No. 24-43

In the Supreme Court of the United States

STATE OF WEST VIRGINIA, ET AL.,

v.

B.P.J., BY NEXT FRIEND AND MOTHER,
HEATHER JACKSON,

ON WRIT OF CERTIORARI
TO THE UNITED STATES COURT OF APPEALS
FOR THE FOURTH CIRCUIT

JOINT APPENDIX (VOLUME IV OF X)

(Pages 1291-1627)

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(continued from front cover)

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

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

vs. Case 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,
and DORA STUTLER in her official
capacity as Harrison County
Superintendent, PATRICK MORRISEY in
his official capacity as Attorney
General, and THE STATE OF WEST VIRGINIA,
Defendants,

LAINEY ARMISTEAD,
Defendant-Intervenor

VIDEOTAPED DEPOSITION OF
DEANNA ADKINS, M.D.
March 16, 2022

***

[17]

EXAMINATION

BY ATTORNEY BROOKS:

Q. For convenience --- good morning, Dr. Adkins, ---

A. Good morning.

Q. --- and thank you for your time here today.

ATTORNEY BROOKS:

For convenience, let me start out by marking three exhibits. As Adkins Exhibit Number 1, I would like to mark the Declaration and expert report of Deanna Adkins, which in the file will be made available to the court reporter is tab two. And I have copies for the witness and for counsel. I would also like to mark as Adkins Exhibit 2 what we have provided as tab three, which is the CV of the witness, Deanna Adkins.

(Whereupon, Adkins Exhibit 1, Report of Deanna Adkins, M.D., was marked for identification.) (Whereupon, Adkins Exhibit 2, Curriculum Vitae, was marked for identification.)

THE WITNESS:

If you don't mind, it's Deanna (corrects pronunciation).

[18]

ATTORNEY BROOKS:

Deanna. I certainly don't mind. I want to get that right. Sorry about that.

THE WITNESS:

Thank you.

ATTORNEY BROOKS:

And I would like to admit as Exhibit 3 the rebuttal report submitted by Dr. Adkins. I will provide copies of that to the witness. Just write the number on it.

THE WITNESS:

Thank you.

ATTORNEY BROOKS:

We'll have occasion to come back to those.

(Whereupon, Adkins Exhibit 3, Rebuttal Report, was marked for identification.)

BY ATTORNEY BROOKS:

Q. Dr. Adkins, let me ask you to find amongst the three documents I have given you Exhibit 2, which is your Curriculum Vitae.

VIDEOGRAPHER:

Counsel, do you want that pulled up on the shared screen?

ATTORNEY BROOKS:

That's up to the remote. You should certainly make it available. **[19]** Obviously, everybody here in the deposition room has it.

BY ATTORNEY BROOKS:

Q. Dr. Adkins, let me ask you to turn to page two of Exhibit 2, your Curriculum Vitae. And you have there a list headed professional training and academic career. Do you see that?

A. Yes.

Q. Am I right that you have done either residencies or fellowships in the field of pediatrics and endocrinology?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: I've done both, yes, residency and fellowship in pediatrics followed by endocrinology, yes.

BY ATTORNEY BROOKS:

Q. And you have not done either a residency nor a fellowship in psychiatry. Have you?

ATTORNEY BORELLI: Objection to form.

THE WITNESS: No.

BY ATTORNEY BROOKS:

Q. And you don't have any degree in child or adolescent developmental psychology, do you?

A. No.

Q. Do you consider yourself trained and **[20]** professionally competent in using the American Psychiatric Association Diagnostic and Statistical Manual to make child and adolescent mental illness or psychiatric diagnoses generally outside the scope of gender dysphoria?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: In pediatrics, we're trained to make some of the diagnoses that are appropriate for a pediatrics provider to treat.

BY ATTORNEY BROOKS:

Q. So is that a --- do you consider yourself generally competent in making diagnosis of child or adolescent mental illness according to the standards of DSM-V?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: For the things I was trained in and have continued to get CME in, I do.

BY ATTORNEY BROOKS:

Q. And you do not have any training in sports physiology, do you?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: Nothing specific.

BY ATTORNEY BROOKS:

Q. You would consider that to be outside your field **[21]** of professional expertise. Am I right?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: There is probably some overlap given that physiology and endocrinology are very important and tied and interlinked, but I couldn't tell you since I don't know where the overlap might be.

BY ATTORNEY BROOKS:

Q. You yourself have not done any research related to sports physiology, have you?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: Not myself, no.

BY ATTORNEY BROOKS:

Q. Nor have you done any research relating to the impact of hormones on athletic capability?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: Not personally.

BY ATTORNEY BROOKS:

Q. Do you consider yourself to be an expert in any sense in the question of what is or is not fair?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: Well, that's a broad question. That's ---.

BY ATTORNEY BROOKS:

Q. Do you consider yourself an expert in the **[22]** concept of fairness?

ATTORNEY BORELLI: Objection.

THE WITNESS: I believe that I can recognize fairness and have a concept that would be appropriate for someone of my age.

BY ATTORNEY BROOKS:

Q. Do you believe that you have expertise and fairness beyond that from ordinary human experience?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: I would have to see what that would look like to say yes or no to that question.

BY ATTORNEY BROOKS:

Q. All right. Let's look at your list of publications, which is on page three of Exhibit 2, your curriculum vitae. And under the --- the page three and continuing onto page four is a section titled Refereed Journal. Correct?

A. Yes.

Q. And by Refereed Journal --- we'll both have to remember that. And also the court reporter may from time to time tell one of us to slow down. These all just ordinary parts of the process, just forgetting to speak up or to go slow enough to be transcribed.

[23]

Can you explain for the record what you mean by refereed journal, what the significance of that heading is?

A. Yes. So for those journals they are reviewed by an editor, and those are peer reviewed as well.

Q. So these --- this would be the list of your publications that would --- you would consider to be peer reviewed publications?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: Looking at the date on the front of this one, yes.

BY ATTORNEY BROOKS:

Q. And that date is January 21st of this year, 2022. Right?

A. Yes.

Q. And have you had any peer reviewed publication appear since January 21st of this year?

A. I have one that is --- that's in press for next month.

Q. And what is the title of that?

A. I would have to review the title in my e-mail. It's Clinical Simulation for Education of Nurse Anesthesia in Gender Affirming Care.

[24]

Q. Thank you.

A. Roughly.

Q. Roughly? I see an article here, number three on the list, Tejwani, from Tejwani, et al, and you are one of the authors shown from year 2017. Do you see that?

A. Yes.

Q. And that relates to disorders of sexual development. Am I correct?

A. Yes.

Q. And am I correct that that article has --- doesn't speak at all to the questions of gender. Does it?

ATTORNEY BORELLI: Objection to form.

THE WITNESS: That, no.

BY ATTORNEY BROOKS:

Q. Not correct?

A. I'm sorry, no, it doesn't speak.

Q. Just to be clear for the record, the Tejwani et al. article which you are a co-author does not speak at all to questions of gender identity. Correct?

ATTORNEY BORELLI: Objection, form.

[25]

THE WITNESS: Correct.

BY ATTORNEY BROOKS:

Q. And I see here a Lapinski, et al. article, the 4th item, from 2018, entitled Best Practices in Transgender Health: A Clinician's Guide for Primary Care. Do you see that?

A. Yes.

Q. Am I correct that that article does not report on any regional research by the authors?

ATTORNEY BORELLI: Objection to form.

THE WITNESS: I believe that's true.

BY ATTORNEY BROOKS:

Q. Are you the author of any peer reviewed papers that report original clinical research relating to gender identity or for transgender therapies?

ATTORNEY BORELLI: Objection to form.

ATTORNEY BROOKS: I don't know who spoke to the witness.

THE WITNESS: So gosh, I have a lot of things that are in process. Let me give it a second.

ATTORNEY BORELLI: Take the time you need to review that to answer the question fully.

THE WITNESS: Could you repeat the **[26]** question?

BY ATTORNEY BROOKS:

Q. Yes. Are you the author of any published peer reviewed papers that report original clinical research relating to gender identity or transgender therapies?

ATTORNEY BORELLI: Objection to form.

THE WITNESS: The item on number six would be the closest. And it is talking with patients about the gender identity and their experience of transgender care, yes.

BY ATTORNEY BROOKS:

Q. The --- that paper in particular is essentially calling for research. Am I correct?

ATTORNEY BORELLI: Objection to form.

THE WITNESS: Yes.

BY ATTORNEY BROOKS:

Q. It is not reporting on accomplished clinical research, is it?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: So in that study we actually did interview individuals as part of the study, so it has --- it's done as a --- oh, Lord, words. I'm going to find the word in a second. Not in like --- **[27]** more of a public health-based research approach where you do not actual like counting of things like you would do sort of --- search, but more around interviewing and looking at quantitate versus qualitative. That's the word I'm looking for. It's a qualitative study which is typically done in public health programs or other public health research.

Q. All right. Am I correct, Dr. Adkins, that you, yourself, have not treated nor personally examined Plaintiff, B.P.J.?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: That's correct.

BY ATTORNEY BROOKS:

Q. And you don't have any direct knowledge as to at what Tanner stage B.P.J. began puberty blockers. Am I correct?

A. I don't recall seeing that in any of the documentation.

Q. And you don't have any knowledge as to how B.P.J.'s physiology or athletic capabilities compare to a genetic female of a similar age, do you?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: I haven't assessed the [28] particular patient, person.

BY ATTORNEY BROOKS:

Q. Let me take you again to Exhibit 2 and page two --?

ATTORNEY MORGAN: May I interrupt for a moment.

ATTORNEY BROOKS: I'm sorry. Who's speaking?

ATTORNEY MORGAN: Sure. This is Kelly Morgan. I'm having a terrible time understanding the witness. So before we go on is there any way to see if we can --- it sounds extremely muffled. I'm only catching like maybe half of the words.

ATTORNEY BROOKS: Most --- most of the voice is coming through very clear on our end. I'm going to move

speaker so that paper shuffling is not as likely to shuffle it. Beyond that, I think everybody in this room will agree that we're speaking slowly and clearly and, frankly, loudly. So I'm not sure there's more we can do.

ATTORNEY BORELLI: And Kelly, for what it is worth, I think I caught maybe half of your words. I wonder if there is a connection issue on your end that might be worth investigating.

[29]

ATTORNEY HARTNETT: I will just say for the record, and others should speak up too because we obviously want all counsel to hear the deposition. I have been able to hear Mr. Brooks, the witness, and the objections have been a bit more faint, but we have been able to make them out so far.

ATTORNEY TRYON: This is Dave Tryon. I share Kelly's frustration. I'm having difficulty understanding the witness, so ---.

ATTORNEY BROOKS: And similarly, Dave, when we hear you, you're a little bit more muffled than some of the other voices. So the issue, perhaps the mics and speakers on the other end, but there's nothing more we can do at this end.

ATTORNEY GREEN: This is Roberta Green, and I'm also having trouble hearing. And I'm considering maybe -- you know, maybe muting my computer and calling in on my phone and see if I can hear better. I think when the doctor looks down to look at documents we lose some of that. So I'll report in if calling in on my phone is a breakthrough, but I appreciate you all. Thank you.

ATTORNEY DENIKER: Yes. Thank you. I'm also having trouble. And I'm curious if the court **[30]** reporter

is having trouble. And if she's not, that's good, but I just want to make sure that we --- that everybody can hear.

COURT REPORTER: So my biggest issue is people not saying their names when they're speaking. So we just had a bunch of people and I really have no idea who is sayin anything. I don't know who is making the objections. And ma'am, with the mask on, it is hard to understand you at times. I'm really like having to really focus in on you. And the objections are coming in quick. And I mean, there are definitely some challenges, but I don't know.

ATTORNEY BORELLI: Well, in case this is helpful, so this is Tara Borrelli with Lambda Legal on behalf of the Plaintiff. I am the person defending the deposition, so the objections will be coming from me, in case that's helpful going forward.

COURT REPORTER: Yes.

ATTORNEY HARTNETT: This is Kathleen Hartnett for the Plaintiff from Cooley. I was the first person that spoke after someone raised the issue. I believe Miss --- Ms. Morgan had raised the issue of the ability to hear. And I would just say for the record this is an in person deposition that was scheduled where **[31]** we had proposed it to be remote if parties saw fit to do that. We're not objecting to it being in person. We're --- obviously they're defending. And all parties had the ability to attend in person if they chose to.

ATTORNEY BROOKS: And I --- I will --- this is Roger Brooks taking the deposition. I will suggest that we just agree by voice acclimation that we're not going to cycle through all the names and try to identify all the people who have chatted with us about their reception and simply move on with the deposition unless anybody objects to that.

ATTORNEY MORGAN: I have no objection to that. This is Kelly Morgan. But is there any possibility that the witness would be able to remove her mask if everyone else is masked other than the questioner? Like I --- I'm not having trouble hearing anyone else other than the witness, and it just seems to get muffled.

ATTORNEY BORELLI: I'm sorry, but I --- I don't believe that's going to be an option. I mean, this --- this is partly why a remote deposition would have been our --- our preference, but Dr. Adkins obviously has to take precautions because she is continuing to see and treat patients. And so she needs **[32]** to protect her health.

ATTORNEY BROOKS: And we did agree to proceed in whatever way the witness wanted when it comes to that, so we'll all just have to live with that as part of these days. May we proceed?

ATTORNEY TRYON: Yes.

BY ATTORNEY BROOKS:

Q. If you have Exhibit 2 and on page two of that we have professional training and academic career, which towards the bottom includes your current two appointments associated with Duke University. Am I correct?

A. Three.

Q. I apologize. I see that. One is you're an Associate Professor of Pediatrics. Correct?

A. Correct.

Q. And you are the Director of the Duke Child and Adolescent Gender Care Clinic?

A. Correct.

Q. And you are a Co-Director of the Duke Sexual and Gender Health and Wellness Program.

Correct?

[33]

A. Correct.

Q. What is the total compensation you receive in connection with those three appointments with Duke University?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: Well, you want a number or ---?

BY ATTORNEY BROOKS:

Q. I do.

A. I'm going to have to give an approximation.

Q. And that's fine?

A. Approximately, $173,000 per year.

Q. And that is your total compensation on a W-2 from Duke University?

A. No. Duke University only pays me $20,000 per year. I work for the private Diagnostic Clinic, which is our private practice, and they pay me the balance.

Q. Okay. And do you receive any other compensation in connection with your work with patients in connection with the Duke Child and Adolescent Gender Care Clinic?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: No.

BY ATTORNEY BROOKS:

[34]

Q. Can you tell me what you earned in speaking fees in 2021, approximately?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: In 2021? Is that what you said?

BY ATTORNEY BROOKS:

Q. I did.

A. Let's see. I'm losing track of dates. I think only like $500.

Q. And what were the total expert fees that you received in 2021 in connection with serving as an expert in litigation?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: Nothing.

BY ATTORNEY BROOKS:

Q. And in 2021 did you receive any payments for any reasons from any pharmaceutical company?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: No.

BY ATTORNEY BROOKS:

Q. Let me ask you to look at Exhibit 1, which is your expert report. And if you would turn --- if you would turn to paragraph 37 of that report, paragraph 38. And there you say when a child is born a sex assignment **[35]** is usually made based on the infant's externally visible genitals. This designation is then recorded and usually becomes the sex designation listed on the infant's birth certificate. Do you see that language?

A. I do.

Q. And as a trained physician, can you tell us how a sex assignment is usually made based on the infant's external visible genitals?

A. Yes. In most cases the external genitals will have a form that looks typical to a male versus typical to a female. And if there is a question, then I get consulted, if there's something different.

Q. And by typical to a male, for instance, you mean what?

A. So male external genitalia at birth typically has a phalic structure, penis that is, of a certain length most of the time. And then there's scrotum and then there are usually testicles, although sometimes they can be up or down in the scrotum.

Q. And do you, yourself, have children?

A. I do.

Q. And you're aware that for quite a number of years now, in fact, parents often learn of the sex of their child before birth.

[36]

Correct?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: I have been aware that ultrasonographers often tell people what they think they are. And I'm also the one that has to tell the parents that it is different when they're born and it is not exactly accurate.

BY ATTORNEY BROOKS:

Q. That is as a result of the quality of imaging on ultrasound sometimes the wrong call is made on that?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: Possibly the quality of imaging, the skill of the person. There are also sometimes variations that aren't easily visible on ultrasound.

BY ATTORNEY BROOKS:

Q. You're are aware, are you not, that the genetic sex of infant is, in fact, determinable by genetic testing as early as the first trimester of pregnancy?

ATTORNEY BORELLI: Objection to form.

THE WITNESS: The typical testing for that is chromosomes, which are broad view and not specific for the hundreds of genes that can change the sex of the individual.

[37]

BY ATTORNEY BROOKS:

Q. Well, my question was you are aware, are you not, that the chromosomal sex of the infant is determinable as early as the first trimester of pregnancy?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: I'm sorry. I didn't hear you say chromosomal. I thought you said biological. I apologize.

BY ATTORNEY BROOKS:

Q. I can't swear what I said the first time.

ATTORNEY BROOKS: Let's ask the reporter to read back the second question I asked. Is the court reporter muted perhaps?

COURT REPORTER: One minute.

ATTORNEY BROOKS: Okay.

COURT REPORTER: You said genetic testing. Do you want me to read the whole question?

ATTORNEY BROOKS: I do.

COURT REPORTER: You are aware, are you not, that the genetic sex of an infant is determinable by genetic testing as early as the first trimester of pregnancy?

ATTORNEY BORELLI: Objection to form.

[38]

COURT REPORTER: And again I just want to say that the witness is hard to understand. There is definitely a lot of muffling words coming through, you know, just like in the sentence there might be two words that I just have to like really --- I'm just struggling over here with this mask. I can't see your lips moving, so it's really hard, but --.

THE WITNESS: I'll slow down, but I was sick earlier this week, and I'd really rather not share that with anyone in the room. And I don't think that they would like that, so ---.

BY ATTORNEY BROOKS:

Q. Don't consider yourself pressured to take off your mask. Just do what you can to speak clearly into the microphone.

ATTORNEY BORELLI: Thank you. And we just moved the mic closer to the witness as well, so we --- we hope that that will help make a difference.

ATTORNEY HARNETT: Excuse me. This is Kathleen Hartnett from Cooley. I would like to ask whether the videotaping that's happening now will allow further transcription after the deposition?

VIDEOGRAPHER: Yes, that's --- the videotape is picking up everything that --- I'm having **[39]** no troubles on my side, so it's picking up all of the audio and everything.

ATTORNEY HARTNETT: Thank you very much.

VIDEOGRAPHER: You're welcome.

ATTORNEY BROOKS: And rather than re-reading the question, I'm just going to forget all that and ask you a new question.

BY ATTORNEY BROOKS:

Q. You are aware, are you not, that the chromosomal sex of an infant nowadays can be determined as soon as the first trimester of pregnancy?

ATTORNEY BORELLI: Objection to form.

THE WITNESS: You can obtain the baseline chromosomes, yes.

BY ATTORNEY BROOKS:

Q. And that will tell you the chromosomal sex of that infant?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: The --- not really a term that is really precise as there's hundreds of genes that can change that.

BY ATTORNEY BROOKS:

Q. So you are not able to answer my question yes or no?

[40]

ATTORNEY BORRELLI: Objection to form.

THE WITNESS: I'm not able to answer the question yes or no.

BY ATTORNEY BROOKS:

Q. You would agree that the genetic sex of an infant is determined at the instant of conception?

ATTORNEY BORELLI: Objection to form.

THE WITNESS: The actual Y chromosomes are at that time, yes.

BY ATTORNEY BROOKS:

Q. That's not something that a doctor has any choice or could change at the time of birth?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: The chromosomes, no.

BY ATTORNEY BROOKS:

Q. And you understand what I think we all learned in perhaps sixth grade biology that an individual with two X chromosomes, provided that there is no chromosomal abnormality, is female female and an individual free of abnormalities who has an X and a Y chromosome is male.

Correct?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: Free of any abnormalities, yes.

[41]

BY ATTORNEY BROOKS:

Q. And you also understand that in humans, like all mammals, a gamete from a male and a gamete from a female are necessary to create a fertilized egg in a new individual?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: Can you read the very first part of the question again, please?

BY ATTORNEY BROOKS:

Q. You understand that in humans, as in all mammals, a gamete from a male and a gamete from a female are necessary to create a fertilized egg and a new individual?

ATTORNEY BORELLI: Same objection.

THE WITNESS: Yes.

BY ATTORNEY BROOKS:

Q. Now, if you look at paragraph 41 in your declaration ---

A. Yes.

Q. --- in paragraph 41 you state, quote, biological sex, biological male or female are imprecise and should be avoided. Do you see that?

A. Yes.

Q. And it is your view that the terms biological **[42]** male, biological female and biological sex are so imprecise as to be not useful from a medical point of view?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: In my practice we have to be more careful than that because I see quite a lot of individuals where that wouldn't be a very precise answer.

BY ATTORNEY BROOKS:

Q. My question is is it your expert opinion, are you offering expert opinion in terms of biological sex, biological male and biological female are so imprecise as to not be medically useful?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: Yes.

ATTORNEY BROOKS: Let me mark as Exhibit 4 what is tab 5, and that is the Endocrine Society Guidelines dated 2017, but the number of authors. The first name is Wiley Hembree.

(Whereupon, Adkins Exhibit 4, 2017 Endocrine Society Guidlines, was marked for identification.)

---

[43]

ATTORNEY BROOKS:

I'm handing that to the witness and to opposing counsel.

BY ATTORNEY BROOKS:

Q. Dr. Adkins, this is a document that you cite in your expert report.

Correct?

A. Correct.

Q. And with which you are quite familiar?

A. Correct.

Q. Do you know Dr. Hembree?

A. I spoke with him on the phone.

Q. You would agree, would you not, that he's been prominent in the field of transgender medicine for decades?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: His publications, yes.

BY ATTORNEY BROOKS:

Q. And another author is Peggy Cohen-Kettenis. Do you see that? She's the second author.

A. Yes.

Q. And likewise, she has been prominent in the field for at least 20 years?

ATTORNEY BORELLI: Objection.

THE WITNESS: I've seen publications in **[44]** that date range, yes.

BY ATTORNEY BROOKS:

Q. Have you met Dr. Cohen-Kettenis?

A. No.

Q. And she is associated with a highly respected institute in Amsterdam.

Am I right?

A. I am not certain. I would have to look that up.

Q. You don't know. You weren't invited to serve on the committee that drafted these guidelines, were you?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: There is an invitation extended to all Endocrine Society members. I did find a time. That was early in my work with this at that time.

BY ATTORNEY BROOKS:

Q. If you look down on page one, about five lines from the bottom ---.

A. Say it again.

Q. Page one, five lines from the bottom?

A. Yes.

Q. Actually, let's go two more up and begin a sentence. There's a sentence that begins they require a safe and effective hormone regimen that will, one, suppress endogenous sex hormone secretion determined by **[45]** the person's genetic/gonadal sex. Do you see that?

A. I do.

Q. And do you think you understand what's referred to by the term genetic/gonadal sex?

ATTORNEY BORELLI: Objection, form.

THE WITNESS:

Yes.

BY ATTORNEY BROOKS:

Q. And what is your understanding of what that refers to?

A. So that would include both the chromosomes as mentioned before, the broad XY, and it should include all of the other genetic mutations as well as what actual gonads are present in the person.

Q. And this committee, these prominent researchers at least considered genetic/gonadal sex to be a meaningful and readily understandable binary classification.

Correct?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: That's not clear there and it is different from what you said before.

BY ATTORNEY BROOKS:

Q. I try to make each question somewhat different from the one before, so yes. Let me ask a new question. **[46]**

This committee considered --- the committee that drafted these guidelines considered genetic/gonadal sex to be a meaningful and readily understandable classification.

Correct?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: Yes. They didn't use the word chromosomal sex. And they included gonads which are also a part of the broad development of human reproductive biology.

BY ATTORNEY BROOKS:

Q. And in fact, you, yourself, quoted this language in your expert report, did you not?

A. Yes.

Q. And genetic sex, in your understanding, what is the meaning of genetic sex?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: Well, in most patients, in most people, it is whether you received an X or a Y chromosome and all of your body parts include an XY containing or an XX containing cell. There are cases where you can have mossaicism or different parts of a human at different sex chromosomes where a part is XX, a part is XY, part is XO. And then there is also some mutations that can occur in lots of other locations that **[47]** can determine whether or not a patient's, you know, likely to have the rest of their human development appear as what we would more typically see in a male human or a female human.

BY ATTORNEY BROOKS:

Q. Well, in every human individual who is healthy and free of disorder of sexual development, genetic sex and gonadal sex are --- directly correspond.

Correct?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: Typically, yes.

BY ATTORNEY BROOKS:

Q. So in a healthy individual free of genetic defect every individual who is chromosomally XX is going to have female gonads and female genitalia.

Correct?

ATTORNEY BORELLI: Objection to form.

THE WITNESS: My only concern is I would not use defect as a language. There's --- you know, we see variation across humans and we --- you know, there are variations that are normal and variations that are typical versus rare. So I would not call it necessarily a defect, maybe a variation would be the word I would use.

[48]

BY ATTORNEY BROOKS:

Q. The relationship between chromosomal sex and gonads are not separate things that can vary in healthy individuals, are they?

ATTORNEY BORELLI: Objection to form.

THE WITNESS: Well, I have healthy individuals who have XY chromosomes and external genitalia that are completely female.

ATTORNEY BROOKS: Let me mark as Exhibit 5 the prior edition guidelines put out by the Endocrine Society in 2009, eight years earlier.

(Whereupon, Adkins Exhibit 5, 2009 Endocrine Society Guidelines, was marked for identification.)

BY ATTORNEY BROOKS:

Q. And the primary author is on --- the first author on the 2009 guidelines are the same individuals, Dr. Hembree and Cohen-Kettenis?

Correct?

A. Correct.

ATTORNEY BORELLI: Objection, form.

BY ATTORNEY BROOKS:

[49]

Q. In fact, you, yourself, were familiar with and regularly consulted these guidelines.

Am I correct?

ATTORNEY BORELLI: Objection to form.

THE WITNESS: Prior to 2017?

BY ATTORNEY BROOKS:

Q. Correct.

A. I used these guidelines.

Q. And did you find them to be incomprehensible?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: No.

BY ATTORNEY BROOKS:

Q. If you look with me on page marked 3134, which is the third page of the document, second column three quarters of the way down is the definition of --- under the heading of definitions is a definition of transsexual or transsexual people.

Do you see that?

A. I see it.

Q. It says there that a transsexual person refers to a biological male who identifies as or desires to be a female --- a member of the female gender or vice versa.

Do you see that?

[50]

A. Yes.

Q. And so in 2009 these prominent authors in the field considered biological male to be a scientifically useful and adequately clear term for them to use in these guidelines issued by the Endocrine Society.

Correct?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: It's written that way in this paper, yes.

BY ATTORNEY BROOKS:

Q. And you in that time period 2009 to just 2017 used these guidelines and were able to understand them.

Correct?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: You know, I would have to spend some time looking to see what else is in here. It has been a long time since I've used these particular and pulled out. And it is a single location. It can sometimes be misleading if you're aware --- if you've read many medical articles.

BY ATTORNEY BROOKS:

Q. So you don't recall whether you found these guidelines to be comprehensible and useful for your purposes in the years between 2009 and 2017?

[51]

ATTORNEY BORELLI: Objection, form.

THE WITNESS: Generally they were useful.

BY ATTORNEY BROOKS:

Q. If you look just a little lower is --- the next definition is transition.

Do you see that?

A. Yes.

Q. And it refers to a period of time during which transsexual persons change their physical, social and legal characteristics to the gender opposite that of their biological sex.

Do you see that?

A. I do.

Q. And again, these authors used the term biological sex, did they not?

A. They did.

Q. And they indicated their understanding that biological sex is binary in referring to opposite of a biological sex.

Correct?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: In this older version they do use more binary terms. As you know, language changes over time. In the new guidelines they don't talk as **[52]** much about binary.

BY ATTORNEY BROOKS:

Q. Is it your belief that the underlying biology has changed since 2009?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: Our understanding of a lot of things in this area is growing rapidly. It's a rapid area of research.

BY ATTORNEY BROOKS:

Q. Let me ask you to turn in this document to page 3141.

A. Same document, 3141?

Q. Yes.

A. Thank you.

Q. And here we're in a discussion of the use of GRNH analogs, which is to say puberty blockers.

Am I correct?

A. Which section?

Q. Well, the heading is 2.3, evidence, and it is talking about in the second paragraph treatment with GRNH analogs?

ATTORNEY BORELLI: Counsel, can we give the witness one moment to look at this?

ATTORNEY BROOKS: Of course.

[53]

ATTORNEY BORELLI: Thank you.

THE WITNESS: Yes, that appears to be what is discussed in this section.

BY ATTORNEY BROOKS:

Q. Here the authors in the 2009 Endocrine Society guidelines describe the effect of treatment with puberty blockers.

Correct?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: Yes.

BY ATTORNEY BROOKS:

Q. And they say among other things that, quote, in girls breast development will become atrophic and menses will stop. And they continue, quote, in boys verilization will stop and testicular volume will decrease.

Do you see those quotes?

A. I do.

Q. Again, in 2009, the Endocrine Society didn't think there was ambiguity or imprecision as to what is a girl and what is a boy for purposes of development in puberty, did they?

ATTORNEY BORELLI: Objection to form.

THE WITNESS: As I said, the language **[54]** would be different and likely is different in conversations around this because it is not as precise as I would use or my colleagues would use.

BY ATTORNEY BROOKS:

Q. In 2009 the Endocrine Society in publishing these guidelines didn't think there was any ambiguity or imprecision as to what is a girl and what is a boy for purposes of the effect of puberty.

Correct?

ATTORNEY BORELLI: Objection to form.

THE WITNESS: I would have to read the article up to this point to see what their clarifications are with regard to those phrases. Oftentimes in the beginning of articles they will clarify what they mean by a particular phrase, and taking it out of context is a little bit difficult for me to just say it is true right here on the spot.

ATTORNEY BORELLI: I would also just object to the extent that we're asking about select definitions without having given the witness an opportunity to review the entire definition and section of the document and asking her to draw conclusions about the larger document.

ATTORNEY BROOKS: Counsel, I think that **[55]** you are supposed to under the Rules to confine your objections to stating objection.

BY ATTORNEY BROOKS:

Q. In your practice today with respect to individuals who do not suffer from any disorder of sexual development you don't have any trouble telling girls from boys, do you?

ATTORNEY BORELLI: Objection to form.

THE WITNESS: I do not have trouble deciding who was assigned female at birth versus those who were assigned male at birth.

BY ATTORNEY BROOKS:

Q. We have already talked about how that assignment is done based on observation of genitalia, which depend on underlying genetic sex.

Right?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: So the typical manner of assignment we have discussed. Sometimes those things change over time with --- absent of course a difference of sex development or intersex conditions. Typically they would match.

BY ATTORNEY BROOKS:

Q. And if you are, for instance, getting ready to **[56]** prescribe cross sex hormones for a patient in patients who are free of any disorder of sexual development you don't have any trouble determining which patients need testosterone as a cross sex hormone versus which patients need estrogen as a cross sex hormone, do you?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: My mouth is getting dry. I don't have any trouble with that.

BY ATTORNEY BROOKS:

Q. And that's because absent rare and unusual disorders of sexual development it's really easy for all of us to tell girls from boys, isn't it?

ATTORNEY BORELLI: Objection to form.

THE WITNESS: With regard to their sex assignment at birth, yes.

BY ATTORNEY BROOKS:

Q. Now, you've mentioned a couple times when I asked you questions about the 2009 guidelines that perhaps a language that's used has changed.

Am I right?

A. Yes.

Q. You are not contending that how human biology works has changed?

ATTORNEY BORELLI: Objection, form.

[57]

THE WITNESS: Our understanding of human biology at this time is accelerating greatly, especially in the area of genetics. We can now look at someone's whole exome, whole chromosome, and it's --- I mean in this timeframe there's an amazing amount of information that's become more clear.

BY ATTORNEY BROOKS:

Q. So is it your --- are you asserting that the more recent Endocrine Society policy statement should be accepted as a more precise Scientific statement?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: The goal is for that to be, yes, when you are writing those. And it's also been sometimes since this was published as well.

BY ATTORNEY BROOKS:

Q. Since the 2017 guidelines?

A. Correct.

Q. But in general, is it your view the more recent statements of the Endocrine Society that touch on issues of the definition of gender and sex are --- we should

consider more accurate or reliable than earlier statements?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: In the correct context, **[58]** yes. Sometimes when they're taken out of context and applied to not the exact same population, they may or may not be as precise.

BY ATTORNEY BROOKS:

Q. They may or may not be. That is you don't maintain that generally more recent statements of the Endocrine Society relating to definitions of gender and sex are more reliable than earlier statements?

ATTORNEY BORELLI: Objection to form.

THE WITNESS: Their goal and our goal as a community is to be as precise as possible. Sometimes that works and sometimes it doesn't.

ATTORNEY BROOKS: Let me mark as Exhibit --- what are we at, 6. Exhibit 6. What is tab 4 in the materials provided to the court reporter, an article Lapinski, et al., which Dr. Adkins is a coauthor from 2017. Pardon me, 2017.

(Whereupon, Adkins Exhibit 6, 2017 Lapinski Article, was marked for identification.)

BY ATTORNEY BROOKS:

Q. And this is your only or perhaps one of only two **[59]** peer reviewed articles on which you were an author that relate to transgender patients.

Correct?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: I'm going to refer back to my ---.

BY ATTORNEY BROOKS:

Q. Please do, and that's Exhibit 2.

A. I apologize --- I'm sorry. I was thinking of the book chapter. Yes, I was thinking of the book chapter I've written there. So those are also peered reviewed. So if you just falling manuscript of joint articles, that's true, but I also have one book chapter published and one that is in process.

Q. Well, at any rate, this article was published in 2017, the same year as the more recent guidelines from the Endocrine Society.

Correct?

A. Correct.

Q. And in this article --- let me ask you to turn to page 692. And looking at a paragraph that actually runs over from 689 because of a long intervening table. Paragraph is headed understanding the meaning of transitioning for transgender patients.

[60]

Do you see that?

A. Yes.

Q. And the paragraph continues on to page 692 and the language I want to call your attention to is there, but of course feel free to look at the paragraph?

ATTORNEY BORELLI: Counsel, for clarity of the record, I'm showing that the heading is on page 689.

ATTORNEY BROOKS: Correct. That's where the paragraph begins and then there's a two-page table breaks up the paragraph and now we're on 692.

ATTORNEY BORELLI: Thank you.

THE WITNESS: Just that paragraph.

BY ATTORNEY BROOKS:

Q. Yes.

A. Okay.

Q. In 2017, writing a guide for clinicians as to what you considered to be best practices in transgender health you and your coauthors thought that it was clear and useful to refer to, quote, the opposite biological sex, closed quote, did you not?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: The language would be reflective of the original publications.

[61]

BY ATTORNEY BROOKS:

Q. Dr. Adkins, what do you mean by that answer?

A. When you're putting something into a journal article and you're reporting that original article's information, it would be inappropriate to change the language. So the original report that states this particular information used those words.

Q. Well, you didn't put this in quotation marks in your article, did you?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: We don't necessarily have to put them in quotation marks. In medically referred journals you can just put the reference.

BY ATTORNEY BROOKS:

Q. And in fact, there is no footnote to this, is there, there is no reference?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: Not right at the end of that sentence.

BY ATTORNEY BROOKS:

Q. What that sentence says to get it into the record, I'm referring to sexual orientation, it says, quote, this fluctuation tends to occur more commonly with individuals who are attracted to the opposite **[62]** biological sex before transitioning, closed quotes. Have I read that language correctly?

A. Correct.

Q. And publishing this guideline for clinicians in 2017, is it your testimony that even if you thought that language was inaccurate and confusing you would not have clarified it?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: I can't change what the publication states. It would be inappropriate for me to make a statement that was different from what the publication states. And there are people that fall on the binary and people who fall in the middle, and that particular study investigated people who identified on each end of the binary spectrum of individuals identification of gender identity.

BY ATTORNEY BROOKS:

Q. So you believe as a scientist and an author that writing in 2017, even if you thought the term biological sex was misleading and inaccurate, you --- it was nevertheless appropriate for you to use that term in a best practices guide that you were writing for clinicians?

ATTORNEY BORELLI: Objection, form.

[63]

THE WITNESS: So if you would read the entirety of the article, I would hope that we would be clear and it would be understood in that isolated paragraph, again I, have to use what language was used in the original publication. Otherwise, I'm misrepresenting the original publication and I would not want to do that.

BY ATTORNEY BROOKS:

Q. Well, if you thought the original publication was in accurate and misleading you wouldn't want to cite and rely on it, would you?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: As it's stated, it's not inaccurate. And if you infer things from a sentence it could be misleading. If you read it straight for what it says, it's accurate to what the report gave in the initial publication.

BY ATTORNEY BROOKS:

Q. Are you familiar, Dr. Adkins, with a NIH policy that requires research supported by NIH grants that involves animal or human clinical work to consider what NIH refers to as, quote, sex as a biological variable, closed quote?

ATTORNEY BORELLI: Objection, form.

[64]

THE WITNESS: I have seen that policy and also seen the policies that are presented by the NIH which uses sex assigned at birth as well as gender identity and in addition, as variables that should be included in their research.

BY ATTORNEY BROOKS:

Q. My question is precise. Are you familiar with the NIH policy that requires grant supported research in sales or clinical work to, quote, consider sex as a biological variable?

ATTORNEY BORELLI: Objection, form. Counsel, if you are going to continue questioning her about the policy, we'd request a copy be placed in front of the witness.

ATTORNEY BROOKS: At the moment I'm just asking the witness if she's familiar with that policy.

ATTORNEY BORELLI: My objection stands.

THE WITNESS: I haven't read the entire policy. I have seen that within the documents that you have presented, so I can't accurately state if it is true.

BY ATTORNEY BROOKS:

Q. Have you, yourself, ever submitted any grant proposal that was subject to that NIH policy?

[65]

ATTORNEY BORELLI: Objection, form.

THE WITNESS: I have submitted NIH grants.

BY ATTORNEY BROOKS:

Q. And in that connection did you take some steps to assure that your grant proposal would comply with that policy?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: All of my grants applications had sex assigned at birth as a variable that we report.

BY ATTORNEY BROOKS:

Q. Let me show you another more recent Endocrine Society policy statement. This is tab eight. It will be Exhibit 7.

(Whereupon, Adkins Exhibit 7, 2021 Endocrine Society Scientific Statement, was marked for identification.)

THE WITNESS: Before we start this questioning is it possible for me to take a break?

ATTORNEY BROOKS: It certainly is. At any time that you want to, you just say so.

[66]

VIDEOGRAPHER: Going off the record. The current time reads 10:08 a.m.

OFF VIDEO

- - -

(WHEREUPON, A PAUSE IN THE RECORD WAS HELD.)

- - -

ON VIDEOTAPE

VIDEOGRAPHER: We're back on the record. Current time reads 10:21 a.m. Eastern Standard Time.

ATTORNEY BROOKS: And this is Roger Brooks resuming the questioning. I have put in front of the witness what is marked Exhibit 7, which is a, quote, scientific statement from the Endocrine Society that is entitled Considering Sex as a Biological Variable in Basic

and Clinical Studies: An Endocrine Society Scientific Statement, closed quote. Do you see that?

A. Pardon me. Yes.

Q. So this is --- document, this statement is from 2021, just last year. And four more years --- recent four more years of science available as compared to the 2017 guidelines we looked at earlier. Correct?

