UNITED STATES DISTRICT COURT
SOUTHERN DISTRICT OF INDIANA
INDIANAPOLIS DIVISION
CASE NO. 1:23-cv-00595-JPH-KMB

K.C., et al.,)
)
Plaintiffs,)
)
-vs-)
)
THE INDIVIDUAL MEMBERS OF THE)
MEDICAL LICENSING BOARD OF)
INDIANA, in their official)
capacities, et al.,)
)
Defendants.)

The deposition upon oral examination of PAUL W. HRUZ, M.D., PH.D., a witness produced and sworn before me, Dianne Lockhart, RMR, CRR, a Notary Public in and for the County of Marion, State of Indiana, taken on behalf of the Plaintiffs via videoconference in Manchester, St. Louis County, Missouri, on the 1st day of June, 2023, commencing at 9:30 a.m. pursuant to the Federal Rules of Civil Procedure.

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A P P E A R A N C E S

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MODERATOR: Kim Rocke
Circle City Reporting

I N D E X O F E X A M I N A T I O N

I N D E X O F E X H I B I T S

P A U L W. H R U Z, M. D., P H. D., having been first duly sworn to tell the truth, the whole truth and nothing but the truth relating to said matter, was examined and testified as follows:

DIRECT EXAMINATION,
QUESTIONS BY CHASE STRANGIO:

Q Hi. Good morning, Dr. Hruz. Good to see you. I know we've met before. My name is Chase Strangio. I am with the ACLU based in New York representing the plaintiffs in this case and will be asking you some -- some questions today.

As we -- we noted earlier, we have Ken Falk from the ACLU of Indiana also here on Zoom, as well as some law student interns.

Just to get us started, can you state and spell your full name for the record, please.

A Paul -- excuse me. Paul William Hruz, H-R-U-Z.

Q And you've had your deposition taken before; is that right?

A That is correct.

Q So generally you know how this process goes.

A Yes.

Q But just for the sake of laying all the ground rules for today, I'm just going to run through a

few things to make sure we are on the same page, if that's okay with you.

A Very good.

Q So when answering my questions, as you know, we have a court reporter here, so I ask that you respond verbally. You know, nods and other sort of uh-uhms don't show up on the record, so can you agree to that?

A Yes.

Q And also to help the court reporter, if you could wait until I finish my question before answering, as best we can not interrupt each other, that will make everything easier, so hopefully we can do that as well.

A I will do my best to do so.

Q And if you don't understand my question, which is very possible, at any given time please let me know and I can try to word it differently, but if you do answer, I will assume you understood it. Does that sound okay to you?

A Yes.

Q And are you feeling okay today?

A Yes.

Q And are you on any medication or is there any reason why your ability to answer truthfully

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today would be impaired?
A No.
Q And is there any reason you don't feel like you could give complete and truthful testimony today?
A No. I think I'm prepared.
Q Okay. And just one logistical point. We have Kim here on -- who's going to be uploading the exhibits for us as we need them. If at any point it's not clear to you or you need to zoom in, just let Kim know and we can make sure it's visible to you.
MR. STRANGIO: And, John, do you have all of the exhibits? I forwarded them over this morning.
MR. RAMER: Yes, yes, I believe I have them all. I got the exhibits, so.
MR. STRANGIO: Okay. Great. So we're -- logistically I'm impressed with the start already.
Q So, and, Doctor, if there comes a time, of course, during the deposition when you need a break, let me know. I just ask that you finish answering the question that I've asked you before we take the break. Does that sound okay?
A Very good.

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Q Okay. So I think that's it for the basics. I thought we could start just with a few background questions on your involvement in this case.
As I understand it, you've been retained by the defendants as an expert in this case; is that right?
A That is correct.
Q And how did you -- how did you come to be retained in this case?
A One of the lawyers from the DA's office, I think it was Corrine Youngs, contacted me asking me if I would be involved.
Q And when was that?
A I don't recall the exact date. It was shortly after the lawsuit was filed.
Q Okay. Understood. And you're aware that this is a case that concerns a challenge to an Indiana law called Senate Enrolled Act 480?
A Correct.
Q And when this -- when this law was pending in the Indiana legislature, did you take any public positions on the bill?
A No.
Q Did you testify in support of the bill?
A No.

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Q Have you ever spoken with a member of the Indiana legislature about Senate Enrolled Act 480?
A Not that I'm aware of, no.
Q And did you speak with anyone about Senate Enrolled Act 480 while it was pending, to your knowledge?
A Not while it was pending, no.
Q And what is your understanding of what Senate Enrolled Act 480 does?
A Well, it's a -- again, I'm not testifying as a legislator or a lawyer, but my understanding is it -- it deals with the provision of gender-affirming medical care and recognizing the -- the harms, lack of proven benefit of that, and therefore legislating that that type of intervention not be delivered in the state of Indiana.
Q And what did you do to prepare for your deposition today?
A I read through my declaration that I recently submitted. I'm constantly reviewing the literature, so I continued in that process, as I've done for many years. And I had a phone conversation with -- with John earlier this week.
Q And you said you had a conversation with John.

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Without telling me what -- what you discussed, for how long did you -- did you speak with John, about?
A Somewhere between 30 and 45 minutes.
Q And was that the only conversation with John about this deposition that you had?
A We had some email communication just to know the date, the time, the logistics and just the details of this deposition today.
Q And did you speak with anyone else at the -- or anyone, I guess, at the Indiana AG's office about the deposition?
A Some email correspondence, again, the details, getting the link and -- and the timing.
Q And other than counsel, did you speak with anyone about your testimony here today?
A No.
Q Did you review any documents other than your declaration and your ongoing review of the literature?
A Well, I at some point reviewed the declarations that were provided by the plaintiff witnesses and, again, just reviewing the literature in this field as it continues to evolve.
Q And do you have anything with you today while

we're doing this deposition?
A I have nothing physically with me. The only document I have that is not opened right now but is on my computer is my declaration.
Q Okay. Understood. And so if you at any point consult something, I may ask you about it and -- and would ask that you then just turn that over to us, but for now I understand the only thing that you may look at is your declaration; is that right?
A That is correct.
Q Okay. So I want to just mark some exhibits to get us started that we'll probably be referencing throughout the day and try to make it a little easier, just to get that out of the way.
MR. STRANGIO: So if -- if, Kim, you could pull up what is premarked as Exhibit 1, that would be great. And so I want to go ahead mark this as Exhibit 1 and -- we're almost there. We saw it and then --
Q Okay. Dr. Hruz, do you recognize this document?
A This looks like the first page of my declaration in this case.
MR. STRANGIO: And -- and, Kim, if you could just scroll -- you can see it's 52 pages. Maybe

just scroll through a little bit.
Q And does this appear to be, Dr. Hruz, a true and accurate copy of the declaration that you filed in this case?
A That which I'm able to see, yes.
Q Okay. And -- and who wrote this declaration?
A I did.
Q Did anyone help you?
A There was some formatting and typographical editing, but this is my work product.
Q And did you discuss it with anyone?
A Yes, I did, with the -- with John and the defendant lawyers.
Q And did you discuss it with any of the other experts retained by the defendants in this case?
A No.
Q And does this declaration represent a complete statement of the opinions you intend to provide in this matter?
A Yes.
Q And are you aware of any inaccuracies in the declaration that you submitted?
A It is accurate and complete to the best of my knowledge.
Q I know that you just filed it last week, but has

anything changed since you filed it?
A No.
Q And so nothing you would like to amend or correct?
A That is correct.
MR. STRANGIO: Okay. If we could pull up Exhibit 2, Kim. Thank you.
Q So, Doctor, does this -- what is this document?
A This is a recent copy of my curriculum vitae.
Q And I see it's dated 5-26-23. Is that current as of today's date as well, June 1, 2023?
A Yes. There's been -- there have been no additions in the last week.
Q And so nothing missing from it?
A At best I know, correct.
Q And in the past year, you have testified in two trials related to the provision of gender-affirming medical care to adolescents; is that right?
A That is correct.
Q And that would be the Brandt case in Arkansas and the Dekker case in Florida?
A That is correct.
MR. STRANGIO: And so I want to pull up what is marked as Exhibit 3.

Q And does this, Dr. Hruz, appear to be your testimony -- and we'll scroll through actually a little bit, but your testimony from the Brandt case in Arkansas?
A I don't know that I've seen this document, but from what I can see here, that's what it looks like, yes.
Q And then we can see -- just so you see the beginning. So this looks like, as you recall, your direct examination in the -- in the Arkansas trial; is that right?
A Well, what I see is very limited, but that's what it appears to be, yes.
Q And was the testimony that you gave in the Brandt case accurate?
A Yes, to the best of my ability, yes.
MR. STRANGIO: And I want to now pull up what's marked as Exhibit 4.
And, Kim, if you could just scroll through a little bit. I think it's going to be about 15 or so pages in. You can see at the top when it reaches Paul Hruz Direct.
Q But so looking at this document as we scroll through it, Dr. Hruz, does this appear to be the transcript of your testimony at the Dekker trial

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in Florida?
A. Well, again, I've not previously seen this document, but what we're scrolling through here looks like a reflection of what was testified in that case.
Q. And was the testimony that you gave in the Dekker case accurate?
A. Yes, to the best of my knowledge.
Q. Okay. I think we can -- we can take -- we can take this down for now and we'll come back to some of these exhibits. I just wanted to -- to get that out of the way.
So you -- you mentioned that you've been deposed before. How many -- how many times, would you say?
A. That's listed in my declaration as far as the cases that I've been deposed or have testified at trial.
Q. And nothing other than what's listed in your declaration?
A. I'm trying to -- there were a couple of cases many years ago that were unrelated to gender issues. I didn't keep records at that time, but I tried to put everything in there that I can recall.

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Q. And these cases a number of years ago, you said they're not related to gender dysphoria. What were they related to?
A. There was a case related to an adverse event in a patient with diabetes. There was a case involving adverse effects of treatment with an antipsychotic medication leading to metabolic disorders. There was a case related to medication effects causing gynecomastia.
Q. And were you serving as an expert witness in these cases?
A. Yes, I was.
Q. In all of them?
A. In the ones that I just mentioned. And there was also one on congenital hypothyroidism, as I recall.
Q. And are there any other cases in which you were involved as an expert witness but you were not deposed?
A. I'm trying to remember if I actually -- in the South Dakota case actually was deposed or not. That case was closed prior to completion, so.
Q. I do believe you were deposed in that case, but no other cases other than the general ones that you've listed out on your declaration?

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A. My attempt was to be as complete in everything that I can recall from my records of the cases that I've been involved in.
Q. And were you involved as an expert in the Tavistock case in the United Kingdom?
A. I was not deposed and I did not testify. I provided information for them related to the relative risks and benefits of gender-affirming care within my area of expertise.
Q. And are there any other cases where you're currently working on expert reports or have been retained but they have not yet been submitted?
A. Yes.
Q. And what are those?
A. There's a case in Alabama and Tennessee.
Q. And have you ever reached out to any of the government officials in these cases and offered yourself as an expert witness?
MR. RAMER: Objection to form.
A. No. In each of the cases I have been contacted. I've actually tried very hard with my schedule to limit my -- my involvement, but, no, I've not reached out to anybody to participate.
Q. And currently about how many hours per week do you spend serving as an expert witness in cases?

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A. It's quite variable. I would say that it's -- it could be anywhere from a couple of hours. I don't -- I'd have to look at -- at how many hours I do. My -- my necessity in my role, because my full-time job is a pediatric endocrinologist and physician scientist at Washington University and that is my primary responsibility, so all of my involvement in this work is done on my private time and trying to balance those responsibilities, so it's less than one day a week.
Q. And so far in -- in 2023, do you have an estimation of about how many hours you've spent serving as an expert witness?
A. I don't have an exact number of that, no.
Q. But is it more than 200 hours?
A. No.
Q. More than 100?
A. Again, I would have to look -- look back. I would say that -- I wouldn't be able to know that off the top of my head.
Q. But approximately one day a week you would say on average?
A. I would say less than one day a week.
Q. Understood. And have you ever testified in any

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state legislatures over legislation concerning transgender people or treatment of gender dysphoria?
A There was only one time in Arizona where I did testify to the scientific evidence related to an issue involving gender care.
Q And when was that?
A Probably a year and a half ago. I don't have the exact date.
Q But within the last three years?
A Correct.
Q And was that on a bill concerning the provision of gender-affirming care to minors?
A Yes.
Q So what -- what is your current job, Dr. Hruz?
A I am a pediatric endocrinologist and academic physician scientist at Washington University. And my professional responsibilities involve direct patient care, scientific research and education of trainees, residents, fellows and medical students, and I also have some administrative responsibilities.
Q And how long have you held that current position?
A Which current position? I've been at Washington University since 1997, and I joined the faculty

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in 2000, so I've been at Washington University my entire career.
Q And have you had the same responsibilities for your entire career at Washington University?
A No. I was formerly the chief of our Division of Endocrinology and Diabetes. I did that for five years. I also previously served as the director of our fellowship program. That's a position I -- I am currently serving as associate director. And the division of my labor has -- has changed over the years as far as the partitioning of time spent in research versus clinical care versus teaching.
Q And currently what is the division of your time between research, clinical care and teaching?
A Currently I'm doing more patient care. As my research career has evolved, I've become involved in drug discovery efforts. Many of these efforts do not require a hands-on presence in my laboratory, rather with collaborations and involvement with contract research organizations. My time, because I'm the associate director and not director of the fellowship program, requires somewhat less involvement. And certainly since I stepped down as chief of the Division of

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Endocrinology and Diabetes, those administrative responsibilities have -- have decreased as well.
MR. STRANGIO: And -- and if we could pull up Exhibit 2, page 1 of -- this is your CV again.
THE MODERATOR: I'm sorry, I didn't catch what you said.
MR. STRANGIO: Sorry. If you could pull up Exhibit 2 and go to page 1, Kim. Thank you. And scroll down just a bit.
Q Okay. So here on the academic positions and employment, it looks like prior to 1997 you were with a physician group in Seattle; is that right, Dr. Hruz?
A That was during my residency training. I was doing some moonlighting work in a neonatal intensive care unit.
Q And between 1997 and 2000, there's nothing listed in your employment. What were you doing during those years?
A I was in my fellowship training at Washington University in St. Louis.
Q So you arrived at Washington University in 1997?
A That is correct.
Q And I know that -- that you have just said this in some -- to some effect, but is it correct that

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you are an endocrinologist?
A I'm a pediatric endocrinologist, correct.
Q And so what conditions as a pediatric endocrinologist do you treat patients for?
A So as a pediatric endocrinologist, we treat patients from birth all the way to the early 20s involving disorders of the endocrine system. By that, that means disorders that involve hormones that are secreted from one part of the body, circulated through the bloodstream and act distally at other organs. It includes the treatment of patients with metabolic disorders, diabetes mellitus, dyslipidemia, pubertal disorders, thyroid disorders, disorders of the pituitary gland, disorders of sexual development, a whole -- bone diseases. I tried to outline in my declaration the scope, and that's contained within that document.
Q And you mentioned that you treat patients up to -- to their early 20s; is that -- is that right?
A We will generally follow patients through college, and I have a few patients that I -- with very complex disorders that are rare enough that the adult physicians are not familiar with caring

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for that, so we will, on rare exceptions, see them even later than that, but, in general, we try to transition them to adult care by the time they finish college.
Q And is it common, would you say, for pediatricians to see patients after the age of 18?
MR. RAMER: Objection to form.
A Yes. So at least in my profession as a pediatric endocrinologist at an academic center, we will recognize that much of the development that occurs is not completed at age 18. I know that many primary care pediatric practices will require patients to transition to adult care as they turn 18, but that is not the case at -- at Washington University, nor most other academic centers.
Q And you're not a psychiatrist; right?
A I have not been formally trained or certified in psychiatry. My limitation in addressing psychiatric issues relates to my practice as a pediatric endocrinologist. I do need to have some familiarity with psychiatric conditions as it pertains to the proper care of my patients.
Q But just as to certified, you are not a

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psychiatrist?
A I'm not a certified psychiatrist, correct.
Q And you're not a psychologist?
A I am not a certified psychologist, correct.
Q And you're not an uncertified psychologist either, I assume?
MR. RAMER: Objection to form.
A I would say all physicians participate in psychological issues in the care of their patients, so to that extent, it's limited to my role as a pediatric endocrinologist.
Q And would you say it's common for physicians in different specialties to have experience with mental health conditions?
MR. RAMER: Objection to form.
A I would say that as a pediatric endocrinologist, that many of my patients have psychiatric comorbidities that significantly influence their ability to enter into and adhere to the treatment recommendations. I frequently encounter patients that are significantly affected by these psychiatric conditions. I've certainly in evaluating, for example, endocrine disorders, menstrual irregularities that are due to anorexia, being able to recognize that and get

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them to the care that they need, I think that's a role that all pediatric endocrinologists are involved in.
Q And so you treat patients for endocrine conditions that also have co-occurring mental health conditions?
A I certainly have encountered patients that have endocrine disorders that also have psychiatric conditions, and in some situations it directly affects the care of that patient, yes.
Q And do you have any formal educational training in the provision of mental health treatment?
A I think all medical students in part of their training rotate in psychiatry and have experience in psychology in their training, and it is also something that occurs throughout one's career. In fact, we have monthly psychosocial rounds where we -- in fact, we're having one this afternoon where we're presenting psychosocial issues that are affecting the care of our patients with diabetes.
Q So other than in medical school and in ongoing rounds in your clinical practice, do you have any formal training with respect to the provision of mental healthcare?

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A They also have many times in our pediatric and medicine grand rounds delivered topics related to those issues as well. It's part of some of the questioning in maintenance of certification, and so I would say that I do have ongoing exposure to these issues, again, as it pertains to my practice as a pediatric endocrinologist.
Q Would you consider yourself an expert in -- in the provision of mental health care?
A It depends on -- on how you define expert. I am a pediatric endocrinologist and I deliver care to patients that have endocrine disorders. Patients will not come to me primarily for psychiatric conditions.
Q So you don't primarily treat patients for psychiatric conditions?
A As I just said, I treat patients with endocrine diseases and I do not treat patients that come primarily for psychiatric conditions.
Q Do you have any education or training related to the treatment of gender dysphoria?
A This is -- the topic of gender dysphoria has been very active over the last decade, and I -- actually my involvement, my entry into this field came at the time that I was chief of our Division

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of Endocrinology and Diabetes, where one of my faculty members approached me asking to develop a gender center at our institution. It necessitated me to look at the literature in this field to make an assessment about the proposal that was being made, and that process has continued over the last decade. I have participated in both discussions of this topic at local, national and international meetings.

Q So you consider your training related to gender dysphoria in -- to be the review of the literature related to the topic; is that what I'm understanding?

MR. RAMER: Objection to form.

A Are you asking me if -- if my understanding of gender dysphoria is limited to reading papers, is that what the question is?

Q No, that's not the question, because I asked you do you have any education or training related to gender dysphoria and you responded by explaining that you had reviewed the literature, so I'm trying to understand what is the education or training that you've received with respect to gender dysphoria?

MR. RAMER: Objection to form.

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A It's similar to how I addressed your question about other areas of psychiatric care. This involves my participation in formal presentations at medicine and pediatric grand rounds, discussions of this topic at national and international meetings, direct conversations with my colleagues and those in other specialties, in addition to my reading of the literature.

Q Have you ever delivered a grand round related to the topic of gender dysphoria?

A Yes, I have.

Q Where was that?

A I've done several. Off the top of my head, I did a medical grand rounds at the University of Kentucky, at the school in Texas, at St. Louis University. I'm trying to think of all the -- I tried to list them in my CV, and you'll probably find that further down in the document that's currently displayed here.

Q And have you ever treated a patient for gender dysphoria?

A Well, I -- if I understand your question, you're asking if I've delivered medical affirmation interventions involving hormones, is that the question?

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I've certainly cared for patients that have gender dysphoria in the context of endocrine disorders that they have, including dyslipidemia, diabetes, thyroid disease and obesity, but, again, these patients are not coming to me specifically for the treatment of gender dysphoria.

Q So let's take it in -- in sequence. So have you ever prescribed hormonal interventions to treat gender dysphoria in an adolescent?

A As I made very clear in my declaration, in my investigation into the affirmative model for gender-affirming care, I have concluded that the relative risks versus purported benefits do not support engagements in that activity, and because of that, it would be unethical for me to be able to deliver care that I have deemed not appropriate for patients.

Q I didn't ask you why. Just as a yes or no question, have you ever prescribed hormonal interventions to treat a patient who is an adolescent for gender dysphoria?

MR. RAMER: Objection to form.

A For the -- for the reason I just stated, I do not provide any medical care that I deem that is not

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justified by a risk/benefit analysis, and that includes gender-affirming care in the role of an endocrinologist.

MR. STRANGIO: Just for simplicity, to get the clearest possible answer, if we could pull up Exhibit 3, Kim, and if you could go to page 106. And so if we could scroll down to line 21.

Q So this is the transcript from the Brandt trial. And I asked you, "And you've never treated a patient for gender dysphoria; correct?"

And then your answer was, "Not for gender dysphoria, correct."

Anything different about your answer today?

A My answer is entirely consistent with what I testified in that case, which I just shared with you.

Q So you've --

MR. RAMER: Sorry, Chase, just to clarify, it's page 106 in the PDF and this is page 1317 in the transcript.

MR. STRANGIO: Correct.

MR. RAMER: Okay. Thank you.

MR. STRANGIO: Yeah, sorry. I was trying to make it easy for the court reporter and did not make it easy for you or the record. Yes, so this

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is page 1317.
Q So -- so when you said that at the Brandt trial that you have -- you have not treated a patient for gender dysphoria, that is your position today?
A As I have already stated to you, correct.
Q And have you ever diagnosed anyone as having gender dysphoria?
A Are you asking me whether I've gone through the checklist in the DSM-5 to formally determine whether one has that -- that condition?
Q Yes. Have you ever gone through the criteria in the DSM-5-TR and made a diagnosis of gender dysphoria for a patient?
A Well, since I'm a pediatric endocrinologist, that is not within my purview and so, no, I have not done that.
Q And I think you sort of alluded to this earlier, but have you ever had a patient under your care that someone else diagnosed with gender dysphoria?
MR. RAMER: Objection to form.
A So I certainly have cared for individuals that present to me informing me that they have sex-discordant gender identity and I provided

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care with them. My discussions and treatment has been focused upon the presenting endocrine disorder and that's where the focus of my care has been. We've not delved into any greater detail about who made the diagnosis, who was treating them for other issues except as it relates to the presentation of the endocrine disorder that I'm being asked to care for.
Q So for those patients that are under your care for an endocrine condition that's not gender dysphoria, have any of them been treated with gender-affirming hormone therapy?
MR. RAMER: Objection to form.
A So I am -- for example, we have patients that have type 1 diabetes that also experience sex-discordant gender identity that have been admitted to our psychiatric unit that have been receiving gender-affirming hormonal interventions, and my role in those cases is making sure that their diabetes is adequately cared for while they're being hospitalized. It has not been my responsibility to supervise or change the administration of that gender-affirming hormonal medication.
Q And other than in a inpatient context, any of

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your patients that you treat for, say, diabetes also have a gender dysphoria diagnosis that they're being treated for hormone therapy with?
A So if you're asking me if it's limited to the inpatient setting, no. I also have seen patients in my outpatient setting who express sex-discordant gender identity that I care for other diseases, including type 1 diabetes.
Q And some of those patients are being treated with hormone therapy?
A As -- yes.
Q And have you ever been physically present for a discussion between a provider and a patient about treatment options for gender dysphoria?
A In the setting of my role in cofounding the Disorders of Sexual Development Clinic at Washington University, for many years we would have regular monthly meetings where we discuss care, and some of those discussions did involve issues of sexual identity and -- and how to best manage those patients, so, yes, in that setting I have.
Q Other than in that setting?
A I'm trying to remember if -- certainly I've had conversations with my trainees, but I have not

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participated directly in the gender clinic at Washington University.
Q And no conversations with -- with a physician or other provider and a patient; is that correct?
A Cannot recall a time where I've -- I've had a conversation with one of my colleagues who is providing care at that gender center together with a patient at that time where they were discussing gender-affirming medical care, that is correct.
Q And you've also mentioned this, but you're currently affiliated with the Department of Pediatrics at Washington University School of Medicine in St. Louis; is that -- did I get that right?
A My primary appointment is in the Department of Pediatrics as an associate professor.
Q And is the St. Louis Children's Hospital the pediatric teaching hospital for Washington University School of Medicine?
A That is correct.
Q And do you work at the St. Louis Children's Hospital?
A My clinic is -- is at the St. Louis Children's Hospital, correct.

