, Gender Nonconformity, and Gender Discordance in Children and Adolescents," Article, was marked for purposes of identification.)

- - - - -

Q. I'm sorry. Page 56, page 56.

A. Page 56. Here, we are.

Q. So first looking at your report,

Dr. Levine -- or actually, let me start with the exhibit. So for the record, I've shown Dr. Levine what has been marked as Exhibit 21, the, "Practice Parameter on Gay, Lesbian, or Bisexual Sexual Orientation, Gender Nonconformity, and Gender Discordance in Children and Adolescents." Have you seen this document before, Dr. Levine?

A. I don't think so. I don't recall.

Q. Okay. Could you -- so you're not sure if you've seen this before, Dr. Levine?

A. Yes, I'm not certain.

Q. Okay. Okay. You can go ahead and set that aside.

Okay. Could a mental health provider refusing to provide appropriate -- sorry. Let me back up here. Could a mental healthcare provider who refuses to provide gender affirming treatment to a person suffering from gender dysphoria do harm to them?

MR. KNEPPER: Objection, form.

A. They certainly could disappointment the person, if the person wanted gender affirming care such as I recommend, and I'm optimistic you can change your gender safely

where hormones are safe and surgery is a good thing to do. If a person said that, you know, skeptically, I think that would disappoint certain patients, but how it was said and when it was said in response to what would either determine whether the person is engaged with the mental health professional or leaves the mental health professional. You know, all mental health professionals are not created equal.

Q. So it sounds like you're saying it could do harm to that patient?

MR. KNEPPER: Objection, form.

A. No, I'm not saying that. I'm saying it could be disappointing to that person. What that person did with the disappointment may prove harmful just because of that person or it may prove in fact beneficial.

Q. Are you satisfied -- let's orient this question around the patients you've seen in the last 12 months. Are you satisfied that those patients -- actually, sorry. Let me start over. Are you satisfied that the patients you have seen historically for whom

you provide letters of authorization for hormones give sufficiently informed consent?

MR. KNEPPER: Objection, form.

A. From my point of view, I did what I could to reach the standard of having the person internalize and think about, digest, dream about and come back and talk to me about it. That's all I can do. I can't guarantee that if I do what I do that it's going to change your mind or help you steer your ship in a slightly different angle --

Q. So --

A. -- so I would not write a letter of recommendation if I didn't feel like I did my part. And if the person indicated that they couldn't pay attention to me, I wouldn't write the letter.

MR. CHARLES: Understood.

Okay. John, finished.

MR. KNEPPER: You're finished?

MR. CHARLES: I mean, barring --

MR. KNEPPER: Barring --

MR. CHARLES: We can't tell the future.

MR. KNEPPER: I wasn't ready for

that but, great. Why don't we take a 10-minute break.

MR. CHARLES: Okay.

MR. KNEPPER: I will be back here at 4:45.

VIDEOGRAPHER: Off the record 4:36.

(Recess taken.)

VIDEOGRAPHER: On the record 4:50.

EXAMINATION OF DAVID MADIGAN, PH.D.

BY MR. KNEPPER.

Q. Dr. Levine, could you please obtain Exhibit 2 for me, please.

A. (Witness complies.)

Q. If you could turn to page 150.

A. So 143, 145, 184, 152. Wait a second. We may be there. 154. 150. No. That's 151. Here's 150, yeah.

Q. Do you remember earlier in the deposition when Mr. Charles read a portion of it?

A. Yes.

Q. Do you remember that Mr. Charles stopped reading at line 5 at the sentence, "It doesn't justify it" --

A. Yes --

Q. -- is that correct?

A. -- he did. I think so, yeah.

Q. And does the deposition have the remainder of that paragraph and two following paragraphs of testimony by you?

A. Yes.

Q. Are there other statements from those paragraphs that you feel need to be read into the record to explain your thinking?

MR. CHARLES: Object to form.

A. I said it in this document, that I was just trying to say, please, understand me, I understand the social policy or organizational policy or institutional medical policy is very different than the subject of medical science. It's very important I believe as an educator and an advisor of the young to embrace controversy, not to hide from it. Controversy is actually how medicine advances, because you think one thing. I think another. And science says, now prove it.

And then we establish a scientific study and we gather further evidence to support your position or to refute my position. And so I try to tell people -- I just wrote a book for

mental health professionals. And in chapter 7 of my book, which is the chapter devoted I think to gender dysphoria, I said, Please see what the controversies are, don't run from them, don't take a side, don't become simply an advocate but understand both sides of the controversy. And perhaps you can pay attention to the future scientific accomplishments that help answer the controversy.

So I say, all this storm, all this disagreement, it becomes -- it arises only because of the limitations of science. We wouldn't be -- we wouldn't be here today if science had done its job. And so the passion is not because, oh, you're a passionate person or I'm a passionate person and the other side. What we're saying is, all this passion comes about because we don't have the information. And if you're starting your career beware of passion. Medicine generally doesn't produce passion. It's very unusual in medicine to have as much passion about any subject as there exists in the trans world. That should be suspicious.

We should all be suspicious of this

passion. Why is there so much passion. We don't know what to do whether we should do surgery on a heart that has had a myocardial infarction or we should give medication. People are not having advocacy groups and fighting each other and calling each other names. We do a study and we figure out which is better, you see. But here we've got so much -- we have a cultural war going on and it's because science hasn't done its job. And until science does its job, the war is going to continue.

And people on either side are not bad human beings. They disagree, but they don't have the evidence to support their position. So that's why I said -- you know, you asked me a question, does the lack of consensus justify a categorical ban. You can force me into a, "Yes," or, "No," answer, but this larger thing that follows on page 150 is what I want to convey to the Court or the three of you. I'm sorry. That's too long-winded.

Q. No. Could you turn to page 87 of your expert report. That's Exhibit 1.

A. Oh, my expert report.

Q. Yes.
A. Are we done with this? (Indicating.)
Q. Yes.
A. I guess I'm not listening very well.
Q. You're all right.
A. 82?
Q. 87, paragraph 122.
A. Okay.
Q. Do you see the portion of that report that says, "Summary Opinions"?
A. Yes.
Q. Okay. Is it your view that there are no long-term, peer-reviewed published credible, reliable and valid research studies documenting or establishing, one, the percentage of patients receiving gender transition procedures who are helped by such procedures according to well known criteria?
A. Yes, I believe that.
Q. Two, that the percentage of patients receiving gender transition procedures who are harmed by such procedures, according to well known criteria, is not known through

long-term, peer-reviewed, published, credible, reliable and valid research studies?

A. Yes, that's what I believe --

MR. CHARLES: Objection, form.

A. -- that's what I'm telling the Court.

Q. Do you believe that there are no long-term, peer-reviewed published, credible, reliable and valid research studies documenting or establishing the reliability and validity of assessing gender identity by relying solely upon the expressed desires of a patient?

A. Yes.

Q. Do you believe that there are no long-term, peer-reviewed published, credible, reliable and valid research studies documenting or establishing the mental health outcomes of trans behaving children who are either affirmed or not affirmed during childhood?

A. Absolutely, yes.

Q. Do you believe that there are no long-term, peer-reviewed published, credible, reliable and valid research studies documenting or establishing the percentage of various types of childhood functional challenges and

psychiatric diseases of trans identified children?

A. I do believe that. Trans identified children often get a diagnosis of gender dysphoria and that becomes the issue. But in terms of follow up, the issue also is what happens to them in terms of depression, substance abuse, suicidal ideation, academic success and social success. And so that's why I endorse E. as you read it.

Q. Is it your opinion that there are no long-term, peer-reviewed published, credible, reliable and valid research studies documenting or establishing the percentage of patients whose new trans identity has been created by involvement in social media?

A. Yes, I agree, but it's really not created or not created. It's had an influence in the creation. I believe that it has had a major influence in the creation, but I can't really say that it's been solely created by that. There probably is a vulnerability to a child who is so influenced. And we need to remember that 50 percent of the children that are evaluated in recent years have a diagnosis

of autism. And autism in children is associated with social -- being not part of a social group and enormous social anxiety and the feelings that one is not an adequate person.

And so many of these people are very heavily dependent on the computer and all of their friendships are virtual, all their activities are in their room with the computer. And so those are the particular people whose vulnerabilities that I worry about, that they get a diagnosis -- they give a self label and then they create their own dysphoria about their bodies, but they failed socially by no -- they're not -- they're not at fault personally because they're autistic.

You know, autism is a pre -- you know, it's a biologic, developmental neurobiological abnormality with social consequences and cognitive consequences. So I think, you know, when we just talk about trans adolescents and we don't make mention to the fact that 50 percent of them are neuro atypical and 70 percent of them in many, many studies, in most studies have a recognized psychiatric past

history and current psychiatric diagnosis, it's more complicated than just the internet.

But we need to understand who these children are and how they're different from their peers and what we could possibly do to help them to have a better life. I know some of the conversation today was, we'll help them have a better life by giving them puberty blocking hormones, but that doesn't address -- I think it has a risk of harming them further. And it doesn't address the comorbid developmental challenges that these children face.

And I'm afraid -- and it's controversial, because I don't have the answer. I'm afraid there's a possibility we're making these children have a worse outcome. And until you can demonstrate to me in a very careful controlled study that separates the autistic from the non-autistic, you see? That separates the kids who come from a family that's intact from a family where there's a single parent. Where you can separate the kids who were sexually abused from the kids who were not sexually abused. I'm not sure puberty blocking

hormones ought to be blanketly applied because the kid is gender dysphoric.

So I agree that -- the percentage of people whose new trans identity has been created by environment and social media, I agree, yes, but I dislike that caveat. I just want everyone to know, this is a great complexity and let's not simplify it by one god damn diagnosis because people generally don't have one diagnosis.

Q. Do you consider the use of puberty blocking pharmaceuticals to treat gender dysphoria to be experimental?

MR. CHARLES: Object to form.

A. Oh, yes.

Q. Do you consider the use of cross-sex hormones to treat gender dysphoria to be experimental?

MR. CHARLES: Object to form.

Q. You can answer.

A. Yes, in the sense that we haven't really done -- it's putting the treatment before the science and therefore it's experimental. I know the argument it's not experimental because it's been done with

thousands of patients; therefore, it's not experimental. But that's an argument; it's true, it's been given to thousands of patients, but that doesn't answer the question: What's the impact of this, the medical impact, the social impact, the psychological impact, the vocational, the educational and the long-term health impact of it.

Now, when Mr. Charles was asking me questions about mortality and morbidity, I said there was another study I couldn't remember and there just is -- I just found it on the internet. It's a study -- it's called, "Mortality Trends Over Five Decades in Adult Transgender People Receiving Hormone Treatment, a report from the Amsterdam Cohort of Gender Dysphoria." And the author is something like D -- let me see if I can find it. Anyway, DeBlok, D-e, capital, B-l-o-k and et al.

Q. And where was that study published, Dr. Levine?

A. This is in Lancet --

Q. And when was it published?

A. -- it's a British journal, Lancet.

Q. And when was it published?

A. It was just published 2021. I don't know what month. I just became aware of it. But I think -- I mean, I just really read it quickly. The mortality rate, the death rate from all causes, not suicide alone, all causes. Cardiovascular disease and cancer particularly is double, double. So to me there's no question. You see, there's no question that the trans community generally has unfortunate to look forward to not a full life span, given their country, whatever the life span of their country is.

So when we talk about a 6 year old or 11 year old or 15 year old being given these puberty blockers or hormones or having their breasts removed or can't wait to have my genitals redesigned when I'm 21 or whatever it is, I'm aware of the data on the health of operated upon hormonally treated patients. I'm aware of that. And I sit there in my office worrying about the long-term implications of this child or this teenager or this adult. And that's why I emphasize so much informed consent.

It's possible that you can't give true

informed consent to a 15 year old. They can't tolerate the idea. They're certain. You know, adolescents are certain about things and you can't convince them. I don't want to bring up the antivaxxers for a minute, because some people don't outgrow that.

Q. I do have to get a flight, so I have to -- I don't want to spend too long. I did want to tie that back a little bit, though, because -- I'll come back to that question. Actually, I'll stay there and then I'll move to surgery. I'm going to ask you the same question whether surgery is experimental in a second. But there was a comment in a passage from a prior deposition where you said that one of the things you wanted to determine was whether the parents of an adolescent presenting as transgender were homophobic. Is that correct?

A. Yes.

Q. Why were you concerned about the possibility that parents might be homophobic?

A. Because the child may starting at about age 10 beginning to have homoerotic attractions and may be fascinated with certain

boys or girls if they're of the same sex. And they recognize this as, this is a terrible sin in their religious background, in their parental values background listening to their father and mother talk about, "Gay people, we aught to kill those gay people," you know, the child has big ears, takes it in. And the child may become trans in order to avoid being gay.

And my great concern about all of this treatment of children is that in some way it's trying to convert children from being gay. It's trying to stop them from being gay, giving them an alternative. And to me that's, wow, that seems like a terrible thing to do.

Q. Do you have the same concerns about morbidity in the gay community that you do about the early mortality of transgender individuals?

MR. CHARLES: Object to form.

A. The measures of community distress like mortality are about 50 percent in the gay and lesbian community; that is, it's twice as much in the trans community than it is known in the gay community. And in the recent New England Journal of Medicine article about

substance abuse, they didn't distinguish between trans and -- statistically, but other studies have indicated that everything else, like suicide in the last thirty days, thinking about suicide in the last thirty days, making a suicide attempt, substance abuse, it's all higher in the trans community.

It's not low in sexual minority communities. Either is domestic violence in either of those communities, but it's much less in the trans -- in the lesbian and gay community than it is in the straight -- in the trans community. And it's even less in the straight community, but obviously we have these same problems in the straight community, the cis gender community.

Q. Return to the question. Do you consider surgery for the treatment of gender dysphoria to be experimental?

MR. CHARLES: I object to form.

A. I have the same answer that I had to the hormonal question and for the same reasons.

Q. Do all transgender people suffer from a gender dysphoria?

A. No.

Q. Are there any studies or scientifically valid research that indicates what percentage of transgender people suffer from gender dysphoria?

MR. CHARLES: Object to form.

A. What percentage of transgender people suffer from gender dysphoria? I don't think -- I can't recall a study that asks that question and use -- and had numbers to explain the answer. People like myself get to see individuals who are transgender but not dysphoric or who are dysphoric but not transgender.

Q. That was going to be my followup question. Are there people who are dysphoric who are not transgender?

A. Oh, yes. Oh, yes. Many years ago, before I ever got involved with any lawyer about these issues, I remember recommending to a group of alcohol specialists that they ought to look at the gender identity -- they ought to ask questions about the sexual identity of the people being treated for substance abuse and alcoholism. Because in my limited clinical

experience, I've run into -- I keep running into people who presented with substance abuse and really dangerous degrees of substance abuse that would get them hospitalized.

And then when I talked to them, they tell me stories about their hidden gender dysphoria or their struggles about -- let me just take a man, for example -- the struggles about the sense that they have that they're feminine and they can't -- they have feminine interests, they have feminine interests but social -- and they have a sense of themselves as more feminine than masculine and yet they are too afraid to show it and then they drink themselves into hepatitis or whatever.

Q. But you would not consider those individuals to be transgender?

A. Well, they don't call themselves transgender. They present themselves as cis gender people.

MR. KNEPPER: That's all I have. Carl, do you have any follow up?

MR. CHARLES: What time is your flight?

MR. KNEPPER: 7:15.

MR. CHARLES: So we're going to take a nine-minute break.

MR. KNEPPER: That's fine.

VIDEOGRAPHER: Off the record 5:12.

(Recess taken.)

VIDEOGRAPHER: On the record 5:17.

MR. KNEPPER: Alan, I'm confirming that you have no questions for this witness.

THE WITNESS: I heard him say before he has no questions.

MR. KNEPPER: Once again, Alan, do you have any questions for this witness?

Well, go ahead, Mr. Charles.

MR. CHARLES: Okay.

EXAMINATION OF STEPHEN B. LEVINE, M.D.

BY MR. CHARLES:

Q. Dr. Levine, how many autistic individuals who have been diagnosed with gender dysphoria have you treated in your clinical practice?

A. I would say, in the last two years, 90 percent of the people who have had neuro atypical backgrounds and one -- one who doesn't, I'm strongly suspicious does.

Q. So if you could break down 90

percent for me, because 90 percent could be 1 of 2.

A. No, no. I mean about 10, 12 people. The last people I've seen in this age group, I would say, at least 50 percent. I just had a conversation and it's (inaudible) --

Q. Oh, okay.

A. -- at the minimum 50 percent, but I think it's much higher.

Q. Okay. And those 50 percent have a neuro typical diagnosis that you're aware --

A. No. Atypical.

Q. I'm sorry. Atypical.

A. What about that?

Q. That estimated 50 percent, you said they have -- I'm sorry -- do they have an atypical diagnosis of some kind?

A. Yes. This is not just my experience. This is not just my experience.

Q. I know, but I'm only asking about your experience.

A. But, see, it's helpful when my experience corresponds to international experts having the same kind of experience.

Q. I'm just asking about the patients

you see in your practice.

A. Yes, they -- they come to me, but their parents tell me that they were diagnosed at 6 or 8 or whatever with autism --

Q. Okay.

A. -- sometimes it's referred to as Asperger's.

Q. Okay. Is it your opinion that there is greater societal acceptance of trans individuals as opposed to gay individuals?

A. No.

Q. Okay. So why do you believe a child would become transgender to avoid parental disapproval of homosexuality?

A. Because children want to please their parents, because some parents are really antigay. And I've had a parent say, "I'd rather have my kid dead than gay." I couldn't believe that.

Q. You think those same parents would be happy to have a trans child?

A. I don't -- no, I don't think people are happy to have a trans child. It's an internal developmental creative thing to declare oneself to be trans. And the child

does not know all the forces that have shaped that decision, you see, but there are social forces impinging on every child.

Q. Understood. But you said that some children would opt for a transgender identity because of perceived disapproval by their parents of homosexuality.

A. Yes.

MR. CHARLES: Okay. That's it.

MR. KNEPPER: All right. Thank you very much.

VIDEOGRAPHER: Off the record 5:21.

(Thereupon, the deposition was adjourned at 5:21 p.m.)

Whereupon, counsel was requested to give instruction regarding the witness's review of the transcript pursuant to the Civil Rules.

SIGNATURE:

Transcript review was requested pursuant to the applicable Rules of Civil Procedure.

TRANSCRIPT DELIVERY:

Counsel was requested to give instruction regarding delivery date of transcript.
Carl Charles ordered the original transcript regular delivery with Rough Draft.
Copy--Jeffrey Knepper with Rough Draft

REPORTER'S CERTIFICATE

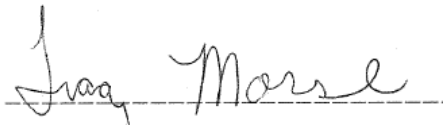
The State of Ohio,)
SS:
County of Cuyahoga.)

I, Tracy Morse, a Notary Public within and for the State of Ohio, duly commissioned and qualified, do hereby certify that the within named witness, STEPHEN B. LEVINE, M.D., was by me first duly sworn to testify the truth, the whole truth and nothing but the truth in the cause aforesaid; that the testimony then given by the above-referenced witness was by me reduced to stenotypy in the presence of said witness; afterwards transcribed, and that the foregoing is a true and correct transcription of the testimony so given by the above-referenced witness.

I do further certify that this deposition was taken at the time and place in the foregoing caption specified and was completed without adjournment.

I do further certify that I am not a relative, counsel or attorney for either party, or otherwise interested in the event of this action.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my seal of office at Cleveland, Ohio, on this 24th day of September, 2021.



_____

Tracy Morse, Notary Public
within and for the State of Ohio

My commission expires 1/26/2023.

John Knepper, Esquire

john@knepperllc.com

September 24, 2021

RE: Kadel, Et Al v. Folwell

9/10/2021, Stephen B. Levine , MD (#4784022)

The above-referenced transcript is available for review.

Within the applicable timeframe, the witness should read the testimony to verify its accuracy. If there are any changes, the witness should note those with the reason, on the attached Errata Sheet.

The witness should sign the Acknowledgment of Deponent and Errata and return to the deposing attorney. Copies should be sent to all counsel, and to Veritext at cs-midatlantic@veritext.com

Return completed errata within 30 days from receipt of testimony.

If the witness fails to do so within the time allotted, the transcript may be used as if signed.

Yours,

Veritext Legal Solutions

Kadel, Et Al v. Folwell

Stephen B. Levine , MD (#4784022)

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Stephen B. Levine , MD Date

Kadel, Et Al v. Folwell

Stephen B. Levine , MD (#4784022)

ACKNOWLEDGEMENT OF DEPONENT

I, Stephen B. Levine , MD, do hereby declare that I have read the foregoing transcript, I have made any corrections, additions, or changes I deemed necessary as noted above to be appended hereto, and that the same is a true, correct and complete transcript of the testimony given by me.

_____ _____

Stephen B. Levine , MD Date

*If notary is required

SUBSCRIBED AND SWORN TO BEFORE ME THIS

_____ DAY OF _____, 20___.

_____

NOTARY PUBLIC

c

d

North Carolina General Statutes

Article V. Depositions and Discovery

Rule 30

(e) Submission to deponent; changes; signing. The sound-and-visual recording, or the transcript of it, if any, the transcript of the sound recording, or the transcript of a deposition taken by stenographic means, shall be submitted to the deponent for examination and shall be reviewed by the deponent, unless such examination and review are waived by the deponent and by the parties. If there are changes in form or substance, the deponent shall sign a statement reciting such changes and the reasons given by the deponent for making them. The person administering the oath shall indicate in the certificate prescribed by subdivision (f)(1) whether any review was requested and, if so, shall append any changes made by the deponent. The certificate shall then be signed by the deponent, unless the parties by stipulation waive the signing or the deponent is ill or cannot be found or refuses to sign. If the certificate is not signed by the deponent within 30 days of its submission to him, the person before whom the

deposition was taken shall sign the certificate and state on the certificate the fact of the waiver or of the illness or absence of the deponent or the fact of the refusal or failure to sign together with the reason, if any, given therefor; and the deposition may then be used as fully as though the certificate were signed unless on a motion to suppress under Rule 32(d)(4) the court holds that the reasons given for the refusal to sign require rejection of the deposition in whole or in part.

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VERITEXT LEGAL SOLUTIONS
COMPANY CERTIFICATE AND DISCLOSURE STATEMENT

Veritext Legal Solutions represents that the foregoing transcript is a true, correct and complete transcript of the colloquies, questions and answers as submitted by the court reporter. Veritext Legal Solutions further represents that the attached exhibits, if any, are true, correct and complete documents as submitted by the court reporter and/or attorneys in relation to this deposition and that the documents were processed in accordance with our litigation support and production standards.

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CASE WESTERN RESERVE UNIVERSITY EST. 1826

(//case.edu/)

Lesbian Gay Bisexual Transgender Center (https://case.edu/lgbt/)

Exhibit
SL 06

Transgender Resources

PROMOTE YOUR ORGANIZATION

To have your organization included in the LGBT Center's resources directory submit a paragraph describing the organization and services or resources it provides. LGBT Center staff will review submissions for relevance.
For information or submission, contact **lgbt@case.edu. (http://lgbt@case.edu/)**

On-Campus Resources

The following **conversation groups (https://case.edu/lgbt/signature-programs/conversation-groups)** for social support are facilitated at the CWRU LGBT Center: Gender Resistance, Coming Out, Found Families, LGBT D&D

Updating Systems Information

- **Preferred Name, Gender Identity, and Personal Pronouns Update (https://case.edu/lgbt/resources/pronoun-resources)**
- **Legal Name Update (https://case.edu/registrar/forms-services/forms/namechange/)**
- **Changing Default Email Address (https://its-services.case.edu/pFDL/)**
- **Adding Alternate Email Aliases (https://its-services.case.edu/mailalias/)**
- Changing Case ID Card - Please email the LGBT Center Staff at **lgbt@case.edu (mailto:lgbt@case.edu)** to then work with Access Services
- **Update Gender Marker Policy & Form (https://case.edu/registrar/forms-services/forms/gender-change-policy/gender-change-form)**

Bathroom Inventory

Please see a list of bathrooms around CWRU's campus that are single-stall, locking bathrooms. (/lgbt/resources/transgender-resources/bathroom-inventory)

Gender-Inclusive Housing

Learn more about **Gender Inclusive Housing (/lgbt/resources/campus/campus-policy/gender-inclusive-housing)** options at CWRU.

Name Change Resources

- **TransOhio Legal Clinics for Name & Gender Marker Changes (http://www.transohio.org/?page_id=2881)**
- **Name Change Guide for Ohio Residents**
- **Getting a Court Order for a Name Change**
- **Cuyahoga County Name Change Application**

- **ID Documents Center, National Center for Transgender Equality (https://transequality.org/documents)**

Health Resources

Trans Lifeline

A crisis line for transgender people currently in need of support and assistance.

Trans Lifeline (http://www.translifeline.org/) - 877.565.8860

This helpline is staffed by transgender people for transgender people, and is supported by donors.

Name change funding is available through microgrants on a monthly basis, visit **translifeline.org/microgrants (https://www.translifeline.org/microgrants)**.

Transgender Health Care Benefits for Students (https://students.case.edu/wellness/medicalplan/1617/dependent.html)

Gender affirmation care is covered by Aetna for students. Please contact the LGBT Center with questions or concerns about navigating insurance policies.

- Aetna Student Health Benefits Summary
- **Medical Coverage (https://students.case.edu/medicalplan/student/1415/medical.html)**
- **Aetna Gender Affirmation Care Information (https://www.aetna.com/search-results.html?query=transgender)**
- Call 1.877.850.6038 for Aetna Student Health Pre-approval

Transgender Health Benefits for Employees (https://case.edu/finadmin/humres/benefits/benelect.medical.html)

Gender affirmation care is covered by MMO SuperMed, Anthem, and CLE-Care HMO insurances. Please find coverage information in the Certificate of Coverage for MMOSuperMed. For detailed coverage information for Anthem and CLE-Care HMO, contact the provider directly. Please contact the LGBT Center with questions or concerns about navigating insurance policies.

Anthem (HD & PPO) - 1.800.552.9159

- Medical Mutual SuperMed - 1.800.822.1152
- CLE-Care HMO - 1.877.330.6664

LGBT Pride Clinic at the Thomas F. McCafferty Health Center

MetroHealth's Pride Clinic at the McCafferty Health Center is the first clinic in the region and one of only 12 health centers in the country devoted to serving the health needs of the lesbian, gay, bisexual, and transgender community.

Center for LGBT Care (http://my.clevelandclinic.org/about-cleveland-clinic/lesbian-gay-bisexual-transgender-health)

Cleveland Clinic's Center for Lesbian, Gay, Bisexual and Transgender (LGBT) Care opened at the Chagrin Falls Family Health Center and **Lakewood Family Health Center (http://my.clevelandclinic.org/locations_directions/Regional-Locations/lakewood-fhc)**. Embedded in a primary care practice, the center provides care for all patients in a safe and welcoming environment. It includes providers who understand the health needs of LGBT patients, and access to specialists with expertise in LGBT care.

James Hekman, MD (http://my.clevelandclinic.org/staff_directory/staff_display?DoctorID=9314) specializes in LGBT health and co-chairs Cleveland Clinic's Gay and Lesbian Employee Resource Group. Dr. Hekman helped design the center and has moved his internal medicine practice to Lakewood.

Equitas Health Akron (http://equitashealth.com/service-category/medical/)

- **Equitas Health Institute for LGBTQ Equality (http://equitashealthinstitute.com/)**
- **Equitas Health 2018 Health Provider Guide (http://equitashealthinstitute.com/publications/ohio-provider-resource-guide/)**

A Guide To Transgender Friendly Clinics by Region (https://www.forhims.com/blog/a-guide-to-transgender-friendly-clinics-by-region)

To make things a bit easier, Hims researched and compiled their own guide to trans-friendly clinics across the United States by region.

AIDS Taskforce of Greater Cleveland (http://www.aidstaskforce.org/)

The AIDS Taskforce of Greater Cleveland provides a compassionate and collaborative response to the needs of people infected, affected by, and at risk of HIV/AIDS. This is accomplished through leadership in prevention, education, supportive services, and advocacy. 3210 Euclid Ave., Cleveland, Ohio, 44115. Call 216.621.0766.

The Cleveland Rape Crisis Center (http://www.clevelandrapecrisis.org/)

Learn more about the work of the **CRCC**. The CRCC's 24-Hour Hotline number is 216.619.6192.

Circle Health (formerly the Free Clinic)

The Cleveland Free Clinic is a free-standing outpatient medical, dental, and mental health center dedicated to the belief that healthcare is a right and not a privilege. 12201 Euclid Ave., Cleveland, Ohio, 44106; 216.721.4010.

Health Insurance

Student Policy (https://students.case.edu/medicalplan/student/1516/medical.html)

Gender affirmation care is provided by Aetna. Transgender Benefits, In-Network: 80% of eligible charges are paid for by The Plan, the remaining 20% of charges are the responsibility of the student. There is no cost limit to surgeries per Plan year. Hormone Therapy is covered under the prescription benefit.

Employee Policy (https://case.edu/finadmin/humres/benefits/benelect.medical.html)

Gender affirmation care is provided by MMO Supermed, Anthem, and CLE-Care HMO for employees. Please contact your provider for detailed coverage information.

- Anthem (HD & PPO) – **1.800.552.9159 (tel:(800)%20552-9159)**
- Medical Mutual SuperMed – **1.800.822.1152 (tel:(800)%20822-1152)**
- CLE-Care HMO – **1.877.330.6664 (tel:(877)%20330-6664)**

Local Resources

LGBT Community Center of Greater Cleveland (http://lgbtcleveland.org/index.html)

- **Public Transit Directions (https://www.google.com/maps/dir/Case+Western+Reserve+University,+10900+Euclid+Ave,+Cleveland,+OH+44106/LGI 81.6083838!2d41.5043413!1m5!1m1!1s0x8830f04a6c45ddbb:0x41f82406783830b1!2m2!1d-81.7309762!2d41.4840473!2m3!4e3!5e0!5e1!3e3)** or **Alternate Public Transit Directions (https://www.google.com/maps/dir/Case+Western+Reserve+University,+10900+Euclid+Ave,+Cleveland,+OH+44106/LGI 81.6083838!2d41.5043413!1m5!1m1!1s0x8830f04a6c45ddbb:0x41f82406783830b1!2m2!1d-81.7309762!2d41.4840473!2m2!5e0!5e1!3e3)**

TransFamily of Cleveland (http://www.transfamily.org/)

TransFamily of Cleveland was founded to provide support and education for transgender persons, their families, friends, and significant others. We are associated with PFLAG to promote awareness of transgender persons and their issues. The TransFamily support group meets the **Second Saturday of every month 11AM-1:30PM** at the LGBT Community Center of Greater Cleveland.

Beyond Binaries Discussion Group (http://lgbtcleveland.org/transgender-programs.html)

The Beyond Binaries discussion group meets **every 1st and 3rd Saturday, 10:30AM-12PM** at the LGBT Community Center of Greater Cleveland. This group is led by community members and is open to anyone 18+ (including, but not limited to genderqueer, queer, gender non-conforming, non-binary, bigender, agender, transgender, etc.). For more information, contact the LGBT Center at 216.651.5428 or the group facilitators at **www.facebook.com/beyond.binaries.cle (https://www.facebook.com/beyond.binaries.cle/)**.

Youth & Young Adult Programming (http://www.lgbtcleveland.org/youth--young-adult-programs.html)

Weekly youth programming (14-24 years old)

MetroHealth Pride Clinic

"The MetroHealth Pride Clinic is the first in the region devoted to serving the health needs of the lesbian, gay, bisexual, and transgender (LGBT) community. With specially trained physicians and support staff and an open and honest environment, we provide care that respects your unique health needs."

