THE UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF FLORIDA
Tallahassee Division

AUGUST DEKKER, et al., *Plaintiffs*, v. JASON WEIDA, et al., *Defendants*.	Case No. 4:22-cv-00325-RH-MAF

DECLARATION OF ATTORNEY JENNIFER ALTMAN IN SUPPORT OF PLAINTIFFS' MOTION TO EXCLUDE EXPERT TESTIMONY OF MICHAEL BIGGS, PH.D.

I, Jennifer Altman, pursuant to 28 U.S.C. § 1746, declare as follows:

1. I am over the age of eighteen and make this declaration from my own personal knowledge. If called as a witness, I could and would testify competently to the matters stated herein.

2. I am a partner in the law firm of Pillsbury Winthrop Shaw Pittman LLP, in its office in Miami, Florida, and I have been retained by Plaintiffs as co-counsel in the above-captioned matter.

3. I make this Declaration in support of Plaintiffs' Motion to Exclude Expert Testimony of Michael Biggs, Ph. D.

4. Attached as **Exhibit A** is a true and correct copy of the expert report of Michael Biggs (including a copy of his curriculum vitae) in the above-captioned matter, which report is dated February 13, 2023.

5. Attached as **Exhibit B** is a true and correct copy of the transcript of the deposition of Michael Biggs, Ph. D. taken on March 21, 2023, which was taken by me in relation to the above-captioned matter.

6. Attached as **Exhibit C** is a true and correct copy of Kenneth J. Zucker, et. al., *Memo Outlining Evidence for Change for Gender Identity Disorder in the DSM-5*, ARCHIVES OF SEXUAL BEHAVIOR (2013).

7. Attached as **Exhibit D** is a true and correct copy of James Ashworth & Charlie Willis, *Transphobic tweets linked to Oxford sociology professor*, THE OXFORD STUDENT (Oct. 26, 2018), https://www.oxfordstudent.com/2018/10/26 /transphobic-tweets-linked-to-oxford-sociology-professor/.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on April 7, 2023 By: */s/ Jennifer Altman*

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EXPERT REPORT OF MICHAEL BIGGS, Ph.D.

1. I have been retained by counsel for the Florida Agency for Health Care Administration in defence of revisions to Rule 59G-1.050, Florida Administrative Code (*Dekker et al. v. Weida et al.*, Case No. 4:22-cv-00325-RH-MAF). I have been asked by counsel to summarize my knowledge and opinions on gender dysphoria in adolescents, focusing on the use of puberty blockers.

2. I have contributed to the following legal cases:

   a. Expert witness statement for Keira Bell and Mrs A in *Keira Bell and Mrs A v Tavistock NHS Trust,* Her Majesty's High Court of Justice in England, 2020, [2020] EWHC 3274 (Admin).

   b. Expert witness statement for [name suppressed], Australian Family Court, 2022.

3. A list of my publications is included in my curriculum vitae, which is attached as Attachment 1. My publications related to gender dysphoria are included as Attachments 2 through 5.

4. I am being compensated for my time in preparing this report at an hourly rate of $400/hour. My compensation is in no way contingent on the conclusions reached as a result of my analysis.

Background

5. With a PhD degree from Harvard University, I conduct research on social movements by compiling original quantitative data and using statistical methods.

Around 2017 my interest was piqued by the rapid growth in the number of children identifying as transgender, throughout the Western world. Three graduate students told me not to analyze this phenomenon sociologically and to educate myself in the correct way of thinking. After reading the scientific literature, I became increasingly concerned about the lack of robust evidence on endocrinological and surgical interventions.

6. I have conducted original research on the use of Gonadotropin-Releasing Hormone agonist or analogue (GnRHa) to block the development of puberty. I have written on the invention of the Dutch protocol in the 1990s (Biggs 2022b) and on the initial British experiment with this protocol in the 2010s (Biggs 2019b). I was the first to call on the Tavistock and Portman NHS Foundation Trust's Gender Identity Development Service (GIDS) to publish the results of its experiment (Tominey and Walsh 2019), and I was the first to publish preliminary results from the experiment (Biggs 2020a). Provoked by the poor quality of data and analysis in this field of medicine, I have published on the effects of puberty suppression on psychological functioning (Biggs 2019a), on suicidality (Biggs 2020b), and on bone density (Biggs 2021), as well as on the suicide rate of transgender adolescents (Biggs 2022a). This work has appeared in leading psychology and medical journals: *Archives of Sexual Behavior*, *Journal of Sex and Marital Therapy*, *Journal of Sexual Medicine*, and *Journal of Pediatric Endocrinology and*

Metabolism. My articles have been published in the top disciplinary journals including *American Sociological Review*, *American Journal of Sociology*, *Social Forces*, *European Sociological Review*, and *British Journal of Sociology*.