A. It is that --- yes, as far as the date goes, I mean, one would think they would be up-to-date.

[67]

Q. And let me just ask, obviously the Endocrine Society is a large organization, but do you know, either personally or by reputation, any of the authors listed on this document?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: Excuse me. Walter Miller by reputation.

BY ATTORNEY BROOKS:

Q. And Walter Miller is at the University of California, San Francisco, according to the footnote there?

A. Let's see. That's what it looks like.

Q. And just looking down, the University of California, San Francisco, is a highly prestigious research institution, is it not?

A. It has a good reputation.

Q. And farther down, halfway down the block of institutions that these authors are associated with, I see University of California, Los Angeles. Do you see that?

A. Yes.

Q. And UCLA, to use its abbreviation, is also a highly respected research university, is it not?

A. You know, there is some variability there. And **[68]** yes, there are some folks there who do a nice job.

Q. And maybe four lines from the bottom of that block I see a reference to the National Institute of Mental Health. Do you see that?

A. Yes.

Q. And that's a highly respected governmental research laboratory. Correct?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: Yes.

BY ATTORNEY BROOKS:

Q. And let me ask you to turn here in this document to the second page, which is page 220. And this is, in fact, the beginning of the text after the abstract on the previous page. And there it begins, quote, 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 zygotes stemming from unequal expression of sex chromosomal genes, closed quote. Do you see that language?

[69]

A. I do.

Q. Do you understand the meaning of the word dichotomous?

A. I do.

Q. What does it mean?

A. Two options.

Q. There are two options. And do you think you understand the significance of the statement that, quote, sex is an important biological variable?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: I understand that it --- yes.

BY ATTORNEY BROOKS:

Q. In fact, I believe you testified earlier that in the human body every body part, every cell either has XX chromosomes or XY chromosomes depending on the chromosomal sex of the individual. Is that right?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: Some individuals have a mixture.

BY ATTORNEY BROOKS:

Q. And those would be genetic abnormalities.

Am I correct?

[70]

ATTORNEY BORELLI: Objection, form.

THE WITNESS: Again, I don't like the word abnormalities. It is a variation in presentation of a human.

BY ATTORNEY BROOKS:

Q. You would agree, would you not, that any deviation from having either XX or XY chromosomes is widely considered to be an abnormality?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: Again, I don't prefer that language.

BY ATTORNEY BROOKS:

Q. Dr. Adkins, I didn't ask you what you prefer. I understand your preference. My question is you would agree, would you not, within the scientific community it is widely held view that any chromosomal arrangement other than having XX or XY is abnormal?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: Not in my experience in my group of people that I practice with, they would not describe it that way.

BY ATTORNEY BROOKS:

Q. Would you agree that sex is determined to use the language that I have directed you to, quote, in the **[71]** fertilized zygote, closed quote?

A. I'm sorry. Can you re-read the question or repeat the question?

Q. Yes. I'm referring to the language that references sex determination in the fertilized zygote. And my question is do you agree that the sex of an individual is determined, quote, in the fertilized zygote, closed quote?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: Again, they're not being very specific in that particular sentence about what they mean by sex.

BY ATTORNEY BROOKS:

Q. You're not able to say whether this opening language in this 2021 statement from the Endocrine Society is in your view accurate or in accurate?

ATTORNEY BORELLI: Objection to form.

THE WITNESS: Taking one statement, I can't. This is a very long document.

BY ATTORNEY BROOKS:

Q. I'm asking you now, do you agree or disagree the sex is determined in the fertilized zygote?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: XX and XY components are **[72]** determined in fertilized zygote. That doesn't necessarily equal sex that's assigned at birth.

BY ATTORNEY BROOKS:

Q. Absent any disorder of sexual development, the determination the zygote that you just described will, in fact, dictate 100 percent reliability the sex observed at birth. Correct?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: Well, I can't --- you know, in medicine we don't say anything is 100 percent. If you use the absent any --- any difference of sex development even an unknown one that we might not know about, that --- that is what we know to be true.

BY ATTORNEY BROOKS:

Q. You mentioned earlier that dichotomous means there are two alternatives and only two alternatives. Right?

ATTORNEY BORELLI: Objection, form.

BY ATTORNEY BROOKS:

Q. That's just what the word means?

ATTORNEY BORELLI: Same objection.

THE WITNESS: That's what the word means.

BY ATTORNEY BROOKS:

[73]

Q. And in this important statement from the Endocrine Society published just last year drafted by a whole committee of prominent endocrinologists they say that sex is an important biological variable, closed quote. Do you disagree with this statement from the Endocrine Society?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: In reading that particular statement I would agree if they had used the word sex assigned at birth or something more precise in that sentence.

BY ATTORNEY BROOKS:

Q. Well, what they said precisely is sex is a biological variable. Do you see that language?

A. Yeah.

Q. Do you agree with that?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: So in the context of medicine, when we're talking about sex and we're talking about --- that's very imprecise. I really think that it is --- I would --- it's hard for me to use that word because it is imprecise, as I have mentioned before.

BY ATTORNEY BROOKS:

Q. So you think this statement from last year from **[74]** the Endocrine Society in its opening language is so imprecise that you can't tell me whether you think it is accurate or not?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: I would have to read the entirety of the report and take it within context as I would with any other language used.

BY ATTORNEY BROOKS:

Q. Sitting here right now, you're unable to answer my question as to whether you think it is an accurate statement that sex is a biological concept?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: Sex is a biological concept, yes.

BY ATTORNEY BROOKS:

Q. And let me take you, in fact, to page 221 of this document, first column. And there you will see a heading that begins biological sex, the definition of male and female. Do you see that?

A. Yes.

Q. And it begins sex is a biological concept. And you just said that you think that's a scientifically true statement.

[75]

Right?

ATTORNEY BORELLI: Objection, form. Could --- could she have an opportunity to read this section before we continue questioning?

ATTORNEY BROOKS: Yes. But I'll ask you not to coach the witness. I have not denied any requests, but the witness should make them, not counsel.

ATTORNEY BORELLI: The objection stands. It is appropriate to ask that a witness be able to read a section of a document before being asked to opine about the larger meaning of the document.

ATTORNEY BROOKS: I believe the witness threw some more language in this paragraph so that's a good idea.

BY ATTORNEY BROOKS:

Q. If you will tell us when you have read that paragraph.

A. Yes. Sorry.

Q. You have?

A. No, I will tell you.

ATTORNEY TYRON: Jake, could you scroll down a bit, please?

THE WITNESS: Okay.

BY ATTORNEY BROOKS:

[76]

Q. In the first paragraph under the heading biological sex, directing your attention to the statement did you discuss the statement sex is a biological concept. Do you see that language?

A. I do.

Q. And you believe that to be a scientifically accurate statement?

ATTORNEY BORELLI: Objection to form.

THE WITNESS: Yes.

BY ATTORNEY BROOKS:

Q. And in the next sentence this Endocrine Society statement tells us that, quote, all mammals have two distinct sexes, closed quote. Do you believe that is true or scientifically inaccurate?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: Excuse me. I'm sorry. I'm trying to find that language.

BY ATTORNEY BROOKS:

Q. Third line of that paragraph, all mammals have two distinct sexes. My question is do you believe that is inaccurate or accurate scientific ---?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: I still think it is imprecise.

[77]

BY ATTORNEY BROOKS:

Q. Have you finished your answer?

A. Yes. Sorry. My allergies are making me ---.

Q. Any time you need a drink.

A. Yeah. Sorry about that.

Q. Few lines down it says, quote, the classical biological definition of the two sexes is that females have ovaries and make larger female gametes, eggs, whereas the males have testes and male smaller gametes, sperm. Do you see that language?

A. I do.

Q. Do you agree that is a fair statement of the classical biological definition of the two sexes?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: When you use the word classical it describes what you would see typically, so I agree with that statement. It allows for there to be some variations that may not be classical.

BY ATTORNEY BROOKS:

Q. And it is accepted as a classical definition because it is accurate in the overwhelming percentage of cases.

Is that true?

ATTORNEY BORELLI: Objection, form.

[78]

THE WITNESS: So you know, as I mentioned before in my papers that I submitted, it --- you know, the percentage of people with differences of sex development is low and those would be the individuals that would not follow typically within this.

BY ATTORNEY BROOKS:

Q. And those individuals are the overwhelming majority. Correct?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: They are the majority.

BY ATTORNEY BROOKS:

Q. Well more than 99 percent. Correct?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: I would have to do the math but that sounds accurate.

BY ATTORNEY BROOKS:

Q. Let me ask you to turn to page 228. In the second column, the final paragraph begins on that page, it reads, quote, sex is an essential part of vertebrate biology, but gender is a human phenomenon, semicolon; Sex often influences gender, but gender cannot influence sex. Do you see that language.

[79]

A. What is the first word in the sentence again so I can find it?

Q. It's on the second column, the final paragraph.

A. Okay.

Q. I'm really just calling your attention to the first sentence.

A. Yep, read it.

Q. Is there anything in that sentence that you believe to be inaccurate scientifically?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: Again, I think they're imprecise as primates have gender roles and gendered activity, so it's not exactly precise.

BY ATTORNEY BROOKS:

Q. Anything else about that statement that you want to say is less than scientifically accurate?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: You know, again they use the word sex without being very specific as to sex assigned at birth. That's my only other caveat.

BY ATTORNEY BROOKS:

Q. If we read that to refer to what the Endocrine Society determined used in the 2017 Endocrine Society statement that we looked at, that is, quote, **[80]** genetic/gonadal sex, then do you you consider this statement to be accurate?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: That's not what it says, so I'll ask you to repeat the question for me.

BY ATTORNEY BROOKS:

Q. If we assume hypothetically --- I will ask you to assume that sex as used in this Endocrine Society 2021

document, has the meaning that you, in fact, explained from the term used in the 2017 Endocrine Society document that is, quote, genetic/gonadal sex, closed quote, then you believe this to be --- the language that I have read to you from the 2021 document to be accurate?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: So I believe when I answered that question --- I believe when I answered that question sex, gonadal, you know, those are two parts of it. They have not included the full range of hormonal or external genitalia to be specific. In my line of work I would need all of that information to really pin down things.

BY ATTORNEY BROOKS:

Q. So your testimony now is that the term **[81]** genetic/gonadal '17 guidelines is too imprecise for you really to understand?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: I think you asked that question before.

BY ATTORNEY BROOKS:

Q. And I thought you had said you did understand. You seem to be changing your testimony.

ATTORNEY BORELLI: Objection.

THE WITNESS: You can read it back to me if you --- I think that there's multiple things that are left out of that particular phrase to describe, you know, individuals. I can't say something that is, you know, in my experience and in the literature and in patients with intersex conditions that are --- that could be different from that. There --- yeah.

BY ATTORNEY BROOKS:

Q. If we for a moment focus on individuals who do not suffer from any disorder of sexual development, then do you believe the following quote from Endocrine Society 2021 document is true, and that is, quote, sex is an essential part of vertebrate biology, but gender is a human phenomenon, semicolon, sex often influences gender, comma, but gender cannot influence sex, closed **[82]** quote?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: Trying to think, make sure --- I can't think of an instance right now that makes me disagree with that statement.

BY ATTORNEY BROOKS:

Q. Let me take you to the first column on page 228 and there's a heading there that says considering sex and/or gender as variables in health and disease. Do you see that?

A. No. What page are you on?

Q. 228 ---

A. Yes.

Q. --- first column, the heading towards the bottom of the page.

A. Okay.

Q. And here they're specifically mentioning sex on one hand and gender on the other. Do you see that? This paragraph begins, quote, women and men differ in many physiological and psychological variables. Do you see that?

A. Yes.

Q. Do you believe that to be a scientifically accurate statement?

[83]

ATTORNEY BORELLI: Objection, form.

THE WITNESS: I think if I were to add typical, it's saying there is variability.

BY ATTORNEY BROOKS:

Q. Well, it is saying specifically that women and men differ from each other in physiological and psychological ways. Correct?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: That's what it says.

BY ATTORNEY BROOKS:

Q. And do you believe that to be a scientifically true statement?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: Again, you know, you have to interpret these in their context of what they are saying. Statements.

BY ATTORNEY BROOKS:

Q. Do you believe it to be true or false that women and men differ in many physiological and psychological variables?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: All people are different.

BY ATTORNEY BROOKS:

[84] Q. Dr. Adkins, do you believe it to be true or false that women and men as women and men differ from each other in many physiological and psychological variables?

ATTORNEY BORELLI: Objection to the form.

THE WITNESS: So women and men are a gender assignment, not the biological sex which you mentioned before. And gender is not necessarily a way that I would necessarily think is a scientifically precise way to place that if you're talking about this particular statement.

BY ATTORNEY BROOKS:

Q. Is it your belief that the Endocrine Society in this document in the terms women and men is referring to gender identity other than biological --- what does the word physiological mean to you as a doctor?

A. The method of function and interaction of all the parts of the body.

Q. It refers to biology, not to the statement of mind or identity. Correct?

ATTORNEY BORELLI: Objection to form.

THE WITNESS: I would just agree with that statement.

[85]

BY ATTORNEY BROOKS:

Q. Let me ask you to turn to page 229.

Q. The first full paragraph begins, quote, despite the fact that biological sex is such a fundamental source of interest specific variation in anatomy and physiology, much basic and clinical science has tended o focus studies on one sex, typically male, closed quote. Do you see that language?

A. I do.

Q. And do you understand what is meant by intraspecific variation? Let me offer a suggestion. Do you understand it to refer to variations within the human species?

ATTORNEY BORELLI: Objection to form.

THE WITNESS: I think you know again in context I would need to intraspecific --- intraspecific could be between me and you. Isolated in this one sentence, I would need to take a moment to see if it better explains it if I were to read further.

BY ATTORNEY BROOKS:

Q. Do you disagree or agree that biological sex is a fundamental source of variation in anatomy and physiology within the human species?

ATTORNEY BORELLI: Objection, form.

[86]

THE WITNESS: I'm sorry. I got sidetracked in my brain. Could you please read the question?

BY ATTORNEY BROOKS:

Q. Yes, I can. Do you agree or disagree that biological sex is the fundamental source of variation in anatomy and physiology within the human cease species?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: There is lots of other parts of physiology that are completely unrelated to your reproductive system that is more fundamental.

BY ATTORNEY BROOKS:

Q. Dr. Adkins, do you agree or disagree that biological sex is a fundamental source of variation in anatomy and physiology with human species?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: It is one of the variables within variations.

ATTORNEY BROOKS: Let me mark as Exhibit 8 an infographic, if I can use that term. Exhibit 8?

VIDEOGRAPHER: Excuse me, Counsel. You cut out right after Exhibit 8. I didn't hear which document that was.

ATTORNEY BROOKS: It is tab 9 and it is a [87] one page infographic, if I may, put out by the National Institute of Health titled How Sex and Gender Influence Sex and Disease.

(Whereupon, Adkins Exhibit 8, NIH Sex/Gender Infographic, was marked for identification.)

BY ATTORNEY BROOKS:

Q. And first let me ask, Dr. Adkins, are you familiar with the National Institute of Health as an organizations?

A. Yes.

Q. That is a government research institute?

A. Yes.

Q. And major grant --- major source of grants, grant making in the health sciences?

A. Yes.

Q. And are you --- were you aware that it has within it an Office of Research on Women's Health?

A. No.

Q. Do you see that this is published by the National Institute of Health, Office of Research on Women's Health?

[88]

A. Okay.

Q. In the box at the top it says, and I quote, sex is a biological classification included in our DNA. Males have XY chromosomes and females have XX chromosomes. Sex makes us male or female. Do you see that language?

A. I do.

Q. And it continues, every cell in your body has a sex making up tissues and organs like your skin, brain, heart and stomach. Each cell is either male or female depending on whether you are a man or a woman, closed quote. Do you see that?

A. I do.

Q. And then it continues under that with a definition of gender. So my question is --- begins here, the opening statement in this NIH publication says that sex is a biological classification. Do you agree or disagree with that?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: You know, there is a whole literature on --- on this --- the differences in --- in sex. I --- so biological as opposed to another type of classification, I agree with that statement.

[89]

BY ATTORNEY BROOKS:

Q. It says a little further along that, quote, every cell in your body has a sex, closed quote. Do you agree or disagree with that?

ATTORNEY BORELLI: Objection to the form.

THE WITNESS: I agree. And each cell can be different.

BY ATTORNEY BROOKS:

Q. Are you saying that within an individual --- a specific individual each cell can have a different sex?

A. Yes.

Q. This NIH publication tells us that, quote, each cell is either male or female, closed quote. And I take it you simply believe the NIH is wrong about that?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: I think that the nuances are something that you can't publish in a one-page documentation when they're not talking about an entire population.

BY ATTORNEY BROOKS:

Q. Under this initial box is a heading that says examples of sex and gender influences. Do you see that?

A. I do.

Q. And it has various categories of things that may **[90]** be influenced on one end by sex, which is defined in this document as a biological classification, and gender. Do you see that structure of this document?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: Yeah.

BY ATTORNEY BROOKS:

Q. And it says if we go down to cardiovascular risk one of the differences that is identified as based on sex is that, quote, blood vessels in a woman's heart are smaller in diameter and much more intricately branched than those of a man, closed quote. Do you see that?

A. Under cardiovascular risk, yeah. Okay.

Q. And the NIH gives this as an example of a physical measurable biological difference that depends on biological sex. Correct?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: Well, actually the words they're using are gender --- gender words, not the words we would use for sex, you know, female or male or a variation in between. So I would --- if I were editing this document, I probably wouldn't have used the word woman.

BY ATTORNEY BROOKS:

[91]

Q. You would have said a female?

A. Typical female.

Q. Because what --- how the blood vessels in your heart are structured depend on your sex, not on your gender identity. Am I correct?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: There is many variables that can affect these things and what --- that is one of them.

BY ATTORNEY BROOKS:

Q. To your knowledge, gender identity is not a variable that affects how the blood vessels in one's heart are structured, does it?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: Not that I'm aware of.

BY ATTORNEY BROOKS:

Q. Under the last item here is knee arthritis. Do you see that heading?

A. Yes.

Q. I'm sure we'll have the same terminology discussion, but the language there says, quote, women and girls are more likely to injure their knees when playing sports, closed quote. Do you see that language?

A. I do.

[92]

Q. And if we use the term --- substitute the term females for women and girls and say females are more likely to injure their knees when playing sports, do you believe that to be a scientifically accurate statement?

ATTORNEY BORELLI: Objection to form.

THE WITNESS: You have to leave some room. Again, in medicine we're not like 100 percent. But I agree that portions of females that are typical in research have been reported to have more frequent knee injuries.

BY ATTORNEY BROOKS:

Q. Okay. Let me ask you to find your report, Exhibit 1, and let's turn to paragraph 15. And there you wrote, quote, a person's gender identity refers to a person's inner sense of belonging to a particular gender such as male or

female. And you continue every one has a gender identity, closed quote. Do you see that language?

A. I do.

Q. Let me direct your attention to the Endocrine Society guidelines from 2007, which is Exhibit 4. And we're going to come back --- if you can make a stack of most of these, but the 2017 guidelines we will come back to with some frequency. But we're ---

[93]

A. Keeping it on top?

Q. --- keeping it on top.

A. Okay.

Q. And there I want to call your attention to page 3873.

A. 3873.

Q. Right. And in the second column there's a section headed introduction. And it begins with a historical review of the concept of gender. And I'm going to ask you a question beginning with the language that is two inches from the bottom, two and a half inches from the bottom that begins these early researchers. So if you want to kind of glide through what comes before that, let me know and I'll begin my questioning.

A. Yes, I'll look over it. Thank you. I have read that section.

Q. I want to call your attention to a sentence which my understanding is contrasting against or the history that begins, quote, some experience themselves as having both a male and female gender identity whereas others completely renounce any gender classification, closed quote. Do you see that language?

A. I do.

[94]

Q. And in your expert opinion, is that an accurate statement?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: In my clinical experience I have met individuals who are --- identify as agender which would in my mind be similar to this definition, but I typically ask the patient what their gender means to them.

BY ATTORNEY BROOKS:

Q. Well, do you have any opinion as to whether some individuals experience both a male and female gender identity?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: I have patients that do that, yes.

BY ATTORNEY BROOKS:

Q. And I think you said that --- I don't want to puts words in your mouth. Do you have an opinion whether some individuals report not having any gender, not fitting any gender classification?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: I do have patients that match that description.

BY ATTORNEY BROOKS:

[95]

Q. And this goes on the next sentence to say, quote, there are also reports of individuals experiencing a continuous and rapid involuntary alternation between a male and female identity, closed quote. Do you see that?

A. I do.

Q. And do you believe that to be an accurate statement?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: I have not had that clinical experience. I would have to rely on the, you know, medical report with that in particular, and I would probably look at the evidence that was available

BY ATTORNEY BROOKS:

Q. Well ---

A. --- prior to making a decision.

Q. --- do you as a practitioner consider it reasonable to rely on that assertion in this 2017 Endocrine Society statement guideline?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: I would rely on it to be something I should at least consider.

[96]

ATTORNEY BROOKS: Let me mark as Exhibit 9 what is tab 10, and that is a one-page statement from a World Health Organization's website titled Gender and Health.

(Whereupon, Adkins Exhibit 9, World Health Organization Webpage, was marked for identification.)

THE WITNESS: Thank you.

BY ATTORNEY BROOKS:

Q. Are you familiar with the World Health Organization as an organization?

A. I am.

Q. And do you consider the World Health Organization to be generally a respected source of information on medical and health topics?

ATTORNEY BORELLI: Objection to form.

THE WITNESS: My general experience so far to date is they're reliable.

BY ATTORNEY BROOKS:

Q. Well, I will represent to you that this document came off of a World Health Organization website and the web address is at the bottom of the page. I see on the **[97]** copy in front of you --- I'll stand by my representation of why mine has it ---

A. Okay.

Q. This document titled Gender and Health begins gender refers to the characteristics of women, men, girls and boys that are socially constructed, closed quote. Do you see that?

A. I do.

Q. And is that a definition of gender per se that's consistent with how you are used to seeing the term used?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: So you know, social constructs change regularly, so I would say that, you know, that wouldn't be completely inclusive of current socially constructed genders, in my experience.

BY ATTORNEY BROOKS:

Q. Well, let me direct --- why don't you read that whole first paragraph, which is just three sentences, because I think the World Health Organization raises exactly that point. So I'll ask you to read that?

A. Sure. Sure.

(WHEREUPON, WITNESS REVIEWS DOCUMENT.)

[98]

THE WITNESS: Okay.

BY ATTORNEY BROOKS:

Q. So extending into that paragraph, that three-sentence paragraph, just that explanation of the concept of gender fit with how you are used to seeing the term used in your professional experience?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: So in reading that, my understanding of what they are using those specific words, men, women, girls and boys are examples. They don't comment on other societies. Just so --- in that assessment, yes.

BY ATTORNEY BROOKS:

Q. All right. If we skip down to the third paragraph it begins gender interacts with but is different from sex, which refers to the different biological and psychological characteristics of females, males and intersex persons, such as chromosomes, hormones and reproductive organs, closed quote. Do you see that language?

A. I would like to read it, too, though, if you don't mind.

[99]

Q. Sure.

A. Yeah. Okay. I have read it.

Q. So first, backing up to the statement, opening paragraph, that gender is socially constructed, do you believe that to be an accurate statement?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: Gender is a social construct, yes.

BY ATTORNEY BROOKS:

Q. And then in the third paragraph it states that gender identity refers to a person's deeply felt internal and individual experience of gender. Do you see that?

A. I do.

Q. So gender identity refers to an individual's experience in relation to gender, which is a social construct. Right?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: I see it, and I would ask you to read the question one more time. I just want to make sure I'm answering you accurately.

BY ATTORNEY BROOKS:

Q. As I think I see in this document really the **[100]** question is as you understand it ---

A. I think that you have to also include ---.

COURT REPORTER: Excuse me. I need to interrupt. Excuse me. I'm sorry to interrupt, but Counsel, your full question didn't come through on this end.

ATTORNEY BROOKS: I'll re-ask it. Pardon me.

ATTORNEY BORELLI: Actually, why don't we just address one housekeeping matter. Would you be able to identify for the record the URL that appears on your copy

and whether there is a date of the document or date of access just so we have it on the record?

ATTORNEY BROOKS: There is no date of access. That access is within the last two months. The address is www.who.int/health-topics/gender#tabequalstab, underline one.

ATTORNEY BORELLI: Thank you.

ATTORNEY BROOKS: I'm glad it wasn't one of these four line ones.

BY ATTORNEY BROOKS:

Q. And I will re-ask my question.

A. Okay.

[101]

Q. The question is, Dr. Adkins, is it consistent with your understanding that gender identity refers to a person's individual experience of gender, which is in turn a social construct?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: That doesn't sound to me to be a full explanation. Just doesn't sound accurate to me. I'm having a hard time.

BY ATTORNEY BROOKS:

Q. Then let me not take more time on that.

A. Okay.

Q. You would agree that gender is a social construct that can change over time. Am I right?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: Gender --- so it's a social construct, it's true. Gender is, you know, how you --- I mean, it's complicated. It involves more things than --- and so, you know, if you're talking about gender expression, that's different. Someone's gender as they understand it for their gender identity is different. I mean, I have patients who are assigned a particular sex and the family and the physicians assign a gender that is more typically correlated with that sex. And then **[102]** over time those individuals sometimes don't identify with that gender, and they may change their gender marker, for example, because their identity really just doesn't match what we assigned them at birth. I'm not sure how to give a clearer answer. I'm trying.

BY ATTORNEY BROOKS:

Q. Well, so if an individual comes into your office and asserts a gender identity of, let's say, man or both, either one of those, how can a clinician verify whether that individual is accurately understanding his own or their own subjective feelings?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: And you know, a gender again is something that's assigned at birth and it is what you work with in your life, and so you know, I would ask them and they could tell me how they were proceeding in life with regard to their gender behaviors. That would be how I would probably asses their gender.

BY ATTORNEY BROOKS:

Q. How do you ascertain whether that individual who claims identity of man or both is telling you, the clinician, the truth?

ATTORNEY BORELLI: Objection, form.

[103]

THE WITNESS: So in general, you know, in pediatrics we have a parental report, and it depends on the clinical situation. We may or may not have another health provider's report or a mental health provider's report. If we have questions, we start to dig deeper and look at other areas.

BY ATTORNEY BROOKS:

Q. Let me call your attention to paragraph 19 in your expert report, Exhibit 1. And there you refer to DSM-V definition of gender dysphoria. Do you see that?

A. What paragraph?

Q. Paragraph 19?

A. Yeah.

Q. And you mention that among other things the diagnostic criteria under DSM-V for gender dysphoria includes, quote, clinically significant distress. Do you see that?

A. I do.

Q. And in fact, it includes clinically significant distress that, quote, impairs important areas of functioning, closed quote. Am I correct? Do you recall that in DSM-V?

ATTORNEY BORELLI: Objection. Objection **[104]** to form.

THE WITNESS: That is how I recall that.

BY ATTORNEY BROOKS:

Q. Paragraph right?

A. Yeah. I want to reserve the right to look at it to be certain. That sounds correct to me at this moment.

Q. And what does clinically significant distress that impairs important areas of functioning look like in a child?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: Yeah. So you know, it depends on what they are coming in with. I mean, for some of my patients, you know, who are, you know, hyperthyroid, for example, their brain's run really fast, they can't focus during school, and that would be impairment in their ability to do their main job, which is to be in school and learn. So that's one area where you can have some impairment in their --- it varies from patient to patient and in each thing we're talking about.

BY ATTORNEY BROOKS:

Q. The example you just gave was impairment resulting from a hyperthyroid condition.

[105]

Am I correct?

A. Correct.

Q. What I asked was impairment due to --- attributable to what gender dysphoria looks like in a child.

A. Oh.

ATTORNEY BORELLI: I don't want to interrupt. I think there may have been a misreading of the language in the paragraph, and I just want to make sure the record is correct that the final sentence of that paragraph says in order to be diagnosed with gender dysphoria, incongruence must persist for at least six months and be accompanied by clinically significant distress or impairment in social, occupational or other important area of functioning.

BY ATTORNEY BROOKS:

Q. I, on the other hand, will ask a question that i believe is more closely tracked to the DSM-V language, which is what is clinically significant distress that impairs important area of functioning look like in a young child?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: Okay. I misheard you. I'm sorry. I didn't hear the gender dysphoria part. I **[106]** apologize. So in patients with gender dysphoria sometimes it can be anxiety that keeps them from going to school. Sometimes it can be anxiety that keeps them from using public restrooms. Sometimes it is depression so that they can't get out of bed to function. Sometimes it's just feeling really uncomfortable and --- with how they are being treated and what they're allowed to do in a way that makes it more difficult for them than a person without gender dysphoria.

BY ATTORNEY BROOKS:

Q. In your practice is a full diagnosis of gender dysphoria under the DSM-V criteria a precondition for recommending or supporting social transitioning?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: So in my practice the majority of my patients have socially transitioned before they come to see me in order to improve their gender dysphoria. In general, that is something that their family and their mental health provider decides. Each individual patient is different and we talk through whether that is appropriate for each patient.

BY ATTORNEY BROOKS:

Q. In your practice is a full DSM-V diagnosis of gender dysphoria a precondition for recommending social **[107]** transition?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: No.

BY ATTORNEY BROOKS:

Q. And in your practice is a full DSM-V gender dysphoria diagnosis a precondition for prescribing puberty blockers?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: I use puberty blockers for more than one indication.

BY ATTORNEY BROOKS:

Q. Let me ask a better question. In your practice is a full DSM-V gender dysphoria diagnosis a precondition for prescribing puberty blockers as a treatment for gender dysphoria?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: So my patients are evaluated by mental health providers outside the clinic and inside the clinic. The objective of using puberty blockers can be used to relieve dysphoria and give them time to consider their gender identity.

BY ATTORNEY BROOKS:

Q. In your practice is a full diagnose of gender dysphoria under the DSM-V criteria a precondition for **[108]** prescribing puberty blocker for believed gender dysphoria?

ATTORNEY BORELLI: Objection to form.

THE WITNESS: Well, in the way that you stated it, you're saying that the patient already has gender dysphoria, so yes.

BY ATTORNEY BROOKS:

Q. In your practice is the full diagnosis of gender dysphoria under the DSM-V criteria a precondition for prescribing puberty blockers as a therapy for gender dysphoria or gender incongruity?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: Yes.

BY ATTORNEY BROOKS:

Q. And in your practice is a full diagnosis of gender dysphoria according to the DSM-V criteria a precondition for prescribing cross sex hormones?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: They are used to relieve dysphoria. Typically that would be what we would use them to do, is to relieve that dysphoria so they would have that diagnosis. On occasion in my practice the incongruence does not necessarily cause dysphoria per se, and yet they still have significant issues that are **[109]** impairing their ability to move forward in their lives in a happy, healthy way. And I might use medications such as gender-affirming hormones in those cases.

BY ATTORNEY BROOKS:

Q. So if I understand correctly, you're saying that at least some cases in your practice you are willing to prescribe cross sex hormones for individuals who do not suffer from gender dysphoria according to the criteria spelled out in DSM-V?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: Every patient is different. Most of my patients have gender dysphoria. All of them have a transgender identity, and I would treat either of those.

BY ATTORNEY BROOKS:

Q. I think this question can be answered yes or no. Do you prescribe cross sex hormones for some patients who do not suffer from gender dysphoria according to the DSM-V criteria?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: I don't think so. I mean, gender-affirming hormones --- I use hormones for a lot of different things. Whether you call them gender affirming or not is --- you know, what is kind of a **[110]** thing here. I mean, for people with Klinefelter's, who are clinically significantly depressed because they have low testosterone, I prescribe testosterone to improve their mood, their libido, their muscle strength. For people who have dysphoria or who have a transgender identity, I do prescribe those medications. I think that to be precise in my answers I cannot say it as a yes or no answer.

Q. Let me ask you to turn to paragraph ten of your report. There you say I have treated approximately 500 transgender and intersex young people in my career. Do you see that?

A. No, that's not how it's written.

Q. I apologize. I was reading to you the second sentence of paragraph ten, and I believe I read that

A. Okay. I'm sorry. I was starting at the beginning.

Q. I understand.

A. Yes.

Q. And let's break that out. Of those 500, approximately how many suffered from some form of DSD?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: So the --- that I know of, **[111]** because we don't evaluate every person necessarily for an intersex condition, probably --- gosh, it's hard to estimate. So I think at least 60 in my clinic and then probably in the hospital at least 10, 15 a year. At least one a month or so.

BY ATTORNEY BROOKS:

Q. Of the 500 transgender intersexual young people that you treated in your career, how many would you estimate suffered from some form of disorder of sexual development?

ATTORNEY BORRELLI: Objection, form.

THE WITNESS: Off the top of my head I can think of one. I have reviewed a referral for a second one. Gosh. With that many patients, that's the best I can do. Sorry.

BY ATTORNEY BROOKS:

Q. And I take it then that the overwhelming majority, almost all the children that you have seen and treated for gender dysphoria did not suffer from any disorder of sexual development?

A. So at the time of my evaluation of them they weren't showing any signs of an intersex condition. I don't necessarily test for intersex conditions on every person that comes in. Insurance is really kind of funny **[112]** about paying for that sort of thing because they don't think it is appropriate to do. So I can't evaluate them unless they have a symptom of an intersex condition. Those can present even into your 30s and not be evident

until you are trying to get pregnant. So I think to be accurate, that's --.

Q. To your knowledge, almost all of the children that you have treated for gender dysphoria did not show signs of any intersex condition or disorder of sexual development?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: To best of my knowledge.

BY ATTORNEY BROOKS:

Q. Let me call your attention to page three of your report, which is on page five. And you say there in the second sentence, quote, all of my patients have suffered from persistent gender dysphoria. Do you see that?

A. Uh-huh (yes).

Q. Now, I just don't understand that because a few minutes ago you explained to me that some of your patients suffer from gender dysphoria and some of them don't. So can you explain to me what you meant by that statement?

[113]

ATTORNEY BORELLI: Objection, form.

THE WITNESS: Yeah. I learn more and more every day about the patients who come into my clinic. I did state that most of my patients have gender dysphoria. I am finding individuals currently in my practice who aren't necessarily to the point of having that clinically significant criteria that is mentioned in the --- for dysphoria that have a transgender identification. The majority I would say do have dysphoria.

BY ATTORNEY BROOKS:

Q. You would now say the majority rather than all?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: I can't think of --- yeah, I would say the majority. There would be a very rare instance and that's why I mentioned it before.

ATTORNEY BORELLI: Counsel, just a quick question about timing and a potential break because we've been going for a little while.

ATTORNEY BROOKS: Right. I'm inclined to go --- like from my experience, if you stop early for lunch, then it's an awful long afternoon. So I'd be inclined to go until 12:30 or so and then break for lunch.

[114]

ATTORNEY BORELLI: Does that work for you? Would you like a break now before we later break for lunch or what is best for you, Dr. Adkins?

THE WITNESS: Well, since I'm not a breakfast eater, I would prefer to go a little bit earlier if we can.

ATTORNEY BROOKS: We can do it. I just warn you it gets to be a long afternoon.

THE WITNESS: I understand.

ATTORNEY BROOKS: Let me finish up the line of questioning. Well, should we target noon to stop for lunch?

THE WITNESS: That's fine. Thank you.

BY ATTORNEY BROOKS:

Q. Let me take you back to the Endocrine Society statement on --- back to the biological variable, which is Exhibit 7. If you would find that, please. And I'll ask you to turn to page 225, second column towards the bottom with the heading that reads biological basis of diversity

and sexual/gender development and orientation. Do you see that?

A. I do.

Q. And it reads at the beginning given the complexities of the biology of sexual determination and **[115]** differentiation, comma, 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. In medicine these situations are generally termed disorders of sexual development or differences in sexual development, closed quote. Do you see that?

A. Yes.

Q. Now, in your opinion, a transgender identity is not a disorder. Am I right?

A. It is a normal variation, in my opinion, of huma --- of humans in general.

Q. It's not a mental disorder?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: So you know, they have in the past included it in the DSM, which is categorized as those sorts of things. As far as like psychological, there's such over lap between psychological and the physical --- I guess the best word I can use, but that it's hard to --- it's hard to say. You know, I think people are moving more towards that it is more of a medical problem that is occurring within the person that **[116]** is giving them psychological symptoms that we see, which is really common in medicine. We see lots of different medical conditions caused psychological symptoms. I already mentioned one with hypothyroidism.

Q. In the overwhelming number of cases, transgender identification is not associated with any physical disorder that you as a doctor have become aware of?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: I'm sorry. I got distracted. Can you repeat it?

BY ATTORNEY BROOKS:

Q. Yes. In the overwhelming majority of patients that you have seen, the transgender identity is not associated with any physical disorder that you are aware of. Correct?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: I mean, I'm going to need a minute to think because I have seen so many patients that I don't --- I guess it sort of depends on how you define that, right. I am --- distress is physical and psychological. The difference is physical in that they're biologically assigned sex and those characteristics associated are different from their **[117]** gender identity. So it's a bit of a mixture.

BY ATTORNEY BROOKS:

Q. Many individuals who suffer from disorder of sexual development do not experience gender identity that is discordant with their chromosomal sex. Correct?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: Some do, yes. That is true for some.

BY ATTORNEY BROOKS:

Q. Many individuals who experience a transgender identity --- I'm sorry. Many individuals who suffer from a disorder of sexual development do not experience a gender identity that is discordant with their chromosomal sex. Correct?

ATTORNEY BORELLI: Objection to form.

THE WITNESS: So there's, you know, like 100 different variations. Some are more likely to have questions about their gender identity than others. It varies by diagnosis.

BY ATTORNEY BROOKS:

Q. Okay. But my question is a high level one. It is **[118]** true, is it not, that many individuals who suffer from a disorder of sexual development do not experience gender identity that is discordant with their chromosomal sex?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: In the medical literature the reports vary. Some of the conditions are 90 of them their identity matches with their chromosomal sex and in some cases it's like 30 to 40 percent.

BY ATTORNEY BROOKS:

Q. And as you have testified, many individuals who experience transgender identity do not suffer from any identified disorders of sexual development?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: I answered that question already, yeah.

BY ATTORNEY BROOKS:

Q. The answer is yes?

A. Yes, I answered the question already.

Q. For clarity I would like you to answer it again.

ATTORNEY BORELLI: Objection, form.

THE WITNESS: Can you repeat it then?

BY ATTORNEY BROOKS:

Q. Yes. Many individuals who experience a transgender identity do not suffer from any known **[119]** disorder of sexual development?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: In my experience that is true.

BY ATTORNEY BROOKS:

Q. You have no knowledge as to the number of children who suffer from a disorder of sexual development who presently attend schools or colleges in West Virginia, do you?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: I can only rely on the prevalence that's recorded in the medical literature and then assume that West Virginia has the population base that is similar to those medical reports.

BY ATTORNEY BROOKS:

Q. You, yourself, don't have any actual knowledge either way on that. Correct?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: I have not been given a list of the number of individuals, no.

BY ATTORNEY BROOKS:

Q. And you are not opining that B.P.J. suffers from any disorder of sexual development, are you?

[120]

ATTORNEY BORELLI: Objection, form.

THE WITNESS: I don't know B.P.J.. I have not evaluated B.P.J.. I can't say that about B.P.J..

BY ATTORNEY BROOKS:

Q. And in fact, you don't know whether any child who is chromosomally XY but suffers from a disorder of sexual development has ever sought to compete in female athletics in West Virginia, do you?

ATTORNEY BORELLI: Objection to form.