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Q And there is a transgender clinic at the St. Louis Children's Hospital called the Washington University Transgender Center; is that right?
A That is correct.
Q And at that center -- excuse me. The Center, the Washington University Transgender Center, treats adolescent patients with gender dysphoria; is that correct?
MR. RAMER: Objection to form.
A That is my -- that is my understanding, correct.
Q And as part of the treatment provided at that clinic, they prescribe pubertal suppression to treat gender dysphoria?
A It is my understanding that they are using the affirmative model, which includes the administration of GnRH agonists, also known as puberty blockers, and cross-sex hormones, meaning the administration of estrogen to a biological male and the administration of testosterone to a biological female.
Q Are you aware that Missouri has recently passed a law like Senate Enrolled Act 480?
MR. RAMER: Objection to form.
A I'm aware that -- I don't know the details of the

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actual legislation, but I am aware that they have passed legislation in that regard, yes.
Q And so -- so under this legislation, hormonal treatment for adolescents with gender dysphoria like the ones we've been discussing will be prohibited in Missouri?
MR. RAMER: Objection to form. Calls for a legal conclusion.
A Again, I am not a legislator and I don't know the exact details of that legislation. My vague understanding just from news reports that I've read is that this legislation is similar to those that have been passed in multiple other states within the last year.
Q So you've not heard any conversations within the hospital where you work about the impact of recent legislation on the care of patients at the Transgender Center?
A I certainly have had, as I do in many other areas, hallway conversations with colleagues, but nobody that has any more insight than I do about that legislation.
Q So you haven't heard about what's going to happen to patients at the Transgender Care Center if their medical treatment is -- is cut off?

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MR. RAMER: Objection to form.
A Okay. I will state again that I'm not a legislator, nor a politician. My understanding, again, from what I've read in the news reports is that this care -- or the legislation in Missouri actually has a -- a clause where it is restricting care for new patients. Again, my understanding is that it doesn't apply to people that are currently receiving care, but, again, I'm not up to date on that legislation and I don't know for sure the details.
Q I'm not asking about the specifics of the legislation. I'm asking if at your place of employment there's been any communication about the potential changes with respect to the provision of care that you have been made aware of?
MR. RAMER: Objection to form.
A There has been -- there has been no formal communication from the administration in any way with respect to that legislation.
Q And if -- if the -- let me -- let me -- excuse me. So if Missouri were to prohibit the provision of gender-affirming care to adolescents with gender dysphoria, is it your view that the

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patients at the Transgender Care Center would all benefit from that change?
MR. RAMER: Objection to form.
A I think it's a hard question for me to answer since I don't know the specifics of the -- and it's a hypothetical as far as what would happen. I think there are many potential outcomes that could come from the recognition, as I have testified or am testifying in this case, about the known and potential risks of gender-affirming therapies in relation to the purported benefits. There is opportunities on several fronts to be able to shift the focus of care that will be more in alignment with what is being done in Europe and other areas of the world, the provision -- or the engagement in the high quality research that needs to be done and in efforts to be able to find ways to alleviate suffering in this patient population that -- that minimizes risks and maximizes benefit.
Q So one potential benefit would be -- excuse me. One potential benefit of prohibiting medical interventions for gender dysphoria would be the initiation of high quality research; is that right?

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MR. RAMER: Objection to form.
A So there's much potential for engaging into the research that needs to be done to study this condition and optimal interventions to fill in the very notable gaps in the scientific knowledge.
I have advocated, actually, for the conduct of proper research studies for many years with my colleagues at Washington University, and this has the potential, if -- to -- to move in the direction of having that -- that approach critically evaluated and the research be conducted.
Q So, in general, in the area of treatment of adolescents with gender dysphoria, you're in favor of more research; is that right?
A I'm a physician scientist. I'm always in favor of more research. And given the paucity of high quality data in this field, I think it's an imperative that we perform higher quality research studies in this area.
Q So when patients are receiving hormonal treatment for gender dysphoria or for any condition, is it safe to have those treatments stopped immediately?

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A Well, it depends on -- that's a very broad question. There are many different types of treatments, some of which would be amenable to more immediate cessation.
I would say that in the delivery of care with hormonal interventions such as testosterone or estrogen, there is no science about the optimal way that one would wean off of that, but it would make sense, it would be very prudent to -- to do this in a gradual manner. We do have established data on the effects of abrupt changes in sex therapy hormone levels and know the adverse effects on psychological health. The best example that I can give is what we see in postpartum depression.
Q So going back to your declaration which is Exhibit 1, Kim, if you could pull -- pull that up. And going to paragraph 11. Sorry, I have it as paragraphs here, not pages.
So -- so Dr. Hruz, here you're talking about your experience founding -- as a founding member of the multidisciplinary Disorders of Sexual Development program, and -- and you write -- and I'll read it, so follow -- follow along because it's very likely I'll make a mistake.

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"In the care of these patients, I have acquired expertise in the understanding and management of associated difficulties in gender identification and gender transitioning treatment issues."
Did I read that correctly?
A Yes.
Q And the expertise you note here related to what you call gender transitioning treatment issues, that's based on the treatment of patients with -- with DSDs; is that right?
A Well, I would -- I would not agree that this is gender transitioning. These are issues related to gender identity and trying to make a prudent decision about outcomes where there's significant ambiguity.
I think in the condition of disorders of sexual development, this is very distinct from the question of gender dysphoria. In these situations these patients are born with genital ambiguity, many times with much uncertainty as to the actual sexual identity of these individuals, and the goal here is to be able to use all of the information that we have available to make a prudent decision about how they will best be able

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to function with their physiology and, again, very different than the question of gender dysphoria, and we would not consider the involvement of these decisions to be a transition. It is trying to correctly identify the actual sexual identity of that individual and how they can best live their life in relation to that.
Q So the -- so the expertise that you're discussing in paragraph 11 here is distinct from gender dysphoria?
A So -- well, let me -- let me clarify, okay. There are questions related to one's sexual identity and one's understanding of that sexual identity. There is overlap in that regard, but there's a difference in that in disorders of sexual development, one is most often, if not exclusively, dealing with people that have impaired or absent fertility at the time that one is intervening as opposed to those that have gender dysphoria that have normally formed and functioning sexual anatomy prior to the engagement in gender-affirming medical interventions.
Q I'm just asking about this paragraph. You're

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referring to particular expertise gained in the context of treating individuals with disorders of sexual development; is that right?
A. This is in relation to issues of gender identification, correct.
Q. And then moving to paragraph 13, and here at the bottom with the sentence beginning, "Pediatric patients," I'm going to just read this to you. You write, "Pediatric patients referred to our practice for the evaluation and treatment of gender dysphoria are cared for by an interdisciplinary team of providers that includes a psychologist and pediatric endocrinologist who have been specifically chosen for this role based upon a special interest in this patient population."
Did I read that correctly?
A. That is correct.
Q. And when you say here "referred to our practice," what practice are you referring to?
A. So I'm referring to those that are -- are seeking care at our -- our gender dysphoria clinic at Washington University.
Q. But you aren't personally involved in -- in the treatment of those patients seeking evaluation

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and treatment for gender dysphoria; right?
A. As I've already stated, both in my declaration and this morning, that is correct.
Q. And so -- and when you say you refer them, you refer them to the gender care clinic?
A. I do not make referrals. The patients through our office staff will contact our division and they will be -- set up the appointment within the gender clinic.
Q. So you do not personally refer them?
A. That is correct.
Q. So I'm trying to think -- we can just leave this up.
Have you conducted any clinical research related to gender dysphoria or the treatment of transgender people generally?
MR. RAMER: Objection to form.
A. So I guess your question is have I been the principal investigator of a clinical trial related to the treatment of gender dysphoria?
Q. Sure. Have you been the principal investigator in a clinical trial related to the treatment of gender dysphoria?
A. I have not.
Q. Have you had any role in a clinical trial related

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to the treatment of gender dysphoria?
A. Yes, I have.
Q. And what was that?
A. In my role in the fellowship program, there are several of our fellows that are currently engaged in research projects related to adverse effects of gender-affirming medical interventions. In my role as the associate program director, one of my responsibilities is to supervise that research, to assist the fellows in setting up the research projects, evaluate their progress in performing that research and being able to effectively disseminate the results of the research in that area. And, again, I'm not the mentor, nor am I the principal investigator of these trials. My role is limited to the supervision and guidance of those fellows.
Q. And how many of these trials that you're serving as the fellowship supervisor for are there?
A. Currently there are two fellows involved in two separate research projects related to gender dysphoria.
Q. And what types of studies are these two fellows conducting?
A. The first fellow -- both of them are senior

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fellows, soon to graduate and join our faculty. One is doing a randomized controlled trial on different estrogen preparations and looking for thromboembolic risk related to these different forms of estrogen administration.
The other fellow is doing a research project related to the effect of a androgen receptor blocker by the name of bicalutamide -- bicalutamide in liver toxicity.
Q. So just going to the first trial with respect to the estrogen that you described, that's a trial that's comparing two formulations of estrogen to treat patients with gender dysphoria; is that correct?
A. I would say more than one preparation to be able to ascertain if there is a difference in thromboembolic risk with these different estrogen preparations, correct.
Q. And, I'm sorry, the second trial, can you explain that one again? And apologies, I'm not scientifically literate here.
A. So this is actually a retrospective chart review of patients that have been exposed to the androgen receptor blocker bicalutamide and looking at evidence of hepatic or liver toxicity.

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Q So that is not a randomized controlled trial?
A That is correct.
MR. STRANGIO: Okay. If we could pull up, please, Kim, Exhibit 2, and -- and turn to page 7.
Maybe scroll down, please, a bit. Okay, yeah, to the next page where it's a bibliography. Great. Thank you.
Q So, Dr. Hruz, this is the section of your -- of your CV titled "Bibliography." Is this a list of publications that you have authored?
A That is correct, either as a first author, senior author or contributing author.
Q So -- and here you have 52 publications listed as, A, Journal Articles. Is that academic journal articles?
A Yes.
Q And then scrolling down, there's three book chapters; is that correct?
A Yes.
Q And then eight invited publications?
MR. RAMER: Sorry, Chase, where are we?
MR. STRANGIO: Yeah, so, sorry. Kim, if you could scroll, it's past -- there's the 52 journal articles. Just trying to get the lay of the land

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here.
Q Okay. So then we have the -- this is then subsection C2 here is the three book chapters, and then there's I believe eight invited publications, right there.
A That is correct.
Q And so what is the difference between a publication and an invited publication?
A Generally the invited publications, I was contacted by an editor or interested party asking if I would contribute a paper for that. The -- the first section with the 52 papers are usually submissions that unsolicited I submit to the journal for publication. These are papers that I was asked to contribute a scholarly article and -- and then engaged in the writing of that paper.
Q Understood. Is that the only difference for purposes of your CV?
A For the purposes of the CV, I would say correct.
Q And so going back just a little ways to the -- to the publications, you have two articles -- no, down at the bottom is fine, sorry. Yes, here.
Under the publications, you have two articles that concern the treatment of

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individuals with gender dysphoria; is that -- is that right?
A I'm sorry, are we in invited or are we under the journal articles?
Q Under the journal articles, that would be two articles concerning the treatment of individuals with gender dysphoria; is that right?
A You have to scroll up a little bit so we can be looking at them.
MR. STRANGIO: Yeah, Kim, if you could -- it's actually a little more up, in the earlier, like the 40s. There we go.
THE WITNESS: There we go.
MR. STRANGIO: That's good, stop there. No, no, not that far. A little bit down. Okay.
A So, yes, looking at the paper of first author Malone and the paper in the Linacre that I was the sole author of, that's correct.
Q Okay. And so just to be specific, this -- that would be "Deficiencies in Scientific Evidence for Medical Management of Gender Dysphoria" in the Linacre Quarterly?
A That is correct.
Q And then the second one would be the letter to the editor from primary author William Malone

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regarding the "Proper Care of Transgender and Gender Diverse Persons in the Setting of Proposed Discrimination: A Policy Perspective"?
A That is correct.
Q And the first publication is in a journal called the Linacre Quarterly; is that right?
A That is correct.
Q And the Linacre Quarterly is the official journal of the Catholic Medical Association; is that right?
A It is an -- the longest standing published ethics journal in the United States that is run by the Catholic Medical Association, correct.
Q And the second article listed here is a letter to the editor; is that right?
A In the Journal of Clinical Endocrinology and Metabolism, correct.
Q And you have two book chapters related to transgender people and gender dysphoria; is that right?
A That is correct.
Q And the first is "Medical Approaches to Alleviating Gender Dysphoria," and that was published in the book "Transgender Issues in Catholic Health Care"; is that right?

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A That is correct.
Q And the second is "A Biological Understanding of Man and Woman," and that was in the book "Sexual Identity: The Harmony of Philosophy, Science and Revelation"; is that correct?
A That is correct.
Q And that second book, "Sexual Identity," was published by Emmaus Road Press; is that right?
A That is correct.
Q And if we could go to Exhibit 6. And Emmaus Road Publishing Company, according to their website, is a Christian publishing company driven with a passion to proclaim the gospel of God's grace to the nations of the earth; is that right?
MR. RAMER: Objection to form.
A So you've read that correctly.
Q And so any reason to believe that that is not the description of the Emmaus Road Press?
MR. RAMER: Objection to form.
A Again, you know, I'm not opining as a theologian nor making judgments, but you presented a web page that expresses their purpose, and that is consistent with my understanding as well.
MR. STRANGIO: And then going back to Exhibit 2, Kim, thank you, and to the invited

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publications.
Q There are three invited publications concerning gender dysphoria or transgender people; is that correct?
A Yes.
Q And these include "Growing Pains: Problems With Pubertal Suppression in Treating Gender Dysphoria" in The New Atlantis; is that right?
A That is correct.
Q "The Use of Cross-Sex Steroids in Treating Gender Dysphoria" in the National Catholic Bioethics Quarterly?
A That is correct.
Q And "Experimental Approaches to Alleviating Gender Dysphoria in Children" in the National Catholic Bioethics Quarterly?
A That is correct.
Q And so the "Growing Pains" article from 2017, that's in The New Atlantis; right?
A Correct.
Q And The New Atlantis is not an academic journal; is that right?
A Many would disagree with that statement. I think it is an academic publication different than the ones that are listed earlier in my CV.

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MR. STRANGIO: Well, if we could pull up Exhibit 7 and go down to -- a little further. This is the "About Us" section of The New Atlantis. Keep going down. I'm sorry, it's at the very bottom here. Further. So here. It says "Who We Are."
Q So The New Atlantis says, "We are not an academic journal but a journal of public" -- sorry, excuse me. "We are not an academic journal but a public journal of ideas."
So The New Atlantis would not describe itself as an academic journal?
MR. RAMER: Objection to form.
A If you scroll up under their aims, they address issues that I would consider academic questions, and in that respect it would be academic.
So, again, I'm -- I'm not on the editorial board of this journal. I have no knowledge of the workings of -- of their overall goals, but I would say that it does discuss ideas that would fall into the area of academic discussion.
Q It's not a peer-reviewed journal; right?
A This question has come up repeatedly. Many times these types of publications are reviewed by the editorial board, and for the questions being

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explored, the editors themselves could be considered the peers, but it differs in the review mechanism that are generally done for the other 52 publications that I have mentioned earlier in my CV.
Q So it has an editorial review process?
MR. RAMER: Objection to form.
A That is my understanding, correct.
Q But it doesn't have -- it's not reviewed by, let's say, other endocrinologists?
MR. RAMER: Objection to form.
A Well, first off, I'm not a member of this organization, so I don't fully know the workings of how they handle manuscripts.
My experience in submitting this paper was going through the article and addressing multiple questions that were raised by the editor and revising the paper to make as clear as possible of a document for the purposes that I wrote the paper.
MR. RAMER: Chase, if you have a good break point coming up, we've been going a little over an hour.
MR. STRANGIO: Yeah, now is as good a time as any, so take five.

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MR. RAMER: Doctor, does that work for you?
THE WITNESS: That would be fine.
(At this time a recess was taken.)
BY MR. STRANGIO:
Q Okay. So we left off, we were talking about The New Atlantis publication. And so The New Atlantis was founded by the Ethics and Public Policy Center; is that right?
A You would know more than I, but I believe that's correct.
Q And the Ethics and Public -- does it sound correct to you that the Ethics and Public Policy Center is working to apply the riches of the Judeo-Christian tradition to contemporary questions of law, culture and politics in pursuit of America's continued civic and cultural renewal?
MR. RAMER: Objection to form.
A It sounds like you're reading that off of some statement that I assume you obtained from their website. I have no basis to judge that, but it is consistent with my understanding.
Q And the publications that we've just gone through, are they all of your publications related to transgender people and/or the

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treatment of gender dysphoria?
MR. RAMER: Objection to form.
A I have been as complete as I possibly can in listing all of my publications that I've had throughout my career, correct.
Q Are you currently working on any additional publications related to the treatment of gender dysphoria or transgender people?
A Yes.
Q And what are those?
A I have several that are in the process of drafting related to the topics that were contained within my declaration. I have one that is involving the adverse effects of cross-sex hormones, estrogen, in biological males, and early drafting of several other manuscripts, trying to be able to contribute to the literature in an effective way of pointing out the ongoing growing recognition of the limitations of the scientific evidence and the more recent publications showing the emergence of adverse effects and lack of efficacy in the treatment approaches using the affirmative model, and this includes many of the metabolic and hormonal effects that are within my area as a pediatric

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endocrinologist.
Q And for the publication that you mentioned on the adverse effects of estrogen treatment, how are you studying those?
A As I have throughout my entire time being involved in this conversation, that I have been very much aware of the emerging data, what is being done within the published literature, and all of the information that's available with the studies that have been published or that are being proprosed.
Q So that publication will be a review of existing data?
A So if you're asking, I am not currently doing a clinical trial involved -- a randomized controlled trial or any of that nature as a principal investigator. It's merely looking at the evidence and being able to present it in a way that will help our profession in assessing the relative risks and purported benefits of the affirmative model of care as relates -- as it relates to pediatric endocrinology.
Q And when you say "looking at the evidence," what evidence are you looking at for that particular paper?

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A Looking at the -- the published literature available on outcomes, all of the research that has been done, and the emerging data regarding adverse effects.
Q And what is that emerging data?
A Well, it includes, for example, the systematic reviews that were done in Finland and Sweden, including the peer-reviewed published article in Acta Pediatrica that was just published summarizing the basis for which Sweden made the decision to relegate any of this affirmative care to the context of a controlled clinical trial. It includes the evidence that has come forward in the NICE reviews in the United Kingdom. It includes the emerging data, again, in relation to the adverse effects of -- on bone health within those that are receiving blockaded normally timed puberty, and there are many other aspects that I'm looking at in relation to what we do and do not know about those interventions.
Q One other question on your CV. So going back to page 1.
MR. STRANGIO: And that would be, Kim, Exhibit 2. Can -- oh, thanks, sorry, I ought to be more patient. And, yeah, so -- it's very

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small for me. Hold on. Okay. So to the -- so page 1, and scrolling down a bit to the education section. I don't need to go through everything here, but -- we can stop there, Kim. Thank you.
Q So, Dr. Hruz, the last listing in your education is the 2017 Certification in Healthcare Ethics from the National Catholic Bioethics Center; is that right?
A That is correct.
Q What did that entail?
A This was a year-long study, which was primarily a correspondence course of reading ethics-based articles. There were two in-person meetings, both at the beginning and at the end of the certification process, and, in fact, one of the papers that's listed in my CV under Invited Publications was the product of -- of the paper that I wrote as part of that certification program.
Q Got it. Thanks.
MR. STRANGIO: Okay. Kim, we can take -- we can take this down. And we can maybe just pull up Exhibit 1 just to have it nearby. Thank you.
Q So -- so, Doctor, do you believe that there are some people who have a gender identity that

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differs from their natal sex?
A If you are asking me if there are individuals that have a sex-discordant gender identity, the answer would be yes.
Q What is a sex-discordant gender identity?
A Well, as -- as I understand it, individuals that perceive their sexual identity that is discordant with their biological sex, so that includes biological males that identify as women and biological females that identify as men.
Q And you would agree -- and then are there adolescents who would fit this description?
A There indeed would be adolescents that have that experience.
Q And -- and for this population with this discordance, can it cause severe distress?
A Well, if -- if you look at the definition of the DSM-5 for gender dysphoria, by definition it requires one to have the stress related to that experience, correct.
Q And so you would agree that there are some people who would meet the criteria of gender dysphoria as outlined in the DSM-5 text revision; is that right?
MR. RAMER: Objection to form.

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A So, again, I'm not testifying in this case specifically about the diagnosis. Yet if one were to go through the DSM-5 criteria and ask the patients about their experience and they would report that to fulfill that criteria, those patients do exist.
MR. STRANGIO: And if we could pull up Exhibit 1, please, Kim, paragraph -- sorry, top of page 30, paragraph 55. Yeah, we can -- it's between 29 and 30. Yeah, that's great. Thank you.
Q And so here in your declaration, you're talking a little bit about gender dysphoria. And at the top of page 40 you write, "Gender dysphoria is associated with high rates of comorbidity, including suicidal ideation, depression, anxiety, poverty, homelessness, eating disorders and HIV infection."
Did I read that correctly?
A You did indeed read that correctly.
Q And you would consider poverty and homelessness to be comorbidities?
A They're associated difficulties that these individuals experience, yes.
Q Why do you think people with gender dysphoria are

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disproportionately homeless?
MR. RAMER: Objection to form.
A Well, that's -- leads to significant speculation. I think that there are many questions that remain unanswered regarding etiology. And when one looks at the literature, one can look at things that are antecedent or subsequent to the expression of sex-discordant gender identity. This is an area that is definitely in need of additional research.
There are -- I would say that to summarize, the best understanding of the etiologic basis and, you know, the associations that one sees between these other comorbidities, there can be both questions about cause versus effect.
Q So does comorbidity mean a co-occurring diagnosis or just any correlating phenomena?
MR. RAMER: Objection to form.
A Well, morbidity means to -- things that are -- are contrary to health. Comorbidity means they occur at the same time, and by definition that's what we mean by comorbidity.
Q And do you think that the -- that the comorbidity of homelessness could be related in part to discrimination in society?

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MR. RAMER: Objection to form.
A So if you're referring to the social stress hypothesis, that is one of the areas that -- that people have considered as a reason for that, among others.
Q Well, I'm not -- I'm not even referring to any -- any hypothesis. I'm just asking you since you wrote it here in your declaration, do you think that one possible contributing factor to the comorbidity of homelessness could be societal discrimination?
MR. RAMER: Objection to form.
A By the way that you ask the question, you're asking me to opine on a hypothesis, and I stated that very clearly.
Q What -- I'm sorry, I didn't understand your answer to my question about the hypothesis.
A Well, please ask the question again.
Q Do you -- let me ask it this way. Do you think that poverty and homelessness, which you identify as comorbidities of gender dysphoria, could be related to societal discrimination?
MR. RAMER: Objection to form.
A So by stating it as a could this be a factor, that is a hypothesis.

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Q Is it one of your hypotheses?
A I as a physician scientist entertain all possible hypotheses. Not all hypotheses have the same merit. They're based on different scientific premises and associated data in support or contrary to that. It is a hypothesis that has been put forward, and as a good physician scientist, one needs to very seriously consider that as a possibility.
Q And what are some other hypotheses of why there is this comorbidity of poverty and homelessness with gender dysphoria?
MR. RAMER: Objection to form.
A Again, in my perspective as a pediatric endocrinologist and physician scientist, one needs to recognize that when one looks at this question, there are many of these comorbidities that predate the onset of any understanding of sex-discordant gender identity. It's very well established in the literature that those that suffer from various psychological and psychiatric disorders, including depression, that that can be associated with socioeconomic status, the ability to have and to hold a job, so all of these are factors, and whether they are antecedent or

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resultant to the sex-discordant gender identity is a matter of active discussion.
Q But would you agree that, say, homelessness in a six-year-old is probably not antecedent to the sex-discordant gender identity?
MR. RAMER: Objection to form.
A Well, again, you're asking me to speculate on a hypothetical with -- there are many other contributing factors. In the hypothetical that you posed, not clear what the family dynamics are, whether the parents themselves are homeless, whether that had any influence at all on the presentation that saw a child with sex-discordant gender identity, so one cannot make blanket statements. One can entertain various hypotheses as to the factors that contribute to that experience.
Q But, so as you're explaining it now, familial homelessness could contribute to sex-discordant gender identity?
A I'm not familiar with the term familial homelessness, but if you're referring to individuals that -- that are exposed to various psychosocial traumas and difficulties, there is much that has been proposed as a hypothesis that

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that might contribute to the emergence of sex-discordant gender identity in some individuals.
Q Is there any evidence of that in the research literature?
A I would say there's evidence. It was not very high quality evidence, and much of this relates to anecdotal reports. There is very good data showing the co-occurrence of these psychiatric comorbidities in this patient population in relation to people that have other psychological morbidities that are independent of sex-discordant gender identity showing similar types of difficulties.
Q But in this particular sentence, then, you are citing some comorbidities which appear in the literature only in the form of anecdotal reports and what you would consider not high quality evidence; is that right?
MR. RAMER: Objection to form.
A The statement here is a statement of fact that these associations do occur, and it is not possible with the available evidence to make a conclusive statement about cause versus effect, but I think it is very well established, I think

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by everyone that is aware of this patient population, that these comorbidities do exist and I think that that is fairly solid data about co-occurrence.

Q And so going to also in this exhibit, page 30, just a little ways down in paragraph 56.

MR. STRANGIO: Okay, you can stop there. Thank you, Kim.

Q So here you write, starting at the beginning of paragraph 56, "Some practitioners promote a so-called gender-affirming approach to treating gender dysphoria which involves affirming the child's present gender identity. This affirmation may have social, medical, legal and behavioral dimensions. Typically, this affirming approach encourages children to embrace transgender identity with social transitioning, followed by puberty blockade and hormonal therapy (cross-sex hormones) and potential surgical interventions."

Did I read that correctly?

A Yes, you did read that correctly.

Q And so I want to talk about this part of the -- this sentence where you write, "Typically this affirming approach encourages children to embrace

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a transgender identity."