Note: MetroHealth will ask for a legal name before they will enter a preferred name to make an appointment. Appointments are often only available months in advance

- **Public Transit Directions (https://www.google.com/maps/dir/Case+Western+Reserve+University,+Euclid+Avenue,+Cleveland/4242+Lorain+Ave,+81.6083838!2d41.5043413!1m5!1m1!1s0x8830f03f00f8df1b:0x1d8f143550b638a7!2m2!1d-81.7159742!2d41.4797534!2m1!4e3!3e3)**

Online Resources

- **Trans Justice Funding Project (https://www.transjusticefundingproject.org/)**
  - A community-led funding initiative to support trans justice groups run by and for trans people
- **Trans 101 from Sylvia Rivera Law Project (http://srlp.org/resources/trans-101/)**
  - A basic primer about transgender people and identities
- **Transgender Rights Toolkit for College Students**
  - A legal guide for trans people and their advocates
- **Trans Student Educational Resources (TSER) (http://transstudent.org/sites)**
  - Links to educational, medical, legal, and informational resources and services.
- **Trans-Health (http://www.trans-health.com/)**
  - Information about trans health, including transition-related care as well as general healthcare.
- **Trans Women of Color Collective (http://www.twocc.us/)**
  - "Trans Women of Color Collective (TWOCC) is a national organizing collective led by trans women of color created to uplift the narratives, leadership, and lived experience of trans folks of color. Historically, we have been the catalyst of change for social justice movements. TWOCC works to empower our community and allies to create and sustain revolutionary change!"
- **Sylvia Rivera Law Project (http://srlp.org/)**

- "The Sylvia Rivera Law Project works to guarantee that all people are free to self-determine gender identity and expression, regardless of income or race, and without facing harassment, discrimination or violence."

- **Transgender Law and Policy Institute (http://www.transgenderlaw.org/)**
- **National Gay and Lesbian Task Force - Transgender Issues (http://www.thetaskforce.org/issues/transgender)**
- **International Foundation for Gender Education (http://www.ifge.org/)**
- **National Center for Transgender Equality (http://www.nctequality.org/)**
- **TG Forum (http://www.tgforum.com/)**
- **The Kinsey Institute for Research in Sex, Gender, and Reproduction (http://www.kinseyinstitute.org/)**
- **TransgenderZone (http://www.transgenderzone.com/)**
- **National Coalition for LGBT Health (https://healthlgbt.org/)**
- **Healthy Bodies, Safer Sex**
  - A comprehensive guide to safer sex, relationships, and reproductive health for trans or non-binary people and their partners.

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Scientific Statement

Scientific Statement

Considering Sex as a Biological Variable in Basic and Clinical Studies: An Endocrine Society Scientific Statement

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Abbreviations: ACTH, adrenocorticotropic hormone; AT_2R, angiotensin type 2 receptor; BMI, body mass index; cAMP, cyclic adenosine monophosphate; CKD, chronic kidney disease; CRF, corticotropin-releasing factor; CVD, cardiovascular disease; dMRI, diffusion magnetic resonance imaging; fMRI, functional magnetic resonance imaging; FCG, Four Core Genotypes (model); GMV, gray matter volume; GPCR, G-protein coupled receptor; HPA, hypothalamic-pituitary-adrenal; KYN, kynurenine; LC, locus coeruleus; MIH, Müllerian inhibitory hormone; PAR, pseudoautosomal region; PKA, protein kinase A; PTSD, posttraumatic stress disorder; RAAS, renin-angiotensin-aldosterone system; rs-fMRI, resting state functional magnetic resonance imaging; sMRI, structural magnetic resonance imaging; UCN, urocortin.

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Abstract

In May 2014, the National Institutes of Health (NIH) stated its intent to "require applicants to consider sex as a biological variable (SABV) in the design and analysis of NIH-funded research involving animals and cells." Since then, proposed research plans that include animals routinely state that both sexes/genders will be used; however, in many instances, researchers and reviewers are at a loss about the issue of sex differences. Moreover, the terms *sex* and *gender* are used interchangeably by many researchers,

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further complicating the issue. In addition, the sex or gender of the researcher might influence study outcomes, especially those concerning behavioral studies, in both animals and humans. The act of observation may change the outcome (the "observer effect") and any experimental manipulation, no matter how well-controlled, is subject to it. This is nowhere more applicable than in physiology and behavior. The sex of established cultured cell lines is another issue, in addition to aneuploidy; chromosomal numbers can change as cells are passaged. Additionally, culture medium contains steroids, growth hormone, and insulin that might influence expression of various genes. These issues often are not taken into account, determined, or even considered. Issues pertaining to the "sex" of cultured cells are beyond the scope of this Statement. However, we will discuss the factors that influence sex and gender in both basic research (that using animal models) and clinical research (that involving human subjects), as well as in some areas of science where sex differences are routinely studied. Sex differences in baseline physiology and associated mechanisms form the foundation for understanding sex differences in diseases pathology, treatments, and outcomes. The purpose of this Statement is to highlight lessons learned, caveats, and what to consider when evaluating data pertaining to sex differences, using 3 areas of research as examples; it is not intended to serve as a guideline for research design.

Key Words: brain-gut, cardiovascular disease, chromosome complement, gender, sex differences, steroid hormones

Sex is an important biological variable that must be considered in the design and analysis of human and animal research. The terms *sex* and *gender* should not be used interchangeably. Sex is dichotomous, with sex determination in the fertilized zygote stemming from unequal expression of sex chromosomal genes. By contrast, gender includes perception of the individual as male, female, or other, both by the individual and by society; both humans and animals have sex, but only humans have gender. Both sexes produce estrogens, androgens, and progestins; there are no male- or female-specific sex hormones, *per se*, although these steroids are present in substantially different levels in males and females. Sex differences are caused by 3 major factors—sex hormones, genes, and environment. To understand disease mechanisms and exploit sex differences in protection or exacerbation of diseases, one needs to determine the relative contribution of factors, including observer effect (1), causing sex differences. Here—using 3 broad research areas as examples—the roles of sex differences in brain anatomy, brain-gut axis, and cardiovascular disease are discussed. Contemporary brain imaging methods show age- and sex-related differences in brain size, global and regional gray matter volume, white matter connectivity, and neuroanatomic regulation of appetite and satiety; while these differences are seen in large population-based studies, there is tremendous individual overlap, but such group-level findings do not inform findings, physiology, or pathology at the individual level. Sex differences in disorders of the brain-gut axis, obesity, type 2 diabetes, and metabolic syndrome are caused by differential actions of brain-gut peptide and steroid hormones. The activation, signaling, and pharmacotherapy responses of the components of the hypothalamic-pituitary-adrenal (HPA) axis differ between the sexes. Heart and kidney functions are linked. Age, hormones, and sex biases seen in cardiovascular and chronic kidney diseases also differentially influence pharmacologic responses in men and women. Thus, sex differences pervade biology and medicine, and while not discussed in this Statement, must be considered in virtually all areas of biomedical research.

Section I

Sex Versus Gender

Much of the American public is surprisingly prudish about the word *sex*; it has now become commonplace to use the seemingly more genteel term *gender* when one really means *sex*. In *Moritz v Commissioner of Internal Revenue* (469 F. 2d 466 [1972]), Ruth Bader Ginsburg (subsequently, The Honorable Ruth Bader Ginsburg) argued against discrimination "on the basis of sex" not "on the basis of gender," thus clearly, knowledgeably, and presciently understanding that "sex" does not equal "gender." In a decision 48 years later (*Bostock v Clayton County*, 590 US, decided June 15, 2020), the United States Supreme Court separately ruled against discrimination on the basis of gender. *Gender* is often misused as a synonym for *sex*—for example, when filling out forms for various activities, we are routinely

asked to check a box labeled "gender," but the only available options are boxes labeled "M" and "F." But *sex* is not the same thing as *gender* and using these terms as equivalents obfuscates differences that are real and important in society in general and biomedical research in particular.

Biological Sex: The Definition of Male and Female

Sex is a biological concept. Asexual reproduction (cloning) is routine in microorganisms and some plants, but most vertebrates and all mammals have 2 distinct sexes. Even single-cell organisms have "mating types" to facilitate sexual reproduction. Only cells belonging to different mating types can fuse together to reproduce sexually (2, 3). Sexual reproduction allows for exchange of genetic information and promotes genetic diversity. The classical biological definition of the **2 sexes** is that females have ovaries and make larger female gametes (eggs), whereas males have testes and make smaller male gametes (sperm); the 2 gametes fertilize to form the zygote, which has the potential to become a new individual. The advantage of this simple definition is first that it can be applied universally to any species of sexually reproducing organism. Second, it is a bedrock concept of evolution, because selection of traits may differ in the 2 sexes. Thirdly, the definition can be extended to the ovaries and testes, and in this way the categories—female and male—can be applied also to individuals who have gonads but do not make gametes.

In mammals, numerous sexual traits (gonads, genitalia, etc) that typically differ in males and females are tightly linked to each other because one characteristic leads to sex differences in other traits. The type of gonads is controlled by the presence of XX or XY chromosomes, and gonadal secretions in turn regulate formation of female or male reproductive tissues, and characteristics that differ in typical males or females. These characteristics include external genitalia, uterus and oviducts, sperm ducts, and secondary sexual characteristics such as facial hair and pitch of voice. However, many people cannot make either eggs or sperm, yet are recognized as female or male based on other physical characteristics; people who do not have either ovaries or testes are rare. For individuals that possess a combination of male- and female-typical characteristics, these clusters of traits are sufficient to classify most individuals as either biologically male or female. For example, a person with testes and a penis, who cannot make sperm, is usually classified as a biological male, as long as the person does not possess female features such as a vagina, ovaries, or uterus. Based on evidence presented, to define male and female individuals in general society, we expand the defining characteristics of sex to include nongonadal traits, as well as classical gonadal traits.

A simple biological definition of male and female, satisfactory to all people, is elusive. In human societies, the terms *female* and *male* can have several meanings, as they refer both to a person's biological sex and to their social roles. Most people learn to discriminate males and females from an early age, but often not based on biological traits (4). For example, behaviors such as pair-bonding, sexual activity, offspring defense and care, and mate/partner selection (5) involve complex interplay between sex steroid hormones and peptide hormones (oxytocin and arginine vasopressin); these behaviors are encouraged differently in women and men, which influences their role in the society and culture in which they live to behave as "females" or "males." While these factors have little impact on their biological sex, they can have profoundly different outcomes in the behavior and health of an individual. Biological sex is dichotomous because of the different roles of each sex in reproduction. For scientific research, it is important to define biological sex and distinguish it from other meanings.

Sex Chromosomes and Biological Sex Determination

Among mammals and many other taxa, males are characterized as the heterogametic sex (6), having 2 different sex chromosomes, X and Y, whereas females are homogametic (XX). By contrast birds, many reptiles, and some other organisms have Z and W chromosomes (7). In these organisms, the female is the heterogametic sex (ZW) and males are homogametic (ZZ). Some adult fish and reptiles can also change sex in response to environmental factors (8, 9), and even the adult mouse gonad can undergo partial sex reversal when specific genes are deleted (10, 11). Human biological sex is often assessed by examining the individual's complement of sex chromosomes as determined by karyotypic analysis: males are XY and females are XX. Karyotypic sex is actually a surrogate for genetic sex, determined by the presence of the *SRY* gene on the Y chromosome (12, 13). However, karyotypic analysis may be misleading, as there are well-described 46,XX males (with testes). Most of these individuals carry a short segment of the Y chromosome that includes *SRY* transferred to an X chromosome, but up to 10% lack an *SRY* gene (14, 15). Similarly, there are 46,XY females, who have *SRY* but also have a duplication of *DAX1* (*d*osage-sensitive sex reversal, *a*drenal hypoplasia critical region, on chromosome *X*, gene 1) (16).

Sex Determination and Sex Differentiation

In mammals, sex determination begins with the inheritance of XX or XY chromosomes, which are the only factors that are different in XX and XY zygotes. Thus, all phenotypic sex differences, including gonadal development, stem originally from the unequal effects of XX and XY

sex chromosomes. Phenotypic sex differences develop in XX and XY embryos as soon as transcription begins. The categories of X and Y genes that are unequally represented or expressed in male and female mammalian zygotes, which could cause phenotypic sex differences, fall into 3 main categories (17).

1. *Y genes causing male-specific effects*. These Y-linked genes do not have homologous genes on the X chromosome. The most important Y-linked gene is *SRY*, the testis-determining gene, which encodes the SRY transcription factor expressed during embryonic life in the bipotential gonadal ridge; SRY activates downstream autosomal genes such as *SOX9* to cause formation of a testis (18). In the absence of *SRY,* autosomal and X chromosome genes (*WNT-4*, *DAX-1*, *FOXL2, COUP-TFII*, and *RSPO1)* are activated to cause formation of an ovary (19-22). Both testicular and ovarian development are subject to active genetic regulation (12, 13, 16). Pathways downstream of *SRY* inhibit ovary-determining pathways, and ovary-determining pathways also inhibit pathways for testis development. Once the testes form, they secrete sex hormones that act widely throughout the body to cause male differentiation of nongonadal tissues. Other Y genes also have male-specific effects (for example, those required for spermatogenesis) (23, 24).
2. *X gene dosage or parental imprint*. Because XX nongermline cells inactivate one X chromosome (25, 26), it was long thought that both XX and XY cells have only one active X chromosome, with little inherent difference in expression related to the number of X chromosomes. The inactivated regions of the X chromosome are "coated" with large noncoding RNA transcribed from the X-inactive specific transcript (*XIST*) gene, part of the XIC (X inactivation center) located on Xq13 (27, 28). But some genes escape X inactivation (termed as *X escapees*), and therefore are expressed more in XX than XY cells, resulting in imbalance or incomplete dosage compensation (29). About 23% of human X-linked genes are more abundantly expressed in XX cells than XY cells in many tissues (30, 31). Recent evidence from mouse studies suggests that the inherent male-female difference in expression of X genes leads to significant sex differences in disease phenotypes. For example, sex differences in placental *Ogt* expression are associated with sex differences in prenatal vulnerability to stress (32). X escapee *Kdm6a*, a histone demethylase, contributes to sex differences in mouse models of bladder cancer (33), autoimmune disease (34), and Alzheimer disease (35). Similarly, variations in human *KDM6A* are associated with prognosis of bladder cancer or cognitive decline in female patients (33). The dose of another X escapee histone demethylase, *Kdm5c*, contributes to sex differences in adiposity and body weight in mice, and variations in *KDM5C* in humans are associated with body mass (36).

   Sex differences may also arise from genes in the pseudoautosomal regions (PARs) of the sex chromosomes, small regions of sequence similarity on the X and Y chromosomes that allow for X and Y chromosome pairing during meiosis. Both XX and XY cells have 2 PARs, implying equivalent effects of XX and XY PARs. Paradoxically, the process of X inactivation appears to spill over into the PAR and reduce expression on one X chromosome only in XX cells, leading to greater expression of PAR genes in XY cells compared to XX cells in the human transcriptome (30). A third potential source of X-linked imbalance stems from parentally imprinted genes in XX cells, which have one X chromosome from each parent and thus are influenced by any imprint on X genes from either parent. XY cells only receive imprints from the mother, and thus differ phenotypically from XX cells (37).
3. *XX mosaicism*. Female mammals are a mosaic of cells of 2 types: those expressing the X chromosome from the father (Xp), or from the mother (Xm) because of X inactivation (25). In contrast, XY individuals will lack this diversity within cell types in each organ because only one X (Xm) chromosome and only the maternal imprint of X genes will be expressed in each cell. The mosaicism in females means that in genetically diverse populations, the effects of disease-promoting X-linked alleles, inherited from one parent, will be muted in XX cells because half of the cells will have a different allele (38), and genomic imprints from each parent will only be expressed in half of the cells. In general, XX tissues are thought to have less extreme phenotypes than XY tissues, because the effects of extremely deleterious or beneficial alleles or imprints are buffered by the diversity of X alleles and imprints. For example, hemophilia A and hemophilia B (clotting factor VIII and IX deficiencies, respectively), are X-linked diseases that affect men, whereas most women are asymptomatic carriers.

Sexual Differentiation Caused by Gonadal and Nongonadal Hormones

In mammals, the process of reproductive system development requires the action of hormones (peptide/gonadotropins and steroids) from the pituitary gland, the adrenal cortex, and the gonads. Testicular development leads to secretion of Müllerian inhibitory hormone (MIH, also termed anti-Müllerian hormone, AMH), a glycopeptide, and testosterone, which affects many sex differences in nongonadal tissues (39). In contrast to the fetal testis, the fetal ovary makes minimal steroid hormones

(40), and ovarian function is not needed for development of the female reproductive system, as evidenced by the normal female anatomy of individuals with Turner syndrome, who have 45,X gonadal dysgenesis. The pioneering work of Alfred Jost suggested that 2 classes of testicular hormones are involved in sexual differentiation. First, testicular androgens drive the differentiation of the fetal external genitalia from female morphology to that of the male and are required for the differentiation of embryonic Wolffian ducts into male internal reproductive structures (41, 42). Androgens, secreted by Leydig cells, are required for the differentiation of embryonic Wolffian ducts into male internal reproductive structures (epididymis, vas deferens, ejaculatory ducts, prostate, and seminal vesicles), and drive the differentiation of the undifferentiated external genitalia toward male morphology. Second, the testis produces locally acting MIH that causes involution of the Müllerian ducts, which would otherwise develop into the fallopian tubes, uterus, and cervix (43, 44).

It was long thought that only the involution of the Müllerian ducts was an active process, with the Wolffian ducts simply involuting in the absence of androgens. Recent evidence from mice indicates that Wolffian involution is also an active process controlled by the transcription factor COUP-TFII (22, 45), but the nature of any factors stimulating COUP-TFII remains unknown (22). Some aspects of gonadal differentiation are active throughout life, preventing ovarian follicle cells from transdifferentiating into "testis-like" cells (11). MIH is secreted by Sertoli cells and androgenic steroid hormones, usually testosterone, are secreted by Leydig cells. Testosterone and its more potent derivative dihydrotestosterone are responsible for the development of the male external genitalia (46). Androgens from adrenal glands and alternative pathway androgen biosynthesis in the human placenta can influence virilization of the developing fetus (47, 48). The adrenals of adult primates also produce abundant androgens, profoundly influencing phenotypes, so that not all sex steroids are gonadal (see Boxes 1 and 2). Although the term *sexual differentiation* is usually applied to the development of sex differences in genitalia and other organs such as the brain in the growing fetus; sex differences also occur later in life during the mini-puberty of infancy (49), puberty, the female menstrual cycle, menopause in women, and andropause in men. The actions of gonadal and nongonadal hormones as well as sex and autosomal chromosome gene products in adult people causes many sex differences in health and disease.

Influence of Gonadal Steroid Hormones and Nongonadal Hormones in Brain Development

Differentiation of the brain by gonadal hormones is implemented during a restricted critical window, which is operationally defined by the onset of copious androgen

Box 1. Steroidogenesis in gonadal and nongonadal tissues

All biologically active sex steroids, whether gonadal or nongonadal in origin, are derived from cholesterol by the process of steroidogenesis. Two steroidogenic steps must be considered (for details see (50)). First, the cholesterol side-chain cleavage enzyme, P450scc (CYP11A1) initiates steroidogenesis by converting cholesterol to pregnenolone; expression of P450scc renders a tissue "steroidogenic," that is, able to make steroids de novo (51). The gonads, adrenals, and placenta express abundant P450scc and produce the familiar circulating endocrine steroids, but the brain, skin, and some other organs also express low levels of P450scc and produce steroids involved in paracrine actions. Brain steroidogenesis has been studied mainly in fetal rodents, with little information in other systems (52). Many nonsteroidogenic tissues (liver, kidney, fat, breast, heart) do not express P450scc but express other steroidogenic enzymes that modify steroids taken up from the circulation. Fat and breast express CYP19A1 (aromatase), permitting local production of estradiol from circulating 19-carbon (C19) steroids; this estradiol is important in breast cancer but is not a gonadal steroid. Similarly, prostate and genital skin express several enzymes leading to dihydrotestosterone, accounting for the failure of "androgen deprivation therapy" by gonadectomy in prostate cancer. Not all gonadal steroids are sex steroids, as both the ovary and testis secrete some "upstream" steroids that are precursors of the classic sex steroids. For example, dehydroepiandrosterone (DHEA) does not bind to sex steroid receptors, but it can be converted into testosterone and estrone. Second, synthesis of all sex steroids requires P450c17 (CYP17A1), which catalyzes 17α-hydroxylation and the 17,20 lyase activity that changes 21-carbon steroids to C19 precursors of androgens and estrogens. P450c17 is abundantly expressed in the gonads of all vertebrates and in the adrenals of most vertebrates other than rodents, but the rodent *Cyp17A1* gene is silenced by tissue-specific methylation (53). Consequently, rodents make only miniscule amounts of adrenal C19 steroids and also use corticosterone instead of cortisol as their glucocorticoid. In most mammals, P450c17 has low 17,20 lyase activity, so that their adrenals produce rather small amounts of C19 steroids, but primate P450c17 has abundant 17,20 lyase activity, generating abundant C19 androgen precursors (DHEA, DHEA-sulfate, androstenedione) (47, 48). Furthermore, production of these C19 steroids proceeds by different pathways in rodents and primates: primates favor the "Δ5 pathway," through DHEA, whereas rodents favor the "Δ4 pathway" through 17OH-progesterone (17OHP) (50). Primate adrenals also produce a true androgen, 11-keto-testosterone (54), profoundly influencing phenotypes (apocrine odor; female sexual hair). Thus, not all sex steroids are gonadal: ~ 50% of the circulating androgens in adult women are of adrenal origin.

Box 2. Gonadectomy and sex steroids

Many animal studies employ gonadectomy to eliminate the actions of sex steroids (estrogens, androgens, progestins). If using this approach, the investigator must consider whether nongonadal tissues will produce sufficient sex steroids to influence the study. The gonads produce most but not all circulating sex steroids; furthermore, some tissues produce steroids that act locally and do not enter the circulation, hence absence of a measurable steroids in blood does not ensure absence of its action in the target tissue. Both sexes produce all steroids and their metabolites, hence there are no male- or female-specific sex hormones, *per se*. In male mammals, testosterone release is highly pulsatile in nature (49, 55) and in laboratory mice, strain-dependent variations in androgen levels are reported (56). In female rodents, circulating levels of estradiol, testosterone, and DHT are highest in proestrus phase; a comprehensive analyses of sex steroids in intact and gonadectomized rodents can be found elsewhere (57). Circulating concentrations of testosterone in adult women are similar to those of boys in early puberty, and estradiol concentrations in men are similar to those in mid-cycle women, but the tenfold higher concentrations of testosterone obscure its effects. Rodents are widely used in research, but they differ from primates in several important aspects of steroidogenesis (see Box 1), and hence must be used with caution in studies seeking to model aspects of human physiology that might be influenced by steroids. These differences include: (i) In humans, substantial amounts of circulating sex steroids are bound to sex hormone–binding globulin (SHBG), whereas this carrier protein is not present in rodent circulation (58). (ii) Dehydroepiandrosterone (DHEA) and androstenedione, 19-carbon (C19) precursors for testosterone and estrone, that do not bind to sex steroid receptors, are secreted from the adrenal glands, the ovary and testis in humans, but not rodents (59). Thus, not all gonadal steroids are sex steroids. (iii) The rodent ovarian corpus luteum produces progesterone throughout pregnancy but in human pregnancy the corpus luteum involutes early in the second trimester, after which the placenta produces the progesterone needed to suppress uterine contractility, permitting term pregnancy. (iv) Adrenal-specific methylation of rodent *Cyp17A1* prohibits their adrenal synthesis of C19 precursors of sex steroids; however, changes in methylation status can occur under conditions of pathology. (v) As a further consequence of adrenal *Cyp17A1* methylation, rodents utilize corticosterone as their glucocorticoid, whereas almost all other vertebrates use cortisol. (vi) Rodent adrenals use high-density lipoproteins (HDL) taken up via scavenger receptor B1 (SRB1), as their principal source of cholesterol for steroidogenesis, whereas primates use low-density lipoproteins (LDL) taken up by receptor-mediated endocytosis. (vii) Several genes encoding steroidogenic enzymes are duplicated; rodents and primates differ in which copy(ies) of these genes are expressed: *CYP21*; *HSD3B*, *HSD17B, AKR1-3*. Such differences may affect laboratory results in unanticipated fashions. (viii) In rodents, nonsteroidogenic tissues such as the gut, liver, kidney, fat, breast, heart, thymus, skin, and the placenta have all been shown to make steroids. Thus, gonadectomy may eliminate most, but not all, circulating sex steroids, depending on the species being studied and may not reveal much about the paracrine effects of sex steroids present in the tissue(s) under investigation. Nonetheless, gonadectomy is an invaluable research tool that helps unequivocally confirm the influence of gonadal hormones in sex differences.

production from the fetal testis. Human fetal androgen production begins at 8 to 10 weeks postconception and in rodents is closer to parturition, at embryonic days 16 to 18, with birth following 2 to 4 days later. An important effect of this androgen surge is to masculinize the rodent brain. Steady but pulsatile release of the gonadotropins luteinizing hormone and follicle stimulating hormone from the pituitary gland support continuous steroidogenesis and production of sperm (60). In female rodents, the feminization of the brain proceeds in the absence of exposure to high levels of androgens or their aromatized byproducts, estrogens, a developmental strategy highly analogous to that used for masculinization of the gonads, reproductive tract, and secondary sexual characteristics, with the exception that estrogens are actively downregulated in male rodents. In human females, gonadotropins from the pituitary gland regulate ova development, induction of ovulation, and stimulation of estradiol and progesterone from the ovaries (49). An important feature of this developmental strategy is the existence of a sensitive period in female rodents (61). Male rodents must be exposed to high levels of androgens during the critical period; if exposure occurs too early or too late it will be ineffective at inducing masculinization. However, females are also sensitive to androgens during a restricted period of development, hence a sensitive period in rodents. In males, the critical period closes shortly after androgen exposure because the cellular and molecular processes of masculinization have been initiated and cannot be reversed; the train has left the station. In both primates and rodents this process is largely prenatal, but female rodents remain sensitive to androgen exposure into the first postnatal week. Injecting a newborn female rodent with androgens will initiate the process of masculinization, thus she is still sensitive. After the first week, the feminization process cannot be overridden by androgens and thus the sensitive period has closed. The existence of the sensitive period in females is useful as a research tool—it is important in understanding the potential impact of exposure to endocrine-disrupting compounds or other cellular agents of masculinization that act in an analogous manner to androgen exposure in modulating female brain development. There is evidence for a later sensitive

period for brain feminization mediated by small increases in estrogens (62); this topic warrants further investigation. The closing of the sensitive period in primates, especially humans, remains poorly understood, but it appears to end prenatally, similar to the critical period in rodents. The sources of androgens that females can be exposed to during the sensitive period include from: (i) experimental interventions; (ii) male littermates in animals; (iii) or human adrenals carrying genetic mutations in the steroidogenic pathway (as in congenital adrenal hyperplasia).

Given that the critical and sensitive periods for sexual differentiation are defined by the production and response to gonadal steroids, it is not surprising that steroids are the primary drivers of developmental origins of sex differences in brain (and probably other tissues) and behavior. But how do steroids achieve this? The first step in any investigation is often is to identify the active steroid metabolite(s). In rodents, circulating fetal testicular testosterone enters the fetal brain where it can serve as a direct precursor for estradiol synthesis via aromatase (*Cyp19A1*) (see Box 1). Fetal and adult neurons can aromatize testosterone to estradiol in a nonrandom distribution: neurons of the hypothalamus, preoptic area, and amygdala are particularly active for local estradiol synthesis, whereas the hippocampus and parts of the cortex, midbrain, and spinal cord are also active at a lower level (63). For most reproductive endpoints, it is the local actions of estradiol that drive neural phenotype toward masculinization, which to some seems counterintuitive, given that estradiol is so often referred to as a "female" hormone (64), and further highlights that it is impossible to completely eliminate the effects of sex steroids, especially in the brain, by simple gonadectomy (see Box 2). Developing rodent embryos sequester maternal estrogens by binding to circulating alpha-fetoprotein, which is present only during the critical/sensitive period; when it is genetically deleted, all the offspring are masculinized (65). However, in humans, sex hormone–binding protein, not alpha-fetoprotein, is the major serum glycoprotein that binds androgens and estrogens with an undetermined role in fetal sexual development (66, 67).

In rodents, there is abundant evidence that gonadal androgens are metabolized to estrogens in the brain and mediate "masculinizing" effects on the brain; similar evidence in primates is limited. In primates, the principal masculinizing agents are androgens, not estrogens, and although there is alpha-fetoprotein present in fetal circulation, it has a weak binding affinity for estradiol (68), and instead it plays a much broader role in brain and body development (69). The conclusion of no strong role for estrogens in humans is based on individuals with dysfunctional aromatase or androgen receptors. Males lacking aromatase still identify as men, while XY individuals with complete androgen insensitivity identify as women (70). The disparity between the principal differentiating hormones in primates versus rodents suggests that findings may not be easily extrapolated, and it is important to specify both the hormone and species under investigation. To discern whether the biological basis of sexual differentiation of brain and behavior differs between primates and rodents, one needs to identify mechanisms by which steroids transduce signals to modify the trajectory of the nervous system. While those mechanisms are incompletely understood, a few general principles are clear. First, there is no unified mechanism that applies broadly across the brain, with the exception that androgens and estrogens are the primary drivers of masculinization during a restricted developmental window. Similar masculinizing effects of testicular androgens may also occur during puberty (71). Second, all aspects of neural development are capable of being "organized" or programmed by sex steroids. This includes cell genesis, migration, myelination, dendritic and axonal growth and branching, synapse formation, synapse elimination, and neurochemical differentiation. Effects are not limited to neurons, with both astrocytes and microglia also exhibiting morphological sex differences. Third, each discrete brain region, nucleus, or subnucleus appears to have unique mechanisms of cellular masculinization. In some brain regions, such as the preoptic area, there are multiple separate mechanisms at play simultaneously. Sex steroids act in both paracrine and endocrine manners to influence structural development and function (72, 73).

Biological Basis of Diversity in Sexual/Gender Development and Orientation

Given the complexities of the biology of sexual determination and differentiation, it is not surprising that there are dozens of examples of variations or errors in these pathways associated with genetic mutations that are now well known to endocrinologists and geneticists (74); in medicine, these situations are generally termed *disorders of sexual development* (DSD) or *differences in sexual development* (75). DSD includes genetic disorders in the sexual determination pathway (76), disorders of steroidogenesis (50, 77), disorders of steroid hormone action, especially androgen insensitivity syndrome (78), and less well-defined "developmental field defects" (79), such as Mayer–Rokitansky–Küster–Hauser syndrome (80). The study of genes and factors underlying DSD and the diagnosis and management of the various forms of DSD is a complex and rapidly evolving area of endocrinology: clinical management is complex (81) and requires both contemporary molecular genetics (82) and well-integrated interdisciplinary care (83).

Gender includes perception of the individual as male, female, or other, both by the individual and by society. *Gender identity* is a psychological concept that refers to an individual's self-perception; while associations between gender identity, neuroanatomic, genetic, and hormone levels exist, a clear causative biological underpinning of gender identity remains to be demonstrated. Both animals and human beings have biological sex, but only humans have evident self-awareness that allows them to express gender; self-awareness in animals has not been investigated in this context. Gender also includes differences that males and females experience in their social and physical environments, which can have differentiating effects on the sexes. Human social environments are poorly modeled in laboratory animals and thus animal studies are usually limited to addressing sex differences. For centuries, the concept of male and female did not distinguish between biological sex differences and those caused by consistent differences in the environments. Thus *sex differences* are those caused by biological factors, whereas *gender differences* reflect a complex interplay of psychological, environmental, cultural, and biological factors (Fig. 1).