THE WITNESS: There are so many people who have competed or tried to compete over the years. I have not seen a documentation specifically of West Virginia. It's common in athletics.

BY ATTORNEY BROOKS:

Q. You are not aware of a single case that has ever occurred in West Virginia of a chromosomally XY child seeking to compete in female athletics based on a --- let me ask that question again. You're not aware of any specific instance in which an X --- chromosomally XY child who suffers from a disorder of sexual development has sought to compete in female athletics in West Virginia up to the present?

ATTORNEY BORELLI: Objection to form.

[121]

THE WITNESS**:** So some people die with chromosomes XY and look completely female and never knew. So I can't say that anyone could definitely say that, including myself.

BY ATTORNEY BROOKS:

Q. Well, my question was you are not aware of any case of an XY individual who suffered from a disorder of sexual

development seeking to compete in female athletics in West Virginia. Right?

ATTORNEY BORELLI: Objection to form.

THE WITNESS: Correct.

BY ATTORNEY BROOKS:

Q. And so let me ask you --- a substantial portion of your expert report goes into all sorts of detail about disorders of sexual development. Correct?

A. Correct.

Q. In your understanding, what is the point? What does that have to do with any opinion you are offering about issues in this case?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: So the folks who have differences of sex development have really been our tool **[122]** within medicine to understand gender identity and how it developed over time, especially when there may be some difference in the effects of the chromosomes, the hormonal expression and the biological external reproductive genitalia. And it elicits --- kind of shows us that there can be some variations that identity that you might have --- I'm sorry, sex that you might assign at birth based on one of these categorical things or a mixture of them may not be exactly what a person identifies at birth.

For example, there are individuals who are born who never had any hormones, they don't have external genitalia at all when they're born, and so how do you decide what sex to assign that person and thus what gender to assign that person, and so it --- it helps us understand that there are lots of different things that go into determining a gender identity and you may not know

it right at birth, certainly not at conception, but you may begin to understand it as the person grows older.

And so it's important to know that because when there are differences between those two things it can cause significant distress and harm to the individual as they get older if those two are not **[123]** matching.

BY ATTORNEY BROOKS:

Q. Let me take you to paragraph 28 of your expert report. At the end of that paragraph you state I know from experience with my patients that it can be extremely harmful for transgender youth to be excluded from the team consistent with their transgender identity. Do you see that?

A. It actually says with their gender identity.

Q. If I misspoke, I apologize. For the record, let me just do it again. Quote, I know from experience with my patients that it can be extremely harmful for transgender youth to be excluded from the team consistent with their gender identity, closed quote. Do you see that language?

A. I do.

Q. Let me just ask were you a varsity high school or college athlete yourself?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: I was.

BY ATTORNEY BROOKS:

Q. Now, let me ask what you understand to be the significance of that statement, that is are you offering an opinion in this litigation that the West Virginia law **[124]** is unreasonable to the extent that it prevents even a single

transgender youth from playing in a division consistent with their gender identity?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: I'm sorry. That wasn't clear. Can you ---?

BY ATTORNEY BROOKS:

Q. Are you offering an opinion that the West Virginia law is unreasonable to the extent it prevents even a single transgender youth from playing in the division consistent with their gender identity?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: Yes.

BY ATTORNEY BROOKS:

Q. Are you offering an opinion that West Virginia does not have a strong interest in ensuring fair and safe competition for females in their schools and universities?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: I think that would require me to have to, you know, talk with them about that and understand a little bit better. I would hope it would be every one that they were trying to keep safe.

BY ATTORNEY BROOKS:

[125]

Q. Are you offering an opinion that West Virginia law is not a reasonable measure to ensure fair and safe competition for females in schools and colleges?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: Again, the language is --- it's not really clear with the female who uses the word female. It's like using the word sex. It's just not clear.

BY ATTORNEY BROOKS:

Q. Dr. Adkins, I used the word female because earlier in one of these papers where it said woman you said it would work if they said female as a sex indicator to be distinguished from gender identity. Do you recall that testimony?

A. I do.

Q. Let me ask the question again using the term female in the way that you meant in that earlier testimony. Are you offering an opinion that the West Virginia law is not a reasonable measure to ensure fair and safe competition for females in schools and colleges in West Virginia?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: Yes.

BY ATTORNEY BROOKS:

[126]

Q. Can you tell me the examples that you had in mind when you said I know from experience that it can be extremely harmful for transgender youth to be excluded from the team consistent with their gender identity?

A. I can.

Q. Please do.

A. I have patients who have participated in sports with the teams that they identify as. Their fellow students only know them as the gender that they identify with and that they express. If they were asked to participate on a team that matched their sex assigned at birth, then these

individuals would, for one, would be on the boys' team and then everyone in school would know that they were transgender. They don't have to know that. It is not any of their business. Once they are identified as transgender, they are at high risk for being bullied, harassed, sexually assaulted, and leaving school, which leads to poor jobs, poor insurance, homelessness. There are any number of reasons that I would want my patient to be able to participate on the team that identifies with their gender identity to keep them healthy.

Q. Dr. Adkins, your answer said if they were required to play on the team corresponding to their I'll **[127]** say chromosomal sex, their natal sex, which suggests you have not actually seen it happen. Is there a single case you can point me to in which you have observed a patient harmed by being excluded from the team consistent with their gender identity?

A. Yes.

Q. Can you tell me that area?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: Well, one of my patients who had been on middle school sports teams that matched their gender identity was then asked to change. And they didn't feel comfortable going with the other individuals because their identity would be discovered, their --- individuals would know that they were transgender. No one at the time knew and still to this day don't know because they chose not to participate rather than be on the team that didn't match their gender identity.

BY ATTORNEY BROOKS:

Q. And when and what state did these events occur?

A. North Carolina.

ATTORNEY BORELLI: Objection to form.

BY ATTORNEY BROOKS:

Q. That's where, when? That's your Counsel's **[128]** objection.

A. North Carolina in --- for this particular patient, three years ago. I have patients that come in every day who this applies.

Q. Dr. Adkins, given that you're testifying under oath and trying to be accurate, is it true that you have patients come in every day that this applies to?

ATTORNEY BORELLI: Objection, form.

BY ATTORNEY BROOKS:

Q. Aren't we getting a little carried away here?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: I do like to be precise.

BY ATTORNEY BROOKS:

Q. Thank you.

A. In clinic, most days when I'm in clinic I see a patient who doesn't participate in athletics because of the requirement that they go to participate in an area that is for their assigned sex at birth. Most days I'm in a gender clinic.

Q. And what you state in your document, in your report here, is that you know from experience that being excluded from the team consistent with their gender identity can be, quote, extremely harmful to transgender youth. You have described to me students who choose not **[129]** to participate in athletics. Beyond that, can you give me examples of extreme harm that has resulted from such policies?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: You know, some of that would require a bit of speculation because I wouldn't know what would happen to those individuals if they remain in the sport.

BY ATTORNEY BROOKS:

Q. I'm not asking you to speculate.

A. So can you re-ask the question so I can kind of figure out how to answer it better.

Q. I'll re-ask it and maybe that you're not able to answer it, but can you identify for me specific extreme harm that individual patients have suffered as a result of not being able to participate in the team consistent with their gender identity?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: So I have had patients who have no longer participated in sports, gained weight, become obese and developed type two diabetes. I have seen that around --- I can think of at least two examples. And then, you know, that's a chronic life long disease that can lead to amputation and all kinds **[130]** of other harms. And let's see, what other things. I have seen patients with --- who were no longer happy at their school and because the time that they were identified as transgender were asked to leave their sport, their friend groups changed. And you know, it's tough in school. There are kids who have --- and that kind of can push them down the slope of suicidal ideation and depression and those sorts of things. I mean, I have to think longer for other examples. Those are two.

BY ATTORNEY BROOKS:

Q. Rather than starting something else, should we break now for lunch?

ATTORNEY BORELLI: That works.

VIDEOGRAPHER: Going off the record. The current time reads 11:54 a.m. Eastern Standard Time.

OFF VIDEO

(WHEREUPON, A PAUSE IN THE RECORD WAS HELD.)

ON VIDEO

VIDEOGRAPHER: We're back on the record. Current time reads 12:57 p.m. Eastern Standard Time.

BY ATTORNEY BROOKS:

[131]

Q. Okay.

Dr. Adkins, welcome back from lunch. On we go. We're going to have a long afternoon. Let me mark as Exhibit 10 what we have previously identified as tab 16, which is an article dated January 10, 2022 from the Washington Post entitled A Transgender College Swimmer is Shattering Records, Sparking a Debate Over Fairness.

(Whereupon, Adkins Exhibit 10, 1/10/22 Washington Post Article, was marked for identification.)

BY ATTORNEY BROOKS:

Q. Dr. Adkins, let me just ask generally, you're aware of recent events in the news involving Leah Thomas's competition in NCAA swimming. Correct?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: I am aware of various pieces of that.

BY ATTORNEY BROOKS:

Q. And I'm not going to try to turn you into an expert on Lia Thomas, but you're just aware of that narrative. Are you generally aware that at least until **[132]** recently the NCAA policy for a decade at the collegiate level was that XX --- XY individuals, males, to use that terminology, could compete based on gender identity in women's divisions only after they had suppressed testosterone for at least a year?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: I don't know the details of NCAA. I just don't.

BY ATTORNEY BROOKS:

Q. Are you aware generally that some athletic leagues have a requirement that biological males may compete in women's athletics based on gender identity only after suppressing testosterone for some period of time?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: I have heard that there are individuals who are allowed to participate based on their gender identity and that there's some comment about hormone suppression.

BY ATTORNEY BROOKS:

Q. And do you have college-age transgender patients yourself?

A. I do.

Q. Does your statement that we looked at in **[133]** paragraph 28 of your report that it can be extremely harmful for transgender youth to be excluded from the

team consistent with their gender identity hold true in your opinion at to collegiate level? And I was quoting from paragraph 29.

ATTORNEY BORELLI: To clarify, you just said 29 --- 28, paragraph 28?

ATTORNEY BROOKS: It is paragraph 28. I apologize.

ATTORNEY BORELLI: Thank you. I can't remember if I lodged an objection. Objection to form.

THE WITNESS: And the question was?

BY ATTORNEY BROOKS:

Q. The question was does your assertion in paragraph 28 of your report that you know from experience the patients --- that it can be extremely harmful for transgender youth to be excluded from the team consistent with their gender identity apply to college-age individuals as well as high school or younger individuals?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: In my experience, that --- yes.

BY ATTORNEY BROOKS:

[134]

Q. Do you have any opinion as to whether a policy that requires biologically male athletes to suppress testosterone for a certain period of time or to a certain level of testosterone prior to competing in women's or girls' athletics is reasonable or unreasonable?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: So you're asking me if that's my opinion? I'm sorry. Could you just repeat the question?

BY ATTORNEY BROOKS:

Q. Do you have an opinion --- do you have an opinion as to whether a policy that requires biologically male athletes to suppress testosterone either for a certain period of time or down to a certain level before they can be eligible to compete in women's athletics based on gender identity is reasonable or unreasonable?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: It gets tricky. I am --- you know, when you start throwing in sort of people with PCOS and people with intersex conditions and --- it gets tricky. So it's harder for me to answer. I think the question was do I have an **[135]** opinion if it's reasonable or not reasonable? Is that the question?

BY ATTORNEY BROOKS:

Q. That is.

A. Okay. In some cases it might be reasonable and some cases it might not be reasonable.

Q. If we put on one side and exclude from consideration individuals who suffer from any form of disorder of sexual development, do you believe that a policy that requires biologically male athletes to suppress testosterone either for a certain period of time or down to a certain level before they can be eligible to play in women's athletics based on gender identity is reasonable or unreasonable?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: So you know, for those who are assigned male at birth, it depends on where they are, you know, and what sport they're doing and what's involved. There are a number of caveats that could be thrown in there along those lines.

BY ATTORNEY BROOKS:

Q. Is it you don't know what you think about that?

ATTORNEY BORELLI: Objection to form.

[136]

THE WITNESS: I think you misunderstood the answer that I gave. It would really depend on a specific case.

BY ATTORNEY BROOKS:

Q. Well, let's look at a specific case. I have put in front of you Exhibit 10, this Washington Post article from January 10, 2022 about Lia Thomas, who, according to the headline, is shattering records. Let me ask you to turn in that article to page three. And there it --- if we look at the third paragraph, the one that begins her fastest 200 yard freestyle, and the second sentence --- or the third sentence says that's the fastest time by any female college swimmer this year, .64 seconds faster than Olympian Torri Huske. And it continues, quote, Thomas has also posted the nation's best 500 yard freestyle, timed this season at four minutes, 34.06 seconds, nearly three seconds faster than Olympian Brooke Forde. Do you see that?

A. Uh-huh (yes).

Q. And these records were set after Lia Thomas had qualified under the NCAA requirement of testosterone suppression for one year. So my question on the specific sport for you is, is it your view that a policy **[137]** that permits Thomas to compete in the women's division against competitors who are biologically female is fair?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: So you will note in the paragraph above it also says that her time slowed down once she had

this happened and she was suppressing her testosterone. You know, I --- I don't want to use that word. There are so many things that go into athletic performance and your time that's not totally related to your sex assignment at birth or your current hormonal status, practice, you know, training, whether you had an opportunity to get started at a young age, a lot of variables that aren't related to their current hormones.

BY ATTORNEY BROOKS:

Q. Do you have an opinion as to whether a policy that permits Lia Thomas to compete against those born female in swimming is fair?

ATTORNEY BORELLI: Objection to form. Counsel, I think we're starting to get outside the scope. The witness can answer this question if she can, but we're treading on that territory.

THE WITNESS: So in that there are very few transgender individuals who are involved and there are lots and lots and lots of opportunities for those **[138]** assigned female at birth to compete, I think it is fair.

BY ATTORNEY BROOKS:

Q. And let me call your attention two paragraphs down where it begins everybody wants, and quoting Michael Joyner, who identifies as a physiologist at the Mayo Clinic. Are you familiar with the reputation of the Mayo Clinic?

A. Yes.

Q. It is a high reputation. Am I correct?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: In general, people think it has a good reputation.

BY ATTORNEY BROOKS:

Q. If you read this paragraph, Dr. Joyner says, quote, everybody wants to maximize each individual's opportunity to participate and be as inclusive as possible, one of the researchers, Michael Joyner, a physiologist at the Mayo Clinic, said in an interview. And his quote continues, but how do you balance that inclusion at the individual level with the fairness to the entire field? That's really the split the baby question, closed quote.

Do you see that language?

[139]

A. I do.

Q. Do you agree that the question of fairness that Dr. Joyner addresses there is, in fact, a tough question on which reasonable people could disagree?

ATTORNEY BORELLI: Objection, form. And counsel, I need to renew my objection as to scope.

ATTORNEY BROOKS: You can have a standing objection as to scope, but I can pursue this line of questioning.

THE WITNESS: I would like to take a moment to read the whole article, please.

ATTORNEY BORELLI: Counsel, can you point me to the portion of the report where she offers opinions about things?

ATTORNEY BROOKS: She has offered the opinion in the report that denying participation is extremely harmful. She has testified on the record that in her view, a policy that permits even one transgender individual from playing according to their gender identity, that she has an opinion, but she is offering an opinion that that is

an unreasonable policy. I intend to examine that thoroughly. Scope is not tightly limited on expert depositions, I assure you.

ATTORNEY BORELLI: I'm going to stand on **[140]** my objection. We'll see where the line of questioning goes and we'll confer again if we need to.

ATTORNEY TRYON: This is Dave Tryon. I would ask that if there are further speaking objections or discussions about scope, it be done outside the presence of the witness.

BY ATTORNEY BROOKS:

Q. Let me ask you this without taking the time --- without reading the entire document, do you agree or disagree with Doctor Joyner that the question of whether a biologically male individual such as Lia Thomas should be permitted to complete in the women's division against biological females is a tough question that reasonable people can differ?

ATTORNEY BORELLI: Objection to form.

ATTORNEY BROOKS: That's enough. That's all you may say.

ATTORNEY BORELLI: Excuse me. Counsel, the witness has ---.

ATTORNEY BROOKS: You may say objection to form.

ATTORNEY BORELLI: The witness has --- the witness asked to read the entire document.

ATTORNEY BROOKS: I am asking a question **[141]** free and apart from the document. And I'm entitled to do that.

ATTORNEY BORELLI: I'm not persuaded that this is free and apart from the document.

ATTORNEY BROOKS: I will make it 100 percent apart from the document.

ATTORNEY BORELLI: Can you please restate the question to do that? Thank you.

BY ATTORNEY BROOKS:

Q. Dr. Adkins, do you agree that the question of whether a biological male such as Lia Thomas should be permitted to compete against biological females in the collegiate level is a tough question on which reasonable people can differ?

ATTORNEY BORELLI: Objection, form. Counsel, you just put an article ---.

ATTORNEY BROOKS: That's enough of the speaking objection. I can take the article back away from the witness. My question makes no reference to the article.

ATTORNEY BORELLI: Your question makes reference to ---.

ATTORNEY BROOKS: Counsel, that's enough speaking objections. You are violating the Federal **[142]** Rules.

ATTORNEY BORELLI: I strongly disagree with that characterization. I don't think that's correct. You're asking questions about a subject of the article. Physically removing the article from the witness doesn't remove that question from the subject of the article.

ATTORNEY BROOKS: I don't have to show the witness every article about a topic. The witness is aware of Lia Thomas. I'm asking a question about Lia Thomas and competitive swimming. The witness can answer.

ATTORNEY BORELLI: I stand on my objection.

ATTORNEY BROOKS: You can do so.

THE WITNESS: Sorry. Thank you. You know, everybody has their opinion based on their experience and their knowledge and they're allowed to state that and confer with others about it. Whether or not it is reasonable is a whole other question, and that involves perspective and background. So with that caveat, I could see people having different opinions on this particular matter.

BY ATTORNEY BROOKS:

[143]

Q. Thank you.

ATTORNEY BROOKS: Can we mark as Exhibit 11 a document previously identified as tab 17, article from the publication named Out Sports that is dated January 9, 2022.

(Whereupon, Adkins Exhibit 11, 1/9/22 Out Sports Article, was marked for identification.)

BY ATTORNEY BROOKS:

Q. Dr. Adkins, have you heard the name Iszac Henig?

A. No.

Q. Did you hear any news items that a transgender male competing in the female division that is genetic female, male identity, transgender male competing in the female division, beat Lia Thomas, a transgender female competing in the female division, in certain races? Have you heard that?

A. No.

ATTORNEY BORELLI: Objection, form.

BY ATTORNEY BROOKS:

Q. All right. You stated in paragraph 28 that it can be **[144]** harmful for patients, deeply harmful, for transgender youth to be excluded from the team consistent with their gender identity. In your view is a policy that requires transgender youth who are biologically male to suppress testosterone before they can be eligible to compete on a team consistent with their gender identity extremely harmful to youth?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: I was trying to catch up with you with finding the page.

BY ATTORNEY BROOKS:

Q. That was a complicated question. I will ask it again.

A. Thank you.

Q. In your view is a policy that requires a biological male who experiences a female gender identity to suppress testosterone prior to becoming eligible to compete in the women's division extremely harmful?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: Suppression of the testosterone for my practice isn't the --- you know, the harm. It is the exclusion that does most of the harm. I think I answered that.

BY ATTORNEY BROOKS:

[145]

Q. Let me try to --- in light of what you just said, let me ask a better question. In your view, is a policy that excludes a biological male who identifies as a woman from competition in the women's division unless and until that

biological male has suppressed testosterone extremely harmful?

ATTORNEY BORELLI: Objection to form.

THE WITNESS: So the sex assigned at birth for this person would be male and would need time to suppress testosterone, which takes time and leads to limitations in participation of sports, in competition. I think that disadvantages most athletes if they have to take time off for any kind of medical treatment for their preparation. In that fashion it would be harmful to the athlete.

BY ATTORNEY BROOKS:

Q. And I believe you testified you don't have any simple single opinion as to whether it would nevertheless be reasonable despite being harmful to that athlete?

ATTORNEY BORELLI: Objection to form.

THE WITNESS: I don't think that's what I said.

BY ATTORNEY BROOKS:

[146]

Q. All right. Then I'll ask a different to avoid unclarity. Do you have an opinion as to whether, despite the harm that you have described, a policy that requires suppression of testosterone in order for such an individual to be eligible to compete in a women's division is reasonable?

ATTORNEY BORELLI: Objection to form.

THE WITNESS: That's complicated. I apologize for not answering yes or no. I just --- sometimes you get lost in your question. So I don't think it's reasonable to ask them not to participate. They need time to practice and

participate like all their peers that are practicing and competing at the time.

BY ATTORNEY BROOKS:

Q. So your testimony as you sit here today is that even as a biologically male athletes, natal male athletes who have not suppressed testosterone at all, it is not reasonable to exclude them from participation in the women's division?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: To those who are assigned female at birth, you're again going to cause them harm **[147]** by not allowing them to participate and not be affirmed in their gender. That --- part of it is a big part of what it means to improve their overall health and what we do to care for these individuals. You're also marking them by saying that they are, you know, transgender and that is going to cause all kinds of kerfuffle and people are not nice to them. It can cause extreme harm to them in that way.

BY ATTORNEY BROOKS:

Q. In the beginning of your answer you referred to individuals identified as female at birth.

A. Assigned female at birth.

Q. And I think that your answer was speaking to individuals who are assigned male at birth.

A. Applies to both.

ATTORNEY BORELLI: Objection, form.

BY ATTORNEY BROOKS:

Q. Then let me re-ask my question because I asked about individuals assigned male at birth. As to those individuals, is it your opinion that a policy that requires

them to suppress testosterone prior to becoming eligible for participation in the women's division or high school level girls division is unreasonable?

ATTORNEY BORELLI: Objection, form.

[148]

THE WITNESS: For an assigned male at birth, suppressing testosterone, so we're clear because you used the word they in that particular question, I think it is unreasonable for them to be taken out of their sport. I think it causes harm. We see evidence that it causes harm with regard to depression, anxiety, suicidality. It also causes metabolic harm, changes in the performance.

ATTORNEY BROOKS: Let me mark this Exhibit 11, an article by Duke Professor Doriane Lambelet Coleman, Michael Joyner and Donna Lopiano, the Duke Journal of Gender Law and Policy.

(Whereupon, Adkins Exhibit 11, Duke Journal of Gender Law and Policy Article, was marked for identification.)

VIDEOGRAPHER: Counsel, I didn't fully catch which document that was? Did you say it was tab 19?

ATTORNEY BROOKS: It is tab 19, that's correct.

VIDEOGRAPHER: Thank you.

BY ATTORNEY BROOKS:

[149]

Q. Dr. Adkins, let me ask whether you have before now been aware of this article by Duke Professor Coleman and others?

A. I have heard of an article, yes.

Q. Do you know Professor Coleman?

A. I met Professor Coleman once.

Q. And have you ever seen this article before today?

A. I haven't looked at it.

Q. Probably my questioning about it will be very short. Let me ask you to turn to page 88. At the very bottom of page 88 is a sentence that runs over into 89 that reads as follows. If elite sport were coed or competition were open, even the best female would be rendered invisible by the sea of men and boys who would surpass her, closed quote. Do you see that language?

A. I do.

Q. Do you have the expertise to evaluate whether that is true or false?

ATTORNEY BORELLI: Object to form.

THE WITNESS: The --- well, again, you are picking one sentence out of a whole article. And I know that Dr. Coleman has actually called into question some of the information from this report in particular. **[150]** And without knowing which things I can't really rely on this document to say whether it's true. And that's not --- that's her expertise.

BY ATTORNEY BROOKS:

Q. Well, that's my question. Do you believe that it is within your expertise to evaluate that sort of question about sporting performance?

ATTORNEY BORELLI: Object to the form.

THE WITNESS: Again, you are picking one sentence. I have some professional experience with assisting people in improving their physiology with regard to, you know,

muscle mass, fat mass. Sport would be outside what I would have to say --- this specifically.

BY ATTORNEY BROOKS:

Q. I'm not sure that was a complete sentence, let me ask a follow-up question. Is it the case that it is --- you consider it outside your professional expertise to evaluate the truth or falsity of this supposed assertion that, quote, if elite sport were coed or competition were open, even the best female would be rendered invisible by the sea of men and boys who would surpass her, closed quote?

ATTORNEY BORELLI: Object to form.

[151]

THE WITNESS: That's not been my experience. That's not what we're seeing in sports. I can't say anything else about whether or not I could assess it. That would be my only way to assess it based on my experience.

BY ATTORNEY BROOKS:

Q. What is your professional training or research that qualifies you to evaluate the impact that would be experienced in athletics on biological women if sport were coed or competition were open?

ATTORNEY BORELLI: Objection to form.

THE WITNESS: Yeah. I don't study sports.

BY ATTORNEY BROOKS:

Q. You are an endocrinologist by training. Is that correct?

A. I am.

Q. Do you have an expert opinion as to what lasting or legacy --- strength and athletic capability if any way natal

males continue to enjoy over natal females after suppressing testosterone?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: So there's a lack of research in this area. I feel like we need more **[152]** information regarding this. I don't think that there's a way to answer that question with the data that we have at this time.

BY ATTORNEY BROOKS:

Q. Is it true in your practice that most of your biologically male patients present at your clinic let's say after age 13?

ATTORNEY BORELLI: Object to form.

THE WITNESS: Most of my patients who are assigned which at birth did you say?

BY ATTORNEY BROOKS:

Q. Male.

A. After age what again?

Q. I chose 13.

ATTORNEY BORELLI: Same objection.

THE WITNESS: I would agree with that.

BY ATTORNEY BROOKS:

Q. And implications of that are that those individuals have already experienced --- well, let me ask it differently. In your experience or based on your training, either one, on average what Tanner stage are boys at by the time they have finished their 13th year?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: So assigned male at birth?

[153]

BY ATTORNEY BROOKS:

Q. Correct.

A. The average at 13 is Tanner 3.

Q. By the end of age 13 you would say Tanner 3?

A. It is really 13 and a half is what the published literature says.

Q. So presumably by the end of their 13th year, when they're older than 13 they're either in a later stage of Tanner stage 3 or moving into Tanner stage 4?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: On average, but there is such a wide variety of --- they can present with puberty from 9 to 14. And they all move differently at different rates and different times, so there's a lot of variety in the 13 and a half year olds I see in my clinic who are assigned male at birth.

BY ATTORNEY BROOKS:

Q. And my question was about averages. So on average, by the end of the 13th year the patients you see would be towards the end of Tanner stage 3 or entering into Tanner stage 4?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: On average, yeah.

BY ATTORNEY BROOKS:

[154]

Q. And by that time those biologically male who have under gone effects on skeleton, on height, on musculature,

typical of or sometimes referred to as verilization. Correct?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: So at 13 and a half the average assigned male at birth is dead center their growth spurt, so they've only gone through about half of it. They still have about half of it left.

BY ATTORNEY BROOKS:

Q. Okay. And do you have any knowledge as to whether they have also undergone changes in heart and lung size and bone strength that are typical of male puberty?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: So I can't comment about the heart and the lung. The lung size is typically proportioned to the body size. So in that way, halfway. Bone strength, however, there's more information about. And you know, people don't get their peak bone mass until they're 30, so they have a long way to go starting from 13 and a half before they reach that.

BY ATTORNEY BROOKS:

[155]

Q. Have, on average, males experienced significant bone densification by age --- by the end of their 13th year?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: Depends on your definition of significant. Clinically significant, medically significant? Is it, you know, significant with regard to the biological assay. Is it you're talking about which would --- Dexus scans?

BY ATTORNEY BROOKS:

Q. I will take clinically significant.

ATTORNEY BORELLI: Objection to form.

THE WITNESS: Can you repeat your question with that?

BY ATTORNEY BROOKS:

Q. Yes. On average, have biological males experienced clinically significant bone densification by the end of their 13th year?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: Over their life span they do continue to increase their bone density. The peak of bone density is much later, so every person is different as to where they are in that density scale. At the middle of puberty, I mean, I would be guessing if I said **[156]** anything specific.

BY ATTORNEY BROOKS:

Q. Well, as I tell witnesses I am defending I don't know is always a great conversation stopper. Is it your testimony that you don't actually know how much bone densification has occurred by the end of the 13th year in those in biological males?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: I haven't looked at it --- I haven't looked at it recently. There are --- that's an --- interpretations that we use and it comes with our reports and I would have to look at that to rely on it.

BY ATTORNEY BROOKS:

Q. Have you heard the name Joanna Harper?

A. No.

Q. Let me see tab 24.

ATTORNEY BROOKS: Marking 13, what was previously designated tab 24, article published December 2020 by Emma Hilton and Tommy Lundberg, titled Transgender Women in the Female Category of Sport: Perspectives on Testosterone Suppression and Performance Advantage.

(Whereupon, Adkins Exhibit 13, 2020 **[157]** Hilton and Lundberg Article, was marked for identification.)

BY ATTORNEY BROOKS:

Q. And Dr. Adkins, let me ask again whether you know the name Emma Hilton or Tommy Lundberg.

A. No.

Q. Can I take it then you have not seen this article before?

A. I wouldn't say that one equals the other. I'm terrible with names, to be quite honest.

Q. Let me ask --- therefore, I retract that question. Do you recall seeing this article before today?

A. No.

Q. Okay. Then again, we will be short. You see the title. I understand you have not seen it. Let me ask you to turn to page 201. About an inch down in the first column, summarizing other research the authors of this paper write an extensive review of fitness from over 85,000 Australian children age 9 to 17 years old show that, compared with 9 year old females, 9 year old males were faster over short sprints, 9.8 percent, and **[158]** one mile, 16.6 percent. Could jump 9.5 percent further from a standing start, a test of explosive power. Quote, could complete 33 more push ups in 30 seconds and had 13.8

percent stronger grip, closed quote. Do you see that language?

A. Yeah.

Q. And my question for you is you have yourself any knowledge as to whether the facts recited there are scientifically accurate or inaccurate?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: So whenever I'm reviewing an article, and again, I have not seen the full article, it's reporting on population from Australia, which I usually use the population that I'm talking about when I am using that information to help guide my practice. So I'm not completely sure that would be a thing that would come into my mind when looking at this. Is this the same population in Australia you we're seeing here? That's one of my first questions about it.

BY ATTORNEY BROOKS:

Q. And I understand that everybody in Australia is upside down, but my question simply was do you have any knowledge as to whether, as a matter of science, these assertions are true or false?

[159]

ATTORNEY BORELLI: Objection, form.

THE WITNESS: They have published it in a peer reviewed journal I think. I would have to look if this is a peer reviewed journal because some are not. If those things are true, the assumption we make in medicine is that they are true.

BY ATTORNEY BROOKS:

Q. You are a very trusting person to peer reviewed journals.

A. They get redacted all the time. So again, my previous thing is you got to look at all of the pieces, et cetera.

Q. In general --- in general, do you consider that your expertise extends to the question of how much athletic advantage biological males enjoy over biological females prior to puberty, if any?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: I know limited amount of that information. We all learn a little bit, but I wouldn't say that I could say, you know, I know everything that exists.

BY ATTORNEY BROOKS:

Q. What is your source of information in that area?

ATTORNEY BORELLI: Objection, form.

[160]

THE WITNESS: Generally education in medical school and then looking at hormonal effects in muscle and bone and those things. But not in particular these specific tests.

BY ATTORNEY BROOKS:

Q. Do you have any opinion as to whether prior to puberty natal males have strength, speed or other athletic advantages over natal females on average?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: Gosh, there's such a wide variety of humans. And I know you are asking on average. I don't think I feel comfortable answering the question.

BY ATTORNEY BROOKS:

Q. All right. You have offered the opinion --- we can go back to paragraph 28, I keep referring to the same, that refusing to permit a transgender individual to participate in a sport category corresponding to their gender identity can be or is extremely harmful. From your medical point of view, what do you consider to be the implications of that opinion when it comes to individuals who claim both a male and a female gender identity?

[161]

ATTORNEY BORELLI: Objection, form.

BY ATTORNEY BROOKS:

Q. Must they be permitted to play in either category according to their choice.

ATTORNEY BORELLI: Objection, form.

THE WITNESS: That is a good question. I would have to talk to the individual person to really know what harm they might think --- feel that they are having if they were kept from one versus the other. I think that would be a very individualized question. I can't answer it with my experience.

BY ATTORNEY BROOKS:

Q. All right. Would you have the same answer with regard to an individual who experiences neither gender identity, neither male or female?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: So people who identify as a agender, you know, there is such a wide variety there of their life experience, their pubertal experience, their current hormones and what things they might be taking or not

taking, where their levels are. I think it --- and you know, again, I think --- you would have to look at the individual person.

[162]

BY ATTORNEY BROOKS:

Q. Is it your opinion, Dr. Adkins, that the only reasonable policy for schools, colleges or athletic leagues would be to consider eligibility for transgender individuals on a case by case basis, taking into account all of the types of complexities you just described?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: I think that that is completely possible for them to do given the small population that we're talking about. And I think it is reasonable for them to take the time to do that with each individual human.

BY ATTORNEY BROOKS:

Q. Do you think that such a policy is the only reasonable policy?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: Yeah, I'm going to venture that, yes.

BY ATTORNEY BROOKS:

Q. In your view --- as you've testified earlier a bit about the category of gender fluid individuals. You mentioned the term. Are you familiar with that category, concept of gender fluid individuals?

ATTORNEY BORELLI: Objection, form.

[163]

THE WITNESS: I'm aware of the concept.

BY ATTORNEY BROOKS:

Q. Can you explain for the court what the concept of --- what a gender fluid individual is or what that person experiences?

ATTORNEY BORELLI: Objection to form.

THE WITNESS: So my experience is that every gender fluid person is different, and I have to actually dig deep when I'm talking to someone who is gender fluid as to what that means. It could mean a wide variety of different experiences.

BY ATTORNEY BROOKS:

Q. You're not able to describe at all what it mean to be gender fluid?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: I can give you an example. I can give you more than one example.

BY ATTORNEY BROOKS:

Q. I'll take an example.

A. Okay. For a patient I'm bringing to mind, for that individual they generally might be expressing their gender identity variably on a particular day. Their understanding of their identity is that it shifts a **[164]** little bit. They sometimes are frilly, like me, very feminine-ish, and on days --- and feel that --- and other days they might wear a suit and tie. And that gender expression may align with their gender identity I guess, to express themselves a different way. It's just a matter that, you know, some days I feel like a girl and some days I don't. And I actually also sometimes have that feeling of, you know, a more girly one day than the other. I don't know. I'm not implying that I'm gender fluid, but that particular person

is an example of what might happen for someone who's gender fluid.

Q. Let me ask you to find. I told you we'd dig for it again, the Endocrine Society 2017 Guidelines, which are Exhibit 4.

A. I'm not saying my experience is the one and only, one all be all.

Q. And I'll call your attention to page five, column two?

A. I'm sorry, what is that again?

Q. Page five, column two. Language looks like this. That's on page five. That's fine.

ATTORNEY TRYON: This is Dave Tryon. I think both of you are starting to trail off at times and **[165]** speak less loudly and it's getting a little bit harder to hear you. If you can both remember to keep your voices up, it would be helpful to me.

ATTORNEY BROOKS: We will do our best. Wait until 6:30.

BY ATTORNEY BROOKS:

Q. Page 3873, column two. And towards the bottom is a discussion of the continuum and individuals who experience both or neither and then a reference that we looked at before about reports of individuals experiencing a continuous and rapid involuntary alternation between a male and female gender identity. Do you see that? It's about eight lines from the bottom.

A. On the right?

Q. Yes.

A. Yeah.

Q. And I'm going to focus you on the rapid involuntary alternation between male and female identity. And is it your view --- is it your opinion that unless school or league policy allows such gender fluid individuals to play in the league according to their present gender identity, whatever that might be, that it will do extreme harm to those individuals?

[166]

ATTORNEY BORELLI: Objection, form.

THE WITNESS: So I think that unless you are working with that individual person to do what works for them based on their gender identity, you are likely to do harm.

BY ATTORNEY BROOKS:

Q. And am I correct that it is your opinion that avoiding harm to students who experience a transgender identity, perhaps a gender fluid identity, is a higher priority than ensuring fairness in competition for those born female?

ATTORNEY BORELLI: Objection to form.

THE WITNESS: So doing a harm to individuals that are transgender can lead directly to their death. So we're talking about a life and death experience for these individuals. What you are referring to with regard to sports participation in my vision of all of the sports athletics is a rarity of someone dying, and it is not because of the harm policy --- of transgender person.

BY ATTORNEY BROOKS:

Q. What's the answer to my question?

COURT REPORTER: Excuse me.

ATTORNEY BORELLI: Objection.

[167]

COURT REPORTER:

I just want to interrupt because the witness cut out during her answer.

BY ATTORNEY BROOKS:

Q. Well, I'm going to re-ask the question. And we'll both try to speak up and perhaps to some extent the transcript will have to be, you know, cleaned up from the recording. We'll do the best we can. Is it your opinion that avoiding harm to transgender individuals, potentially including gender fluid individuals, is a value that is more important than protecting the fairness and safety for girls and women for those born female in sport?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: So when we're talking about life and death, that is the ultimate outcome. And I still say that if you're talking about a policy that could cause the death of a human being, that, in my judgment, does rank higher than fairness at that time.

BY ATTORNEY BROOKS:

Q. And you talked earlier about your assertion that you had patients who have experienced harm as a result of not being permitted to play according to their gender identity. Do you recall that testimony?

ATTORNEY BORELLI: Objection, form.

[168]

THE WITNESS: I do.

BY ATTORNEY BROOKS:

Q. And do you have specific examples of such patients who experienced increased suicidal ideation specifically as

a result of not being permitted to play in athletics according to their gender identity?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: I do.

BY ATTORNEY BROOKS:

Q. Tell us about that.

ATTORNEY BORELLI: Objection, form.

THE WITNESS: Yeah. So one of my patients, for example, had played football. This patient was assigned female at birth, identifying as male in middle school. Really wanted to play in high school and was eventually not allowed to do so, and their depression deepened. They had not had any suicidal ideation before. They had been well affirmed. They were living in their gender identity in every other aspect of their life.

And they ended up having to go on medication to make sure that --- to treat that depression in addition to all of the support in the family and teachers were giving with their gender **[169]** identity.

BY ATTORNEY BROOKS:

Q. And do you have any knowledge as to whether that individual would have faced serious safety injury risks had that individual, natal female, been permitted to play football at high school level as your patient's male peers matured into full male stature?

ATTORNEY BORELLI: Objection to form.

THE WITNESS: This particular patient was within the normal range for a male of that age as far as height, weight and BMI, so there wasn't a great disparity with regard to that. That can come up at times with regards to

sports participation in consideration with injury. So this particular patient, I would not have had any concern there. Lots of assigned females at birth who are not transgender also play football in high school.

BY ATTORNEY BROOKS:

Q. Tab 25. Dr. Adkins, do you recall permitting the reporting of and being part of a WNYC podcast back in 2016?

A. Yes.

Q. Let me mark as Exhibit 14 a two-page kind of introductory page off the WNYC website describing this **[170]** podcast. The document itself, the posting is dated August 2, 2016. Give me one moment here.

(Whereupon, Adkins Exhibit 14, 2016 Podcast Summary Webpage, was marked for identification.)

ATTORNEY BROOKS: And let me also mark as Exhibit 15 the transcript of that podcast downloaded off of the WNYC website.

(Whereupon, Adkins Exhibit 15, 2016 Podcast Transcript, was marked for identification.)

BY ATTORNEY BROOKS:

Q. And that --- the title apparently of the podcast is, quote, I'd Rather Have a Living Son than a Dead Daughter. Do you see that?