Do you see that part of the sentence?

A I do.

Q And the only citation to -- in this sentence as far as I understand it is A. Walch, et al., "Proper Care of Transgender and Gender Diverse Persons in the Setting of Proposed Discrimination"; is that right?

A That's correct. And my citations are not exhaustive of the literature that I've read or that would support that statement, but it is used to support that.

Q So is there anything in A. Walch, et al., that you could point to that would be representative of encouraging children to embrace a transgender identity?

MR. RAMER: Objection to form.

A Well, to answer that question, I would be very happy if you would pull up that as an exhibit and we can go through the paper and look at that specifically.

Q Okay, perfect. So that's Exhibit 9.

Doctor, is this -- is this the right article?

A That is correct, uh-huh.

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Q And so it's not very long. If you want to read it now and tell me where -- where in this document there's a reference to encouraging children to embrace a transgender identity as you write, that would be helpful.

A Okay. Thank you very much.

MR. STRANGIO: And, Kim, you can follow Dr. Hruz's direction here.

A You can go a little bit faster. We can go through to the meat of the paper here. You can go down to the actual text of the paper. This is just the abstract here. I think you can go further. Hold one second. Go back, go back up. Why don't you go down a little bit further. You can go down a little bit further. Actually, I want to just get a lay of the entire paper here.

I notice in the paper here, it addresses the question that you asked earlier. These authors of this paper make the same statement that I made as far as the disproportionally high rates of comorbidities and mental health issues associated with that.

So this paper is addressing concerns relating to the legislation that is being put forward to limit this care. It sets up

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gender-affirming care as the preferred approach, which I've seen many times in many other papers, many other publications that I could cite where this is -- a question has come up.

I will add that further support for that statement, you know, comes even from the transition from the -- the initial guidelines, if you look at the WPATH. I could have cited that as well as support for that statement in my declaration. And there are many other statements that have been made by the American Academy of Pediatrics and other organizations where the -- the recommendations that one be allowed to -- and that one be affirmed in their gender identity without any critical assessment as to etiology for that is actually strongly advocated, so, again, there are many other papers.

I'm, again, just looking through this very quickly here. This citation relates to the advocacy for allowing one to have the gender-affirming approach.

Q Well, so -- so I'm happy to have you look at it more closely, if -- if you'd like, rather than -- rather than just quickly so we can answer the questions, if you want to take another minute.

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A It would be very easy if I could -- much easier if I could download it and actually go through it myself, but can you go back up -- again, just so I can reorient myself to your question, you're looking for a statement in this paper here that relates to encouragement or allowing one to have affirmation of their gender identity. I think the whole summary --
Q Well, let's -- let's stop there, because I don't think encouragement and allowing are the same thing. Do you think encouragement and allowing are the same thing?
A No, they are different.
Q Okay. And so I would -- wanted to find where this paper -- and what you wrote is, "This affirming approach encourages children to embrace a transgender identity," and then cited this paper, so what I want to ask you is where in this paper is there reference to encouraging children to embrace a transgender identity?
A As I said, as I'm recalling the paper that I cited here, it seems to be advocating for the affirmative model, and so, you know, if -- it's making the opinion that these individuals are -- are being harmed if they are not allowed to have

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their gender affirmed.
Again, there are other publications that I could cite that really support the claim that I make in my declaration.
Q Okay. And so it's -- it's your position that making the claim that children could be harmed if they're not allowed to access a particular medication is tantamount to encouraging them to embrace a transgender identity?
MR. RAMER: Objection to form.
A No. I would say that there is -- there are many that make the statement that when one presents with a sex-discordant gender identity, that that that should be supported and not critically appraised and accepted at face value as the patient who presents desires to have that done.
And there are -- in addition to this publication, which really I've addressed kind of how -- what this -- the focus of this paper is, there are many other publications that are available that really put that forward, the uncritical acceptance of one's sex-discordant gender identity without exploration as to the basis for which the sex-discordant gender identity became apparent. I think I might have

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cited later in here the Olson paper looking at -- again, it was for a different purpose, of looking at social affirmation in relation to ongoing transition to -- to other forms of gender-forming medical interventions, and -- but there are other papers that clearly support that, so.
And it wasn't intended in my declaration to be exhaustive in -- in citing all of the literature. Obviously, in the context of this document, it's not possible to put forward all of the papers that address this question.
Q But so where in this paper is there reference to uncritical acceptance of a child's gender identification?
MR. RAMER: Objection to form.
A Well, I -- I would say that I very much summarized the basis of that paper and, again, it is advocating for allowing one to have a gender affirm -- access to gender-affirming care, which supports that as being a desired outcome.
Q And is it -- is it fair to say that there's nowhere in this paper that specifically references encouraging children to embrace a transgender identity?
MR. RAMER: Objection to form.

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A I would say in the way you're phrasing it in this line of questioning, I would agree with that statement, although I would need to -- again, you give me time to scroll through this, I think it -- it really -- I stand by the assertion that I made in my declaration that that is something that is done, that one views the affirmation of one's sex-discordant gender identity to be the preferred approach to these individuals, and -- and that, again, you know, whether it is being allowed or directly encouraged is -- is -- can be gleaned from the way that this is presented in many of the other papers.
Q But not in this particular paper?
MR. RAMER: Objection to form.
A Again, I would say that this paper here is making a very strong argument that they -- the authors believe that patients should be allowed to have access to gender-affirming hormonal interventions.
Q So making a strong argument that the patients should be allowed to have -- allowed to have access to gender-affirming treatment is, in your view, evidence of encouraging children to embrace a transgender identity?

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MR. RAMER: Objection to form.
A I would say that this is consistent with this and other papers of having a model by which when one experiences a sex-discordant gender identity, that it is not critically evaluated as to the basis for the emergence of that sex-discordant gender identity and one is supported in having access to social affirmation and gender-affirming medical interventions.
Q And you said this and other papers, but this is the only paper you cited for this sentence; is that right?
A In my declaration it was the only reference. Again, in the ability -- in this type of a document, not intended to be exhaustive of the literature, and, again, it's consistent with my opinion in this case.
Q In your view, is following the treatment outlined in the current Endocrine Society guideline for the treatment of gender dysphoria tantamount to encouraging a child to embrace a transgender identity?
MR. RAMER: Objection to form.
A So the question about a child that experiences sex-discordant gender identity, it's important to

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recognize how this thinking has evolved over time.
In the original 2009 Endocrine Society guidelines, they specifically discouraged social affirmation in prepubertal children that have this experience, recognizing the existing literature showing that there is a high likelihood that those individuals, if not encouraged in that sex-discordant gender identity, would have a realignment of their gender identity of their sex. They cite many of the same papers that I, in other areas, have -- in my other publications have mentioned.
And so the Endocrine Society initially recognized the impact of the social affirmation not being a neutral intervention, but actually influencing potential later stages of engagement in gender-forming -- gender-affirming medical interventions. So I -- well, I'll leave it at that.
Q So separate from social affirmation and separate from the 2009 Endocrine Society guideline, would you consider following the recommendations in the 2017 Endocrine Society guideline to be the equivalent of encouraging a child to embrace a

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transgender identity?
MR. RAMER: Objection to form.
A As -- as we've been discussing, the -- again, from my perspective as a pediatric endocrinologist, just to be very clear, the role of the endocrinologist, what the endocrinologist is being asked to do is to deliver hormonal medications, whether they be GnRH agonists, puberty blockers, or cross-sex hormones to facilitate the gender-affirming approach. It is done together with other practitioners, but the Endocrine Society guidelines, as they are put forward, are being addressed to the endocrine community. They do address topics related to the other components of the gender-affirming medical care, but the focus of the recommendations are on the role of the endocrinologist in that gender-affirming model.
Q So let's say there's an endocrinologist who sees a patient and that patient has had a sex-discordant gender identity from a very early age, let's say three, and they come in, they had significant distress, they come in to see the -- the endocrinologist. The endocrinologist consults the guidelines, and this child is 16

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years old, was never on puberty blockers, but has long-standing distress and a diagnosis of gender dysphoria.
If that endocrinologist prescribes cross-sex hormones to that patient before them, is that encouraging that child to embrace a transgender identity?
MR. RAMER: Objection to form.
A So as you described that case, the intent of the patient coming to the endocrinologist is to be given medical interventions, hormonal therapy, that will change the appearance of the body to conform to one's gender identity. That would be facilitating that bodily change that is in accord with the desire of that patient. And it would be doing more than just encouraging. It would actually be engaging in a practice that would lead to those bodily changes.
Q So you would -- you would say the intent of the -- of the doctor in that circumstance is to encourage a transgender identity?
MR. RAMER: Objection to form.
A The intent of the endocrinologist giving cross-sex hormones is to change the appearance of the body to conform to one's gender identity.

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Q Do you think that endocrinologists who provide that treatment have an investment in the patient being transgender?
MR. RAMER: Objection to form.
A I don't know how you infer any judgment on investment. They are being asked, and those that would prescribe those medications would be acquiescing to the desires of that patient to facilitate that change.
Q Do you think when doctors treat conditions to alleviate suffering, they're acquiescing to patient desire, as a general matter?
MR. RAMER: Objection to form.
A This is an important question because I think it relates to the uniqueness of the engagement of an endocrinologist in the -- in the treatment of gender dysphoria, which is very distinct from all of the other conditions that a pediatric endocrinologist would normally treat.
And the difference is that in all other endocrine conditions -- or in all endocrine conditions -- this is not an endocrine condition until you make it one by disrupting the function of the normal gonadal function -- is that we have objective criteria to make the diagnosis. We

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have objective criteria for establishing not only the diagnosis, but the response to treatment by measuring of various hormone levels, imaging studies and objective criteria.
So I would say that -- that the endocrinologist is not acquiescing to the desires of the patient. They're able to objectively recognize an endocrinologic disorder and be able to address that disorder within the tools that are available to the endocrinologist, so I would say that it is not the same thing. It is very different in the setting of gender dysphoria than it is in other endocrine conditions.
Q But the endocrinologists who are treating adolescents with gender dysphoria you believe are acquiescing to patient desires?
MR. RAMER: Objection to form. Asked and answered.
A I would say, again, that they are being asked to and they're agreeing to deliver hormonal interventions that will change the appearance of the body to conform to one's perceived gender identity, and in that case they are facilitating the transition that the patient desires.
Q And do you think facilitating and encouraging are

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the same thing?
A No.
Q Okay. Are you a member of the Endocrine Society?
A Yes, I am.
MR. STRANGIO: So if we could go back to Exhibit 1 and paragraph 86, pages 49 to 50. Okay. Wait, no, no, go up, sorry. Sorry, you're right, go down. That was my fault.
Q So here in -- this is in between pages 49 and 50, paragraph 86, talking about the Endocrine Society clinical practice guideline with respect to treatment of gender dysphoria, you write, "The guidelines were never submitted to the entire Endocrine Society membership for comment and approval prior to publication."
Did I read that correctly?
A You did.
Q And is that unique to this particular guideline or is that just how Endocrine Society clinical practice guidelines are generally done?
MR. RAMER: Objection to form.
A So I can state in another related area, there was a paper that was recently published by the Endocrine Society about the importance of sex as a biological variable. That paper was put out to

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the entire membership for comment and addressing before it was published, in contrast to this guideline that was not.
Q Well, I'm talking about clinical practice guidelines; say, for example, the clinical practice guidelines for CAH. Is that put out to the entire membership for comment and approval prior to publication?
MR. RAMER: Objection to form.
A I think I understand your question. So the statement that I make in this paragraph was not that -- so it is correct that most clinical practice guidelines are not put to the membership for approval, but I would -- the reason why this is contained within my declaration is that statements have been made by the plaintiffs that this is accepted by the Endocrine Society. And I would say that without having the ability to -- of the entire membership to comment on that, you cannot state that this is endorsed by the members of the Society. It is only endorsed by the members of that committee that put together the recommendations. That is the purpose of that statement. And that is an accurate description of -- of the -- the status of how these

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recommendations are in relation to the understanding of the entire membership of the Society.
Q So just for clarity, the clinical practice guidelines, including the clinical practice guideline for treatment of gender dysphoria and others, are not put out to the entire membership before publication?
MR. RAMER: Objection. Beyond the scope.
A So, again, my understanding as a member of the Endocrine Society, that most of the clinical practice guidelines are not put to the membership as a whole, but there are also not claims that they represent the understanding of the entire society as well.
Q But the Endocrine Society is not claiming that these clinical practice guidelines represent anything different than they are with respect to other clinical practice guidelines, are they?
MR. RAMER: Objection to form.
A They're -- my understanding from -- from the plaintiff experts is they are making that claim.
Q Separate from the plaintiff experts, is the Endocrine Society making that claim?
A No.

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Q So just trying to understand a little more about -- about your position, is it fair to summarize your position that as -- there is a lack of evidence that pubertal suppression to treat gender dysphoria in adolescents is effective?
A That's one component of my opinion, correct.
Q And can you just explain to me what you would consider to be effective treatment?
A Well, so, again, it cannot be considered in isolation, so in all medical treatments, one weighs relative risks to relative benefits. And there always is a risk/benefit analysis that is done.
The goal of this intervention is to improve the -- to alleviate the suffering of these individuals. Because this is such a new intervention and the existing data, which we have very little long-term data in the use of this affirmative model in adolescents long term, is drawn upon by the experience in adult populations, some of the best longitudinal studies that have been done looking at outcomes following gender-affirming medical care and how their psychological health is in relation to

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the -- the rest of the population, which leads to significant questions about the efficacy of truly alleviating in a sustained way the morbidity that one has and is seeking to have relieved by the delivery of this care.
Q So effective would be to see the distress alleviated from the morbidity, is that -- just to summarize that -- the last part of your answer; is that right?
MR. RAMER: Objection to form.
A There are many -- there are many outcome measures that one can use to assess the efficacy. One of them, and a very important and predominant outcome measure, would be the alleviation of the dysphoria, which is used as the basis for engaging in the affirmative care. It also can include the need for ongoing use of psychiatric medications, ongoing comorbidities including eating disorders, depression, anxiety, peer relationships, a whole host of other outcome measures.
Q And you mentioned that this -- that this is a new medical intervention. What makes it new?
A Well, I would say that when you have a condition in which the best data that we have available in

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adults can often take over ten years to be able to see, you know, effects where people have actually discovered that it didn't alleviate the suffering that they experienced, one does not have that long-term data yet in the treatment of children. The data that we do have available actually leads to strong questions about the efficacy of the intervention in relation to some of those primary outcome measures that I just mentioned.
Q So the newness is based on the availability of long-term data?
A No. The newness is the lack of solid scientific evidence regarding the relative risks and benefits that is precisely my opinion that is supported by several of the European countries that have come to the exact same conclusions about the low quality of evidence, the questions about the long-term efficacy and the relative risks that one is -- and adverse effects that one is assuming to achieve a purported goal of alleviation of suffering. Again, it involves a careful consideration of relative risk versus relative benefit, and it is new to the extent that we do not have the information that we have

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to be able to make the conclusions that many do make incorrectly about the -- the effectiveness of this approach as opposed to alternative approaches.

Q So just taking a step back, you've mentioned now a few times European countries. Which countries?

A Well, there's -- there are statements that have been made in the UK, in Finland, Sweden, Norway, France, New Zealand, many other countries that are assessing this question of scientific evidence and relative risk versus benefit.

Again, my role as a pediatric endocrinologist is focused upon assessing the relative risk versus benefit in relation to the engagement of the pediatric endocrinologist in the delivery of care involving hormones, including cross-sex hormones and puberty blockers.

Q And cross-sex hormones and puberty blockers continue to be prescribed to adolescents with gender dysphoria in the UK; isn't that right?

MR. RAMER: Objection to form. Beyond the scope.

A Okay. So in this case I am not going to be testifying specifically in that area, but my

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understanding is based upon the systematic reviews by the National Institute for Clinical Excellence which include two systematic reviews, one on puberty blockers and one on cross-sex hormones, gave the conclusion that the evidence is deficient and they are dialing back on the provision of the current delivery model and it is a process that is ongoing. What was published as the Cass report is an interim report, but recognizing, for example, in -- in the Carmichael paper that many of the outcome measures were not able to replicate the benefit of the Dutch model in their publication on a different population and there's much more that could be said about this, but I think that the recognition that the evidence that is available is not what it needs to be to -- to be able to say that this is -- the relative benefits versus the relative risks are justified and I think there's a general move toward recognizing the primary importance of psychological interventions.

Q Okay. But just a yes or no answer. Is care banned currently in the UK for treatment of adolescents -- excuse me, I'll rephrase.

Is the provision of puberty blockers or

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cross-sex hormone therapy to treat adolescents with gender dysphoria currently banned in the United Kingdom?

MR. RAMER: Objection to form. Asked and answered.

A And I will say that I am not testifying in this case as being, again, a legislator or a politician on the workings in that country, but my understanding is that it can still be administered in circumstances, but the process of how to deliver this care is under intense scrutiny right now based upon the scientific evidence.

Q But the care can still be delivered in the UK, to the best of your understanding?

A As a pediatric endocrinologist --

MR. RAMER: Objection to form.

A As a pediatric endocrinologist testifying in this case in relation to the relative risks and benefits of the affirmative model, my understanding is that -- that they are reexamining the delivery of care, and I am not aware of any absolute prohibition of the care, but there is certainly recognition that -- that there's much that we do not know and there needs

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to be reconsideration of -- of how we deliver care to the affected population.

Q And is -- is Finland continuing to provide hormone therapy and puberty blockers to some adolescents with gender dysphoria?

MR. RAMER: Objection to form. Beyond the scope.

A It is -- again, although I'm speaking as an endocrinologist and hormonal interventionist, it is my understanding that if that care is being delivered, it needs to be within the setting of an experimental trial.

Q So your understanding is that in the context of at least clinical trials, care in Finland continues to be provided to adolescents with gender dysphoria?

MR. RAMER: Objection to form. Beyond the scope.

A Again, beyond what I'm testifying in this case, but that is my understanding.

Q Well, you raised all of these countries as examples of the basis of your opinion about how the relative risks and benefits of the treatment are being assessed, so you are the one who introduced these -- these countries, and so I'm

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now exploring the nature of these various policies and -- and examinations, so you introduced it into the scope of your -- of your testimony, and it's my deposition and I'll ask the questions.

So with respect to Sweden, is it your understanding that at least in the context of clinical trials, the provision of puberty blockers and cross-sex hormone therapy are being provided to adolescents with gender dysphoria?

A I need to --

MR. RAMER: Objection to form. Beyond the scope.

A I need to clarify. It is not the basis of my opinion. I brought up these European countries that it supports my opinion, that it's consistent with my opinion. It is not the basis of my opinion.

The basis of my opinion is based upon understanding of the scientific evidence that is currently available independent of what is going on in the European countries.

With that said, and your question being outside of the -- what I'm offering in this case, that is my understanding that it started with the

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Karolinska Institute making a determination that they were going to halt the delivery of hormonal treatments to these individuals based upon the low quality of evidence. That was followed up by a governmental policy statement indicating that -- that -- again, that this needs to be an area of active research, and that if it is going to be delivered, it needs to be done recognizing that it is experimental, and that is -- the basis of that which is consistent with the opinion that I am offering in this case was published in a peer-reviewed journal, Acta Pediatrica, demonstrating the low quality of evidence that's present to support the use of the affirmative model.

Q So it's consistent with your opinion to assess the evidence and determine that it is appropriate to continue to provide the treatments in the context of a clinical research trial?

MR. RAMER: Objection to form.

A It is -- so I'm a physician scientist, and I have long maintained that there is a need to do high quality research. It has not been conducted in the appropriate manner to be able to make causal determinations of the effects of gender-affirming

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medical care, and it is an area that is in need of active research. I fully support that.

I think that the trials that need to be done are not even being considered. There are many ways that we can address this question that need to be explored, and that is, again, something that I have consistently maintained.

Q With respect to research in this area, would you agree that it would be difficult to run placebo controlled randomized controlled trials for puberty blockers to treat gender dysphoria?

A I would say that's a mischaracterization of how those trials should be done. I don't think anyone would use a placebo controlled trial. That is not the way that the trial would be envisioned.

Again, the misconstrued nature of how that is proposed is that one treats a patient and then does not treat another patient. That is not what would be ethical to do. One can propose two different treatments. And, again, the way science is normally conducted is that one controls for every element within the study except for the independent variable, so that means that both study groups would receive the

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same intervention, with the exception of the intervention that's being studied for that trial.

Q So would you favor something like a randomized controlled trial in which one group was given psychotherapy alone to treat the distress related to gender dysphoria and one group was given pubertal suppression along with psychotherapy to treat the gender dysphoria and then study the two -- two groups, is that the type of trial that you would envision?

MR. RAMER: Objection to form.

A That -- so, again, as a physician scientist, that would be one way to conduct the trial. In fact, that study has been done in a non-randomized way. It's the 2015 Costa paper where the patients were not randomized to the two interventions that you propose, but they were studied and, in fact, there is justification on the ethical basis that both groups, both the group that received psychotherapy alone and the group that received pubertal blockade with psychotherapy had improvement in the psychological parameters.

I think it would be ethical within the constraints of a clinical trial to be able to propose replicating those findings in a

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randomized manner, so I think there are many other ways to propose that. That's not the only way, but it is one example of the type of intervention that could be studied.
Q And so just to follow up on -- on that point. You would be in favor, as you've mentioned, for -- for more research in this area. Is that a fair summary of what you said?
MR. RAMER: Objection to form.
A Absolutely.
Q And one way to do research would be to give one group the intervention, say puberty blockade, and to give another group psychotherapy and to study the effects of those -- of those two courses; is that -- is that right?
A I think it would be imprudent to make that generalized statement. There are many other components the way that trial would need to be designed within, you know, the -- the normal regulatory mechanisms of the institutional review boards to make sure that the safety of the study subjects would be reasonably maintained to be able to address that question.
I would say given the current state of knowledge, the initial questions that could be

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studied in that type of randomized controlled trial would be modest and very focused on specific outcomes for a defined period of time, but I would not in a conversation like this be able to adequately cover all of the necessary components to be doing such trial in an ethical manner that would preserve the safety of the patient -- or study subject while at the same time allowing one to gain the insight that one needs to fill in the gaps in the knowledge base.
Q Well, let me ask it this way. Would you ever be in favor of a study design that included the provision of gender-affirming hormone therapy to adolescents with gender dysphoria as part of the study?
A Given the current landscape of the way that this affirming model care has -- has been delivered, I think that that would be a necessary component of being able to establish. There are many other ways that you could potentially address that question, but one way would be to have in an experimental trial one group that received the gender-affirming model and another group that received an alternate care, again, maintaining that both study groups would receive the

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identical care with the exception of the independent variable. If the independent variable was, for example, cross-sex hormones or puberty blockers, I think that it would be possible to design a trial with that -- that intervention.
MR. STRANGIO: This is an okay place to stop for me, John, so -- or I can move on. Do you want to do a short break, an hour, and then lunch, or how are you feeling?
MR. RAMER: So a break now makes sense. We're almost at an hour I think anyway, so, Dr. Hruz, over to you about how long of a break.
THE WITNESS: I would prefer to plow through as quickly as possible, so we can keep this a short break.
MR. STRANGIO: All right. Let's go five.
(At this time a recess was taken.)
MR. STRANGIO: Okay. So shifting gears a little bit, and why don't we, Kim, go ahead and pull up Exhibit 1, which is Dr. Hruz's declaration.
Q And just to start, Doctor, so you currently treat patients with disorders of sexual development; is that right?