At birth, individuals are assigned a sex or gender ("natal gender"), almost always based on the appearance of the external genitalia. In most individuals, the various biological determinants of sex are consistent with one another, and this biological sex is also consistent with the individual's self-perception—the sex and gender are concordant. However, a substantial minority of people who do not have DSD have some degree of variation in their self-perception of their gender, which may differ from their biological sex; this is usually termed *gender incongruence* (84). The term *gender disorder* has been replaced with the term *gender dysphoria* which describes the distress that an individual might feel as a consequence of having gender incongruence. *Transgender* (often called *trans*) refers to individuals who do not identify themselves as being of their natal gender, whereas *cisgender* (*cis*) people do not experience gender incongruence (85). Readers are also referred to Endocrine Society's 2017 Clinical Practice Guideline and Transgender Health Fact Sheet (84). Estimates of the prevalence of male-to-female transgender individuals among general populations range from 0.5% to 1.3% and estimates for female-to-male transgender individuals range from 0.4% to 1.2% (85). State level population-based surveys indicate that 0.6 % of US adults (25-64 years of age) and 0.7% of adolescents and young adults (13-24 years of age) identify as transgender. Other studies of US high school

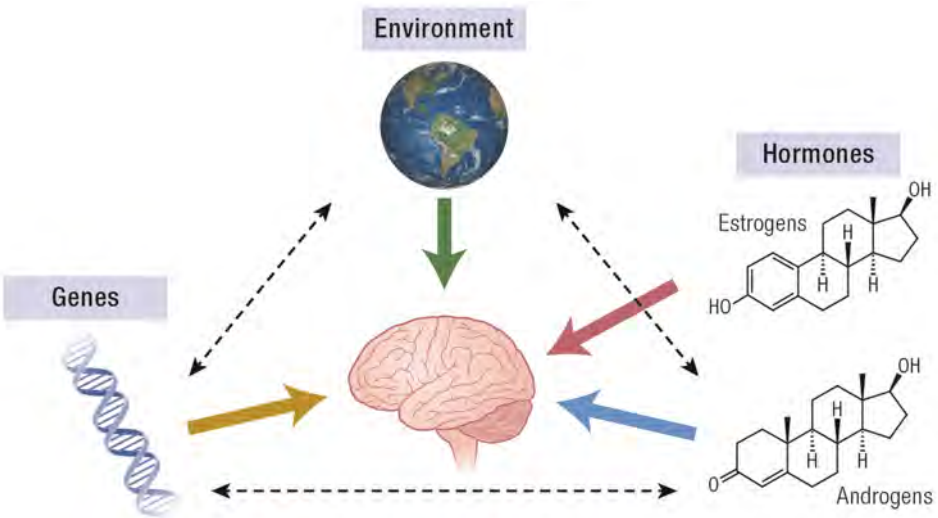

Figure 1. Simplified view of the factors influencing sex differences in the brain. Three broad groups of factors influence the sexually dimorphic brain, as indicated by the broad, colored arrows. 1) Genes and genetic factors that influence the brain include both those on sex chromosomes and autosomes, and include both the DNA itself (represented by the classic double helix) but also chemical modification of DNA (eg, methylation) and modifications of proteins associated with DNA to form chromatin, including histones, and also changes in proteins that bind to DNA. 2) Hormones clearly influence sexual dimorphism in the brain; these are represented by the principal sex steroids, estradiol and testosterone, but also include other steroid and protein hormones (progestins, MIH, oxytocin, prolactin, etc). 3) The environment includes a wide spectrum of influences, including perinatal nutrition and familial support, socioeconomic and demographic factors, intrinsic factors of brain development, age, and gender, and larger environmental factors, such as education, profession, and societal expectations (the "gendered environment"). In addition to each class of factor influencing the brain (bold arrows), the human brain also reciprocally influences each of these groups of factors. Furthermore, each group of factors influences the other, as represented by the dotted arrows. Some examples include: the environment influences genes via epigenomics and genes influence the environment by population sizes and domains; the environment influences hormones by seasonal variations and the actions of xenobiotics, and hormones influence the environment by promoting reproduction and consumption of foodstuffs; genes directly influence hormones by regulating their production and action, and many hormones, including all steroid hormones, regulate gene transcription.

students suggest a prevalence of 1.8% to 2.7% of being gender nonconforming or transgender (86-88). However, several factors may influence reported prevalence of gender dysphoria: (i) small sample sizes; (ii) differences in assessment techniques leading to incomplete ascertainment of gender dysphoric individuals; (iii) unwillingness of some individuals to respond fully and honestly, especially in older studies or studies deriving from locales where gender incongruence is a social taboo; (iv) differences in the subjects ages. *Sexual orientation,* not to be confused with gender identity, refers to the group of persons to whom an individual is sexually attracted; both cisgender and transgender individuals may be hetero-, homo-, or bi-sexual (89).

Although gender is strongly influenced by environmental and cultural forces, it is unknown if the choice to function in society in male, female, or other role(s) is also affected by biological factors (89-91). A general issue is that the association of sex, gender, or sexual orientation with specific brain structures, or with other biological variables, does not establish whether the biological variables are causes or consequences or noncausal correlates of the behavioral characteristics or function of the individuals studied. Three areas of biological difference have been studied fairly extensively: neuroanatomy, genetics, and hormones. Studies have reported differences in the hypothalamic INAH3 nucleus in men vs women and in homosexual vs heterosexual men (92, 93). Although initially controversial, others have confirmed sex differences in INAH3 numbers, not in size or densities, whereas no evidence for sexual dimorphism of any other INAH structures are reported (94). Studies in people with gender dysphoria found that the phenotypes of specific brain structures, such as the bed nucleus of the stria terminalis, of transgender women and transgender men differ from cisgender men and women, with partial, but incomplete sex reversal of sexually dimorphic structures (95). Brain networks involved in one's body perception, (pregenual anterior cingulate cortex, temporo-parietal junction, and fusiform body area) differ in individuals with gender dysphoria compared with cisgender individuals (96-98). Neuroimaging shows that testosterone treatment resulted in functional and structural changes in brain areas associated with self-referential and own body perception (99). Transgender men have thicker medial prefrontal cortex than cis men. Testosterone treatment does not change prefrontal cortex thickness in transgender men, but it has other effects on cortical thickness, connectivity, and fractional anisotropy (99).

Genetics may play a role in gender identity (100): monozygotic twins have 39% concordance for gender dysphoria (101). Attempts to identify specific genes governing gender identity have been plagued by small numbers of subjects and low statistical significance; no specific gene has been reproducibly identified. However, such studies have suggested associations with genes encoding steroidogenic enzymes and sex steroid receptors, and it is generally agreed that androgens play an important but not determinative role. For example, many 46,XX individuals with severe virilizing congenital adrenal hyperplasia (steroid 21-hydroxylase deficiency) are exposed to intrauterine testosterone concentrations typical of those in normal male fetuses and consequently have severely virilized external genitalia; nevertheless, most have a female gender identity, but about 5% to 10% of such individuals have gender dysphoria, an atypical gender identity (89, 102, 103), or atypical sexual orientation and gender behavior (104, 105). Similarly, about half of 46,XY individuals with defects in androgen synthesis who were raised as females revert to a male gender role (106). The biological underpinnings of sexual orientation and gender identity are apparently related but are not the same (107). Thus, there is ample but incomplete evidence for biological substrates—neuroanatomic, genetic, and hormonal—for gender orientation, making this an important area of ongoing research.

Hormonal Versus Sex Chromosome Effects

Sex differences are caused by 3 major factors—sex hormones, genes on sex chromosomes/autosomes, and environment (Fig. 1). To understand disease mechanisms in both sexes and exploit sex differences in protection or exacerbation of diseases, it is important to determine the relative contribution of each of these factors in causing sex differences (17). Many sex differences caused by gonadal hormones have been discovered by measurements of sex steroids and gonadotropins during human development, and in animals by similar measurements or by interventional methods, such as gonadectomy, hormone administration, or the expression of synthetic enzymes or receptors in transgenic mice. Sex steroids play an integral part in many physiological processes (Box 1). Whereas the gonads are the major site of sex steroid synthesis, the adrenals, placenta, brain, and skin can also initiate steroidogenesis, and steroid-modifying enzymes are found elsewhere, especially in liver and fat, permitting synthesis of sex steroid hormones in multiple other sites (50). Thus, animal gonadectomy may provide information about endocrine effects of gonadal steroid hormones but cannot address tissue-specific paracrine effects (Box 2). Moreover, gonadectomy cannot mimic low pre-pubertal levels or physiological conditions in which hormone levels decrease, such as aging or menopause. Manipulations of human gonadal hormones are routinely used in contraception and in the management of sex steroid–dependent cancers (eg, breast, prostate). When

a sex difference is discovered in human disease, and modeled in animals, the investigation of possible hormonal causation of the sex difference is usually the first option considered.

To detect effects of sex chromosomes that cause sex differences, one can compare people who have differences in their sex chromosomes, revealing effects of X or Y chromosome number (108-110). These results strongly suggest direct sex chromosomal contributions to sex differences in cell function. Comparison of brains of XY patients with complete androgen insensitivity (who are phenotypically female), with brains of control XY males and XX females, suggests that cortical thickness and functional connectivity between the limbic regions and the cortex are influenced not only by testosterone actions, but by sex chromosome factors as well (111). However, changes in the sex chromosome ploidy also alter gonadal hormones, so it can be difficult to isolate sex chromosome effects not mediated by gonadal hormone effects. Circulating human embryonic/fetal sex steroid concentrations are poorly characterized, and the tissue concentrations are almost totally unknown. Another approach is to use mice to identify genes on the X or Y chromosome that act outside of the gonads to cause sex differences, and then seek evidence that the orthologous human genes cause human sex differences. Controlled experiments are possible in which XX or XY mice with comparable gonadal hormones can be compared. A frequently used model is the Four Core Genotypes (FCG) model, in which the testis-determining mouse *Sry* gene is deleted from the Y chromosome (creating the Y^- or "Y minus" chromosome) and inserted as a transgene on chromosome 3 (*Sry+)* (Fig. 2 and Box 3) (112). The utility and limitations of these models have been extensively discussed (113, 114).

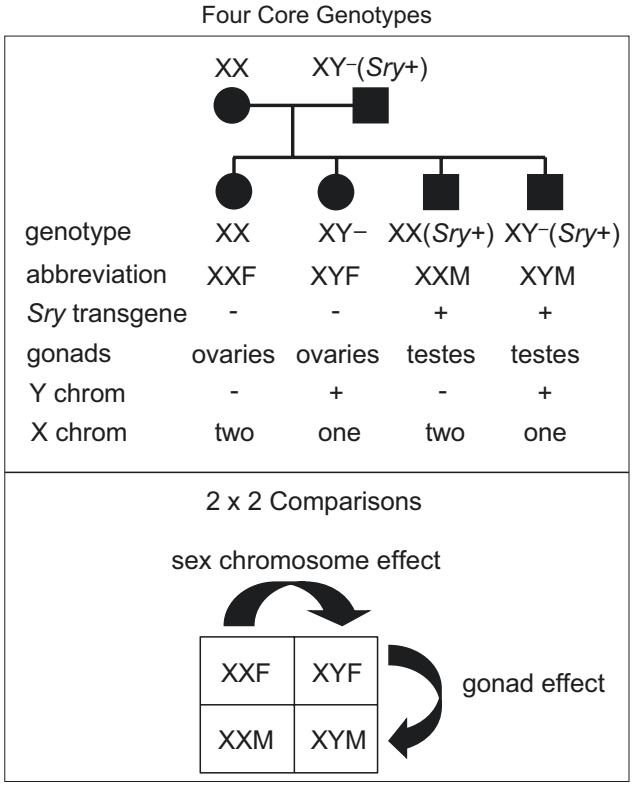

Figure 2. Schematic diagram of the Four Core Genotypes mouse model. The testis-determining gene *Sry* is deleted from the Y chromosome, producing the Y^- chromosome. An *Sry* transgene is inserted onto chromosome 3. Thus, the type of gonad is no longer linked to the sex chromosomes. The model produces XX and XY mice with *Sry* and testes, and XX and XY mice without *Sry*, with ovaries. Sex differences in phenotype can be attributed to an effect of gonadal hormones, comparing mice with ovaries and testes, or to an effect of sex chromosomes, comparing XX and XY mice with the same type of gonad. [Modified with permission from Arnold AP & Chen X. *Front Neuroendocrinol,* 2009; 30(1) © Elsevier Inc. (112)].

Considering Sex and/or Gender as Variables in Health and Disease

Women and men differ in many physiological and psychological variables. It is important to establish the mechanisms causing such differences in health and disease, and to consider sex-related variables in studies of human health and disease. These variables include, but are not limited to, sex- and gender-related factors. The inability to control all variables in human studies means that it may be impossible to determine the relative roles of environment and biology in causing a difference between women and men, when both types of variable can influence the trait. Furthermore, while "gender expression/behavior" can be observed, "gender identity" can only be known by what an individual states. Thus, gender identity, *per se*, cannot be studied in animals. In human studies, it is unethical to selectively manipulate specific biological and environmental variables, and most currently available data derive from studies comparing groups of men with groups of women. It is therefore difficult to disentangle the specific contribution of sex-related genes, hormones, gender-related variables, and other variables that contribute to being female or male. Because sex has long been defined by gonadal type, the list of sex-influencing factors has been primarily associated with gonadal hormones, especially estrogens, progestins, and androgens (121). However, some phenotypic sex differences develop before the gonads differentiate as testes or ovaries (122), so other factors also contribute to sex differences (123) but are seldom considered.

Sex is an essential part of vertebrate biology, but gender is a human phenomenon; sex often influences gender, but gender cannot influence sex. Studies of animal physiology must consider sex as a variable (124), with sex steroids (of both gonadal and nongonadal origins), sex chromosomes, and other factors contributing to sex differences in many physiologic processes. Similarly, studies of human physiology and disease must also consider sex for the same reason (125) and its disorders must

Box 3. Investigating sex chromosome complement versus gonadal hormones in health and disease: the four core genotypes (FCG) model

The FCG model allows for discriminating hormonal vs sex chromosome effects in animals. Gonadal males (XY^-(*Sry+*)), bred to XX gonadal females, produce 4 types of offspring: XY^- and XX mice with the *Sry* transgene and testes, and XY^- and XX gonadal females lacking the *Sry* gene (Fig. 2). Thus, it is possible to compare XX and XY mice with the same type of gonad, in 2 separate comparisons. Differences between XX and XY are attributed to effects of sex chromosome genes acting on nongonadal tissues. To determine if this sex chromosome effect is caused by X or Y genes, a second model is studied, the XY* model (113, 114). This model produces genotypes that are similar to XO, XX, XY, and XXY. An effect of number of X chromosomes is discovered by comparing XO and XX, or XY and XXY. An effect of the Y chromosome genes is discovered by comparing XO and XY, or XX and XXY. These mouse models have been used to demonstrate sex chromosome effects causing sex differences in a wide variety of phenotypes and disease models, including brain and behavioral phenotypes, metabolism, autoimmune, cardiovascular and pulmonary diseases, Alzheimer disease, aging, and cancer (35, 113, 115). These models have facilitated discovery of several disease phenotypes in which the number of X chromosomes contributes to sex differences (116), and a smaller number of sex-biasing effects of Y genes (117). Sex chromosome effects occur in the same disease systems alongside sex-biasing effects of gonadal hormones, such that the 2 effects can synergize to increase the amount of sex difference, or counterbalance each other to reduce a sex difference. Moreover, genes encoded on the Y chromosome can have gene-specific effects, and/or effects that overlap with those of X genes (118). In the cardiovascular system and associated physiological/disease states, sex chromosomes and gonadal hormones can have opposing effects. Estrogens generally protect from cardiac ischemia/reperfusion injury and other cardiovascular diseases, reducing disease in female relative to male mice. However, studies of ischemia/reperfusion injury in gonadectomized FCG mice reveal that the XX sex chromosome complement is associated with worse outcomes, relative to XY (119). In another study, sex chromosome effects in angiotensin II-induced hypertension showed that arterial pressure was greater in gonadectomized XX mice than in gonadectomized XY mice (120). Sex chromosome complement also influences the development of abdominal aortic aneurysms, fat metabolism and adiposity, plasma lipids and lipoprotein levels (particularly HDL-C) (115)).

also consider gender. However, human gender is a spectrum from feminine to gender-neutral to masculine, and also likely includes individuals who do not fit readily on a simple linear continuum (84). Studies addressing the endocrine care of transgender youth during the time of their potential gender transition (84, 89) find that they have a higher prevalence of stress-associated mental health disorders such as depression and anxiety, which can be ameliorated by gender-affirming endocrine treatment (126). It is essential to recognize these sex and gender differences as our health care systems endeavor to develop "individualized medicine."

Despite the fact that biological sex is such a fundamental source of intraspecific variation in anatomy and physiology, much basic and clinical science has tended to focus studies on one sex (typically male). Few studies have done side-by-side testing for sex differences at baseline and in experimental models of human diseases (127-129). Studies in laboratory animals that manipulate biological (eg, genes and hormones) and environmental variables (eg, housing conditions, diet, physical activity, etc) demonstrate that many variables can affect sex-related aspects of an animal's physiology. However, laboratory rodents may show male-female differences caused by different housing conditions, which could be misinterpreted as being caused directly by biological differences without environmental mediation. In studies concerning animal behavior, the sex and gender of the researcher conducting behavioral measures may also influence outcomes (130). Thus, for reproducibility and proper interpretation of the data, at the minimum, it is important to state the precise housing conditions, anesthetics, analgesics (different effects in sexes), doses, surgical manipulations, diet, sex, strain, species, and age of animals used, as well as sex/gender of the researcher(s) performing experiments.

Having laid the foundation for several factors that contribute to sex versus gender, this Statement will use 3 areas of research as examples (not as a literature review) where human and animal sex differences are well known. First, sex differences in specific brain regions of healthy men and women are increasingly being documented along with differences in brain connectomes; these will be discussed in detail in Section II. Second, stress-related pathophysiologies are known to affect twice as many women as men. However, few studies systematically include study designs to ascertain function or mechanisms that may be similar or different between males and females. Hormones and signaling pathways that contribute to sex-specific differences in stress-based pathophysiologies will be discussed in Section III. Similarly, sex differences in manifestation of cardiovascular and renal diseases are well recognized and will be discussed in Section IV.

Section II

Developmental Origins of Sex Differences in Brain Anatomy, Function, and Behavior

Sex differences in the human brain are a topic of intense popular and scientific interest. Several scientific observations motivate the search for sex differences in brain structure

and function. First, the act of sexual reproduction requires that the male and female animals show qualitatively different reproductive behaviors. The stereotyped emergence of these reproductively critical and sexually differentiated behavior reflects biologically programmed (or "innate") sex differences in the organization of those brain circuits that support the motivational and consummatory phases of copulatory behavior (131). Second, the fact that males and females make different biological investments in reproduction—eg, the risks of pregnancy in mammals are borne entirely by the female—sets up sex differences in the behavioral strategies that optimize reproductive fitness (132). Sexual selection based on sex-biased behavioral strategies is predicted to drive the evolution of sex differences in those brain circuits that are responsible for sexually selected behaviors. Third, males and females can show consistent sex biases in broader behavioral domains beyond those that directly relate to reproductive strategies. In our own species for example, there are highly consistent sex differences in the prevalence of physical aggression and violence (both male-biased) (133), as well as extensively documented sex differences in risk for different mental disorders (134).

In this section, we will first describe the main neuroimaging techniques commonly used in comparisons of brain anatomy, connectivity, function, and subnetwork organizations. We then review the key aspects of sex-biased brain anatomy and connectivity that have been revealed by these techniques; sex differences in stimulus-based or task-based functional magnetic resonance imaging (fMRI) studies are not addressed here. Next, we discuss specific disease states that appear to have different outcomes in the 2 sexes due to baseline differences in the "connectome" and animal models used in neuroimaging. Finally, we will address some important caveats and controversies in the field of brain imaging.

Brain Imaging Techniques

Modern neuroimaging methods make it possible to characterize diverse aspects of brain structure, function, and connectivity in vivo. This large toolbox of methods has been used to examine sex differences in brain organization at several levels of analysis. These techniques aim to analyze, map, and visualize regional and inter-regional (connectomic) features of the brain at macroscopic (systems-level) and mesoscopic (neural circuit architecture) levels in order to illuminate brain organization in health and disease (135). Of note, cellular-level details are beyond the resolution of most in vivo brain imaging techniques.

Sex differences in global and regional brain anatomy can be measured in vivo using structural magnetic resonance imaging (sMRI). Several considerations have made sMRI an especially popular technique in the study of brain sex differences in humans. First, sMRI allows a quick and spatially comprehensive screen of the entire brain that can quantify thousands of morphometric properties simultaneously in vivo across a large number of individuals. These characteristics not only facilitate testing for sex differences outside defined regions of interest, but also allow longitudinal measurements that can track the emergence of brain sex differences over development (136, 137). Second, because sMRI considers structure rather than function, it can leverage evolutionary conservation of the basic mammalian brain plan (138), and it is therefore particularly well-suited for cross-species investigation of sex differences in humans and animals. Thus, a critical role for sMRI research in the study of brain sex differences is to screen for brain regions that can then be prioritized for closer analysis using more resource-intensive assays that are typically applied in a regionally selective manner.

Complimenting sMRI, other in vivo neuroimaging techniques such as diffusion MRI (dMRI), resting state functional MRI (rs-fMRI), and fMRI provide unprecedented insights into tissue microstructure and brain connectivity. fMRI maps brain circuitry based on stimulus- or task-based brain functional responses. In contrast, rs-fMRI, by measuring changes in blood flow in the brain generated by signals dependent on blood-oxygen-levels, helps explore the brain's functional organization by providing insights into intrinsic brain activity without requiring participants to be trained in specific tasks, thereby eliminating task performance as a confounder (139, 140). dMRI measures the differential patterns of water diffusivity in biological tissue revealing details of tissue microstructure, especially in white matter (141). Fiber tractography on dMRI enables mapping the fiber architecture of the brain, and subsequently, the network organization of the brain through structural connectomes (142-144). A brain connectome is an extensive map of the white matter structural or functional connections of the brain, created using dMRI or rs-fMRI (145). Modeling efforts, such as the Human Connectome Project, and the use of connectome-based predictive modeling, have provided an integrative, in-depth, and multilevel understanding of the structural and functional connectivity (regions that get coactivated) of the neuronal networks (146, 147).

Sex Differences in Global and Regional Brain Anatomy

It is well established that men have an average total brain volume that is approximately 10% greater than that of women (148, 149). A similar sex difference in average

human brain volume (~8%) appears to be present at birth (150) and is sustained throughout childhood and adolescence (151). The sex differences for total brain volume also hold for the 2 main subdivisions of brain tissue—gray matter and white matter—despite these 2 brain compartments following very different developmental trajectories (151, 152) (Fig. 3).

The robust sex difference in brain volume identified through human sMRI research cannot be fully explained by the fact that brain volume is positively correlated with height (average height is greater in men that in women). Statistical control for body size diminishes, but does not remove, sex differences in total brain volume (149), and boys also show greater average brain volume than girls during early adolescent development, at a time when girls are taller than boys (153). Thus, available literature supports a consistent picture in which there is overlap between the distribution of brain size in men and women, but the mean of this distribution is significantly greater in men than women. The medium effect size of sex on brain volume exists above and beyond sex differences in stature. However, it is important to note that no known functional sex differences associate with the sex difference in overall brain size. Sex differences in overall brain size, and their developmental timing, are both theoretically and methodologically important when considering: (i) whether neuroanatomical sex differences are conserved across species; (ii) whether there are sex differences in regional brain anatomy above and beyond sex differences in overall brain size; and (iii) whether there is concordance between sex differences in brain size and any observed associations between brain size and putative biological causes of sex differences, such as gonadal or sex chromosome status (see below).

The patterning of sex differences in behavior and mental illness risk across the lifespan suggest that sex differences in human brain organization are likely to vary across different brain sub-systems or regions, and potentially also across different developmental periods. Structures in human gray matter compartments mediate neural computation and information processing—in contrast to axon-rich white matter compartments that are primarily involved in connectivity between different brain regions (see "Sex Differences in Brain Network Organization: The Brain Connectome," below). Here, we focus on sMRI studies that have tested for sex differences in regional gray matter volume (regional GMV) after controlling for sex differences in overall brain size. Regional GMV sex differences that survive statistical correction for total brain volume variation are of special interest because they exist beyond global sex differences in brain size. We emphasize GMV rather than other morphometric properties of the brain such as cortical thickness, sulcation, or the shape of subcortical structures (144, 154), because GMV provides a common metric that can be examined across cortical and subcortical structures, with equal applicability to humans and mice. Independent large-scale human sMRI studies in biobanks have identified a reproducible pattern of sex differences in regional GMV using sample sizes that are

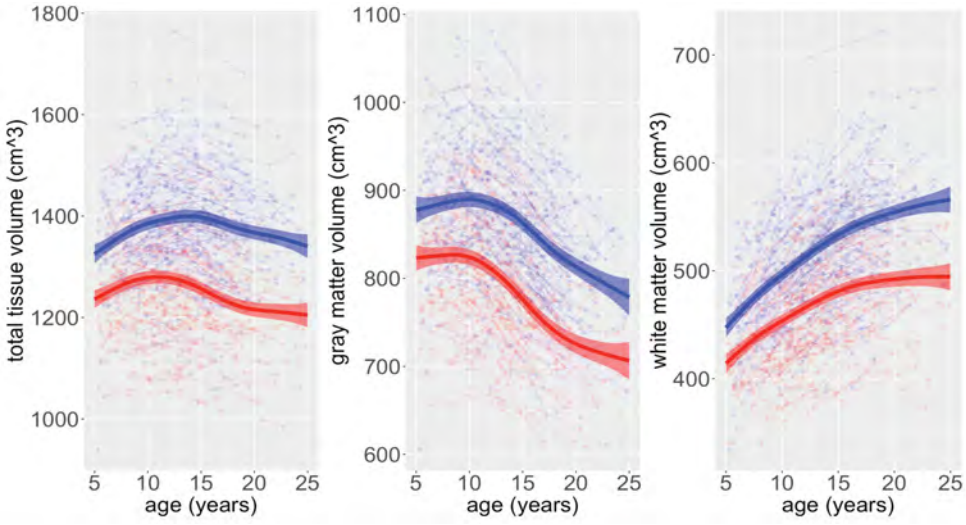

Figure 3. Developmental trajectories for total brain tissue volume, gray matter volume, and white matter volume in men and women over Development. Person-level data are shown for women (red) and men (blue) as points, with lines linking measures from the same person over time. Note the large interindividual variation in volumes within each sex, and the overlap of these distributions, between the sexes. Superimposed on these person-level data are group-level best fit volume trajectories (bold lines with shaded 95% confidence intervals). The developmental window covered is 5 to 25 years of age. For all plots, there are statistically significant sex differences in both trajectory shape (ie, sex differences in the tempo of volume change, $P < 0.00001$), and trajectory "height" (ie, sex differences in absolute volume across ages, $P < 0.00001$). [Adapted with permission from Giedd JN et al. *Neuropsychopharmacology,* 2015; 40 © Springer Nature (153)].

significantly larger than those used in earlier work (148, 149, 155). A structural neuroimaging study involving >2000 individuals demonstrated that higher regional expression of sex-linked genes was coupled with greater GMV in men relative to women (155). These studies, by different laboratories, using different datasets and different techniques for sMRI analysis, find a largely overlapping regional pattern of GMV sex differences after correction for sex differences in total brain volume. These independent replications of regional sex differences in GMV are also in agreement with meta-analytic studies (156). Together, these studies show that, in adulthood, regional GMV is (on average): (i) greater in women than men within superior parietal, dorsolateral frontal, and anterior cingulate cortices; and (ii) greater in men than women within occipital, fusiform, and parahippocampal cortices as well as the amygdala and putamen. Furthermore, while these studies lack temporally resolved developmental maps of male-female differences in regional GMV throughout the brain, there is extensive evidence from focused studies of particular structures that neuroanatomical sex differences can vary dynamically over development, such as observed with amygdala volume and shape (156).

The rapidly expanding body of sMRI research on regional GMV sex differences in the murine brain shows important overlaps and differences with findings from human studies (137, 157). These murine sMRI studies—which are most commonly conducted ex vivo at a spatial resolution of <100 μm throughout the whole brain—have been able to confirm the identification of all classically sexually dimorphic nuclei of male-biased volume from prior histological research, including the bed nucleus of the stria terminalis and medial amygdala (137, 157). These brain regions play a predominant role in modulating social and goal-directed behaviors, pain, and cardiovascular control, all of which are conserved among mammalian species and subject to sexually dimorphic outcomes. By allowing a full-brain screen, murine sMRI has also newly identified a reproducible set of regions with greater GMV in females, including the cerebellar cortex, ventral thalamus, and somatosensory cortex (137, 157). Furthermore, a longitudinal sMRI study in mice found that the set of regions with male-biased GMV can be detected by early postnatal life (with some accentuating over puberty), whereas regions of female-biased GMV in murine adulthood appear to emerge in adolescence (137). To date, there are no studies that formally seek to compare the spatiotemporal patterning of regional GMV sex differences in humans and mice, although existing work already suggests some potential homologies, including foci of greater cerebellar cortex GMV in females vs males by adulthood (137, 148) and the adolescent accentuation of male-biased amygdala volume (158, 159). An important technical challenge in assessing the degree of anatomical homology between regions of sex-biased brain anatomy in humans and mice is that most of the best-established and histologically validated foci of sex-biased brain volume in mice (eg, bed nucleus stria terminalis, medial preoptic nucleus of the hypothalamus) are hard to image in humans due to their small size and intrinsic tissue contrast properties.

Sex Differences in Brain Network Organization: The Brain Connectome

The structural or functional brain network is represented by a "connectome," wherein the structural or functional connectivity between coactivated regions is encoded either through fiber tracts or functional co-activations (160). These connectomes can be studied at the level of subnetworks like visuospatial, auditory, cognitive control, or macro-scale level through global measures of network segregation, integration, and efficiency, to obtain functional associations (161).

A study of 949 individuals (aged 8-22 years; 428 males and 521 females) showed that on average, there are significant differences between the sexes in their structural connectomes (Fig. 4) (162). On average, men had greater within-hemispheric connectivity, as well as enhanced network segregation, whereas between-hemispheric connectivity and network integration predominated in women (Fig. 4A), but these differences were most prominent during adolescence (Fig. 4B-4D). However, an opposite trend was seen for cerebellar connections, which developed differently between human males and females in adolescence and adulthood. The structural connectivity findings were consistent with a behavioral study conducted on the parent cohort (the above-mentioned imaging study was performed on a subset of participants), with women outperforming men on attention, word and face memory, and social cognition tasks, and men performing better on spatial processing and motor and sensorimotor speed tasks (163). An analysis of the Human Connectome Project rs-fMRI data identified age and sex as independent variables that contributed to differences in functional connectivity (164). In brains of men, functional connectivity was more clustered locally in all lobes, except in the cerebellum, whereas the brains of women showed a higher clustering coefficient at the whole-brain level. Thus, brains of men were classified as more segregated and brains of women as more integrated, which agrees with the structural connectivity findings (162). In connectomes, the identification of subnetwork properties (165) can reveal how the complex functional and behavioral repertoire emerges from the simultaneous processes of segregated neuronal clusters and their

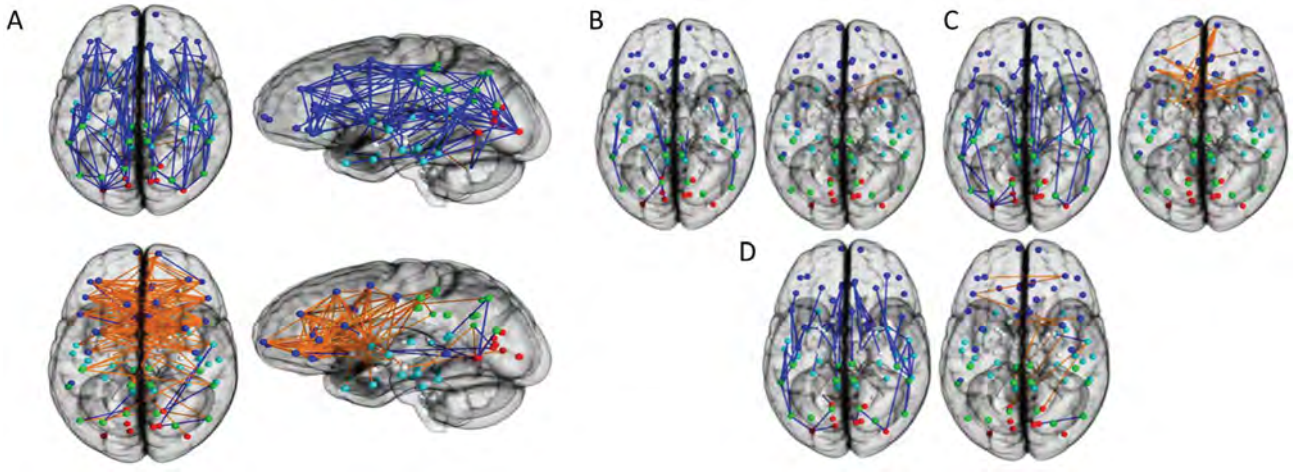

Figure 4. Sex differences in structural connectomes across development. Connectomes representing the white matter structural connectivity in the brain, with nodes indicating the brain regions and edges between the nodes representing the structural connectivity between the nodes. Node colors representing respective brain regions are as follows: dark blue, frontal; cyan, temporal; green, parietal; red, occipital; white, subcortical. The depicted edges shown are those that survived permutation testing at $P = 0.05$. **A,** shows increased intrahemispheric connectivity in men (Upper, in blue) and increased inter-hemispheric connectivity in women (Lower, in orange) on average. **B-D:** Connectivity differences shown in A separated by age groups are shown: **B,** under 13 years, **C,** adolescent (13-18 years), and **D,** young adults (18-22 years). Left image: Men/Boys; Right image: Women/Girls. [Adapted with permission from Ingalhalikar M et al. *Proc Natl Acad Sci U S A,* 2014; 111(2) © National Academy of Sciences (163)].

integration during complicated cognitive tasks (166, 167). Consistent with the behavioral findings on sex differences, men had increased connectivity between motor and sensory (auditory) systems, along with increased connectivity in the fronto-parietal and cingulo-opercular systems that are traditionally associated with complex reasoning and control, whereas women had higher connectivity between reward, memory, and sensory (auditory) systems (163, 168). Better spatial skills in men and improved memory and social cognition skills in women have been reported in behavioral literature (169, 170).