A. I do.

Q. And you allowed a reporter from WNYC to come into your office and record various conversations. Am I correct?

ATTORNEY BORELLI: Objection, form.

[171]

THE WITNESS: With the permission of --- the --- everyone involved.

BY ATTORNEY BROOKS:

Q. To participate and they waived the privacy with regard to anything that wasn't included in the podcast. Am I correct?

ATTORNEY BORELLI: Objection to form.

THE WITNESS: That would be standard.

BY ATTORNEY BROOKS:

Q. At least as far as yourself, do you recall doing that?

ATTORNEY BORELLI: Objection to form.

THE WITNESS: I don't recall. I suspect I would have.

BY ATTORNEY BROOKS:

Q. And did you yourself review the podcast before it was released for any privacy or accuracy concerns?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: I don't remember. That's been so long ago.

BY ATTORNEY BROOKS:

Q. It has been a while. This was 2016. And you had been practicing in this area about how long in 2016?

A. In North Carolina?

[172]

Q. I'm sorry. In this field of treatment of gender --- of individuals suffering gender dysphoria?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: I started caring for patients who are transgender in --- I think around 2013.

BY ATTORNEY BROOKS:

Q. Okay. So between two and three years before the time this was recorded. Okay. Let me ask you to look at Exhibit 15, which is to say the transcript. And first page, it indicates and I'll just --- it deals with two clients with names, at least for purposes of the podcast, of Drew Adams and Mark. Do you recall that?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: I would have to verify. Probably accurate, but ---

BY ATTORNEY BROOKS:

Q. Martin shows up on page 13. A couple inches down we skip to the last patient at the end of a long day and then it says recalling this patient Martin.

A. I see that.

Q. Let's go back and just look at issues relating **[173]** to Drew Adams. Drew is, if I understand correctly, natal female, identifying at the time of this recording as ---?

A. Drew was assigned female at birth and identified as male at this time.

Q. And so far as you understand, based on your medical evaluation, Drew is somebody who was chromosomally female. Correct?

ATTORNEY BORELLI: Objection to form.

THE WITNESS: I don't get to verify their chromosomes. We don't do that.

BY ATTORNEY BROOKS:

Q. At the time this was recorded, you did have an understanding, did you not, that Drew had female reproductive biology?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: On my exam at that time Drew had external genitalia that appeared female and secondary sex characteristics typical of someone assigned female at birth.

BY ATTORNEY BROOKS:

Q. Well, in fact, somebody biologically female.

Correct?

[174]

ATTORNEY BORELLI: Objection.

THE WITNESS: Assigned female at birth.

BY ATTORNEY BROOKS:

Q. Well, let me ask you this. You prescribed hormones for Drew. Am I correct?

A. Yes.

Q. And you didn't do that without a high level of confidence in your mind as to the biology of Drew's body. Am I correct?

ATTORNEY BORELLI: Objection to form.

BY ATTORNEY BROOKS:

Q. You weren't just based on what somebody happened to be assigned at birth. You believed that Drew was biologically female, did you not?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: So at the beginning, prior to treating patients, we do look at where their baseline hormones are. So I did have that information as well as an external exam. I didn't have chromosomes or an ultrasound.

BY ATTORNEY BROOKS:

Q. My question is at the time you prescribed **[175]** hormones for Drew you believed that Drew was biologically female firmly, did you not?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: I had no reason at that time with the data in front of my to identify Drew as anything other than assigned female at birth.

BY ATTORNEY BROOKS:

Q. And you just didn't care what Drew's biology was as you chose hormones to prescribe?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: I investigated what is necessary to move ahead with that prescription and make it safe for the patient.

BY ATTORNEY BROOKS:

Q. What was necessary was to determine that biologically Drew was female. Am I correct?

ATTORNEY BORELLI: Objection, form.

BY ATTORNEY BROOKS:

Q. You are going to tell the court that you didn't try to determine whether Drew was biologically male or female?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: I obtained baseline blood **[176]** work like I do with every patient, which is recommended by the

Endocrine Society that you get baseline hormone levels. I did a physical exam. Not every patient gets to have an ultrasound, a karyotype or a full exon analysis. It's not the way you can practice medicine.

BY ATTORNEY BROOKS:

Q. Turn with me to page three of the transcript. Two, two and a half inches down, MH, who I believe is the reporter, not somebody working for you but the reporter, says, quote, this is Drew's second time here, closed quote. Do you see that, just two inches down?

A. Yeah.

Q. It's been quite a few years. Do you believe that that was accurate that what the events that were recorded here were on Drew's second visit to your clinic?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: It has been so long. To verify it is true I would have to look back at my clinic notes as well as if I even still had it recorded when they were in clinic or not.

BY ATTORNEY BROOKS:

Q. And do you know, as you sit here today, whether prior to this perhaps second meeting with Drew any **[177]** psychologist or psychiatrist associated with your new clinic had personally evaluated Drew to confirm the diagnosis of gender dysphoria?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: Before we start treatment we have our mental health team do an assessment of the patient with regard to finding out their --- any psychological challenges that they may be having and confirm if they have gender dysphoria and confirm the criteria from the

DSM --- God, my brain is just tired. From the DSM criteria. And in addition to that, we have a person who is a local mental health provider also perform any evaluation and develop a relationship with the patient prior to starting the treatment.

BY ATTORNEY BROOKS:

Q. Well, let me break that out. Do you require that a psychologist or psychiatrist associated with Duke confirm a diagnosis of gender dysphoria before you proceed with hormonal interventions?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: I have a team of mental health providers who work with me and do that assessment. That is part of their standard job. And every patient is evaluated by that team. Sometimes it **[178]** is a psychiatrist, psychologist. Sometimes it is a different kind of mental health provider.

BY ATTORNEY BROOKS:

Q. Well, if it is not a psychologist or psychiatrist, on what type of mental health --- what qualifications of mental health providers do you rely to make such a diagnosis before prescribing hormonal interventions?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: You know, there are Licensed Clinical Social Workers that we work with that are used by Duke in a number of capacities with regard to mental healthcare.

BY ATTORNEY BROOKS:

Q. Is it your testimony --- I want to be careful on this. Is it your testimony that you are willing to rely on a diagnosis by a social worker with no medical,

psychological degree before prescribing a hormonal intervention?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: So the mental health providers that I use have master's degree education in care for patients in this area and have ongoing continuing medical education with regard to their **[179]** ability to asses the mental health of a patient in front of them.

BY ATTORNEY BROOKS:

Q. That would be a --- a Master's in social work.

Correct?

A. Often it's a Master's in social work. Also have people who have Master's in public health in addition I should say.

Q. And so if such any evaluations was done by a mental health professional associated with Duke, that would have been at Drew's first visit, not at the visit that was the subject of this podcast recording?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: At that time it could have been done physically at the first visit. Sometimes we have had them come on a different day than their visit with me. So it is possible it could have been a different day. I just don't remember.

BY ATTORNEY BROOKS:

Q. Okay.

Do you ever rely on the diagnosis of an individual's mental health worker not associated with Duke as an adequate basis to prescribe hormonal interventions?

[180]

ATTORNEY BORELLI: Objection, form.

THE WITNESS: Our clinic policy is to have someone outside of Duke as well as someone inside of Duke.

BY ATTORNEY BROOKS:

Q. So you may recall --- do you recall that Drew and his mother had driven up from Florida for this meetings?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: I do remember that.

BY ATTORNEY BROOKS:

Q. And do you sometimes consider diagnosis given by mental --- for purposes of proceeding with hormonal interventions?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: If they are licensed to practice in that area or certified in their state, that is what we rely on.

BY ATTORNEY BROOKS:

Q. At the top of page two --- and again, this is the voice of the reporter, so I want to check it with you. It says, the end of the first full paragraph, that Drew and his mom are driving eight hours from Jacksonville, Florida, to get here because North **[181]** Carolina is also home to one of the only clinics in the south that treats transgender kids. Do you see that?

A. I do.

Q. And in your understanding was that true in 2016, that you here had one of the only clinics in the south that treated transgender kids?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: We were one of a few.

BY ATTORNEY BROOKS:

Q. And they had driven all the way to North Carolina from Florida precisely because whatever mental health providers they were seeing in Florida didn't have expertise in this area. Is that correct?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: They didn't drive here to see a mental health provider. They drove here to see me as an endocrinologist.

BY ATTORNEY BROOKS:

Q. I apologize. Whatever professionals were advising them in Florida didn't have expertise in this area?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: With regard to hormonal **[182]** management.

BY ATTORNEY BROOKS:

Q. What steps, if any, did you take to give yourself comfort that any comorbidities that might be --- might confound the diagnosis of transgenderism had been appropriately addressed before you prescribed hormones for Drew?

ATTORNEY BORELLI: Objection to form.

THE WITNESS: I mean, I would have to look back at my notes specifically to see exactly what we had in the record. Our policy again is to have someone who has had a relationship with the patient outside of Duke Clinic that states that they have well managed issues with regard to their mental health and are prepared and safe to move forward with gender affirming hormones.

BY ATTORNEY BROOKS:

Q. As a matter of policy in your clinic do you insist on a diagnosis that will tell you whether or not this patient suffers from autism of any sort?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: We do require that they have a screening that is performed within our clinic for any potential signs or symptoms of autism.

[183]

BY ATTORNEY BROOKS:

Q. And if you identify that a patient does have some signs or symptoms of autism what significance does that have as to how quickly or whether you are willing to proceed with hormonal interventions?

ATTORNEY BORELLI: Objection to the form.

THE WITNESS: So again, every patient is different. Autism is a spectrum, as it's described autism spectrum disorder, and so you have to figure out each patient's understanding of their gender identity, what's going on in their life and if they're ready.

BY ATTORNEY BROOKS:

Q. Do you have any professional opinion as to whether autism itself can cause a patient to feel uncomfortable with their identity?

ATTORNEY BORELLI: Objection to form.

THE WITNESS: Their whole identity?

BY ATTORNEY BROOKS:

Q. Yes.

A. I ---.

ATTORNEY BORELLI: Objection ---.

THE WITNESS: Yeah, I don't know if I have seen any reports about their whole identity being called into question just because they have autism.

[184]

BY ATTORNEY BROOKS:

Q. Do you have any professional opinion as to whether autism itself can cause individuals to feel alienated from or disassociated with their gender identity ---

ATTORNEY BORELLI: Objection, form.

BY ATTORNEY BROOKS:

Q. --- or I should say the gender identity associated with their natal sex?

ATTORNEY BORELLI: Objection to form.

THE WITNESS: With the information that I have worked with on our autism team at Duke is that, you know, it can take a little longer for people with autism to truly understand their gender identity. So we do take care there. That's why we screen.

BY ATTORNEY BROOKS:

Q. I would like to play a clip from this podcast that includes your voice, the reporter's voice, Drew's voice. I think it will come through loud and clear. I'm optimistic --- for those of you ---.

ATTORNEY BORELLI: While you're settling this, will the words from the recording, do they appear in the transcription.

ATTORNEY BROOKS: They do. I was about **[185]** to say that for everybody's benefit.

ATTORNEY BORELLI: Thank you, Counsel.

ATTORNEY BROOKS: Now, I'm thinking. That has to be live. All right. So that's unmuted.

VIDEOGRAPHER: You said one?

ATTORNEY BROOKS: What's that?

VIDEOGRAPHER: You said one?

ATTORNEY BROOKS: But I need to say on the record and tell people --- can the court reporter here me.

COURT REPORTER: Yes.

ATTORNEY BROOKS: The clip that I'm about to play appears on page four of the transcript that is marked Exhibit 15 and it makes up kind of the center two-thirds of the transcript. All the words that you will hear or perhaps won't hear very well appear on the transcript. We're going to listen to clip one here.

(WHEREUPON, PODCAST AUDIO WAS PLAYED.)

BY ATTORNEY BROOKS:

Q. The narrator says that Drew's only question was, quote, when can I start testosterone, and you responded today, sound good, yeah, all right. Is that consistent **[186]** with your recollection of what happened that day?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: Yes.

BY ATTORNEY BROOKS:

Q. Was that your voice?

A. That was my voice.

Q. Okay. And did you know before you came into the room that Drew's goal was to walk out with a testosterone injection or a prescription for a testosterone injection?

ATTORNEY BORELLI: Objection to form.

THE WITNESS: You know, I don't remember. I don't remember what I knew before in walked in the door. Sometimes I do. Sometimes I don't.

BY ATTORNEY BROOKS:

Q. Now, I want to be fair. This is --- these are clips and they're carefully done, so I can't be sure whether there are things in between.

A. Correct.

Q. Do you have any recollection as to any discussion or any further evaluation that happened between, hey, how are you, and your voice, and answering the question when can I start, today?

[187]

ATTORNEY BORELLI: Objection, form.

THE WITNESS: So most typically, before I walk into a room I have reviewed the patient's medical record. I have reviewed their letter from their mental health provider. And I have reviewed any laboratory evaluation that I have received from them prior and generally review their records. So I would come into a visit with that sort of fresh in my mind.

BY ATTORNEY BROOKS:

Q. So it is consistent with your recollection that on Drew's second meeting with you, you walked into the room having made up your mind to give Drew testosterone?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: Based on the words that are here, that would be --- I would have reviewed the information that I needed to know that that would be safe.

BY ATTORNEY BROOKS:

Q. And in between walking in the room and telling Drew today, yay, all right, did you make any further inquiry about whether Drew in the last --- since he last saw you had been suffering from any sort of depression?

ATTORNEY BORELLI: Objection to form.

THE WITNESS: So typically that is part [188] of our visit. It's not necessarily part that I would do. And we also have forms that they fill out that does an assessment of depression prior to me walking in the room.

BY ATTORNEY BROOKS:

Q. Did you ensure that an assessment had been done that evaluated the strengths and weaknesses of Drew's relationship with Drew's family?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: The mental health evaluation does include walking through parent relationships, school relationships, teacher relationships and finding out where those are.

BY ATTORNEY BROOKS:

Q. Did you feel that you, yourself, needed to have any understanding, for instance, of Drew's relationship with Drew's father before you proceeded to prescribe cross sex hormones?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: I would want to know where their relationships are.

BY ATTORNEY BROOKS:

Q. So Drew's mother attended. What steps did you take to find out what Drew's relationship with Drew's **[189]** father was?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: I don't remember. I would have to look back.

BY ATTORNEY BROOKS:

Q. And does your clinic before prescribing hormonal interventions make sure that an overall psychotherapy treatment plan has been prepared to diagnose and address any other psychological or social difficulties suffered by the patient?

ATTORNEY BORELLI: Objection to form.

THE WITNESS: So you know, I follow the guidelines that say that we should have any of the mental health issues well managed and that's why we use --- have our patients have a mental health provider and that's why we have them tell us that in writing.

BY ATTORNEY BROOKS:

Q. So I'm going to play a second clip that picks up exactly where we left off on the transcript, that is at the very bottom of page five and continuing halfway --- I'm sorry, the very bottom of page four and continuing halfway down page five. If you would.

- - -

[190]

(WHEREUPON, PODCAST AUDIO WAS PLAYED.)

- - -

ATTORNEY BROOKS: That was background noise. I thought it was coming through here. I apologize. Just start it again. My mistake.

(WHEREUPON, PODCAST AUDIO WAS PLAYED.)

BY ATTORNEY BROOKS:

Q. Dr. Adkins, do you believe that the basic narrative here accurately describes what happened, that you came in, you spoke with Drew, you went out, and while you were out one of your aides read risk disclosures for consent to Drew and Drew's mother?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: That is part of it.

BY ATTORNEY BROOKS:

Q. And the narrator said at the beginning explaining this process that there were still, as of 2016, a lot of unknowns about what these hormones will do long term. Was that an accurate statement at the time in your opinion?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: We've learned a lot more. **[191]** We have got however many more years, what, five more years at least of information since then. You can't know what every single thing that every drug is going to do forever.

BY ATTORNEY BROOKS:

Q. One of the things that you included at that time in your cautions or disclosures was that taking these cross sex hormones might prevent a patient who had --- was a

natal female from ever being able to get pregnant, even if Drew stopped taking testosterone in the future. Correct?

ATTORNEY BORELLI: Objection, form. One other just piece of clarity for the record, I want to make sure that it is clear that the transcript and recording is not a complete recording of the entire visit.

ATTORNEY BROOKS: I have made that clear I think.

ATTORNEY BORELLI: Thank you, Counsel.

BY ATTORNEY BROOKS:

Q. My question is one of your disclosures in 2016 was that the administration of testosterone to a natal female might mean that that individual would not ever be able to get pregnant even should the patient stop taking **[192]** testosterone at a future date. Correct?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: Correct.

BY ATTORNEY BROOKS:

Q. And that is still part of your disclosure today; is that correct?

A. That's part of it. We actually have more studies that show actually an equal fertility rate for our transgender males who have been on testosterone and come off and choose to get pregnant as their cisgender peers, their assigned females at birth who've never been through any testosterone treatment.

Q. Because of the present science you still make exactly the same caution in your warnings to patients before prescribing testosterone. Correct?

ATTORNEY BORELLI: Objection to form.

THE WITNESS: I do.

BY ATTORNEY BROOKS:

Q. And so the sequence is that you said with regard to administering testosterone, which you cautioned or clinic cautioned could be potentially sterilizing, you as the doctor said to Drew, sound good, yeah, all right. **[193]** And then you left the room while somebody else read warnings and disclosures. Is that right?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: That doesn't --- is that what the sequence was in this report? It looks like that I also make sure that the patients have adequate time to answer questions. I usually give them this form ahead of the visit so they can review it and in case their reading is their better method versus verbal. That's why we do it in two different ways as far as their learning style. We make every effort to help make sure that our patients understand.

ATTORNEY BORELLI: We have been going a while. Can we take a break soon? I think we should.

ATTORNEY BROOKS: Fairly soon. We'll finish this line of questioning and this clip.

BY ATTORNEY BROOKS:

Q. You yourself didn't ever sit down and talk through known or potential side effects with either the child or the mother in this case, did you?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: I don't remember it specifically every visit from 2016 and exactly what **[194]** happened.

BY ATTORNEY BROOKS:

Q. As a matter ---.

ATTORNEY BORELLI: Counsel, I'm sorry, I think I heard the witness say a moment ago that a break would be good. Why don't we break here? Can we come back in say ten minutes?

ATTORNEY BROOKS: We can say that or I can finish this paragraph.

ATTORNEY BORELLI: Why don't we break now. We've been going a while. Thank you.

VIDEOGRAPHER: Going off the record. The current time reads 2:27 p.m. Eastern Standard Time.

OFF VIDEO

- - -

(WHEREUPON, A PAUSE IN THE RECORD WAS HELD.)

- - -

ON VIDEO

VIDEOGRAPHER: We're back on the record. Current time reads 2:43 p.m. Eastern Standard Time.

BY ATTORNEY BROOKS:

Q. Dr. Adkins, in dealing with Drew, you have a social worker read the disclosures, the warnings. Did you, yourself, ever present to Drew options for **[195]** fertility preservation?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: Yes, that is a conversation I have with my patients.

BY ATTORNEY BROOKS:

Q. You, yourself, have that conversation?

A. I do.

Q. Let's --- and did you explain --- I see that the disclosure --- we heard the disclosure that it's --- using testosterone to appear more masculine is off label use. Is that part of your standard disclosures?

ATTORNEY BORELLI: Objection, form.

BY ATTORNEY BROOKS:

Q. Do you explain to your patients that the fact that it is off label means that no studies that establish safety of use of testosterone for that purpose at the level as would be required for FDA approval have been done?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: No, that wouldn't be an accurate statement. Those studies can be done. They just haven't been presented by the company manufacturing the medication to the FDA to try and get that certification from the FDA.

[196]

BY ATTORNEY BROOKS:

Q. Have you, yourself, ever participated as a physician in a so-called phase one clinical trial?

ATTORNEY BORELLI: Objection to form.

THE WITNESS: So phase one typically is dose related. I have not done those. I have done phase two, phase three and then after market.

BY ATTORNEY BROOKS:

Q. Phase one is, among other things, required to establish safety. Am I correct?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: That is part of the objective of a phase one study.

BY ATTORNEY BROOKS:

Q. And indeed, it is a required part of the objective. Right?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: Yes.

BY ATTORNEY BROOKS:

Q. And to your knowledge, has any study of safety of administering testosterone for the purpose of appearing more masculine in natal females ever been done **[197]** at a level of rigor that could satisfy FDA requirements?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: So I don't have the FDA standards right in front of me. I have, you know, read articles that report outcomes and side effects and safety profiles. There are other testosterone --- there are testosterone products on the market that are FDA approved for using cisgender females.

BY ATTORNEY BROOKS:

Q. Do you know whether any safety study has ever been done for administration of testosterone to natal females for the purpose of appearing more masculine at a level of rigor that could satisfy FDA requirements?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: I can't answer the question without, you know --- I would have to really look at the indications, the FDA rules.

BY ATTORNEY BROOKS:

Q. Okay. Let's listen to a third and final clip. This one begins with a sentence the last one ended with on page five and runs just onto page six, I believe. End of page five. Let's hear that.

[198]

(WHEREUPON, PODCAST AUDIO WAS PLAYED.)

BY ATTORNEY BROOKS:

Q. All right. My impression, correct me or tell me if you agree, that clip is just a single unbroken bit of conversation, not pieced together from different things. Is that consistent with what you heard and what you recall?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: You know, I don't remember.

BY ATTORNEY BROOKS:

Q. Okay. You come back in the room with a prescription in your hand, the warnings have been read while you were outside. You ask, guess what I have in my hand. You heard the clip and I see what it says there. Is the voice that says happy drugs Drew's voice or your voice?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: Mine. My voice.

BY ATTORNEY BROOKS:

Q. The voice that says happy drugs is your voice. And the voice that says yay, yay, s also your voice? If **[199]** you want to hear it again you can.

A. It's not labeled that way.

Q. Well, yay, yay is labeled you?

A. Yay, yay is labeled me? Okay.

Q. Doctor A?

A. It's really confusing because it's ---.

Q. Let's do this. Let's listen to this one more time.

A. There is confusion.

Q. I want you to listen --- don't trust the labels. Listen to the voice on happy drugs. They may be ---.

(WHEREUPON, PODCAST AUDIO WAS PLAYED.)

BY ATTORNEY BROOKS:

Q. Whose voice says happy drugs?

A. That sounded like Drew.

Q. Okay. So the labeling you believe is correct. I just wanted to double check that. Are you, as a physician, in light of all of the disclosures that have just been made about potential side effects, potential harmful effects, were you comfortable with the child referring to cross sex **[200]** hormones as happy drugs?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: So if you will recall, we use the medication to decrease dysphoria, which is a discomfort, and to improve depression. So any medication that would relieve those things could be described as a happy drug. I'm okay with that.

BY ATTORNEY BROOKS:

Q. And after Drew says happy drug you said yay, yay. Are you comfortable that's consistent with your role as a doctor in light of potential downsides and side effects of

this treatment and this child's life to serve the role of a cheerleader saying yay, yay?

ATTORNEY BORELLI: Objection. Counsel, I just want to note for the record it's not clear from that recording that both yays are in the same voice. That's actually not what I heard.

ATTORNEY BROOKS: If you have an objection you can raise it later.

ATTORNEY BORELLI: I need to make my record now, Counsel.

ATTORNEY BROOKS: No, you need to raise your objection now. You get to discuss it further in front of the court.

[201]

BY ATTORNEY BROOKS:

Q. I will re-ask my question. Do you consider it consistent with your role as a physician, in light of the potential downsides and side effects from cross sex hormones for this child, for you to play the role of cheerleader saying yay?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: So in my job as a physician I often am helping motivate my patients improve their overall health. And in that way I often sound like I am a cheerleader and I am trying to help them believe in themselves and understand and feel good moving forward with medication treatments to have the best likelihood of success. So I may say yay.

VIDEOGRAPHER: Excuse me. You got cut out there in the middle of that --- in the middle of your answer.

THE WITNESS: Okay. Do you want me to start over?

ATTORNEY BROOKS: Who was that?

ATTORNEY WILKINSON: That was the court reporter. I can make a recording if everyone is happy with my phone just on the table so we could refer to that later if that's useful if we're concerned about the **[202]** audio cutting out.

ATTORNEY BROOKS: There is no harm in a backup recording. Voices will be identifiable. If you want to set it there by that speaker.

ATTORNEY WILKINSON: If you're comfortable.

ATTORNEY BORELLI: I just want to check --.

COURT REPORTER: Who is talking right now. I'm sorry, who is --- who is talking about their phone. I don't understand. Like, I don't know who's speaking.

ATTORNEY BROOKS: Just now my colleague Lawrence Wilkinson is proposing to set his iPhone on record by the speaker here so there will be a backup onsite recording in case anything is dropped over the internet. And that will be made available both to those who are listening and to the court reporter service. Address some of the concerns. So let's fire that up and it will be there.

BY ATTORNEY BROOKS:

Q. I will continue with my questioning. Did it cause you any concern that in referring --- by referring to a testosterone injection as happy drugs that that was **[203]** an indication that young Drew was not taking seriously the 20 minutes' worth of cautions and warnings that had just been read?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: So given that the medication is used to decrease dysphoria and improve depressive symptoms, in that way it does make someone happier. And I have no issue with a patient who is using a general reference as happy drugs in that that is part of what will happen with the medication. I didn't have any concerns with regard to the fact that Drew may not have gotten everything he needed to understand what he was going into going forward with this medication.

BY ATTORNEY BROOKS:

Q. Let's back up to page four of the transcript. And we're not going to listen to any ore clips. Everybody will be happy to know perhaps.

ATTORNEY BORELLI: It's unstable.

THE WITNESS: There we go.

BY ATTORNEY BROOKS:

Q. Okay. And towards the top of page four, the second paragraph, the narrator --- and this is not you speaking and it is not Drew's mother speaking. The narrator says **[204]** she doesn't like talking about what Drew's life was like before he started transitioning. But when I asked her how she knew living as a boy was the right choice for Drew, she was blunt. She said I'd rather have a living son than a dead daughter. Do you see that?

A. I do.

Q. Did you ever tell Drew's mother that that was the choice that she faced, between a living son and a dead daughter?

ATTORNEY BORELLI: Objection to form.

THE WITNESS: I would not have used that phrase. I would have discussed the risk of suicidality.

BY ATTORNEY BROOKS:

Q. Did you ever hear Drew's mother say she understood that was the choice she faced, between a living son and a dead daughter?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: You know, I have heard it since then because of the podcast, so I can't remember if I heard it before then or not. I don't recall hearing it before then.

BY ATTORNEY BROOKS:

Q. When you saw the title to the podcast did you call WNYC and express any concern that that title could **[205]** be misleading?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: I did not.

BY ATTORNEY BROOKS:

Q. Have you ever consulted research on the rate of suicide among preadolescents for any purpose?

ATTORNEY BORELLI: Objection to form.

BY ATTORNEY BROOKS:

Q. In any category?

A. Repeat the question, please.

Q. Have you ever consulted research or data about the rate of suicide among preadolescents, period?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: Preadolescents, have I consulted research on suicidality on preadolescents, so before puberty. Not in a while.

BY ATTORNEY BROOKS:

Q. You are aware, are you not, that incidences of actual suicide are extremely rare in individuals of all categories before puberty?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: That sounds consistent with the leading causes that I recall for death before puberty.

[206]

BY ATTORNEY BROOKS:

Q. And you, yourself, are not aware of a single case of suicide by a preadolescent gender dysphoria patient that has come to your clinic?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: No.

BY ATTORNEY BROOKS:

Q. And have you consulted any research on the rate of actual suicide by children suffering from gender dysphoria under the age of 15?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: Have I? Yes.

BY ATTORNEY BROOKS:

Q. And what did that --- what source do you have in mind when you say that?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: Again, I have trouble with remembering and there is a wide variety of reports, some as --- from 25 to 30 percent, some as high as 40 percent. And those are suicide attempts, as I recall, which means that the folks that died wouldn't have even been identified.

BY ATTORNEY BROOKS:

Q. Well, you are aware that there's a very wide **[207]** statistical gap between suicide attempts and suicides. Correct?

ATTORNEY BORELLI: Objection to form.

THE WITNESS: There is some variation between suicide attempts and what was the word, suicide ideation, yeah.

BY ATTORNEY BROOKS:

Q. No. What I said is there is a very wide gap between suicide attempts and actual completed suicide?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: There is a gap between. Not every one who attempts. Otherwise, there wouldn't be a difference in the name.

BY ATTORNEY BROOKS:

Q. In fact, you know as a matter of professional expertise that it is a very wide gap, do you not?

ATTORNEY BORELLI: Objection.

THE WITNESS: I would have to look at the literature, at what the numbers look like and describing it why is an opinion.

BY ATTORNEY BROOKS:

Q. Has any patient of the 500 under your care ever committed suicide at an age younger than 14?

ATTORNEY BORELLI: Objection, form.

[208]

THE WITNESS: Excuse me. No.

BY ATTORNEY BROOKS:

Q. Have you followed up so that you have current information about Drew's mental, physical and social health as of today, which would be about age 21?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: Drew's no longer my patient, has transitioned to adult care. That's not what I do, so I don't have access to that.

BY ATTORNEY BROOKS:

Q. What procedures do you have in place, if any, in your clinic to follow up long term with those whom you have prescribed puberty blockers or cross sex hormones for?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: So you know, here at Duke we have a multidisciplinary team. As --- I don't know if I mentioned them before. It includes a wide variety of individuals. And that group discusses every month our patients, any concerns or questions. In addition, that group has put together a registry that starts when they come to my clinic and we follow their health, their mental health through the time that they are in our clinic and then when --- oops. Sorry. And then when **[209]** they are adults transitioning to our adult care team. And in that way I'm able to keep up with those patients who remain at Duke for adult care.

BY ATTORNEY BROOKS:

Q. So you have been practicing this field I think you said since about 2013. And the patients that you saw let's say in 2013, 2014, 2015, I think you said most of your patients presented older than age --- I don't recall exactly. Your average presentation is older than 13?

ATTORNEY BORELLI: Object to the form.

THE WITNESS: Yes.

ATTORNEY BORELLI: You got to pause so I can get in an objection.

THE WITNESS: Oh, yeah. Yeah.

BY ATTORNEY BROOKS:

Q. So --- yeah. So those patients on average are now in their upper teens or perhaps 20?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: Let's see. I have patients who are older than that. I'm not sure of an average. I have not calculated an average.

BY ATTORNEY BROOKS:

Q. Do you have any procedures in place to attempt **[210]** to monitor the mental health of your patients five years after you first prescribe puberty blockers or cross sex hormones?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: The patients that remain within our registry do have regular mental health follow-up. We have a team on the adult side as well in both of the two clinics that we work with.

BY ATTORNEY BROOKS:

Q. What percentage of your patients that you yourself have authorized cross sex hormones do you have access to data about their mental health five years after initiation of hormone treatment?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: Some are still present in the clinic. I would have access to those. You know, I'm not supposed

to access records specifically if they're no longer in my care. The provider can reach out to me with concerns and have a very close relationship with the adult providers and they do ask me questions about some of those. So in that way I would have access as well as when we calculate on a population base within our registry any outcomes there.

BY ATTORNEY BROOKS:

[211]

Q. As a matter of research, has --- have you or anybody associated with your clinic attempted a follow-up survey or systematic series of interviews of all patients who were prescribed hormones within, for instance, some particular time period?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: So we currently are enrolling patients in that study. It's not complete.

BY ATTORNEY BROOKS:

Q. As we sit here today, you don't have any systematic reasonably thorough information on the mental health condition of let's say patients for whom you first prescribed hormonal interventions five years ago. Is that correct?

ATTORNEY BORELLI: Objection. Objection to form.

THE WITNESS: I would consider, you know, a registry with research based systematic method.

BY ATTORNEY BROOKS:

Q. A registry with research based ---?

A. That is research based is a systematic program to do that and find out follow-up.

Q. What do you mean by registry that it is research based?

[212]

A. A registry is a list of patients who are enrolled in a study, if it's done as a research protocol. And within that registry, you collect information that you choose to record that's important and then you follow that over time in a systematic way.

ATTORNEY BROOKS: Let me grab tab 29 --- let me mark as Exhibit 16 a document previously designated as tab 29, which is article entitled --- I should say a newspaper article entitled The Mental Health Establishment is Failing Trans Kids by Laura Edwards Leeper and Erica ---.

(Whereupon, Adkins Exhibit 16, 2021 Washington Post Article, was marked for identification.)

BY ATTORNEY BROOKS:

Q. And Dr. Adkins, am I correct that this in the Washington Post came out in November of 2021 stirred up quite a bit of discussion within your profession?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: I understand that there was an article by Laura Edwards Leeper that there was a lot of conversation around. I don't know if it was this **[213]** one. It is possible.

BY ATTORNEY BROOKS:

Q. Did you read this?

A. I haven't read this article.

Q. There was a lot of conversation around a recent article by Dr. Edwards Leeper and Dr. Anderson but you didn't bother to read it?

ATTORNEY BORELLI: Objection to form.

THE WITNESS: I have had discussions with my colleagues around the substance. I haven't had the time to read it.

BY ATTORNEY BROOKS:

Q. Have you had professional interactions in the past with Dr. Edwards Leeper?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: It's possible that we taught at a same conference once, but I don't recall ever having a conversation.

BY ATTORNEY BROOKS:

Q. And have you had professional interactions with Dr. Anderson?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: I have not.

BY ATTORNEY BROOKS:

[214]

Q. Are you generally aware of Dr. Edwards Leeper's reputation in the field?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: Yes.

BY ATTORNEY BROOKS:

Q. How would you describe that reputation at least prior to publication of this article?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: In general, I would not necessarily say that it has changed. People have respect for Dr. Edwards Leeper and her publications in general. I don't know about specific ---.

BY ATTORNEY BROOKS:

Q. People generally have respect for her publications?

A. Generally. I don't know about every one.

Q. Sure. Were you invited to participate as a member of the committee to revise the WPATH so-called standards of care relating to treatment of transgender individuals?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: I was.

BY ATTORNEY BROOKS:

Q. Are you doing that?

[215]

A. No.

Q. And did you participate in the task force for the American Psychological Association, which developed guidelines for practice guidelines for work with transgender individuals?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: I have not participated in that, no.

BY ATTORNEY BROOKS:

Q. Okay. And let me mark the next one, which is an article that consists of an interview with Dr. Anderson. This I will mark as Exhibit 17?

(Whereupon, Adkins Exhibit 17, Anderson Interview, was marked for identification.)

BY ATTORNEY BROOKS:

Q. And I believe I asked if you knew her or are you familiar with the reputation of Dr. Anderson, Dr. Laura Anderson?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: Actually, no.

[216]

BY ATTORNEY BROOKS:

Q. So as a representation there I know that Dr. Anderson is transgender, is a natal male who's been living with a female gender identity for many years. That you don't know about one way or the other?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: I do not know that.

BY ATTORNEY BROOKS:

Q. Okay. Let me take you back to Exhibit --- sorry, what was the first one we marked? Was it 17 and 18 or 16 and 17?

ATTORNEY WILKINSON: Sixteen (16) and 17, 16 and 17.

BY ATTORNEY BROOKS:

Q. Let me take you back to Exhibit 16. And the first paragraph contains a narrative. I have no idea whether it is a specific narrative or kind of case study narrative about this girl Patricia who told her parents she was

transgender at age 13. It goes on to say that a year earlier she had been sexually assaulted by an older girl. Do you know what percentage of natal females who come to your clinic after the beginning of puberty have experienced sexual assault before they present to you?

[217]

ATTORNEY BORELLI: Objection, form.

THE WITNESS: I can't give you a percentage. It is something that we discuss with every patient in their intake assessment.

BY ATTORNEY BROOKS:

Q. Do you believe that natal females who have suffered sexual assault are disproportionately represented among the population who present experiencing gender dysphoria or gender incongruence?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: So those assigned female at birth, I can't say that based on my review of my information that they are overrepresented. And I would have to have a comparison group. You know, one in four cisgender women have been attacked sexually at some point in their life. It's hard to get around that.

BY ATTORNEY BROOKS:

Q. Let me ask you to turn to page three of Exhibit 16.

A. I'm sorry ---.

Q. Page three, Exhibit 16.

A. Okay. Thank you. I just had a drink of water.

Q. Of course.

A. They're not labeled on my paper.

[218]

Q. The pages are not. You are right. I wrote them on mine. You would have to count them to be sure, but the third page.

A. I think I got it.

Q. These authors, Doctors Edwards Leeper and Anderson, state at the end of the paragraph at the top of page three that, quote, we may be harming some of the young people we strive to support, people who may not be prepared for the gender transitions they are being rushed into, closed quote. Do you see that?

A. Where again?

Q. It's the very last sentence of the partial paragraph at the top?

A. Right. Got it. Thank you. Yeah, I see it.

Q. Do you share that concern expressed by Dr. Edwards Leeper and Dr. Anderson that is that some young people are being rushed into transitions and may be harmed rather than supported as a result?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: So if you're following the recommendations there's at least six months of time. In my general experience it is years before they even present to my clinic. So I don't --- I would not say [219] that that's a rush.

BY ATTORNEY BROOKS:

Q. Well, and my question wasn't about your clinic now. My question was do you share the concern of these authors that looking around the practice more generally that some young people are being harmed rather than

supported because they are being rushed into transitions they may not be fully prepared for?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: So within research and within my conversations with my colleagues who are doing similar work, we practice similarly. I don't agree that they are rushing these kids.

BY ATTORNEY BROOKS:

Q. Let me ask you to turn over to the next page. And there in the second paragraph from the bottom is a sentence that begins in a recent study. Do you see that sentence?

A. I must not be on the right page.

Q. It is the penultimate page.

A. In the ---.

Q. In the penultimate paragraph.

A. Providers, that one?

Q. In a recent study of 100 detransitioners. I **[220]** think it does, it begins ---.

A. Okay. All right.

Q. Within that you'll find the sentence that begins in recent study.

A. Got it.

Q. And it says in a recent study 100 detransitioners, for instance, 38 percent reported that they believed their original dysphoria have been caused by something specific such as trauma, abuse or mental health condition, closed quote. Do you see that?

A. I do.

Q. Are you, yourself, aware of a recently published survey of 100 detransitioners by Dr. Litman of Brown University?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: I have not seen that report.

BY ATTORNEY BROOKS:

Q. Are you aware of that?

ATTORNEY BORELLI: Objection to form.

THE WITNESS: No, actually. Again, I don't remember names, so when you ask me about an article by Doctor Brown, I know 100 Doctor Brown. And I **[221]** have seen some articles about de-transition. So without that in front of me to really say, yes, I've seen that article --- it's possible. I do my best to keep up on the literature.

BY ATTORNEY BROOKS:

Q. All right. I'm used to wetting my fingers --- let me take you back to the previous page, the third paragraph --- and the paragraph begins comprehensive assessment. Do you see that paragraph?

A. Yes.

Q. And at the end of that the last sentence reads the messages that teens get from Tik-Tok and other sources may not be very productive for understanding this constellation of issues, referring to gender dysphoria-related issues. Do you see that sentence?

A. I do.

Q. Do you share the concern of these authors, young people are being unduly influenced on issues of gender identity by social media messages?

ATTORNEY BORELLI: Objection to form.

THE WITNESS: As a pediatrician, I have my reservations about social media and their effects on teens. Always reminding teens in my care that they need to check their sources and that TikTok isn't, for **[222]** example, peer reviewed and that they should rely on, you know, the knowledge of their provider. And they're free to ask those questions and learn that information from a reliable person within our clinic.