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A I do, although much of that is now going -- continuing to occur within the setting of our DSD clinic. I routinely am consulted in patients that are born with ambiguous genitalia in the initial evaluation. I have -- my involvement in the DSD clinic has been more limited than it has been in the past.
Q And why is that?
A I have far too many other responsibilities.
Q Understood. I can relate.
MR. STRANGIO: Can we go to page 10, bottom of paragraph 18, please, Kim. Thank you.
Q In here -- so in the -- sorry, the middle of paragraph 18 you write, "Persons who are born with such abnormalities are considered to have a disorder of sexual development, DSD. Most often, this is first detected as ambiguity in the appearance of the external genitalia. Such detection measurements are reliable and valid and accepted by the relevant scientific community."
Did I read that correctly?
A Yes.
Q And so you said most often the ambiguities -- excuse me. Let me start over.
Are all DSDs detected based on appearance of

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an infant's external genitalia at birth?
A It depends on how one -- what one includes in the DSDs. I know there are many that are more inclusive than I would be in what constitutes a disorder of sexual development. But there are conditions, for example, that one could be so virilized that one would not recognize ambiguity of an individual, for example, that had an XX karyotype that would have a male appearing genitalia, so ambiguity is the most frequently encountered, but there are other objective criteria that can be used to recognize, diagnose and treat other forms of DSDs.
Q But not all of those are necessarily immediately known at birth; is that right?
A Yes. I would say probably the most common would be complete androgen insensitivity where that condition, the phenotype is female and it's not recognized until later in life when one does not menstruate that one has the condition.
Q And you write in the next paragraph, in 19, if we could scroll down a little, at the bottom of the page, "The need for making a tentative sex assignment is unique to children with a DSD and does not apply to individuals with normally

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formed and functional genitalia at birth."
Is that correct?
A That is correct.
Q And so taking the CAIS example, the complete androgen insensitivity example, is the sex assignment that's made at birth tentative in that case?
A There -- so if I'm understanding your question, again, if we think about the error rate in the designation or on the appearance of the external genitalia in correctly understanding the gender identity -- or the sexual identity of the individual, it is accurate in, but -- over 99 percent of the cases. That doesn't mean that there are not cases in which there -- that designation is an error, so that I would say that there are situations in which one does not recognize the DSD at the time of birth.
Q What is the difference between sexual identity and gender identity? You just corrected yourself.
A Sexual identity involves the -- the body itself in relation to reproductive function, and as it's currently being used -- again, people erroneously conflate the two terms of gender and sex. But

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what people generally mean in the imprecise use of that word of one's perception of their sexual identity.
Q So what's -- so what would you -- how would you explain one's perception of their sexual identity as opposed to one's perception of their gender identity?
MR. RAMER: Objection to form.
A So as I state very clearly in my declaration, there are -- again, in 99.98 percent of the cases, that one's appearance of their external genitalia is in accord with reproductive development and capacity, the actual basis for sex among not only humans but across the animal kingdom, and the unique roles that males and females have that in that role of reproduction. And so that is an objective understanding in relation to that.
When one looks at individuals that have disorders in that sexual differentiation process, one is trying to be able to understand that -- the etiology, the cause of that disorder of sexual development, and also the potential functioning of that individual in relation to what they possess at the time that they're being

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evaluated.
Q So the sexual identity relates to their reproductive functioning, is that what I'm understanding you saying?
A That is correct, in relation to how we understand sex as a biological variable, but it also includes the other aspects related to the practice of medicine. Again, there is an entire field of medicine recognizing sex-related differences that are genetically encoded in every cell of the body that will affect the functioning and response to various drugs, to various endogenous hormones, disease susceptibility and the like.
Q What is the sexual identity of a patient with CAH who has at birth typically male appearing genitalia but XX chromosomes?
A So just to be clear, you're talking about congenital adrenal hyperplasia, which in the most severe forms, if you have an individual with an XX karyotype that has had significant virilization so that the appearance of the genitalia appears male, these individuals have ovaries, they have a uterus, and they, if recognized and treated, will have the capacity to

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conceive and gestate new life, so they would be clearly female in their sexual identity.
Q And the -- is their female sexual identity based on their capacity to carry new life, as you say?
A So it's in relation to the body itself and its orientation toward that reproductive potential. It's not to say that everyone that has -- in general, with or without adrenal hyperplasia, will be able to or choose to reproduce, but it means that what is the -- present within that individual in its orientation toward that reproductive purpose, so I would say that somebody that has an XX karyotype that has ovaries that's able to make ova, that has a uterus, those are all characteristics that we recognize for the female sex, and therefore in that relation, that would be their sexual identity.
Q And what about someone who has complete androgen insensitivity syndrome with XY chromosomes and typical female appearing external genitalia, what would be their sexual identity?
A That is an excellent question, and I think it's debated depending on how one weights the various components.

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Again, when we talk about disorders of sexual development, when one has normally formed and functioning sexual anatomy, there is no confusion about what the sexual identity is.
When one presents with a disorder of sexual development, the degree of ambiguity leads to uncertainty as to the true sexual identity, and that is really the only situation where one makes a tentative assignment trying to understand best of what's going on.
There are some that will argue because the one has testes, that they would classify them as male. There are others who would classify them as female, because if you look at an effect, they don't have the full complement of what is necessary to engage in sexual function as either male or female. If one weighs the appearance of the -- or the structure of the genitalia to be receptive in the role that normally is assumed by a female, recognizing that the testes themselves require androgens to be able to make sperm so that they're completely infertile, so even though they have testes, they will never be able to have viable sperm, there are some that would designate the sexual identity as female.

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But, again, I would say in those very rare circumstances, one can accept that there's ambiguity and one is not able to make a definitive assessment of the true sexual identity.
But what the practitioner does, those that are involved in the care of these individuals, is to assess what they do have in relation to sexual function and then to make a treatment plan that will help facilitate that -- that sexual role that that individual can carry out.
Q Could two different people with CA -- CAIS, so -- could two people with complete androgen insensitivity syndrome have different sexual identities?
A No, they have one sexual identity, but the external observer trying to assess what that is may come to different conclusions, so there is a sexual identity, but one may not be able to definitively establish what that sexual identity is.
Q And then on this same paragraph 19, but on the next page, starting with "Current practice." So here, Doctor, you write, "Current practice is to defer sex assignment until the etiology of the

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disorder is determined and, if possible, a reliable prediction can be made on likely biologic and psychologic outcomes. When this cannot be done with confidence, a presumptive sex assignment is made. Factors used in making such decisions include karyotype, which 46" -- sorry, in parens, "(46XX, 46XY or other), phenotypic appearance of the external genitalia and parental desires. The availability of new information can, in rare circumstances, lead to a change in sex determination."
Did I read that correctly?
A You did.
Q What new information would be relevant in this context?
A Well, we can return to the example of complete androgen insensitivity and -- and recognize that the information about fertility was not known at the time of birth. It wasn't even questioned. If we understand the etiology, there are conditions, for example, that aren't recognized early on as to more incomplete cases of androgen insensitivity, how well they will respond. Again, it's not always complete. You can have partial androgen insensitivity. Some of those

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individuals will be able to respond to higher doses of androgen, some will not, and that is an example of the information that one does not have at the time in the neonatal period that could lead to a change in -- in how we address that individual and provide care to that person.
Q And would that new information include how the person feels about their sexual identity?
A It -- it certainly is a component. We try to get all of the information that we have. Again, we are dealing with individuals that at the time of evaluation have absent or impaired fertility or sexual function, so I think it -- recognizing that there is a disorder of the sexual differentiation process, one needs to assess all of the components about that individual that will affect their ability to engage in whatever capacity they have, which is understood to be incomplete.
Q But for this subset of humans, how they feel about themselves would be a relevant consideration; is that right?
A It would have to be in the setting of if you have somebody that does not have a clear male or female sexual identity and has a limited capacity

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of how they're going to engage within the sexual realm, that would be an important consideration, yes.
Q And later in that paragraph, towards the bottom, you write, "Decisions on whether to surgically alter the external genitalia to align with sex are generally deferred until the patient is able to provide consent."
Did I read that right?
A Yes.
Q Why is that?
A Well, because we -- this is actually a very important point. When I trained 30-some years ago, it was believed that one needed to make a definitive determination of sexual identity and then to engage in the surgical intervention to align the appearance of the genitalia to that sex assignment.
We recognized that often we were wrong. We also recognized, you know, that there was more information that could be available in life that would impact that, and in this area there has been increased caution in being able to intervene until we have a better sense of all of the factors that can -- that may not be present at

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the time of the initial evaluation that may impact the sexual function of that individual. So it's actually moved toward increasing caution, recognizing the uncertainty that one has, which I would say is in stark contrast to what's going on now in the area of gender dysphoria.
Q And can surgeries done on infants with DSDs impact their ability to orgasm?
A Yes.
Q And can surgeries done on infants with DSDs carry risk?
A Yes.
Q And are all the surgeries done on infants with DSDs supported by long-term studies showing benefit?
A So let's -- let's -- so in order for me to adequately address your question, we have to look at the circumstances in which surgery will be done in that period of infancy.
Q I can narrow the question, if that will save us time, which is just to say are -- are surgeries that are done for the sole purpose of conforming the appearance of external genitalia to the sex assignment supported by long-term studies showing benefit?

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A There are ongoing studies, and that was the basis for which the change in the approach was made about individuals that had adverse effects of the surgeries that were done. You mentioned one of them as far as orgasm and sexual function. The -- the studies actually supported the fact that there was many individuals that reported harms by doing surgery early on, and -- and that was one of the reasons for deferring any surgical interventions until later in life.
Q Are you aware that Senate Enrolled Act 480 explicitly exempts from prohibition any surgery performed on a patient with a DSD even if such surgery is solely to align the appearance of the external genitalia with the sex assignment?
MR. RAMER: Objection to form.
A Again, I'm not testifying on the legal aspects of this, I'm not a politician, I'm not a lawyer, but the reason for doing surgeries on -- in infancy for disorders of sexual development are usually limited to those that have significant medical risk. There can be a malplacement of the urethra that leads to a predisposition to urinary tract infections. There can be urinary outflow obstruction. There can be a malignancy risk by

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having a dysgenetic testes that are present within the abdomen. There are many reasons why one would choose to do surgery earlier.

Again, this is an area that is -- again, there's -- there's ongoing discussion within the DSD community about the optimal timing of surgery or not. There's many that recognize that blanket prohibitions on doing surgery really carry themself medical risk when you have situations where intervention is required early on, but most of the practitioners, myself and those that are involved in the care of patients with DSD, if it is merely for cosmetic reasons, will defer that until later.

Q And we heard in a deposition that there are hospitals in Indiana that are performing genital surgeries on infants solely to alter the appearance of the infant's external genitalia. Do you agree with that practice?

A I'm not --

MR. RAMER: Objection to form.

A I'm not familiar with -- with what you're referring to, so I couldn't comment on that. I don't know the circumstances of the decisions that were made to make that decision, so I can't

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comment.

Q But you think that prudent professionals could have a different approach to the surgical treatment of infants with DSDs; is that correct?

MR. RAMER: Objection to form.

A So my involvement in the care of patients with DSDs is involving many different layers of consideration as far as what's in the best interests of that patient, looking at their overall risk and benefit of early or delayed surgical intervention.

Q Okay. So in your declaration that we've been discussing, you talk about different endocrine conditions that you treat in your practice, so I wanted to talk about some of those.

Is central precocious puberty a condition that you treat?

A Yes.

Q And do you treat central precocious puberty with GnRH analogues?

A Yes.

Q For natal males and natal females?

A Yes.

MR. STRANGIO: And so if we could go to paragraph 61, page 35 of your declaration. 35,

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61, okay. Can you scroll down a bit. Sorry.

Q Yeah, so here it's at the top of page 35, you write, "The evidence for the safety and efficacy of puberty suppression in boys is less robust, chiefly since precocious puberty is much rarer in boys."

Did I read that correctly?

A That is correct.

Q Is it the case that sometimes with rare conditions, there is less evidence supporting a particular intervention?

A That is very true in many areas of medicine. Again, any decision made is based upon the relative risk versus the relative benefit of the intervention, so that's not unique to -- to one particular area of medicine. That's true for all of medicine.

Q And at what age, you know, just even a range, do you generally take patients with central precocious puberty off of the GnRH analogue?

A Generally we will usually stop the GnRH agonist when they reach the age of normal puberty. It will be -- the length of treatment will be influenced by the degree of bone age advancement, the affect that one may potentially have on

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height, but it also takes into consideration the effects of delaying puberty beyond the normal time as an adverse effect on things such as bone health.

Q But, generally speaking, it's an individualized assessment for each patient based on the typical pubertal age and other medical factors; is that a fair summary?

A It is. In general, between 10 and 12 years of age is usually the limit of when one will continue that intervention.

Q Same for natal males and natal females?

A Slightly different, but very similar.

Q What's the difference?

A Normal male puberty happens later than in females.

Q And in terms of years, when did you begin to treat central precocious puberty with GnRH analogues?

A I've been doing that throughout my career.

Q So that would be going back to the 1990s?

A Yes. '97 is when I started my fellowship training.

Q And if we could go to paragraph 43 on page 23. Here you have -- you write, "A 2009 consensus

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statement of pediatric endocrinologists concluded that GnRH analogues are an effective way to improve the height of girls with onset of puberty at less than six years of age and also recommended the treatment to be considered for boys with onset of precocious puberty who have compromised height potential."
Did I read that correctly?
A Yes, you did read that correctly.
Q Are there any randomized controlled trials supporting the use of GnRH analogues to treat central precocious puberty to improve adult height?
A There -- to my knowledge, there's not a randomized controlled trial. There -- the comparators are between those that did and did not receive the GnRH agonists as far as their effects on final height.
Q Sorry, to go back there, there are no randomized controlled trials, though, supporting the use of GnRH analogues to treat CPP to improve adult height; is that right?
A Correct. My understanding is that the data compares those that did and did not receive analogues and it was not in the setting of a

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randomized controlled trial.
Q Does pubertal suppression on its own permanently impair fertility?
MR. RAMER: Objection to form.
A The evidence that we have in the treatment of central precocious puberty where one uses the medication to resume the normal quiescent state of the inactivity of the pituitary gonadal axis has not been shown to have any adverse effects on fertility.
Q And then on page -- sorry, excuse me, paragraph 62, so that's a few pages -- I don't know the page number actually for this. Oh, it's probably around 35. So here -- yeah, right there, paragraph 62. You write, "Unlike children affected by precocious puberty, adolescents with gender dysphoria do not have any physiological disorders of puberty that are being corrected by the puberty-suppressing drugs."
Did I read that correctly?
A Yes, you did.
Q Presumably a patient could have both central precocious puberty and gender dysphoria; right?
A Conceivably, yes.
Q And for that patient, would you agree that

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pubertal suppression would be appropriate?
A Yes.
MR. RAMER: Objection to form.
A So -- so if you're asking about the treatment with a GnRH agonist for a patient that has central precocious puberty, that would be an indication because that individual would be having premature activation of the hypothalamic-pituitary-gonadal axis.
Q And here you also write, "The fact that children with suppressed precocious puberty between ages 8 and 12 resume puberty at age 13 does not mean that adolescents suffering from gender dysphoria who puberty -- whose puberty is suppressed beginning at age 12 will simply resume normal pubertal development later if they choose to withdraw from the puberty-suppressing treatment and choose not to undergo other sex reassignment procedures."
Did I read that right?
A You did read that correctly.
Q As I understand it, a natal female could begin puberty at age eight, a normal timed puberty; is that right?
A Actually, there's some data that suggests that

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you could begin puberty even younger, as early as seven years. Generally when it occurs earlier, the tempo of progression is slow. The earliest age of menarche for a female still remains ten years.
Q And so if a natal female diagnosed with gender dysphoria begins puberty at age eight and then goes on to blockers and then at age twelve goes off the blockers, would that presumably be different as the same patient with CPP who you mentioned above who would go off of blockers at age twelve?
MR. RAMER: Objection to form.
A So most often when we have patients, it depends on when they present to the practitioner and what their height potential is and how much the bone ages have been advanced. There are many that would present with precocious puberty at that age that would not be treated with GnRH agonists, but there would be -- so it does -- if they started after age eight, they do not have precocious puberty and that would be very different. If they had clear clinical evidence that their puberty began precociously and they were at a later stage, Tanner stage, of development at

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eight years of age, leading to the likelihood that they would have premature closure of their growth plates and premature menarche, that would be an indication for suppressing that puberty until that time to account for that, so I think they are different.

The way you asked the question would not be a situation that one would encounter, that if you had puberty at eight years of age, that somebody who was just turning Tanner stage 2 with normal linear growth, no bone age advancement, they would not be placed on a GnRH agonist.

Q But if they were placed on a GnRH agonist for gender dysphoria, it's your view that the four years from eight to twelve on that GnRH agonist for the gender dysphoria would be different than the treatment for precocious puberty; am I understanding you correctly?

MR. RAMER: Objection to form.

A So, yes, they would be different in several respects. They are different in that one is interfering with a normally timed puberty. They also would -- again, for the purposes of treating gender dysphoria, there are effects on growth, pubertal development, but also the likelihood

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that one will go on to later stages of intervention, so there's many differences between those two scenarios and they are not the same condition.

Q So, but even though both patients would begin puberty at age 12 endogenously when they went off the blocker, is that your position?

MR. RAMER: Objection to form.

A They would not have been equivalent at the time the intervention was begun. The whole reason you would make the diagnosis of precocious puberty would be influenced by the timing, the tempo and the final height prediction of that individual. And if you -- and by definition they would be different and not the same.

Q And what would be the different health outcomes that you have seen in evidence?

MR. RAMER: Objection to form.

A So -- so just so I'm clear about what's your question, you say what is the different outcome in somebody that has normally timed puberty, that has normal age of initiation of puberty, that does not have bone age advancement, that is not predicted to have menarche before ten years of age as opposed to somebody that does, is that

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what you're asking?

Q In the circumstance when both patients go on the pubertal blockade for the different reasons, but come off it at the same time and undergo their endogenous puberty at the same time.

A So the antecedent to the introduction of that intervention, there were things that were going on in the patient with precocious puberty that would not be present in the person that did not have precocious puberty and therefore the influence on things like growth, age of menarche and -- and bone density would be different.

Q Are you aware of any studies showing the differences between those two populations of people?

A I am, but not in direct comparison. I'm aware of studies that specifically look at the effects of pubertal blockade in individuals with central precocious puberty and those that examine the effects of pubertal blockade in those with gender dysphoria. That literature has been -- for the central precocious puberty is readily available. It's the whole basis by which there are many patients that I have that would prefer to have puberty indefinitely postponed and have to show

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them the data that shows that -- that by interfering with puberty, there's a limit that is considered, again, the risk versus benefit, and that's why we only do it for a defined period of time.

Q Is the limit based on the length of time on the blockade or the age at which you take a patient off the blockade?

A It is those factors and more. It is based upon also the maturation of the skeleton, the bone age of that individual.

Q Okay. I want to turn back to your CV, which is Exhibit 2, and going down to the invited publications on page 11.

Okay. I think that's the right place.

So two of your invited publications were published in the National Catholic Bioethics Quarterly; is that correct?

A Yes.

Q And so I want to pull up Exhibit 10, which is the Information for Authors, the Submission Guidelines, which I know, Doctor, we've gone through these before.

So have you seen this document?

A In the context of prior depositions, yes.

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Q And this is, as it states, the Information for Authors and Submission Guidelines for the National Catholic Bioethics Quarterly.
Any reason to doubt that that's what this is?
MR. RAMER: Objection to form.
A No reason -- no reason to doubt.
Q And so I'm just going to read the beginning of the submission guidelines, which state as follows: "The National Catholic Bioethics Quarterly is the official journal of the National Catholic Bioethics Center, an organization dedicated to research and the analysis of moral issues arising in health care and the life sciences. The NCBQ seeks to foster intellectual inquiry on moral issues by publishing articles that address the ethical, philosophical, theological and clinical questions raised by the rapid pace of modern medical and technological progress. Inspired by the harmony of faith and reason, the NCBQ unites faith in Christ to reasoned and rigorous reflection on the findings of the empirical and experimental sciences. While the NCBQ is committed to publishing material that is consonant with the magisterium

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of the Catholic Church, it remains open to other faiths and to secular viewpoints in the spirit of informed dialogue."
Were you aware of this mission of the journal when you were invited to submit your articles for publication there?
A I don't recall reading this particular paragraph, but it was my general understanding, and I've had conversations with those on the editorial board of the journal, recognizing that the relationship between faith and reason and the importance of having scholarly articles that focus on scientific evidence.
Q What does it mean to be consonant with the magisterium of the Catholic Church?
MR. RAMER: Objection to form.
A I'm not testifying as a theologian and I'm not qualified to do so.
My understanding is -- is that they're speaking about areas related to the faith part of that component of faith versus reason.
In my experience, I have never encountered a situation where the scientific evidence contradicts anything in the area of faith, which, again, is outside my area of expertise.

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Q So you've never encountered in your work anything where the scientific evidence is counter to the issues of faith, is that how you phrased it?
A I would say --
MR. RAMER: Objection to form.
A I would say that they are two different domains of investigation, of academic or spiritual, you know, understanding. They speak to different questions, they have different tools, but in my experience as a physician scientist, I have not encountered anything that is in contradiction, recognizing that they address different topics.
Q You haven't encountered anything that is in contradiction with what?
MR. RAMER: Objection to form.
A So in my scientific understanding of things that could be understood, confirmed scientific investigation, I've not encountered any scientific findings that would contradict anything that is stated by the -- the Church.
Q And so are your articles consonant with the magisterium of the Catholic Church?
MR. RAMER: Objection to form.
A I will again state that I'm not a theologian and that I don't make a claim to be able to know that

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with any certainty. I'm not aware of any contradictions.
Q And one of the book chapters that you wrote was in the book "Transgender Issues in Catholic Health Care," and that was published by the National Catholic Bioethics Center; is that right?
A That is correct.
Q And you also received a certificate in healthcare ethics from the National Catholic Bioethics Center?
A Yes.
Q And so let's pull up Exhibit 11. And this -- I know we've also looked at this document together, Doctor. This is the National Catholic Bioethics Center 2016 "Brief Statement on Transgenderism." If you could scroll down a bit, you can see the citation there on the National Catholic Bioethics Center. There you go.
So you've seen this document before; is that right?
A Yes.
Q And on page 602, which is going to be a few pages in -- we can stop there. In this paragraph under the subheading in italics "Catholic Health Care,"

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it's -- the statement says as follows, "In light of the scientific evidence showing that transitioning has no demonstrated long-term therapeutic benefit, and in light of Catholic teaching about the nature of the human person, no Catholic health care organization should establish policies that positively affirm the choice of any behavioral, hormonal, or surgical gender transitioning of patients, personnel or other persons served by the organization. In addition, no Catholic health care organization should require its personnel to carry out, promote, refer for or otherwise cooperate formally in procedures involved in gender transitioning, especially surgical or hormonal interventions; require the use of pronouns or sex-specific identifiers that are explicitly contrary to a person's biological sex; or otherwise require the affirmation of a false sexual identity for any persons who are or are planning on transitioning."

Did I read that correctly?

A If you're asking if you read the text there correctly, yes.

Q Do you agree that no Catholic health care

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organization should have policies that positively affirm the behavioral, hormonal or surgical gender transitioning of patients, personnel or other persons served by the organization?

MR. RAMER: Objection to form.

A I will state very clearly again that I am not serving as an expert witness as a theologian and don't hold opinions for this case in relation to that. Neither do I work at a Catholic healthcare institution. I work at a secular university, and therefore this is outside of the scope of my area of expertise.

Q Do you have personal beliefs that align with this articulation in this -- in this paragraph?

MR. RAMER: Objection to form. Beyond the scope.

A I have many personal beliefs that I hold on a number of different topics. And in my role as a physician scientist, one needs to assess the scientific evidence, the component here that is in this statement here, and that is the purview that I am offering to this court in relation to the scientific evidence.

And I would agree, as I stated repeatedly in my declaration, that the scientific evidence in

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relation to the affirmative model for gender dysphoria is based upon low quality of evidence with questionable -- questionable long-term benefits, many concerns. And in that respect, that is what I understand to be in agreement with the statement in this paragraph.

Q And does that include what this statement refers to as the use of pronouns or sex specific identifiers that are explicitly contrary to a person's biological sex?

MR. RAMER: Objection to form. Beyond the scope.

A It is -- as I said before, I am an expert as a pediatric endocrinologist and physician scientist. I am not a theologian. I am not offering opinions related to areas outside of my area of expertise.

Q Well, as a physician scientist, what is your view of using pronouns or sex specific identifiers that are explicitly contrary to a person's biological sex?

MR. RAMER: Objection to form and scope.

A So I would say that it is important to recognize sex-based differences between males and females when one generates a differential diagnosis in a

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treatment plan for any patients. To the extent that one clouds that recognition and influences one's generation of that differential diagnosis or treatment plan, that one needs to maintain and be aware of the sexual identity of that individual to deliver proper care to that individual.

In that respect, it is important to maintain -- to recognize and to maintain the sexual identity of that individual who is being cared for.

Q Is sexual identity the same as pronoun use?

A In my experience as -- as a physician in practice, that when one uses pronouns that are not in accord with one's sexual identity, it leads to tremendous confusion and difficulty in being able to maintain that biological perspective.

I've been present on rounds where sex-discordant pronoun usage has been used and I have seen directly the ways in which that influences one's decision-making in an adverse way. I'm also aware of other reports and examples for which that has occurred in other settings outside of my institution, again, more

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hearsay, but certainly I do think that it can affect one's effectiveness as a physician if one loses sight of or does not fully appreciate the sexual identity of the individual and using sex-discrepant pronoun usage does have an influence on one's thinking.

Q Do you think that a physician scientist who is treating patients with CAIS who lived entirely as a woman and used female pronouns for that individual could continue to treat her even though she had XY chromosomes?

MR. RAMER: Objection to form.

A Well, again, I'm not fully understanding your question. Can you repeat that in a way that I can fully understand?

Q Well, you said that -- well, as I understand it, you said that use of pronouns can -- can impact the ability of a medical provider to treat, as I understand it, the sort of biological components of sex. Is that part of what you were -- what you were explaining?

A Yes.

Q And that previously we were talking about certain individuals who have disordered -- excuse me -- yeah, who have disorders of sexual development.

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Is that -- is that a population of people that exist, we can agree on that?

A Yes.

Q And so one of those people might be someone with CAIS, complete androgen insensitivity syndrome, who may have male chromosomes and other typically male biological features but who would likely use the pronouns, say, she/her.

Would use of the pronouns she/her for that individual impair the physician's ability to care for that patient?

MR. RAMER: Objection to form.

A It's a very broad question. Depends on -- on the medical complaint that is coming for attention, as some would be yes and some would be no.

Q So how would -- how would one ensure that that individual is properly treated for all of the -- the indications they may come to -- to treatment for?

MR. RAMER: Objection to form.