It is important to point out that observed group-level differences in brain structure, function, or connectivity in men and women may reflect the influence of several extraneous factors. For example, in a set of elegant studies, brains of men were imaged to ascertain the contribution of performing complex spatial navigation tasks as part of their daily work on gray matter volume. These studies found that posterior hippocampi of London taxi drivers were significantly larger compared with controls (171), although the work did not address sex differences. Driving a taxi in London before the era of digital maps/navigation systems required extensive training and learning to navigate complex routes before being given a license to operate. In a subsequent study, comparison between London taxi drivers and bus drivers matched and controlled for age, education, intellectual, and stress levels, as well as years of driving experience, showed that taxi drivers had greater GMV in the posterior and less volume in the anterior hippocampi compared with bus drivers (172). Interestingly, years of navigation experience associated with hippocampal volume in taxi drivers alone, but they were significantly worse at acquiring or retrieving novel visuo-spatial information than bus drivers. Importantly, no differences in other GMV, including the caudate nucleus, were found between the taxi and bus drivers; the caudate nucleus is associated with a myriad of cognitive and emotional functions. These studies illustrate brain plasticity and that professional work and years of performing certain tasks can result in brain structural, volume, and connectivity differences that may have little to do with sex or gender per se, but more with training, social environments, and behaviors. In other studies, GMV changes were greater in professional musicians, or after induced training (juggling for 3 months), and in early bilinguals, and white matter volume changes were found in adults learning a second language, irrespective of sex, when reported (173-176). These findings suggest that brain structure retains its plasticity and controlling for factors other than sex or gender are key in interpreting data on structural volumes and associated functions.

The above-mentioned existing datasets did not collect the requisite information on self-report of gender, thereby precluding retrospective analysis of gender in these cases. As identifying correspondence between behavioral scores and the regions that are involved in the manifestation of that behavior remains challenging, analyses of subnetworks pertaining to functional and behavioral domains can help elucidate a brain-behavior correspondence. The detailed description of sex differences in brain organization at the group level, and concerted efforts to specify

the role of sex-biased biological factors in shaping such sex differences, is of fundamental importance (177) and also provides a crucial adjunct for indispensable studies on environmental and wider societal contributions to sex-biased brain development. Such studies should be undertaken jointly using structural and functional connectivity. These studies elucidate the various ways in which sex differences in brain microstructure and connectivity can be investigated.

Sex Differences in Structural and Functional Brain Regions in Obesity

The hypothalamus has long been known as the "center" where peripheral and neural signals converge in the regulation of food intake and energy homeostasis in both sexes. Advances in neuroimaging studies have helped identify activation of several distinct brain regions comprising brain networks in response to eating in men and women. Behavioral and sociocultural factors may play a role in the observed sex differences in ingestive behaviors, appetite, and cravings related to obesity (178). Women report higher prevalence of maladaptive ingestive behaviors such as binge eating, food cravings, and "food addiction," and the lifetime prevalence of disordered eating behaviors are about 3 times higher in women than in men (179, 180). Women also experience episodes of food cravings of greater intensity (181, 182), and greater frequency (183-185), and are less able to suppress food cravings than men (184, 186). Despite the wealth of data indicating that women experience disproportionately higher rates of food cravings, stress eating, and eating disorders than men, the reasons for these differences are incompletely understood (184, 187).

Regulation of food intake entails both homeostatic and nonhomeostatic factors (188). Homeostatic regulation balances energy needs with energy consumption, whereas nonhomeostatic regulation—in particular hedonic regulation and food addiction—involves reward-seeking behaviors that drive humans and animals to consume food beyond their metabolic needs, leading to the development of obesity (189-191). These findings have directed attention toward the extended reward system in obesity-related research, which consists mainly of basal ganglia regions and is involved in dopamine signaling and addiction-like behaviors (192). The extended reward system is composed of 6 interconnected brain networks—salience, central autonomic, basal ganglia, somatosensory, executive control, and emotional regulation (192).

Functional MRI studies have found that, in response to food images, obese individuals show greater activation than normal-weight individuals in regions associated with reward anticipation, dopamine signaling, and addiction-like behaviors (193-196). Greater activity in brain regions of the extended reward network may drive obesity-related behaviors, such as greater responses to food odors and food consumption (197-199). Recent meta-analyses have further supported the role of the brain in disrupting the balance between energy consumption and expenditure. This combination of increased activity in regions associated with reward-driven behaviors and decreased activity in regions moderating top-down control of appetite may lead to consumption of excess calories (188).

Furthermore, sex-specific activations in response to food intake have been observed in cognitive, emotional, and reward-related regions (200-202). For example, obese men had greater activation than obese women in the supplementary motor area, precentral gyrus, fusiform gyrus, and inferior parietal lobule, which are associated with motor control, visuospatial attention, and responding to salient new or alerting stimuli (203). In this same study, obese women showed greater activation than obese men in the caudate and parahippocampal gyrus, regions implicated in reward processing and memory (203). Using graph theory to define the underlying architecture of brain structural connectivity obtained from diffusion tensor imaging, sex differences were observed in the topological measures of centrality (which determine the degree of information flow in specific brain regions) in regions of reward and salience networks in women, and in reward and sensorimotor networks in men (204). Resting state fMRI studies have found sex differences and commonalities in body mass index (BMI)-related connectivity associated with specific defined regions of interest in the reward network (205). For example, women had increased associations between BMI and increased connectivity in the in right globus pallidus and bilateral putamen. In men, BMI was associated with increased connectivity in the medial frontal cortex. A study of sex differences in response to visual and auditory food cues found that women experience greater activation in lateral and dorsolateral prefrontal and parietal cortical regions involved in cognitive planning and executive guidance and evaluation of behavior, compared with men (202). When viewed together, these studies highlight the importance of investigating sex differences in obesity-related alterations in the core and extended reward networks.

Although many single-sex studies of fMRI and obesity have been published, with the majority having all-female subjects, few studies have specifically investigated sex differences in brain function and structure in obesity. Despite the literature supporting sex differences in the brain, including in regions implicated in reward behaviors and energy homeostasis, few comprehensive reviews of sexually dimorphic brain signatures related to obesity have

been performed. A recent meta-analysis using an activation likelihood estimation approach to evaluate comparisons in functional responses to stimuli by obesity and by sex revealed differential sex- and BMI-related activations in reward anticipation and response, in shaping food-related memories, and in generating top-down control of appetitive processes. Together, these findings have important implications for sex-specific obesity treatments.

Models to Study Sex Differences in Normal Brain Structure and During Pathophysiology

Studies of sex differences offer important considerations for personalized medicine. The prevalence, clinical presentation, and symptomatic progression of many neurological and psychiatric disorders are remarkably different between the sexes. In addition to common X-lined mental retardation syndromes, men have a greater prevalence of neuropsychiatric disorders such as autism, attention-deficit/hyperactivity disorder (ADHD), and Tourette syndrome (206), whereas women have a greater prevalence of mood and eating disorders (207, 208). From the perspective of developmental disorders, the differences in the developmental trajectories of the sexes perhaps represent different vulnerabilities of maturing brain circuitry, leading to differences in symptoms, onset, and severity of neurological disorders. There are also sex differences in the risk factors, average age of onset, and prevalence of late-life dementias, as well as cerebrovascular disease (209). Additionally, in traumatic brain injuries, where the network organization of the brain is affected by the injury, such as the corpus callosum region, sex differences in inter-hemispheric connectivity and brain subnetworks may influence the impact of injury, and hence subsequent recovery. Thus, sex differences in brain connections are crucial to identify, as they may elucidate mechanisms in disease risk and potential treatment and recovery (210).

Most models of sex-biased mammalian brain development are based on experimental data from rodents (now largely from mice, but previously also from guinea pigs and rats). One of the most systematic dissociations of gonadal and chromosomal contributions to sex-biased anatomical brain organization in mammals is provided by a recent sMRI study of adult mice from the FCG model (112, 211). By combining sMRI with behavioral assays, these studies determined the contribution of sex chromosomes and gonads to adult mouse brain structure and function (211). This study revealed: (i) an effect of sex chromosomes on regional GMV in the cerebellar cortex and olfactory bulb; and (ii) an effect of gonads on regional GMV in the parietotemporal cortex and the bed nucleus of the stria terminalis. Some of these effects overlapped with regions of normal sex differences in murine GMV (eg, cerebellar cortex and bed nucleus of the stria terminalis), and some brain regions were anatomically sensitive to both effects (basal forebrain and periaqueductal gray matter). Sex-chromosome effects on regional gray matter anatomy have also been reported by complementary sets of sMRI studies in both mice and humans that compare groups of euploid individuals with groups carrying X-chromosome aneuploidy (157, 212). Finally, in both mice (137) and humans (155), the spatial patterning of sex differences in regional GMV in adulthood appears to be preferentially aligned with the spatial patterning of sex-chromosome gene expression—which points toward a potential role of sex-linked genes in the establishment of maintenance of regional GMV sex differences. These studies emphasize the need for integrative models that view biological contribution to sex-biased brain development as a developmental dance of coordinated influences from both gonads and sex chromosomes.

Caveats and Critiques Relating to Neuroimaging of Brain Sex Differences

While several sMRI studies apparently establish that there are highly reproducible male-female differences in regional gray matter volume after controlling for variation in total brain size in humans, this conclusion should be considered in the light of several important caveats and critiques to avoid misinterpretation. First, all sMRI phenotypes that show reproducible and statistically significant sex differences also show a considerable overlap between men and women. This overlap is illustrated by total brain volume: total brain volume averages 10% greater in men than women, but many women have a total brain volume above the 30th centile for male brain volume, and many men have a total brain volume below the 30th centile for female brain volume (149). Sex differences in brain structure and organization are present across the lifespan and vary based on age, so inferences should be drawn cautiously. Thus, while total brain size shows a robust mean difference between men and women, an individual's total brain volume is a weak predictor of biological sex. These 2 facts arise because biological sex is only one source of variation in brain size (149), and other factors/variables that influence total brain size are unknown and/or hard to model statistically (Fig. 1). By extension, because sources of anatomical variation can differ between brain regions—the same individual can have GMV values that appear to be "sex-typical" in one region, but "sex-atypical" in another (when typical and atypical are defined by an individual's percentile position relative to the distribution of population-level trait variation in each sex) (213). This interpretation offers one

potential explanation for the observation that an individual brain can show varying degrees of GMV "sex-typicality" in different brain regions (relative to the population distribution). Alternative explanations have been proposed, including regional variations in programs of sex-biased development such that one individual's brain may be considered a "mosaic" of male and female parts regardless of their chromosomal and/or gonadal sex (213).

Second, although sex differences in regional GMV are highly reproducible in humans and mice, these mesoanatomical sex differences *cannot* be assumed to correlate with behavioral sex differences. The functional relevance of neuroanatomical sex differences is hard to establish experimentally in humans, but correlations between anatomical and behavioral sex differences could be modeled in humans using several feasible study designs. To date, however, very few studies have directly tested for such structure-function correlations in humans (161), and this is an important priority area for future research. Several other challenges will need to be addressed in future work for any given sex-biased sMRI phenotype, including which aspects of behavior to measure and how to consider properly all possible configurations of brain-behavior association in 2 groups (eg, varying intercepts and/or regression slopes across groups). Moreover, some sex-biased sMRI phenotypes, such as trajectories of anatomical change, can only be estimated from group-level data, which complicates comparisons with interindividual variation in behavior. More fundamentally, however, regional GMV sex differences may be useful for understanding the brain basis for sex-biased behavior without GMV variation itself being the behaviorally relevant marker. For example, sex differences in mean regional GMV may help to define brain circuits that subserve sex-biased behaviors through their molecular, cellular, or connectivity features rather than through their volume *per se*. It is also important to entertain the possibility that sex differences in the anatomical organization of a given brain system may actually serve to equilibrate function between the sexes despite each sex having a categorically different genetic starting point.

Third, in addition to the functional considerations above, full understanding of a given sex bias in regional brain anatomy requires a mechanistic account that can link observed anatomical sex differences back to specific genetic and/or environmental factors that differ between men and women. It is usually impossible to disentangle biological sex differences from those which could be the result of environmental influences during development, differences in gender, and in sexual orientation (Fig. 1). Strict causal tests for mechanistic models of sex-biased brain development are very hard to achieve in humans, although several informative approaches have been pursued including: (i) modeling sMRI data using normative variation in hypothalamic-pituitary-gonadal axis maturation or function (214); (ii) applying sMRI methods to cohorts undergoing gender-reassignment (215); and (iii) studying how sMRI features differ between typically developing groups and those affected by medical disorders involving the sex chromosomes (eg, sex chromosome aneuploidies) or sex steroids (eg, androgen insensitivity, congenital adrenal hyperplasia) (215, 216). However, the opportunistic and correlational nature of these approaches places considerable limits on the inferential power of mechanistic studies of human sex-biased brain development. Moreover, as challenging as it is to study chromosomal or gonadal factors in humans, it is even harder to address empirically the many plausible hypotheses about the potential for experiential and societal influences to differentially shape brain development in both sexes (121) or genders.

Section III

Sex Differences in Molecular Mechanisms Underlying Brain-Gut Disorders

The brain and the gut communicate with each other in a bidirectional way through parallel and interacting channels, involving immune, endocrine, and neural signaling mechanisms (217). The brain is able to modulate gut permeability, motility, intestinal transit, and microbial function via the autonomic nervous system (217), and the gut in turn sends signals to the brain to modulate behavior, in rodents (218). This brain-gut communication is especially critical in mediating stress responses and in stress-based disorders. In psychiatric and other neurological diseases, there are notable sex differences that point to different underlying neurobiological mechanisms in men vs women (219-221). Despite their clear documentation, these sex differences have largely been ignored, in order to develop broadly applicable pharmacotherapies that come at a considerable cost, especially for women's health (222, 223). Sex biases in psychiatric risk are particularly instructive as they are developmentally patterned in a manner that is highly reproducible across different cultural settings and historical epochs: early-onset neurodevelopmental and gut disorders are more prevalent in boys than girls, while the opposite sex-bias is seen for adolescent-emergent mood disorders (134, 224). Brain-gut disorders are more prevalent in women than men, but this may be due to underreporting by men due to social stigma associated with several of these

disorders. The etiologies and risk factors for several brain-gut disorders differ between the sexes, yet study designs include predominantly male sex. In this section, we discuss the possibilities that shared and distinct mechanisms operate in males and females resulting in similar as well as distinct manifestation of symptoms for a given disease/disorder.

Sex-Related Differences in Obesity

Although prevalence rates for obesity are at unprecedented levels in all ages (225) and are almost equal in men and women (except when stratified by race or ethnicity) (226), recent surveys indicate an increase in the incidence of obesity in adults and sex differences in the associations between weight, physical health, and psychosocial functions (227, 228). Sex differences in body fat distribution have also been observed (178, 229), with women showing an increased propensity to gain total body fat, especially subcutaneous abdominal fat, whereas men tend to have more visceral adipose fat (230), which is associated with higher risks of type 2 diabetes, hypertension, dyslipidemia, and cardiovascular disease (231). Most clinical trials do not report sex differences related to health outcomes or treatment responses, but a few existing reports suggest women are less likely to complete treatment, tend to lose less weight than men, have a greater number of unsuccessful attempts to maintain weight loss resulting in the well-known "yoyo" diet phenomenon, and have limited responses to pharmacological treatments (225). Obesity-related studies in humans and rodents have expanded in scope to not only focus on structural and functional brain differences between obese and lean male and females, but also include investigations into the bidirectional signaling associated with the brain-gut microbiome axis (232, 233). In obese individuals, changes in the relative abundance and gut microbial diversity have been linked to changes in metabolism, insulin resistance, inflammation, and fat deposition (234). The importance of the intestinal microbiome to human health has been of interest over the past few decades, with multiple studies now linking the microbiome to energy homeostasis, immune function, and development of obesity and metabolic syndrome (235-237), even though few studies have addressed causality.

Not only does the brain-gut axis demonstrate changes in obese individuals, but evidence also highlights differences in the microbiota based on sex hormones (238). More recently, the effect of sex hormones on the composition of the gut microbiota has been explored, with differences seen in the microbiota between men and women during various stages of human development and maturation (238). These sexually dimorphic microbiome signatures are likely to contribute to differences in susceptibility to autoimmune and metabolic diseases between the sexes. Studies performed in immunocompromised mouse models have shown delayed onset and lessened severity of type 1 diabetes in female mice who receive male microbiota transplants; testosterone activity and androgen receptor signaling was essential for this protection (239, 240).

These sex-specific differences in the microbial communities persist throughout adult development, with murine models demonstrating the role of testosterone in orchestrating these divergences in host selection of microbial communities (240). In rodents, males exhibit lower microbiome variability relative to females, likely due to the pulsatile nature of estrogens (240). Human studies comparing the microbiome of twins also revealed more divergences in microbial composition in opposite-sex versus same-sex twins (241). When the cecal contents from adult male mice is transferred into female mice, metabolomic profile changes and masculinization of the hormonal profile results, suggesting the gut microbiota's influence on sex-specific metabolic and behavioral phenotypes (239, 242).

Circulating estrogens in the body are metabolized by the liver and undergo methylation, hydroxylation, and conjugation reactions to produce metabolites that affect host metabolism (243). Certain metabolites are excreted through the bile and are further processed by microbial enzymes in the distal small and large intestine. Certain microbial species secrete beta-glucuronidase, an enzyme that deconjugates biliary estrogen metabolites and allows for its reabsorption into the bloodstream to act on distal sites through binding of estrogen receptors (244). Dysbiosis and decreased microbial diversity result in decreased production of absorbable estrogen metabolites. This mechanism has been implicated in pathologies associated with low circulating estrogens, such as obesity, metabolic syndrome, cardiovascular disease, and cognitive decline in women (245, 246); however, estrogen replacement therapy does not reverse these conditions (247). Growth hormone similarly contributes to sexually dimorphic responses in the above-mentioned diseases (248). In addition, estrogens modulate inflammatory pathways driving disease processes such as nonalcoholic fatty liver disease (NAFLD) and type 2 diabetes (249, 250). More specifically, estrogens regulate adipokines and lipopolysaccharides, which respectively are adipocyte-derived hormones and endotoxins that have been associated with type 2 diabetes (251). Adipokines play a role in metabolic homeostasis as well as in mediating the beneficial and detrimental effects of inflammation (252). The androgen- and estrogen-dependent regulation of adipokines, including leptin, resistin, adiponectin, and visfatin, provides a possible mechanistic link between metabolic disorders (obesity,

atherosclerosis, insulin resistance) and autoimmune dysfunction. The estrogen-microbiome axis can provide a potential avenue for a sex-specific approach to combating metabolic disorders and highlights the bidirectional interaction of estrogens and microbial communities in the pathogenesis of disease processes.

Although the exact signaling mechanisms underlying the communication within the brain-gut-microbiome axis remain incompletely understood, tryptophan metabolites have been implicated as important signaling molecules (253). The most extensively studied tryptophan metabolite is serotonin (5-HT), a molecule with diverse roles in both the gastrointestinal tract (ie, peristalsis, secretion, and absorption) and the central nervous system (ie, mood, pain modulation, behavior, sleep, and ingestive and cognitive functions) (254). Tryptophan also acts as a precursor to the kynurenine (KYN) family of molecules (255). In obesity, the KYN pathway is preferentially activated and may contribute to immune-mediated inflammation, which may drive inflammation-associated changes to the extended reward network described in previous brain studies, particularly changes involving the amygdala and lateral orbitofrontal cortex (256-259). KYN may also modulate signaling within the brain-gut-microbiome axis through downstream neuroactive metabolites, such as kynurenic acid and quinolinic acid, functioning as N-methyl-D-aspartate (NMDA) antagonists and NMDA excitotoxins, respectively (260). Sex differences have been reported in these metabolite products in obese individuals, with lower tryptophan levels but elevated KYN and KYN/tryptophan ratios in women with high BMI compared to men with high BMI (256, 261, 262).

Sex Differences in Stress-Based (Patho) Physiologies

Epidemiological data reveal that the majority of psychiatric disorders occur at different rates in men and women. For example, men are more likely to suffer from attention-deficit/hyperactivity disorder (ADHD), whereas women are more likely to suffer from major depression and posttraumatic stress disorder (PTSD) (219, 263-265). Even when the rates of disorders are similar, their presentations can differ. Schizophrenia, for example, is only slightly more common in men than women, but men develop schizophrenia at an earlier age and present with more negative symptoms, such as social withdrawal and lack of motivation. (224). In the case of bipolar disorder, rates are similar between the sexes, but women more often have more rapid cycling and mixed episodes and they report higher comorbidity with eating disorders and PTSD, whereas men report higher comorbidity with alcoholism (266). Not only does the risk and presentation of psychiatric disorders vary between men and women, but there are differences in treatment responses. For example, the efficacy of antidepressants differs between the sexes: men respond better to tricyclic antidepressants, whereas women respond better to selective serotonin reuptake inhibitors (267, 268). These findings implicate neurobiological sex differences in contributing to disease. In support of this idea, recent studies using animal models are beginning to uncover molecular processes that can bias males and females toward different pathology. Findings from some of these basic research studies will be highlighted here as examples of how including sex as a biological variable can inform our understanding of the etiology of stress-based disorders, as well as guide the development of better treatments.

While there are sex differences in rodent studies in the structure and the size of certain brain regions that can contribute to sex differences in behavior (211), imaging studies that focused on sex differences in cortical thickness and gyration suggest a role for these brain regions in humans as well. In adolescent girls, cortical thinning in the right temporal regions, the left temporoparietal junction and the left orbitofrontal cortex is faster than in boys (154). In contrast, changes in cortical folding were only found in one cluster of the right prefrontal region, suggesting that the mechanisms underlying changes in cortical thickness and gyrification in adolescents are distinct. Sexual dimorphism in the developmental course of the cortical maturation, which coincides with the onset of puberty, might explain sex differences in the age of onset and clinical presentation of many psychiatric disorders (154). Recent evidence has revealed that molecular sex differences in the brain are more widespread than initially thought and such seemingly small-scale differences can have a large impact on physiology and behavior (269). Neurons typically communicate with each other via neurotransmitters and neuropeptides, which are released from a presynaptic neuron and travel across a synapse to bind to receptors on the postsynaptic neuron to exert downstream cellular effects. There are sex differences in production and release of many neurotransmitters and neuropeptides that can result in behavioral changes. In other instances, sex differences in these systems are compensatory, leading to similar behavior endpoints via different mechanisms. For example, both male and female juvenile rats play, but the release of the inhibitory neurotransmitter gamma-aminobutyric acid (GABA) into the lateral septum mediates juvenile play only in female rats (270). There are also sex differences in receptors that can influence how these neurochemicals affect their downstream targets. For instance, dopamine 1 (D1) receptors, which belong to the family of G protein-coupled receptors (GPCRs), in the nucleus accumbens, are necessary for social

withdrawal in female but not male California mice (271). The function of GPCRs is often complex and they can induce different downstream effects depending on their conformation and location. Sex differences can occur at each level of receptor function, in some cases altering physiology differently in male vs female rodents. Sex differences in GPCR signaling are particularly important to consider, especially given that GPCRs are the most studied drug target family for a myriad of indications; in fact, 34% of all US Food and Drug Administration (FDA)-approved drugs are targets of GPCRs (272). As an example of the myriad of sex differences that can be mediated by receptors, we will use the corticotropin-releasing factor 1 and 2 (CRF_1 and CRF_2, respectively) receptors that facilitate responses to stress, exhibit sexually dimorphic expression pattern, are modulated by both estrogens and androgens, and have been relatively well characterized in both sexes (273, 274).

Upon perception of stress or perturbation of homeostasis, CRF is synthesized in the paraventricular nucleus and released from the median eminence of the hypothalamus into the pituitary portal circulation, which in turn stimulates the synthesis and secretion of adrenocorticotrophic hormone (ACTH) from the anterior pituitary into the general circulation. ACTH acts on the adrenal cortex to stimulate the synthesis and release of glucocorticoids and other steroids. This activation of the HPA axis in the classic "flight or fight" response by the CRF system is present in all mammals. The mammalian CRF family comprises 4 agonists, CRF and 3 urocortins (UCN1-3); and 2 known class B GPCRs, CRF_1 and CRF_2. While CRF_1 and CRF_2 share ~68% identity at the amino acid level (275), they perform distinct functions; CRF binding to CRF_1 initiates stress responses by activating the HPA axis, whereas UCN1-3 binding to CRF_2 brings systems back to homeostasis (274). Not surprisingly, perturbations in the components of the CRF family impact several organs and lead to brain-gut disorders, type 2 diabetes, metabolic syndrome, cardiovascular, and reproductive diseases, among others (274). There are sex differences in CRF's endocrine effects. In female rats, higher levels of CRF mRNA in the paraventricular nucleus are reported that associate with the estrous cycle (276, 277) and are reviewed elsewhere (274). Perhaps as a compensatory response, CRF binding protein, an endogenous protein that sequesters CRF thus preventing its bioavailability, is expressed at higher levels in the pituitary of female compared with male mice (278). In humans, there is evidence for increased CRF receptor sensitivity at the level of the pituitary of women relative to men, because peripherally administered CRF, which acts at the pituitary, increases ACTH to a greater degree in women (279).

During stress, CRF is also released centrally into many brain regions, where its neuromodulatory effects coordinate cognitive and behavioral changes to promote stress coping (280). There are sex differences in the way these brain regions respond to CRF that are largely due to sex differences in CRF receptor signaling (274). For example, there is greater CRF_1 receptor binding in the basolateral amygdala in female rats (281). In contrast, binding of the CRF_2 receptor subtype, which is involved in stress recovery, is greater in the central nucleus of the amygdala in male rats (281). It is unknown precisely how these sex differences affect behavior, but given that the amygdala is critically involved in fear, it is likely that these receptor sex differences differently alter fear processing in males and females. In the brain, CRF_2 is most abundant in the bed nucleus of the stria terminalis, a region that regulates sexual behavior and stress-related functions (282, 283). Promoters in genes for CRF_1 and CRF_2 receptors harbor estrogen and androgen responsive elements and show tissue-specific modulation by sex hormones (284, 285). The sexually dimorphic expression pattern of these receptors at normal physiological states and during stress or disease pathology are summarized in a recent review (274).

Sex differences in CRF_1 receptor signaling have been identified in the noradrenergic-containing nucleus of the locus coeruleus (LC) and these differences have important implications for understanding disease vulnerability (273). The LC-noradrenergic system regulates levels of arousal such that higher levels of norepinephrin are associated with greater levels of arousal (286-289). Stressor exposure causes CRF to be released into the LC, which speeds up LC neuronal firing, increasing norepinephrin release (290, 291). Activation of this system during an acute or moderate stressor is thought to be adaptive, because it is important to be alert during a stressful event. However, if this system is activated inappropriately or persistently it can lead to hyperarousal that contributes to agitation, restlessness, impaired concentration, and sleep disturbance. Hyperarousal is a key feature of PTSD and reported in a subset of depressed patients (292, 293). Similar sex differences in spatiotemporal expression of CRF_2 and its ligands are found in humans with gut disorders, where they could contribute to differences between males and females in vulnerability to brain-gut disorders (127, 294).

There are sex differences in CRF_1 receptor signaling in the LC that increase female sensitivity to CRF. In the LC, CRF receptors primarily couple to Gs to initiate signaling through the cyclic adenosine monophosphate (cAMP)-protein kinase A (PKA) signaling pathway (295-297). Sex differences in CRF_1-induced cAMP-PKA signaling are linked to greater coupling of the CRF_1 receptor to Gs in females compared to males (298). This sex difference in

coupling of Gs may indicate that the CRF_1 receptor has a different conformation or binding partner in females vs. males, permitting different proteins to preferentially bind in each sex. Further support for this idea comes from studies demonstrating that, in male rats, acute swim stress increases the binding of a different protein, β-arrestin2, to the CRF_1 receptor, and this effect is not observed in female rats (298). The increased β-arrestin2 in male rats likely contributes to the greater CRF_1 receptor internalization in stressed males (298). When taken together, these findings suggest that CRF_1 receptors preferentially signal through different pathways in males (small GTPases) and females (cAMP-PKA) (299). This difference in signaling could alter physiology and disease risk. In fact, sex differences in CRF_1 receptor signaling in cortex were linked to increased Alzheimer-related pathology, including increased tau phosphorylation and amyloid β signaling in female compared with male mice (300). Few studies investigate sex differences in GPCR signaling, but it is likely that sex differences in GPCRs are also found in receptors other than CRF and that these differences could confer vulnerability and resilience to many diseases.

In human studies, single nucleotide polymorphisms in the CRF receptor gene (*CRHR2*) are associated with negative emotions in patients with irritable bowel syndrome (IBS) (301). Immune cells secrete CRF_2 in extracellular vesicles that circulate in the plasma and associate negatively with disease severity scores in IBS-diarrhea patients (294). Single nucleotide polymorphisms in *CRHR2* are also associated with lifetime PTSD in women (302) and with type 2 diabetes (303). The prevalence of type 2 diabetes and insulin resistance is greater in men (304). Epidemiological studies have shown that men with high levels of self-reported perceived stress have a 1.4 higher odds ratio of developing type 2 diabetes during a 10-year follow-up period and are at 2-fold higher risk of developing diabetes than women with similar levels of reported stress (305). In agreement with human data, male mice lacking functional stress receptors (*Crhr2*$^{-/-}$) and haploinsufficient (*Crhr2*$^{+/}$) mice have worse glucose and insulin tolerance, microvesicular hepatic steatosis, and dyslipidemia than female *Crhr2*$^{-/-}$ or C57BL/6 male and female mice in a high-fat diet–induced model of diabetes (129). Female *Crhr2*$^{-/-}$ mice had significantly greater brown adipose fat mass on high-fat diet than C57BL/6 female or male mice of either genotype, suggesting greater thermogenic responses that might be protective. However, the mouse study did not address whether steroid hormones contributed to changes in adipose mass or function. Thermogenesis in brown adipose tissue in humans in response to a meal or cold stress suggests that women have greater thermogenic responses than men and that these responses correlate positively with progesterone levels, but negatively with cortisol levels (306). Thus, analyzing data from both sexes provides insights into sex-specific mechanisms that regulate physiological processes in both sexes.