BY ATTORNEY BROOKS:

Q. Do you share the concern that teens are particularly subject to peer pressure through social media?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: So you know, peer pressure is a recognized phenomenon with adolescents that can affect teens.

BY ATTORNEY BROOKS:

Q. Is your clinic seeing an increasing number of older teens or young adults who are considering de-transitioning?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: I'm sorry. Repeat the very first part of that.

BY ATTORNEY BROOKS:

Q. Is your clinic seeing an increasing number of older teens or young adults who are considering de-transitioning?

ATTORNEY BORELLI:

Objection, form.

[223]

THE WITNESS: Increasing over time ---

BY ATTORNEY BROOKS:

Q. Yes.

A. --- or in the past? I wouldn't say the rate has increased in my clinic.

Q. Within the last --- well, let's say within 2021 or whatever of 2022 there has been, how many patients have raised with you or to your knowledge anyone in your clinic the possibility of de-transitioning?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: In that timeframe, I would have to look back exactly. Only three.

BY ATTORNEY BROOKS:

Q. Are you aware of multiple reports that the proportion of young people presenting with gender dysphoria or gender incongruence among teens has shifted heavily towards girls over the last decade?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: You will have to clarify the question because girls ---.

BY ATTORNEY BROOKS:

Q. Are you aware that the proportion of teens presenting at clinics with gender dysphoria or gender incongruence who are natal female has increased greatly **[224]** over the last decade?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: I have seen at least one study would suggest that. It has not been my clinical experience.

BY ATTORNEY BROOKS:

Q. That has not been the experience in your clinic?

A. No.

Q. Let me take you to paragraph 18 of your expert report. And there you express the opinion that a person's gender identity cannot be voluntarily changed and is not undermined or altered by the existence of other sexually related characteristics that do not align with it. Do you see that?

A. I do.

Q. And let me, in fact, have the Declaration --- the prelimiary injunction declaration, which is tab one.

ATTORNEY BROOKS: I'm going to mark that as Exhibit --- or did I already mark it?

ATTORNEY WILKINSON: Not marked.

ATTORNEY BROOKS: I did not. So what exhibit was that?

ATTORNEY WILKINSON: Eighteen (18).

ATTORNEY BROOKS: We will mark the **[225]** Declaration of Deanna Adkins dated 5/21/2021 as Exhibit 18.

(Whereupon, Adkins Exhibit 18, Declaration of Deanna Adkins, M.D., was marked for identification.)

BY ATTORNEY BROOKS:

Q. And in this document also I want to call your attention to paragraph 18. And in the declaration filed in May of last year in paragraph 18 you wrote a person's gender identity is fixed. Do you see that language?

A. I do.

Q. And you eliminated the word --- the assertion that a person's gender identity is fixed from your expert declaration submitted more recently. Do you see that?

A. I do.

Q. Why did you make that omission?

A. I think that it's too easy to misinterpret.

Q. Explain.

A. So when I'm talking about someone's gender identity it is what it is. And nothing that I do or they do or their family does can change that gender **[226]** identity. Their understanding of that gender identity may change over time. And that was my --- what I was trying to say was not changeable. And when you use the other word it seems that it could be misinterpreted to me.

Q. So you don't mean to say that gender identity never changes in individuals, do you?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: That's not what I said. I said gender identity is what it is. And your understanding of it may change over time.

BY ATTORNEY BROOKS:

Q. We looked in the Endocrine Society Guidelines, at the language that refers to individuals who experience a continuous and rapid involuntary alternation between male and female. Do you remember that language?

A. I do.

Q. How does that relate --- how is that consistent with your opinion that gender identity is fixed and means what it is?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: So gender identity is that it moves somewhat along the spectrum. That doesn't **[227]** change. That is their identity.

BY ATTORNEY BROOKS:

Q. That doesn't change, but you have a professional opinion that individuals who experience a gender fluid identity at some period in their life inevitably remain gender fluid for the rest of their lives?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: Understanding their gender identity may change, what the identity is, is under exploration throughout their lives. From the time they're young they're discovering their gender identity.

BY ATTORNEY BROOKS:

Q. Well, you consider part of your professional practice to believe what people tell you about their gender identity, don't you?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: The gender identity is something that can only be explained by a person because it is their knowledge of themselves.

BY ATTORNEY BROOKS:

Q. And if a person at one point in time feels that their gender identity is fluid and another point in time feels that it is not, on what basis do you say that their true gender identity hasn't changed?

[228]

ATTORNEY BORELLI: Objection, form.

THE WITNESS: Everyone's gender identity is how they explain it. They may understand it differently over

time. Just because I say I don't like strawberries when I'm eight and I do like strawberries now doesn't meant I never liked strawberries to begin with. It means I finally had a good strawberry.

ATTORNEY BROOKS: Let me have tab 12. Let me mark as Exhibit 20.

ATTORNEY WILKINSON: Nineteen (19).

ATTORNEY BROOKS: Let me mark as Exhibit 19, an article from Herbert Health Publishing by Sadra Katz-Wise, entitled Gender Fluidity: What it Means and Why Support Matters.

(Whereupon, Adkins Exhibit 19, 2020 Herbert Health Publishing Article, was marked for identification.)

BY ATTORNEY BROOKS:

Q. First I'll ask if you have any professional contact with Doctor Sadra Katz-Wise?

A. I don't see the name spelled out. It doesn't sound familiar.

[229]

Q. It's just under the graphic here ahead of the text. You'll see the name.

A. Oh, in red. That's why I didn't see it.

Q. Yeah, exactly. Right.

A. Got it. Katz-Wise. No.

Q. I see, when I look her up, that Dr. Katz-Wise is associated with Boston Children's Hospital and Harvard Medical School. That doesn't refresh your recollection as to any previous professional interactions with her?

A. Again, I'm terrible with names.

Q. You're aware that Boston Children's Hospital has a high reputation in the area of transgender therapy?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: Well, they have been involved in transgender therapy for a long time.

BY ATTORNEY BROOKS:

Q. And they have a high reputation?

ATTORNEY BORELLI: Objection, form.

THE WITNESS:

In general people feel like they do a good job.

BY ATTORNEY BROOKS:

Q. Let me ask you to turn to the second page. And down at the bottom is a heading that says what's the difference between gender fluid and transgender. Do you **[230]** see that?

A. I do.

Q. And the first sentence there says while some people develop a gender identity early in childhood, others may identify with one gender at one time and then another gender later on. Do you see that?

A. I do.

Q. And do you agree or disagree with that statement by Dr. Sabar Katz-Wise?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: So she is not saying that their gender identity changes. You know, at different times in your life your understanding may be that this is the group that I

belong with. And as you learn more about your experience and your gender, that can change.

BY ATTORNEY BROOKS:

Q. Dr. Adkins, how do you as a clinician --- if you have a patient who at one time identifies one way and another time identifies another way, how do you as a clinician determine which of those is that patient's true gender identity, given that you've said that gender identity is something that only the patient can express to you?

[231]

ATTORNEY BORELLI: Objection, form.

THE WITNESS: So you know, we're not sort of doing anything to influence that in our patients until they come to us later and have had lots of time to reflect on that. They by the guidelines need to have at least six months of identification with and understanding that gender identity is a particular way. And typically gender identity is starting to consolidate in adolescence and have a good understanding of your identity at that time.

BY ATTORNEY BROOKS:

Q. What do you understand to be meant by the term gender incongruence?

A. It is similar to the gender identity not matching your sex assigned at birth.

Q. Let me ask you to find Exhibit 4, 2007 Endocrine Society guidelines. And turn if you would to page 3879, first column under the heading evidence, it reads in most children diagnosed with GD/gender incongruence it did not persist into adolescence. Do you see that?

A. I did.

Q. So the point here is that these children were, in fact, diagnosed with gender dysphoria or gender **[232]** incongruence which you just said means that their gender identity doesn't match their gender assigned at birth. And then the Endocrine Society goes on to say that that identity, that sense of incongruence does not persist into adolescence. Do you see that?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: I do.

BY ATTORNEY BROOKS:

Q. And how do you reconcile that with your previously expressed opinion that gender identity is, quote, fixed?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: So this is a random piece out of this whole publication. They are talking --- as far as I can tell right here, and again I would be speculating, that it is about a particular piece of medical evidence. And medical evidence in this area has varied. It's based on the different groups and the way they were recruited, et cetera.

BY ATTORNEY BROOKS:

Q. Well, you're --- never mind on a particular piece. You're well aware, are you not, that there are multiple studies that indicate the substantial majority **[233]** of children who are diagnosed with gender dysphoria desist from experiencing gender dysphoria by some stage in adolescence?

ATTORNEY BORELLI: Objection, form.

BY ATTORNEY BROOKS:

Q. You discuss that in your report, do you not?

A. I'm sorry. Can you repeat the question?

Q. You are aware that there are multiple studies that have found that children diagnosed with gender dysphoria, the large majority of those individuals desist from experiencing gender dysphoria by some time in adolescence?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: And I don't typically see those patients in my clinic.

BY ATTORNEY BROOKS:

Q. But you're aware of the science that is described though. Right?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: There are patients --- there are studies that were done in the past that were not well done and had a bias with the recruitment that overlapped with other issues. I'm aware of those **[234]** studies. And children are not being treated in my clinic for gender dysphoria. Adolescents are who we treat in our clinic.

BY ATTORNEY BROOKS:

Q. Well, the study that the Endocrine Society chose to cite for this proposition just a little lower in that paragraph it says as follows. And this is 2017 Endocrine Society Guidelines. They say a large majority, about 85 percent of prepubertal children with a childhood diagnosis did not remain gender dysphoric/gender incongruent into adolescence. Do you see that language?

A. I see that language.

Q. And this Endocrine Society considered that science worth citing rather than dismissing it as poorly done, as you just attempted. Correct?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: In your goals in creating guidelines you want to be presenting the information that's available. This study is available.

BY ATTORNEY BROOKS:

Q. And the study in question is one by some of the most highly respected researchers in the field.

[235]

Am I correct?

ATTORNEY BORELLI: Objection.

BY ATTORNEY BROOKS:

Q. I see you looking at the footnote?

A. Right.

Q. Those are among the most highly respected researchers in the field. Correct?

A. They are some of the --- they're some of the original researchers.

Q. And to this very day they are among the most highly respected in the field. Am I right?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: In general, they are doing good research and publications. I can't say everything they do is beautiful.

BY ATTORNEY BROOKS:

Q. Dr. Adkins, do you refuse to acknowledge that Dr. Steemsma, DeVries and Cohen-Kettenis are among the most highly respected researchers in your field?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: Of their work that I have read and seen in general it is based on standards of **[236]** medical literature done well, though I have not read every study. I'm not going to comment on everything that they have done. A lot of the things I'm aware of are done well.

BY ATTORNEY BROOKS:

Q. I didn't ask you to comment on a single one of their articles. I asked you isn't their reputation among the highest in your field?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: If --- for gender-affirming care, yes.

BY ATTORNEY BROOKS:

Q. Thank you. How does their finding in large majority of children diagnosed with gender dysphoria desist from experiencing gender dysphoria by some stage in adolescence square with your opinion that gender identity is, quote, fixed?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: I'm sorry. Where are you reading from and what was that again?

BY ATTORNEY BROOKS:

Q. How does their finding that large majority of children diagnosed with gender dysphoria before puberty desist from experiencing gender dysphoria by some stage **[237]** in adolescence fit with your expressed opinion that gender identity is fixed?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: So they are talking about prepubertal children. Prepubertal children haven't gone through their real under --- development of understanding

of their gender identity or their consolidation of gender identity at that time. It's kind of a false endpoint to put it that way because we're not really again treating these young children and we're not changing anything about them. These patients wouldn't even come to my clinic.

BY ATTORNEY BROOKS:

Q. You don't see prepubertal children at your clinic?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: Very rarely.

BY ATTORNEY BROOKS:

Q. And?

A. Gender clinic?

Q. Patients you treat in any capacity?

ATTORNEY BORELLI: Objection to form.

THE WITNESS: I see all kinds of patients from birth until --- I'm credentialed to 30.

[238]

BY ATTORNEY BROOKS:

Q. Do you in your professional work deal with prepubertal children who are experiencing gender dysphoria?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: Some.

BY ATTORNEY BROOKS:

Q. Okay. And do you want to revise the statement in your report to say instead that after puberty gender identity is fixed?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: Will you point that out to me?

BY ATTORNEY BROOKS:

Q. I'm sorry, point what out to you?

A. That particular statement in my report.

Q. I misspoke. You asserted in your declaration that gender identity was fixed and my question is on consideration would you prefer to say that gender identity is fixed after puberty has occurred?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: So I didn't put that in a way that --- again, we eliminated the word fixed because **[239]** of the easy ability to misconstrue that. People undergo a period of time in life where they understand their gender better than other times. And puberty is part of --- part of the mix.

BY ATTORNEY BROOKS:

Q. So --- and this is the opportunity --- you're here, so we're not going to misunderstand your words. You signed and swore to an affidavit last year in which you said gender identity is fixed. I'm giving you an opportunity if you want to clarify or qualify that. And my question to you is, is it now your testimony that gender identity is fixed once puberty has occurred?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: Again, I think we have another document here that doesn't use the word fixed. Would you like me to go back and read that part? I can read through it and find it for you.

BY ATTORNEY BROOKS:

Q. No. I would like to work with your sworn document from May of last year in which you said it was fixed.

A. When we update documents we try to clarify anything that might be confusing.

Q. Dr. Adkins, in May of 2021, which is not so long **[240]** ago, you swore under oath that it was your professional opinion that gender identity was fixed. I'm entitled to ask you about that. The fact that you wanted to change a later document is interesting. It doesn't deprive me of the right to ask you questions about that document. My question for you now is do you want to revise that statement to express the opinion that gender identity is fixed after puberty?

ATTORNEY BORELLI: Objection, form. I apologize, Counsel. Can we --- I'm sorry, just lost track. Have you introduced the PI declaration?

ATTORNEY BROOKS: I have. it?

ATTORNEY BORELLI: What exhibit number is 18.

ATTORNEY BROOKS: It is 18. Paragraph

ATTORNEY BORELLI: Paragraph 18. Thank you. Objection to form.

THE WITNESS: So I don't think that my description of people's understanding of gender identity and the way that we understand its development has changed. I can't do anything to change their identity. You can't do it. Their parents can't do it. And in that way I still agree with the fact that in the way **[241]** that that was meant to be stated, that it can't be changed.

Fixed is a similar word. I use that word.

BY ATTORNEY BROOKS:

Q. So and I didn't ask you about our ability to change somebody else. Let me ask you a different question. At which developmental stage in your professional opinion does gender identity become fixed?

ATTORNEY BORELLI: Objection to form.

THE WITNESS: Again, I believe I said already that gender identity is what it is from the time you are young. Your understanding of that develops over time based on your path through life. That --- in that way you can't change it.

BY ATTORNEY BROOKS:

Q. Does that mean that if, according to Steemza and Cohen-Kettenis, 85 percent of prepubertal children who are diagnosed with gender dysphoria ultimately desist from experiencing dysphoria, that their original diagnoses were wrong?

ATTORNEY BORELLI: Objection to form.

THE WITNESS: So there are a lot of individuals who have looked at that information and felt that the original group of individuals didn't have a transgender identity. In a young group that's hard to **[242]** assess at times. And so I would say in that way, you know, we --- it's just not the same. And you can repeat the question for me, please.

ATTORNEY BORELLI: We have been going an hour. I'd like to take a break.

ATTORNEY BROOKS: Let me repeat the question since I was just invited to do so.

BY ATTORNEY BROOKS:

Q. I believe you testified that it is your view that one's gender identity never changes from infancy to adulthood although one's understanding of it may change over time. My question for you now is does that mean that in every case in which a child is diagnosed as gender dysphoric and they subsequently desist from gender dysphoria that the original diagnosis was wrong?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: So you know, at the time that their understanding of their identity was different from their sex assigned at birth when they were a child, if that was the case, and it is not clear in that study that that was necessarily the case, that the individuals felt dysphoria about that, that is what happened to them. Their understanding of their identity, if it changed over time, it may relieve some of that gender **[243]** dysphoria. I guess that's the best way I can state it.

ATTORNEY BROOKS: Let's take that break.

THE WITNESS: Thank you.

VIDEOGRAPHER: Going off the record. The current time reads 3:43 p.m. Eastern Standard Time.

OFF VIDEO

(WHEREUPON, A PAUSE IN THE RECORD WAS HELD.)

ON VIDEO

VIDEOGRAPHER: We're back on the record. The current time is 3:59 p.m. Eastern Standard Time.

ATTORNEY BROOKS: I'm just --- sorry. I'm just moving that so --- make sure it's still recording and I didn't muck it up. I just wanted to not hit it with papers.

ATTORNEY WILKINSON: Yes, it's still recording.

BY ATTORNEY BROOKS:

Q. Let's --- Dr. Adkins, if I can ask you to find Exhibit 4 again, which is the 2017 guidelines. We are again on page 3879 where we just were. And there after the discussion that we looked at about desistance of **[244]** childhood gender dysphoria, the next sentence reads right after where we stopped if children had completed socially transition, the may have great difficulty in returning to the original gender role upon entering puberty. And it continues social transition is associated with the persistence of GD/gender incongruence as a child progresses into adolescence.

Do you see that?

A. Uh-huh (yes).

Q. At the very end of the paragraph it reads social transition in addition to GD/gender incongruence has been found to contribute to the likelihood of persistence.

Do you see that?

A. Uh-huh (yes).

Q. Now, what the Endocrine Society Committee, considering all the available research, says is that social transition has been found to contribute to the likelihood of persistence. Is that how you read their language here?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: That's how I read it.

BY ATTORNEY BROOKS:

Q. And social transition has to do with how the **[245]** people around the child treat him or her, what pronouns they use, what names they use, what clothing they provide, correct, is that consistent with your understanding of social transition?

ATTORNEY BORELLI: Objection, form.

BY ATTORNEY BROOKS:

Q. It has to do with how society, how the people around you treat you. Correct?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: Yes.

BY ATTORNEY BROOKS:

Q. And therefore, what this is saying is how parents and those around the child treat that child can affect whether that child ends up identifying as transgender or identifying with a gender identity congruent with his or her biology. Correct?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: One more time.

BY ATTORNEY BROOKS:

Q. What this is saying is that how parents --- when it says that social transition has been found to contribute to the likelihood of persistence what that **[246]** tells us is how parents and others around the child treat that child can affect whether the child ends up identifying as transgender or cisgender?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: That is the way that reads. I would say that, you know, I don't recommend necessarily --- I recommend we follow the child and watch their gender developments.

BY ATTORNEY BROOKS:

Q. This Committee says that by assisting a child to socially transition the available science suggests that

adults are contributing to the likelihood of persistence rather than desistance. That's what it says. Right?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: I'm sorry. I'm going to make you say it one more time, please. I apologize. I'm just getting tired.

BY ATTORNEY BROOKS:

Q. I know the feeling. This says that by assisting a child to socially transition the available science suggests that adults are, quote, contributing to the likelihood of persistence rather than desistance.

ATTORNEY BORELLI: Objection, form.

[247]

THE WITNESS: Gosh. So I'm not sure what you say sounds right to me. That is what it says on the paper.

BY ATTORNEY BROOKS:

Q. And I will give you a chance to tell us whether you agree or disagree with it, because my understanding is that you, in contrast, believe that external influences can't affect gender identity. Correct?

ATTORNEY BORELLI: Objection to form.

BY ATTORNEY BROOKS:

Q. Cannot?

A. So you know, all of your life influences your identity development. You can't change what it is. You can --- it can change your experience. I don't think that these children were likely to have had a different outcome.

Q. So your view is that gender identity can't change and therefore any child whose gender identity appears to

change must have been mistaken at some state of their understanding. Correct?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: So their understanding of **[248]** their gender identity can develop over time.

BY ATTORNEY BROOKS:

Q. Do you agree or disagree with this statement in the Endocrine Society Guidelines that social transition has been found to contribute to the likelihood of persistence?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: You know, they --- I answered that question.

BY ATTORNEY BROOKS:

Q. I'm sorry. I perhaps didn't correctly understand. So if you would answer it again, that would be helpful.

A. So kids who --- now I've forgotten the question.

Q. This one is a simple one. Do you agree or disagree with the statement from this committee, the Endocrine Society, that social transition has been found to contribute to the likelihood of persistence?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: You know, this --- it's hard for me to agree with that. As a pediatrician I know that people --- prepubertal children, young children, explore their gender identity in a lot of different ways over time, and so I don't know that I can **[249]** agree necessarily that the way that it's written --- that I necessarily agree with the specific terms.

BY ATTORNEY BROOKS:

Q. I don't mean to suggest to you by word or tone that this document was handed down on Mount Sinai. I understand that there's room for scientists to disagree. I am just trying to get clear on your opinion. I'm pretty sure this document was not handed down on Mount Sinai.

Let me find a copy of your rebuttal report, which I believe was marked as Exhibit 3. Exhibit 3, the rebuttal report. Let me ask you to turn to page 11 of your rebuttal report. We can hand you another copy if need be. We should have one more.

A. I think this is it.

Q. No, we're looking for your rebuttal report. It's going to be a typewritten kind of something or other.

A. Like this, right?

Q. Exhibit 3.

A. I'm sorry. No that's not --- sugar.

Q. I'm just going to hand you another one.

A. Okay. Thank you.

Q. No hard feelings.

[250]

A. I --- I know it's here because I -- there's so many papers. You warned me there would be so many papers.

Q. I did. I tried to warn you. Let me ask you to turn to paragraph 11 of your rebuttal report.

A. Oh, okay. Yeah.

Q. Page five.

A. I'm sorry, the number --- one of the numbers skipped and it was just a labeling of a reference, so again 11.

Q. Yes. The second sentence there you wrote --- and this is of course a recent submission, adolescents with persistent gender dysphoria after reaching Tanner stage two almost always persist in their gender identity in the long term. Do you see that language?

A. I do.

Q. So --- and the basis that you cite for that rather specific factual proposition is an article or actually a chapter by Turban, DeVries and Zucker. Correct? I'm just looking at footnote three.

A. Yes.

Q. So Tanner stage two, as I understand --- or we can look at the Endocrine Society note, but this is --- **[251]** Tanner stage two is when children first begin to exhibit physically recognizable changes in puberty. Right?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: Yes.

BY ATTORNEY BROOKS:

Q. So Tanner stage one, there's nothing observable. And the beginning of Tanner stage two is the first observable changes?

A. Yes.

ATTORNEY BORELLI: Objection, form.

BY ATTORNEY BROOKS:

Q. And I think you testified, but if you could just remind us kind of the timespan that that tends to begin for boys and girls.

ATTORNEY BORELLI: Objection, form.

THE WITNESS: Tanner two. Tanner two, for those assigned female at birth can range in the normal, typical development between the ages of 8 and 12. It does fall outside of that at times and is considered early and could be a marker of a problem as well as delayed could be a marker of a problem.

Q. For boys?

A. For those assigned male at birth, so usually **[252]** between 9 and 14. Anything earlier or later again might trigger some questions that something is going on.

Q. So age eight is generally girls turn eight in second or third grade? Third grade roughly?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: That would be --- you know, it varies because early starters, late starters. But

BY ATTORNEY BROOKS:

Q. And so for nine, for boys would be fourth grade?

ATTORNEY BORELLI: Objection to form.

THE WITNESS: That would be the typical.

BY ATTORNEY BROOKS:

Q. So we're talking grade school kids here, not even the end of grade school?

ATTORNEY BORELLI: Objection, form.

BY ATTORNEY BROOKS:

Q. And if the type of changes that mark the beginning of Tanner stage two are generally at least to the layman's eye not visible on a clothed child. Correct?

ATTORNEY BORELLI: Objection, form.

BY ATTORNEY BROOKS:

Q. That mark the beginning Tanner stage two?

[253]

ATTORNEY BORELLI: Objection, form.

THE WITNESS: I would say that some assigned females at birth, especially if they're lean, you can see their breast development.

BY ATTORNEY BROOKS:

Q. Just a breast bud. But in general, when we speak of adolescence, we don't --- in common parlance we do not include third and fourth graders, do we?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: Well, the definition of adolescence is the time during puberty, so they should be included.

BY ATTORNEY BROOKS:

Q. In your experience as to how people use the term, third and fourth graders included in adolescence?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: It varies with regard to the context. Within my medical practice that's the way we use the term.

BY ATTORNEY BROOKS:

Q. At any rate, we're talking about grade school ages, not junior high or middle school ages. What is your basis for saying that those children who persist up to the beginning of Tanner stage two almost always **[254]** persist transgender identity?

ATTORNEY BORELLI: Objection. Objection, form.

THE WITNESS: I don't know which reference it is, but I can state that in my practice that's what I have seen.

BY ATTORNEY BROOKS:

Q. Let me show you the only reference you did cite for that, which I will mark as Exhibit 20, the article by Turban, DeVries and Zucker cited in footnote 20 of your rebuttal report. I'm sorry. Don't know why I said 20. I'm going to hand the witness that article now.

A. Thank you.

(Whereupon, Adkins Exhibit 20, Turban, DeVries and Zucker Article, was marked for identification.)

COURT REPORTER: Excuse me, but you're mumbling and I can't understand everything that you're saying.

ATTORNEY BROOKS:

At the moment I'm just shuffling papers and handing out documents. And I will speak up now and ask a question. Sorry about that.

[255]

COURT REPORTER: Well, we are on the record and I need to be able to hear every single word that you guys are saying.

ATTORNEY BROOKS:

We'll do the best we can.

COURT REPORTER: It's hard for me over here.

BY ATTORNEY BROOKS:

Q. Is this, in fact, the article that you referenced in your rebuttal report, Dr. Adkins, or the chapter I should say?

A. Yeah. I mean, I'd have to take a minute to review it.

VIDEOGRAPHER:

Counsel, which tab number is this?

THE WITNESS: I'm sorry, you broke up.

VIDEOGRAPHER:

Which tab number is this document?

ATTORNEY BROOKS:

Tab 39. I apologize.

VIDEOGRAPHER:

Thank you.

THE WITNESS: It is labeled as that.

BY ATTORNEY BROOKS:

Q. Well, do you recall recently reading this article since it was cited in this document submitted **[256]** just last week?

A. I have reviewed this document. I don't remember when though.

Q. Okay. And in here --- let's look at page 638. And there at the top of --- near the top of the first column on 638 is a discussion of follow-up studies of persisters and desisters. Do you see that discussion?

A. Yes.

Q. And it says --- four lines, five lines down it begins, quote, Restoray and Skeemsma have provided the most recent study of 10 follow up studies in which the percentage of participants classified as persisters ranged

from two percent to 39 percent collapsed across natal boys and girls, closed quote. Do you see that?

A. Yeah.

Q. And further down under the heading persistence of gender dysphoria from adolescence to adulthood is a very short paragraph that reads in its entirety in contrast low rates of persistence from childhood into adolescence, it appears that the vast majority of transgender adolescents persist in their transgender identity, closed quote.

Do you see is that?

[257]

A. Yes.

Q. And was that the language that you had in mind when you cited this reference in footnote three of your rebuttal report?

A. I would have to look all the way through the article. It's consistent.

Q. And the language that I directed you to at the top summarizes studies that show --- showing of persistence of gender dysphoria among childhood dysphorics of only two percent to 39 percent. Right?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: Those are two different populations.

BY ATTORNEY BROOKS:

Q. They are. And I'm asking you now again about what it says at the top?

A. Please repeat your question.

Q. The discussion at the top summarizes studies showing persistent childhood dysphoria of only between two percent and 39 percent, depending on the study?

ATTORNEY BORELLI: Objection to form.

THE WITNESS: I see that.

BY ATTORNEY BROOKS:

[258]

Q. And that is that the large majority consisted at some stage before adulthood. Correct?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: More than half per this.

BY ATTORNEY BROOKS:

Q. And nothing here tells us about exactly what stage of adolescence before adulthood they desisted, does it?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: In this literature adolescence is puberty. It would have to be at least Tanner two.

BY ATTORNEY BROOKS:

Q. At least. Now, my question was nothing in the discussion up towards the top of the column about these persistence and desistance studies tells us at what stage of puberty the desisters desisted, does it?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: I would have to look at the whole study. Just in that line that detail is not listed.

BY ATTORNEY BROOKS:

Q. And similarly, looking at the discussion under **[259]** the heading persistence of gender dysphoria from

adolescence to adulthood not being in that sentence tells us what stage of adolescence, whether it is Tanner stage two or three or four is being referred to when it says the majority of adolescents persist?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: It's not written right there, no.

BY ATTORNEY BROOKS:

Q. Please identify for me all studies you are aware of that show that those who desist from childhood gender dysphoria do so by no later than beginning of Tanner stage two.

ATTORNEY BORELLI: Objection, form.

THE WITNESS: I am not going to be able to remember those off the top of my head.

BY ATTORNEY BROOKS:

Q. Can you remember a single one?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: I would have to have you repeat the question, but I doubt it.

BY ATTORNEY BROOKS:

Q. I will repeat it. Identify all studies you're aware of that show that those who desist from childhood **[260]** gender dysphoria do so no later than the time they first reach Tanner stage two?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: I don't think that I recall a study that's been modeled that way.

BY ATTORNEY BROOKS:

Q. Can you tell me --- identify for me any study that has examined whether what is called in the literature watchful waiting combined with psychotherapy results in worse outcomes for children as compared to administration of puberty blockers and social outcomes?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: So the experience is that some patients have dysphoria that is significant enough once they are in puberty to be dangerous to their life. I worry about those patients. We allow them a pause with puberty blockers to continue to figure out their gender identity. I got lost in my answer, I apologize.

BY ATTORNEY BROOKS:

Q. Well, Dr. Adkins, I didn't ask what you were worried about. I asked can you identify any study that examines whether watchful waiting for children combined with psychotherapy results in better or worse outcomes on average than administering puberty blockers and **[261]** social transition?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: You know, I can't remember the exact study. We have studies that show that if you are not helping the patients relieve their gender dysphoria and psychotherapy has not been shown to do that, then we would be, you know, at an unethical point to do that study because it would increase risk of death in those patients for us to watch and wait.

BY ATTORNEY BROOKS:

Q. So your answer is at no time since the inception of this field, that is therapy for gender dysphoria, are you aware of any study comparing outcomes for gender dysphoric children of on the one hand watchful waiting

accompanied by psychotherapy and on the other hand puberty blockers and social transitioning?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: There's a long history of individuals who were left untreated or treated with psychotherapy who died in hospitals or not in hospitals because they were only given those therapies which were the only ones available at the time.

BY ATTORNEY BROOKS:

Q. Dr. Adkins, you are also aware, are you not, **[262]** that there's a long history of individuals who have transitioned both socially and hormonally who have committed suicide?

ATTORNEY BORELLI: Objection to form.

BY ATTORNEY BROOKS:

Q. That's well documented in the literature, is it not?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: There are individuals who still struggle with depression and anxiety to the point that they are --- do commit suicide and they have not necessarily the reason being related to their gender dysphoria. Could be. Hard to know.

BY ATTORNEY BROOKS:

Q. In fact, Skeemsma and colleagues at the respected institute in Amsterdam, DeVry University, have documented very high rates of successful completed suicide among transgender adults, have they not?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: I would have to see the study.

BY ATTORNEY BROOKS:

Q. You are not aware of that information?

A. I have not seen that study. I have read the **[263]** literature. I don't recall a study saying there was a high or why. I would need a number.

BY ATTORNEY BROOKS:

Q. You read Dr. Levine's report?

A. Yeah, it was --- yes.

Q. And do you recall that he cites multiple studies, including studies from DeVry University team documenting high rates of successful completed suicide, not studies, he's done, that clinic has done documented high rates of successful suicide among transgender adults?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: I would need a number. I'm not going to classify something as high just because --- I would need a number.

BY ATTORNEY BROOKS:

Q. Have you thought that it was incumbent upon you somebody assisting young people to transition and prescribing hormones to thoroughly investigation and question suicidality among transitioned transgender individuals?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: Again, yes. I read those when I can. I am not good with recalling names in **[264]** specific reports. I am aware that that is an issue with some people who have transitioned fully.

BY ATTORNEY BROOKS:

Q. Do you believe that social transition is an important part of medical care for transgender individuals?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: Yes.

BY ATTORNEY BROOKS:

Q. And do you also consider puberty blockers to be part of treatment for children with gender dysphoria?

ATTORNEY BORELLI: Objection to the form.

THE WITNESS: I have seen results from a recent study that said that there was a decrease in dysphoria. I think it was anxiety and depression. I would have to double check the article, with puberty blockers. Our goal with puberty blockers is to pause and allow people to understand their identity and figure out what is going on with that understanding and what is the best care for that patient is.

BY ATTORNEY BROOKS:

Q. Is the point of administering puberty blockers to children who are experiencing gender dysphoria to prevent puberty from occurring at the time that it **[265]** naturally would occur in that child?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: In patients --- in patients who are having early puberty it is a different mechanism. For people with gender dysphoria where you are trying to pause it and we keep it within the realm of normal pubertal development.

BY ATTORNEY BROOKS:

Q. For individuals suffering --- children suffering from gender dysphoria the precise point of administering

puberty blockers is to prevent puberty from occurring in that child at the time it would otherwise naturally occur. Correct?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: It would --- our pausing the puberty and keeping it within the normal range of pubertal development.

BY ATTORNEY BROOKS:

Q. Dr. Adkins, the purpose of administering pubertal blockers to a particular child is to prevent it from happening when it would otherwise happen naturally in that child.

Correct?

[266]

ATTORNEY BORELLI: Objection, form.

BY ATTORNEY BROOKS:

Q. There is no other purpose?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: I'm sorry. I have to ask --- you used some pronounced in there that were not real clear. If you don't mind repeating the question.

BY ATTORNEY BROOKS:

Q. The purpose of administering puberty blockers to a child suffering from gender dysphoria is to prevent puberty from happening in that child at the time it would otherwise naturally occur in that child absent the blockade?

ATTORNEY BORELLI: Objection.

THE WITNESS: We are pausing their puberty once it starts, putting a pause.

BY ATTORNEY BROOKS:

Q. I get to ask the questions. That means you wanted to prevent puberty from happening when it would naturally happen for that child apart from the medication?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: Yes.

BY ATTORNEY BROOKS:

[267]

Q. Thank you. You regularly tell parents that the administration of puberty blockers for that purpose is, quote, safe? Correct?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: I go through very specific list of side effects and effects with my patients with that medication.

BY ATTORNEY BROOKS:

Q. You regularly tell parents using the word that puberty blockers are, quote, safe, do you not?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: I am telling my patients the risks and benefits. I am telling them I feel comfortable using it.

BY ATTORNEY BROOKS:

Q. Let's find your report, which is Exhibit 1 --- no --- yes, Exhibit 1. If you can find your report. Apologize. Too much paper. Too long a day. Dr. Adkins, do you or do you not tell parents that puberty blockers are safe?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: Again, I review the effects **[268]** and side effects and my general experience and the publications that are available. Goodness gracious. Boy, that lunch is getting me.

I explain to my patients the effects and side effects and I talk with them about whether --- my experience has been I have had very few patients experience a problem with the medication.

BY ATTORNEY BROOKS:

Q. And if you are unwilling to sit here today and admit that you tell parents that puberty blockers are safe then why have you stated in your expert report to the court that treatment, including puberty blockers, are safe?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: Every patient is individual. I have to make an individual assessment for each patient. I will say it's safe for the patients that that applies to.

BY ATTORNEY BROOKS:

Q. Which patients does that apply to?

A. Most of the patients don't have a contraindication to using puberty blockers.

Q. Is safe a term of art to you as a doctor?

ATTORNEY BORELLI: Objection, form.

[269]

THE WITNESS: I'm not sure what you mean by the word art.

BY ATTORNEY BROOKS:

Q. Does it have a precise meaning? To say a pharmaceutical is safe, does that have a meaning to you as a doctor?

A. It has a meaning.

Q. What is that?

A. So in general when we're talking about safety and medicine we're talking about limiting the number of negative side effects that can cause significant issues for patients. I think that would --- I think that's what I would say.

Q. Isn't it a truism you were taught in medical school that every pharmaceutical has side effects?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: So truism is a word that --- sorry, that is unclear to me. Can you clarify?

BY ATTORNEY BROOKS:

Q. Weren't you taught in medical school that every pharmaceutical has side effects?

ATTORNEY BORELLI: Object to form.

THE WITNESS: Yes.

BY ATTORNEY BROOKS:

[270]

Q. And do you agree or disagree that a flat assertion that any pharmaceutical is safe is not consistent with accurate medical terminology?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: I would say that I work with what the information is available to me about safety profile. I apply that to each patient individually. Sometimes I feel safer

using it in one patient versus another patient. Every drug is different, every side effect profile is different, every patient is different.

BY ATTORNEY BROOKS:

Q. Why then did you flatly assert to the court that treatment for transgender youth when you were discussing puberty blockers and hormone therapies is, quote, safe?

ATTORNEY BORELLI: Objection to form.

THE WITNESS: In general I have not experienced nor have I seen published experiences of issues with using these medications that causes a significant problem for my patients.

BY ATTORNEY BROOKS:

Q. You regularly tell parents what you have said several times today, that puberty blockers act merely as a pause and are fully reversible, do you not?

[271]

ATTORNEY BORELLI: Objection, form.

THE WITNESS: I do.

BY ATTORNEY BROOKS:

Q. And you are aware, are you not, that the Endocrine Society guidelines advise that before approving puberty blockers a clinician should discuss risks to fertility and the availability, the possibility of fertility preservation.

Correct?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: I'm not sure that is in the Endocrine Society guidelines with puberty blockers. It may be. That

it is no part of the gender affirming hormone recommendation.

BY ATTORNEY BROOKS:

Q. Let's look at page 3879 in the guidelines, Exhibit 4. A. What exhibit again, 4? Q. Exhibit 4. And I'm going to call your attention to 3879. And column two is guideline 1.5 where it says, quote, we recommend the clinicians inform and counsel all individuals seeking gender affirming medical treatment regarding options for fertility preservation prior to initiating puberty suppression in adolescence.

[272]

Do you see that language?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: I do.

BY ATTORNEY BROOKS:

Q. And what is your understanding as to why the Endocrine Society advises that it's important to advise about fertility preservation prior to initiating puberty suppression if puberty suppression is nearly nothing but a pause?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: Well, the --- you know, puberty pausing is in my experience and in the reported data always reversible. I have not ever had a patient who didn't resume their normal puberty when they came off and were on no other treatment of a puberty blockade. I would think that this is being very careful about young individuals getting puberty blockers. Again, I haven't seen any reports. In fact, it is used to preserve fertility in cancer patients.

BY ATTORNEY BROOKS:

Q. Do you, in fact, counsel all parents and children about fertility preservation options before administering puberty blockers?

ATTORNEY BORELLI: Objection, form.

[273]

THE WITNESS: I do.

BY ATTORNEY BROOKS:

Q. And do you have a view as to whether for instance a 9 year old can even begin to understand puberty, sexual development and the possibility of becoming a parent so as to provide meaningfully informed consent?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: So those individuals also have their parents who are with them to learn about these thing and weigh those things. The patient is not there in isolation. They get an option at the time where we would stop puberty blockers or any time that they are on to make a change in that. It is completely reversible.

BY ATTORNEY BROOKS:

Q. You have testified at the beginning of the day you had children of your own. Both as a professional and as a mother do you have a view as to whether a 9 year old can sufficiently understand puberty, sexual development and the possibility of becoming a parent to enable them to provide meaningfully informed consent?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: So in young kids we use **[274]** these --- in five year olds --- I have treated a five year old this week with this medication for early puberty. I trust, based

on the data that is available to me over the last 30 years using this medication to pause puberty for central precocious puberty that it is a safe medication and that the patient will be fertile. Can't say 100 percent because who knows what else is going on in each individual patient that may cause them to have an infertility issue.