A So as a clear example of that, there is the question of having those XY chromosomes and a gonad that is dysfunctional on the cancer risk of that individual, recognizing that they have the dysfunctional gonads and one needs to properly

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assess that risk. One needs to understand if the question -- the most common reason why that individual would come to the attention of an endocrinologist is when they experience primary amenorrhea, meaning that they go through puberty, including breast development, they don't have any pubic hair or axillary hair development and they're not menstruating. That's usually the situation where we first recognize that they have the condition. It would -- again, the pronoun use is not at issue here. It is recognizing the reason for the amenorrhea and being able to counsel that patient on any health risks that they have related to their condition, being able to explain to them the basis of the disorder that occurred, and certainly which often comes as a very difficult conversation about their infertility that they have.

Q But at some point it might be that you would refer to this patient by a pronoun and still be able to treat all of these physical presentations that they appear with, isn't that -- isn't that right?

MR. RAMER: Objection to form.

A Again, you're making some -- a very broad

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statement. I think there are some aspects of the care that would require recognition of the underlying disorder of sexual development and other aspects that would be independent of that.

In that situation, I think using the female pronouns would not be problematic. And, in fact, in my own experience that is generally what is done for these affected individuals.

Q But when you are treating the underlying disorder of sex development, is using the female pronoun problematic?

MR. RAMER: Objection to form.

A As I said before, one needs to -- this is -- you're asking a very rare condition that applies, you know, to a unique situation in which there may be lack of clarity on sexual identity. There are different factors that apply to an individual that has a disorder of sexual development.

Generally speaking, those that are recognized to have a DSD are not going to be misperceived by claiming that they have -- don't have that disorder.

You -- for example, you're not going to have a situation where you have a female XX individual that presents with abdominal pain using male

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pronouns not telling their practitioner that they are biologically female and not being able to entertain the diagnosis for abdominal pain of being related to pregnancy and labor. That's an example, you wouldn't encounter that in a patient with a DSD.

So, again, to make a blanket statement about a rare condition and the application of these general principles -- and, again, they are general principles that need to be applied to unique patient situations, about the prudence of doing that.

As I understood your initial question, it was can it influence the accuracy of diagnosis, and the answer is yes.

Q I don't think that that was my actual initial question, but we can -- we can move on because it's been a while here.

So if we could pull up Exhibit 12. And this is one of your articles, I believe, in the National Catholic Bioethics Quarterly. Does this look like, "The Use of Cross-Sex Steroids in Treatment of Gender Dysphoria," was this --

A Yes.

Q And this was published in the National Catholic

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Bioethics Quarterly; is that right?

A Yes.

Q And if we could go to page 662 of -- of the article. I think -- no, no, if you scroll down, the numbers are at the top, so it's right here.

And just at the top of the page, first complete sentence, so in this article you write, "In stark contrast to Pope St. John Paul II's teaching on the theology of the body, which illuminates a teleological complementarity between male and female forms and an inseparable unity of body, mind and soul, it is now openly argued that the mind alone can and in some cases should determine, or at least influence, reality in medical practice."

Did I read that correctly?

A Yes, you did.

Q And how does Pope St. John Paul II's teaching come into your scientific analysis?

MR. RAMER: Objection to form.

A Well, I would state again, in the opinions that I'm offering in this case, I'm focusing on issues of science and best medical practice. I'm not making an argument based upon theological understanding, yet that does not mean that I do

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not have a recognition of when we speak about the complementarity between male and female forms, it actually speaks to what I discuss in my declaration of the unique roles of males and females in that reproductive process, that the physical structures of the body are intrinsically oriented toward the respective roles of males and females in that reproductive process, that that is something that is central to the human body and it reflects a purpose.

The teleological complementarity relates to the unique role of males and females that are -- that are designed by their very nature to participate in that reproductive engagement.

Q And so would this be an area where you have found that your scientific inquiry is not in contradiction with the teachings of the church?

MR. RAMER: Objection to the form.

A So, again, in relation to an understanding of male and female in the biological realm, independent of any theological assumptions, there is a well recognized complementarity between male and female forms. There are, indeed, in fact, not only the physical structures involved in the -- in the act of sexual intercourse, but also

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in the genetic differences between males and females that pertain to the unique roles of males and females in the rearing of children that come from that reproductive act.

We see this in the animal kingdom well beyond humans in which there is -- there are traits that males have more predominant than females, again, there's significant overlap, that give an advantage in different roles in raising offspring. For example, the role of increased lean body mass certainly is an advantage for being a protector, defender and a gatherer of nutrition in the male. It comes at a cost in decreased life span, increased infection risk. There are roles in the female body that pertain to the nurturing role, the ability to breastfeed and nurture offspring that come with different costs, increased adiposity, decreased lean body mass can be -- is clearly different between males and females. There are differences in the female body as far as susceptibility to autoimmune diseases which is necessary in relation to being able to gestate an individual that has unique DNA within their own body.

So, again, the scientific understanding of

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male and female and the complementarity between them from a purely scientific and biological nature is entirely consistent with this teleological complementarity that is addressed in this paragraph in this paper.

Q And do you believe that males and females have unique roles in child-rearing?

MR. RAMER: Objection to form.

A So I would say that -- as I said before, that there's obvious differences between males and females in that females are able to breastfeed and males are not. Females are able to gestate, you know, and be able to deliver babies. The male has a role of delivering sperm to the female, which is a unique role of the male, so there are clear differences between males and females.

And in the rearing of the children, now, recognizing that there's overlap between these traits and that there are roles that can be assumed by both members of the -- of any species, not just humans, there are -- there are distinct advantages based upon the genetic and epigenetic differences between the male and female.

Q And on page 671 of this article, which is the

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last page, I believe -- wait, go up. Sorry, the beginning of the conclusion.

At the -- right below "Future Directions," the sort of second clause of that first sentence, you write, "It is clear that the use of cross-sex hormones for the treatment of gender dysphoria is immoral."

Is that a medical assessment?

MR. RAMER: Objection to form.

A No. It is -- it is -- morality is in the realm that's outside of -- although we could use the word ethics, I think it's within the medical practice to think about ethics, but morality and the interrelationship between understanding of morality and ethics are related but distinct.

Q Understood. So going, if we could, back to your declaration, which is Exhibit 1, and paragraph 12, page 7, and here -- sorry, page 7, if you go down a bit.

Right at the bottom there of that paragraph before 13 you write, "I have also consulted with" -- sorry, "I have also consulted with, met with, and had detailed discussions with dozens of parents of children with gender dysphoria to understand the unique difficulties experienced by

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this patient population."

Did I read that correctly?

A Yes, you did.

Q And you're aware that one of the parents that you met with recently testified at the trial in Dekker in Florida; is that right?

A If you're referring to Ms. Hutton, yes.

Q Yes, I am. And in her testimony, she explained that during the course of the conversation that she had with you about her child with gender dysphoria, you brought up the teaching of Pope St. John Paul II; is that right?

MR. RAMER: Objection to form.

A To properly answer the question, I would need to explain the context of that conversation.

Q I don't -- I don't -- I don't -- I don't want the context. I just want to know did you bring up the teaching of Pope St. John Paul II in your conversation with Ms. Hutton?

MR. RAMER: Objection to form.

A As was asked and responded to in the trial transcript, I answered yes to that. Yes, it was referred to.

MR. STRANGIO: Okay. So I could keep going, John and Doctor, or this is -- I'm sort of at the

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end of that particular line of questions, so we could break for lunch, we could break short. Do you have a preference? I'm amenable to either.

MR. RAMER: I defer to Dr. Hruz. It sounds like he was inclined to take a short break and keep pushing, which is fine with me.

THE WITNESS: Why don't we take ten minutes.

MR. STRANGIO: All right, let's take ten.

(At this time a recess was taken.)

Q All right. Just one -- one last question on the last topic we were talking about, the -- sorry, what is it called, the National Catholic Bioethics Quarterly. And just one question. Is treatment of patients with gender dysphoria with gender-affirming care consonant with the magisterium of the Catholic Church?

MR. RAMER: Objection to form.

A You're asking me a question that's outside of my area of expertise that I'm testifying in this case relating to a teaching of the National Catholic Bioethics Center or the Catholic Church, and I'm not opining on that.

Q But -- but it is a publication that you've published in, that's correct; right?

A That is correct.

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Q And you received a certification in healthcare ethics from this center; is that correct?
A That is correct.
Q But you have no sense of whether treatment with gender-affirming care for patients with gender dysphoria is consonant with the magisterium of the Catholic Church?
MR. RAMER: Objection to form. Asked and answered.
A That is a question related to a theological issue, and I'm testifying as a physician scientist, and my -- the basis of my opinions in this case are based upon scientific evidence, not theological principles.
Q Oh, I'm not asking if it's the basis of your opinion. I'm just asking based on your understanding, is the provision of gender-affirming care to treat gender dysphoria consonant with the magisterium of the Catholic Church?
MR. RAMER: Objection to form. Asked and answered. Beyond the scope.
A Again, I don't -- I don't have a basis to speak for that organization and I'll reserve my comments to my role as a physician scientist and

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pediatric endocrinologist.
Q And just one question on a topic we covered earlier, and I think my understanding was limited as to -- to the science, which is probably not going to surprise you.
Going back to surgical interventions of infants with disorders of sex development. So taking one example, let's say surgical intervention on the genitals of an infant with CAH to create a more typical vagina appearance, are there long-term studies showing benefit of that surgical intervention?
A Actually there are studies that show difficulties that these patients encounter when it is done at that early age as far as the functioning of the vagina, requiring dilation and things of that nature later, and so that's one of the bases for delaying intervention.
Q Okay. Thank you for clarifying that. So have you ever heard the term social transition?
A Yes.
Q And what is your understanding of what social transition is?
A That is the allowing of an individual that has sex-discordant gender identity to assume

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asserting of pronouns, dress in agreement with that gender identity that's discordant with one's biological sex.
Q As a physician scientist, do you oppose social transition as an intervention for patients?
MR. RAMER: Objection to form. Beyond the scope.
A Although it's beyond what I'm offering in this case, the question that I ask is what is the effect of social affirmation in the likelihood that one is going to proceed on to receiving hormonal interventions. Again, as a physician scientist and an endocrinologist, I'm aware of the literature that shows quite clearly that nearly -- that there is -- it's not a neutral intervention, that those that are socially affirmed are much more likely to proceed on to pubertal blockade. Those that receive pubertal blockade, almost all go on to receive cross-sex hormones.
So in that context of assessing the effect of social affirmation on the progression to medical interventions, that is the realm that -- that I'm aware of as my -- in my role as a physician scientist and endocrinologist.

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Q Does existing evidence tell you anything about causation with respect to social transition and the subsequent process of going on to puberty blockade?
MR. RAMER: Objection to form and beyond the scope.
A Again, beyond the scope of what I am testifying about, but in general, the literature that is available right now is very deficient in being able to make any causal conclusions, merely associations can be inferred, and that's based upon the way that the clinical evidence has been collected to date, based upon cross-sectional surveys and other research tools that cannot establish that causal relationship.
Q So you're not aware based on the evidence of a causal relationship between social transition and going on to puberty blockade to treat gender dysphoria?
MR. RAMER: Objection to form and beyond the scope.
A I think it is again beyond -- so, again, speaking from the role of a pediatric endocrinologist, it is an association that, again, one needs to recognize in relation to when the pediatric

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endocrinologist would be called upon to -- to intervene in this condition, so that is -- certainly as in other areas, one needs to consider and -- but there's an absence of the high quality studies that need to be done to establish that causal relationship.

Q Is it your view that any psychological treatment or social transition or affirmation are beyond the scope of your expertise in this particular case?

MR. RAMER: Objection to form.

A The -- the degree to which I am opining is contained within my declaration, and it involves really the -- the point at which the pediatric endocrinologist is engaged in assessing the relative risks and benefits of medical and gender affirmation.

Q So in the past you have weighed in as -- as amicus in at least one case involving the use of pronouns at a university; is that right?

A Yes, many years ago, so if we're going to talk about that, it would be good to bring up and discuss within the context of where those statements were made, but, yes.

Q We don't need to go into any amount of detail,

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but just some general questions about pronoun use in adults. If you recall -- do you at least recall that the case concerned an adult college student and a professor?

A I would need more information to refresh my memory on the specific document that you're speaking of.

Q Well, so why don't we just speak in generalities because we don't need to go through an amicus brief, I don't think, but we can maybe come back to it.

Do you believe it is a lie to refer to someone by a pronoun other than the one that we typically associate with their natal sex?

MR. RAMER: Objection to form.

A I will state again that if you're asking me to opine on statements that were made in a document that are taken out of context that may convey an incorrect portrayal of how I made that statement, I'm not able to do that.

Q I'm not reading from a document. I'm just asking you as -- as Dr. Hruz, do you believe it is a lie to refer to a person by a pronoun other than the one that we typically associate with their natal sex?

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MR. RAMER: Objection to form.

A So I would say using the word lie implies an understanding of the intent of the individual and their understanding, so, again, I would need to look at the context of which that statement was made.

I would say that if the statement is being made in relation to accepting an understanding of one's sexual identity that is not objectively true, then it would at least be a false statement, again, so that's -- that's the best I can answer.

Q And in your -- starting with in your medical practice, are you personally opposed to referring to a transgender person by pronouns other than the ones that align with their natal sex?

A So in my practice, one needs to be sensitive to the individual and their individual needs. My role is generally relegated to delivering care for endocrinologic issues, and we've already stated the basis by which I think it is very important to maintain that sexual identity.

I can see circumstances where theoretically, hypothetically one could establish a relationship with a patient where that understanding could be

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maintained to be able to best serve that individual. In my practice, I've not -- has not necessitated me doing so. I think the most compassionate way to maintain both the biological reality of the patient that's presenting to me for care and respecting where they're at with their understanding of their gender identity is to engage in a conversation where gender neutral terms are used and therefore one can accomplish the goal of accepting the sensitivity of one's understanding of their sexual identity, but also maintain that biological sexual identity that is present, and that's been very effective for me in my practice, and most -- actually, I've never had a situation where a patient has objected to that.

Q And what about outside your practice, just in your personal and professional life, with a colleague or someone else, would you object to referring to someone with pronouns different than those typically associated with their natal sex?

MR. RAMER: Objection to form. Beyond the scope.

A There are a multitude of types of circumstances where conversations such as that might occur, and, in general, I'm fairly consistent in my

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approach, and, therefore, because I do in my medical practice, I tend to engage in those conversations in the same way with colleagues in other situations, but without having the details of a context of the conversation and the person that I'm speaking to, you know, I would say that my general approach is to use gender neutral language.

Q For every person or just people you perceive to be transgender?

MR. RAMER: Objection to form. Beyond the scope.

A So I think that it's pretty obvious in my conversations with other people outside of the area of gender dysphoria where one can use, you know, the pronouns that are consonant with one's biological sex. That is not something I think about. I just -- as most people do.

Q But if you think a person might be expressing themselves different than their biological sex, you would use gender neutral pronouns; is that right?

MR. RAMER: Objection to form. Beyond the scope.

A Again, you're asking a hypothetical, and I think

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there are many circumstances that would influence the answer to that question. And I've not encountered situations that you're referring to where there's ever been difficulty in having that conversation with somebody, whether I suspected or knew that they had a sex-discordant gender identity, so, again, you're asking very general questions that are private conversations with individuals that would depend upon the circumstances, and my approach is generally consistent.

Q And when you say your approach is generally consistent, that is to use gender neutral language; is that right?

MR. RAMER: Objection to form. Asked and answered.

A Actually that's not what I said. I -- I said that in the situations where I perceive that there may be difficulty in using a pronoun that is consonant with one's sexual identity, I will use gender neutral language. That applies only to those situations where I have that perception. And, again, I've never encountered any conversations where one has been offended with the way that I've referred to them.

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Q Do you consider the provision of gender-affirming medical interventions to adolescents with gender dysphoria to be a form of child abuse?

MR. RAMER: Objection to form. Calls for a legal conclusion.

A So, again, I'm going to reiterate again that I'm offering my expertise as a physician scientist, a pediatric endocrinologist to the care of individuals that are requesting medical interventions that involve cross-sex hormones and puberty blockers.

The question that you're asking me is outside of the opinions that I'm offering in this case and really involve a -- a question about -- you know, I would say that if one looks at what the relative risk and benefit is and one has concluded that one is engaging in an activity that one has a high degree of confidence is causing harm to that individual, then the assessment would depend upon what the intention and knowledge of that person would -- that was engaging in that.

Generally in medicine, we tend to want to maximize benefit and minimize harm, and there are questions in relation to the engagement of

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gender-affirming medical interventions where one is altering the body in a way that has potentially irreversible effects on ability to participate in reproduction, health risks, and unknown -- and uncertain benefit.

Q Do you think, for example, the practitioners at the Transgender Care Center at Washington University are intentionally harming their patients?

MR. RAMER: Objection to form.

A So you're asking me to speculate on what the motivations are of my colleagues. I can only share with you the conversations that I've had with them as I shared with them my concerns about the scientific evidence, the relative risks and the purported benefits. Most of them are not aware of the literature that I'm aware of and that others that -- and -- or they don't recognize the difficulties in the scientific evidence base that is present.

Most of them believe that they are providing help to these individuals. And there's a profound disagreement based upon objective scientific data in my conclusions versus their approach.

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Q Is it your expert opinion that no individual can ever benefit from gender-affirming medical care to treat gender dysphoria?
A You're asking -- this is actually one of the concerns I have with the way that the research is presented. That is, in the area of scientific investigation in medicine, one would be very cautious about using a definitive statement of that nature.
I think that the way I look at this is assessing the relative risk versus relative benefit and trying to maximize benefit and minimize harm to these individuals based upon all of the Belmont principles and ethics of medical practice, so that I think it would be -- one would be a very poor scientist if one began making a definitive conclusion without investigating.
I think many in the field here have made those definitive conclusions on the contrary. You know, I mean, they make the statements that they know it's going to be beneficial when they really don't have the evidence to support that, so.
Q Who -- who has made that -- that statement that

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they know it's going to be beneficial for an individual patient?
A Your own plaintiff witnesses have made repeated statements in their declarations saying that this is a form of intervention that has proven to be effective and -- and it's contained well within their declarations making definitive statements about proven benefit that is not supported by the scientific evidence.
Q Well, I think I'm asking you about the -- as to an individual patient. Are you aware when -- of someone saying I can prove -- I know that this is going to benefit you definitively, is that something you're personally aware of?
MR. RAMER: Objection to the form.
A That wasn't what I was referring to when I made that statement. And you're asking me a question about a conversation that an individual would have with a private conversation between a physician and a patient, and I'm not making that claim. I'm only making the statement that many that are supportive of the affirmative model have made conclusions about a benefit that aren't supported by the science.
Q Do you think that there may be some individuals

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for whom the relative benefits outweigh the relative risks?
MR. RAMER: Objection to the form.
A As I stated previously, I think as a scientist, one needs to be open to hypotheses and the conduct of experimentation to be able to answer those questions.
If I approached science with a conclusion without evidence, that would not be proper science.
Q I know that you're cautioning about sort of speaking in categoricals, but law is very categorical and this is a circumstance in which the law is operative to categorically restrict care for everyone. It's not an individualized weighing of the risks and benefits, so I just want to get at sort of just -- you know, sort of given that context, could there be someone, just -- you know, even if it's a hypothesis that there might be a person for whom the relative benefits of the treatment might outweigh the relative risks?
MR. RAMER: Objection to the form.
A So acknowledging that this is an incomplete hypothetical with all of the circumstances not

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apparent in the discussion, if one were to speculate whether a thousand people would be harmed and one would be helped, one could argue that prudence would suggest to prevent the harm to that thousand individuals to -- at the risk of preventing the benefit for that one.
Again, this is a hypothetical and it cannot be answered definitively, and I think that in medicine we often are -- encounter these situations where we weigh relative risks versus benefit, and in the rare exception, if the harm is much greater or proportionate to potential benefit without exploration of alternative approaches that would not carry that same risk, it would be imprudent as a physician to engage in that medical practice.
Q Do you know any transgender people?
A Yes.
MR. RAMER: Objection to the form.
Q And do you know any transgender people who are currently receiving gender-affirming medical care to treat gender dysphoria?
MR. RAMER: Objection to the form.
A So you're asking me a personal relationship with people that are receiving hormonal -- I already

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mentioned to you that I -- I am caring for people in my clinic or in the hospital that are receiving affirmative medical interventions as I care for their other endocrine diseases, so I've already actually answered that.

Q Any others outside your clinical practice?

MR. RAMER: Objection to the form. Beyond the scope.

A It certainly is beyond the opinions I'm offering in this case. But I would say that one of the individuals that was an active participant in our DSD clinic would fit into that category.

Q And has anyone ever told you that they benefited from gender-affirming medical interventions to treat their gender dysphoria?

MR. RAMER: Objection to the form.

A So you're -- you're asking -- well, I would say that there are many that have the belief that they are benefited by this intervention. I don't rely upon those subjective data when I'm looking at the scientific literature about what the long-term outcomes are, which we don't have clear answers, but I am aware of individuals that -- in fact, Ms. Hutton in her testimony gave a story of her experience with her child. I don't have the

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basis to assess, you know, the details of what's going on in that particular case, but that is an example of something that has been presented to me where one has made that claim.

Q Turning back -- actually, just a quick question. Have you ever treated any of the plaintiffs in this case?

A No.

Q And have you ever practiced medicine in Indiana?

A No.

Q And do you have any personal knowledge of how treatment is provided to adolescents with gender dysphoria in Indiana?

A I do based upon the statements that are present in the declarations of the experts in your case and the claims that they are following the WPATH guidelines.

Q But other than the documents in this case, do you have any personal knowledge of how treatment for gender dysphoria is provided to adolescents in Indiana?

A Meaning have I directly been engaged in medical practice in Indiana, no. Have I had direct conversations with physicians that practice in Indiana, no.

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Q So going to paragraph 21 of -- of your report, so that would be Exhibit 1.

Paragraph 21, so maybe a few pages down. I can see -- there we go. Thank you.

So this is where you're talking about gender identity, and you write, "Gender identity refers to a person's individual experience and perception and unverified verbal" -- excuse me, "unverified verbal patient reports of how they experience being male or female or a combination of these or other categories. The term gender identity is controversial. There is no current worldwide definition of gender identity accepted by the relevant clinical communities. The measurement error rate for gender identity is unknown."

Did I read that correctly?

A Yes, you did.

Q What do you mean by "the term gender identity is controversial"?

A I would -- what I mean by that is that people use that term in different ways for different purposes. It's not uniform. Some actually conflate sexual identity and gender identity and use them interchangeably. Some are restricting

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that to one's perception of their gender identity.

The whole concept of gender based upon stereotypical behaviors that are assigned to males versus females again is an area that is imprecise. Many assumptions are made in those stereotypical behaviors. And so one's understanding of what that means even within the various individuals that make that claim means different things to different people.

Q So by controversial, did you mean inconsistent?

A Meaning that there is no accepted universal definition of that term that can be used with precision in carrying on conversations related to this area.

Q And what are the -- what are the relevant clinical communities?