In colonic tissues of pediatric patients with Crohn's disease, subcellular localization of CRF_2 differs between boys and girls (127). Furthermore, lack of CRF_2 revealed several sex-specific signaling pathways and differential degree of inflammatory responses in male and female mice (127). Treatment with UCN1, a high-affinity agonist for both CRF receptors, rescued *Crhr2*$^{-/-}$ male mice from colitis-induced mortality, whereas UCN1 treatment increased mortality in *Crhr2*$^{-/-}$ female mice (127). Both diabetes and Crohn's disease show sex differences in disease prevalence and outcomes, yet most animal studies use male sex to delineate mechanisms. Analysis of the data by segregating the 2 sexes can reveal significant insights into distinct and shared mechanisms and factors that exist at baseline and during disease. For example, sex differences exist in the etiology of pancreatitis: alcohol and tobacco predominate in men, whereas idiopathic and obstructive etiologies predominate in women (307), yet to date only a few studies have used both sexes to study mechanisms involved in pancreatitis. While both males and females develop pancreatitis in animal models, when administered identical doses of the pancreatic stressor caerulein, C57BL6 female mice show less severe pancreatitis and histological damage than male mice (128). Lack of CRF_2 rendered female mice more susceptible to caerulein-induced pancreatitis compared with male *Crhr2*$^{-/-}$ mice (128), with both male and female *Crhr2*$^{-/-}$ mice exhibiting similar levels of total histological damage (128). Detailed analysis of components contributing to histopathological damage showed that female C57BL6J mice have less necrosis, zymogen granules, and vacuolization than male mice with pancreatitis, but they have similar levels of edema and neutrophil infiltration as male mice (128). This data segregation allowed isolation of factors that differentially contribute to histological damage, which otherwise would be lost, if grouped together in this analysis. Taken together, these data support a role for the CRF receptors, product of an autosomal gene and regulated by steroid hormones to bring about sex-specific cellular signaling and function.

Sex Differences in Pharmacotherapy of Stress-Based Diseases

Sex differences in GPCR signaling are also relevant for pharmacology. Biased ligands can shift signaling toward

β-arrestin pathways and away from G-protein-mediated pathways based on how they bind to the GPCR (308). These biased ligands are being designed with the hope of providing more targeted therapies with fewer side effects (308, 309). Understanding sex differences in signaling and how such differences contribute to changes in physiology can inform the development of these biased ligands. For example, a CRF_1 receptor ligand that biases signaling through β-arrestin pathways may be useful for treating hyperarousal symptoms or reducing the progression of Alzheimer disease, especially in women. An idea for such a compound would never have come about if women were excluded from preclinical and clinical studies on CRF_1 receptor function.

The idea of using CRF_1 antagonists to treat depression, PTSD, and irritable bowel syndrome has been around for decades, but these compounds were ineffective in several clinical trials (222, 310). Sex differences in CRF_1 and CRF_2 receptor signaling may also explain the failure of different selective CRF_1 antagonists as treatments for these disorders. While there are likely many reasons for their failure, critical ones could be sex differences in their target, association of CRF receptors with different binding partners in female versus male cells, or heteromerization of CRF receptors (311-313), all of which can result in altered signaling. The consistent efficacy of CRF_1 antagonists in reducing anxiety-like and depressive-like behavior in rodents and nonhuman primates was established in studies primarily conducted in male animals (222, 314-317). In a study in which females were included, local blockade of CRF_1 receptors in the dorsal raphe with an antagonist reduced anxiety in male but not female mice, highlighting sex differences in efficacy (318). Yet these compounds developed primarily in male rodents were tested in clinical trials with participants of both sexes or only in women. Notably the only CRF_1 antagonist study that had success in reducing depressive symptoms, NBI-34041, was conducted only in men (222, 319). The approach of developing compounds in male animal models is not unique to CRF_1 antagonists and has been common practice (222). Collectively, these studies suggest that a failure of certain therapeutics may result from ignoring sex differences in their targets. Sex differences in targets are not well known because most preclinical studies use only male rodents (320, 321). Excluding females in the drug development stage particularly impacts women's health. Indeed, it is likely that some compounds deemed ineffective in male rodents would work in females, yet such compounds never would have a chance to make it to market, because of testing exclusively in male subjects. Moreover, the fact that most drugs are designed using males also likely contributes to the higher rates of adverse drug reactions in women compared to men (322).

Including both sexes in mechanistic studies is critical for developing drugs that work efficaciously in both sexes (see Box 4). Latent sex differences can also impact drug development: a compound targeting a mechanism in men may not work in women. As the field moves forward, we may find that sex-specific therapeutics based on understanding latent sex differences are required to truly improve patient outcomes. In sum, there are observable sex differences in behavior that extend beyond reproductive function. Molecular sex differences in several organs, such as the gut and the central nervous system, play a key role in driving these functional and behavioral differences. Moreover, even when function and behavior are consistent between the sexes, the underlying processes can differ. Thus, including both sexes in preclinical molecular studies guiding drug development is key for improving the health of men and women.

Section IV

Sex Differences in the Cardiovascular-Renal System

Cardiovascular disease (CVD) is the major cause of premature death in both sexes worldwide, although women generally develop CVD 10 years later than men (328). In 2016, ~18 million people died from CVD, representing ~30% of all deaths worldwide (329). There are marked sex differences in CVD and renal disease. For example, women are protected from heart disease during the reproductive years but are more likely to die in the first year following a cardiovascular event than males (330). Most heart conditions, including myocardial infarction, Takotsubo syndrome, and cardiac arrythmia, exhibit sex differences in symptoms and severity (331). Chronic kidney disease (CKD) is more prevalent in women but, once established, progresses more rapidly in men (332). However, this female advantage is lost after menopause. These sex differences in cardiovascular and renal disease have long been overlooked and underappreciated. The clinical presentation, the response to pharmacotherapies, standard care practices, and the underlying pathophysiological mechanisms differ in women compared to men. Furthermore, lack of understanding of sex differences in mechanisms underpinning cardiovascular and renal disease has led to poorer outcomes in women than in men. A major problem is that mechanistic preclinical studies in animal models have largely been conducted in males (333). Yet, it has become increasingly clear that sex differences

Box 4. Sex differences in pharmacokinetics and pharmacodynamics of drugs

Thalidomide, a sedative that was prescribed to many pregnant women to relieve pregnancy-associated nausea, was first sold in Germany (without a prescription) in 1957; it had been tested in animals and in men, but not in women. It was soon noted to cause multiple birth defects, most notably phocomelia (arrested limb development) and postnatal deaths. Fortunately, it was never approved in the United States, but thousands of children were affected around the world. In 1962, the US Congress passed the Kefauver-Harris Drug Amendments Act requiring manufacturers to prove a drug is both safe and effective (323). Consequently, the US Food and Drug Administration (FDA) recommended against drug testing on women, particularly those of child-bearing age, until the early 1990s. To date, most treatment guidelines are based on results from clinical trials conducted on middle-aged men. Dosage, pharmacokinetics, and pharmacodynamics data for women (and children) are lacking for most drugs. Activities of cytochrome P450 (CYP) enzymes show significant sex differences in drug metabolism in Phase I clinical trials (324). Gastric enzymes involved in oxidative degradation such as alcohol and aldehyde dehydrogenases are significantly more active in men than in women resulting in higher bioavailability of ethanol in women versus men. In Phase II trials, glucuronidating enzymes and some efflux transporters have been shown to be more active in men then in women. Together with estrogens and androgen that alter transmembrane transporters, these processes contribute to efficacy of metabolism in both Phase I and II. Drugs used for treatment of cardiovascular disease, such as angiotensin-converting enzyme inhibitors (ACE inhibitors), angiotensin II receptor blockers, diuretics, the aldosterone blocker eplerenone, antiplatelet agents, and oral antithrombotic medications, all show sex differences in efficacy and safety (325, 326). Over-the-counter nonsteroidal anti-inflammatory drugs (NSAIDs) such as ibuprofen and naproxen are more effective in men than women; there is more liver toxicity with acetaminophen use in women, whereas opioids and benzodiazepine work better in women. While some sex differences in metabolic clearance for statins and beta-blockers are known for these frequently prescribed drugs, dosing and adverse event monitoring in routine clinical practice is inadequate. Alosetron, a serotonin receptor 3 antagonist, is approved for treatment of severe irritable bowel syndrome–diarrhea symptoms in women, as it is largely ineffective in men (327). These findings emphasize that women and men take divergent routes (molecular mechanisms and signaling pathways) to reach the same destination (normal function or diseased state), with paths often intersecting. In the era of personalized medicine, there is no one-size-fits-all therapy, and considering sex-specific outcomes in pharmacokinetics and pharmacodynamics of drugs as well as clinical guidelines is warranted to ensure efficacy and safety of medications.

are apparent in all endocrine systems, which are modified by sex chromosomes and sex hormones, with temporal actions across the lifespan.

Blood Pressure Links Cardiovascular and Renal Diseases

Cardiovascular and renal diseases are linked by the relationship of each to arterial pressure (Fig. 5). The cardiovascular system determines arterial pressure, with the heart generating cardiac output and the blood vessels determining total peripheral resistance. The kidneys contribute by regulating extracellular and intravascular fluid volume, and hence blood volume, and venous return. It is established that CVD leads to chronic kidney disease (CKD) and that CKD leads to the development of CVD. For example, following a myocardial infarct, cardiac output declines and arterial pressure falls causing the kidney to vasoconstrict and retain extracellular fluid, with the effect to increase venous return and normalize cardiac output. However, this has the unwanted effect of placing further stress on the failing heart. Conversely, kidney failure causes fluid retention and hypertension (334). Thus, cardiovascular and kidney function are intertwined, as are the endocrine systems that regulate organ function; including the renin-angiotensin-aldosterone system

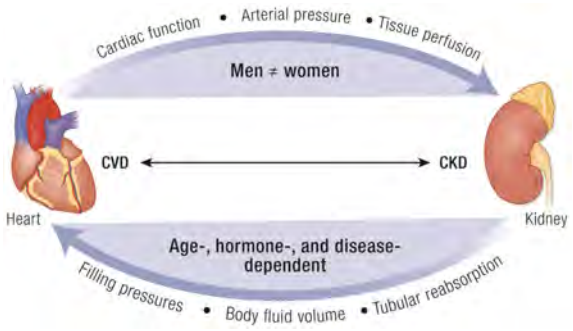

Figure 5. Heart and kidney functions are linked. Sex differences exist in many aspects of heart and kidney function at baseline and in CVD and CKD, as shown. Both organs feed-forward and influence each other's function. Genes, hormones, and age are some known factors that modulate this relationship in a sex-specific manner. Abbreviations: CKD, chronic kidney disease; CVD, cardiovascular disease.

(RAAS), the endothelin system, atrial natriuretic peptides, vasopressin, and glucocorticoid and mineralocorticoid hormones. There is an increasing recognition that there are fundamental sex differences in each of these systems. For example, aldosterone contributes to obesity-induced CVD with a greater impact in females than males (335). However, further research is required to fully elucidate the sex differences present in each endocrine system and how these impact disease development and progression.

Sex Differences in Arterial Pressure and Hypertension

Hypertension is a major risk factor for cardiovascular and renal disease. Over the lifespan there are age- and sex-related differences in arterial pressure. The majority of the data are derived from cross-sectional studies, but a few powerful studies have tracked arterial pressure over decades within a population (332, 336-339). Arterial pressure increases in both men and women with age, although the slope of the relationship is different between men and women. Sex differences in arterial pressure emerge during adolescence and are maintained throughout adulthood until women reach menopause (336, 337, 339). Arterial pressure is ~5 to 10 mmHg greater in men than age-matched women during the reproductive years (340-342). Postmenopause arterial pressure rises steeply in women regardless of race, ethnicity, or country of origin (340-342). One of the most striking characteristics of hypertension is that the prevalence and severity is lower in premenopausal women than in age-matched men. The prevalence of hypertension is ~10% in young premenopausal women, ~50% in postmenopausal women and by the age of 75 years almost ~80% of women are hypertensive (342-344).

Nonhuman mammalian species also display sex differences in arterial pressure. Arterial pressure in adult females is lower in normotensive dogs, sheep, rabbits, rats, and mice as compared with adult males (338, 345). Furthermore, in rodents, rabbits, and sheep, females of reproductive age are protected against the development of hypertension, such that arterial pressure increases significantly less in females than in males, in settings of disease (338). Thus, sex differences are present in the pathophysiology of cardiovascular and renal diseases. Yet, the mechanisms underlying the sexual dimorphism of arterial pressure in men and women as they age are poorly understood. However, extensive evidence indicates that sex hormones likely contribute to the regulation of arterial pressure through their actions on endocrine systems.

Sex Differences in Endocrine Control of Arterial Pressure and Kidney Function

There are subtle differences in most endocrine actions between men and women. It is not the maximal response of each system but rather the slope of the response that is altered. In this manner, a system responds maximally in a hemodynamic crisis (eg, hemorrhage) but in a sex-specific manner to lesser challenges. For example, a greater dose of the vasoconstrictor angiotensin II is required to increase arterial pressure in female than male mice (346). Consistent with this finding, the same dose of angiotensin II caused a greater reduction in renal blood flow in men than women, with the suggestion that this was an angiotensin type 2 receptor (AT_2R) mediated effect (347). In rodents, females of reproductive age have a greater AT_2R to angiotensin type 1 receptor (AT_1R) ratio than males, which contributes to the reduced pressor response to angiotensin II (348). This has been indirectly demonstrated in women, in studies examining forearm vascular resistance responses to AT_2R blockade (349). The AT_2R also mediates a leftward shift in the pressure natriuresis-diuresis relationship, an effect that is greater in female than male mice (350). In women, indirect evidence also indicates a more pronounced role for the AT_2R in the regulation of renal blood flow responses to angiotensin II (347). This is linked to differential expression of components of the RAAS in males and females, which have been demonstrated in most mammalian species, including humans (351). In the context of the above example, estrogen interacts with the glucocorticoid response element on the X-linked *AGTR2* gene, to increase AT_2R expression in females (352). In addition, there are sex differences in human aminopeptidase A, aminopeptidase N, and angiotensin-converting enzyme 2 levels, responsible for generation of the angiotensin peptide fragments, angiotensin III, and angiotensin-(1–7), which have a high affinity for the vasodilatory AT_2R and Mas receptors, respectively (353-356). Lastly, there are marked and important sex differences in the production and function of aldosterone, although this has only recently been started to be examined (335). Thus, in females the RAAS is balanced toward the protective depressor RAAS arm, which at the lower physiological range may prevent arterial pressure increasing to the same extent as in males. However, this delicate balance may be lost in women after menopause and in the situation of metabolic syndrome.

Other vasoconstrictor systems also have sexually dimorphic actions. Endothelin-1 causes vasoconstriction via the endothelin type A receptor (ET_AR), and vasodilation and sodium excretion via the ET_BR. Testosterone increases ET_AR and estrogen increases ET_BR expression, which contributes to the differential control of arterial blood pressure and renal function between the sexes (357). Vasopressin, with important roles in circulatory and water homeostasis, is affected by age and sex. Urinary concentrating ability declines with age, but more steeply in women. Young men produce more concentrated urine than women, in part due higher plasma arginine vasopressin levels and greater vasopressin type 2 receptor expression in the collecting ducts of the kidney in males (358, 359). Renal vasopressin type 2 receptor expression declines with age in association with a reduction in maximal urine concentrating ability (358, 359). Interestingly, aldosterone signaling via mineralocorticoid receptors is associated with increased CVD risk and is

enhanced in obese women (another example of how the RAAS is differentially modulated in females), which has been linked to leptin-induced endothelial dysfunction (360, 361). Moreover, evidence in rodents indicates that sodium reabsorption along the length of the renal tubule is sexually dimorphic, with reabsorption shifted to the later segments in females compared to males. This was associated with greater sodium epithelial channel expression, under the control of aldosterone, in the collecting duct, which could also contribute to the increased cardiovascular and renal risk associated with aldosterone in females (362). Finally, oxytocin, relaxin, and prolactin, which are traditionally known for their roles in pregnancy, have differential cardiovascular and renal actions in nonpregnant female and male rodents (348, 363, 364). Thus, evidence points to sex differences in endocrine control of extracellular fluid homeostasis and vascular function, which likely contribute to age- and sex-related disparities in renal and cardiovascular disease risk. Further studies are warranted to understand this complex issue more fully. In particular, it is important to take into account the subtle effects within the physiological range that counterbalance function of each hormonal system, rather than examine the impact of pharmacological doses which can mask sex differences in responses.

Cardioprotective Mechanisms in Women Sustain a Healthy Pregnancy

The cardioprotective mechanisms that predominate in women during the reproductive years enable the extensive hemodynamic adaptations required to meet the metabolic demands of the developing fetus and a successful pregnancy. During a normotensive pregnancy, blood volume increases and cardiac output increase by ~30% to 50%, but arterial pressure declines due to marked peripheral vasodilatation (365, 366). The associated renal vasodilation accommodates an increase in glomerular filtration rate to process the additional blood volume, but an increase in vasopressin type 2 receptor expression enables increased tubule reabsorption of sodium and water. However, in women with preeclampsia, a pregnancy-induced form of hypertension, these cardiovascular adaptations are perturbed. Accumulating evidence now indicates that women with a history of pregnancy-associated hypertension have a 2- to 5-fold increased risk of CVD in later life (367). Understanding the mechanisms underpinning this dysregulation of vascular function in pregnancy-related hypertension may lead to the identification of new therapeutic targets for the treatment of cardiovascular disease in both sexes. For example, relaxin, which is known best for its role in pregnancy but is also produced in males, plays roles in the regulation of renal function, blood pressure, and tissue fibrosis (363). Thus, it is a mistake to assign hormonal systems a specific role as most have wide-ranging tissue-specific pleiotropic effects.

Sex Hormones and Sex Chromosome Complement in CVD

Sex hormones contribute to sexual dimorphism in endocrine control of the cardiovascular system, with evidence suggesting that there is a "sweet spot" for both testosterone and estradiol, as unusually high or low levels of either promote disease (368-370). This has been the cause of apparent discrepancies in the literature. In particular, this remains a problem in animal studies in which the dose of estrogen used to study the impact of estrogen replacement in aged or gonadectomized models varies widely (~1000-fold), as does the route or length of administration; none of which accurately reflect the cyclic pattern of in vivo production. This lack of rigor into investigation of the effects of sex hormones in preclinical models likely contributes to the controversy that surrounds hormone replacement therapy for the prevention of CVD risk. Despite extensive evidence that hormone replacement therapy is cardioprotective, the negative results of the Women's Health Initiative Trial effectively halted the use of hormone replacement therapy (371). Certainly, high-dose estrogen can increase blood pressure and cardiovascular risk in women (372). However, continued investigation supports the use of hormone replacement therapy in subsets of women, and further work in this area is required (373). In contrast, in men with low testosterone, beneficial cardiovascular effects are seen with testosterone replacement (374). In women with polycystic ovary syndrome, high testosterone levels are associated with elevated blood pressure (374). Dose-ranging studies are required to delineate these effects.

The sex chromosomes may have a direct impact on sex differences in the physiology and pathophysiology of the cardiovascular system and cardiovascular risk, independent of sex hormones. Human sex chromosome aneuploidies, such as Turner and Klinefelter syndromes, suggest that sex chromosome abnormalities can carry an increased risk of CVD. Women with Turner syndrome have around a 3-fold greater mortality and reduced life expectancy relative to the general population (375-377). CVD is a leading cause of increased mortality in Turner syndrome (375-377). Congenital cardiac anomalies, hypertension, coarctation of the aorta, diabetes, ischemic heart disease, and stroke are commonly associated with this condition (378). Similarly, men with Klinefelter syndrome have a high cardiovascular risk profile (379, 380), and an increased risk of

mortality from cardiovascular disease (381, 382). However, observations from studies in individuals with sex chromosome aneuploidies are complicated by confounding factors, including abnormal gonadal sex hormone levels associated with gonadal failure. Thus, it is very difficult to distinguish between hormonal versus genetic mechanisms and cardiovascular risk in these human conditions.

Experimental approaches, such as the FCG mouse model discussed in "Section I," and Box 3 can discriminate between hormonal and sex chromosome effects in cardiovascular disease (115). Beyond genes on the sex chromosomes, there are sex differences in autosomal gene expression, which can be both organ or cell specific (383). In the kidney and the heart, hundreds of rat and human genes are regulated differently between the sexes (384-386). This disparate expression is triggered by sex hormones in ~30% of cases, with the other 70% linked to sex chromosome and microRNA dimorphisms (384, 385). For example, sex differences have been reported in the expression of nitric oxide synthase, tyrosine hydroxylase, and sodium channels in the rodent heart and kidney (332). However, few studies to date have compared gene expression and the effect on the proteome between the human sexes, and further studies are required.

Sex Differences in Pharmacotherapy for Cardiovascular and Renal Disease

Men and women respond to disease differently: kidney diseases progress faster in men than women, kidney transplants from women to men tend to fail more frequently than the reverse, and the effects of diabetes on the kidney differ between the sexes (387-392). Furthermore, symptoms and mechanisms of heart failure differ between the sexes (393). This suggests that sex-specific treatments for CKD and CVD could be required. There is currently little evidence to suggest that men and women respond differently to current treatments for hypertension (394). In large part, this is because clinical trials have lacked statistical power to take this into account. It will be difficult to achieve such an outcome for drugs that have already received FDA approval. However, some treatments are more frequently prescribed, without any basis in evidence (395). There are also marked differences in pharmacokinetics and pharmacodynamics (see Box 4), leading to more frequent adverse drug reactions in women, related to differences in drug clearance and breakdown (396). Therefore, sex should be taken in account for new treatments seeking approval in the future. When women are considered, important and unexpected sex differences are observed in almost every aspect of cardiovascular and renal function in health and disease. Further research is required to fully understand these differences, and in turn to guide the development of sex-specific treatment guidelines for CVD and CKD.

Section V

Challenges for the Future of Sex Differences Research—Areas Requiring Special Attention

Sex differences exist in anatomy, behavior, and physiology across the animal taxa. By extension, because of these innate differences, sex differences exist at molecular and cellular levels in mechanisms that underlie these processes. Despite concerted efforts by the Office of Research on Women's Health and the Organization for the Study of Sex Differences in educating researchers about the distinction between sex versus gender, the indiscriminate use of the word "gender" continues to pervade scientific literature. The sex of established cultured cell lines is another issue; in addition to aneuploidy, chromosomal numbers change as cells are passaged and are dependent upon the tissue of origin (397, 398), but this aspect is beyond the scope of this Statement. Not surprisingly, sex differences are seen in etiology, prevalence, and outcomes in a myriad of human diseases that range from psychological and autoimmune to gastrointestinal, cardiovascular, renal, and reproductive; SARS-CoV-2 causes more severe COVID-19 disease in men than in women despite similar infection rates (399-401). Besides genetic makeup (predisposition), extraneous factors, such as the socioeconomics, demographics, education level, profession, age, and the environment, greatly influence an individual's health; COVID-19 disease outcomes especially highlight the contribution of these extraneous factors in health disparities. Factors such as the endocrine-disruptive chemicals can disproportionately affect one sex over the other; regardless, whether favorable or adverse effects are present in one or both sexes, the effects would impact trans and cisgender persons, and hence these sex-specific effects should not be overlooked or underestimated (402). Some human studies addressing sex differences take these factors into account, whereas others are more selective. Many studies of disease pathways are sensitive to levels of gonadal steroid hormones, which contribute to sex differences. In human studies, unless gender information is explicitly collected or available, the study deals with biological sex, not gender. Use of sex and gender interchangeably deemphasizes the importance of studying gender as an independent variable.

In animals or experimental models of human diseases, effects of estrogens have been investigated more often than effects of progestins and androgens, which should

be corrected. Paradoxically, female sex is often excluded from experimental design on the basis that: (i) the estrus cycle will interfere with data interpretation; (ii) mechanisms that operate in the male sex will operate in the female sex and thus only need to be confirmed in females; (iii) metabolic demands are similar between the sexes; (iv) the X chromosome in males and females is subject to similar regulation; and (v) autosomal genes will be subject to equal variance between the sexes. The same studies often ignore the diurnal cycling nature of testosterone in males; testosterone levels in male rodents can show more day-to-day variability than estrogen and progesterone levels in females. Other steroid hormones, such as glucocorticoids, that show circadian rhythm and whose levels differ between the sexes also influence gene expression and function. In rodents but not primates, sex differences in secretion of growth hormone result in sexually dimorphic hepatic metabolism of drugs and xenobiotics (403). In rodents, endocrine disruption can have transgenerational effects on male and female reproductive systems (404). Since changes in hormone levels and gene expression are dynamic, can be localized, and are spatiotemporally distinct, no one study design or condition can be used as a gold standard. Animal housing and handling conditions can also create sex differences, and thus any experimental design and data interpretation should take these variables into account. If sex-segregated data does not differ for the aspects under study, then data can be pooled from the 2 sexes and reported accordingly.

Studies in animal models have just begun to uncover unequal effects of the sex chromosomes in XX vs XY cells, so we expect further discoveries about such effects in the future. Once genes that cause sex differences are discovered in animals, the findings generate new hypotheses and rationalize human studies to determine whether the same gene also creates sex differences in humans. That question can be studied by the methods of human genetics, relating genetic variation to disease incidence and outcome. Without the animal studies, however, it is difficult to understand detailed molecular mechanisms. It is also important to remember that no single rodent or animal model can capture the complexity of any human disease, but each model provides valuable insights into one or another major aspect of disease. If different etiologies of a given disease share mechanisms, then mimicking the precise conditions that initiate human disease may not be critical.

The study of sex chromosome effects is in its infancy and has focused on proving that sex chromosomes play a role and finding the genes responsible for the effects. So far there has been little effort to understand how these factors interact with steroid hormones to cause sex differences. If both types of factors cause differences in disease incidence, are they affecting the same or different downstream pathways? Do their effects converge, or do they independently affect different mechanisms that each influence a complex disease? Do male-biased factors (hormones, Y-chromosome genes) act synergistically to induce a male-specific state, or do they counteract each other to reduce the difference between males and females (123, 405)? Are the diverse sex-biasing factors changing in their effects across the lifespan, leading to changes in the type or amount of sex difference at different ages?

When studying sex differences in animal models of human diseases, it is important to first understand and elucidate differences at baseline in gonadally intact animals. As pointed out earlier, steroidogenic enzymes are also present in nongonadal tissues, especially the brain, thus it is not entirely possible to eliminate effects of sex steroids from all tissues. Moreover, tamoxifen-inducible *Cre* recombinase used to routinely perform lineage tracing and gene inactivation studies in mice has its own problems (406, 407) that are largely ignored and can further confound sex-specific data analysis; tamoxifen antagonizes actions of estrogen receptor-β and inhibits expression of over 70 genes (408), but the contribution of these tamoxifen-regulated genes on study results and outcomes is never accounted for and requires careful consideration. Before mechanisms behind sex differences in physiology and disease can be elucidated, a fundamental understanding of sex differences that exist at baseline, is needed.

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ORIGINAL PAPER

Reflections on the Clinician's Role with Individuals Who Self-identify as Transgender

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Exhibit
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Abstract
The fact that modern patterns of the treatment of trans individuals are not based on controlled or long-term comprehensive follow-up studies has allowed many ethical tensions to persist. These have been intensifying as the numbers of adolescent girls declare themselves to be trans, have gender dysphoria, or are "boys." This essay aims to assist clinicians in their initial approach to trans patients of any age. Gender identity is only one aspect of an individual's multifaceted identity. The contributions to the passionate positions in the trans culture debate are discussed along with the controversy over the official, not falsifiable, position that all gender identities are inherently normal. The essay posits that it is relevant and ethical to investigate the forces that may have propelled an individual to create and announce a new identity. Some of these biological, social, and psychological forces are enumerated. Using the adolescent patient as an example, a model for a comprehensive evaluation process and its goals are provided. The essay is framed within a developmental perspective.

Keywords Human identity · Sexual identity · Gender identity · Gender dysphoria · Ethics

Introduction

This essay derives from my clinical experiences with individuals of all ages who have sought psychiatric care for their discomfort about their gender. I have been involved with these problems since 1973. The clinical process with adults is markedly different than with younger patients. With children and adolescents, the work is fraught with greater worry about outcome, legal uncertainty concerning consent, and ethical tensions. Larger issues are in play, however, with everyone who is contemplating gender change, requesting hormones, or wanting surgery. It is increasingly recognized that the long- term mental health outcomes of these interventions are not clear. Parents, who almost always state they "want the best for their child," look to professionals for the best management approach based on science. The trouble is that current treatment patterns are far more dependent on fashion, politically influenced beliefs, and hope. This is often referred to as best clinical practices. The media has provocatively, if not sagely, termed the controversies about gender transition as a culture war. Its debates are occurring at federal, state, and community levels and are increasingly taking place in courtrooms in the U.S. and the UK. The most common arena of intense disagreement is perhaps the least publicized one—within the family.

Many concepts about trans phenomena have evolved since the early 1970s when few mental health professionals had ever encountered a transsexual person (Pfäfflin, 2011). Psychiatric, psychological, medical, and nursing organizations continue to declare the efficacy of various forms of transition for emancipated adults. Similar pervasive endorsements did not exist for children and early adolescents where ethical concerns, policy, and science conspicuously clashed until 2018 when the American Academy of Pediatrics supported the social transition of grade school trans children and criticized watchful waiting (Rafferty, 2018): "The approach [watchful waiting] is also influenced by a group of early studies with validity concerns, methodologic flaws, and limited follow-up on children who identified as TGD [transgender and gender diverse] and, by adolescence, did not seek further treatment ("desisters")."

Gender patients and their families often face excruciating dilemmas, some of which they feel but cannot articulately express. It is my hope that the following considerations might help clinicians to assist patients and their families with these situations.

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Gender Identity Is One Element of Individual Identity

Erikson's (1968) body of work advanced the understanding of human development by introducing the concepts of age-expected developmental tasks, developmental lines, and virtue vs. failure labels for eight developmental phases of life. Success in the tasks of development, always individually varied because of familial and larger cultural influences, eventually created competence in the developmental lines of vocation, friendship and love, sexual behavior, stability of sexual identity, and self-management. He emphasized that how well previous tasks were accomplished determined when and how completely subsequent ones could be achieved. He proposed that psychiatric symptoms were generated by developmental failures.

Today's concepts of identity in general, and sexual identity in particular, are far more multifaceted than Erikson's descriptions (Stevens, 1983). Modern adult psychiatry has not emphasized adult development; it is preoccupied with symptom patterns and their treatment. Psychiatry recognizes trauma-induced dissociation, personality disorders (particularly borderline type), psychosis, and gender dysphoria as containing identity struggles. Child-oriented and psychodynamic therapists tend to be more attuned to developmental processes than those committed to treatment primarily based on DSM-5 diagnosis. The larger world understands identity in broader terms. Identity crises occur when individuals lose their jobs, retire, are widowed, get divorced, discover homosexual attraction or have their first affair, etc. There are numerous elements of human identity that can create crises. Here are some other elements: religion, ethnicity, economic status, intelligence, vocation, size (height/weight), athleticism, sense of attractiveness, sociability, political, and dietary. A consideration of an extended list of identity elements clarifies the dimensions of individuality and illuminates lives as multifaceted processes. Many of the aspects of identity are not clinically relevant at any particular time. National identity, for instance, may not be germane until one travels to another country or one is an immigrant. Racial identity heightens in the face of flagrant violations of individual rights. The number of identity elements in play at any given time is not as important a foundational concept as the idea that every person's sense of self is multifaceted.