Puberty Suppression as a Treatment for Gender Dysphoria

7. In the nomenclature of transgender medicine, "puberty blockers" denote GnRHa drugs which stop the production of sex hormones. Drugs in this class used in North America include and leuprorelin (branded Lupron) and histrelin acetate (branded Supprelin LA or Vantas). GnRHa has never been licensed to treat gender dysphoria anywhere in the world. The justification for this application comes by analogy with its licensed use to treat precocious puberty—when puberty commences before the age of 7 (approximately) in girls or 9 in boys. That treatment involves delaying a puberty that arrives abnormally early so that the child can undergo puberty at the normal age, whereas puberty suppression for gender dysphoria entails stopping normal puberty in order to prepare the child for taking hormones of the opposite sex.

8. Dutch clinicians started using GnRHa to suppress puberty in children suffering from gender dysphoria—who they designated as "juvenile transsexuals" (Gooren and Delemarre-van de Waal 1996)—in the 1990s. The Dutch protocol had three stages (Delemarre-van de Waal and Cohen-Kettenis 2006). GnRHa would be given from the age of 12, once the child had reached Tanner Stage 2: for girls by

budding breasts and for boys by growing testicles. Cross-sex hormones would be administered from 16, and surgeries would commence at 18.

9. Puberty suppression as a treatment for gender dysphoria was never tested in any randomized clinical trial. Nor were there any preliminary experiments on non-human animals. Only two decades after this treatment was first used on children were any experiments conducted on sheep and mice (Hough, Bellingham, Haraldsen, McLaughlin, Rennie, et al. 2017; Hough, Bellingham, Haraldsen, McLaughlin, Robinson, et al. 2017; Anacker et al. 2021). The Dutch clinicians published outcomes from a longitudinal study of the first cohort of 70 children whose puberty was suppressed (de Vries et al. 2011; 2014). About half the psychological measures showed improvement. The reported improvement in gender dysphoria is flawed because the researchers switched the questionnaires used to construct the measure. A male who wanted to become a woman was given the male version at baseline and then the female version at follow-up, including irrelevant questions such as about menstruation (Levine, Abbruzzese, and Mason 2022). Notably, one teenager died of necrotizing fasciitis during vaginoplasty. This death was a consequence of puberty suppression: the patient's penis, prevented from developing normally, was too small for the regular vaginoplasty and so surgery was attempted with a portion of the intestine, which became infected

(Negenborn et al. 2017). In a cohort of healthy teenagers, a death rate exceeding 1% is alarming.

10. This Dutch cohort have not been followed up since their early twenties, just after surgery. Only one patient—the very first to receive puberty suppression for gender dysphoria—has been followed up in the long term. At the age of 35, he was depressed. Due to "shame about his genital appearance and his feelings of inadequacy in sexual matters," he could not sustain a romantic relationship with a girlfriend (Cohen-Kettenis et al. 2011, 845). The clinicians concluded optimistically that "the negative side effects are limited" (Cohen-Kettenis et al. 2011, 843).

11. While gender clinics in many other countries adopted the Dutch protocol from the late 2000s, they either did not collect data on outcomes or decided not to publish it. The GIDS started puberty suppression as an experiment in 2011, involving 44 children aged 12 to 15 (Viner et al. 2010). Before the last subject had been recruited, it was pronounced a success by the Director of the GIDS and used to justify a new policy of lowering the age of puberty suppression: "Now we've done the study and the results thus far have been positive we've decided to continue with it" (Manning and Adams 2014). The lack of publication of the results led to my protracted campaign involving news media (e.g., Tominey and Walsh 2019), complaints to the NHS ethics committee (Health Research Authority

2019), and questions in Parliament (Blackwood of North Oxford 2019). The GIDS delayed publication until the day after the verdict was delivered in the judicial review launched by Keira Bell (Carmichael et al. 2020; 2021). The researchers acknowledge that puberty suppression, after two years, produced no positive effects. These results were significantly inferior to the Dutch results following puberty suppression (Biggs 2020a). The subjects of this experiment have not been followed up after cross-sex hormones; the GIDS admits that it loses track of its patients after the age of 18 (Butler et al. 2018). One of the subjects in the experiment appeared on Twitter (as @mediocredruid): she is deeply distressed by her treatment—GnRHa at 15 led to testosterone, double mastectomy, hysterectomy, vaginectomy, and metoidioplasty—and is now stuck in medical limbo, as the physical changes have been so extreme that she is unlikely to be able to pass as a woman.