A I'm a physician scientist, and I think that when we talk about the role as opposed to sexual identity, I think there are very clear understanding of what we mean by sexual identity. There are clear and obvious measurements of error rate in making a determination of one's sexual identity, and that is the domain that is relevant to a pediatric endocrinologist in being able to

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care for various endocrinologic disorders.
Q Is sexual identity the same as biological sex?
A I would say they're -- they're very equivalent, yes. We're talking about the biological nature of that person as it relates to all of the factors that I outlined in my declaration that are in regards to reproductive orientation.
Q What do you mean by error rate for gender identity?
A By that I mean that what is the -- when somebody claims to have a particular gender identity, it relates to how accurate that is, whether one is going to -- for example, we know with sexual identity that the error rate is very small, less than 0.02 percent in being able to look at the appearance of the external genitalia and be able to recognize that sexual identity.
When one looks at gender identity, there are many unknowns. For example, there are many that claim those that present with sex-discordant gender identity that later recognized that there was another problem, the term that we often describe as desistance, those error rates, if you consider that an error rate, somebody -- I know many that argue that if one has that experience,

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they never were truly, quote, transgender, unquote, that that would involve an error in the understanding of that perceived identity of that individual. It is unknown because much of the literature fails to recognize long-term follow-ups. Many of the studies involve patients that are lost to follow-up.
The survey methodology looking for that remains incapable of ascertaining the true denominator as far as number of individuals that have that experience, so unlike sexual identity that is precise and we know the very small chance that one is going to arrive at an incorrect conclusion of sexual identity, the error rate in understanding the true -- the gender identity of that individual is imprecise and, as I said, unknown.
Q At the bottom of page 8, paragraph 14 -- at the bottom of the paragraph, yes. So you write, "Sex is not" -- excuse me. "Sex is not assigned at birth. It is permanently determined by biology at conception."
Do any aspects of sex change after conception?
A Yes. So that the -- so that the -- the process

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of sexual differentiation which is initiated at the union of the sperm and an egg will determine which pathway one goes through. In that sexual differentiation from male to female phenotypes, there's a complex cascade of signaling processes that are present directed by predominantly SRY, which is the sex determining region of the Y chromosome. There are other factors that are involved in that differentiation process. There are things that can occur to disrupt that normal differentiation process, but as stated in this sentence, it is an objective biological phenomenon that is recognized, not assigned at birth.
Q And except in the case of people with disorders of sexual development in which there are sex assignments made at birth; is that right?
A That is correct.
Q What makes someone an expert on the treatment of gender dysphoria?
MR. RAMER: Objection to form.
A There are many who claim to be experts. People -- it depends on one's training, experience, knowledge of the scientific literature. There are many different areas

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related to what we consider expertise, and that can involve the scientists, that can involve the clinician. I think it relates to the understanding of the field, not only in gender dysphoria, but any field of medicine, and to be able to -- to be able to make a definitive -- or to make solid assessments of -- of the -- of the medical area that we're talking about.
Q And what makes you an expert in the field of treatment for gender dysphoria?
A Well, as I have tried to convey in my declaration, I was forced, necessitated myself becoming familiar with the arguments that were being made for the affirmative model in my role as chief of our Division of Endocrinology and Diabetes when the proposal was made to establish a gender clinic. That has necessitated that I have become familiar with the scientific literature.
In my conversation with many of my colleagues, my knowledge of the scientific evidence is on par, if not far exceeding some of the individuals that are providing this care in the clinic, to be able to carry on a cogent dialogue regarding the relative risks and

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benefits of that intervention.
So being aware of the model of care and the relative risks and benefits, the scientific studies in relation to that and being recognized by my peers, being invited to give medical grand rounds, being invited to deliver lectures, being asked to -- to contribute to the scholarly literature all are reflections of one who has established a -- a degree of expertise in a particular field.
Q Are there other people other than yourself that you would consider experts on the treatment of gender dysphoria?
A By that definition, yes.
Q And who are -- who are they?
A It's a very extensive list. I know many that have a similar knowledge that are, for a variety of reasons, based on other professional and personal obligations are not, like myself, willing to -- to speak and engage in the conversation. The list is so extensive that there is no possible way that I would be able to give you that list.
Many of them have served as experts in the legal cases that we're talking about here. Many

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have also contributed to the literature in this area. They've been involved in some of the systematic reviews that we mentioned earlier. It's a very long list, and I wouldn't be able to give justice to -- by naming just a few names when there are so many that have had the same experience as I have had in looking at the literature and becoming familiar with it and being able to make the same conclusions that I've made in my declaration.
Q Do you know who Daniel Weiss is?
A I know Dr. Weiss, yes.
Q Did you know of him before this case?
A No.
Q Did you read Dr. Weiss's declaration and CV?
A No.
Q Do you consider Dr. Weiss to be an expert in the treatment of gender dysphoria?
MR. RAMER: Objection to form.
A Again, I am not going to opine on things that I -- I'm going to -- in my role, I'm focusing on my area of expertise and not making any conclusions about any -- anybody else that is presenting as an expert. They would need to make their own determination. I'm going to focus

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on -- on my knowledge, what I can contribute to this court case.
Q But you didn't know of Dr. Weiss, who is an endocrinologist, prior to this case?
MR. RAMER: Objection to form. Asked and answered.
A Correct. I've not previously had conversations with Dr. Weiss and don't have a basis to make any determination.
Q Do you know who Diane Kenny is?
A Diane Kenny?
Q Yeah, K-E-N-N-Y. Do you know who Diane Kenny is?
A No.
Q Do you know who Christopher Kaliebe is?
A No.
Q Do you know who James Cantor is?
A Yes.
Q Were you familiar with James Cantor prior to this case?
A Only from things that have been read and that he has published on Internet articles.
MR. STRANGIO: I might be close to done here, John, if I can just take five to chat with my team and then we can come back.
MR. RAMER: Sounds good. Does that work for

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you, Doctor?
THE WITNESS: That'd be fine.
(At this time a recess was taken.)
Q Doctor, I do have just two more questions, but that's it. We're getting close to the end.
So we were speaking just before the break about experts in the treatment of adolescents with gender dysphoria.
Are any of the clinicians at the St. Louis Children's Hospital at the Transgender Care Center experts in the treatment of adolescents with gender dysphoria?
MR. RAMER: Objection to the form.
A You're asking me to speculate on what their designation is. I would say that my colleagues would themselves consider them to be experts in the area.
In my conversations with my colleague who runs the center, the endocrinologist, I think my knowledge of the scientific literature is far more extensive than his, but I think that they would consider themselves to be experts.
Q Would you consider them to be experts?
MR. RAMER: Objection to the form. Asked and answered.

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A So I think it depends on what you -- how you define experts. And I've already provided my definition of what is necessary to be an expert. My colleague, Dr. Lewis, has delivered presentations at Washington University that are generally devoid of discussion of the level of science that I generally speak about.
Q Does someone need to have your level of understanding of the scientific literature in order to be an expert in the treatment of adolescents with gender dysphoria?
MR. RAMER: Objection to the form.
A Again, it depends on how one defines what an expert is. There are different forms of expertise, and -- and different ways that people use to designate that.
Q Might Dr. Lewis, who runs the Transgender Care Center at St. Louis Children's, be a clinical expert in the treatment of adolescents with gender dysphoria?
MR. RAMER: Objection to the form.
A It depends on how you define expertise. I have more publications in the area than he does.
Q You're talking about publications in the area of treatment of adolescents with gender dysphoria?

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A We've already gone over the papers that I have published in this area, so, again, it depends on how one defines expertise and, again, you know, how one makes that assessment and whether one feels that they are qualified to speak in this area.
Q I was just referring to when you said "this area," you're referring to the area of treatment of adolescents with gender dysphoria?
A Yes.
Q And how would your declaration in this case be different if this was concerning the provision of care to adults?
MR. RAMER: Objection to form. Beyond the scope.
A I would say that I would not be submitting a declaration as a pediatric endocrinologist in relation to adults because my area is -- is as a pediatric endocrinologist, unless you were going to include patients that extend into the early 20s, which I do have contact with.
Q And do you have the same reservations with respect to treatment for adults that you have with respect to treatment for adolescents with gender dysphoria?

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MR. RAMER: Objection to the form. Beyond the scope.
A Again, beyond what I'm going to be testifying in this case. There is more evidence in the adult literature than there are in the -- in the pediatric world as far as long-term effects. Some of them are different questions. There are shared concerns. Much of what we are applying to the care of adolescents is based upon long-term understanding of effects in adults, and to that respect, that will be shared in both -- both domains, but there are certainly many other aspects that are quite different. The use of puberty blockades is very different. The effects of puberty is very different. The changing demographics of the patient population is very different. So I would say that -- that they are -- would require a different analysis. Some of the information would overlap. Much of it would be different.
Q When you talk about long-term effects, what -- what is a long-term effect? How long a period would you need to study the effects?
A Well, I can point to the -- probably the longest available studies that are available that -- that

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do not include some of the limitations, methodologic limitations, for example, would refer to the Dane study with the Swedish total population cohort showing persistence of psychological morbidity, elevated rates of completed suicide after experiencing or being engaged in medical affirmation, recognizing that that study was not controlled, can't say anything about the actual effect of the intervention, but merely illustrates the fact that these patients are continuing to suffer, quite in contrast to the arguments that are made to the contrary. There are adult data, for example, looking at persistence of need for psychiatric care, psychiatric medications that are looking long-term from databases. There's a whole host of literature that's out there. Again, some of it will be relevant, some of it not so much in addressing this question in the adolescent population.
Q I'm just asking you what is long -- like what would you consider long-term? One year, five years, ten years?
A So if you look at the Wiepjes paper, the long-term, you know, follow-up, it indicated that

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the average age to desistance was over ten years, so I would say that if you're going to have the outcome of, you know, whether one has the experience of going through this transition only to discover later that it didn't solve their problems, one would at least need to follow it out to that end point, again, extrapolating the data that we have in adults to the pediatric population.

Q So if you did have data that followed patients for a period of time over ten years, would that be a sufficient long-term study in your view?

MR. RAMER: Objection to the form.

A So you're asking about -- it depends on how the study was done. I'm not -- just -- time would not be the sole factor. There would be other factors about assessing the reliability of the methods that were used in the study, the tools that were used in the measurement, so it would certainly be one component.

And I do think that you can get even shorter term data depending on the outcome that you're measuring, but if we're going to make an assessment about the error rate, as we discussed previously, trying to make a prediction about

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those, we're starting to see a larger number of people that are coming forward with the experience of desistance that we had not recognized previously. The question out there is how many does that involve. Time of follow-up is critical. The patients that are lost to follow-up is critical in that assessment. The nature of the study as far as how the patients were recruited and the tools that were used to assess the outcomes are necessary as well.

Q So it sounds like this is another example of more research needed for longer periods of time; is that right?

MR. RAMER: Objection to the form.

A So as I said previously, at present the conclusion that the relative risks outweigh the purported benefits is based upon the currently available evidence. As a physician scientist, there's a need to gather other relevant information and do more clinical studies. And -- and that is something that anyone who is a physician scientist would agree with.

MR. STRANGIO: Okay. I think -- waiting to see one thing. Okay, I will go ahead and pass the witness. Thank you, Dr. Hruz, for your time,

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unless I have any follow-up from whatever John has.

MR. RAMER: No, I have no questions for the witness.

MR. STRANGIO: All right. Well, Dr. Hruz, good to see you. I imagine the court reporter may have some spellings, but I could be wrong.

MR. RAMER: We'd like to review and sign as well.

MR. STRANGIO: And, Dianne, I think we have requested it for Monday.

(Deposition concluded at 1:41 p.m.)

AND FURTHER THE DEPONENT SAITH NOT.

_____

PAUL W. HRUZ, M.D., PH.D.

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STATE OF INDIANA)
) SS:
COUNTY OF MARION)

I, Dianne Lockhart, RMR, CRR, a Notary Public in and for the County of Marion, State of Indiana at large, do hereby certify that PAUL W. HRUZ, M.D., PH.D., the deponent herein, was by me first duly sworn to tell the truth, the whole truth, and nothing but the truth in the above-captioned cause.

That the foregoing deposition was taken on behalf of the Plaintiffs via videoconference in Manchester, St. Louis County, Missouri, on the 1st day of June, 2023, pursuant to the Applicable Rules.

That said deposition was taken down in stenograph notes and afterwards reduced to typewriting under my direction, and that the typewritten transcript is a true record of the testimony given by said deponent; and thereafter presented to said deponent for their signature.

That the parties were represented by their aforementioned counsel.

I do further certify that I am a disinterested person in this cause of action; that I am not a relative or attorney of either party, or otherwise interested in the event of this action, and am not in the employ of the attorneys for either party.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my notarial seal this _____ day of _____, 2023.

_____
Dianne Lockhart, RMR, CRR
Notary Public

Commission Number NP0668781

My Commission Expires:
June 4, 2031

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NOTICE OF DEPOSITION FILING
UNITED STATES DISTRICT COURT
SOUTHERN DISTRICT OF INDIANA
INDIANAPOLIS DIVISION
CASE NO. 1:23-cv-00595-JPH-KMB

K.C., et al.,)
Plaintiffs,)
-vs-)
THE INDIVIDUAL MEMBERS OF THE MEDICAL LICENSING BOARD OF INDIANA, in their official capacities, et al.,)
Defendants.)

In compliance with the Indiana Rules of Procedure, Federal Rules of Civil Procedure and/or the Rules of the Industrial Board, you are notified that the signed original transcript of PAUL W. HRUZ, M.D., PH.D., taken on the 1st day of June, 2023, has been sealed and submitted to the originating party, along with the attached Errata Sheet(s), if applicable.

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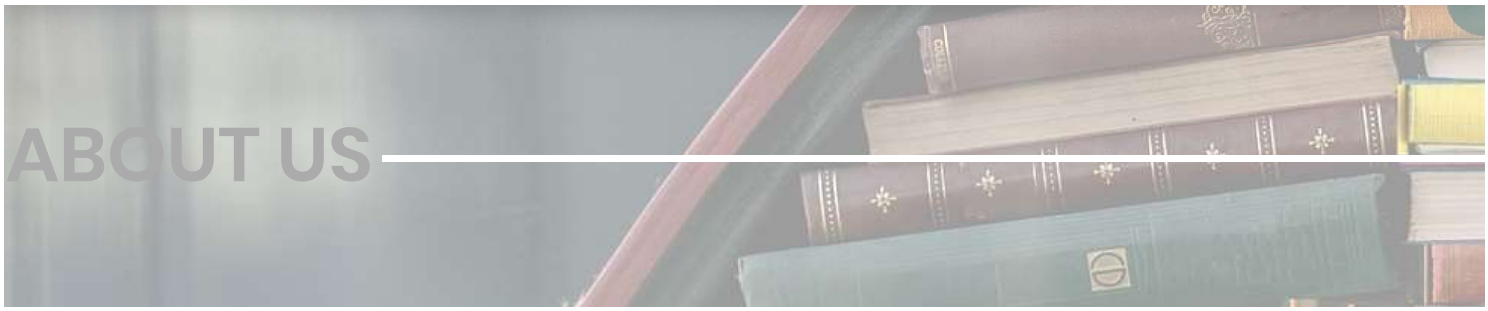
Exhibit 6
Witness: Paul Hurz, M.D.
Date: 6-1-23
Stenographer: Dianne Lockhart



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Emmaus Road Press is committed to opening the Scriptures and publishing books that will exalt Christ and cause hearts to burn in devotion and praise to Him. The picture on the right is "The Road To Emmaus," 1877, Robert Zund, 1826-1909.

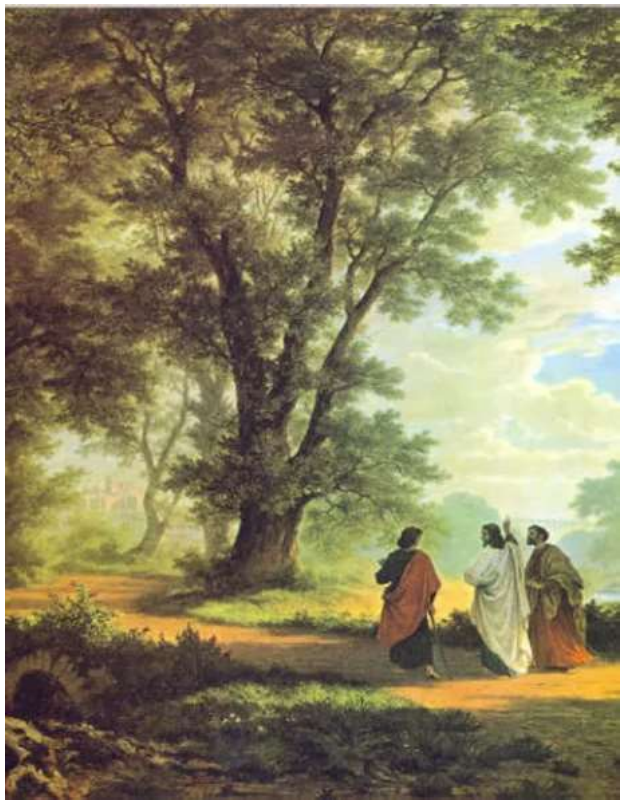

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EXHIBIT
7
Witness: Paul Hurz, M.D.
Date: 6-1-23
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OUR PURPOSE

Our culture finds itself in a moment in which the term "science and technology" has become fraught. Dreams of limitless progress now seem to be giving way to nightmares. Our talk of "tech" is split between visions of boundless transformation and dread that we will become manipulated, oppressed, obsolete, addicted, or simply miserable. "Science" seems to be falling from its lofty state, becoming mixed up, like so much else, in our political squabbles. We treat it as a referee who is unimpeachable when he favors my team, rigging the game when he favors yours.

The purpose of *The New Atlantis* is to offer clarity and guidance at a moment when we seem to be losing confidence in one of the pillars of modern civilization. It is our hope to help us all — as citizens, scientists, policymakers, and human beings — to deal more wisely and more creatively with both the burdens and the blessings of modern science and technology.

Yet if our moment is a difficult one, there is also something telling in our sense of shock at it — as if we were experiencing a sudden departure from the arc of history. And so we must recognize that it is the rule rather than the exception in human affairs that grandiose expectations will be frustrated and grand projects not turn out as their planners intended.

The ideal of science as an oracle in political disputes has placed a weight upon it that it cannot bear. The dream that scientific progress could, in effect, solve the human condition has warped our aspirations, making perennial problems seem like novel catastrophes. New technologies that promised disruption have delivered only too well.

Dystopian dread is the shadow of utopian dreams. The hope of *The New Atlantis* is to help steer away from both — and instead toward a culture in which science and technology work *for*, not *on*, human beings.

OUR AIM

A culture in which science and technology work for human beings is one that:

- Understands the core anxiety about tech as the threat of *dehumanization*.

- Fosters a richer discourse about science and technology, one that is not limited to categories like autonomy, privacy, rights, corporate misbehavior, and disparate impact, but that also addresses perennial yet pressing concerns about dignity, degradation, the obligations between generations, the nature of the good life, and meaning and purpose.

- Places wiser limits in both our values and our policies on dehumanizing technologies, research practices, and applications of science.

- Resists the temptation to use medicine and biotechnology to conquer human nature or to regard our bodies as raw material, and instead sees their purpose as caring for the sick while protecting the dignity of every person.

- Renews its understanding of science — viewing it not as a vehicle for putting humanity in its place, or for revealing what we cherish to be illusory, but rather as an expression of human curiosity, endeavor, and excellence.

- Moves beyond the misguided dreams of either making politics subservient to science or of ridding experts from politics once and for all, and instead creates new institutions, practices, and ways of thinking in which democratic deliberation and scientific expertise each inform, guide, and place sound limits upon the other.

- Revives confidence in its ability to create new technologies and policies that ameliorate suffering, increase prosperity, strengthen family and communal bonds, counter threats to and from the environment, and open new possibilities for understanding and exploring the universe.

OUR NAME

New Atlantis was the title Francis Bacon selected for his speculative story of a society living with the benefits and challenges of advanced science and technology. Bacon, a founder and champion of modern science, sought not only to highlight the potential of technology to improve human life, but also to foresee some of the social, moral, and political difficulties that confront a society shaped by the great scientific enterprise.

Published in 1627, his book offers no obvious answers; perhaps it seduces more than it warns. But the tale also hints at some of the dilemmas that arise with the ability to remake and reconfigure the natural world: governing science, so that it might flourish freely without destroying or dehumanizing us, and understanding the effect of technology on human life, human aspiration, and the human good.

To a great extent, we live in the world Bacon imagined, and now we must find a way to live well with both its burdens and its blessings. This very challenge, which now confronts our own society most forcefully, is the focus of this journal.

WHO WE ARE

We are not an academic journal but a public journal of ideas. We aim to provide an alternative to the models of experts and academics whose writing is aimed mainly at each other, and of short-form or "explainer" journalism that often fails to engage the deeper questions at stake.

Instead, we publish long-form essays, articles, and reports that — we hope — are written with insight, accessibility, literary virtuosity, and factual reliability for lay audiences and scholars alike. Our editors and authors are scientists, medical doctors, engineers, policy analysts, academics, writers, and scholars.

The New Atlantis is a nonpartisan publication. Indeed, the subjects addressed in our pages often cut across existing political lines, forcing liberals and conservatives, progressives and libertarians, to revisit their guiding principles.

We are published by a nonprofit organization that is supported wholly by private foundations, individual donors, and revenue earned from subscriptions and licensing. We receive no funding from business or government sources. (We have allowed exceptions to this policy by accepting federal funds under the coronavirus relief laws of 2020-21.)

OUR DESIGN

The whimsical line drawings used throughout our site derive from "New Atlantis," an illustration of Francis Bacon's story that first appeared in the 1964 book *The Scientist*, part of the Time-Life Books series. The artist is Lowell Hess, an illustrator for *Collier's*, *Boys' Life*, and many children's books under the Golden Books series whose works are collected in *The Art of Lowell Hess* (2011). The image, used with the permission of Time-Life Books and the Hess estate, appears at the top of this page.

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Policy Perspective

Policy Perspective

Proper Care of Transgender and Gender Diverse Persons in the Setting of Proposed Discrimination: A Policy Perspective*

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*Co-sponsoring organization: Pediatric Endocrine Society.

Abbreviations: ACA, Affordable Care Act; HHS, Health and Human Services; LGBTQ, lesbian, gay, bisexual, transgender, queer; TGD, transgender and gender diverse

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Abstract

Transgender and gender diverse (TGD) individuals face significant barriers to accessing health care. Recent introductions of regulatory policies at state and federal levels raise concerns over the politicization of gender-affirming health care, the risks of further restricting access to quality care, and the potential criminalization of healthcare professionals who care for TGD patients. The Endocrine Society and the Pediatric Endocrine Society have published several news articles and comments in the last couple of years supporting safe and effective gender-affirming interventions as outlined in the 2017 Endocrine Society's Clinical Practice Guidelines. The Endocrine Society Position Statement on Transgender Health also acknowledges the rapid expansion in understanding the biological underpinning of gender identity and the need for increased funding to help close gaps in knowledge about the optimal care of TGD individuals. This Policy Perspective affirms these principles in the context of pending and future legislation attempting to discriminate

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against TGD patients while also stressing the need for science and health care experts to inform health policies.

Key Words: transgender, legislation, policy, discrimination

Over this past year, there have been numerous state legislative and federal regulatory policies introduced regarding the care of transgender and gender diverse (TGD) individuals in the United States. These proposed policies appear to have been developed without the involvement of experienced medical providers and without the consideration of evidence-based standard of care clinical practice guidelines on the care for TGD individuals, including those published by the Endocrine Society [1, 2]. Not only do these policies ignore the science, but if enacted, they would restrict access to health care for TGD people, and in some cases, would criminalize their medical providers.

TGD individuals have a gender identity that is different from the sex recorded at birth. In 2016, an estimated 0.6% (or 1.4 million) adults reported that they were transgender or gender diverse in the United States. [3]. According to a 2017 survey of US high school students, almost 2% reported that they were transgender [4]. TGD individuals comprise a vulnerable group in our society that already faces significant barriers in accessing equitable health care despite the current protections that exist surrounding a person's gender identity [5-8].

At the federal level, the US Department of Health and Human Services (HHS) announced on June 12, 2020, that it had finalized revisions to Section 1557 of the Affordable Care Act (ACA), which would involve a rollback of health care nondiscrimination rules on the basis of sex, gender identity, and sex stereotyping [8]. These revisions would eliminate protections for TGD individuals who experience discrimination in health care settings, restricting access to gender-affirming care and to general medical care. The Endocrine Society opposed the proposed rule and submitted comments to the US Department of HHS urging it to withdraw it, stressing that removing these nondiscrimination protections would have made it easier for providers to deny care to TGD persons as well as discourage patients from seeking routine and gender-affirming care or reporting discrimination [9]. On August 17, 2020, the day before the revisions to Section 1557 of the ACA were to take effect, a federal judge temporarily blocked them pending future court proceedings. The decision was made following the US Supreme Court ruling on June 15, 2020, which found that lesbian, gay, bisexual, transgender, and queer (LGBTQ) individuals cannot be discriminated against in the workplace on the basis of sex [10, 11]. The ruling was made after consideration of 3 cases, including the case of *Harris v. Equal Employment Opportunity Commission* in which the Endocrine Society provided scientific background and context regarding transgender health with a "friend of the court" brief [12]. In retrospect, it has been noted that the US Department of HHS announced its planned revisions to Section 1557 of the ACA just 3 days before the expected US Supreme Court ruling, and this timing raised concerns that deliberate attempts were made to remove the protections for LGBTQ individuals in advance of the anticipated ruling [11].

At the state level, proposed legislation with implications for discrimination of TGD individuals in health care settings first appeared and proliferated in the wake of a heavily publicized custody case of a transgender child in Texas in October 2019. Misinformation regarding the care of TGD youth spread, which instigated proposed legislation to prohibit medical interventions in these patients. This prompted the Endocrine Society and the Pediatric Endocrine Society to release statements affirming our support of the Endocrine Society's Clinical Practice Guidelines on the Endocrine Treatment for Gender-Dysphoric/Gender-Incongruent Persons [1, 13]. Unfortunately, since that time, more than 2 dozen bills have been introduced in 16 US states (Alabama, Colorado, Florida, Idaho, Illinois, Iowa, Kentucky, Mississippi, Missouri, Ohio, Oklahoma, South Carolina, South Dakota, Tennessee, Utah, and West Virginia), many with the same or very similar titles, wording, and objectives [14]. Although most of these bills have failed to advance in state legislatures, a few remain under consideration. State legislators promoting these bills have spread erroneous and misleading information regarding TGD care of minors. For example, the following was presented as 1 of the 10 ballots of the 2020 Texas Republican Party primary election: "Texas should ban chemical castration, puberty blockers, cross-sex hormones and genital mutilation surgery on all minor children for transition purposes, given that Texas children as young as three (3) are being transitioned from their biological sex to the opposite sex." Even though "chemical castration" and "genital mutilation" are not part of gender-affirming care for minors, such wording serves to alarm the general public, and 94.57% of the electors supported the measure [15]. This type of misinformation has led to an increase in threats to clinics and providers of TGD minors.

These state bills aim to make it unlawful to provide medical care to TGD minors, including the provision of

gonadotropin-releasing hormone agonist therapy for pubertal suppression and gender-affirming hormonal therapy. Pubertal suppression, which is fully reversible, is offered to adolescents who meet diagnostic and treatment criteria, and are requesting care, for gender dysphoria/gender incongruence after they exhibit physical changes of puberty (Tanner stages G2/B2) [1]. This intervention allows for expansion of the diagnostic phase and more time for adolescents to explore options and live in the experienced gender before making a decision to proceed with gender-affirming hormone therapy [1]. Gender-affirming hormone therapy is partially irreversible and is an option for adolescents who request treatment after a multidisciplinary team of medical and mental health professionals confirms the persistence of gender dysphoria/gender incongruence and sufficient mental capacity to give informed consent [1]. Gender-affirming hormone therapy allows for the induction of puberty and phenotypic changes that hopefully align more with one's gender identity [1].