Most elements of identity are:

1. Associated with unique values and sensibilities
2. Passionately held
3. The source of a person's personality development, relationships, and career
4. The explanation of individuality
5. Shapers of friendship patterns
6. Evolve from youth to old age, predictably or unpredictably, subtly or dramatically
7. Capable of enhancing, limiting, or destroying one's life.
8. The source of emotional and physiological symptoms because of intrapsychic or interpersonal conflict
9. A cursory statement of a larger subject

Intersectionality

One academic gender identity topic that receives considerable attention is the intersectionality of identity components (Abed et al., 2019). For example, it is well known that the physical disease and mortality risks to poor black trans females with a high school education compared to wealthy white college educated trans women are far greater in terms of HIV infection (Baral et al., 2013). But when all the elements of a person's current identity are considered, the degree of intersectionality becomes far broader than what is usually emphasized. Intersectionality introduces the clinician to a paradox. It helps clinicians to view each trans patient as unique and to plan accordingly. When thinking about public health, political, legal, and civil rights, however, we then view trans communities as a unitary group.

Transgender Phenomena Evoke Intense Countertransferences

Atypical gender presentations elicit strong responses in most individuals. This is perhaps less so today than decades ago, but opinions can still be intense and polarizing. Numerous factors contribute to their intensity making it difficult to discern which of these factors organize a person's viewpoint.

1. *Fascination* with sex and gender change. The question, "Can sex be changed?" has long been explored in the arts, where men and women have for centuries been presented as the opposite sex in humor, drama, dance, opera, and popular music. Today, it is better understood that, in a basic biological sense, sex cannot be changed, but gender presentation can, with or without medical assistance.
2. *Political sensibilities*. The political Right may consider transgenderism morally wrong and dangerous to societal health. Its approach to studies and clinical services is skepticism. The political Left may consider transgenderism the courageous pursuit of self-expression, a civil right, and another praiseworthy social movement to eliminate discrimination. Its approach to studies and clinical services is positive.
3. *Religious sensibilities*. Theological assumptions may resemble either political position. In the United States, Christian religions tend to lean to the political Right.
4. *Orientation sensibilities.* Membership in the heteronormative or sexual minority communities may influence unease with, or endorsement of, transgender phenomena.

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5. *Intuitive sensibilities*. When people are neither religious nor political, they may have a "gut instinct" that one should be supportive or wary of trans phenomena. Such sensibilities are best reflected through age; younger and older people have different life experiences with which to be intuitive.

Professionals overlay their attitudes from the above forces with the aspiration to be morally, politically, and religiously neutral in their clinical work. Three additional factors may also contribute to their private reactions.

1. *Personal clinical experience*. Before the evaluative gatekeeping functions of mental health professionals were downgraded in the 7th edition of the Standards of Care by WPATH (World Professional Association for Transgender Health) (Coleman et al., 2011), clinicians occasionally encountered hostile adult patients who demanded hormones or a surgery recommendation. A disrespectful hostile patient tends to create clinical wariness toward future trans individuals. With WPATH's policy change, gender specialists became wedded to affirmation. The frequency of unpleasant clinical experiences diminished when patients were efficiently given what they desired. Nonetheless, when an affirmed patient does not do well after affirmation, a medical or surgical intervention, clinicians may hesitate more with subsequent patients,

2. *Clinical reports from innovators*. Pioneering studies of transgender treatments were compassion-based attempts to improve the lives of adults with convincing long standing painful gender/sex incongruity. The seemingly largely successful interventions were felt to not require controlled studies. Such studies might have compared predetermined comprehensively outcomes of those given hormones or a particular surgery with those who were delayed or provided psychotherapy. Conviction about the efficacy of these increasingly popular interventions made it seen to be unethical to withhold hormones and surgery to those who desired them. Individual follow-up studies that were done tended to be of short duration, with a relatively small number of patients using differing outcome measures from study to study. Many individuals in some studies were lost-to-follow data. Nonetheless, the findings encouraged gender specialists about the helpfulness of transition, hormones, and surgery. Once clinicians facilitate any form of transition, they tend to believe they are rescuing patients from endless despair and enabling happy, successful, productive lives.

3. *Knowledge of scientific studies*. Many believe that science has already firmly established the ideal way to treat gender patients. Many institutions and clinicians ignore studies that do not support their preferred concepts. For example, high desistance rates in trans children have been demonstrated in 11 of 11 studies (Cantor, 2020) but a committee of pediatricians created a policy of supporting transition of grade school children (Rafferty, 2018). One of these studies, recently published, reported follow-up of 139 Canadian boys, 63% who met criteria for gender identity disorder and 37% were subthreshold for the diagnosis. The study found that 88% had desisted at a mean age of 20.5 years (range, 13–39 years) (Singh et al., 2021). In 2020, three critiques of trans supportive interventions demonstrated that published scientific papers were flawed (Biggs, 2020; D'Angelo et al., 2021; Kalin, 2020). In 2020, a UK court put a halt to puberty blocking hormones and the use of cross-sex hormones for those under age of 16 and required 16- and 17-year-olds to individually have court approval before beginning hormones. (https://www.judiciary.uk/judgemenets/r-on-the-application-of-quincey-bell-and-a-v-tavistock-and portman-nhs-trust-and-others/). By evidence-based medicine standards (Masic et al., 2008), it has long been clear that the quality of science underlying interventions is low (Byne et al., 2012). In an objective evaluation of relevant transgender Standards of Care, WPATH's guidelines, which clinicians have long used to justify their care, was given poor scores on relevant domains (Dahlen et al., 2021).

The interplay of the above ten factors make every clinician and family a bit uncertain what the limits of knowledge are and why this topic creates partisan passions.

What Is Sexual Identity?

In my view, childhood and early adolescent sexual identity is incompletely formed. Later adolescent and adult sexual identity consists of gender identity, orientation, and intention components (Levine, 1989). Each of the components has internal erotic and external behavioral dimensions. Answers to three questions define an individual's private, psychological, conscious, erotic sexual identity components: When I think of myself in terms of maleness and femaleness, who am I (gender identity)? Which gender (with biological sex assumed) attracts me romantically and sexually (orientation)? What do I want to do with a partner's body or have done to my body during sexual activity (intention)? Erotic dimensions are not necessarily reflected in the behavioral aspects of the three components. A masculine appearing boy may privately think he is a girl. A lesbian may have heteroerotic attractions and fantasies. A sexually conventionally behaving adult may have recurrent sadomasochistic desires.

The tripartite sexual identity portion of the self is not usually appreciated in transgender evaluations, clinical care, education, or research. Sexual orientation, which WPATH asserts to be entirely distinct from gender identity (Coleman et al., 2011),

has become less important in trans care because all sexual orientations are observed in trans populations and because a person's orientation may adapt with social opportunity (Diamond et al., 2017). From its inception, most research has ignored the intention component as though it has nothing to do with the development of the sexual self and has no influence on either the origins or evolution of gender identity or orientation at any time in life (Green, 1987; Zucker et al., 2016). An unknown percentage of trans individuals have conventional intentions, but when paraphilic interests are present, the individual's private sexual identity reflects this. A bisexual trans man who advertises himself as a submissive reflects all three dimensions of sexual identity.

Is Transgenderism Maladaptive?

The many specific clinical, political, legal, and moral uncertainties concerning transgender phenomena ultimately stem from one underlying question: Is transgenderism an abnormality? The words "abnormality" and "psychopathology" seem to quickly move clinicians into camps and appear to some as politically incorrect (Levine & Solomon, 2009). "Is a trans identity maladaptive?" may be a somewhat less incendiary phrase. There seem to be almost three answers.

It is not inherently maladaptive! The official policy of the American Psychiatric Association (Byne et al., 2012) and other professional organizations is that all forms of gender identity are normal: "Being transgender or gender variant implies no impairment in judgment, stability, reliability, or general social or vocational capabilities." Although relatively uncommon, trans binary and non-binary identities are viewed as manifestations of human developmental diversity. The argument is made that psychiatry considered gay and lesbian identities to be abnormal until 1974. Today, when this question is asked about trans people, it is skeptically viewed as the reinvention of past erroneous policies toward homosexual persons. The "No!" answer has found powerful expression in the ICD-11's renaming the diagnosis of Gender Dysphoria as Gender Incongruence and moving it from the Mental Disorders section into Factors Affecting Sexual Health (WHO, 2018). Asymptomatic individuals who are not distressed by their unconventional gender identities bolster the argument (Askevis-Leherpeux et al., 2019). Advocates of the ICD-11 change have stated its motivation to normalize is to diminish symptoms due to self-hatred and to lessen discrimination (Reed et al., 2016). Institutional declarations of normality have not been accompanied by its evidential basis.

It is inherently maladaptive! For a several decades, trans phenomena were considered developmental abnormalities. The evidence was suspiciously intuitive but was also based on the high prevalence and persistence of psychiatric symptoms (Mayer & McHugh, 2016). Cross-sectional studies of these individuals, before and after social, hormonal, or surgical transitions have repeatedly affirmed this (Bränström & Pachankis, 2020a; Dhejne et al., 2016). The "Yes!" view assumes that the crystallization of trans identity is a well-intentioned, but unrealistic, solution to an unsatisfying family, interpersonal, biological, or intrapsychic environment. The new identity promises an escape—a temporary exhilarating rebirth that is fueled with intense passion. This view gains strength from health services research that describes trans populations as vulnerable groups in need of numerous protections (Liszewski et al., 2018). Data have demonstrated the need for continuing psychiatric assistance after surgical transformation (Bränström & Pachankis, 2020a, 2020b; Dhejne et al., 2011; Simonsen et al., 2016). This population's substance abuse rates, although rarely measured in trans outcome research, is known to be significantly elevated (Compton & Jones, 2021). If persistent disabling psychiatric symptoms with frequent suicidal ideation do not qualify as maladaptive, clinicians might wonder what does? Assumptions that all trans phenomena are maladaptive solutions to prior life adverse circumstances seem too extreme when highly functional otherwise asymptomatic transgender individuals are encountered.

It is an irrelevant question! This view asserts that changing social roles and modifying the body of trans people is the only way to eliminate the distress of incongruence. Since these treatments cure gender dysphoria, the relevant social issues are how to increase access through insurance coverage, better education of health care professionals, and reduce discrimination (Ard & Keuroghlian, 2018). This answer seems to position the civil rights of gender diverse individuals over other considerations.

The Natural History of Transgender Lives Is Not Known

The question for any treatment is, "How does it alter the natural course of the condition?" "Natural history" means the typical untreated course of a condition. Is the problem self-limiting, does it leave a permanent deficit, or cause early disability or death? Dramatic treatments have been offered to trans patients over a 50-year period: support through affirmation, transitioning in society, cross-sex hormones, mammoplasty or mastectomies, genital reconstruction, orchiectomy, facial feminization surgeries, and lately puberty blocking hormones. The assumption has been that these treatments create superior outcomes compared to no treatment. However, no controlled study has tested any of these treatments nor has prospectively designed follow-up studies of those undergoing treatment been accomplished (Kalin, 2020). Bränström and Pachankis' (2020a) optimistic conclusions that claimed that transgender surgeries reduced subsequent mental health services utilization was retracted after seven critical letters to the editor and

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two statisticians reanalyzed their data (Bränström & Pachankis, 2020a, 2020b).

What clinicians know must be distinguished from what they believe about the natural history and the effect of treatment on the course of trans' lives (Zucker, 2018). Psychiatric disorders are known to impair the quality of life. Clinicians should be concerned about what happens to these individuals as they move through their lives. There are only a few comprehensive national studies of this relevant question and these have worrisome results (Bränström, & Pachankis, 2020a, 2020b; Dhejne et al., 2011; Simonsen et al., 2016). In its place numerous cross-sectional studies converge on the understanding that trans communities fare less well than the general populations along many important dimensions.

Disagreements arise when these differences are explained. The minority stress hypothesis asserts that the psychiatric co-morbidities derive from social stigma that originates both in families and the culture. Young people internalize a negative attitude in the form of self-castigation, which is labeled transphobia. Transphobia is analogous to internalized homophobia within some gays and lesbians. This hypothesis is only controversial because some proponents invoke it as the only explanation of the co-morbidities. There must be other sources as well, as cis individuals also have similar but less prevalent mental problems. Incongruence itself is difficult to bear; the deeply felt aspiration to change gender expression is not fully possible, trans people have their own fears about the social, sexual functional, and relational costs of transition, and the transitions do not necessarily create lasting worry-free self-confidence in their new gender identity. When patients appear to be mentally ill or functionally impaired, clinicians confront the paradox between the policy that there is no psychopathology inherent in any trans gender form and the patient in front of them, WPATH provided a way around the paradox: "if significant physical or mental health concerns are present, they should be reasonably well controlled" (Coleman et al., 2011, p. 34). "Reasonably well controlled," however, is a subjective appraisal by individual clinicians (Janssen et al., 2019). While professionals employ the term co-morbidity, our understanding of how they relate to one another—entirely separate or vitally interconnected—remains poor. Who can assert with clinical certainty that an individual's symptom pattern and functional impairments have nothing to do with what the patient is trying to achieve? A survey of European endocrinologists reported ethical discomfort from not knowing the answers to fundamental questions about their adolescent patients, including "Is a trans identity a normal phenomenon?" (Vrouenraets et al., 2015). It is not unreasonable to worry about the long-term outcomes.

Gender Dysphoria May Appear Anywhere in the Life Cycle

Some children express discomfort with their assigned gender and manifest strong cross-gender interests as early as age three. Dramatically increasing numbers of adolescents, particularly girls who never before expressed interest in or manifested cross-gender behavior are now declaring a trans identity (Nieder et al., 2011). Late adolescents and young adults who thought of themselves as gay, polyamorous, or kink may later consolidate a trans identity. Heterosexual men who long have been sexually aroused by female garments may announce that they are trans in mid-life. Inmates in male and female prisons, many of whom were bisexually behaving adolescents, are increasingly declaring themselves to be transgendered (Levine, 2016). Rarely, a person over age 60 who never recognized any homosexual or paraphilic interest or behavior changes gender. While the modal age of onset is decreasing in many countries (de Vries & Cohen-Kettenis, 2012; Eisenberg et al., 2018), gender identity, orientation, and intention can evolve throughout life (Diamond et al., 2017; Friedman & Downey, 2010; Lawrence, 2013).

It Is Relevant to Consider "Why Now?"

Whenever trans identities emerge, many of the patients feel a drivenness to express themselves in ways that often make them and their family uneasy. Family members, clinicians, and an occasional patient ask, "Why is this occurring now?" Posing this question is a principle of good clinical management for any new symptom, for example, asking what occurred that precipitated a depressive state. Many affirmative therapists find this question to be irrelevant and unethical because of the greater need to respect patient autonomy. They may offer the idea that a trans person, at any age, knows best what is needed. It is worth recalling that today's passion can be tomorrow's regret. Making a diagnosis of gender dysphoria is easy. Thinking about what it is a response to is not.

Causal Models of Gender Dysphoria (Incongruence)

Because the mechanisms of production of gender incongruence are not scientifically established, clinicians may explain the phenomena with their preferred assumptions. The ethical issue is how the clinicians' beliefs are represented to patients, families, and colleagues.

Some assume that the cause of a trans identity is ultimately from combinations of genetics, neural development, prenatal hormones (Roselli, 2018) or post-natal environmental-induced gene expression. A more interactive nature-nurture explanation is illustrated by the elevated incidence of gender dysphoria

among the autistic (Leef et al., 2019; Mahfouda et al., 2019). Autism is understood to be primarily the result of embryonic processes on brain development (Estes et al., 2019). The condition often generates social isolation, unusual interests, and rigid idiosyncratic thinking. These impairments may predispose patients to a pervasive discomfort with the self and intense degrees of loneliness, which eventually generates a hopeful search for relief through changing gender expression. A third group of explanations involve processes that may begin with poor early life bonding that leaves the youngster nervous, unconfident, or unwilling to be like a particular parent. A separation from a parent, either literally or emotionally, seems to be an inciting factor in some children and teens. At times a failure to separate from mother seems germane (Coates & Person, 1985). Trans children are over represented among runaways, those in foster care, and among adoptees (Salazar et al., 2018; Shumer et al., 2017; Zucker & Bradley, 1998). The prevalence of trans identities in prisons is much higher than in the general population (Osborne & Lawrence, 2016); inmates often have profoundly disruptive early life histories. Most child victims of egregious levels of physical, verbal, and sexual abuse and/or parental neglect do not become trans, but those who do in childhood or adulthood raise the question whether trans identity is simply an unusual outcome of common adversities.

Adolescent onset of gender dysphoria must bear some relationship to puberty when the body is changing, sexual drive appears, and awareness of social interactions and social status are heightened. One cannot discount the pervasive influence of the Internet in influencing current adolescents. Most adolescents undergo psychological strains and stresses that are only partially understandable to them. It may be possible that some adolescents who declare a trans identity are responding to ordinary developmental angst in an extraordinary manner. Some may be attracted to the cause of improving the world through expanding notions of gender. New declarations of a trans identity among early adolescents might also be understood as part of the search for how to define the self rather than the final resolution of this search (Littman, 2018). This hypothesis is in keeping with the view of adolescence that encompasses a conflictual search for a consistent sexual sense of the self (Blos, 1962; Erikson, 1968). In the light of current knowledge (Kendler, 2019), it seems unwise to assume that there is one etiology for these phenomena.

One View of an Evaluation

While there have been reports of psychotherapeutic approaches to trans children and adolescents (Evans & Evans, 2021), the vast majority of the recent literature on management of these patients emphasizes the importance of affirmation, support for transition, diminishing internalized transphobia, and optimism about having a fulfilling life in what is labeled the authentic gender. Some advocates have declared the topic of trans care to be under researched (Winter et al., 2016). This idea relates less to the explosive number of articles being published (Sweileh, 2018), and more to the relevant unanswered questions about the efficacy of the well-known treatments and alternative approaches. The evaluation process that precedes affirmative social and medical support focuses on the criteria of the diagnosis and screening for conspicuous mental illness (Coleman et al., 2011). This represents an almost singular intense focus on gender identity as though other aspects of identity and function are irrelevant. Today, the diagnosis of gender dysphoria generates such management for older teens and adults in as little as one session, as reported to me by numerous patients and families.

Using the adolescent patient as one example, I want to discuss another approach. Any approach is modifiable based on factors such as, where the family resides, their economic resources, their structure, custody of the patient, the degree of emancipation, and previous transition. Evaluation is a bit of a misnomer as the process I am describing is also educative.

Duration and Elements of the Process

For out of town evaluations, two days provide an ample opportunity. The evaluation begins with a joint session with patient, parents, and siblings and is followed by separate processes, including psychological testing. The first meeting with the patient generally lasts two hours, a third meeting the next day lasts an hour. Parents are seen for two hours and offered a chance to meet again the following day. Siblings are seen for an hour. We also like to have a 50-min educational session about gender dysphoria and the state of science with the family.

For in town families, the evaluation can be spread out to gain the advantage of seeing the patient and family in different mood states and after the initial anxiety somewhat dissipates. The time slots are the same, although more time can be taken with the patient and the parents if it is deemed necessary. The educational session is done prior to the final formal session for recommendations and treatment planning. The final meeting usually requires 45–60 min. The parents choose whether the siblings attend.

Professionals Involved

One professional is the primary evaluator, with others playing defined roles. The primary evaluator and the professional who will spent the majority of time with either the patient or the parents are present at the initial and final family meetings. The initial session clarifies the family's expectations, reviews the process, and provides an overview of sequence of events that led to the evaluation. It often reveals layers of conflict between the patient and parents and between the parents. Other therapists

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can meet with the siblings to ascertain their views of the family circumstances, their worries about and support of the patient. The participation of these additional professionals necessitates a professionals-only meeting to create a consensus about the relevant issues.

Subject Matter for Inquiry

One cannot expect a teen of any age to provide a comprehensive developmental history. Parents can share the circumstances of the pregnancy, the health of the pregnancy and post partum period, and the developmental sequences of their child's life. This includes the child's challenges, previous physical and psychological treatments, characteristic patterns, quality of relationships with each family member, and behavioral and verbal manifestations concerning gender nonconformity. The patient can provide the vital subjective narrative about the development of gender identity and can share concepts about personal orientation and intention, sexual involvement with others, what has been learned from the Internet, fears about their trans identity, and what they desire for their future. Siblings often illuminate other relevant aspects both about parents and the patient. The goal is to reveal an accurate picture of the patient's capacities, accomplishments, developmental challenges, symptom patterns, and motives for and degrees of gender incongruence.

Concepts to be Communicated

Professional values are communicated to the family. Some of these are stated in the initial meeting with the family. They are repeated or introduced when it is apparent that one or more of the family members do not yet grasp them.

1. We aim to reestablish or to maintain the family's bond to one another (in most instances). Parents and patient are not to reject one another.
2. Parents are not the trans teen's enemy when they express concerns about their offspring's future; they have the right and responsibility to do so. The patient may be too young, unwilling, or unable to verbalize his or her concerns about the new identity. The parents may be expressing what the patient actually thinks, but is unable to say.
3. The adolescent is in charge of determining his or her gender identity, now and in the future.
4. It is important to identify and discuss the forces that moved the teen in the direction of a new identity.
5. Humans always have ambivalence about major life changes even when they deny it.

Types of Recommendations

We begin the final session by asking the family members how they view what has occurred. Parents are usually relieved about what has been revealed. The patients often say that the process increased their self-awareness and that they appreciate being recognized as having more dimensions than just gender identity. Most forcefully add that they are not abandoning their trans identity.

The adolescent patient and family circumstances vary considerably. The evaluation seeks to clarify many aspects of the patient's identity as well as the patient's past and current developmental challenges. Our recommendations begin with the identified mental health issues. These often include: separation anxiety (particularly for boys), social anxiety (most intense among those with autism), dislike of a parent or parents (particularly among divorced and chronically dysfunctional parents), depression and anxiety about peer relationships, suicidality, paraphilic excitements, substance dependence, eating disorders, other identity conflicts, and autistic traits. The idea that "I am simply trans," is viewed as either a defense against understanding what has been going on within the person and within the family or simply a lack of understanding.

We do not recommend puberty blocking hormones and think it is prudent not to initiate cross-sex hormones prior to age 18. As many state that they desire hormones, we want to clarify what they hope the benefits will be now and in the future. We recommend an informed consent process for those seriously considering endocrine therapy. This consists of extended discussions to consider what is known about the medical, social, relational, and psychological risks of transition with or without hormones (Levine, 2019). We emphasize that this subject should not be covered quickly with a surrogate document or video. Some patients, however, come to the evaluation surreptitiously on hormones.

We recognize the vital importance of the patient's gender identity and its impact on the future of the entire family. We want to maximize the patient's ability to meaningfully address the identified problems and to increase the chance for success if the patient persists over time in the current gender identity. For local patients we offer our staff for psychiatric and psychotherapy services. We share our view that, despite our experience with this problem, it is the team of parents and patient, not the professional staff, who will have to discern if and when further transition is to occur. We recommend that they consider our findings at home over time. Regardless of their decisions, we ask for at least one follow-up session in three months in person, virtually, or by email.

Final Report

If the family desires, the primary evaluator will issue a report for their use in the future. The report will have input from each of the involved professionals. It is particularly recommended for those coming from out of town.

A Concluding Observation

The gender revolution has taught that there are more than two possible gender outcomes (Levine, 2020). The transsexuals of the 1960-1990s are increasingly the non-binary people of today (Motmans et al., 2019). Bodily discomforts and sense of not liking one's sex have always existed in some individuals, but now there are new cultural options to deal with these discomforts. Increasing numbers of older trans adolescents and young adults are labeling themselves as genderqueer, gender fluid, pangender, third gender, hybrid gender, and more. These terms recognize gender identity as a developmental process and appreciate that some trans identified persons will not use hormones or obtain surgery (Bränström & Panchankis, 2020a; Nieder et al., 2020) and some will think of themselves as a person with a trans past (Levine, 2018; Littman, 2018). I imagine Erikson would be pleased to know that some trans people recognize he was right in emphasizing that development was a continuing process throughout life.

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SEGM
SOCIETY FOR EVIDENCE BASED GENDER MEDICINE

Exhibit
SL 09

July 2, 2021

One Year Since Finland Broke with WPATH "Standards of Care"

Finland prioritizes psychotherapy over hormones, and rejects surgeries for gender-dysphoric minors

A year ago, the Finnish Health Authority (PALKO/COHERE) deviated from WPATH's "Standards of Care 7," by issuing new guidelines that state that psychotherapy, rather than puberty blockers and cross-sex hormones, should be the first-line treatment for gender-dysphoric youth. This change occurred following a systematic evidence review, which found the body of evidence for pediatric transition inconclusive.

Although pediatric medical transition is still allowed in Finland, the guidelines urge caution given the unclear nature of the benefits of these interventions, largely reserving puberty blocker and cross-sex hormones for minors with early-childhood onset of gender dysphoria and no co-occurring mental health conditions. Surgery is not offered to those <18. Eligibility for pediatric gender reassignment is being determined on a "case-by-case basis" in two centralized gender dysphoria research clinics.

The qualifying criteria for gender reassignment of youth, articulated in the 2020 Finnish treatment guidelines, are consistent with the original Dutch protocol, but represent a significant tightening of the more recent practices promoted by WPATH. WPATH Standards of Care 7 (SOC7) allows for hormones and surgery to be offered to youth with a pubertal-onset of gender dysphoria which is frequently complicated by mental health problems or neurocognitive comorbidities (such as ADHD and autism-spectrum disorders), following only a cursory assessment. Assessments by mental health professionals can be bypassed altogether according to the "informed consent model" of care endorsed by WPATH SOC7.

The Finnish guidelines warn of the uncertainty of providing any irreversible "gender-affirming" interventions for those 25 and under, due to the lack of neurological maturity. The guidelines also raise the concern that puberty blockers may negatively impact brain maturity and impair the young person's ability to provide informed consent to the subsequent and more irreversible parts of the Dutch protocol: cross-sex hormones and surgeries.

The Finnish guidelines reflect the growing international concern about the unexplained sharp rise in adolescents presenting with gender dysphoria, which is occurring in increasingly complex developmental and mental health contexts, and often without a childhood history of gender-related distress. There are significant questions as to whether the Dutch protocol (hormonal and surgical interventions for youth), designed for a distinctly different population of high-functioning teens with childhood-onset cross-sex identification and with no significant mental health comorbidites, is appropriate for this novel population.

The guidelines reference a recent Finnish study, which noted that adolescents who were high functioning before cross-sex hormones continued to do well after, but those who had "*psychiatric treatment needs or problems in school, peer relationships and managing everyday matters outside of home continued to have problems.*" The study concluded that *"medical gender reassignment is not enough to improve functioning and relieve psychiatric comorbidities.*"

The guidelines also mentioned that a key study on puberty blockers, which utilized a comparison group of waitlisted adolescents, failed to show a statistically significant difference between the treated and waitlisted groups at the study end-period at 18 months. Although in the abstract of that study, the authors chose to highlight the small improvements in the puberty-blocked group at 12 months, the actual study conclusion – which remains behind a paywall and hidden to most readers – showed that by 18 months, no significant differences could be found.

The Finnish Health Authority states that the guidelines will not be further revised until research is able to: explain the recent sharp rise in adolescents presenting with gender dysphoria; determine whether transgender identities in this population are stable or will evolve; assess whether gender-affirming treatments are able to improve health outcomes of those who present with co-occurring mental health problems, including improvements in depression and suicide; and quantify the rate of regret.

The Finnish gender identity services program is a worldwide leader in pediatric gender medicine. The 2020 Finnish guidelines represent a strong signal that the pioneers of pediatric medical transition are concerned about unintended harm to the growing number of gender dysphoric adolescents presenting for care. The guidelines echo the concerns voiced by the principal investigator of the Dutch protocol, who warned the medical community in a commentary published in *Pediatrics* in 2020 that a "*new developmental pathway"* of gender dysphoria has emerged, including patients with "*postpuberty adolescent-onset transgender histories*" and "*more mental health challenges*," adding, "*these youth did not yet participate in the early evaluation studies. This raises the question whether the positive outcomes of early medical interventions also apply to adolescents who more recently present in overwhelming large numbers for transgender care*."

While the official summary of the guidelines has been available on the Finnish Health Authority's site for a year (see June 2020), SEGM has just completed the translation of the full text of the Finnish guidelines for minors. **It is an unofficial translation**. The original and the translated versions of the guidelines are attached below.

Attachments
Finnish_Guidelines_2020_Minors_Unofficial Translation.pdf
Finnish_Guidelines_2020_Minors_Original.pdf

BMJ Open

Exhibit
SL 10

International clinical practice guidelines for gender minority/trans people: systematic review and quality assessment

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ABSTRACT

Objectives To identify and critically appraise published clinical practice guidelines (CPGs) regarding healthcare of gender minority/trans people.

Design Systematic review and quality appraisal using AGREE II (Appraisal of Guidelines for Research and Evaluation tool), including stakeholder domain prioritisation.

Setting Six databases and six CPG websites were searched, and international key opinion leaders approached.

Participants CPGs relating to adults and/or children who are gender minority/trans with no exclusions due to comorbidities, except differences in sex development.

Intervention Any health-related intervention connected to the care of gender minority/trans people.

Main outcome measures Number and quality of international CPGs addressing the health of gender minority/trans people, information on estimated changes in mortality or quality of life (QoL), consistency of recommended interventions across CPGs, and appraisal of key messages for patients.

Results Twelve international CPGs address gender minority/trans people's healthcare as complete (n=5), partial (n=4) or marginal (n=3) focus of guidance. The quality scores have a wide range and heterogeneity whichever AGREE II domain is prioritised. Five higher-quality CPGs focus on HIV and other blood-borne infections (overall assessment scores 69%–94%). Six lower-quality CPGs concern transition-specific interventions (overall assessment scores 11%–56%). None deal with primary care, mental health or longer-term medical issues. Sparse information on estimated changes in mortality and QoL is conflicting. Consistency between CPGs could not be examined due to unclear recommendations within the World Professional Association for Transgender Health Standards of Care Version 7 and a lack of overlap between other CPGs. None provide key messages for patients.

Conclusions A paucity of high-quality guidance for gender minority/trans people exists, largely limited to HIV and transition, but not wider aspects of healthcare, mortality or QoL. Reference to AGREE II, use of systematic reviews, independent external review, stakeholder participation and patient facing material might improve future CPG quality.

PROSPERO registration number CRD42019154361.

Strengths and limitations of this study

- First systematic review to identify and use a validated quality appraisal instrument to assess all international clinical practice guidelines (CPGs) addressing gender minority/trans health.
- International CPGs were studied due to their influential status in gender minority/trans health, though further research is needed on national and local CPGs.
- An innovative prioritisation exercise was performed to elicit stakeholders' priorities and inform the setting of AGREE II (Appraisal of Guidelines for Research and Evaluation tool) quality thresholds, however these stakeholder priorities may not be applicable outside the UK.
- An inclusive approach using wide criteria, extensive searches and approaching key opinion leaders should have allowed the study to identify all relevant international CPGs, however it is possible some may have been missed.

INTRODUCTION

Assessing the quality of clinical practice guidelines

Evidence-based practice integrates best available research with clinical expertise and the patient's unique values and circumstances. High-quality clinical practice guidelines (CPGs) support high-quality healthcare delivery. They can guide clinicians and policymakers to improve care, reduce variation in clinical practice, thereby affecting patient safety and outcomes. The Institute of Medicine defines CPGs as: 'statements that include recommendations intended to optimise patient care that are informed by a systematic review of evidence and an assessment of the benefits and harms of alternative care options',[1] although other definitions exist.[2] Recommendations are used alongside professional judgement, directly or within decision aids, in training and practice. CPGs are important but have limitations depending on evidence selection and

development processes.[3] Grading of Recommendations, Assessment, Development and Evaluation (GRADE) was developed to address the evidence that is selected and appraised during CPG development.[4–6] Using a systematic approach and transparent framework for developing and presenting summaries of evidence, GRADE is the most widely adopted tool worldwide for grading the quality of evidence and making recommendations,[7] but does not alone ensure a CPG is high quality. Strength of evidence is only one component of what makes a 'good' CPG; factors such as transparency, rigour, independence, multidisciplinary input, patient and public involvement, avoidance of commercial influences and rapidity[8 9] should also be considered. Broader domains of CPG quality are included in the Appraisal of Guidelines for Research and Evaluation instrument AGREE II.[10–12] Despite widely recognised principles and methods for developing sound CPGs, current research shows that guidelines on various topics lack appropriate uptake of systematic review methodologies in their development,[13] give recommendations that conflict with scientific evidence[14] or do not adequately take into account existing CPG quality and reporting assessment tools.[15] This emphasises the ongoing need to appraise guidelines to ensure evidence-informed care.