12. In the United States, puberty suppression became widely adopted from 2008 onwards (Biggs 2020b). Dozens of children's gender clinics were established to tap into this new lucrative market. The National Institutes of Health awarded $5.7 million for a prospective longitudinal study of the effects of GnRHa and cross-sex hormones on children (Children's Hospital Los Angeles 2015). Subjects were recruited between 2016 and 2018 (Olson-Kennedy et al. 2019). Outcomes after two years on GnRHa were thus collected by 2020, but the researchers have only

published on the characteristics of the cohort *before* treatment (Chen et al. 2021; Lee et al. 2020) and on the respective merits of two brands of GnRHa (Olson-Kennedy et al. 2021). As in Britain, practitioners of gender medicine are curiously reluctant to publish the outcomes of puberty suppression for psychological functioning and gender dysphoria—even though those outcomes were the primary justification for the treatment.

The Association of Gender Dysphoria with Same-Sex Attraction and Autism Spectrum Conditions

13. Puberty suppression is founded on the assumption that a child suffering from gender dysphoria at age 12—or even younger, if Tanner stage 2 is reached earlier—is a "juvenile transsexual" whose destiny is fixed. This assumption was known to be false by the clinicians who invented the Dutch protocol, who initially recognized that "most GID [gender identity disorder, the precursor to gender dysphoria] children under 12 will not grow up to become transsexuals" (Cohen-Kettenis and van Goozen 1997, 246). "Prospective studies of GID boys show that this phenomenon is more closely related to later homosexuality than to later transsexualism" (Cohen-Kettenis and Gooren 1999, 319). One of the four studies cited is a famous study of "sissy boys" who were selected because they were thought to be "pretranssexuals"; after fifteen years, however, two thirds of the 44 had become bisexual or homosexual men and only one was contemplating

transsexuality (Green 1987). A representative longitudinal study of 14,000 children born in 1991–92 shows that those who as infants gravitated towards toys and activities typical of the opposite sex were far more likely by the age of 15 to grow up to be gay or lesbian (Li, Kung, and Hines 2017). All this evidence predates the promotion of transgenderism in healthcare and schools and on social media. The manifesto for the Dutch protocol fails to mention homosexuality and does not cite any of the studies of feminine boys (Delemarre-van de Waal and Cohen-Kettenis 2006). Of the first 70 adolescents referred to the Amsterdam clinic from 2000 to 2008 and given GnRHa, 62 were homosexual while only 1 was heterosexual (de Vries et al., 2011). The suspicion must be that at least some of these children could have grown up to be typical gays and lesbians, without requiring lifetime medical treatment and without loss of fertility and sexual function.

14. The overlap between gender dysphoria and autistic spectrum conditions (ASC) is well documented (Socialstyrelsen 2020; Warrier et al. 2020). "GD [gender dysphoria] and ASD [autism spectrum disorder, another term for ASC] were found to co-occur frequently—sometimes characterized by atypical presentation of GD, which makes a correct diagnosis and determination of treatment options for GD difficult" (van der Miesen, Hurley, and de Vries 2016, 70). Children on the autistic spectrum are more likely to face difficulties fitting in with their same-sex peers, which makes a transgender identity obviously appealing

as both an explanation and a solution. From a sample of over 700 referrals to the GIDS in 2012 and 2015, 14–15% were diagnosed with ASC (Morandini et al. 2021). This was more than ten times greater than the rate for students in England, 0.8%–1.1% (Department for Education 2012; 2015). The proportion among those subjected to GnRHa could be even higher. Out of the first 30 subjects enrolled in the GIDS experiment on puberty suppression, almost half had ASC traits: mid to moderate in 9 children, and severe in 5 (Gender Identity Development Service 2015).

The Risk of Suicide for Children Suffering from Gender Dysphoria

15. Surveys demonstrate that adolescents who identify as transgender are vulnerable to suicidal thoughts and self-harming behaviors (dickey and Budge 2020; Hatchel, Polanin, and Espelage 2021; Mann et al. 2019). In the United States, 15% of transgender students reported a suicide attempt requiring medical treatment in the last 12 months, compared to 3% of all students (Centers for Disease Control and Prevention 2018; Jackman et al. 2021; Johns et al. 2019). In another American survey, 41% of transgender students reported having attempted suicide during their lifetime, compared to 14% of all students (Toomey, Syvertsen, and Shramko 2018).