Eliminating these aspects of health care will detrimentally affect TGD patients who face a disproportionately high rate of suicide, yet gender-affirming care is known to significantly improve mental health outcomes [1, 2, 4, 16-21]. Furthermore, the bills would criminalize health care professionals who provide this care with felony charges, revocation of their professional medical licenses, monetary fines, and imprisonment. If passed, the legislation would greatly affect members of the Endocrine Society and the Pediatric Endocrine Society who provide gender-affirming care, particularly those who provide care to minors following the Endocrine Society's Clinical Practice Guidelines for Gender-Dysphoric/Gender-Incongruent Persons and the World Professional Association for Transgender Health's Standards of Care for the Health of Transsexual, Transgender, and Gender-Nonconforming People [1, 2]. For these reasons, we emphasize the need to involve expert medical professionals or consideration of standard of care evidence-based clinical practice guidelines when developing legislation impacting the health care and access of TGD individuals. The Endocrine Society and the Pediatric Endocrine Society firmly believe that health care treatment should be evidence-based and doctor-patient determined without politicization that is not based on science.

The Endocrine Society and Pediatric Endocrine Society remain hopeful that pending and future legislation attempting to discriminate against TGD patients will not be enacted. Yet, we also recognize the long road ahead in truly attaining equitable health care for all people. We affirm the Endocrine Society Position Statement on Transgender Health, which includes the following: (1) there is a durable biological underpinning to gender identity that should be considered in policy determinations; (2) medical intervention for transgender individuals (including both hormone therapy and medically indicated surgery) is effective, relatively safe (when appropriately monitored), and has been established as the standard of care, and federal and private insurers should cover such interventions as prescribed by a physician as well as the appropriate medical screenings that are recommended for all body tissues that a person may have; and (3) increased funding for national research programs is needed to close the gaps in knowledge regarding transgender medical care and should be made a priority [22].

In summary, our concern regarding the attempted politicization of the gender-affirming care of TGD individuals persists. At the same time, the Endocrine Society and the Pediatric Endocrine Society remain dedicated to providing necessary gender-affirming medical care to TGD individuals, to advocating for increased funding for research to close the gaps in knowledge regarding the medical care of TGD individuals, and to sharing important knowledge learned to inform policy. We remain steadfast in our belief that patient health management decisions should be evidence-based and doctor-patient determined, and health policy should be based in science with health care experts at the table as contributors.

Acknowledgments

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Additional Information

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Disclosure Summary: J.D.S.'s spouse is employed by Parexel. V.T. is president of the World Association for Transgender Health from 2018 to 2020 and a board member of American Association of Clinical Endocrinology from 2014-2020. The other authors have no conflicts of interest.

Data Availability: Data sharing is not applicable to this article as no datasets were generated or analyzed during the current study.

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The National Catholic Bioethics Quarterly

Information for Authors

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The journal publishes essays and articles on all topics in bioethics but is especially friendly toward the Aristotelian-Thomistic tradition and its great authors, recent and ancient. Submissions that show a familiarity with the Catholic medical-moral tradition and with previous discussions in the *NCBQ* are encouraged.

Manuscript Preparation

Depending on its length (including notes), your submission will be considered for inclusion in one of three sections:

> *Colloquy:* letters to the editor of 2,000 words or less, on matters discussed in the *NCBQ* and on topics of general interest to Catholic bioethics
>
> *Essays:* generally short works of less than 5,000 words, which touch on contemporary issues in bioethics in such areas as law, politics, education, morality, nursing, medicine, religion, and science
>
> *Articles:* generally full-length studies of 5,000 to 12,000 words (up to 15,000 words for exceptional submissions), which should be major contributions to the field

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Send your manuscript to Edward J. Furton, Ph.D., Editor-in-Chief, *The National Catholic Bioethics Quarterly*, 600 Reed Road, Suite 102, Broomall, PA 19008; e-mail: submissions@ncbcenter.org. We prefer submissions by e-mail attachment in Microsoft Word or Corel WordPerfect. Include a brief biography in your e-mail and, in an attached file that is separate from the manuscript, a page giving your name, degrees, institutional affiliation (one or two sentences), and contact information (e-mail address, phone, and mailing address).

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NCBQ Reference Style

Books

One author

Christopher Kaczor, *The Ethics of Abortion: Women's Rights, Human Life, and the Question of Justice* (New York: Routledge, 2011), 11.

Short title (for subsequent references):

Kaczor, *Ethics of Abortion,* 11.

Two authors

Edmund Pellegrino and David Thomasma, *The Virtues in Medical Practice* (New York: Oxford University Press, 1993), 31.

Short title:

Pellegrino and Thomasma, *Virtues in Medical Practice*, 31.

Three authors

Maxine Papadakis, Stephen J. McPhee, and Michael W. Rabow, *Current Medical Diagnosis and Treatment 2013*, 51st ed. (New York: McGraw-Hill Education, 2013).

Short title:

Papadakis et al., *Current Medical Diagnosis*, 23.

More than three authors

William S. Klug et al., *Essentials of Genetics*, 8th ed. (San Francisco: Benjamin Cummings, 2012), 465.

Short title:

Klug et al., *Essentials of Genetics*, 465.

Edited and Multi-volume Books

Edited book

Edward Furton, ed., *Catholic Health Care Ethics: A Manual for Practitioners*, 2nd ed. (Philadelphia: National Catholic Bioethics Center, 2009), 316.

Short title:

Furton, *Catholic Health Care Ethics*, 316.

[Don't include "ed." in the short title.]

Chapter in an edited book

Francis Martin, "Marriage in the New Testament Period," in *Christian Marriage: A Historical Study*, ed. Glenn W. Olsen (New York: Crossroad, 2001), 56–65.

Short title:

Martin, "Marriage in the New Testament Period," 58.

Book in a multivolume work

Germain Grisez, *Way of the Lord Jesus*, vol. 1, *Christian Moral Principles* (Quincy, IL: Franciscan Press, 1997), 84.

[Give the volume number in arabic, not roman, numerals.]

Short title:

Grisez, *Christian Moral Principles*, 84.

Second or later edition

Gilbert Meilaender, *Bioethics: A Primer for Christians,* 2nd ed. (Grand Rapids, MI: Eerdmans, 2005), 76.

Short title:

Meilaender, *Bioethics*, 76.

Translated work

Chantal Delsol, *The Unlearned Lessons of the Twentieth Century: An Essay on Late Modernity*, trans. Robin Dick (Wilmington, DE: ISI Books, 2006), 11–34.

Short title:

Delsol, *Unlearned Lessons*, 24.

Church document, Vatican edition

John Paul II, *Evangelium vitae* (March 25, 1995), n. 62.

Short title:

John Paul II, *Evangelium vitae*, n. 62

Can often be cited in the text.

Church document, Pauline edition

John Paul II, *Evangelium vitae* (March 25, 1995), (Boston: Daughters of St. Paul, 1955), n. 62.

[Give the date of the document in parentheses, with the paragraph number following.]

Short title as above.

Church document, other edition

Pius XII, "Christian Norms of Morality" (September 29, 1949), in *The Human Body: Papal Teachings*, ed. Monks of Solesmes (Boston: St. Paul, 1960), 117.

Short title:

Pius XII, "Christian Norms of Morality," 117.

Periodicals

Journal article

Steven A. Long, "Engaging Thomist Interlocutors," *Nova et Vetera* 9.2 (Spring 2011): 267–295.

[The volume and issue numbers appear before the date; they are separated by a period but no space. A colon precedes the page number.]

Short title:

Long, "Engaging Thomist Interlocutors," 267.

Martin M. Monti et al., "Willful Modulation of Brain Activity in Disorders of Consciousness," *New England Journal of Medicine* 362.7 (February 18, 2010): 579–589, doi: 10.1056/NEJMoa0905370.

[Journal titles are cited in full, not abbreviated.]

Short title:

Monti et al., "Willful Modulation of Brain Activity," 579.

Newspaper or magazine article

Leon R. Kass, "The Pursuit of Biohappiness," *Washington Post*, October 16, 2003, A25.

Short title:

Kass, "Pursuit of Biohappiness," A25.

Online article

Shirley S. Wang, "The Tricky Chemistry of Attraction," *Wall Street Journal*, May 9, 2011, http://online.wsj.com/article/SB10001424052748704681904576313243579677316.html.

[If the print edition is cited, the page number replaces the URL.]

Short title:

Wang, "Tricky Chemistry."

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5/10/23

Brief Statement on Transgenderism

The National Catholic Bioethics Center

Abstract. The claim that it is possible to change one's sex, or that sexual identity is fluid, contradicts scientific evidence, reason, the nature of the human person, and key tenets of the Catholic faith. A small number of persons claiming to be "transgender" mistakenly believe that their true self and sexual identity contradict the sex of their bodies. They frequently experience profound suffering due to intense psychological distress and due to the challenges of forming a healthy self-identity and basic human relationships, including friendships and marriage. Hormonal and surgical interventions, and other behaviors and practices that attempt to validate mistaken beliefs to relieve distress and suffering, are inappropriate responses to their condition. Persons claiming to be transgender must be accompanied on their difficult journey with true charity, and should be offered ethical, effective therapies based on sound anthropology and scientific evidence. The National Catholic Bioethics Center offers considerations to facilitate appropriate efforts to accompany and to help such persons. *National Catholic Bioethics Quarterly* 16.4 (Winter 2016): 599–603.

The notion of being able to change one's sex, most radically through surgical intervention, has increasingly become a part of public awareness and social discourse. The boldness of the gender ideology movement has now brought it to the forefront.

Resolutions and policies of medical associations and legislative and regulatory actions promote so-called gender affirmation and gender transitioning, even in prepubescent children, and mandate the compliance of schools, health care providers,

This essay is the result of an initial analysis by the ethicists of The National Catholic Bioethics Center, drafted in response to numerous requests from individual Catholics and Church leaders. As a statement signed by the ethicists of the Center, it represents the official position of the NCBC.

health care payers, social services, and others. Such regulations are coercive and based on a false understanding of human identity. Gender transitioning insists on affirming a false identity and, in many cases, mutilating the body in support of that falsehood.

Human Anthropology and Gender

Gender transitioning is the attempted exchange of one's unambiguous, clearly defined sexual identity as male or female for the other sex: a male attempting to alter himself to become female, or a female attempting to alter herself to become male. For the purposes of the present statement, it should be stressed that we are not addressing the complicated cases where various congenital disorders of sexual development result in uncertainty regarding a person's biological sex, for example, situations involving ambiguous genitalia. The person seeking to transition, as we are using the term, essentially believes that he or she is in the "wrong body": a male trapped in a female body or vice versa. The experience of anxiety or unhappiness associated with this conviction is referred to as gender dysphoria.

Gender transitioning, involving behavioral, hormonal, or surgical treatments, or a combination of these, is coming to be broadly accepted as a form of "therapy." The concept of gender transitioning, however, stands in radical opposition to a proper understanding of the nature of the human person. It presupposes that there is a "self" that is separate from the body, which happens to find itself in a body and which might therefore be in the wrong body. Yet the human person is a full body–soul unity, not a "ghost in the machine" or a spirit inhabiting the body. A particular person does not merely *have* a body: he or she *is* that body. In the words of Pope St. John Paul II, the "human body expresses the person."

In short, a person's sex is manifested by the body in accordance with how the person has been created, and so it cannot be in conflict with any truer or deeper sexual identity contrary to that bodily sex. This is a foundational anthropological point that no medical association or political ideology can overturn. The psychological experience of a disconnect with one's bodily sex is not to be minimized; it calls for appropriate psychotherapy, but it can in no way be reflective of an "incorrect" sex.

Given this understanding of what it means to be a human person, a body–soul unity whose innate sexual identity is reflected in the person's biology, it should be clear that no surgical, hormonal, or other intervention directed toward the body is capable of altering that innate sexual identity. Taking up or engaging in behavioral changes, including mannerisms, social cues, clothing, or modes of speaking that social mores ascribe to the opposite sex, does not alter the innate sexual identity of the embodied spirit, which is the human person. Hormonal interventions to block the body's sex-specific hormones or provide the sex-specific hormones of the opposite sex likewise alter nothing of a person's innate sexual identity. The use of puberty-blocking hormones in children with gender dysphoria is particularly dangerous, since this intervention radically disrupts the normal sequence of physical and psychological development that occurs during adolescence. One cannot simply "reverse" what has been done if the individual should change his or her mind.

So-called sex reassignment surgeries of any kind, designed to give the body an appearance with more of the culturally expected qualities of the opposite sex, also cannot modify the true sexual identity of the person, who was created male or female. Attempts at gender transitioning can, in fact, have disastrous effects in the life of a person who continues to struggle to better understand and accept his or her own true value and full identity. Studies show that the surgical interventions do not ultimately resolve feelings of anxiety and dysphoria and appear to lead to a significant increase in attempted or completed suicides.[1]

Ethical Implications

The anthropological reality—that a person's innate sexual identity cannot be changed—has moral consequences. Human persons act against their own good when they directly intend what is contrary to their own nature, purpose, and identity and thereby impair their flourishing. An act that is incapable of being ordered to the good of the person will not bring about individual flourishing: under no circumstances can it be consonant with the person's genuine fulfillment. Directly intending to transition one's given bodily sex into a "new" one (even though this may be perceived as the "real" and "true" one) means intending to alter what is unalterable, to establish a false identity in place of one's true identity, and so to deny and contradict one's own authentic human existence as a male or female body–soul unity. Such an action cannot be consonant with the good of the whole person. While many circumstances and influences may significantly mitigate personal culpability, gender transitioning raises significant moral concerns and always involves actions that are objectively directed against one's own good.[2]

The fact that gender transitioning via behavioral, hormonal, or surgical interventions does not ultimately contribute to human flourishing has various moral repercussions in the practical order. For example, the following kinds of acts are harmful to the good of the person and may never be legitimately carried out, approved, or promoted: sex reassignment surgeries of any kind, which amount to nontherapeutic mutilations; the administration of cross-sex hormones as a means of gender transitioning in themselves, or in preparation for sex reassignment surgery; the administration of puberty-blocking hormones to children as a means of transitioning because of gender dysphoria or other sexual identity issues; and the adoption of behaviors, clothing, mannerisms, names, or pronouns typical of the opposite sex

1. Lawrence S. Mayer and Paul McHugh, "Sexuality and Gender: Findings from the Biological, Psychological, and Social Sciences," *New Atlantis* 50.3 (Fall 2016): 67.

2. Gender "transitioning," as used here, excludes interventions aimed at correcting congenital disorders of sexual development or reinforcing the best understood biological sex of a person with ambiguous genitalia or other ambiguous sex characteristics or behaviors. These may be and often are morally licit. The term also excludes any actions by which a person simulates characteristics of the opposite sex but without the intention of "becoming" that sex, such as cross-dressing, acting, imitating, or otherwise impersonating the opposite sex while still understanding and accepting one's actual innate sexual identity.

with claims to be (and therefore demands to be treated as) a person of the opposite sex. Obviously, the most grave of these actions is mutilating surgery.

Catholic Health Care

In light of the scientific evidence showing that "transitioning" has no demonstrated long-term therapeutic benefit, and in light of Catholic teaching about the nature of the human person, no Catholic health care organization should establish policies that positively affirm the choice of any behavioral, hormonal, or surgical gender transitioning of patients, personnel, or other persons served by the organization. In addition, no Catholic health care organization should require its personnel to carry out, promote, refer for, or otherwise cooperate formally in procedures involved in gender transitioning, especially surgical or hormonal interventions; require the use of pronouns or sex-specific identifiers that are explicitly contrary to a person's biological sex; or otherwise require the affirmation of a false sexual identity for any persons who are or who are planning on transitioning.

The challenge of addressing this new phenomenon of transgenderism extends, both in charity and in justice, to the rest of the Church's pastoral ministries. Clearly, promoting the deceptive view that mutilation is a treatment for gender identity disorder is an injustice to the individuals involved and creates scandal for the larger community in the technical sense of leading others to sin. A greater challenge for agencies sponsored by the Church is to address the holistic needs of transgender persons who are seeking, not direct support for sex reassignment, but pastoral care, other services, and full participation in the life of the Church.

Catholic Educational Institutions

Educational ministries of the Church are under increasing external pressure to treat students consistent with their self-selected gender identity, in education records, forms of speech (use of pronouns and names consistent with the self-selected gender), participation in school activities and sports, and access to bathrooms and locker rooms.

Many schools are parish sponsored, and the pastor is "to have particular care for the Catholic education of children and youth. He is to make every effort, with the collaboration of the Christian faithful, so that the message of the gospel comes also to those who have ceased the practice of their religion or do not profess the true faith."[3] All religious education is subject to the authority of the Church. Clearly, cooperating in the "transitioning" of youth is inconsistent with these obligations.

The moral issue for Catholic schools is that they cannot participate in or promote the denial, or perceived denial, of the biological sex with which a child has been endowed by the Creator. Altering the name on school records, using "he" for a student born female or "she" for a student born male, and permitting a student to wear the uniform of the opposite sex do not truly serve the good of the student and his or her flourishing. Privacy needs can be met without allowing students access to the bathrooms or locker rooms reserved to those of the opposite sex.

3. Code of Canon Law, can. 528 § 1, in *Code of Canon Law: Latin–English Edition* (Washington, DC: Canon Law Society of America, 1999).

Employment policies of a Catholic educational institution should also exemplify the mission of a ministry of the Catholic Church. Its teachers are to be outstanding in correct doctrine and integrity of life.[4] There is a special obligation on those responsible for religious instruction and on the diocesan bishop for oversight.[5] Catholic laity assist in carrying out the ministries of the Church, but they are to "live according to this doctrine, announce it themselves, defend it if necessary, and take their part in exercising the apostolate."[6]

Finally, it is necessary to define the roles and obligations of employees so as to exemplify and foster the mission of the ministry and to challenge violations of the religious liberty of the sponsors when these role definitions are not respected. No Catholic entity should submit to an immoral government mandate.[7]

The Need for Accompaniment

It is clear that those with gender dysphoria suffer greatly and must be treated with great compassion and sympathy. However, the attempt must be made to dissuade them from actions that ultimately will not contribute to their individual flourishing and may cause irreversible harm. We must always be with them in their difficulties and help them make truly therapeutic choices. Even when they have engaged in actions that have done irremediable harm, we must continue to accompany them and show them the love and compassion of Christ.

The Ethicists of The National Catholic Bioethics Center

4. Can. 803 §2.
5. Can. 804 §2.
6. Can. 229 §1.
7. Similar issues exist for Catholic higher education, which should exercise every right of refusal under state and federal Religious Freedom Restoration Acts, as well as the exemption from Title IX of the Education Amendments of 1972. Institutions sponsored by religious organizations are exempt from sex discrimination provisions if their application would be inconsistent with the religious tenets of the organization: 20 USC §1681(a)(3).

The Use of Cross-Sex Steroids in the Treatment of Gender Dysphoria

Paul W. Hruz, MD

Abstract. Current clinical guidelines for the treatment of individuals who experience gender dysphoria include the administration of testosterone to women who desire to appear as men and estrogen to men who desire to appear as women. Despite the rapid and widespread adoption of this practice, strikingly little scientific evidence supports this treatment approach as a safe and effective medical intervention to prevent associated depression and suicide. Although low-quality, short-term studies have demonstrated a reduction of dysphoria, emerging evidence reveals significant bodily harm from this practice and a lack of long-term benefit in preventing depression and suicide. From an ethical perspective, this practice distorts a proper view of human nature and violates bodily integrity by directly inducing sterility. The use of exogenous cross-sex hormones reinforces rather than alleviates underlying psychiatric dysfunction while significantly increasing the risk of other medical morbidities. Despite the valid goal of alleviating suffering, this practice cannot be justified by the use of the principles of totality or double effect. *National Catholic Bioethics Quarterly* 17.4 (Winter 2017): 661–671.

In a culture that increasingly asserts that truth is relative, the world appears to be in the midst of a "gender revolution."[1] This includes a major ideological shift in attitudes toward what it even means to be a man or a woman. In contrast to long-standing knowledge and acceptance of sexual dimorphism—that is, the presence of only two

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1. Katie Couric, "Gender Revolution: A Journey with Katie Couric," National Geographic, http://channel.nationalgeographic.com/.

sexes—defined in relation to the biological process of reproduction, attempts are now being made to present sexuality along a continuum of forms.[2] In stark contrast to Pope St. John Paul II's teaching on the theology of the body, which illuminates a teleological complementarity between male and female forms and an inseparable unity of body, mind, and soul, it is now openly argued that the mind alone can and in some circumstances should determine, or at least influence, reality in medical practice.[3] The dualistic rejection of an intrinsic connection between mind and body and the attempt to redefine fundamental aspects of human biology have given birth to a host of societal problems of unprecedented complexity. Discussions of gender identity are among the most contentious. These include heated public debates and lawsuits related to government hiring, bathroom access rights, and proper pronoun usage.[4]

In this context, the recognition, acceptance, and encouragement of individuals who experience discordance between their gender identity and biological sex have grown at an astounding rate among physicians and in society in general.[5] It is unknown whether this increased awareness has contributed to the concomitant increase in the reported prevalence of transgender people, with some recent estimates as high as 0.4 percent of the US population.[6] The medical profession, in possessing a technical ability to chemically and surgically manipulate the appearance of the human body, has been drawn into the ideological battlefield by offering a variety of interventions aimed at alleviating the significant distress that many transgender patients experience as a result of the incongruity between their minds and bodies. The practice of administering cross-sex hormones—that is, testosterone to women who identify as men and estrogen to men who identify as women—as a treatment for gender dysphoria is widely endorsed by several medical societies, including the American Psychiatric Association, the American Academy of Pediatrics, and the Endocrine Society.[7]

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2. Helen Lewis, "The Battle over Gender: What Makes You a Man or a Woman, Anyway?," *New Statesman*, September 13, 2013, https://www.newstatesman.com/; Claire Ainsworth, "Sex Redefined," *Nature* 518.7539 (February 19, 2015): 288–291; and Amanda Montañez, "Beyond XX and XY," *Scientific American* 317.3 (September 2017): 50–51, doi: 10.1038/scientificamerican0917-50.

3. Hugh Marshall McHugh and Simon Thomas Walker, "'Personal Knowledge' in Medicine and the Epistemic Shortcomings of Scientism," *Journal of Bioethical Inquiry* 12.4 (December 2015): 577–585, doi: 10.1007/s11673-015-9661-5.

4. "Recent EEOC Litigation regarding Title VII and LGBT-Related Discrimination," fact sheet, US Equal Employment Opportunity Commission, updated July 8, 2016, https://www.eeoc.gov/.

5. Jack L. Turban and Diane Ehrensaft, "Gender Identity in Youth: Treatment Paradigms and Controversies," *Journal of Child Psychology and Psychiatry*, e-pub October 26, 2017, doi: 10.1111/jcpp.12833.

6. Esther L. Meerwijk and Jae M. Sevelius, "Transgender Population Size in the United States: A Meta-Regression of Population-Based Probability Samples," *American Journal of Public Health* 107.2 (February 2017): 216, doi: 10.2105/AJPH.2016.303578a.

7. William Byne et al., "Report of the American Psychiatric Association Task Force on Treatment of Gender Identity Disorder," *Archives of Sexual Behavior* 41.4 (August 2012): 759–796, doi: 10.1007/s10508-012-9975-x; American Academy of Pediatrics, "Office-Based

Regardless of one's religious, political, or ideological beliefs, it is easy to see that many transgender individuals experience real suffering, as evidenced by high rates of depression, anxiety, and substance abuse among them.[8] By some estimates, half of all patients with gender dysphoria have considered suicide, and nearly a third have attempted to act on these thoughts.[9] Transgender individuals have long endured various forms of prejudice, misunderstanding, mistreatment, and marginalization.[10] Without question, these people need help. Catholic physicians and health care systems thus have a duty to serve this extremely vulnerable population.[11] The central questions are whether the currently offered intervention is truly beneficial and whether the potential and known harms of cross-sex hormone administration are justified. Careful consideration and proper application of the principles of totality and double effect clearly demonstrate that, despite the rapid and widespread expansion of cross-sex steroid use in patients with gender dysphoria, this practice violates fundamental principles of biomedical ethics and cannot be endorsed as a means to alleviate suffering in affected patients.

Gender ideology

Although knowledge of people who believe they were "born into the wrong body" has existed for decades,[12] until recently, this condition was generally recognized as a psychological disorder. This is reflected in the listing of "gender identity disorder" in the fourth edition of the *Diagnostic and Statistical Manual of Mental Disorders* used by psychiatrists to classify psychological disease.[13] Accordingly, understanding and correcting underlying psychosocial disturbances were the primary

Care for Lesbian, Gay, Bisexual, Transgender, and Questioning Youth," *Pediatrics* 132.1 (July 2013): 198–203, doi: 10.1542/peds.2013-1282; and Wylie C. Hembree et al., "Endocrine Treatment of Gender-Dysphoric/Gender-Incongruent Persons: An Endocrine Society Clinical Practice Guideline," *Journal of Clinical Endocrinology and Metabolism* 102.11 (November 2017): 3869–3903, doi: 10.1210/jc.2017-01658.