BY ATTORNEY BROOKS:

Q. Dr. Adkins, puberty blocking drugs have gone through phase one, phase two, phase three clinical trials submitted to the FDA, reviewed. They've been approved for the indication of precocious puberty.

Correct?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: Yes.

BY ATTORNEY BROOKS:

Q. None of that has been done for an indication of gender dysphoria to your knowledge. Correct?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: I use lots of medications that aren't FDA approved for the particular indications.

[275]

Many drugs in pediatrics are not ever tested in children. It's just within the last few years that they have made a recommendation that that happen for a medication. So there are many drugs that haven't been FDA approved that are used in pediatrics based on information for patients in a different indication or adulthood.

Q. Puberty blockers have been tested through phase one, phase two, phase three clinical trials for the purpose

of postponing precocious puberty until the normal time period for puberty.

Correct? That's what has been tested?

ATTORNEY BORELLI: Objection to form.

THE WITNESS: Yes.

BY ATTORNEY BROOKS:

Q. And no such tests have been done or submitted to the FDA ---?

COURT REPORTER: Can you repeat what you said because I'm not sure that last question fully came through.

ATTORNEY BROOKS: The last question was --- and I --- I admit that my voice, as the witness's, is dropping. We're trying here. And I --- Dave's resting his voice for a few questions towards the end of **[276]** the day. I'll be glad.

BY ATTORNEY BROOKS:

Q. Just to clarify, and I don't mean to harass you, but we've been asked to repeat it. Puberty blockers have been put through phase one, phase two, phase three clinical trials submitted to the FDA for the purpose of delaying precocious puberty in children until the normal time for puberty. And your answer was?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: Yes.

BY ATTORNEY BROOKS:

Q. And they have not been tested for safety, for efficacy in phase one, phase two or phase three clinical trials for the purpose of delaying puberty from its naturally

occurring time in children who do not suffer from precocious puberty. Correct?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: We use data that wasn't presented to the FDA to --- to look at this to see if it is safe. It's also been approved by the FDA to be used in adults. Also been used and approved for fertility preservation. Has lots of approvals that have verified its safety over time.

[277]

BY ATTORNEY BROOKS:

Q. Well, a moment ago when I asked you if you tell people they were safe you were not quite willing to say that. Do you want to revise that testimony?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: I believe at the end of that I was saying to you that every patient is different. There are some that have risks. When I feel comfortable that my patient in front of me doesn't have those risks based on the medical literature I feel that they're safe to use. I have my experience. I have seen the literature. I feel --- yes.

BY ATTORNEY BROOKS:

Q. The law that's being challenged in this lawsuit doesn't restrict the use of puberty blockers so far as you understand, does it?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: I don't recall that being part of the law.

BY ATTORNEY BROOKS:

Q. It doesn't exclude anyone for participation on any team based on use of puberty blockers, does it?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: Not that I recall.

[278]

BY ATTORNEY BROOKS:

Q. And you have previously testified that in your view, the law is unreasonable if it excludes, prevents any individuals with a transgender identity from playing in the category that corresponds to their gender identity. Correct?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: That sounds accurate.

BY ATTORNEY BROOKS:

Q. I don't want to mischaracterize your opinion. Okay. So what is the relevance to your opinion that all the discussions in your report about puberty blockers?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: Sorry. I need some water. And then, if you don't mind, while I'm doing that, could you please re-read the question. Sorry.

BY ATTORNEY BROOKS:

Q. Yes. I'll even wait until you've had your drink.

A. Sorry.

Q. I'm hitting the bottom myself.

[279]

A. It's pollen season. It's bad.

Q. It's just getting going.

A. I know.

Q. Given what we just walked through, ---

A. Yes.

Q. --- what is the relevance of all the discussion about puberty blockers in your expert report and rebuttal report to the opinions you're offering in this case?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: So my part of this is to talk about what care is for people who are transgender and what medications they might be on and what treatments might be ideal for them.

BY ATTORNEY BROOKS:

Q. You've talked about how each --- you want to treat each patient differently. You want to be very careful about their treatment choices, their parents' treatment choices, that they understand all of the considerations. Would it cause you concern if West Virginia put into place a law that created incentives or pressures on parents and children to make decisions about puberty blockers at an early stage?

[280]

ATTORNEY BORELLI: Objection, form.

THE WITNESS: I would not think it would be appropriate to pressure anyone.

BY ATTORNEY BROOKS:

Q. So for instance, a law that said if you take puberty blockers then you can play on the girls team and if you don't you can't, that would cause you concern as a doctor, would it not?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: Ideally, they would be able to whether or not they have the puberty blockers or not play on the team that matches their gender identity.

BY ATTORNEY BROOKS:

Q. And ideally and from your perspective and in fact if the law set up an incentive that says you can only play on the girls' team if you take puberty blockers, and if you don't, you're forclosed from female athletics, that would cause you concern as a doctor as biasing the patient's and parents' decisions, would it not?

ATTORNEY BORELLI: Objection, form.

BY ATTORNEY BROOKS:

Q. That's not a law you would want to see on the books?

[281]

ATTORNEY BORELLI: Objection, form.

THE WITNESS: I don't think I would want to see that on the books. Haven't thought through every detail of that but I don't think so.

BY ATTORNEY BROOKS:

Q. You are aware, are you not, that all the recommendations in the 2017 guidelines, also in the 2009 guidelines from the Endocrine Society about the administration of puberty blockers is according to the committee that prepares those recommendation based on either low quality or very low quality evidence. Right?

A. You know, all recommendation put together are graded with evidence, and it's in the report --- we use them --- not in the report, in the guidelines. And we use lots of guidelines that have low quality to help guide our care.

Q. Low quality evidence means that you, as a scientist, you as a doctor, can't be very confidant that the recommendation will result in beneficial results. That is kind of the meaning of low quality evidence. Right?

ATTORNEY BORELLI: Objection to form.

THE WITNESS: I would suggest it gives us **[282]** a place to start and we need to be very mindful when using that information as to how we apply it.

ATTORNEY BORELLI: Why don't we go ahead and take another break?

ATTORNEY BROOKS: Let me just ask the court reporter how many --- how much more time in the seven o'clock hours.

COURT REPORTER: We're at six hours and six minutes, so 54 minutes.

ATTORNEY BROOKS: Okay. We'll take that break. Absolutely.

(WHEREUPON, A PAUSE IN THE RECORD WAS HELD.)

ATTORNEY BROOKS: All right. We will resume.

BY ATTORNEY BROOKS:

Q. Dr. Adkins, once again I will direct you to the Endocrine Society guidelines, Exhibit 4, and ask you to turn with me to page 3874 and column two --- column one, I'm sorry 3874.

A. Column ---?

Q. Column one. And towards the bottom, penultimate **[283]** paragraph begins in the future we need. Do you see that?

A. I do.

Q. And it says in the future --- this is in the preliminary section. Before the specific recommendations it says, quote, in the future we need more rigorous evaluations of the effectiveness and safety of endocrine and surgical protocols. And it goes on then to say specifically endocrine protocol --- specifically endocrine treatment protocols for GD/gender incongruence should include the careful assessment of the following. And it lists a number of things, the effective prolonged delay of puberty in adolescence on bone health, gonadal function and the brain, including effects on cognitive, emotional --- emotional, social and sexual development. Have I, with various corrections, read that correctly?

A. Yes.

Q. So as of 2017, in the opinion of the committee that put together these guidelines ---.

COURT REPORTER: Excuse me. I don't know if you're speaking, but I lost you at cognitive.

ATTORNEY BROOKS: I'm sorry?

[284]

COURT REPORTER: I lost you at cognitive and then I didn't hear anything for like 20 seconds. So I wasn't sure if you were still talking since I can't see you. So, golly.

ATTORNEY BROOKS: Of course. And I was.

COURT REPORTER: Thank you.

BY ATTORNEY BROOKS:

Q. So I'm going to pick up that question again. In the paragraph that we're looking at in column one of page 3874 the committee writes that things that need to be better studied include, quote, the effects of prolonged delay of puberty in adolescence on bone health, gonadal function and the brain, including effects on cognitive, emotional, social and sexual development, closed quote. Dr. Adkins, is it your understanding that the committee here is saying that there's not yet adequate scientific evaluation of the impact of puberty blockers on the brain?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: So you know, the recommendation by the same group is that in some patients this is the approach that --- that is used. [285] Certainly we all welcome more research. We all want to know if anything is different from the information that we have as mentioned before for use of this medication in other areas where we're not seeing any effect on these things.

BY ATTORNEY BROOKS:

Q. Is it consistent with your understanding as a doctor that the development of the brain in turn affects cognitive, emotional, social and sexual development?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: The brain has effects in all those areas.

BY ATTORNEY BROOKS:

Q. To your knowledge, it has effects that change across the course of puberty in all those areas. Correct?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: Yes, they're all interrelated and they're occurring all at the same time.

ATTORNEY BROOKS: Let me mark as Exhibit 21 a document that is titled Teenage Brain: A work in Progress, which is am information sheet that is attributes itself to the National Institute of Mental Health, which I believe we discussed earlier. Tab 32. **[286]** Yes, thank you. I'm sorry, I believe I said it, Exhibit 21.

(Whereupon, Adkins Exhibit 21, NIMH Information Sheet, was marked for identification.)

BY ATTORNEY BROOKS:

Q. So I would like to talk for a moment about the impact of puberty and therefore puberty blockade on brain development. On the second page at the more information, we see contact information at the National Institute of Mental Health. And I don't want to misrepresent, did you earlier testify that is a well known and respected source of information about mental health therapies?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: Yes.

BY ATTORNEY BROOKS:

Q. And let me take you to page one. And I'm simply using this to pin down a few kind of basic points. In the second column out of three, two-thirds of the way down, three-quarters of the way down --- well, the sentence begins halfway down. In the first such **[287]** longitudinal study of 145 children. Do you see that?

A. I see that.

Q. And it goes on to describe research that discovered the second wave of overproduction of gray matter, which

it refers to as, quote, the thinking part of the brain, just prior to puberty. Do you see that?

A. I do.

Q. And it goes on to say that this second overproduction peaks at around age 11 in girls and 12 in boys. Do you see that?

A. Yes.

Q. And according to your earlier testimony, that is probably a bit into --- on average a bit into Tanner stage two. Correct?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: In general.

BY ATTORNEY BROOKS:

Q. So a little later than the beginning of Tanner stage two?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: Based on averages, yes.

BY ATTORNEY BROOKS:

Q. So this second wave of development of the [288] thinking part of the brain happens sometime a bit after the beginning of Tanner stage two according to this description here?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: So let me read it myself.

BY ATTORNEY BROOKS:

Q. Sure.

A. What you read was --- it starts before that. So I just want to read it.

Q. I did misspeak. Let me just re-ask my question

A. Okay.

Q. --- because I mixed up peaks and starts, right, that was the problem. According to the description here this second wave of development of the thinking part of the brain, the gray matter, peaks at sometime after the beginning of Tanner stage two?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: Peaks, yes.

BY ATTORNEY BROOKS:

Q. And is it consistent with your understanding that the gray matter in the brain is the thinking part of the brain or is that really outside your expertise **[289]** given that you're not a neurologist?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: I think that that is basic enough in medical school that I can agree with that.

BY ATTORNEY BROOKS:

Q. Okay. And in the next column, about the same distance down it reads, quote, the gray matter spurt --- growth spurt just prior to puberty --- we've already talked about the timing, predominates in the frontal lobe, which it goes on to say is the seat of, quote, executive functions, planning, impulse control, and reasoning, closed quote. Do you see that?

A. I do.

Q. And is it within your knowledge or not within your knowledge that the frontal lobe is the seat of executive functions, including planning, impulse control and reasoning?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: That is what my education has informed me.

BY ATTORNEY BROOKS:

Q. And certainly all of us you who have raised **[290]** children have gratefully seen that planning, impulse control and reasoning improve across the years of puberty.

Right?

ATTORNEY BORELLI: Objection, form.

BY ATTORNEY BROOKS:

Q. Maybe some ups and some downs?

A. I'm am just happy that it continuously improves the whole time.

Q. I won't press --- I won't pres the question. Have you, yourself, attempted to make any study of the timing of brain gray matter development and the role of puberty hormones in promoting that development?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: I have not. .

BY ATTORNEY BROOKS:

Q. What study, if any, have you made of the effects of blocking puberty and the increased level of hormones associated with puberty on this growth spurt in the thinking part of the brain that otherwise peaks at around 11 in girls and 12 in boys?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: I have not done that study. I don't see it here either.

[291]

BY ATTORNEY BROOKS:

Q. You said in your rebuttal report, paragraph 24, that patients with gender dysphoria who are treated with puberty delaying medication undergo hormonal puberty with all the same brain and other bodily system development. Do you recall writing that?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: I'm sorry, could you ---?

BY ATTORNEY BROOKS:

Q. Right in front of you. Your rebuttal report is --- Exhibit 3?

A. I got it.

Q. Paragraph 24.

A. Thank you for your patience.

Q. Here, let me just find it. Let me see here. And the second sentence says, quote, patients with gender dysphoria treated with puberty delaying medication undergo hormonal puberty with all the same brain and other bodily system development, closed quote. Do you see that?

A. Oh, wait. I must be looking at the wrong place.

Q. Paragraph 24, second sentence. It runs over the page?

A. I see. I see. Yeah. I see that.

[292]

Q. Now, all the same brain and bodily development is a really big absolute statement, isn't it?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: There are --- you know, for the most part, people go through it in this manner. Of course, again, with medicine you can't say 100 percent.

BY ATTORNEY BROOKS:

Q. Well, specifically, as a scientist, based on the information available to you, you can't say with confidence that patients who are treated with puberty delaying medication undergo all the same brain and bodily system development, can you?

ATTORNEY BORELLI:

Objection, form.

THE WITNESS: I used the medication for all of my career. I have followed patients through their --- into their puberty, in their growth. When they are done with their pubertal development, we have not seen any definable cognitive developmental issues with them. Haven't been able to identify that with any of my patients, including precocious puberty. There's not been any evidence in the literature over a year's worth of use of this medication that there's anything different happening to these individuals.

BY ATTORNEY BROOKS:

[293]

Q. Well, you also haven't done any systematic study of cognitive development of those for whom you have prescribed puberty blockers as compared to in a control group, have you?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: Not personally.

BY ATTORNEY BROOKS:

Q. And the --- the Endocrine Society, 2017 --- let me ask you to turn in Exhibit 4 to page 3882. And we are in the section here that discusses a recommendation to use GRNH for purposes of puberty suppression when puberty suppression is indicated. Do you see that? That heading is on the previous page.

A. I see that.

Q. Just wanted to locate you in the discussion we're talking about puberty suppression. Now, back to 3882. And the first thing --- the first sentence under the heading side effects states that, quote, the primary risks of puberty suppression in GD/gender incongruent adolescents may include and then it lists a number of things, one of which is, quote, unknown effects on brain development, closed quote. Do you see this?

A. I do.

Q. So the committee that put together the Endocrine **[294]** Society guidelines thought that the potential effects of puberty suppression on brain development were at 2017 at least unknown. You just disagreed?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: I don't have any reason to believe that there's any different effect on individuals based on the research from early puberty and the studies that --- I mean, sorry, my experience with those patients. I would want to be watchful of those individuals as I would always who use any medication for potential issues.

BY ATTORNEY BROOKS:

Q. Endocrine Society thinks the effect on brain development is unknown and you, though you have done no systematic study, are of the view that you know that is

not harmful to brain development. Am I accurately summarizing your testimony?

ATTORNEY BORELLI: Objection.

THE WITNESS: No.

BY ATTORNEY BROOKS:

Q. Let me ask it a different way if that was inaccurate.

A. I am trying to tell you that you are able to look at the use of this medication in early pubertal **[295]** patients and see what happens to those individuals. Those outcomes can be used to give you some inference as to what might potentially happen if you use it later on for the same purpose of delaying puberty. It doesn't --- doesn't wholly rule out something different.

Q. And indeed, simply based on observation, nonsystematic observations from one clinic, it's not possible to rule out harmful effects on brain development, is it?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: I'm not sure that there's any study you could do to completely role out any effect --- any specific effect. Lots of individuals have different effects.

BY ATTORNEY BROOKS:

Q. And you in your clinic haven't attempted any study?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: I have not done a study.

BY ATTORNEY BROOKS:

Q. Let me have tab 43. In your report you asserted that those treated with gender dysphoria undergo --- I'm sorry, those treated with puberty delaying medication

experience all the same brain and other bodily system **[296]** developments. The only source you cite in support of that is a 2015 article by Staphorsius.

Correct?

A. I would have to look at it and verify that.

Q. Forty-three (43).

A. Which exhibit were you ---?

Q. I have not given it to you yet. I apologize.

A. No, I mean ---.

Q. Oh, it was paragraph 24 in your rebuttal report, which is ---.

A. Okay.

Q. All right.

Did you carefully read the Staphorsius article that you cited in paragraph 24 of your rebuttal report?

A. At some point in time I have read that, yes.

Q. Are you able to describe the experiment that is --- the study that was done in this Staphorsius report --- or the Staphorsius article?

ATTORNEY BORELLI: Objection.

THE WITNESS: I'm not --- familiar ---.

BY ATTORNEY BROOKS:

Q. You say also in paragraph 24 of your rebuttal report that Dr. Levine's claims with regard to concern about brain development is, quote, inaccurate for the **[297]** additional reason that some people never go through hormonal puberty such as patients with Turner syndrome and still have normal brain development with respect to

cognition and executive function. Do you see that language?

A. Yes.

Q. And you don't cite anything for that. What is the basis for that assertion?

A. So when you look at the information regarding Turner syndrome within the medical literature as well as the --- my work with Marsha Gavenport at UNC who runs --- ran the biggest Turner syndrome registry, in that experience we did not see any patients that had problems with --- there may have been some that were --- had sort of issues with visual spatial skills but not cognitive issues. In fact, I have partners that are women with Turner syndrome that practice medicine.

Q. You will agree with me as a scientist, will you not, that kind of anecdotal information about a particular person you know is not very weighty evidence as to whether hormone changes associated with puberty are generally important to cognitive development of humans?

ATTORNEY BORELLI: Objection, form.

[298]

THE WITNESS: We can delve into Turner syndrome literature.

BY ATTORNEY BROOKS:

Q. Well, Dr. Adkins, I hope you understand that your obligation to prepare an expert report was to provide your opinions and the basis of your opinions. What literature are you relying on?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: Every textbook that talks about Turner syndrome with regard to these patients talks about any of the issues that go along with that. I --- and that's something we study in our training as a pediatric endocrinologists because we see these patients routinely. So that has been my experience and training.

BY ATTORNEY BROOKS:

Q. Well, can you identify --- every is not very useful. Can you identify for me a single source that reports based on statistically significant studies that individuals who never go through puberty experience all the same brain development as individuals who do go through puberty?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: I would have to look back in the literature on those reports because we treat **[299]** patients now when we realize they are not going through puberty. I can't do that off the top of my head.

BY ATTORNEY BROOKS:

Q. And are you now contending that it is not widely accepted that hormonal changes associated with puberty drive important stages of brain growth?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: I'm not saying that. What I'm saying is there are some things that are specific and you're generalizing my terms.

BY ATTORNEY BROOKS:

Q. Okay.

Well, flipping it around, you have also been taught whether or not it's --- if we're speaking in the area, I recognize you're not a neurologist.

Correct?

A. Correct.

Q. But it's your understanding that hormonal changes associated with puberty do drive important developmental stages in the human brain.

Correct?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: Yes.

BY ATTORNEY BROOKS:

[300]

Q. And those are stages that, as we looked at in earlier document, include cognition, social skills, sexual development?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: So you know, that is what is --- was written there. I agree that that can be affected by those --- by puberty. I also don't see in any of the literature around people who haven't gone with --- through puberty any mention of any of the concerning cognitive delays or other issues, again visual, spatial has been mentioned.

BY ATTORNEY BROOKS:

Q. Visual spatial, can you just --- for the uninitiated, the layman, can you explain what you're referring to?

A. For the use of like driving a car, looking at something and being able to estimate where it is or those sorts of things, navigating with a map versus not.

ATTORNEY BROOKS: Let me ask the court reporter how many minutes we still have on the clock.

COURT REPORTER: We're at six hours, 31 minutes, so 29.

ATTORNEY BROOKS: Well, I had promised to hand it over with 30 minutes to go, so I have broken my **[301]** word. And I will stop and leave the remainder of the time to counsel for the State of West Virginia, Dave Tryon.

EXAMINATION

BY ATTORNEY TRYON:

Q. Hello, Dr. Adkins. Long day. I appreciate your time. My name is David Tryon and I do represent the State of West Virginia. I would like just to ---.

A. You're cutting out.

Q. Okay.

ATTORNEY BROOKS: You are going to have to speak up very clearly because you are literally disappearing half of the time and we have no work around for that.

BY ATTORNEY TRYON:

A. Okay.

I will speak very loudly. Can you hear me now?

A. Yes.

Q. Okay.

So thank you for your time my. Name is David Tryon. I am an attorney for the State of West Virginia. I would like to continue with some questions about your **[302]** rebuttal report. Do you still have that in front of you?

A. Yes.

Q. Okay.

First of all, you have indicated that you are --- I'm still here --- give me a moment --- you run a clinic.

Correct?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: I have a clinic that I'm the medical director of, yes.

BY ATTORNEY TRYON:

Q. And that is --- I'm sorry, what's the name of the clinic again?

A. Duke Child and Adolescent Gender Clinic.

Q. What is a gender care clinic?

A. For our purposes in my clinic it includes patients who are transgender people who are --- also have intersex conditions as well.

Q. Are there other clinics that you consider gender care clinics elsewhere in the country?

A. Yes.

Q. Would you be able to estimate approximately how many of them there are?

[303]

A. That number is changing a lot. It would be difficult for me to say accurately.

Q. Would it be over 100?

A. I'm not sure. I'm not sure.

Q. Would it be over 50?

A. Oh, it could be definitely over 50. It could be over 100, but I'm not sure.

Q. And are you --- do you have any meetings with those other gender care clinics?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: Yes.

BY ATTORNEY TRYON:

Q. How many --- what fashion --- are those individual meetings or are they group meetings?

A. A bit of both.

Q. Are you aware of the practices of all of those other gender care clinics?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: We do talk about practice when we meet with the ones that I meet with. Can't speak to all of the others.

BY ATTORNEY TRYON:

Q. You are of course familiar with the practices in your clinic.

[304]

Correct?

A. Yes.

Q. Are you equally familiar with the practices of the other gender care clinics throughout the country?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: I know a lot about them. I can't say I know everything.

BY ATTORNEY TRYON:

Q. Do you know if they have the exact same standards of care and practice that your clinic does?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: We all have discussed that we follow the Endocrine Society guidelines as well as WPATH guidelines.

BY ATTORNEY TRYON:

Q. You have disagreed with some of the guidelines in the WPATH guidelines that Mr. Brooks has shown to you.

Correct?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: I don't think I've seen the WPATH guidelines today.

BY ATTORNEY TRYON:

Q. Sorry, the Endocrine Society guidelines?

[305]

ATTORNEY BORELLI: Same objection.

THE WITNESS: So the Endocrine Society guidelines are guidelines. All of us who use guidelines do vary some from those guidelines when it's appropriate for the particular patient.

BY ATTORNEY TRYON:

Q. Do you know if the other clinics have the same reservations about the policies or guidelines in those --- in the endocrine Society's guidelines that you've expressed today?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: I've had some discussions with people who have some reservations along the same lines that I do.

BY ATTORNEY TRYON:

Q. How many clinics does that represent?

A. Oh, you went out. You went out. Sorry.

Q. How many clinics does that represent?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: It's difficult for me to say because it is at our annual meeting and for some of the meetings, so it could be a lot. In group meetings that we have, I have some that are one on one and I have some that are about five different groups.

[306]

BY ATTORNEY TRYON:

Q. So fair to say you don't know?

A. I'm sorry, you broke up again.

Q. Is it fair to say you do not know?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: I do not know what?

BY ATTORNEY TRYON:

Q. You do not know which ones have the same reservations that you do about the provisions you've expressed reservations about today?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: I know --- I know --- I know off the top of my head three. The others I may or may not know

where an individual is from when they're talking in all of our meetings. They are big meetings.

BY ATTORNEY TRYON:

Q. What are those three?

A. So Rady Children's in Los Angeles and in Seattle, Children's and Texas, Children's.

BY ATTORNEY TRYON:

Q. Are there any gender care clinics in West Virginia?

ATTORNEY BORELLI: Objection to form.

THE WITNESS: I don't know personally any **[307]** endocrinologists that do pediatric endocrinology or gender care in West Virginia. I'm not aware.

BY ATTORNEY TRYON:

Q. In the rebuttal report, your paragraph 11, I'd like to ask you some questions about that. If you would turn there.

A. I got it.

Q. When did you --- well, did you write this paragraph 11?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: Yes.

BY ATTORNEY TRYON:

Q. When did you write it?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: I don't remember.

BY ATTORNEY TRYON:

Q. Was it after you received the expert reports from the Plaintiff's experts --- excuse me, from the Defendant's experts?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: So we wrote the rebuttal after we received the expert witnesses from --- yes.

BY ATTORNEY TRYON:

Q. Who is we?

[308]

A. I'm sorry. I wrote it --- I'm sorry. I'm getting really tired. I apologize. I wrote it.

Q. In the --- I believe it is the third sentence says no medical treatment is provided to transgender youth until they have reached Tanner stage two. Do you see that?

A. I do.

Q. When you say no medical treatment, is that - does that include affirmation therapy?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: I am not aware of anything called affirmation therapy.

BY ATTORNEY TRYON:

Q. Are you aware of the term affirmation for

transgender individuals?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: Gender affirming care is a term I am aware of.

BY ATTORNEY TRYON:

Q. Do you consider gender affirming care to be medical treatment?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: So it is meant to be wholistic, so part of it is medical, part of it is **[309]** social, part of it is surgical.

BY ATTORNEY TRYON:

Q. Is any gender affirming care provided to transgender youth before they reach Tanner stage two?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: So the social transition is considered part of gender affirming care and some individuals do socially transition before Tanner stage two.

BY ATTORNEY TRYON:

Q. Do you assist them in that?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: Not typically. They're not usually in my clinic until they are in puberty.

BY ATTORNEY TRYON:

Q. Is there any other type of gender affirming care which is conducted or provided prior to Tanner stage two?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: Before Tanner stage two generally it's -- no --- no. No.

BY ATTORNEY TRYON:

Q. What do you consider to be medical treatment which is provided once they reach Tanner stage two?

[310]

ATTORNEY BORELLI: Objection, form.

THE WITNESS: Not every patient is treated with medication. So some do, some don't. Sometimes that is puberty blockers. Sometimes it is not. Sometimes it is gender affirming hormones depending on where they're in their development.

BY ATTORNEY TRYON:

Q. What about surgery, is that considered medical treatment provided to transgender youth?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: So patients who are children aren't having surgeries.

BY ATTORNEY TRYON:

Q. What's the difference between youth and children?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: Youth in general in my mind are somewhat similar to adolescents in that they have started puberty.

BY ATTORNEY TRYON:

Q. At what point are --- is --- excuse me, at what point or age is surgery, medical treatment, provided to those who have gender dysphoria or considered to be transgender?

[311]

ATTORNEY BORELLI: Objection, form.

THE WITNESS: So you cut out and could you repeat the question?

BY ATTORNEY TRYON:

Q. Yes. Let me back up and make sure I understand. Surgery is considered medical treatment.

Correct?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: So I hesitate to use those words. My surgical colleagues would take some offense at that. They consider themselves surgeons and not medicine doctors. So I think that's an opinion there. So I'm not sure that that phrase is appropriate.

BY ATTORNEY TRYON:

Q. So when you refer to medical treatment in this statement does that include or exclude surgery?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: They do not --- yeah, that would be inclusive of surgery in that particular statement.

BY ATTORNEY TRYON:

Q. At what point is surgery provided to transgender persons?

ATTORNEY BORELLI: Objection, form.

[312]

THE WITNESS: Well, not all individuals who are transgender actually have surgery. It depends on the patient. Many, many do not. Our recommendations are to wait until 18. There is a caveat in the Endocrine Society guidelines where some surgery could happen between 16 and 18, but generally 18 and up.

BY ATTORNEY TRYON:

Q. Why wait until 18?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: That is the --- as I understand it, the legal time at which a person has --- what is the word for it? You all are the legal people. I'm probably going to say it wrong, the ability to legally consent to things. Prior to that, we do get what's called an assent from the patient, but it's a little different than a consent from the patient if we're doing a general procedure.

BY ATTORNEY TRYON:

Q. Why is that legal consent different for surgery then it is for puberty blockers?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: As I mentioned before, puberty blockers aren't a permanent effect and surgery is complicated to reverse.

[313]

BY ATTORNEY TRYON:

Q. At the point in time that you prescribe puberty blockers for a natal male, that person has at that point concluded that they have a gender identity of female.

Correct?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: So for puberty blockers they may not totally be clear on their gender identity. They do have dysphoria with the changes that are happening to their body at the time and need time to get a better understanding of their gender identity.

BY ATTORNEY TRYON:

Q. At what point do we know that they have a full understanding of their gender identity?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: Again, we do our best to take each patient as they get older and they are consistent for a period of time. Again, the recommendation are at least six months. Everyone is different. Most of my patients' identity isn't changing substantially. Their understanding of their identity isn't changing substantially for longer than that before one would do anything different other than puberty blockers.

[314]

BY ATTORNEY TRYON:

Q. At what point --- someone comes to you and says I am a biological male or assigned male at birth, however you want to term that, but I identify it as a --- let me rephrase that because I'm not sure I said that right.

Someone comes to you and says I was born an assigned male at birth, but I identify as a female. I have identified as a female for two years now and I want to move forward with any treatment possible so that I can feel comfortable with my true identity as a female. You accept that as their true identity?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: You didn't give an age and I do way that into consideration.

BY ATTORNEY TRYON:

Q. Let's say a ten year old?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: So we as I mentioned in my earlier testimony also use assessments from other individuals with regard to the consistency of their gender identity and including family as well as their mental health providers

and we would provide individualized care based on that patient.

[315]

BY ATTORNEY TRYON:

Q. At that point do you actually give a diagnosis that they are their true gender identity is female or what happens?

ATTORNEY BORELLI:

Objection, form.

THE WITNESS: Again, gender identity is a core part of their being and their understanding of it at the time is their understanding of it at the time and that is the only way that we can decide what someone's gender identity is.

BY ATTORNEY TRYON:

Q. So at that point in time where the child is 10 or 12 or 14, at that point in time where they have concluded my true gender identity is not my natal sex of male but rather my true gender identity is a female, why shouldn't that child then be able to say I want gender --- I want surgery to remove my penis?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: So we don't want to do anything that's permanent until a person is older and their cognitive development is broader. And in some cases, you know --- well, I'll stop there.

BY ATTORNEY TRYON:

[316]

Q. If that child says, this is extremely harmful to me to still have my penis at this age, I want it removed, and you said yourself that is extremely harmful to not allow this

child to not play on a sports team with which that child identifies, isn't having a penis when the child doesn't want one even more harmful?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: I think they're both --- those situations could cause a risk for self harm and suicide. We would not like to do something that is permanent. Playing on a sports team is not something that is unchangeable.

BY ATTORNEY TRYON:

Q. But you told me, you told us, that gender is unchangeable and that child at that point has identified as a female. And since that is not going to change what is the harm in removing that child's penis?

A. You broke up after what is the harm in removing that child.

Q. That child's penis?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: I stated that their understanding of their gender identity occurs over the lifespan and so we want to be very careful with regard **[317]** to that --- any permanent treatment.

BY ATTORNEY TRYON:

Q. So you're saying you don't --- you're saying you don't believe that that child's true identity is a female, true gender identity is a female, you doubt that child?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: I don't doubt what my patients tell me because --- what they tell me is their truth and their identity. I do like --- think it is important when you are making these decisions to again corroborate that with

other individuals who are with the family --- I'm sorry, with the person. And we want to make sure that that is a durable place where their understanding is. Ideally, we would like for it to be as understood as it might be before making a decision that is a permanent decision like surgery.

VIDEOGRAPHER: Mr. Tryon, I sent you a chat, I didn't know if you saw that. I just wanted to give a five-minute warning.

ATTORNEY TRYON: Oh, it's five minutes left? Thank you. I did not see that. One moment.

BY ATTORNEY TRYON:

Q. You are getting paid as an expert witness in [318] this case right?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: Yes.

BY ATTORNEY TRYON:

Q. Are you being paid as an expert witness in connection to any other litigation or testimony or any other statutes --- similar statutes?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: I am --- have not been paid. I am involved in other --- another case, two cases.

BY ATTORNEY TRYON:

Q. What are those other two cases?

A. I'm not going to be able to tell you the name because I'm terrible with names. It involves transgender care in Arkansas as well as in sports-related issues with transgender youth in Florida.

Q. Have you testified in those cases yet?

A. I have not.

Q. You testified in other cases.

Right?

A. You broke up again. Could you repeat?

Q. You have testified in other cases.

Right?

[319]

A. Yes.

Q. Which cases are those?

A. The transgender-related cases were with Adams in Florida. Why am I blanking?

Q. Connecticut?

A. I did not actually --- I have not been deposed in --- except for Adams.

Q. Okay.

In your --- in your expert report you say that I have testified twice as an expert at trial or deposition.

A. Yeah, I was involved in another case as an expert witness and was deposed for a case involving an infant with fractures that were --- there was concern for abuse.

Q. I'm sorry, you froze on me. Can you tell me what that was again?

A. Yeah. There was a case that I was involved with where the patient's parents --- they had concern for abuse from the parents because the child had fractures.

Q. Well, I'm running out of time, so let me glance through my notes and see if there is anything else. Do you

disagree with the policies of the other agents --- excuse me, of the sporting organizations which require a **[320]** delay in time before a transgender female can participate in those sports?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: I think it would be better for the patient if they did not have to delay.

BY ATTORNEY TRYON:

Q. So you --- if it was up to you, you would eliminate that delay that is required by these other sports organizations.

Is that right?

ATTORNEY BORELLI: Objection, form.

THE WITNESSS: I think it would be better for my patients. Yes.

BY ATTORNEY TRYON:

Q. And you think those organizations should change their policies to satisfy what your concern is?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: You know, there is a lot to weigh there. I am not sure that I would be able to like say for their purposes. I don't know all of the things that are there. For my patients what would be best for them is to not to have to have that delay.

BY ATTORNEY TRYON:

Q. But would you agree with me that the State of **[321]** West Virginia had a lot to weigh as well when it put in place its legislation before they passed the law?

ATTORNEY BORELLI: Objection. Objection, form.

THE WITNESS: I would hope that every piece of legislation is weighed heavily.

BY ATTORNEY TRYON:

Q. And you would agree that in this case there was a lot to weigh on a number of different issues before they passed the law.

Correct?

ATTORNEY BORELLI: Objection, form.

THE WITNESS: I would agree. And I wasn't there to know what was, so I agree there should be.

BY ATTORNEY TRYON:

Q. I'm sorry. I didn't catch that. You froze up. Can you repeat that?

A. Sure. I agree there should have been. I wasn't there to hear what happened with regard to the process, so I don't know if they actually did that.

ATTORNEY TRYON:

Thank you. Do I have any time left, Jacob?

[322]

VIDEOGRAPHER: I think that's the cap.

ATTORNEY TRYON: Okay.

Dr. Adkins, thank you very much for your time. Appreciate it.

ATTORNEY BORELLI: This is Tara Borelli for Plaintiff, B.P.J.. Plaintiff has no questions for the witness. We will read and sign.

VIDEOGRAPHER: That concludes this deposition. Current time reads 5:56 p.m. Eastern Standard Time.

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VIDEOTAPED DEPOSITION CONCLUDED AT 5:56 P.M.

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

CHARLESTON DIVISION

B. P. J., et al.,

Plaintiffs,

v. CIVIL ACTION NO. 2:21-cv-00316

WEST VIRGINIA STATE BOARD OF EDUCATION, et al.,

Defendants.

EXPERT REPORT AND DECLARATION OF JOSHUA D. SAFER, MD, FACP, FACE

1. I have been retained by counsel for Plaintiffs as an expert in connection with the above-captioned litigation.

2. The purpose of this expert report and declaration is to offer my expert opinion on: (1) relevant medical and scientific background regarding gender identity and the attempted regulation of transgender women playing women's sports, including the Endocrine Society's Guidelines for providing gender-affirming care to transgender people; (2) the policies of athletic organizations regarding the participation of transgender women in women's sports, the difficulties that have arisen when athletic associations have attempted to define a person's sex, and the relationship of these policies to the scholastic context; and (3) whether there is any medical

justification for West Virginia's exclusion of transgender women and girls from school sports, including whether the available scientific evidence supports West Virginia's assertion that "classification of athletic teams according to" an "individual's reproductive biology and genetics at birth sex" "is necessary to promote equal athletic opportunities for the female sex."

3. I have knowledge of the matters stated in this expert report and declaration and have collected and cite to relevant literature concerning the issues that arise in this litigation in the body of this declaration and in the attached bibliography.

4. In preparing this expert report and declaration, I relied on my scientific education and training, my research experience, and my knowledge of the scientific literature in the pertinent fields. The materials I have relied upon in preparing this declaration are the same types of materials that experts in my field of study regularly rely upon when forming opinions on the subject. I may wish to supplement these opinions or the bases for them as a result of new scientific research or publications or in response to statements and issues that may arise in my area of expertise.

PROFESSIONAL BACKGROUND

5. I am a Staff Physician in the Endocrinology Division of the Department of Medicine at the Mount Sinai Hospital and Mount Sinai Beth Israel Medical Center in New York, NY. I serve as Executive Director of the Center for Transgender Medicine and Surgery at Mount Sinai. I also hold an academic appointment as Professor of Medicine in Mount Sinai's Icahn School of Medicine. A true and correct copy of my CV is attached hereto as Exhibit A.

6. I have been Board Certified in Endocrinology, Diabetes and Metabolism by the American Board of Internal Medicine since 1997.

7. I graduated from the University of Wisconsin in Madison with a Bachelor of Science degree in 1986. I earned my Doctor of Medicine degree from the University of Wisconsin in 1990. I completed intern and resident training at Mount Sinai School of Medicine, Beth Israel Medical Center in New York, New York from 1990 to 1993. From 1993 to 1994, I was a Clinical Fellow in Endocrinology at Harvard Medical School and Beth Israel Deaconess Medical Center in Boston, Massachusetts. I stayed at the same institution, serving as a Clinical and Research Fellow in Endocrinology under Fredric Wondisford, from 1994 to 1996.

8. Since 1997, I have evaluated and treated patients along with conducting research in endocrinology. Since 2004, my patient care and research has been focused on the medicine/science specific to transgender people. I have led several other programs either in transgender medicine or in general endocrinology. In particular, I served as the Medical Director of the Center for Transgender Medicine and Surgery, Boston Medical Center, Boston, MA (2016-2018); as the Director of Medical Education, Endocrinology Section, Boston University School of Medicine, Boston, MA (2007-2018); as the Program Director for Endocrinology Fellowship Training, Boston University Medical Center, Boston, MA (2007-2018); and as Director of the Thyroid Clinic, Boston Medical Center, Boston, MA (1999-2003).

9. I have authored or coauthored over 100 peer-reviewed papers including many critical reviews; textbook chapters; and case reports in endocrinology and transgender medicine.