16. Respondents who report suicide attempts are not necessarily indicating an intent to die. One survey of the American population found that almost half the

respondents who reported attempting suicide subsequently stated that their action was a cry for help and not intended to be fatal (Nock and Kessler 2006). In two small samples of non-heterosexual youth, half the respondents who initially reported attempting suicide subsequently clarified that they went no further than imagining or planning it; for the remainder who did actually attempt suicide, their actions were usually not life-threatening. To an extent, then, "the reports were attempts to communicate the hardships of lives or to identify with a gay community" (Savin-Williams 2001). Such elaborate survey methods have not been used to study transgender populations, but there is anecdotal evidence for a disjuncture between self-harm and suicidal ideation on one hand and fatal suicide on the other. The pediatric endocrinologist who established the first clinic for transgender children in the United States stated that "the majority of self-harmful actions that I see in my clinic are not real suicide attempts and are not usually life threatening" (Spack 2009, 312).

17. Two published studies have reported suicide fatalities among transgender adolescents. Belgium's pediatric gender clinic provided counselling to 172 youth aged from 12 and 18 years, who had been referred between 2007 and 2016: 5 of them (2.9%) committed suicide (Van Cauwenberg, Dhondt, and Motmans 2021). The mean age of referral was 15, implying a mean duration of 3 years before

transition to an adult clinic, which translates to an annual suicide rate of 969 per 100,000. This is extraordinarily high.

18. At the Tavistock GIDS, which serves young people under 18 from England, Wales, and Northern Ireland, 4 patients were known or suspected to have died by suicide between 2010 and 2020. The clinic had referrals for approximately 15,000 patients in this period. To calculate the annual suicide rate, the total number of years spent by patients under the clinic's care is estimated at about 30,000. This yields an annual suicide rate of 13 per 100,000 (95% confidence interval: 4–34). Compared to the United Kingdom population of the same age and sexual composition, the suicide rate for patients at the GIDS was 5.5 times higher (Biggs 2022a). It is not clear what explains the enormous disparity in suicide rates at these two clinics; the Belgian rate is 70 times higher. The suicide rate at the GIDS is much closer to the rates for adults. Among 4,600 adults who received cross-sex hormones at the Amsterdam clinic between 1972 and 2018, the suicide rate (standardized for age and sex) was triple that of the Dutch population (de Blok et al. 2021). Among 3,000 adults who were diagnosed with gender dysphoria in England, the (unstandardized) suicide rate was 3–6 times that of the population (Jackson et al. 2023).

19. The elevated suicide rate of children who identify as transgender could be explained by some combination of gender dysphoria, accompanying psychological

conditions, and ensuing social disadvantages such as bullying. The association between ASC and gender dysphoria was pointed out above. Autism is known to increase the risk of suicide mortality, especially in females (Socialstyrelsen 2020; Kirby et al. 2019; Hirvikoski et al. 2016). To some extent, therefore, the elevated suicide rate for transgender youth compared to their peers reflects the higher incidence of ASC. The same holds for other psychiatric disorders associated with gender dysphoria (Dhejne et al. 2016).

20. The claim that puberty suppression reduces suicidality in children suffering from gender dysphoria is not implausible. Because the risk of suicide increases greatly from prepubescence to late adolescence, halting normal cognitive and emotional development with GnRHa could reduce the risk of suicide by preventing the child from maturing. As yet there is no evidence, however, that endocrinological interventions reduce the risk of suicide. At the GIDS from 2010 to 2020, there is no detectable difference between the suicide rate for patients on the waiting list and for patients who were being seen (Biggs 2022a). In the Belgian clinic which experienced the exceptionally high suicide rate. subsequent correspondence reveals that "suicide was related to many more (psychological) problems than their GD [gender dysphoria], and occurred mostly a few years after the start on hormonal treatment" (email from Gaia Van Cauwenberg to Avi Ring, 27 May 2022).