Healthcare for gender minority/trans people

'Trans' is an umbrella term for individuals whose inner sense of self (gender identity) or how they present themselves using visual or behavioural cues (gender expression) differs from the expected stereotypes (gender) culturally assigned to their biological sex.[16] 'Gender minority' is an often-used alternative population description. Some gender minority/trans people may seek medical transition, which involves interventions such as hormones or surgery that alter physical characteristics and align appearance with gender identity. Patient numbers referred to UK gender identity clinics and length of waiting lists have increased in the last decade, particularly for adolescents,[17] a phenomenon seen elsewhere.[18] Gender minority/trans people may have continuing, sometimes complex, life-long healthcare needs whether they undergo medical transition or not. Gender minority/trans people may experience more mental health issues such as mood and anxiety disorders,[19] substance use[20] and higher rates of suicidal ideation.[21] They may seek assistance with sexual health, mental health,[22] substance use disorders,[23] prevention and/or management of HIV[24] as well as usual general health enquiries. However, they may encounter difficulties in accessing healthcare,[25] reporting negative healthcare experiences,[26] discrimination and stigma.[27 28] Like all individuals, gender minority/trans people require high-quality evidence-based healthcare[25 29] addressing general and specific needs.

Guidelines used internationally and in the UK

The quality of current guidelines on gender minority/trans health is unclear. The World Professional Association for Transgender Health (WPATH) Standards of Care Version 7 (SOCv7)[30] represent normative standards for clinical care, acting as a benchmark in this field.[31] Globally, many national and local guidelines[32–35] are adaptations of, acknowledge being influenced by, or are intended to complement WPATH SOCv7,[30] despite expressed reservations that WPATH SOCv7[30] is based on lower-quality primary research, the opinions of experts and lacks grading of evidence.[36]

In the UK, an advocacy group worked to incorporate WPATH SOCv7[30] into national practice.[37] WPATH SOCv7[30] informs National Health Service (NHS) gender identity clinics[38] and guidelines produced by the Royal College of Psychiatrists (without use of GRADE).[39] No CPGs were available from the National Institute for Health and Care Excellence (NICE), Scottish Intercollegiate Guidelines Network (SIGN), British Association of Gender Identity Specialists, or medical Royal Colleges, although the Royal College of General Practitioners issued a position statement on gender minority/trans healthcare in 2019.[40] Assessing quality of international CPGs such as WPATH SOCv7[30] has practice implications for the NHS[38] and private sector. CPGs with international scope may present additional challenges (eg, the implementability of key recommendations might not be easily translated among different contexts) but they seem to influence discourse around gender minority/trans health.[36] No prior study has investigated the number and quality of guidelines to support the care and wellbeing of gender minority/trans people. The purpose of this research was to identify and critically appraise all published international CPGs relating to the healthcare of gender minority/trans people.

METHODS

Approach/research design

The rationale was to identify the key CPGs available to healthcare practitioners in this field of clinical practice. Following preliminary searches, we chose international CPGs in view of WPATH's influence within the UK and elsewhere, and to avoid 'double-counting'. We considered AGREE II[10–12] the most appropriate tool; it is the most comprehensively validated and evaluated instrument available for assessing CPGs,[41 42] designed for use by non-expert stakeholders[10] such as healthcare providers, practicing clinicians and educators.[11] It benefits from clear instructions and prompts regarding scoring and several people applying the criteria independently (a minimum of two reviewers, but four are recommended). AGREE II synthesis calculates quality scores from 23 appraisal criteria organised into six key domains (scope and purpose, stakeholder involvement, rigour of development, clarity of presentation, applicability, editorial independence) and an overall assessment of 'Recommend for use?' (answer options; yes, no, yes if modified). This systematic review was conducted according to a prespecified PROSPERO protocol https://www.crd.york.ac.uk/prospero/display_record.php?RecordID=154361

uploaded 19 December 2019. The MEDLINE strategy was straightforward; although not formally processed,[43] it was peer-reviewed by an information specialist.

Inclusion and exclusion criteria

We defined a CPG as a systematically developed set of recommendations that assist practitioners and patients in the provision of healthcare in specific circumstances, produced after review and assessment of available clinical evidence.[1 2 44–46] CPGs published after 1 January 2010 were eligible if they (or part thereof) specifically targeted patients/population with gender minority/trans status and/or gender dysphoria, were evidence-based, with some documentation of development methodology, had international scope (more than one country, defined as a Member State of the United Nations) and were an original source. We chose the time frame to focus on the most recent guidelines, currently applicable to practice and to include WPATH SOCv7.[30] CPGs were eligible if they met the following inclusion criteria: participants/population was adults and/or children who are gender minority/trans with no exclusion due to comorbidities or age although differences/disorders in sex development (intersex) were excluded; exposure/intervention was any health intervention related to gender dysphoria or gender affirmation, or health concerns of gender minority/trans people, including screening, assessment, referral, diagnosis and interventions. We excluded previous versions of the same CPG. We used broad criteria because terminology has been in flux with changes made in both International Classification of Diseases and Diagnostic and Statistical Manual of Mental Disorders diagnostic criteria.[16] There were no restrictions on setting or language.

Search strategy and guideline selection

We conducted the searches up to 11 June 2020 (CM), using search terms and appropriate synonyms (as Medical Subject Heading (MeSH) terms and text words) that we developed based on population and exposures (online supplemental table 1). We searched six databases (Embase, MEDLINE, Web of Science, PsycINFO, CINAHL, LILACS) and six CPG websites (Agency for Healthcare Research and Quality National Guideline Clearinghouse (NGC), eGuidelines and Guidelines, NICE National Library for Health, SIGN, EBSCO DynaMed Plus, Guidelines International Network Library) and the World Health Organization (WHO). The NGC closed in 2017 but CM hand-searched the archive. In addition to protocol, individual reviewers (IA, DC and MHJ) hand-searched four specialty journals (International Journal of Transgender Health, Transgender Health, LGBT Health, Journal of Homosexuality) to ensure key subject-relevant sources of abstracts were thoroughly checked. In order to find potential grey literature CPGs outwith the scholarly literature, two reviewers (IA and SD) independently performed four separate Google searches (not Google Scholar as misstated in the protocol) by using one generic (clinical practice guidelines) plus one specific term (transgender, gender dysphoria, trans health or gender minority) and examining the first 100 hits. We identified International Key Opinion Leaders (n=24) via publications known to reviewers (DC and SD) and contacted them via email, with one reminder, to identify further guidelines. Reference lists of relevant reviews and all full-text studies were hand-searched to identify any relevant papers or CPGs not found by database searching. Two reviewers (SB and SD) independently read all titles and abstracts and assessed for inclusion. If there was uncertainty or disagreement, or reasonable suspicion that the full-text might lead to another relevant CPG, the full-text was obtained. Non-English abstracts were Google-translated but if a possible CPG could not be reliably excluded, the full-text paper was obtained and translated. Where full-text publications could not be accessed, we contacted authors directly. Two reviewers (SB and either DC/MHJ) independently carried out full-text assessment to determine inclusion or exclusion from the systematic review based on the above criteria, and noted reasons for excluding full-texts. The whole team discussed uncertainties and disagreements to achieve consensus, with voting and final adjudication by the senior author (CM).

Data extraction

Two reviewers (SB and SD) independently collected formal descriptive data of included CPGs. All ambiguities or discrepancies were referred to the team for discussion and to re-examine original texts and extract data. Information collected was title, author, year of publication, number of countries covered, originating organisation, audience, methods used, page and reference numbers (excluding accompanying materials) and funding. Key recommendations were extracted for comparison between CPGs. We searched for all text mentions of mortality or any measures of quality of life (QoL), and noted if accompanied by a citation. All patient facing material was extracted. In addition, we extracted data about publication outlet (journal/website), and whether the quantity of information pertaining to the health of gender minority/trans people represented a complete, partial or marginal proportion of recommendations in the CPG.

Outcomes

Outcomes were: the number and quality assessment scores (using AGREE II) of international CPGs addressing the health of gender minority/trans people; analysis and comparison of the presence or absence of information on estimated changes in mortality or QoL (any measure) following any specific recommended intervention, over any time interval; the consistency (or lack thereof) of recommendations across the CPGs; and the presence (or absence) of key messages for patients.

Quality assessment

All authors completed AGREE II video training, a practice assessment and two pilots whose results were discussed. The six reviewers (IA, SB, DC, SD, MHJ and CM) independently and anonymously completed quality scoring on every CPG by rating each of the items using the standard proforma on the My AGREE PLUS online platform (AGREE enterprise website),[11] which also calculated group appraisal scores.

Patient and public involvement

The AGREE II instrument generates quality scores but does not set specific parameters for what constitutes high quality, recommending that decisions about defining such thresholds should be made prior to performing appraisals, considering relevant stakeholders and the context in which the CPG is used.[11] To help set quality thresholds, we conducted an AGREE II domain prioritisation exercise in January 2020 via email, with one reminder. It was considered impossible to ensure comprehensive representation of international stakeholders. We chose the UK for feasibility, although validity might be limited to UK-based clinicians. Fifty-two UK service-user stakeholder groups and gender minority/trans advocacy organisations, identified via reviewer knowledge and internet searches (IA, SB, DC, SD, MHJ and CM), were informed about the study. They were invited to participate in a stakeholder prioritisation of the AGREE II domains, created using SurveyMonkey and with an option to remain anonymous (https://www.surveymonkey.co.uk/r/WLZ55NQ gives invitation wording, links to resources and protocol). The reviewer team performed an anonymous prioritisation for comparison.

Strategy for data and statistical analyses

Simple frequencies were used to present the stakeholder and reviewer priorities, and outcomes. Following team discussion of the prioritisation exercise results, no prespecified quality threshold score was used to define high or low quality, although colour was superimposed (≤30%, 31%–69% and ≥70%) on the final scores table to aid visual comparisons and interpretation.

RESULTS

Search results

Figure 1 (Preferred Reporting Items for Systematic Reviews and Meta-Analyses flow chart[47]) shows that 1815 citations were identified, of which 134 full-text publications were read (all available, three supplied by authors) and 122 excluded (online supplemental table W2 with reasons).

Data extraction

Table 1 shows the characteristics of the CPGs. Online supplemental tables W3 and W4 show raw data of key recommendations and mortality and QoL evidence.

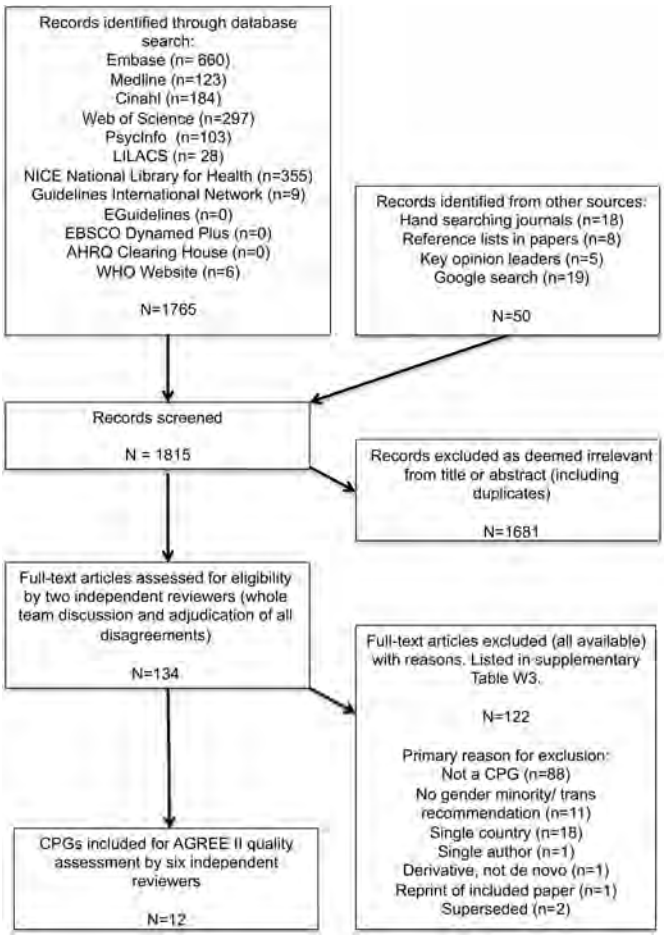

Figure 1 Preferred Reporting Items for Systematic Reviews and Meta-Analyses flow diagram. AGREE II, Appraisal of Guidelines for Research and Evaluation tool; CPG, clinical practice guideline; NICE, National Institute for Health and Care Excellence.

Number and characteristics of clinical practice guidelines

Twelve CPGs (table 1) originated from: WHO (n=3),[48–50] WPATH (n=2),[30 51] professional specialist/special-interest societies (n=4),[52–55] small groups of experts (n=2)[56 57] and one consortium.[58] All were published in English, in journals,[51–57] the organisation's website[48–50 58] or both.[30] Guideline development methodology was variable, including use of systematic reviews (table 1). Ten CPGs had no external review, eight had no update plans. Gender minority/trans health recommendations made up complete (n=5),[30 51 53 55 57] partial (n=4)[48–50 56] or marginal (n=3)[52 54 58] focus of content. CPGs contained 10 to 155 pages, and 20 to 505 references. Funding sources were wide-ranging and sometimes multiple, from government agencies, professional societies, charities and private donations. Two CPGs provided no funding details.[52 56]

A 13th CPG was excluded post-scoring as it had been superseded by a 2020 version without recommendations for gender minority/trans people.[59] It was arguable if four included CPGs did meet criteria: one had not been withdrawn[48]; one contained minimal relevant content[52]; one might not have been intended as a CPG[30] (although

Table 1 General characteristics of included clinical practice guidelines (n=12)

Number	Author (year)	Full title	Countries covered	Origin	Primary audience	Design (systematic review, SR, used and methods thereafter)	Planned update given	Funding
1	Coleman *et al* (2012)[30]	Standards of care for the health of transsexual, transgender and gender non-conforming people V.7	Global	WPATH	Health professionals	Work groups submit manuscripts based on prior literature reviews, no explicit links of recommendations to evidence, expert consensus. No independent external review	No	Tawani Foundation and gift from anonymous donor
2	Davies *et al* (2015)[51]	Voice and communication change for gender non-conforming individuals: giving voice to the person inside	Global	WPATH	Speech-language therapists	Review of evidence. Expert consensus. No independent external review	No	Transgender Health Information Program of British Columbia Canada
3	ECDC (2018)[58]	Public health guidance on HIV, hepatitis B and C testing in the EU/EEA	EU/EEA	ECDC consortium CHIP, PHE, SSAT and EATG	Member states' public health professionals who coordinate the development of national guidelines or programmes for HBV, HCV and HIV testing	Four SRs, SIGN, NICE and AXIS checklists. Ad hoc internal and external expert panel, independent chair, expert consensus. No independent external review	No	Commissioned by ECDC, contractor Rigshospitalet CHIP
4	Gilligan *et al* (2017)[52]	Patient-clinician communication: American Society of Clinical Oncology consensus guideline	USA and others	ASCO	Clinicians who care for adults with cancer	Nine questions (one SR), expert consensus and a Delphi exercise. No independent external review	Regular review 3-year check	None declared
5	Hembree *et al* (2017)[53]	Endocrine treatment of gender-dysphoric/gender-incongruent persons: an Endocrine Society clinical practice guideline	Global	Endocrine Society	Endocrinologists, trained mental health professionals and trained physicians	Two SRs and GRADE, rest expert consensus. No independent external review	No	Endocrine Society
6	IAPHCCO (2015)[54]	IAPAC guidelines for optimising the HIV care continuum for adults and adolescents	Global	IAPAC	Care providers, programme managers, policymakers, affected communities, organisations, and health systems involved with implementing HIV programmes and/or delivering HIV care	A systematic search of CDC database, expert consensus. No independent external review	No	IAPAC, US NIH and Office of AIDS Research
7	Ralph *et al* (2010)[56]	Trauma, gender reassignment and penile augmentation	Not specified (international publication)	Author group	Not stated (urological surgeons)	No SR. Unclear if literature review. Leading experts' consensus opinion. No independent external review	No	None declared
8	Strang *et al* (2018)[57]	Initial clinical guidelines for co-occurring autism spectrum disorder and gender dysphoria or incongruence in adolescents	Not specified (international publication)	Author group	Clinicians	No SR or literature review. Two-stage Delphi consensus. No independent external review	No	Isadore and Bertha Gudelsky Family Foundation
9	T'Sjoen *et al* (2020)[55]	ESSM Position Statement 'Assessment and hormonal management in adolescent and adult trans people, with attention for sexual function and satisfaction'	Europe	ESSM	European clinicians working in transgender health, sexologists and other healthcare professionals	No SR. Leading experts' consensus opinion. No independent external review	No	ESSM
10	WHO (2011)[48]	Prevention and treatment of HIV and other sexually transmitted infections among men who have sex with men and transgender people. Recommendations for a public health approach	Global	WHO	National public health officials and managers of HIV/AIDS and STI programmes, NGOs including community and civil society organisations, and health workers	13 SRs for PICOs and GRADE, external GDG, and independent external review	Yes in 2015	BMZ and PEPFAR through CDC and USAID
11	WHO (2012)[49]	Guidance on oral pre-exposure prophylaxis for serodiscordant couples, men and transgender women who have sex with men at high risk of HIV. Recommendations for use in the context of demonstration projects	Global	WHO	Countries/member states	Four SRs (including values and preferences reviews) and GRADE, external GDG and independent external review group	Yes in 2015	Bill & Melinda Gates Foundation

Continued

Table 1 Continued

Number	Author (year)	Full title	Countries covered	Origin	Primary audience	Design (systematic review, SR, used and methods thereafter)	Planned update given	Funding
12	WHO (2016)[50]	Consolidated guidelines on HIV prevention, diagnosis, treatment and care for key populations. 2016 update	Global	WHO	National HIV programme managers and other decision-makers within ministries of health and those responsible for health policies, programmes and services in prisons	Two new SRs in revised guidance, GRADE, external GDGs and 79 independent external peer reviewers	Regular updates; no detail	UNAIDS, PEPFAR, Global Fund

AACE, American Association of Clinical Endocrinologists; ASA, American Society of Andrology; ASCO, American Society of Clinical Oncology; ASD, autism spectrum disorder; AXIS, Appraisal Tool for Cross-Sectional Studies; BMZ, German Federal Ministry for Economic Cooperation and Development; CDC, the Centers for Disease Control and Prevention; CHIP, CHIP/Region H, Rigshospitalet, University of Copenhagen; CPG, clinical practice guideline; EATG, European AIDS Treatment Group; EAU, European Association of Urology; ECDC, European Centre for Disease Prevention and Control; ESE, European Society of Endocrinology; ESPE, European Society for Pediatric Endocrinology; ESSM, European Society for Sexual Medicine; EU/EEA, European Union/European Economic Area; GDG, guideline development group; Global Fund, Global Fund to Fight AIDS, Tuberculosis and Malaria; GRADE, Grading of Recommendations, Assessment, Development and Evaluation; HBV, hepatitis B virus; HCV, hepatitis C virus; IAPAC, International Association of Providers of AIDS Care; IAPHCCO, International Advisory Panel on HIV Care Continuum Optimization; NGO, non-governmental organisations; NICE, National Institute of Health and Care Excellence; NIH, National Institutes of Health; PEPFAR, US President's Emergency Plan for AIDS Relief; PES, Pediatric Endocrine Society; PHE, Public Health England; PICO, Participants/patients, Intervention, Comparators, Outcomes; SIGN, Scottish Intercollegiate Guidelines Network; SR, systematic review; SSAT, St Stephen's AIDS Trust; STI, sexually transmitted infection; UNAIDS, The Unified Budget, Results and Accountability Framework of the Joint United Nations Programme on HIV/AIDS; USAID, US Agency for International Development; WPATH, World Professional Association for Transgender Health.

WPATH SOCv7's stated overall goal is 'to provide clinical guidance for health professionals'[30] it contains no list of key recommendations nor auditable quality standards, yet is widely used to compare procedures covered by US providers[60 61]); one variously described itself as 'position statement' and 'position study' (stating it did 'not aim to provide detailed clinical guidelines for professionals such as… [named][30 53]', but evidence was obviously linked to key recommendations for clinicians[55]). After discussion it was decided not to exclude these borderline CPGs, as the definition of CPG in the protocol was intended to favour an inclusive approach.

Quality prioritisation and assessment

Results of the domain prioritisation by stakeholders (n=19 replies, response rate 39% excluding 3 'undeliverable') and reviewers (n=6) showed that stakeholders prioritised stakeholder involvement, whereas the reviewer team prioritised methodological rigour (online supplementary table W5). No stakeholder asked for clarification or more information.

Table 2 shows AGREE II scores by domain (8%–94%), and overall (11%–94%). The quality scores have a wide range and heterogeneity. Five CPGs focused on trans people as a key population for HIV and other blood-borne infections (overall assessment scores 69%–94%). Six CPGs concerned transition-specific interventions (overall assessment scores 11%–56%). Transition-related CPGs tended to lack methodological rigour and rely on patchier, lower-quality primary research. The two prioritised domain scores were usually comparable with the overall AGREE II quality assessment (ranges; stakeholder involvement 14%–93%, methodological rigour 17%–87%). Four CPGs obtained a majority opinion 'recommend for use',[48–50 58] five CPGs had unanimous 'do not recommend'[30 51 55–57] and three had minority support with division about the extent of 'yes, if modified'[52–54] (table 2). Despite wide variation there was a pattern; HIV and blood-borne infection guidelines[48–50 54 58] were higher quality, and those focusing on transition were lower quality.[30 53 55–57]

Content

Four CPGs concerning HIV prevention, transmission and care[48–50 54] and one public health guideline on population screening for blood-borne viruses,[58] contained recommendations for gender minority/trans people as a 'key population'. Three CPGs were devoted to overall transition care for all gender minority/trans people,[30 53 55] two to an aspect of transition[51 56] and one to transition in a specific group.[57] One oncology communication guideline contained a single recommendation relating to gender minority/trans people.[52] No international guidelines were found that addressed primary care, psychological support/mental health interventions, or general medical/chronic disease care (such as cardiovascular, cancer or elderly care).

Table 2 AGREE II (Appraisal of Guidelines for Research and Evaluation tool) domain percentages and overall assessment of included guidelines, and summary of mortality/quality of life measures (n=12)

Number	Author (year)	Scope and purpose	Stakeholder involvement	Rigour of development	Clarity and presentation	Applicability	Editorial independence	Overall assessment	Recommendation to use	Mortality	Quality of life	Mortality (any comment) and quality of life (any formal measure)
1	Coleman *et al* (2012)[30]	63%	47%	20%	37%	16%	15%	31%	Yes **0** No **5** If modified **1**	Y	Y	M: Higher in post SRS vs matched no SRS, and both pre and post SRS vs gen popn. QoL: FtM<gen popn, FtM post breast/chest surgery >not surgery, mixed results at 15 years.
2	Davies *et al* (2015)[51]	62%	38%	17%	61%	28%	14%	28%	Yes **0** No **3** If modified **3**	N	Y	QoL: A voice-related TG QoL measure correlated with own and others' perception.
3	ECDC (2018)[58]	94%	56%	55%	76%	68%	38%	69%	Yes **4** No **0** If modified **2**	Y	Y	M: Reduced by early diagnosis. QoL: Cost/QALY in anti-HCV birth cohort screening is acceptable. Universal offer HIV testing in hospital settings is highly cost effective.
4	Gilligan *et al* (2017)[52]	84%	67%	66%	81%	47%	61%	78%	Yes **2** No **0** If modified **4**	N	N	
5	Hembree *et al* (2017)[53]	65%	40%	41%	73%	29%	65%	56%	Yes **1** No **2** If modified **3**	Y	Y	M: TW/TM's CV mortality same ('insufficient very low quality data' for TM) and younger age at death after SRS. QoL: long-term psychological and psychiatric issues post SRS.
6	IAPHCCO (2015)[54]	85%	56%	61%	87%	40%	63%	81%	Yes **3** No **0** If modified **3**	Y	Y	M: Lower if early ART, easy access, immediate ART, and community distribution. QoL: ART preserves QoL, and stigma and mental health impact on QoL.
7	Ralph *et al* (2010)[56]	45%	14%	19%	64%	5%	32%	28%	Yes **0** No **5** If modified **1**	N	N	
8	Strang *et al*[57] (2018)57	57%	33%	19%	39%	8%	25%	11%	Yes **0** No **6** If modified **0**	N	N	
9	T'Sjoen *et al* (2020)[55]	59%	37%	35%	58%	15%	33%	42%	Yes **0** No **4** If modified **2**	N	Y	QoL: Sexual life improves after GAMI, but not to non-TG levels.
10	WHO (2011)[48]	94%	89%	87%	86%	64%	82%	83%	Yes **5** No **0** If modified **1**	Y	Y	M: Looked for mortality evidence but none found. QoL: Positive QALYs if HIV averted.
11	WHO (2012)[49]	85%	60%	81%	76%	41%	72%	72%	Yes **4** No **0** If modified **2**	N	Y	QoL: Positive QALYs modelled if PrEP.
12	WHO (2016)[50]	94%	93%	81%	89%	84%	65%	94%	Yes **5** No **0** If modified **1**	Y	N	M: Better if access and if adhere to OST, and at prison release; if early ART and completed TB Rx, HBV/ HCV managed; and access to post-abortion care. Worse if food insecure, poor nutrition, low body mass index.

Colours to aid interpretation (not thresholds) ≤30 RED, 31–69 AMBER, ≥70 GREEN.
ART, antiretroviral therapy; CV, cardiovascular; ECDC, European Centre for Disease Prevention and Control; FtM, female-to-male; GAMI, gender affirming medical intervention; gen popn, general population; HBV, hepatitis B virus; HCV, hepatitis C virus; HIV, human immunodeficiency virus; IAPHCCO, International advisory panel on HIV care continuum optimization; M, mortality; OST, opiate substitute therapy; PrEP, pre-exposure prophylaxis; QALY, quality adjusted life year; QoL, Quality of life; Rx, treatment; SR, systematic review; SRS, sex reassignment surgery; TB, tuberculosis; TG, trans people/gender-minority; TM, trans man; TW, trans woman.

Mortality and quality of life

Six CPGs referred to mortality[30 48 50 53 54 58] and eight to QoL[30 48 49 51 53–55 58] (table 2). Online supplemental table W4 shows all extractions of sentences relating to mortality or morbidity, associated references and which CPGs included no such data. More robust evidence was linked to the recommendations in the HIV and blood-borne virus CPGs whereas there was little, inconsistent data and poorer linking to evidence in transition-related CPGs.

Consistency of recommendations across the CPGs

Online supplemental table W5 contains all extracted key recommendations where these could be distinguished. It shows little overlap of topic content across the CPGs. Many recommendations in WHO 2011[48] and 2016[50] were similar, but not identical, the former not being stood down after the latter was published. No statements were highlighted by the WPATH SOCv7[30] authors as key recommendations, and it proved impossible for all six reviewers independently performing data extraction to identify them. The total number of extracted recommendations ranged between 0 and 168 with little consistency or agreement on what passages were selected. Some extracted statements might have been intended as recommendations or standards, but many were flexible, disconnected from evidence and could not be used by individuals or services to benchmark practice. After discussion of this incoherence within WPATH SOCv7[30] and our inability therefore to compare recommendations across all CPGs, it was decided not to revisit inclusions post hoc but to abandon this protocol aim.

Patient facing material

No patient-facing material was found in any guideline.

DISCUSSION

Statement of principal findings

Variable quality international CPGs regarding gender minority/trans people's healthcare contain little, conflicting information on mortality and QoL, no patient facing messages and inconsistent use of systematic reviews in generating recommendations. A major finding is that the scope of the guidelines is confined to HIV/STI prevention or management of transition with an absence of guidelines relating to other medical issues. WPATH SOCv7[30] cannot be considered 'gold standard'.

Strengths and weaknesses of this study

Strengths include protocol preregistration, stakeholder involvement, piloting all stages, an extensive systematic search without language restriction for any relevant current guidelines, wide inclusion criteria including grey literature, use of key opinion leaders, close attention to avoidance of bias, double full-text reading and data entry and careful presentation of results. Six trained reviewers, exceeding AGREE II recommendations,[11] compensated for expected variation in scoring. Extensive searches should have mitigated loss of CPGs. Limitations include some uncertainty about stakeholder understanding despite a good response rate, and generalisability of the prioritisation only to the UK; stakeholders elsewhere might have different priorities. Focusing only on international CPGs might have missed higher quality national and local CPGs derived from them or written de novo. The social acceptance and consequent healthcare system coverage of gender minority/trans health related interventions vary among different countries, which may limit the space for international and multinational guidelines. While the search strategy yielded an oncology communication CPG with a single recommendation for gender minority/trans people,[52] other general health CPGs with similar solo statements might have been missed.

Comparison with other studies, discussing important differences in results

This is the first systematic review using a validated quality appraisal instrument of international CPGs addressing gender minority/trans health. It may act as a benchmark to monitor and improve population healthcare. CPG quality results correspond with, and quantitatively confirm, previously noted concerns about the evidence-base[36 62 63] and variable use of quality assessment in systematic reviews,[64–66] in a healthcare field with unknown or unclear longitudinal outcomes.[17] AGREE II has been applied to CPGs in other medical areas, including cancer,[67] diabetes,[68] pregnancy[69] and depression.[70] These exercises tend to show room for improvement. Developers have been criticised for not using methodological rigour when writing reliable evidence-based guidelines,[71] as well as not implementing high-quality CPGs.[72] Thus, finding poor quality CPGs is not confined to this area of healthcare.[73] Improvement messages are generalisable to other specialties.

Meaning of the study: possible explanations

The finding of higher-quality, but narrow, focus on gender minority/trans people's healthcare for blood-borne infections may relate to the global HIV pandemic and the WHO applying twin lenses of public health and human rights (ie, the population as 'means' and 'ends'). The lower-quality CPGs focus on transition. WPATH SOCv7[30] originated nearly a decade ago from a special-interest association; diagnostic criteria and CPG methodology have since changed. Although HIV and transition are important, it is puzzling to have found so little else, maybe suggesting CPGs for gender minority/trans people have been driven by provider-interests rather than healthcare needs. Including gender minority/trans people in guidelines can be considered a matter of health equity, where CPGs have a role to play.[74] GRADE suggests CPG developers may consider equity at various stages in creating guidelines, such as deciding guideline questions, evidence searching and assembly of the guideline group.[75] How CPGs may impact more vulnerable members of

society should be reflected-upon during guideline development,[76] and implementation.[77]

Implications for clinicians, UK and international policymakers and patients

Clinicians should be made aware that gender minority/trans health CPGs outside of HIV-related topics are linked to a weak evidence base, with variations in methodological rigour and lack of stakeholder involvement. While patient care plans ought to take into account the individual needs of each gender minority/trans person, a gap appears to exist between clinical practice and research in this field.[78] Clinicians should proceed with caution, explain uncertainties to patients and recruit to research.

Policymakers ought to invest in both primary research and high-quality systematic reviews in areas relevant for CPG and service development. Organisations producing guidelines and aspiring to higher-level quality could use more robust methods, handling of competing interests[79 80] and quality assessment. CPG developers should label key recommendations clearly. Although editorial independence was lowest priority for stakeholders, independent external review is important to avoid biases and bad practices, examine use of resources, resist commercial interests and gain widespread credibility outside the field.

The UK is fortunate in being familiar with developing priority-setting partnerships (eg, James Lind Initiative[81]) and generating suites of clinical questions that might cover all steps in patient pathways (eg, in partnership with Cochrane Collaboration[82]). These could underpin multidisciplinary and funded research priorities whose results feed into future better evidence-based CPGs. Implications for UK education and curricular content (eg, new gender identity healthcare credentials[83]), should be carefully scrutinised.