10. Among my publications are the latest review of transgender medicine in the New England Journal of Medicine and the latest review of transgender medicine in the Annals of Internal Medicine. *See* Safer JD, Tangpricha V. Care of transgender persons. *N Engl J Med* 2019; 381:2451-2460; Safer JD, Tangpricha V. Care of the transgender patient. *Ann Intern Med* 2019; 171:ITC1-ITC16. I am also a co-author of the sections of UpToDate that relate to gender-affirming hormone treatment for transgender people. UpToDate is an evidence-based, physician authored, on-line medical guide and is currently the most widely used such guide among medical providers.

11. I was the inaugural President of the United States Professional Association for Transgender Health ("USPATH"). I have served in several other leadership roles in professional societies related to endocrinology and transgender health. These societies include the Alliance of Academic Internal Medicine, the American College of Physicians Council of Subspecialty Societies, the American Board of Internal Medicine, the Association of Program Directors in Endocrinology and Metabolism, and the American Thyroid Association.

12. Since 2014, I have held various roles as a member of the World Professional Association for Transgender Health ("WPATH"), the leading international organization focused on transgender health care. WPATH has approximately 2,000 members throughout the world and is comprised of physicians, psychiatrists, psychologists, social workers, surgeons, and other health professionals who specialize in health care for transgender people. From 2016 to the present, I have served on the Writing Committee for Standards of Care

for the Health of Transsexual, Transgender, and Gender Nonconforming People.

13. I have served in various roles as a member of the Endocrine Society since 2014. I served on a nine-expert Task Force to develop the Endocrine Treatment of Transgender Persons Clinical Practice Guideline from 2014 to 2017. The experts on the Task Force which included me, a methodologist, and a medical writer co-authored the "Endocrine Treatment of Gender-Dysphoria/Gender Incongruent Persons: An Endocrine Society Clinical Practice Guideline," ("Endocrine Society Guidelines"), available at https://academic.oup.com/jcem/article/102/11/3869/4157558.

14. I have served as a Transgender Medicine Guidelines Drafting Group Member for the International Olympic Committee ("IOC") since 2017.

15. Since 2019, I have also served as a drafting group member of the transgender medical guidelines of World Athletics, formerly known as the International Amateur Athletic Federation ("IAAF").

16. I have not previously testified as an expert witness in either deposition or at trial. I am being compensated at an hourly rate of $250 per hour for preparation of expert declarations and reports, and $400 per hour for time spent preparing for or giving deposition or trial testimony. My compensation does not depend on the outcome of this litigation, the opinions I express, or the testimony I provide.

RELEVANT MEDICAL AND SCIENTIFIC BACKGROUND

17. "Gender identity" is the medical term for a person's internal, innate sense of belonging to a particular

sex. *See* Endocrine Society Guidelines, Tb1.1 *and* Safer JD, Tangpricha V. Care of transgender persons. *N Engl J Med* 2019; 381:2451-2460, Tb1.1.

18. Although the detailed mechanisms are unknown, there is a medical consensus that there is a significant biologic component underlying gender identity. Safer JD, Tangpricha V. Care of transgender persons. *N Engl J Med* 2019; 381:2451-2460; Safer JD, Tangpricha V. Care of the transgender patient. *Ann Intern Med* 2019; 171:ITC1-ITC16. A person's gender identity is durable and cannot be changed by medical intervention.

19. The terms "gender identity," "gender roles," and "gender expression" refer to different things.

20. Gender roles are behaviors, attitudes, and personality traits that a society (in a given culture and historical period) designates as masculine or feminine and/or that society associates with or considers typical of the social role of men or women. *See* Endocrine Society Guidelines Tb1.1. The convention that girls wear pink and have longer hair, or that boys wear blue and have shorter hair, are examples of socially constructed gender roles from a particular culture and historical period.

21. By contrast, "gender identity" does not refer to a set of socially contingent behaviors, attitudes, or personality traits that a society designates as masculine or feminine. It is an internal and largely biological phenomenon.

22. Gender expression is how a person communicates gender identity both internally and to others. *See* Safer JD, Tangpricha V. Care of transgender persons. *N Engl J Med* 2019; 381:2451-2460, Tb1.1. For example, a person with a female gender identity might express her identity through typically feminine outward expressions of gender

roles like wearing longer hair or more typically feminine clothing.

23. The phrase "biological sex" is an imprecise term that can cause confusion. A person's sex encompasses the sum of several different biological attributes, including sex chromosomes, certain genes, gonads, sex hormone levels, internal and external genitalia, other secondary sex characteristics, and gender identity. Those attributes are not always aligned in the same direction. *See* Endocrine Society Guidelines; Safer JD, Tangpricha V. Care of transgender persons. *N Engl J Med* 2019; 381:2451-2460.

24. Before puberty, boys and girls typically have the same levels of circulating testosterone. After puberty, the typical range of circulating testosterone for non-transgender women is similar to before puberty (<1.7 nmol/L), and the typical range of circulating testosterone for non-transgender men is 9.4-35 nmol/L. *See* Endocrine Society Guidelines (p 3888) *and* Safer JD, Tangpricha V. Care of transgender persons. *N Engl J Med* 2019.

25. Before puberty, age-grade competitive sports records show minimal or no differences in athletic performance between non-transgender boys and non-transgender girls before puberty. But after puberty, non-transgender boys and men as a group have better average performance outcomes in most athletic competitions when compared to non-transgender girls and women as a group. Based on current research comparing non-transgender boys and men with non-transgender girls and women before, during, and after puberty, the primary known biological driver of these average group differences is testosterone starting at puberty, and not reproductive biology or genetics. *See* Handelsman DJ, et al. Circulating testosterone as the hormonal basis of sex differences in athletic performance. *Endocrine Reviews* 2018; 39:803-

829, (p 820) (summarizing evidence rejecting hypothesis that physiological characteristics are driven by Y chromosome).

26. Although there are ranges of testosterone that are considered typical for non-transgender men and women, many non-transgender women have testosterone levels outside the typical range.

a. Approximately 6% to 10% of women have a condition called polycystic ovary syndrome (PCOS), which can raise women's testosterone levels up to 4.8 nmol/L.

b. Some elite female athletes have "46,XY DSDs," a group of conditions where individuals have XY chromosomes but are born with typically female external genitalia and assigned a female sex at birth. Among individuals with 46,XY DSD some may have inactive testosterone receptors (a syndrome called "complete androgen insensitivity syndrome, CAIS") which means they don't respond to testosterone despite very high levels. Usually, these individuals have female gender identity and have external genitalia that are typically female. They do not develop the physical characteristics associated with typical male puberty.

c. Other individuals with 46,XY DSD may have responsive testosterone receptors. These individuals may have female gender identity but at puberty they may start to develop higher levels of testosterone along with secondary sex characteristics that are typically masculine.

WORLD ATHLETICS POLICIES FOR WOMEN WITH HYPERANDROGENISM AND WOMEN WHO ARE TRANSGENDER

27. World Athletics is the international governing body for the sport of track-and-field athletics. Beginning

in 2011, World Athletics (then known as IAAF) began requiring that women with elevated levels of circulating testosterone lower their levels of testosterone below a threshold amount in order to compete in elite international women's sports competitions. Under the 2011 regulations, women with hyperandrogenemia (defined as serum testosterone levels above the normal range) were allowed to compete only if they demonstrated that they had testosterone levels below 10 nmol/L or that they had CAIS, preventing their bodies from responding to testosterone.[1]

28. In 2018 the IAAF issued revised regulations lowering the maximum testosterone threshold to 5 nmol/L.[2] The revised regulations were upheld by the Court of Arbitration for Sport ("CAS") in 2019.

29. In 2019, the IAAF adopted regulations allowing women who are transgender to participate in elite international women's sports competitions if their total testosterone level in serum is beneath a particular threshold for at least one year before competition. The IAAF set the threshold at 5 nmol/L, which was the same threshold set by the IAAF's 2018 regulations for non-

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[1] A copy of the 2011 regulation is available at https://www.bmj.com/sites/default/files/responseattachments/2014/06/1AAF%20Regulations%20(Final)-AMG-30.04.2011.pdf

[2] A copy of the 2018 regulations is available at https://www.iaaforg/download/download?filename=fd2923ad-992f-4e43-9a70-78789d390113.pdfikurlslug=1AAF%20Eligibility%20Regulations%20for%20the%20Female%2 0Classification%20%5BAthletes%20with%20Differences%20of%20Sex%20Development%5D %20in%20force%20as%20from%208%20May%202019

transgender women with hyperandrogenism that had been upheld by the CAS when contested.[3]

30. The IAAF rules are consistent with the Endocrine Society Guidelines for the treatment of women who are transgender, which recommend that hormone therapy target circulating testosterone levels to a typical female range at or below 1.7 nmol/L (Endocrine Society Guidelines, p. 3887) and with the study of testosterone levels achieved in practice by medically treated women who are transgender (Liang JJ, et al. Testosterone levels achieved by medically treated transgender women in a United States endocrinology clinic cohort. *Endocrine Practice* 2018; 24:135-142).

INTERNATIONAL OLYMPIC COMMITTEE POLICIES FOR WOMEN WHO ARE TRANSGENDER

31. Formal eligibility rules for the participation of transgender women in the Olympics were published in 2003. The 2003 rules required that transgender women athletes could compete in women's events only if they had

[3] A copy of the 2019 regulations is available at https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=&ved=2ahUKEwi8qb0nsNLOAhUBkIkEI-1WdpAiQQFnoECAUQAQ&url=https%3A%2F%2Fwww.worldathletics.org%2Fdownload%2Fdownload%3Ffilename%3Dace036ec-a21 f-4a4a-9646-fb3 c40fe8 0b e.pdf)/026urlslug%3DC3.5%2520-%2520Eligibility%2520Regulations%2520Transgender%2520Athletes&usg=A0vVawlaPuD3g Uoz5hcGKgmumVb5

genital surgery, a gonadectomy *(i.e.,* removal of the testes), and legal documentation of female sex.[4]

32. However, many women who are transgender are treated with medicines alone and don't have gonadectomy. As well, many jurisdictions do not have systems to document the sex of transgender people. In some jurisdictions, being transgender is illegal, and disclosure that someone is transgender can be unsafe

33. Therefore, in 2015, the IOC adopted new guidance modeled after the IAAF's 2011 regulations for non-transgender women with hyperandrogenism. Under the 2015 IOC guidance, women who are transgender were required to demonstrate that their total testosterone level in serum was below 10 nmol/L for at least one year prior to competition. The 10 nmolfL threshold was the same threshold set by the IAAF's 2011 regulations.[5]

34. In 2021, the IOC adopted a new "Framework on Fairness, Inclusion, and Non-Discrimination on the Basis of Gender Identity and Sex Variations" (the "2021 framework"), which replaces the 2015 guidance.[6]

35. Unlike the IOC's 2003 and 2015 policies, the IOC's 2021 framework does not attempt to adopt a single set of

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[4] A copy of the 2003 policy is available at https://olympics.com/ioc/news/ioc-approves-consensus-with-regard-to-athletes-who-have-changed-sex-1

[5] A copy of the 2015 policy is available at https://stillmed.olympic.org/Documents/Commissions_PDFfiles/Medical_commission/2015-11_ioc_consensus_meeting_on_sex_reassignment_and hyperandrogenism-en.pdf

[6] A copy of the 2021 framework is available at https://stillmed.olympics.comimeclia/Documents/News/2021/11/I0C-Framework-Fairness-Inclusion-Non-discrimination-2021.pdf?ga=2.207516307.1210589288.1636993769-1638189514.1636993769

eligibility standards for the participation of transgender athletes that would apply universally to every IOC sport. Instead, the 2021 framework provides a set of governing principles for sporting bodies to follow when adopting eligibility rules for their particular sport.

36. Under the 2021 framework, ".[n]o athlete should be precluded from competing or excluded from competition on the .exclusive ground of an unverified, alleged or perceived unfair competitive advantage due to their sex variations, physical appearance and/or transgender status." Principle 5.1. "Until evidence . . . determines otherwise, athletes should not be deemed to have an unfair or disproportionate competitive advantage due to their sex variations, physical appearance and/or transgender status." Principles 5.2.

37. The 2021 framework further provides that lalny restrictions arising from eligibility criteria should be based on robust and peer reviewed research that: (a) demonstrates a consistent, unfair, disproportionate competitive advantage in performance and/or an unpreventable risk to the physical safety of other athletes; (b) is largely based on data collected from a demographic group that is consistent in gender and athletic engagement with the group that the eligibility criteria aim to regulate; and (c) demonstrates that such disproportionate competitive advantage and/or unpreventable risk exists for the specific sport, discipline and event that the eligibility criteria aim to regulate." Principle 6.1

NCAA POLICIES FOR WOMEN WHO ARE TRANSGENDER

38. Since 2011, the National College Athletics Association ("NCAA") has allowed women who are

transgender to participate on the same teams as other women after one year of testosterone suppression. Under the NCAA policy transgender student-athletes certified that they have been on hormone therapy for a period of one year. The NCAA policy did not require ongoing testosterone testing.

39. The NCAA recently announced that it has revised its policy to adopt a "sport-by-sport approach" that "aligns transgender student-athlete participation for college sports with recent policy changes." *See* NCAA Media Center: Board of Governors updates transgender participation policy (Jan. 19, 2022), at https://www.ncaa.org/news/2022/1/19/media-center-board-of-governors-updates-transgender-participation-policy.aspx. "Like the Olympics, the updated NCAA policy calls for transgender participation for each sport to be determined by the policy for the national governing body of that sport, subject to ongoing review and recommendation by the NCAA Committee on Competitive Safeguards and Medical Aspects of Sports to the Board of Governors." *Id.* The new NCAA policy contemplates that for certain sports, the national governing body for the sport may require transgender athletes "to document sport-specific testosterone levels." *Id.*

PARTICIPATION OF GIRLS AND WOMEN WHO ARE TRANSGENDER IN THE SCHOLASTIC CONTEXT

40. The policies developed by World Athletics and the IOC for transgender athletes were based on the particular context of elite international competition. Not all of the same considerations apply in scholastic contexts.

41. The World Athletics and prior IOC policies were more stringent than the prior NCAA policy because those organizations were concerned with creating policies that cannot be manipulated by governments that are not bound by the rule of law. For example, there have been many well-known examples of state-sponsored doping scandals. The Russian Olympic team is currently banned from international competition due to an organized doping effort. Also, there have been cases where governments have issued fraudulent birth certificates and identification documents. In 2000, Yang Yun was a medal winner in Gymnastics from the Chinese team. She later reported that she was 14-years-old at the time in violation of the rule that all athletes for her events had to be at least 16-years-old. In 2008, He Kexin was 14-years-old when participating in Gymnastics for the Chinese team in violation of the same rule that athletes be at least 16-years-old in those events. A new passport for Ms. He had hastily appeared 6 months prior to the Olympic Games that year with a new birth year so that Ms. He could qualify.

42. To confront the significant problem of state-sponsored cheating, World Athletics and the IOC have to develop eligibility criteria for transgender athletes that can be independently verified to prevent manipulation by non-transgender athletes, and that do not depend on the gender marker listed on identification documentation issued by an athlete's home country. Those concerns do not apply to scholastic athletic competitions in the United States. Scholastic athletic associations can rely on school records to show that an athlete is a girl who is transgender and has socially transitioned to live consistently with her gender identity as a girl.

43. The eligibility criteria for World Athletics and the IOC were also created as part of a system in which elite athletes in international competitions are already regulated and monitored in some circumstances like for doping. Within that context, testing female athletes' levels of testosterone is somewhat analogous to the types of restrictions and invasion of privacy that already exist. By contrast, in athletic competitions that are not as heavily regulated and monitored, it is hard to justify singling out girls who are transgender, girls with 46,XY DSDs, or girls who may just appear more typically masculine for special testosterone requirements that impose a significant additional burden.

44. The concerns that animated the World Athletics and prior IOC policies are even more attenuated for students in middle school and high school, where athletes' ages typically range from 11-18, with different athletes in different stages of pubertal development. Increased testosterone begins to affect athletic performance at the beginning of puberty, but those effects continue to increase each year of puberty until about age 18, with the full impact of puberty resulting from the cumulative effect of each year. As a result, a 14, 15, or 16-year old has experienced less cumulative impact from testosterone than a 17 or 18-year old.

45. Finally, unlike elite international competitions, schools and colleges often provide athletic competition as part of a broader educational mission. In that context, when scholastic athletics are a component of the educational process, institutions may adopt policies designed to emphasize inclusion and to provide the most athletic opportunities to the greatest number of people.

WEST VIRGINIA'S HB 3293

46. There is no medical justification for West Virginia's categorical exclusion of girls who are transgender from participating in scholastic athletics on the same teams as other girls.

47. HB 3293 states that "[c]lassification of teams according to biological sex is necessary to promote equal athletic opportunities for the female sex." The law defines "biological sex" as "an individual's physical form as a male or female based solely on the individual's reproductive biology and genetics at birth."

48. West Virginia's definition of "biological sex" does not reflect any medical understanding of that ambiguous term. As noted above, a person's sex encompasses the sum of several different biological attributes, including sex chromosomes, certain genes, gonads, sex hormone levels, internal and external genitalia, other secondary sex characteristics, and gender identity. Those attributes are not always aligned in the same direction. *See* Endocrine Society Guidelines; Safer JD, Tangpricha V. Care of transgender persons. *N Engl J Med* 2019; 381:24512460. For example, if West Virginia defines "biological sex" solely based on "reproductive biology and genetics at birth" it is not clear how West Virginia would define the "biological sex" of children with "46,XY DSDs," who have XY chromosomes but typically female external reproductive anatomy.

49. Even as applied to people without intersex characteristics or 46,XY DSDs, the statutory definition of "biological sex" is inconsistent with West Virginia's stated goal of "promot[ing] equal athletic opportunities for the female sex." By excluding girls who are transgender based on "biological sex," and defining that term to mean

"reproductive biology and genetics at birth," West Virginia categorically prevents girls who are transgender from participating on girls' teams regardless of whether they are pre-pubertal, receiving puberty blockers, or receiving gender-affirming hormone therapy. But based on current research, the primary known biological cause of average differences in athletic performance between non-transgender men as a group and non-transgender women as a group is circulating testosterone—not "reproductive biology and genetics at birth." A person's genetic makeup and internal and external reproductive anatomy are not useful indicators of athletic performance and have not been used in elite competition for decades.

50. With respect to average athletic performance, girls and women who are transgender and who do not go through endogenous puberty are somewhat similarly situated to women with XY chromosomes who have complete androgen insensitivity syndrome. It has long-been recognized that women with CAIS have no athletic advantage simply by virtue of having XY chromosomes. *See also* Handelsman DJ, *et al.* Circulating testosterone as the hormonal basis of sex differences in athletic performance. Endocrine Reviews 2018; 39:803-29, p .820 (summarizing evidence rejecting hypothesis that physiological characteristics are driven by Y chromosome).

51. HB 3293 is also dramatically out of step with even the most stringent policies of elite international athletic competitions for girls and women who are transgender and who have gone through endogenous puberty. Unlike the policies of the IOC, World Athletics, or the NCAA, HB 3293 excludes girls and women who are transgender from participating on girls' and women's sports teams even if

they have suppressed their circulating levels of testosterone through gender-affirming hormone therapy.

52. Some critics of the prior IOC guidelines and World Athletics and NCAA policies have speculated that lowering the level of circulating testosterone does not fully mitigate the athletic advantage derived from endogenous puberty. But there is no basis to assert with any degree of confidence that this hypothesis is true. Based on the limited data available, it is equally or more plausible to hypothesize that women who are transgender could be at a net *disadvantage* in particular sports after receiving gender affirming hormone therapy, as compared to non-transgender women.

53. For example, transgender women who go through typically male puberty will tend to have larger bones than non-transgender women, even after receiving gender-affirming hormone therapy. But larger bones may be a disadvantage for transgender women who have typically female levels of circulating testosterone. Muscle mass will be decreased with the shift to female levels of circulating testosterone. Having larger bones without corresponding levels of testosterone and muscle mass would mean that a runner has a bigger body to propel with less power to propel it.

54. Similarly, in a sport where athletes compete in different weight classes *(e.g.* weight lifting), the fact that a transgender woman has bigger bones may be a disadvantage because her ratio of muscle-to-bone will be much lower than the ratio for other women in her weight class who have smaller bones.

55. There are only two studies examining the effects of gender-affirming hormone therapy on the athletic performance of transgender female athletes. The first is a

small study of eight long-distance runners who are transgender women. The study showed that after undergoing gender-affirming medical intervention, which included lowering their testosterone levels, the athletes' performance was reduced so that their performance when compared to non-transgender women was proportionally the same as their performance had been before treatment relative to non-transgender men. *See* Harper J. Race times for transgender athletes. *Journal of Sporting Cultures and Identities* 2015; 6:1-9.

56. A more recent study retrospectively reviewed the military fitness test results of 46 transgender women in the U.S. Air Force before and after receiving gender-affirming hormone therapy. These authors found that any advantage transgender women had over non-transgender women in performing push-ups and sit-ups was negated after 2 years. The study also found that before beginning gender affirming hormone therapy, transgender women completed the 1.5 mile run 21% faster on average than non-transgender women; and after 2 years of gender-affirming hormone therapy, transgender women completed the 1.5 mile run 12% faster on average than non-transgender women. *See* Roberts TA, Smalley J, Ahrendt D. Effect of gender affirming hormones on athletic performance in transwomen and transmen: implications for sporting organisations and legislators. *Br J Sports Med.* 2020.

57. Neither of these limited studies proves there are meaningful athletic advantages for transgender women after receiving gender-affirming hormone therapy, which could only be shown by longitudinal transgender athlete case-comparison studies that control for variations in hormonal exposure and involve numerous indices of performance. Moreover, the ability to perform push-ups

and sit-ups or to run 1.5 miles does not necessarily translate into an athletic advantage in any particular athletic event. Because different sports require different types of physical performance, the studies suggest that the existence and extent of a performance advantage may vary from sport to sport and should not be subject to a categorical across-the-board rule.

58. Even if evidence were eventually to show that on average transgender women have some level of advantage compared to average non-transgender women, those findings would have to be placed in context of all the other intra-sex genetic variations among athletes that can enhance athletic performance among different women or different men.

59. For example, in the academic literature, there are gene sequence variations that can be associated with athleticism referred to as "performance enhancing polymorphisms" or "PEPs." A PEP is a variation in the DNA sequence that is associated with improved athletic performance. For example, variations in mitrochondrial DNA have been associated with greater endurance capacity and greater mitochondrial density in muscles. Other PEPs are associated with blood flow or muscle structure. *See* Ostrander EA, et al. Genetics of athletic performance. *Annu Rev Genomics Hum Genet* 2009; 10:407-429.

60. As the IOC's 2021 framework recognizes, there is no inherent reason why transgender women's physiological characteristics related to athletic performance should be treated as any more of an "unfair" advantage than the advantages that already exist among different women athletes. The 2021 framework instructs that, even at the most elite level of competition, sporting organizations should base eligibility restrictions on

whether there exists "a consistent, unfair, and disproportionate competitive advantage" when viewed within the broader context of all the other intra-sex variations that may give a comparative athletic advantage to a particular athlete.

I declare under penalty of perjury under the laws of the United States of America that the foregoing is true and correct.

Executed on January 21, 2022

/s/Joshua D. Safer
Joshua D. Safer, MD, FACP, FACE

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Rogol AD, Pieper LP. The interconnected histories of endocrinology and eligibility in women's sports. *Horm Res Paediatr* 2018; 90:213-220.

Safer JD, Tangpricha V. Care of the transgender patient. *Ann Intern Med* 2019; 171:ITC1-ITC16. Safer JD, Tangpricha V. Care of transgender persons. *N Engl J Med* 2019; 381:2451-2460.

EXHIBIT A

CURRICULUM VITAE

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January 6, 2022
Office Address: 275 7th Avenue, 15th Floor
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E-mail: jsafer0115@gmail.com

Academic Training

1990 MD	University of Wisconsin School of Medicine, Madison, WI
1986 BS	University of Wisconsin, Madison, WI, Economics

Postdoctoral Training

1994-1996	Clinical and Research Fellow, Endocrinology, under Fredric Wondisford, Harvard Medical School - Beth Israel Deaconess Medical Center, Boston, MA
1993-1994	Clinical Fellow, Endocrinology, Harvard Medical School and Beth Israel Deaconess Medical Center, Boston, MA
1990-1993	Intern and Resident, Department of Medicine, The Mount Sinai School of Medicine, Beth Israel Medical Center, New York City, NY

Academic Appointments

2019 - present	Professor of Medicine, Icahn School of Medicine at Mount Sinai, New York, NY

2006-2018	Associate Professor of Medicine and Molecular Medicine, Boston University School of Medicine
1999-2005	Assistant Professor of Medicine, Boston University School of Medicine
1996-1999	Instructor in Medicine, Harvard Medical School
1993-1996	Fellow in Medicine, Harvard Medical School

Hospital Appointments

2018-present	Staff Physician, The Mount Sinai Hospital, New York City, NY
2018-present	Staff Physician, Mount Sinai Beth Israel Medical Center, New York City, NY
1999-2018	Staff Physician, Boston University Medical Center, Boston, MA
2001-2006	Staff Physician, Veterans Administration Boston Health Care, Boston, MA
1996-1999	Staff Physician, Beth Israel Deaconess Medical Center, Boston, MA
1990-1993	House Staff, Beth Israel Medical Center, New York City, NY

Other Medical Staff Appointments

2004-2013	Staff Physician, Massachusetts Institute of Technology Medical, Cambridge, MA

1994-1999 Physician, Harvard Vanguard Medical Associates, Boston, MA

1987-1996 Captain, United States Army Reserve, Medical Corps

Honors:

2019 Fellow, American College of Endocrinology

2019 Preaw Hanseree Memorial Lecture, University of Wisconsin-Madison

2017 Lesbian, Gay, Bisexual and Transgender Health Award, Massachusetts Medical Society

2012 Outstanding Service Award, Association of Program Directors in Endocrinology and Metabolism

2007 Fellow, American College of Physicians

2004 Boston University School of Medicine Outstanding Student Mentor Award

2001 Abbott Thyroid Research Advisory Council Award

1996 Knoll Thyroid Research Clinical Fellowship Award, Endocrine Society

1995 Trainee Investigator Award for Excellence in Scientific Research, American Federation for Clinical Research (AFCR)

1994 Trainee Investigator Award for Excellence in Scientific Research, AFCR

1990 The University of Wisconsin Medical Alumni Association Award

1988-1990 Senior Class President, University of Wisconsin, School of Medicine

Licensure and Certification

1997 Board Certification in Endocrinology, Diabetes and Metabolism, American Board of Internal Medicine, recertified 2007, 2017

1994 Board Certification in Internal Medicine, American Board of Internal Medicine, recertified 2007

1993 Massachusetts License Registration #77459, inactive

1990 New York License Registration #187263-1

Departmental and University Committees

Icahn School of Medicine at Mount Sinai

2020-present Mount Sinai Disparities and Equity Research Taskforce Steering Committee

Boston Medical Center

2016-2018 Physician Satisfaction Task Force, Department of Medicine

2016-2018 Transgender Patient Task Force

2006-2017 Pharmacy and Therapeutics Committee, Health Net Plan

Boston University School of Medicine

2009-2018 Admissions Committee

2005 Review Committee, Department of Medicine Pilot Project Grants

2000 Residency and Fellowship Core Curriculum Committee,

2000-2018 Internship Selection Committee, Residency Program in Medicine

Boston University Goldman School of Dental Medicine

2003-2018 Course Directors Committee, Goldman School of Dental Medicine

Teaching Experience and Responsibilities

Icahn School of Medicine at Mount Sinai

2019-present Lecturer in Endocrinology, Second-year Pathophysiology Course

Tufts University School of Medicine

2016-2018 Lecturer in Endocrinology, Second-year Pathophysiology Course

Boston University School of Medicine

2003-2018 Course Director, Disease and Therapy - Endocrinology Section

1999-2018 Regular lectures to medical students, residents, and fellows on thyroid disease, diabetes insipidus, and transgender medicine

Boston University Goldman School of Dental Medicine

2002-2018 Course Director, General Medicine and Dental Correlations

2002-2018 Course Director, Medical Concerns in the Dental Patient

Major Administrative Responsibilities

2018-present	Executive Director, Center for Transgender Medicine and Surgery, Mount Sinai Health System, New York City, NY
2016-2018	Medical Director, Center for Transgender Medicine and Surgery, Boston Medical Center, Boston, MA
2007-2018	Director, Medical Education, Endocrinology Section, Boston University School of Medicine, Boston, MA
2007-2018	Program Director, Endocrinology Fellowship Training, Boston University Medical Center, Boston, MA
1999-2003	Director, Thyroid Clinic, Boston Medical Center, Boston, MA

Other Professional Activities

Professional Societies: Memberships

2016-present	United States Professional Association for Transgender Health (USPATH)
2014-present	World Professional Association for Transgender Health (WPATH)
2007-present	Association of Program Directors in Endocrinology and Metabolism (APDEM)
2007-present	Association of Specialty Professors (ASP), Alliance of Academic Internal Medicine (AAIM)

1999-present	American Association of Clinical Endocrinologists
1998-2018	American Thyroid Association
1995-present	Endocrine Society
1994-present	American College of Physicians
1994-1996	American Federation for Medical Research
1993-2018	Massachusetts Medical Society

Professional Societies: Offices Held and Committee Assignments

International

World Athletics (formerly IAAF)

2019-present	Drafting Group Member, Transgender Medical Guidelines

International Olympic Committee (IOC)

2017-present	Drafting Group Member, Transgender Medical Guidelines

World Professional Association for Transgender Health (WPATH)

2016-present	Writing Committee Member, Standards of Care for the Health of Transsexual, Transgender, and Gender Nonconforming People
2016-2018	Co-Chair, Scientific Committee, International Meeting, Buenos Aires - 2018
2015-2016	Chair, Scientific Committee, International Meeting, Amsterdam - 2016
2015-present	Task Force Member, Global Education Institute
2015-present	Media Liaison

TransNet – International Consortium for Transgender Medicine and Health Research

2014-present	Secretary and Co-Chair, Steering Committee

National

United States Professional Association for Transgender Health (USPATH)

2018-2019	President

Alliance of Academic Internal Medicine

2016-2019	Chair, Compliance Committee
2016-2017	Committee member, Compensation
2015-2016	President, Association of Specialty Professors (ASP)
2014-2017	Council member

2014-2019 Task Force member, Program Planning

2014-2019 Work Group member, Survey Center

2013-2015 Chair, Program Planning Committee, ASP

2012-2017 Council member, ASP

2012-2013 Chair, Membership Services Committee, ASP

2010-2015 Chair, Program Directors Site Visit Training Seminar, ASP

2007-2013 Committee member, Membership Services, ASP

American College of Physicians

2016-2018 Council of Subspecialty Societies member

Endocrine Society

2020-present Transgender Medicine, Special Interest Group member

2017-present Advisory Board member, Transgender/Disorders of Sex Development

2017-2020 Committee member, Clinical Endocrine Education

2014-present Media Liaison for Transgender Medicine

2014-2017 Task Force member, Endocrine Treatment of Transgender Persons Clinical Practice Guideline

American Board of Internal Medicine

2013-2018 Task Force member, Endocrinology Procedures

2013 Task Force member, ASP/AAIM/ACGME/ABIM Joint Next Accreditation System Internal Medicine Subspecialty Milestones

Association of Program Directors in Endocrinology and Metabolism

2017-2018 Secretary-Treasurer

2012-2018 Task Force member, Next Accreditation System Endocrinology Milestones

2011-2012 Task Force member, Procedures Accreditation

2010-2012 Council member

2009-2016 Chair, Site Visit/Curriculum Web-Toolbox Committee

American Thyroid Association

2006-2009 Publications Committee member

2004 Program Committee member

Editors and Editorial Boards

2018-present Associate Editor, *Transgender Health*

2017-present Editorial Advisory Board, *Endocrine News*

2016-present Transgender Section Co-Editor, *UpToDate*

2015-present Editorial Board, *Transgender Health*

2015-present Editorial Board, *International Journal of Transgender Health*

2013-2018 Associate Editor, *Journal of Clinical & Translational Endocrinology*

2007-present Editorial Board, *Endocrine Practice*

External Medical Advising and Consulting

International

2016-present International transgender athlete guidelines, Medical and Scientific Commission, International Olympic Committee

National

2017 Transgender medical and surgical treatment, National Collegiate Athletic Association,

2017 Safety for transgender medical treatment, Food and Drug Administration, United States

2015-present Transgender workforce and military readiness, Department of Defense, United States

2014 Transgender prison population health, Federal Bureau of Prisons, United States

Regional

2011-2018 Transgender prison population health, Massachusetts Department of Correction

Past Other Support

2018-2022 Keith Haring Foundation, **PI: Joshua D. Safer,** Pilot Program to Develop Clinical Program in Transgender Medicine for Children and Adolescents

2015-2016	R13 HD084267, **Multi-PI: Joshua D. Safer,** TransNet: Developing a Research Agenda in Transgender Health and Medicine
2014-2015	Boston Foundation, Equality Fund, **PI: Joshua D. Safer,** Pilot Program to Educate Physicians in Transgender Medicine
2013-2014	Evans Foundation, **PI: Joshua D. Safer,** A Pilot Curriculum in Transgender Medicine
2001-2003	Thyroid Research Advisory Council, **PI: Joshua D. Safer,** Thyroid Hormone Action on Skin
2001-2002	Evans Foundation, **PI: Joshua D. Safer,** Thyroid Hormone Action on Skin
1996-2001	K08 DK02423, **PI: Joshua D. Safer,** Characterization of Central Resistance to Thyroid Hormone

Conferences Organized

International Conferences

World Professional Association for Transgender Health

November, 2020 Bi-annual meeting, Planning Committee (remote)

November, 2018 Bi-annual meeting, Scientific Co-Chair, Buenos Aires, Argentina

June, 2016 Bi-annual meeting, Scientific Co-Chair, Amsterdam, Netherlands

November, 2015 Global Education Initiative, inaugural conference, Chicago, IL

TransNet — International Consortium for Transgender Health and Medicine Research

May, 2016 International meeting to set transgender medicine research priorities, Amsterdam, Netherlands

May, 2015 NIH conference to set transgender medicine research priorities, Bethesda, MD

June, 2014 Inaugural meeting, Chicago, IL

National Conferences

February, 2019 Live Surgery Course for Gender Affirmation Procedures, Mount Sinai Hospital and WPATH, New York City, NY

April, 2018 Live Surgery Course for Gender Affirmation Procedures, Mount Sinai Hospital and WPATH, New York City, NY

January, 2017 United States Professional Association for Transgender Health (USPATH) bi-annual meeting, Los Angeles, CA

November, 2015 NIH/Alliance for Academic Internal Medicine - Physician Researcher Workforce Taskforce Meeting, Washington, DC

October, 2015 National Internal Medicine Subspecialty Summit, Atlanta, GA

June, 2013 Special Symposium: "Transgender Medicine — What Every Physician Should Know" Annual Meeting of the Endocrine Society, San Francisco, CA

April, 2011 2011 ASP Accreditation Seminar "Meeting the ACGME and RRC-IM Standards for Successful Fellowship Programs" Arlington, VA

Alliance for Academic Internal Medicine

April, 2015 2015 ASP Accreditation Seminar "Moving Your Fellowship Program Forward" Spring Meeting, Houston, TX

April, 2014 2014 ASP Accreditation Seminar "NAS for Medical Subspecialties Is Almost Here" Spring Meeting, Nashville, TN

May, 2013 2013 ASP Accreditation Seminar "A Changing Landscape in Subspecialty Fellowship Education" Spring Meeting, Lake Buena Vista, FL

April, 2012 2012 ASP Accreditation Seminar "Meeting ACGME and RRC-IM Standards for Successful Fellowship Programs" Spring Meeting, Atlanta, GA

Invited Lectures and Presentations

International

January, 2020	"Transgender Medicine", World Professional Association for Transgender Health Global Education Initiative, Hanoi, Vietnam
September, 2019	"Transgender Women" International Association of Athletics Federations (IAAF), Lausanne, Switzerland
November, 2018	"Transgender Medicine", World Professional Association for Transgender Health Annual Meeting, Buenos Aires, Argentina
October, 2018	"Transgender Medicine", Canadian Endocrine Diabetes Meeting, Halifax, NS, Canada
June, 2018	"21s-Century Strategies: Transgender Hormone Care" CMIN Summit 2018, Porto, Portugal
February, 2017	"A 21st-Century Framework to for Transgender Medical Care" Sheba Hospital, Tel Aviv, Israel
October, 2016	"A 21st-Century Approach to Hormone Treatment of Transgender Individuals" EndoBridge, Antalya, Turkey
May, 2016	"Transgender Women" International Olympic Committee Headquarters, Lausanne, Switzerland
October, 2015	"Workshop on Guidelines for Transgender Health Care" Canadian

	Professional Association for Transgender Health, Halifax, NS
March, 2015	"Endocrinology - Hormone Induced Changes" Transgender Health Care in Europe, European Professional Association for Transgender Health, Ghent, Belgium
June, 2014	"What to Know to Feel Safe Providing Hormone Therapy for Transgender Patients" International Congress of Endocrinology, Chicago, IL
September, 2011	"Transgender Therapy — The Endocrine Society Guidelines" World Professional Association for Transgender Health, Atlanta, GA
February, 2007	"Treating skin disease by manipulating thyroid hormone action" Grand Rounds, Meier Hospital, Kfar Saba, Israel
March, 2004	"New Directions in Thyroid Hormone Action: Skin and Hair" Grand Rounds, Meier Hospital, Kfar Saba, Israel

National

May, 2021	"Transgender Medicine", University of Cincinnati Medicine Grand Rounds, Cincinnati, OH (scheduled)
September, 2020	"Transgender Medicine", Peds Place Conference, University of Arkansas, AR (remote)

September, 2020	"Transgender Medicine", University of California-Irvine Medicine Grand Rounds, Irvine, CA (remote)
June, 2020	"Transgender Medicine", Inova Fairfax Medicine Grand Rounds, Fairfax, VA (remote)
December, 2019	"Transgender Medicine", Vanderbilt University Surgery Grand Rounds, Nashville, TN
November, 2019	"Transgender Medicine", Medical College of Wisconsin CME, Milwaukee, WI
September, 2019	"Transgender Medicine", Beth Israel Deaconess Medicine Grand Rounds, Boston, MA
September, 2019	"Transgender Medicine", United States Professional Association for Transgender Health Annual Meeting, Washington, DC
June, 2019	"Transgender Medicine", Mount Sinai Hospital Internal Medicine CME, New York, NY
April, 2019	"A 21st-Century Strategy for Hormone Treatment of Transgender Individuals" National Transgender Health Summit, Oakland, CA
March, 2019	"Transgender Medicine" National Eating Disorders Meeting, New York, NY
January, 2019	"Transgender Medicine" Yale School of Medicine Obstetrics and

	Gynecology Grand Rounds, New Haven, CT
January, 2019	"Transgender Medicine" Yale School of Medicine Endocrinology Grand Rounds, New Haven, CT
January, 2019	"Transgender Medicine" Drexel School of Medicine Medicine Grand Rounds, Philadelphia, PA
September, 2018	"Current Guidelines and Strategy for Hormone Treatment of Transgender Individuals" Minnesota-Midwest Chapter - American Association of Clinical Endocrinologists Annual Meeting, Minneapolis, MN
July, 2018	"21st-Century Strategies for Transgender Hormone Care" Ohio River Valley Chapter American Association of Clinical Endocrinologists Meeting, Indianapolis, IN
June, 2018	"21s-Century Strategies: Transgender Hormone Care" University of Connecticut School of Medicine, Hartford, CT
May, 2018	"A 21st-Century Strategy for Hormone Treatment of Transgender Individuals" American Association of Clinical Endocrinologists Annual Meeting, Boston, MA