8. Sari L. Reisner et al., "Mental Health of Transgender Youth in Care at an Adolescent Urban Community Health Center: A Matched Retrospective Cohort Study," *Journal of Adolescent Health* 56.3 (March 2015): 274–279, doi: 10.1016/j.jadohealth.2014.10.264.

9. Noah Adams, Maaya Hitomi, and Cherie Moody, "Varied Reports of Adult Transgender Suicidality: Synthesizing and Describing the Peer-Reviewed and Gray Literature," *Transgender Health* 2.1 (April 2017): 60–75, doi: 10.1089/trgh.2016.0036.

10. Jaclyn M. White Hughto, Sari L. Reisner, and John E. Pachankis, "Transgender Stigma and Health: A Critical Review of Stigma Determinants, Mechanisms, and Interventions," *Social Science and Medicine* 147 (December 2015): 222–231, doi: 10.1016/j.socscimed.2015.11.010.

11. US Conference of Catholic Bishops, *Ethical and Religious Directives for Catholic Health Care Services*, 5th ed. (Washington, DC: USCCB, 2009), dir. 3.

12. Jordan D. Frey et al., "A Historical Review of Gender-Affirming Medicine: Focus on Genital Reconstructive Surgery," *Journal of Sexual Medicine* 14.8 (August 2017): 991–1002, doi: 10.1016/j.jsxm.2017.06.007.

13. American Psychiatric Association, *Diagnostic and Statistical Manual of Mental Disorders*, 4th ed. text revision (Washington, DC: American Psychiatric Publishing, 2000).

goals of treatment. With the publication of the fifth edition of this manual (*DSM-5*) in 2013, the diagnosis of "gender identity disorder" transitioned to "gender dysphoria," with the assertion that gender–sex discordance is a normal manifestation of human diversity.[14] Treatment aims accordingly shifted to the patient's level of "dis-ease," or negative feelings, about the appearance of his or her body. Turning the understanding of the relationship between wellness and disease on its head, the mind is now considered healthy and the body diseased. In this light, the simplest solution to the problem is to alter the body to conform to mental belief.

Considering the purported merits of reordering health and disease with respect to human sexuality, there is a notable paucity of objective scientific evidence to support the diagnosis change that occurred in *DSM-5*.[15] Ideology reflecting cultural shifts in sexual mores, not science, was the primary influence on this major diagnostic revision.[16] Even the most vocal advocates of the current treatment paradigm readily acknowledge that the etiology of gender discordance remains largely unknown.[17] According to the incomplete and largely methodologically flawed gender-science literature, the development of gender dysphoria appears to be multifactorial, with genetic, hormonal, and environmental mediators.[18] Consequently, it is difficult to assert from a purely empirical perspective that a single approach centered on cross-sex steroid administration is the best means to alleviate human suffering from gender dysphoria.

Sex Steroids in Normal Human Physiology

Assessment of the ethics of cross-sex steroid administration to individuals with gender dysphoria requires an understanding of the nature and biological function of these hormones. Steroid hormones comprise a family of structurally related compounds with a common cholesterol backbone. These hormones are produced in male and female gonads and in the adrenal glands. Upon synthesis and secretion, these compounds circulate in the bloodstream and enter cells, where they bind to specific receptors that carry the hormones to the cell nucleus. There, the hormone–receptor complex binds to DNA at multiple targeted locations to turn on and off specific genes

14. American Psychiatric Association, *Diagnostic and Statistical Manual of Mental Disorders*, 5th ed. (Arlington, VA: American Psychiatric Association, 2013).

15. Jack Drescher, Peggy T. Cohen-Kettenis, and Geoffrey M. Reed, "Gender Incongruence of Childhood in the ICD-11: Controversies, Proposal, and Rationale," *Lancet* 3.3 (March 2016): 297–304, doi: 10.1016/S2215-0366(15)00586-6.

16. Titia F. Beek, Peggy T. Cohen-Kettenis, and Baudewijntje P. C. Kreukels, "Gender Incongruence–Gender Dysphoria and Its Classification History," *International Review of Psychiatry* 28.1 (2016): 5–12, doi: 10.3109/09540261.2015.1091293.

17. Daniel Trotta, "Born This Way? Researchers Explore the Science of Gender Identity," *Reuters*, August 3, 2017, https://www.reuters.com/.

18. Gunter Heylens et al., "Gender Identity Disorder in Twins: A Review of the Case Report Literature," *Journal of Sexual Medicine* 9.3 (March 2013): 751–757, doi: 10.1111/j.1743-6109.2011.02567.x; and D. F. Swaab, "Sexual Differentiation of the Human Brain: Relevance for Gender Identity, Transsexualism and Sexual Orientation," *Gynecological Endocrinology* 19.6 (2004): 301–312, doi: 10.1080/09513590400018231.

that influence cell function.[19] Thus, the effect of altering sex-hormone levels, through either disease or artificial manipulation, can have pleiotropic effects throughout the body.

The steroids that are primarily responsible for sexual differentiation and function are testosterone, estrogen, and progesterone. However, several additional steroids, such as androstenedione and dehydroepiandrosterone (DHEA), also activate the androgen receptor. Men and women make both estrogen and testosterone, but at markedly different levels, which vary throughout the life span of an individual.[20] The control of sex-hormone levels occurs primarily in the brain via the highly regulated production of luteinizing hormone and follicle stimulating hormone in the pituitary gland. A notable effect of exogenous steroid administration is the disruption of LH and FSH secretion. This is the mechanism of contraceptive agents that are composed of synthetic sex steroids.[21] Thus, it is not possible to separate the effects of sex-hormone administration on secondary sex characteristics, such as facial hair and breast development, from the function of the gonads and other tissues that respond to these steroids.

Biological Sex and Anthropology

Before exploring the medical aspects of cross-sex hormone administration, consideration of the basic biology of human sexuality exposes a violent distortion of fundamental anthropological principles in the new gender mentality. Reproduction is the primary purpose of sex, not just in humans but also across the entire animal kingdom.[22] It is objectively irrational to accommodate contrary thinking by rejecting a male or female body that is fully competent with respect to its innate reproductive purpose. Cross-sex hormones, by their very nature, render an individual incapable of fulfilling the intrinsic biological role of the human body as male or female.[23] Although potentially reversible after short-term administration, the effects of cross-sex steroids on fertility are expected to be permanent when treatment is started in children.[24] The readily accepted view that reproductive capacity can be dissociated

19. Mitchell A. Lazar, "Mechanism of Action of Hormones That Act as Nuclear Receptors," in *Williams Textbook of Endocrinology*, 10th ed., ed. P. Reed Larsen et al. (Philadelphia: Saunders, 2002), 35–44.

20. Melvin M. Grumbach and Dennis M. Styne, "Puberty: Ontogeny, Neuroendocrinology, Physiology, and Disorders," in Larsen et al., *Williams Textbook of Endocrinology*, 1115–1286.

21. Roberto Rivera, Irene Yacobson, and David Grimes, "The Mechanism of Action of Hormonal Contraceptives and Intrauterine Contraceptive Devices," *American Journal of Obstetrics and Gynecology* 181.5 (November 1999): 1263–1269, doi: 10.1016/S0002-9378(99)70120-1.

22. Holger Breithaupt, "The Science of Sex," *EMBO Reports* 13.5 (May 2012): 394, doi: 10.1038/embor.2012.45.

23. Hembree et al., "Endocrine Treatment," 3893. Advocates of the new medical treatment paradigm readily recognize this direct effect of cross-sex hormones and specifically counsel patients on the expected "complication" of induced sterility.

24. T.D. Pache et al., "Ovarian Morphology in Long-Term Androgen-Treated Female to Male Transsexuals: A Human Model for the Study of Polycystic Ovarian Syndrome?,"

from what it means to be male and female, which has grown from the seeds of "biological mutiny" that began with the acceptance of contraception as a solution to difficult social circumstances,[25] must be held to close scrutiny in assessing the morality of cross-sex steroid use.

Medical Risks Associated with Cross-Sex Steroid Use

With respect to the physiological effects of altering sex-steroid levels, it is important to recognize the numerous genetic and epigenetic differences between men and women, not just in the gonads or other reproductive organs but also in every cell in the body.[26] These differences direct unique cellular programs of gene expression, often leading to markedly different phenotypes between the sexes.[27] Recognition of these differences underlies the requirement by the National Institutes of Health that any federally sponsored research must include both male and female subjects unless otherwise justified, so that valid conclusions may be drawn from preclinical studies.[28] Thus, giving testosterone to a woman is not the same as giving the same hormone to a man. Similarly, giving estrogen to a man is not the same as giving the same hormone to a woman. There is ample evidence of the adverse effects of having elevated levels of sex steroids that normally predominate in members of the opposite sex. For example, women with elevated androgens—testosterone and androstenedione—due to congenital adrenal hyperplasia or polycystic ovarian disease have a significantly higher incidence of insulin resistance, dyslipidemia, and cardiovascular disease.[29] As the practice of giving cross-sex hormones is relatively new, there

Histopathology 19.5 (November 1991): 451, doi: 10.1111/j.1365-2559.1991.tb00235.x; Cornelia Schulze, "Response of the Human Testis to Long-Term Estrogen Treatment: Morphology of Sertoli Cells, Leydig Cells and Spermatogonial Stem Cells," *Cell and Tissue Research* 251.1 (January 1988): 37, doi: 10.1007/BF00215444; and Renata Walczak-Jędrzejowska et al., "Estradiol and Testosterone Inhibit Rat Seminiferous Tubule Development in a Hormone-Specific Way," *Reproductive Biology* 13.3 (September 2013): 243–250, doi: 10.1016/j.repbio.2013.07.005.

25. Lambeth Conference, 1930 Resolutions, para. 15, August 17, 1930, Lambeth Conference Resolution Archive, http://www.anglican communion.org/.

26. Sonja Grath and John Parsch, "Sex-Biased Gene Expression," *Annual Review of Genetics* 50 (November 2016): 29–44, doi: 10.1146/annurev-genet-120215-035429. The term "epigenetic" refers to heritable changes in gene function, such as histone acetylation and DNA methylation, that do not involve changes in DNA sequence. See Cathérine Dupont, D. Randall Armant, and Carol A. Brenner, "Epigenetics: Definition, Mechanisms and Perspective," *Seminars in Reproductive Medicine* 27.5 (September 2009): 351–357, doi: 10.1055/s-0029-1237423.

27. Nichole Rigby and Rob J. Kulathinal, "Genetic Architecture of Sexual Dimorphism in Humans," *Journal of Cellular Physiology* 230.10 (October 2015): 2304–2310, doi: 10.1002/jcp.24979.

28. Janine A. Clayton and Francis S. Collins, "NIH to Balance Sex in Cell and Animal Studies," *Nature* 509.7500 (May 14, 2014): 282–283.

29. Christiaan F. Mooij et al., "Cardiovascular and Metabolic Risk in Pediatric Patients with Congenital Adrenal Hyperplasia Due to 21 Hydroxylase Deficiency," *Journal of Pediatric*

are few long-term, controlled safety studies in the transgender population.[30] The available data, however, do reveal several dangerous effects of cross-sex hormones in these individuals. In addition to sterility, known risks include stroke, diabetes, osteoporosis, hyperprolactinemia, disfiguring acne, and hypertension.[31] There are also potential risks of breast, ovarian, and prostate cancer.[32] Consequently, existing treatment guidelines for patients with gender dysphoria include recommendations to counsel all patients on these risks prior to initiating hormonal interventions and to conduct regular screening during treatment.[33]

Principle of Totality

Many medical practitioners, recognizing the harm done to the body by destroying reproductive capacity, still maintain that cross-sex hormone treatment is justified

Endocrinology and Metabolism 30.9 (August 28, 2017): 957–966, doi: 10.1515/jpem-2017-0068; and Panagiotis Anagnostis, Basil C. Tarlatzis, and Robert P. Kauffman, "Polycystic Ovarian Syndrome (PCOS): Long-Term Metabolic Consequences," *Metabolism*, e-pub October 10, 2017, doi: 10.1016/j.metabol.2017.09.016.

30. M.J.H.J. Dekker et al., "A European Network for the Investigation of Gender Incongruence: Endocrine Part," *Journal of Sexual Development* 13.6 (June 2016): 994–999, doi: 10.1016/j.jsxm.2016.03.371.

31. Anne Laure Bourgeois et al., "Risk of Hormonotherapy in Transgender People: Literature Review and Data from the French Database of Pharmacovigilance," *Annals of Endocrinology* (*Paris*) 77.1 (February 2016): 14–21, doi: 10.1016/j.ando.2015.12.001; Katrien Wierckx et al., "Long-Term Evaluation of Cross-Sex Hormone Treatment in Transsexual Persons," *Journal of Sexual Medicine* 9.10 (October 2012): 2641–2651, doi: 10.1111/j.1743-6109.2012.02876.x; Katrien Wierckx et al., "Prevalence of Cardiovascular Disease and Cancer during Cross-Sex Hormone Therapy in a Large Cohort of Trans Persons: A Case–Control Study," *European Journal of Endocrinology* 169.4 (October 2013): 471–478, doi: 10.1530/EJE-13-0493; Lucia Turrion-Merino et al., "Severe Acne in Female-to-Male Transgender Patients," *JAMA Dermatology* 151.11 (November 2015): 1260–1261, doi: 10.1001/jamadermatol.2015.0761; Mohamed B. Elamin et al., "Effect of Sex Steroid Use on Cardiovascular Risk in Transsexual Individuals: A Systematic Review and Meta-analyses," *Clinical Endocrinology* 72.1 (January 2010): 1–10, doi: 10.1111/j.1365-2265.2009.03632.x; Carl G. Streed Jr. et al., "Cardiovascular Disease among Transgender Adults Receiving Hormone Therapy: A Narrative Review," *Annals of Internal Medicine* 167.4 (August 15, 2017): 256–267, doi: 10.7326/M17-0577; and Spyridoula Maraka et al., "Sex Steroids and Cardiovascular Outcomes in Transgender Individuals: A Systematic Review and Meta-Analysis," *Journal of Clinical Endocrinology and Metabolism* 102.11 (November 1, 2017): 3914–3923, doi: 10.1210/jc.2017-01643.

32. L. Gooren et al., "Five New Cases of Breast Cancer in Transsexual Persons," *Andrologia* 47.10 (December 2015): 1202–1205, doi: 10.1111/and.12399; D.S. Dizon et al., "Ovarian Cancer Associated with Testosterone Supplementation in a Female-to-Male Transsexual Patient," *Gynecologic and Obstetric Investigation* 62.4 (November 2006): 226–228, doi: 10.1159/000094097; and Asma Sharif et al., "The Development of Prostate Adenocarcinoma in a Transgender Male to Female Patient: Could Estrogen Therapy Have Played a Role?," *Prostate* 77.8 (June 2017): 824–828, doi: 10.1002/pros.23322.

33. Hembree et al., "Endocrine Treatment," 3871, 3886.

by the good that it achieves in preventing suicide.[34] In other words, the removal or alteration of normally formed and functioning primary and secondary sex organs is a necessary means to prevent loss of life. This moral argument appeals to the ethical principle of totality, which asserts that the individual parts of the body exist and function for the good of the whole body. Being subservient to the whole, parts of the body can be justifiably removed if their existence threatens the whole of the body.[35] For the principle of totality to be valid, however, alternative, less invasive interventions cannot be possible, and the action performed must have a reasonable hope of achieving the intended good effect, which in this case is suicide prevention. Yet the existing scientific evidence fails to establish that the administration of cross-sex hormones satisfies either of these conditions.

The standards of care published by the World Professional Association for Transgender Health summarily dismisses efforts to help individuals with gender dysphoria explore the psychological basis for gender discordance with the intent of facilitating the reintegration of gender identity with biological sex. The WPATH directives specifically assert that "treatment aimed at trying to change a person's gender identity and expression to become more congruent with sex assigned at birth has been attempted in the past without success, particularly in the long term. Such treatment is no longer considered ethical."[36] Reflecting either an ideological bias or lack of scientific rigor, studies cited as supporting evidence contain numerous methodologic limitations—for example, case studies and lack of experimental controls[37]—and include data showing that many patients did successfully realign gender identity with sex following psychological intervention.[38] Furthermore, the work of Kenneth Zucker and others demonstrates that many children who underwent psychotherapy

34. Brendan S. Abel, "Hormone Treatment of Children and Adolescents with Gender Dysphoria: An Ethical Analysis," *Hastings Center Report* 44.s4 (September–October 2014): S23–S27, doi: 10.1002/hast.366.

35. Pius XII, "The Moral Limits of Medical Research and Treatment," Address to the First International Congress of Histopathology of the Nervous System (September 14, 1952).

36. E. Coleman et al., "Standards of Care for the Health of Transsexual, Transgender, and Gender-Nonconforming People, Version 7," *International Journal of Transgenderism* 13.4 (2012): 175, doi: 10.1080/15532739.2011.700873.

37. "The nature of sex reassignment precludes double blind randomized controlled studies of the result. … Transsexualism is rare, and many follow-ups are hampered by small numbers of subjects. … Many sex reassigned persons decline to participate in follow-up studies or relocate after surgery, resulting in high drop-out rates and consequent selection bias. … Several follow-up studies are hampered by limited follow-up periods. Taken together, these limitations preclude solid and generalisable conclusions. A long-term population-based controlled study is one way to address these methodological shortcomings." Cecilia Dhejne et al., "Long-Term Follow-Up of Transsexual Persons Undergoing Sex Reassignment Surgery: Cohort Study in Sweden," *PLoS One* 6.2 (February 22, 2011), e16885, doi: 10.1371/journal.pone.0016885.

38. P.T. Cohen-Kettenis and A.J. Kuiper, "Transseksualiteit en psychothérapie," *Tijdschrift Voor Psychotherapie* 10 (1984): 153–166.

alone or with their families successfully integrated their identity with their biology.[39] Although permanent desistance rates are lower in postpubertal patients, a growing number of adult patients, some of whom had received cross-sex steroids for several years, either alone or in addition to surgery, have also experienced resolution of their gender discordance.[40]

The basis for the heterogeneity of outcomes observed in response to psychotherapy remains unknown. Given the emerging evidence for a multifactorial etiology of gender dysphoria, the likelihood of resolution may depend on the contributing factors that are present in each individual. The strength and duration of social reinforcement may also influence outcomes. Another hypothesis is that this heterogeneity is due to variations in the skill and content of the psychotherapy offered by different practitioners. Among the most striking deficiencies of the available scientific evidence regarding treatment is the lack of properly controlled trials investigating the relative effect of alternative approaches to alleviating gender dysphoria. Therefore, there is insufficient evidence to conclude that the mutilation of normally formed and functioning sex organs is the only way to prevent suicide in transgender people. Given the existence of limited but encouraging data on the potential benefits of psychotherapy and the drastic and often irreversible effects of cross-sex hormone exposure, failure to investigate potential means of refining and optimizing psychological support represents a failure of the medical profession to satisfy the long-standing principle of evidence-based practice. It represents both bad science and bad medicine.

Regarding the requirement to preserve the whole person, the totality argument primarily rests on achieving the goal of suicide prevention. Although a few small, uncontrolled, and relatively short-term studies of cross-sex hormone administration coupled with social affirmation report decreased levels of depression and suicidal ideation in youth with gender dysphoria,[41] one of the largest studies to date examining the long-term mental health of people with gender dysphoria who were treated with cross-sex hormones followed by surgery reports a suicide rate nineteen times greater than in the background population.[42] Among the subjects of this study, rates of substance abuse, conviction for violent crime, psychiatric hospitalization, and

39. Kenneth J. Zucker et al., "A Developmental, Biopsychosocial Model for the Treatment of Children with Gender Identity Disorder," *Journal of Homosexuality* 59.3 (2012): 369–397, doi: 10.1080/00918369.2012.653309; Kenneth J. Zucker, "On the 'Natural History' of Gender Identity Disorder in Children," *Child and Adolescent Psychiatry* 47.12 (December 2008): 1361–1363, doi: 10.1097/CHI.0b013e31818960cf; and Devita Singh, "A Follow-Up Study of Boys with Gender Identity Disorder" (PhD diss., University of Toronto, 2012).

40. I. M. Marks and D. Mataix-Cols, "Four-Year Remission of Transsexualism after Comorbid Obsessive-Compulsive Disorder Improved with Self-Exposure Therapy: Case Report," *British Journal of Psychiatry* 171.4 (October 1997): 389–390; and Walt Heyer, *Paper Genders* (NP: Make Waves Publishing, 2011).

41. See, for example, Annelou L. C. de Vries, "Young Adult Psychological Outcomes after Puberty Suppression and Gender Reassignment," *Pediatrics* 134.4 (October 2014): 1–9, doi: 10.1542/peds.2013-2958.

42. Cecilia Dhejne et al., "Long-Term Follow-Up of Transsexual Persons."

all-cause mortality were far above those in the background population.[43] A recent meta-analysis of forty-two studies reports a similar suicidality.[44] Claims that these disturbing outcomes are the result of social stigma are dubious, given that many of these studies were performed in countries, such as the Netherlands, where sexual diversity is generally praised rather than shunned. Although there is a dire need for further research, the existing data are insufficient to justify the claim that long-term suicide prevention is achieved through cross-sex hormone administration.

Principle of Double Effect

Some supporters have attempted to use the principle of double effect to justify the use of cross-sex hormones as a treatment for gender dysphoria. This argument, similar to the invocation of the principle of totality, acknowledges the harmful effects of the intervention in destroying normal reproductive function. The bad effect, sterility, is justified in relation to the good effect of suicide prevention. For one to apply this principle, it is necessary to satisfy each of its four criteria. First, the action performed must be morally good or, at least, morally neutral. In this regard, the moral agent is the one who gives regular oral or transdermal administration of sex steroids. When performed to correct a disorder of normal hormone secretion, this intervention is morally good. For example, giving estrogen to a woman with premature ovarian failure restores normal levels of this hormone, improving bone health.[45] Similarly, giving testosterone to a man with hypopituitarism enables the normal development of strength and lean body mass.[46]

The second requirement is that there is proportionality between the good and bad effects. Here again, it can be legitimately argued that the good effect of preserving life through suicide prevention is equal or superior to the bad effect of inducing sterility.

The third requirement is that the bad effect (loss of normal gonadal function), while foreseen, is not directly intended. In examining this criterion in relation to the administration of cross-sex hormones, serious ethical problems become apparent. In attempting to treat gender dysphoria, the administered sex steroids—testosterone for women and estrogen for men—are intended to induce the development of secondary sex characteristics of the desired sexual phenotype. One could potentially argue that the loss of gonadal function is a foreseen but undesired consequence of the desired feminization of men and virilization of women. However, for women who wish to appear as men, normal menstruation also contributes to dysphoria. In this respect, the loss of normal ovarian function to induce amenorrhea is directly intended. Similar,

43. Ibid. Rates of conviction for violent crime were higher specifically among subjects who underwent sex reassignment surgery before 1989.

44. Adams et al., "Varied Reports of Adult Transgender Suicidality."

45. Shannon D. Sullivan, Philip M. Sarrel, and Lawrence M. Nelson, "Hormone Replacement Therapy in Young Women with Primary Ovarian Insufficiency and Early Menopause," *Fertility and Sterility* 106.7 (December 2016): 1588–1599, doi: 10.1016/j.fertnstert.2016.09.046.

46. Karen K. Miller, "Androgen Deficiency: Effects on Body Composition," *Pituitary* 12.2 (June 2009): 116–124, doi: 10.1007/s11102-008-0121-7.

but perhaps less evident, is the desire to suppress normal testicular function to prevent the virilizing effect of testosterone in biological men.

The fourth requirement, which states that the bad effect must not serve as the direct means to achieve the good effect, is similarly problematic. As demonstrated in the consideration of intentionality, loss of normal gonadal function is a direct means to alter the outward appearance of an individual attempting to conform his or her body to the sexual appearance of the discordant gender identity. From this analysis, it is clear that cross-sex hormone administration cannot be ethically justified through the principle of double effect.

Future Directions

With a proper understanding of the anthropology of sex and with the precise application of the ethical principles of totality and double effect, it is clear that the use of cross-sex hormones for the treatment of gender dysphoria is immoral. Nevertheless, there remains a need for ethically permissible alternative interventions. In attempting to address this pressing knowledge deficit, the limits of bodily manipulation must be recognized and upheld.[47] Advocates and opponents of the current treatment paradigm share a desire to provide real and sustained help for individuals who experience a gender identity that differs from their biological sex. Medical practitioners, however, must not surrender the universally accepted standard of evidence-based medicine. An adequate solution to this urgent problem must await the results of properly designed and controlled clinical trials, which, to date, do not generally exist in the transgender population. Established principles of medical practice can guide efforts to respond in a compassionate manner. These should include uncompromised respect for human dignity and ongoing efforts to combat prejudice, bullying, and unjust discrimination. At the same time, any response must recognize biological reality. Treatment should include patient and family counseling to address primary and secondary psychological dysfunction. The provision of psychiatric care does not necessitate a definitive understanding of whether a patient will experience persistence or desistance of transgendered identity. Rather, reasonable goals can enable an individual to cope with any discomfort or stress related to the presence of incongruity between his or her mind and body. While awaiting the identification of effective, morally licit solutions to this difficult problem, physicians should remember that their first duty is to do no harm.

47. Willem Jacobus Cardinal Eijk, "Is Medicine Losing Its Way? A Firm Foundation for Medicine as a Real *Therapeia*," *Linacre Quarterly* 84.3 (2017): 208–219, doi: 0.1080/00243639.2017.1301112.