Internationally, CPG development and implementation will vary depending on local country contexts and available resources. Those countries with quality assurance agencies might use them for external assurance. Countries might reconsider the wisdom of adapting low-quality 'off the shelf' international CPGs without due assessment of the evidence for recommendations (eg, using the GRADE-ADOLOPMENT framework[84]). WHO demonstrates how CPGs can achieve high quality.

Patients should be positively encouraged to engage with CPG development as stakeholders. The lack of patient-facing material should be addressed, especially as medical and non-medical online material contains jargon, is unreliable and potentially misleading.[85] Future CPGs should be populated with patient-facing decision aids (eg, fact boxes[86] and icon arrays[87]) that explain sizes of benefits and harms to support informed patient choice. Patients and carers will benefit from a more focused approach to throughout-life healthcare. As the figures for gender minority/trans patients increase within the NHS and internationally, so does the need for consistent guidance to clinicians across specialisms on specific risks to, and means of treating, this population. Current patients should be welcomed to contribute, where they are comfortable, to any research being undertaken by their clinicians, in order to improve data and future practice for gender minority/trans health.

Unanswered questions and future research

This study should be replicated as new iterations of international CPGs become available. It can be applied to national guidelines and countries should perform their own stakeholder prioritisation. When 'best available evidence' is poor, quality improvement can be driven both from inside and outside the field. International guideline developers require more primary research for this population, and impetus from clinicians and scientists to build a better evidence base using robust data from randomised controlled trials and long-term observational cohort studies, especially regarding chronic diseases, health behaviours, substance use, screening and how interventions (eg, hormones) might impact on long-term health (eg, risk of cardiovascular and thromboembolic disease). Mortality and QoL data are required to address questions of clinical and cost-effectiveness.

CONCLUSION

Gender minority/trans health in current international CPGs seems limited to a focus on HIV or transition-related interventions. WPATH SOCv7[30] is due for updating and this study should be used positively to accelerate improvement. Future guideline developers might better address the holistic healthcare needs of gender minority/trans people by enhancing the evidence-base, upgrading the quality of CPGs and increasing the breadth of health topics wherein this population is considered.

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Marci L. Bowers, M.D.

(650) 570-2270

Exhibit
SL 11

Dear colleagues, clients and friends,

Regarding the 10/4/21 article by Abigail Shrier, I remain disappointed by the tone and intent of the article. My comments were taken out of context and used to cast doubt upon trans care, particularly the use of puberty blockers. Worse, Jazz Jennings was disrespectfully and erroneously portrayed as a puberty blockade failure, based solely upon her television portrayal. That said, the author conveyed to me that she is *not against* the use of puberty blockade but rather, interested in better informed consent, a principle upon which we both agreed. I did believe that my comments would be conveyed fairly.

My comments were limited to transfeminine persons, not transmasculine, a point not made.

My concerns regarding consent included long term sexual function, data that we currently do not know, although patients retain sensation including clitoris and G-spot. Sexual naivete is a potential concern but not central to my argument and it is far from certain that patients will sustain permanent sexual dysfunction. It is still possible that adults with a history of puberty blockade will go on to have satisfying sexual lives, but these patients need to be tracked and this measure documented.

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My concerns regarding fertility are secondary, a potential that many transfeminine persons are willing to forego.

My concerns regarding puberty blockade and its negative impact upon later genital surgery remain and are not allayed by new techniques of vaginoplasty including peritoneal pull through. Complications and challenges for these patients are without a doubt, increased.

My hope is that colleagues, onlookers and members of the transgender community at large will recognize my long-term contributions to the field, my unwavering advocacy for patients, the 'one off' regarding this article—wrong time, wrong venue. Although my comments were my own professional opinions, I do recognize that, as President-elect, I now speak for WPATH as well. I have learned from this experience and will be better. I also hope that my comments will help future clinicians, families and patients make more certain, informed choices. I believe that this moment will spur studies, will inspire surgeons to seek better results, and encourage families to consider a bit of puberty when weighing treatment options.

What I hope for, most of all, is that my out-of-context comments will not be excerpted to weaponize ongoing attacks upon transgender persons. We have been here since the beginning of time and will be here in the future. We must not allow the critics and skeptics to undo our legitimacy. Rather than attack one another, we are best served by our support of WPATH and its goal of establishing evidence-based care that affirms gender identity as another important aspect of global diversity.

For patients and families seeking guidance going forward, I will say this based upon my own professional experience:

- consider consultation with a gender surgeon prior to blockers. Not all puberty blocked individuals will have insufficient growth going into blockers though puberty may be deemed beneficial for some
- If you can possibly stand a bit of puberty, the extra genital skin growth, likely orgasm and potential fertility may be attractive enough to consider the option. Early post-pubertal kids in their early teens still transition extremely well

For doubters, conservatives, naysayers and haters who continue to misgender, mischaracterize and malign trans persons around the globe, you've lost credibility with me, and likely, with God above.

Marci L. Bowers, MD

← *60 Minutes Overtime Interview*

Detransition, Baby: Examining Factors Leading to 'Detransitioning' and Regret in the Transgender Community →

National Coverage Analysis (NCA) | Decision Memo

Gender Dysphoria and Gender Reassignment Surgery

CAG-00446N

Exhibit
SL 12

Decision Summary

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

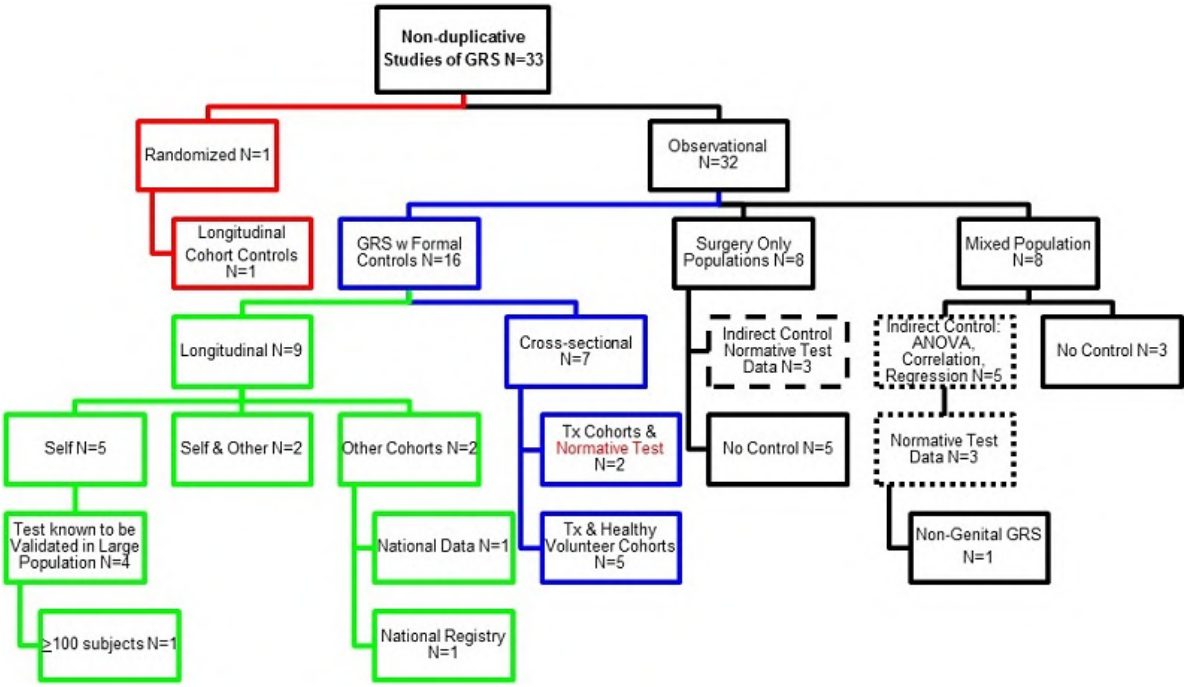
CMS conducted an extensive literature search on gender reassignment related surgical procedures and on facets of gender dysphoria that provide context for this analysis. The latter includes medical and environmental conditions.

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 Ghent populations studied by Heylens et al. or Weyers 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, Koff WJ, Silveira E, 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, Långström N, Landén 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 Child-hood (302.6)]*	Required A (cross-gender identification) and B (aversion to one's natal gender) criteria Dx excluded by physical intersex condition Dx excluded by another mental disorder, e.g., schizophrenia	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 disturbance has been continuous (not limited to periods of stress) for at least 2 years.	Further characterization by sexual orientation Distinguished from Atypical Gender 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 1º and 2º 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 same name)	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 • 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 1º and 2º sex characteristics &/or acquiring sexual traits of the other sex • Clinically significant distress or impairment in social, occupational, or other important areas of functioning	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 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° and 2° 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 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 discordance between natal 1º and 2º 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) • Marked desire to be rid of natal 1º and 2º sex characteristics** • Marked desire to acquire 1º and 2º 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 2º sex characteristics ** or in young adolescents, prevent the development of the anticipated 2º 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.	Includes diagnosis for post transition state to permit continued treatment access Includes disorders of sexual development such as congenital hyperplasia and androgen insensitivity syndromes
	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 1º=primary 2º=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 15 formal applications for surgical reversal	681	681 (100%)	NA: Clinical data extracted retrospectively in earlier paper
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 et al.	Cross-sectional Control: Normative test data	294 clinic patients w GD had completed study questionnaire 116 authorized for GRS. 103 completed GRS & 1 yr post-operative. 24 excluded	79	79(100%)	-
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. 13 declined participation or were excluded for incomplete questionnaires.	187	79 (42.2%)	See prior box.
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, Partnership 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, Cohen-Kettenis*	Published 1996 (Dutch) (Not in PubMed) (Designed by 1 of the authors of the Smith study)
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 Substantive &/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 Sub-stantive &/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 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%.**	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.

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 2005	MMPI SCL-90	The number in the available adult patient 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.**	Most of the MMPI scales were already in the normal range at 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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Exhibit
SL 13

Bias, not evidence dominates WPATH transgender standard of care

FEATURED , GENDER IDENTITY , HEALTHCARE

Canadian Gender Report October 1, 2019 22 Comments

The following investigative report was contributed by @LisaMacRichards (a pseudonym). @LisaMacRichards works at a Canadian hospital and holds a Master of Science degree from the University of British Columbia. We're very thankful for the diligent work she invested to research and write this article and we appreciate the opportunity to publish it here.

RECENT REPORTS

New Canadian Study on Detransition – A Review

Sweden, France revert to cautious approach for gender diverse youth

SEGM – Gender affirmation model of care lacks evidence base

How Ontario School Boards are Responding to Parent Concerns

Letter to WRDSB Trustees: Open Discussion of Gender and Sexuality Materials

by @LisaMacRichards

Many people are surprised to find out that children with gender dysphoria are being prescribed puberty blockers as early as age ten, cross-sex hormones as early as age 12 or 13, and double mastectomies for girls as early as age 13 in countries throughout the world, including Canada. Some professionals and transgender advocates say that gender-dysphoric teens should be able to have genital surgeries and hysterectomies before age 18 on the basis of informed consent, with no mental health assessment required.

In Canada, transition-related care, including sex reassignment surgery is typically provided by specialized gender clinics. Provincial health insurers such as OHIP in Ontario and the PHSA in British Columbia require that providers align with the World Professional Association of Transgender Health Standards of Care (WPATH SOC). WPATH published its seventh version of the SOC in 2011, and is currently working on its eight version.

> The amended OHIP criteria… align with the internationally-accepted standards of care for gender dysphoria, which are established by the World Professional Association of Transgender Health (WPATH).
>
> Ontario Ministry of Health

The Canadian Mental Health Association references WPATH in its public website statement that medical transition for gender-diverse youth is the best way to treat the distress that arises when an individual's body does not match their gender identity.

Whenever anyone questions the early social transition of children and adolescents with gender dysphoria or the use of medical interventions to align one's body with their gender identity, the usual response from

Made Available at Your Schools Is Urgently Needed

CATEGORIES

- Detransition
- Education
- Ethics
- Featured
- Gender
- Gender Identity
- Healthcare
- Parent Report
- Policy
- Research

BROWSE TAGS

AFFIRMING CARE | ASD | AUTISM | BILL C-6 | BILL C6 | CANADA | COMPELLED SPEECH

transgender advocates is that there is an international consensus of transgender treatment among professionals. In fact, the National Post recently published an article with a quote from a transgender activist saying "transition-related care is safe, effective, and supported by the entire mainstream of the medical community."

Medical Guidelines

Guidelines are becoming increasingly important for busy medical practitioners who cannot stay abreast of all developments in every medical field. To address this, professional medical bodies and societies started to publish various guidelines in the 1990s, in order to clearly formulate best medical practices, to assure patients they are receiving appropriate care, and to standardize care so that most patients will receive the same care across many settings. However, many people started questioning whether medical guidelines are being developed using quality medical evidence and whether conflicts of interest could be influencing the recommendations.

Challenges in guideline development include limitations in the scientific evidence on which clinical practice guidelines (CPGs) are based, lack of transparency of development groups' methodologies, questions about how to reconcile conflicting guidelines, and conflict of interests among guideline development group members and funders.

To address these problems, the Institute of Medicine (now called the National Academy of Medicine) wrote "Clinical Practice Guidelines We Can Trust", published in 2011, which outlined trustworthy guideline development that minimizes bias and conflict of interest. Clinical guidelines in the US were kept in a central database at the National Guideline Clearinghouse (NGC), which was funded by the US Department of Health and Human Services. Having a government-funded, non-profit third party to analyze guidelines is crucial in order to assess the quality of clinical practice guidelines. However, in 2018, the Trump administration cut this funding, and the NGC has unfortunately been shut down. A non-profit patient safety organization, ECRI Guidelines Trust has stepped in.

Canada does not have its own third-party guideline clearinghouse. The Canadian Medical Association keeps a database of Canadian clinical guidelines, through a subsidiary called "Joule". Guidelines International Network (GIN) also maintains a guideline library.

CONVERSION THERAPY
CRITICAL RACE THEORY
CRITICAL THEORY
CURRICULUM
DETRANSITION
DETRANSITIONERS
GENDER
GENDER AFFIRMATION
GENDER AFFIRMING CARE
GENDER DIVERSITY
GENDER DYSPHORIA
GENDER IDEOLOGY
GENDER SPECTRUM
GENDER THEORY

WPATH Guidelines Do Not Qualify for ECRI Trust Scorecard

ECRI provides a "Trust Scorecard" that rates the quality of the guidelines, based on evidence strength and the measures taken to reduce bias in the recommendations. After searching the ECRI database for transgender care guidelines, the only guideline posted was the "Endocrine Society Clinical Practice Guidelines of Gender-Dysphoric/Gender-Incongruent Persons, 2017". It was not given a Trust Scorecard rating. The WPATH SOC was not included in the database.

When ECRI was contacted by this author and asked why WPATH guidelines were not included, and why the Endocrine Society guidelines did not have a scorecard rating, they responded in an email, saying that the reason the Endocrine Society guidelines did not meet inclusion criteria to be rated was because "Only a few of their recommendations were supported by the systematic review; the majority were not." The reason WPATH was not included, ECRI stated, was because the guidelines were over five years old, and "did not use a systematic review to process".

> They did not use a systematic review to process.
>
> ECRI

A search of the Canadian database yielded no results for transgender treatment. When contacted, Joule's response was "In order to be included in our database, all guidelines have to be either developed or endorsed by an authoritative medical/healthcare organization. Neither the WPATH nor the Endocrine Society guidelines on transgender care have been endorsed by any Canadian organization(s) and therefore are not included in our database". A search of the GIN library also yielded no results for transgender care.

> Neither the WPATH nor the Endocrine Society guidelines on transgender care have been endorsed by any Canadian organization(s) and therefore are not included in our database.
>
> Joule

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Guidelines over five years old are at high risk of becoming clinically irrelevant due to new research findings, or changes in patient populations. Given the rapidly changing epidemiology and treatments in transgender care, seven-year-old guidelines are severely outdated in this field. One case in point is that when the WPATH guidelines were published in 2011, natal males were the primary group presenting to gender clinics in adolescence, but now males have been eclipsed by natal females 3 to 1.

Research on male adolescent clients cannot be generalized to females, an age-old fallacy in medicine. This makes the entire recommendation section for adolescent transgender care in the WPATH SOC dubious at best, irrelevant at worst. Investigation must be undertaken to determine why a new cohort has developed, and whether this group can be included in guidelines that were developed for a group with different histories and possibly different etiologies.

Conflict of Interest in Guideline Development and Committee Members

A systematic review of clinical guideline development in 2011 revealed 56 to 87% of the authors had a conflict of interest (COI) in all clinical practice guidelines. In "Guidelines We Can Trust", the Institute of Medicine (IOM) states that a key factor in eliminating bias and conflict of interest (COI) is taking care in the composition of guideline committee members. Obvious financial COIs such as affiliations with pharmaceutical companies are a given.

There are other significant sources of conflict of interests, however, that also must be considered. According to IOM, examples of non-commerical financial activities include research grants and support from foundations or other nonprofit organizations for the person's work or their institution. A person whose work or professional group is fundamentally jeopardized or enhanced by a guideline recommendation is said to have intellectual COI. Other intellectual COIs include authoring a publication or acting as an investigator on a peer-reviewed grant directly related to the recommendations under consideration.

The chair of a guideline development committee and most of the members should not have any conflict of interest, including income from clinical work. Often, however, in any given field, it is hard to find any experts who are not

receiving income in their practices. The IOM guidelines allow for some members to have COIs, as long as they do not have voting privileges or make up over half the group. Ideally, the majority of guideline developers should be unconflicted methodologists, such as epidemiologists, statisticians, healthcare researchers, and/or "guidelineologists", who lead the formulation of recommendations in collaboration with clinical experts.

Conflict of Interest in WPATH SOC Committee Members

When looking at the WPATH committee who worked on the current SOC document, a cursory examination of the members reveals that every one of the members have significant COIs. All of them either receive income based on recommendations in the guidelines, work at clinics or universities who receive funds from advocacy groups, foundations, or pharmaceutical companies who heavily favour a certain treatment paradigm, or have received grants and published papers or research in transgender care. The majority of the members are from the US, and six of them have affiliations with the same university–the University of Minnesota Program in Sexuality, which is primarily funded by a transgender advocacy organization (Tawani Foundation).

Eli Coleman, the committee chair for the WPATH SOC, who IOM guidelines stipulate should be completely free of conflict of interest, has his very position at the University of Minnesota funded by Jennifer Pritzer, a trans person and head of Tawani. In fact, there are press releases of Eli Coleman in 2017 thanking Jennifer Pritzer profusely for a generous donation, which adds up to 6.5 million dollars that Tawani has given to the university. Tawani also funded WPATH SOC development. Another advocacy group, Gender Identity Research and Education Society (GIRES) funded the translation of the SOC into various languages.

> There was also an "anonymous donor" who supported guideline development. Did the anonymous funder want a certain outcome from the recommendations? Who knows?
>
> Funding sources must be named, according to the IOM guidelines.

> Three of the same committee members for the WPATH Guidelines, also served on the Endocrine Society guideline committee, which means intellectual COI is at play. Any recommendations based on faulty conclusions in the WPATH guidelines would potentially have been duplicated in the Endocrine Society guidelines.

Although pharmaceutical companies were not directly involved in WPATH SOC, they often donate to advocacy organizations, which could directly influence recommendations. Pharmaceutical companies often make large donations to universities as well.

At least four committee members are or were editors of transgender research journals. In the US, 50% of editors of research journals take industry payments, and yet they do not need to declare conflicts of interest. Editors have control over which articles are published, which can shape systematic reviews in the future. It is well established now that journal reviewers and editors are less enthusiastic to publish a study with unremarkable or negative results The WPATH SOC chair, Eli Coleman, is also an editor of a transgender journal and started another journal in the past.

WPATH has a history of being funded and pressured by transgender activists and transgender organizations. For example, during the 2018 WPATH conference when the version 8 SOC development was being discussed, Dr. Marci Bowers, a prominent transgender surgeon who performs genital surgery, stood up in the meeting and urged the SOC committee members to be “bold” in their recommendations. Many transgender people in the audience stood up and clapped.

This surgeon is now on the WPATH Board of Directors.

At the 2017 USPATH/WPATH conference, activists protested and shut down a session with Dr. Kenneth Zucker, who endorsed a cautious approach to treating children with gender dysphoria. Rather than engaging with different viewpoints, WPATH agreed to cancel Dr. Zucker (who ironically was on the WPATH SOC committee) and apologize on their website for inviting him. WPATH is allowed to discuss only topics and engage with presenters that are approved by activists, which is the antithesis to a professional organization, or evidence-based inquiry.

WPATH is not the typical professional organization that develops clinical practice guidelines. WPATH is a hybrid professional and activist organization, where activists have become voting members and have served as president. In fact, it can be argued that WPATH is activist-led rather than evidence-led, as witnessed at their conferences. Their guidelines are just following what is being performed in gender clinics based on informed consent.

Lack of Systematic Review and Evidence for WPATH SOC

WPATH did not perform a systematic review to draw conclusions for their recommendations in the SOC. Perhaps WPATH already knew that there would be no evidence for their recommendations, as they state this numerous times throughout the guidelines. There are assertions such as:

> To date, no controlled clinical trials of any feminizing/masculinizing hormone regimen have been conducted to evaluate safety or efficacy in producing physical transition.
>
> WPATH SOC Version 7

They then proceed to recommend hormones with no rationale given.

The document is full of contradicting statements. For example, WPATH says: "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% of children."

And then they later state: "Early use of puberty-suppressing hormones may avert negative social and emotional consequences of gender dysphoria more effectively than their later use would."

So even though only 6 to 23% of gender dysphoric children will persist into adulthood, WPATH, with no rationale given, endorses suppressing puberty as soon as it starts.

In fact, no rationale is given as to why a medical model of affirmation is recommended in the first place.

They briefly state that conversion therapy is not successful. Conversion therapy is not defined but seems to be anything other than the medical model to treat gender dysphoria. The references they provide are three chapter books or case studies from the 1960's that are no longer in print, and an article written in Dutch from 1984. Two of the titles refer to "aversion therapy", which most people would agree is not ethical. However, counseling, cognitive behaviour therapy, or psychotherapy is not considered.

A literature search performed by ECRI shows that no systematic research or review has been conducted to see if any non-medical therapy could be successful, in order to avoid a lifetime of medication and surgeries. The assumption that thoughts and feelings are unchangeable, while the body should be changed, is the paradigm that is assumed in this document with no rationale given. A lifetime of off-label medications and multiple surgeries are assumed to be preferable to the option of considering treatment to help people be at peace in their natural bodies.

In light of the COIs described above, we can see that there are many benefits to a medicalized model for the committee members, both financially and for their careers. If evidence showed that a non-medical treatment for gender dysphoria was more effective, would committee members be inclined to recommend this treatment, at great cost to their income and careers?

Low-Quality Medical Guidelines Legitimize Potential Harm

When guideline recommendations are made without evidence, they are regarded as clinical consensus statements. In light of the lack of knowledge of safety or efficacy of treatment, one might wonder how there is clinical consensus on transgender treatment—that risky and irreversible treatments are the only treatment option to be researched, rather than considering whether thinking can be changed.

In fact, the WPATH SOC does allude to the possibility that therapy can be beneficial:

> 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.

However, elsewhere they state that psychotherapy should focus on the patient's distress, and not conversion therapy. There is no further discussion about researching how psychotherapy could help people avoid treatment altogether, despite the statement that psychotherapy helps some people integrate into their "gender role assigned at birth".

The following quote in the Institute of Medicine document about poorly developed clinical guidelines holds true for the WPATH SOC regarding faulty guideline development:

> Poorly articulated or indirect evidence chains can make it difficult to discern which parts of the analytic logic are based on science or opinion, the quality of that evidence, and how it was interpreted. Readers can be misled into thinking that there is more (or less) scientific support for recommendations than actually exists. The ambiguity can also cause difficulty in establishing research priorities.
>
> Institute of Medicine

Many gender dysphoric youth and their parents wonder if therapy would be an alternative to permanent alterations to their bodies. They are told that therapy has been shown to be ineffective and that transition is the only cure for gender dysphoria. They are not being told the truth—that non-medical methods to deal with gender dysphoria have never been seriously researched.

Carl Heneghan, editor-in-chief of the British Medical Journal, and Professor of Evidence-Based Medicine from the University of Oxford performed a review of the literature for puberty blockers and cross-sex hormones in children and adolescence. He concluded: "The current evidence base does not support informed decision making and safe practice in children."

> The current evidence base does not support informed decision making and safe practice in children.
>
> Carl Heneghan, editor-in-chief of the British Medical Journal, and Professor of Evidence-Based Medicine at the University of Oxford

The public (including media and other medical professional bodies) blindly trusts that the recommendations for transgender care have come out of robust scientific research and objective guideline development. However, even WPATH SOC committee members and transgender clinicians have repeatedly admitted that there is no long-term research to show that benefits

outweigh harms in transgender treatment, whether it is social transitioning, puberty blockers, hormones or surgery.

In an article written by transgender clinicians and researchers five years AFTER the WPATH SOC was published (several of whom were on the WPATH SOC Committee) they state the lack of quality data in transgender research:

> Expansion of the evidence-base to inform transgender clinical care requires rich systematically collected data that at present are scarce or lacking in the U.S. The available data pertaining to transgender health are often based on convenience samples and the majority of published studies in the U.S. are cross-sectional or retrospective. The few published prospective follow up studies are small and have examined a limited number of outcomes.

Three of the same gender professionals again said a year earlier in the AMA Journal of Ethics: "Transgender medicine presents a particular challenge for the development of evidence-based guidelines. First and foremost, data on health outcomes in transgender medicine are currently limited to retrospective studies, case series, and individual case reports."

The same authors go on to say that, even though there is no evidence, "The existence of guidelines in the field of transgender medicine both legitimizes the need for gender-affirming medical and surgical interventions and informs medical practitioners and policymakers on how to best meet these needs." This statement could not show more clearly the harm low-quality medical guidelines can do—legitimize potential harm and lead other medical professionals to assume the guidelines were developed based on quality data and scientific rigor.

Conclusion

When someone says "transition-related care is safe, effective, and supported by the entire mainstream of the medical community", they are basing their faith unquestioningly on guidelines that were developed by people and organizations with conflicts of interest, with no systematic review, and with no evidence of safety or efficacy of treatment. These "guidelines" do not meet inclusion criteria for any clinical guideline database and have not

received an endorsement from any professional body in Canada. And yet, WPATH guidelines are given as the rationale to support the unthinkable: to physically harm a distressed and vulnerable population.

To their credit, WPATH does not say anywhere in the SOC that treatment is proven safe and effective. Instead, the overall message in the guidelines is to urge physicians to follow the patient's wishes only, putting aside scientific evidence and ethical delivery of care.

The concept of an innate gender identity is unproven, unverifiable, and does not even have a clear definition. In the same spirit of historical psychiatric misadventures, somatic treatments are being prescribed for a psychologically based identity disorder. How many vulnerable children, adolescents and young adults will be harmed before we realize that history is repeating itself.

CATEGORY: FEATURED GENDER IDENTITY HEALTHCARE

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NEXT ARTICLE →
New study casts doubt on social gender transitioning for children

22 thoughts on "Bias, not evidence dominates WPATH transgender standard of care"

Hacsi Horvath
October 2, 2019 at 2:09 pm

A brilliant, much-needed analysis. This is crucial information that needs to be shared widely. Thank you.

REPLY

Ralph Roberts
October 2, 2019 at 8:23 pm

I hope this has an impact. What could be done. IT feels like we are almost too late as their are so many deeply invested how do you step back in this situation?

REPLY

Pamela Buffone
October 2, 2019 at 10:42 pm

Great question. It's never too late. If anyone has ideas, we're all ears! Make sure you subscribe to stay informed. We'll be sharing more research and coming up with practical steps you can help us with.

REPLY

Jamie Barkwell
October 2, 2019 at 8:39 pm

Great article. I appreciate the research you guys are doing.

On a technical note: I had a super hard time reading it due to 8 lines being unreadable due to twitter/Facebook/Pinterest and other tabs blocking 3-4 letters on each line. I was forced to read the whole article in only 3-4 lines at the bottom of my screen that were unblocked. I had the same issues on the other genderreport.ca articles. Could these buttons be removed? It would make reading the articles much easier. Thanks

REPLY

Pamela Buffone
October 2, 2019 at 10:32 pm

Thanks for the feedback! We'll address that issue.

REPLY

Pingback: Legislation to Ban Conversion Therapy for Sexual Orientation and Gender Identity - CANADIAN GENDER REPORT

Nan
January 26, 2020 at 1:08 pm

I would like to know if there are are any legal consequences for the doctors or or medical practitionersf if they they prescribe off label drugs 2 patients
Surely there is is a duty of care when prescribing drugs with unknown side effects and damaging side effects,

REPLY

Pamela Buffone
January 26, 2020 at 2:16 pm

Doctors are using "informed consent" to waive their responsibility. The first legal challenge is happening in the UK by a detransitioner and former nurse at the gender identity clinic there. They're arguing that people under the age of 18 are not capable of informed consent on this topic. In Canada, the BC Infants Act was used to uphold the right of a 14 year old to start cross-sex hormones against her father's wishes. The court also ruled that the medical practitioners were acting competently because they were following WPATH. WPATH claims to be the "medical consensus" but my prediction is this will no longer be the case once there is a group of medical experts representing evidence-based approaches to care and taking a more careful look at the research. This is what is needed for lawsuits to be successful. Please subscribe to our mailing list to find out about upcoming developments in this area.

REPLY

faith kuzma
March 26, 2020 at 12:11 am

An exceedingly helpful analysis of WPATH! This should be distributed far and wide, within parent groups and to politicians.

REPLY

Pingback: Can We Talk About JK Rowling? – OffGuardian

Pingback: Who are the rich, white men funding the trans movement? | Femminismo Italiano

Pingback: What Medical Transition Looks Like – A2M1N

Abi
October 13, 2020 at 10:04 am

Great analysis, thank you. See this tweet for an update on WPATH SOC 7: "while promoting the upcoming version SOC8 due out soon, WPATH inadvertently admits the current SOC7 is not evidence-based (and apparently not standards of care at all)"; WPATH stated: "This version of the Standards of Care [8] is the first to be developed using an evidence-based approach."
https://twitter.com/ZaneEmma/status/1315877083633995776

REPLY

Pingback: Submission to the Standing Committee on Justice and Human Rights respecting Bill C-6 - CANADIAN GENDER REPORT

Aaron
January 14, 2021 at 11:15 pm

Thank-you for the enlightening article. Well laid out and considered. I'm sorry things have gotten to this point.

REPLY

Etana Finkler
June 2, 2021 at 2:37 am

Excellent article; lots of examples and detail. Clearly written. Gives some hope that alternative voices are being published instead of censored.

REPLY

Etana Finkler
June 2, 2021 at 2:40 am

Oh! But this was written in 2019. Things are much worse now?

REPLY

Cene
June 25, 2021 at 12:39 pm

Thank you "Pamela".
I don't think that it would ever be possible for an evidence driven team of scientists to create the guidlines to be followed. Researchers will be labeled as transphobic and will lose their reputation and status in short and long term by setting under scrutiny the current status quo. The only possibility that they will be respected is if their findings prove (almost) entirely the claims of WPATH which is very unlikely.

REPLY

Canadian Gender Report

June 25, 2021 at 4:50 pm

You raise a very interesting point. So if no "acceptable" evidence-based guidelines are possible the question comes down to an issue of consent. Just as the UK has ruled on the Keira Bell case, we'll have to wait for a similar test here.

REPLY

Pingback: Manufacturing Authority: The case of Aaron Holly Devor (part 2) | a sledge and crowbar

Pingback: Usa: mediche trans contro la transizione dei bambini - FEMINIST POST

Pingback: No One Wants a Gender Agenda Pushed On Kids - CANADIAN GENDER REPORT

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