March, 2018	"21st-Century Strategies for Transgender Hormone Care" New Jersey Chapter - American Association of Clinical Endocrinologists Meeting, Morristown, NJ
February, 2018	"A Strategy for the Medical Care of Transgender Individuals" Keynote Address for the International Society for Clinical Densitometry Annual Meeting, Boston, MA
November, 2017	"A 21st-Century Strategy for Hormone Treatment of Transgender Individuals" National Transgender Health Summit, Oakland, CA
September, 2017	"Transgender Therapy — The Endocrine Society Guidelines" Endocrine Society: Clinical Endocrinology Update, Chicago, IL
May, 2017	"Transgender Medicine — a 21st Century Strategy for Patient Care" University of Arizona College of Medicine, Tucson, AR
April, 2017	"Transgender Care Across the Age Continuum" Annual Meeting of the Endocrine Society, Orlando, FL
March, 2017	"A 21st-Century Approach to Hormone Treatment of Transgender Individuals" Brown University School of Medicine, Providence, RI
March, 2017	"What to Know: A 21st-Century Approach to Transgender Medical

	Care" United States Food and Drug Administration (FDA), Washington, DC
February, 2017	"A 21st-Century Approach to Transgender Medical Care" United States Professional Association for Transgender Health, Los Angeles, CA
February, 2017	"A 21st-Century Approach to Hormone Treatment of Transgender Individuals" Southern States American Association of Clinical Endocrinologists Annual Meeting, Memphis, TN
December, 2016	"Transgender Medical Care in the United States Armed Forces" Global Education Initiative, World Professional Association for Transgender Health, Arlington, VA
December, 2016	"Foundations in Hormone Treatment" Global Education Initiative, World Professional Association for Transgender Health, Arlington, VA
November, 2016	"Developing a Transgender/Gender-Identity Curriculum for Medical Students" Association of American Medical Colleges National Meeting, Seattle, WA
September, 2016	"A 21st-Century Approach to Hormone Treatment of Transgender Individuals" Endocrine Society:

	Clinical Endocrinology Update, Seattle, WA
August, 2016	"A 21st-Century Approach to Hormone Treatment of Transgender Individuals" Oregon Health and Science University Ashland Endocrine Conference, Ashland, OR
March, 2016	"State-of-the-Art: Use of Hormones in Transgender Individuals" Annual Meeting of the Endocrine Society, Boston, MA
October, 2015	"What Every Endocrinologist Should Know to Feel Safe Providing Hormone Therapy for Transgender Patients" University of Utah School of Medicine, Salt Lake City, UT
April, 2015	"What to Know —to Feel Safe Providing Hormone Therapy for Transgender Patients" Pritzker School of Medicine, University of Chicago, Chicago, **IL**
March, 2015	"What to Know —to Feel Safe with Hormone Therapy for Transgender Patients" Annual Transgender Health Symposium, Medical College of Wisconsin, Milwaukee, WI
May, 2014	"Transgendocrinology" Annual Meeting of the American Association of Clinical Endocrinologists, Las Vegas, NV
May, 2013	"Transgender Therapy — Hormone Action and Nuance" National

	Transgender Health Summit, Oakland, CA
April, 2013	"Transgender Therapy — What Every Provider Needs to Know" Empire Conference: Transgender Health and Wellness, Albany, NY
April, 2013	"Transgender Therapy — What Every Endocrinologist Needs to Know" University of Maryland School of Medicine, Baltimore, MD
November, 2012	"Transgender Therapy — What Every Endocrinologist Should Know" New York University School of Medicine, New York, NY
May, 2010	"Transgender Treatment: What Every Endocrinologist Needs to Know" Brown University School of Medicine, Providence, RI
November, 2009	"New Directions in Thyroid Hormone Action: Skin and Hair" Emory University School of Medicine, Atlanta, GA
November, 2009	"Primary Care Update in the Treatment of Thyroid Disorders" Emory University School of Medicine, Atlanta, GA
October, 2008	"Topical Iopanoic Acid Stimulates Epidermal Proliferation through Inhibition of the Type 3 Thyroid Hormone Deiodinase" Annual Meeting of the American Thyroid Association, Chicago, IL

February, 2005	"New Directions in Thyroid Hormone Action: Skin and Hair" Endocrinology Grand Rounds, University of Minnesota, Minneapolis, MN
February, 2005	"Thyroid Hormone Action on Skin and Hair: What We Thought We Knew" Dermatology Grand Rounds, University of Minnesota, Minneapolis, MN
December, 2004	"Transgender Therapy: The Role of the Endocrinologist" Endocrinology Grand Rounds, Brown Medical Center, Providence, RI
November, 2003	"New Directions in Thyroid Hormone Action: Skin and Hair" Endocrinology Grand Rounds, Dartmouth Medical Center, Hanover, NH

Regional

May, 2021	"Transgender Medicine", New York GYN Society, New York, NY (scheduled)
July, 2020	"Transgender Medicine", LGBT Health Conference CME, New York, NY
February, 2020	"Transgender Medicine", Englewood Hospital Medicine Grand Rounds, Englewood, NJ
February, 2020	"Transgender Medicine", Endocrinology Grand Rounds,

	Columbia College of Physicians and Surgeons, New York, NY
January, 2020	"Transgender Medicine", CEI, Lake Placid, NY
November, 2019	"Transgender Medicine", Weill Cornell Reproductive Endocrine Grand Rounds, New York, NY
November, 2019	"Transgender Medicine", Acacia Network Grand Rounds, New York, NY
October, 2019	"Transgender Medicine", American Association of Clinical Endocrinologists - New Jersey, annual meeting, Morristown, NJ
October, 2019	"Transgender Medicine", Community Health Network annual conference, New York, NY October, 2019 "Transgender Medicine", Westchester Medical Center Medicine Grand Rounds, Valhalla, NY September, 2019 "Transgender Medicine", Weill Cornell Reproductive Endocrine CME, New York, NY
September, 2019	"Transgender Competency for Medical Providers", Working Group on Gender, Columbia College of Physicians and Surgeons, New York, NY
April, 2019	"Transgender Medicine", Weill Cornell Urology Grand Rounds, New York, NY

June, 2018	"21s-Century Strategies: Transgender Hormone Care" Medicine Grand Rounds, Staten Island University Hospital, Staten Island, NY
February, 2018	"Transgender Medicine — 21st Century Strategies for Patient Care" Medicine Rounds, Newton-Wellesley Hospital, Newton, MA
October, 2017	"Transgender Medicine — 21st Century Strategies for Patient Care" Medicine Rounds, Beth Israel-Milton Hospital, Milton, MA
September, 2017	"Transgender Medicine — 21st Century Strategies for Patient Care" Obstetrics-Gynecology Grand Rounds, Brigham and Women's Hospital, Boston, MA
June, 2017	"State-of-the-Art: Hormone Therapy for Transgender Patients" Reproductive Endocrinology Rounds, Massachusetts General Hospital, Boston, MA
May, 2017	"A 21st-Century Strategy for Medical Treatment of Transgender Individuals" Boston Medical Center and Boston University School of Medicine, Boston, MA
March, 2017	"A 21st-Century Strategy for Medical Treatment of Transgender Individuals" Tufts Medicine Grand Rounds, Boston, MA

January, 2017	"What to Know: A 21st-Century Approach to Transgender Medical Care" Internal Medicine Rounds, Brigham and Women's Hospital, Boston, MA
March, 2016	"State-of-the-Art: Hormone Therapy for Transgender Patients" Obstetrics-Gynecology Rounds, Brigham and Women's Hospital, Boston, MA
November, 2015	"What Every Endocrinologist Should Know to Feel Safe Providing Hormone Therapy for Transgender Patients" Endocrinology Rounds, Tufts Medical Center, Boston, MA
May, 2015	"What Every Endocrinologist Should Know to Feel Safe Providing Hormone Therapy for Transgender Patients" Endocrinology Rounds, Massachusetts General Hospital, Boston, MA
December, 2014	"What to Know to Feel Safe Providing Hormone Therapy for Transgender Patients" Endocrinology Rounds, Beth Israel Deaconess Medical Center, Boston, MA
November, 2013	"Transgender Therapy — What Every Physician Should Know" Medicine Grand Rounds, Boston Veterans Administration Hospital, Boston, MA

May, 2005	"Transgender Therapy: The Role of the Endocrinologist", Endocrinology Rounds, Tufts-New England Medical Center, Boston, MA
January 2004,	"New Directions in Thyroid Hormone Action: Skin and Hair", Endocrinology Rounds, Brigham and Women's Hospital, Boston, MA
October, 1999	"The Many Faces of Hypothyroidism", Medicine Grand Rounds, Bedford Veterans Administration Hospital, Bedford, MA

Institutional, Icahn School of Medicine at Mount Sinai, New York, NY

October, 2019	"Transgender Medicine", East Harlem HOP rounds, New York, NY
October, 2019	"Transgender Medicine", Mount Sinai HIV rounds, New York, NY
August, 2019	"Transgender Medicine", Mount Sinai Endocrinology Fellows Conference, New York, NY
February, 2019	"Transgender Medicine", Mount Sinai Endocrinology Grand Rounds, New York, NY
February, 2019	"Transgender Medicine", Mount Sinai Ob-Gyn Grand Rounds, New York, NY

April, 2018	"21st-Century Strategies for Transgender Hormone Care", HIV Grand Rounds

Institutional, Boston University School of Medicine, Boston, MA

March, 2017	"State of the Art Hormone Therapy for Transgender Patients", Section of Infectious Disease
January, 2017	"What you need to know — to supervise care for our transgender patients at BMC", Section of Endocrinology
February, 2016	"State of the Art Hormone Therapy for Transgender Patients", Department of Medicine
November, 2015	"What the Family Medicine Physician Should Know to Feel Safe Providing Hormone Therapy for Transgender Patients", Department of Family Medicine
November, 2014	"What the Anesthesiologist Should Know to Feel Safe Providing Hormone Therapy for Transgender Patients", Department of Anesthesia
January, 2014	"Update on the Current Guidelines for Transgender Hormone Therapy", Section of Endocrinology
October, 2011	"Transgender Therapy — What Every Physician Should Know", Department of Medicine

February, 2011	"Current Guidelines for Transgender Hormone Therapy: What Every Endocrinologist Should Know", Section of Endocrinology
November, 2005	"Thyroiditis and Other Insults to Thyroid Function" Core Curriculum in Adult Primary Care Medicine
November, 2005	"Interpretation of Thyroid Function Tests Made Easy" Core Curriculum in Adult Primary Care Medicine
January, 2005	"Transgender Therapy: The Role of the Endocrinologist" Endocrinology Grand Rounds
December, 2004	"Update in Endocrinology: Thyroid" Medicine Grand Rounds
January, 2004	"New Directions in Thyroid Hormone Action: Skin and Hair" Medicine Grand Rounds
March, 2003	"Thyroid Hormone Action on Hair and Skin" Endocrinology Grand Rounds
November, 1999	"Central Resistance to Thyroid Hormone — From Bedside to Bench" Endocrinology Grand Rounds

Curriculum development with external dissemination

2014-present	Web site for Association of Program Directors of Endocrinology and Metabolism (APDEM), which serves as ***the primary resource for endocrinology***

fellowship program directors throughout the United States and Canada.

- Sample curricula
- Streaming lectures to support specific curricular needs to feel programmatic gaps at certain programs
- New assessment forms that map skills to milestones that conform to Next Accreditation System (NAS) standards of the Accreditation Council for Graduate Medical Education (ACGME)

2013-present Dissemination of Transgender Medicine Curriculum with local modification to institutions in the United States and Canada

Curriculum adopted

Johns Hopkins School of Nursing (sample video: http://vimeo.com/jhunursing/review/97477269/abbcf6d33a)
Ohio State University College of Medicine
University of British Columbia, Faculty of Medicine
University of Central Florida College of Medicine
Tufts University School of Medicine

Curriculum in development

Dartmouth School of Medicine

University of Vermont College of Medicine

Work in progress in preparation for sharing transgender curriculum

Albany Medical College

Emory School of Medicine

George Washington University Medical School

Hofstra School of Medicine

University of California — San Diego School of Medicine

University of Kentucky College of Medicine

University of Louisville School of Medicine

University of Michigan Medical School

University of Minnesota Medical School

University of Nebraska School of Medicine

University of Pennsylvania School of Medicine

Washington University School of Medicine

2013-2015	Co-author of the ***Medical Subspecialty Reporting Milestones used for evaluation of Internal Medicine subspecialty medicine fellowship programs throughout the Unites States*** by the Accreditation Council for Graduate Medical Education (ACGME). https://www.acgme.org/acgmeweb/Portals/O/PDFs/Milestones/InternalMedicineSubspecialtyMilestones.pdf
2011-2014	Web site content expert for APDEM, which served as ***the***

	primary resource for endocrinology fellowship Program Directors throughout the United States and Canada. Materials included sample curricula, streaming lectures to support specific curricular needs to feel programmatic gaps at certain programs, and guidance dealing with ACGME site-visits

Other curriculum development

2019-present	Massive Open On-line Course (MOOC) curricular content. Transgender Medicine for General Medical Providers, Icahn School of Medicine at Mount Sinai (https : //www. cours era. org/courses?query=transgender%20medicine%20for%20general%20medical%20providers&)
2016-2018	Curricular Content to teach transgender hormone therapy in the LGBT elective at Harvard Medical School
2016-2018	Curricular Content to teach transgender hormone therapy at Tufts University School of Medicine.
2011-2018	Fully revised curriculum for the Boston University Medical Center Fellowship Training Program in Endocrinology, Diabetes and Nutrition.

2010-2018	Curricula to teach transgender hormone therapy at Boston University School of Medicine.
2006-2014	Written examination in endocrinology to complement the multiple-choice examination for medical students — validation relative to success later in medical school is in progress.

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Names of mentees are underlined throughout the bibliography section

** currently most influential papers are noted with double asterisks

Original, Peer-Reviewed Articles

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2. Langlois MF, Zanger K, Monden T, **Safer JD,** Hollenberg AN, Wondisford FE. A unique role of the beta-2 thyroid hormone receptor isoform in negative regulation by thyroid hormone - mapping of a novel amino-terminal domain important for ligand-independent activation. *JBiol Chem* 1997;272(40):24927-24933. PMID 9312095

3. **Safer JD,** Cohen RN, Hollenberg AN, Wondisford, FE. Defective release of corepressor by hinge mutants of the thyroid hormone receptor found in patients with resistance to thyroid hormone. *JBiol Chem* 1998;273(46):30175-30182. PMID 9804773

4. **Safer JD,** O'Connor MG, Colan SD, Srinivasan S, Tollin SR, Wondisford FE. The TR-beta gene mutation R383H is associated with isolated central resistance to

thyroid hormone. *J Clin Endocrinol Metab* 1999;84(9):3099-3109. PMID 10487671

5. **Safer JD,** Fraser LM, Ray S, Holick MF. Topically applied triiodothyronine stimulates epidermal proliferation, dermal thickening, and hair growth in mice and rats. *Thyroid* 2001;1(8):717-724. PMID 11525263

6. Tangpricha V, Chen BJ, Swan NC, Sweeney AT, de las Morenas A, **Safer JD.** Twenty-one gauge needles provide more cellular samples than twenty-five gauge needles in fine needle aspiration biopsy of the thyroid. *Thyroid* 2001;11(10):973-976. PMID 11716046

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9. **Safer JD,** Crawford TM, Holick MF. A role for thyroid hormone in wound healing through keratin gene expression. *Endocrinology* 2004;145(5):2357-2361. PMID 14736740

10. **Safer JD,** Crawford TM, Holick MF. Topical thyroid hormone accelerates wound healing in mice. *Endocrinology* 2005;146(10):4425-4430. PMID 15976059

11. Saha AK, Persons K, **Safer JD,** Luo Z, Holick MF, Ruderman NB. AMPK regulation of the growth of

cultured human keratinocytes. *Biochem Biophys Res Co* 2006;349(2):519-24. PMID 16949049

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13. **Safer JD,** Persons K, Holick MF. A thyroid hormone deiodinase inhibitor can decrease cutaneous cell proliferation in vitro. *Thyroid* 2009;19(2):181-185. PMID 19191748

14. Ariza MA, Loken WM, Pearce EN, **Safer JD.** Male sex, African-American race/ethnicity, and T3 levels at diagnosis are predictors of weight gain following medication and radioactive iodine treatment for hyperthyroidism. *Endocr Pract* 2010;16(4):609-616. PMID 20350916

15. Abraham TM, de las Morenas A, Lee SL, **Safer JD.** In thyroid fine needle aspiration, use of bedside-prepared slides significantly increased diagnostic adequacy and specimen cellularity relative to solution-based samples. *Thyroid* 2011;21(3):237-242. PMID 21323589

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- First ever demonstration of the effectiveness of an evidence-based approach to teaching transgender medicine to medical students

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Editorials and Critical Reviews:

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"Transgender Health AMA" Reddit. July 24, 2017. Expert responses to questions about transgender medicine. https://www.reddit.com/r/science/comments/6p7uhb/transgender health ama series imjoshua safer/ over 150,000 views, over 4200 comments

"Gender Revolution with Katie Couric" National Geographic Channel. Couric, Katie. February 6, 2017. Extended interview with Katie Couric threaded into a 2-hour television special. Trailer: https://www.youtube.com/watch?v=y93MsRaC6Zw broadcast in 143 countries

"Is gender identity biologically hard-wired?" Judd, Jackie. PBS NewsHour. May 13, 2015. Extended interview for Jackie Judd http://www.pbs.org/newshour/bb/biology-gender-identity-children/ estimated just over 1,000,000 viewers per Nielsen

Innovation	Significance/impact
Development and leadership of the Transgender Medicine Clinical Center, Mount Sinai Health System and Icahn School of Medicine at Mount Sinai	• The Center for Transgender Medicine and Surgery at Mount Sinai is the first comprehensive center for transgender medical care in New York and the most comprehensive program in the United States • The Center is one of only several such centers in North America that are housed in academic teaching hospitals where care can be integrated • The Center is a model for such care delivery in North America.
Establishment, development, and leadership of the Transgender Medicine Clinical Center at Boston Medical Center	• The Center for Transgender Medicine and Surgery at BMC is the first comprehensive center for transgender medical care in New England • The Center is one of only several such centers in North America that are housed in academic teaching hospitals where care can be integrated

	• The Center is a model for such care delivery in North America.
Development and dissemination of the seminal reviews that are most widely cited in the lay press that explain the concept that gender identity is a biological phenomenon (see bibliography section above, e.g. PMID: 25667367).	• The concept that gender identity is a biological phenomenon has been a key component of the recent culture change in favor of mainstream medical care for transgender individuals (see media section above)
Development and dissemination of new and influential curricular content to teach the biology of gender identity in conventional medical education (see curriculum section above)	The teaching of evidence-based approaches to transgender medical care to: • Medical students (see bibliography section above, e.g. PMID 23425656 and PMID 26151424) • Physician trainees (see bibliography section above, e.g. PMID 26151424) • Practicing physicians (see invited lectures above) serves as a crucial component to the gained credence given to care for transgender individuals in conventional medical settings.

Development and dissemination of seminal reviews supporting the safety of transgender hormone treatment regimens (see invited lectures section above)	Once mainstream medical providers learn of the biology underlying gender identity, their biggest concern is the relative safety of the medical interventions relative to the benefit. • The development and dissemination of the seminal reviews and lectures supporting the safety of current treatment regimens serves as a further crucial component to the culture change among conventional medical providers in favor of routine medical care for transgender individuals

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

CHARLESTON DIVISION

B. P. J., et al.,

Plaintiffs,

v. CIVIL ACTION NO. 2:21-cv-00316

WEST VIRGINIA STATE BOARD OF EDUCATION, et al.,

Defendants.

REBUTTAL EXPERT REPORT AND DECLARATION OF JOSHUA D. SAFER, MD, FACP, FACE

1. I have been retained by counsel for Plaintiff as an expert in connection with the above-captioned litigation.

2. My background and credentials are set forth in my previous expert report and declaration dated January 21, 2022 ("Safer Rep."). I incorporate all conclusions and facts set forth in my previously submitted report into this rebuttal report as if fully stated herein.

3. I reviewed the expert reports of Gregory A. Brown, Ph.D. and Chad. A. Carlson, M.D., submitted in this case on February 23, 2022 ("Brown Rep." and "Carlson Rep."). I provide this rebuttal report to explain the overall problems with the conclusions they draw and provide data showing why such conclusions are in error. I reserve the

right to supplement my opinions in response to new information if necessary as the case proceeds.

SUMMARY OF OPINIONS

4. In this rebuttal report, I address four topics raised in the expert reports of Dr. Brown and Dr. Carlson that are related to this lawsuit.[1]

a. H.B. 3293's defmition of "biological sex" as "reproductive biology and genetics at birth" is inaccurate and misleading. Especially in the context of transgender people or people with intersex characteristics, "biological sex" includes all the biological components of sex, including hormones and the biological underpinnings of gender identity.

b. Circulating testosterone is the primary known biological driver of average differences in athletic performance, not "reproductive biology and genetics at birth." Differences in athletic performance between cisgender boys and girls before puberty are minor and cannot reliably be attributed to biological factors instead of social ones.

c. Concerns about athletic advantage do not provide a scientific basis for H.B. 3293's categorical ban of

[1] It is my understanding that H.B. 3293 seeks to exclude girls and women who are transgender if they are a student at a secondary school or institution of higher education in West Virginia. As a result, several of the studies discussed and conclusions reached by Dr. Brown and Dr. Carlson in their reports are unrelated to H.B. 3293 (e.g., discussions regarding elite athletes, such as Olympians). Although there are several issues with Dr. Carlson's and Dr. Brown's statements regarding these inapposite studies and the conclusions they reach are nothing more than conjecture, given that these studies are not related to H.B. 3293, I do not exhaustively respond to each inaccurate or misleading statement here.

transgender girls and women from all girls' teams sponsored by a secondary school or institution of higher education in West Virginia. There is no basis to expect that transgender girls who receive puberty delaying medication followed by gender affirming hormones would have an athletic advantage, and Dr. Brown's sweeping arguments about an athletic advantage for transgender women who suppress testosterone after puberty are based on supposition and conjecture, not evidence.

d. Concerns about safety also do not provide a scientific basis for H.B. 3293's categorical ban of transgender girls and women from all girls' teams sponsored by a secondary school or institution of higher education in West Virginia. Dr. Carlson's speculative arguments about safety risks apply only to contact and collision sports, and actual safety concerns can be addressed through even-handed rules instead of discriminating based on transgender status.

H.B. 3293'S DEFINITION OF "BIOLOGICAL SEX" IS INACCURATE AND MISLEADING

Ignoring all the other biological components of sex, H.B. 3293 defines "biological sex" exclusively as "an individual's physical form as a male or female based solely on the individual's reproductive biology and genetics at birth." As I explained in my initial report, however, the phrase "biological sex" is an imprecise term that can cause confusion, especially in the context of transgender people and people with intersex characteristics. A person's sex encompasses the sum of several different biological attributes, including sex chromosomes, certain genes, gonads, sex hormone levels, internal and external genitalia, other secondary sex characteristics, and the biological underpinnings of gender identity. Those

attributes are not always aligned in the same direction. *See* Hembree WC, et al. *Endocrine Treatment of Gender-Dysphoria/Gender Incongruent Persons: An Endocrine Society Clinical Practice Guideline.* J Clin Endocrinol Metab 2017; 102:3869-3903 ("Endocrine Society Guidelines 2017") at 3875; Safer JD, Tangpricha V. *Care of Transgender Persons.* N Engl J Med 2019; 381:2451-2460 *("N Engl J Med* 2019").

6. In response to my initial report, Dr. Brown states that sex is rooted in biology. (Brown Rep. ¶¶ 1-3). I agree. But the fact that sex is rooted in biology does not mean that sex is defined exclusively by genetics or reproductive biology at birth. As reflected in the same sources cited by Dr. Brown, dimorphous sexual characteristics in men and women are produced by a combination of genes, prenatal androgen exposure to sex hormones, epigenetics and other environmental factors. Bhargava, A. et al. *Considering Sex as a Biological Variable in Basic and Clinical Studies: An Endocrine Society Scientific Statement.* Endocr Rev. 2021; 42:219-258 ("Bhargava 2021") at 221-228; *N Engl J Med* 2019; Safer JD, Tangpricha V. *Care of the Transgender Patient.* Ann Intern Med 2019; 171: ITC1-ITC16 *("Ann Intern Med* 2019").

7. In addition, although the precise biological causes of gender identity are unknown, gender identity itself has biological underpinnings, possibly as a result of variations in prenatal exposure to sex hormones, gene sequences, epigenetics, or a combination of factors. And when transgender people receive puberty-delaying treatment and gender-affirming hormones, they develop other biological and physiological sex characteristics that align with their gender identity and not with their sex recorded at birth. Endocrine Society Guidelines 2017 at 3874-75,

3888-89; Bhargava 2021 at 227; *N Engl J Med* 2019; *Ann Intern Med* 2019.

THE PRIMARY KNOWN BIOLOGICAL DRIVER OF AVERAGE DIFFERENCES IN ATHLETIC PERFORMANCE IS CIRCULATING TESTOSTERONE

8. As explained in my previous report, the primary known biological cause of average differences in athletic performance between non-transgender men as a group and non-transgender women as a group is circulating testosterone—not "reproductive biology and genetics at birth." The existing "evidence makes it highly likely that the sex difference in circulating testosterone of adults explains most, if not all, of the sex differences in sporting performance." *See* Handelsman DJ, et al. *Circulating Testosterone as the Hormonal Basis of Sex Differences in Athletic Performance.* Endocrine Reviews 2018; 39:803-829 ("Handelsman 2018") at 823 (summarizing evidence rejecting hypothesis that physiological characteristics are driven by Y chromosome).[2]

9. Neither Dr. Brown nor Dr. Carlson disputes that circulating testosterone is the largest biological driver of

[2] Dr. Brown cites to Handelsman in his report but continually misrepresents Handelman's findings, notably omitting key portions of the reference. For example, Dr. Brown writes, "[t]here is convincing evidence that the sex differences in muscle mass and strength are sufficient to account for the increased strength and aerobic performance of men compared with women and is in keeping with the differences in world records between the sexes." (Brown Rep. ¶ 55, citing Handelsman 2018). But Dr. Brown omits the following sentence which explains that "[t]he basis for the sex difference in muscle mass and strength *is the sex difference in circulating testosterone.*" (Handelsman 2018 at 816) (emphasis added).

average differences in athletic performance (Brown Rep. ¶ 114; Carlson Rep. ¶ 16), but Dr. Brown contends that cisgender boys and transgender girls have at least some biological advantages in athletic performance over cisgender girls even before puberty. In support, Dr. Brown relies primarily on demographic data from physical fitness tests or athletics in which prepubertal cisgender boys have outperformed prepubertal cisgender girls. But there is no reliable basis for Dr. Brown to attribute those differences to biology instead of social factors such as greater societal encouragement of athleticism in boys, greater opportunities for boys to play sports, or different preferences of the boys and girls surveyed. *See* Handelsman DJ. *Sex Differences in Athletic Performance Emerge Coinciding with the Onset of Male Puberty.* Clin Endocrinol *(Oxf).* 2017;87(1):68-72 ("Handelsman 2017").

10. Dr. Brown also points out that there are physiological differences between cisgender boys and cisgender girls before puberty, largely as a result of exposure to hormones in utero or during infancy. (Brown Rep. ¶ 71 (citing McManus, A. and N. Armstrong, *Physiology of Elite Young Female Athletes.* J Med & Sport Sci 2011; 56:23-46)). But the article cited by Dr. Brown never draws a causal connection between those physiological differences and any differences in athletic performance between cisgender prepubertal boys and girls. Throughout the article, McManus and Armstrong acknowledge that differences between cisgender prepubertal boys and girls in various measurements are minimal or nonexistent. *See Id.* at 24 ("Prior to 11 years of age differences in average speed are minimal"); at 27 ("small sex difference in fat mass and percent body fat are evident from mid-childhood"); at 29 ("bone characteristics differ little between boys and girls prior to puberty"); at

32 ("There is little evidence that prior to puberty pulmonary structure or function limits oxygen uptake"); at 34 ("[N]o sex differences in arterial compliance have been noted in pre- and early- pubertal children").

11. There is also no basis to confidently predict that patterns about the athletic performance of prepubertal cisgender boys will be the same for prepubertal transgender girls. To the extent that differences in performance are influenced by social influences, biases, or preferences, the experience of transgender girls might be more similar to the experience of cisgender girls than to cisgender boys. And to the extent that differences in performance are shown to have some connection to epigenetics or exposure to sex hormones in utero or infancy, we do not know whether those biological factors are always equally true for transgender girls in light of scientific studies documenting potential biological underpinnings of gender identity.

12. For example, studies have shown that even before initiating hormone therapy transgender women tend to have lower bone density than cisgender men. Van Caenegem E, Taes Y, Wierckx K, Vandewalle S, Toye K, Kaufman JM, et al. *Low Bone Mass is Prevalent in Male-to-Female Transsexual Persons Before the Start of Cross-Sex Hormonal Therapy and Gonadectomy.* Bone 2013;54(1):92-7. We do not know whether those differences are explained by social factors or biological ones. But regardless of the cause, it cannot be assumed that the physiological characteristic of cisgender boys and men will automatically apply to transgender girls and women even in the absence of gender affirming hormones.

CONCERNS ABOUT ATHLETIC ADVANTAGE DO NOT PROVIDE A SCIENTIFIC BASIS FOR H.B. 3293

13. In my previous report, I explained why "[t]here is no medical justification for West Virginia's categorical exclusion of girls who are transgender from participating in scholastic athletics on the same teams as other girls." (Safer Rep. ¶ 46). By excluding girls who are transgender based on "biological sex," and defining that term to mean "reproductive biology and genetics at birth," West Virginia categorically prevents girls who are transgender from participating on all girls' teams sponsored by a secondary school or institution of higher education in West Virginia regardless of the particular sport at issue and regardless of whether they are prepubertal, receiving puberty blockers, or receiving gender-affirming hormone therapy. That sweeping and categorical ban is dramatically out of step with even the most stringent policies of elite international athletic competitions for girls and women who are transgender.

14. To support this sweeping ban, Dr. Brown makes a variety of claims that are either irrelevant or are based on speculation and inferences that are not supported by the data that we currently have.

As an initial matter, Dr. Brown provides no scientific support for excluding girls and women who are transgender and who had puberty blockers before endogenous puberty. To the contrary, even some of the most exclusionary policies cited by Dr. Brown allow transgender girls and women to participate if they did not experience endogenous puberty. *See* World Rugby Transgender Women's Guidelines 2020 ("Transgender women who transitioned pre-puberty and have not

experienced the biological effects of testosterone during puberty and adolescence can play women's rugby").[3]

16. Dr. Brown contends that "there is no published scientific evidence that the administration of puberty blockers to males before puberty eliminates the pre-existing athletic advantage that prepubertal [transgender girls] have over prepubertal [cisgender] females." (Brown Rep. at 56). But as I explain above, there is no evidence that prepubertal transgender girls have any such pre-existing biological athletic advantages. *See supra* ¶¶ 9-12.

17. Dr. Brown's assertions also rest on a misunderstanding of the treatment of gender dysphoria. Indeed, Dr. Brown admits that his speculation about puberty blockers is outside his area of expertise. (Brown Rep. ¶ 110). Under current standards of care, transgender adolescents are eligible to receive puberty blockers when they reach Tanner 2—not Tanner 3—which is early enough to prevent endogenous puberty from taking place. *See* Endocrine Society Guidelines 2017 at 3869-3903. Following administration of puberty blockers, transgender girls and women will have also received gender-affirming care to allow them to go through puberty consistent with their female gender identity. As a result of a typically female puberty, these transgender girls and women will develop many of the same physiological and anatomical characteristics of cisgender girls and women, including bone size (Brown Rep. ¶¶ 46-48), skeletal structure *(id.* at ¶ 49), and "distinctive aspects of the female pelvis geometry [that] cut against athletic

[3] *See* https://www.world.rugby/thegame/player-welfare/guidelines/transgender/women

performance" *(id. at* ¶ 50). Thus, a transgender girl or women who received puberty blockers followed by gender-affirming hormones does not have the same physiology as a prepubertal cisgender boy.[4]

18. Dr. Brown also cannot point to data justifying H.B. 3293's exclusion of transgender girls and women who experience endogenous puberty and then lower their levels of circulating testosterone. As I explained in my original report, concerns about athletic competition among college students and adults are more attenuated for students in middle school and high school, where athletes' ages typically range from 11-18, with different athletes in different stages of pubertal development. Increased testosterone begins to affect athletic performance at the beginning of puberty, but those effects continue to increase each year of puberty until about age 18, with the full impact of puberty resulting from the cumulative effect of each year. As a result, a 14, 15, or 16-year old has experienced less cumulative impact from testosterone than a 17 or 18-year old.

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[4] Dr. Brown cites to a study measuring body composition among transgender people who received puberty delaying medication followed by gender affirming hormones. (Brown Rep. ¶¶ 112-13 (citing Klaver M, et al. *Early Hormonal Treatment Affects Body Composition and Body Shape in Young Transgender Adolescents.* J Sex Med 2018; 15: 251-260)). This study confirms that the transgender women after treatment had body composition patterns that more closely resembled cisgender women than cisgender men (or cisgender prepubertal boys). The minimal remaining differences reported in some measurements are not large enough to plausibly confer a material athletic advantage, and those differences are likely attributable to the fact that the subjects do not appear to have started receiving treatments until ages 12.8 to 13.5 at the earlies. By contrast, the start of Tanner 2 for transgender girls usually begins at about age 11.5.

19. But even with respect to college students, Dr. Brown's sweeping arguments are not supported by his data. There have been only two studies that examined the effects of gender-affirming hormone therapy on the athletic performance of transgender female athletes. (Safer Rep.

55-57). The first is a small study of eight adult long-distance runners showing that when women who are transgender have lowered circulating testosterone, their performance when compared to non-transgender women was proportionally the same as their performance had been before treatment relative to non-transgender men. Harper J. *Race Times for Transgender Athletes.* Journal of Sporting Cultures and Identities 2015; 6:1-9. The second is a retrospective study that reviewed military fitness test results, showing that two years of gender-affirming hormone therapy negated any advantage transgender women had over non-transgender women in performing push-ups and sit-ups, but did not completely negate transgender women's faster times in racing 1.5 miles. Roberts TA, et al. *Effect of gender affirming hormones on athletic performance in transwomen and transmen: implications for sporting organizations and legislators.* Br J Sports Med. 2020; 0:1-7. doi:10.1136/bj sports-2020-102329.

20. Neither of these studies provides enough data to support Dr. Brown's sweeping claim that transgender women who have lowered circulating testosterone have an advantage over cisgender women in all athletic events. To support that inference, Dr. Brown cites to a variety of studies of transgender women measuring discrete physiological characteristics such as muscle size or grip strength. (Brown Rep. ¶¶ 153-56). Dr. Brown predicts that if puberty-influenced characteristics like bone and muscle

size are not completely reversed by testosterone suppression, then those characteristics will continue to provide an advantage for transgender women. But because changes in testosterone affect different parts of the body in different ways, we do not have enough information to confidently predict whether the combined effect of the changes will be an advantage or a disadvantage.

21. The study about military fitness tests (Roberts 2020) illustrates the point. Roberts TA, et al. *Br J Sports Med.* 2020; 0:1-7. After two years of suppressing testosterone any advantage that the transgender women had in performing push-ups or sit-ups was eliminated. But because the transgender women in the study weighed more than the cisgender women even after suppressing testosterone, the transgender women had to use more muscle strength to perform the same number of push-ups. In other words, the transgender women may have had more muscle strength, but that greater strength did not translate into an athletic advantage in a push-up contest. Because different sports require different types of physical performance, the existence and extent of any performance advantage based on grip strength or leg-muscle size may vary from sport to sport and cannot support a categorical across-the-board rule.

22. Dr. Brown also refers to widely publicized anecdotes about isolated cases of transgender girls and women winning state championships in high school sports or NCAA championships in college. But transgender athletes and women have been competing in NCAA and secondary school athletics for many years at this point, and they remain dramatically underrepresented amongst champions. The occasional championships that have been widely publicized do not come close to constituting the

rates one would expect if they won at rates that are proportional to their overall percentage of the population (which is approximately 1%).

CONCERNS ABOUT SAFETY DO NOT PROVIDE A SCIENTIFIC BASIS FOR H.B. 3293

23. Dr. Carlson argues in his report that allowing transgender girls and women to participate on women's teams "creates significant additional risk of injury for the [cisgender] female participants competing alongside these transgender athletes." (Carlson Rep. at 2).

24. Even on their own terms, none of Dr. Carlson's arguments support H.B. 3293's categorical ban of all girls who are transgender from all girls' sports teams. Dr. Carlson's safety arguments relate solely to contact and collision sports and to physical characteristics developed during puberty. By contrast, H.B. 3293 applies even to non-contact sports like cross-country, and it applies even to transgender girls and women who have never experienced endogenous puberty as a result of hormone blocking medication and gender-affirming hormones.[5]

25. To the extent that Dr. Carlson's arguments related to some applications of H.B. 3293, those arguments are based on stereotypes and suppositions, not actual evidence that transgender girls and women pose a safety threat. Although transgender girls and women have been

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[5] The declaration Dr. Carlson submitted earlier in this case dealt exclusively with physiological characteristics acquired during puberty. In his more recent report, Dr. Carlson vaguely asserts that "the conclusions of this paper can apply to a certain extent before . . . puberty" (Carlson Rep. at 56) but he does not attempt to argue that the relatively small differences in performance or physiology observed before puberty come anywhere close to creating an actual safety risk.

playing in NCAA and secondary school sports for at least the past 10 years, Dr. Carlson does not identify any instance in which a cisgender girl or woman has actually been injured as a result of competing against a girl or woman who is transgender. Rather, he theorizes that a greater number of people are identifying as transgender and that sporting organizations should adopt restrictions preemptively in response to what he characterizes as "this rapid social change." (Carlson Rep. at 59).

26. Dr. Carlson repeats the same mistakes as Dr. Brown by drawing unsubstantiated inferences about transgender women based on data from cisgender men and from measurements of discrete characteristics. As discussed above, we do not currently have sufficient information to predict how all the physiological effects of testosterone suppression will interact in combination each other or whether they will produce the same kinetic energy as typically produced by cisgender men. For instance, having larger bones without corresponding levels of testosterone and muscle mass would mean that a runner has a bigger body to propel with less power to propel it.

27. Dr. Carlson does not offer a cogent explanation for why alleged safety concerns based on average differences in size and strength should be addressed with an across-the-board exclusion of transgender women as opposed to tailored, non-discriminatory policies. Like Dr. Brown's arguments about athletic advantage, Dr. Carlson's arguments about safety must be considered in the context of all the intra-sex variations in height, weight, and muscle mass that pose comparable safety risks. Athletic organizations can protect athlete safety for women without drawing categorical lines based on transgender status.

CONCLUSION

I declare under penalty of perjury under the laws of the United States of America that the foregoing is true and correct.

Executed on: 3/10/2022 /s/ Joshua Safer

Joshua D. Safer, MD, FACP, FACE