21. One study claims that puberty suppression reduced subsequent suicidality in adults (Turban et al. 2020). This finding derives from a nonrepresentative survey of transgender adults in the United States, which included 89 respondents who reported taking puberty blockers. Six measures of suicidality and three other measures of mental health and substance abuse were examined, but only one yielded a statistically significant association after controlling for other factors: the respondents who reported taking puberty blockers were less likely to have thought about killing themselves than were the respondents who reported wanting blockers but not obtaining them. This study has numerous serious flaws (Biggs 2020b). Most fundamentally, without information on the respondents' mental health during adolescence, the causal direction cannot be ascertained. The association could well be explained by clinicians refusing to prescribe GnRHa to adolescents with significant psychological problems, as indeed was then recommended by the Endocrine Society (Hembree et al. 2009). The study did not disclose the fact that one of its authors had been paid by Endo Pharmaceuticals, which manufactures a GnRHa drug (histrelin acetate under the brand Supprelin). At my insistence, the journal issued a correction to admit this conflict of interest (Pediatrics 2021).

22. There are anecdotal reports of children experiencing increased suicidal feelings after GnRHa. At the Leiden clinic, one teenager "stopped treatment because of an increase in mood problems and suicidal thoughts and confusion

attributed to GnRHa treatment" (Brik et al. 2020, 2614). One English teenager recalled that GnRHa led to suicidal feelings (Klotz 2022). The drugs used in Britain—Gonapeptyl® Depot and Decapeptyl® SR—carry warnings that depression is a common side effect, affecting between 1% and 10% of patients (Ferring Pharmaceuticals Ltd 2016), and "may be severe" (Ipsen Ltd 2017).

The Effect of Puberty Suppression on Mental Health

23. The first Dutch cohort of 70 children given GnRHa reported generally positive outcomes, by age 16, when they graduated to cross-sex hormones (de Vries et al. 2011). (The actual number of observations ranged from 41 to 57, depending on measure.) Psychological functioning improved, depressive symptoms declined, and behavioural and emotional problems decreased. Gender dysphoria, however, worsened for females. Using the same measures as the Dutch, the first GIDS cohort of 44 children reported no improvement in psychological functioning or gender dysphoria after two years (Carmichael et al. 2021). On almost all measures, the outcomes for the GIDS cohort were worse than for the Dutch cohort (Biggs 2022b). There was a misleading earlier article from the GIDS which claimed that puberty suppression improved psychological functioning (Costa et al. 2015). It had an extraordinarily high attrition rate—almost half the subjects vanished over 12 months, without explanation—and the claimed effect

was actually not statistically significant (Biggs 2019a). It nevertheless continues to be cited as credible evidence for the beneficial effects of puberty suppression.

24. According to a recent study from the Seattle Children's Gender Clinic, 69 youth aged 13 to 16 experienced dramatically reduced rates of depression and of self-harm or suicidal thoughts after 12 months on GnRHa or cross-sex hormones (Tordoff et al. 2022). (The authors unfortunately do not differentiate these two interventions.) In fact the data for these youth showed no change over time (Singal 2022). The false claim was derived from statistical comparison with youth from the clinic who had not received these endocrinological interventions, whose mental health worsened over time. But this comparison group numbered only 6 patients after 12 months. One obvious explanation is that the clinicians were following the World Professional Association of Transgender Health's recommendations against commencing medical intervention when an adolescent is experiencing an acute mental health crisis. (This is the same fallacy of causal inference that vitiated Turban et al.'s (2020) study of suicidality.)

25. A proper randomized control trial of the effect of suppressing puberty in mice using GnRHa demonstrated that it caused significantly higher levels of stress in males, and increased anxiety and despair-like behaviour in females (Anacker et al. 2021).

The Effect of Puberty Suppression on Bone Density

26. The Dutch pioneers warned at the outset that patients could "end with a decreased bone density, which is associated with a high risk of osteoporosis" (Delemarre-van de Waal and Cohen-Kettenis 2006, S134). The fact that GnRHa prevents the accrual of normal bone mass is well documented from Dutch and British studies (Klink et al. 2015; Schagen et al. 2020; Stoffers, de Vries, and Hannema 2019; Vlot et al. 2017; Joseph, Ting, and Butler 2019). In addition, children given GnRHa already have unusually low bone density, perhaps due to the high prevalence of eating disorders. The combined effect can be appreciated by looking at the proportion of adolescents who end up after treatment with severely low bone density, two standard deviations below the average—putting them at risk for osteoporosis. My reanalysis of 31 of the GIDS patients demonstrates that after two years on GnRHa, up to a third had reached this very low range, depending on the measure (hip or spine); only 2.3% of the population would be this low. Moreover, four patients (13%) had spine bone density over three standard deviations from the mean; only 0.13% of the population would be so extremely low (Biggs 2021).

27. Whether such abnormally low bone density has increased the risk of fractures is unknown because clinics apparently do not collect data on fractures. Anecdotally, a British female patient who started GnRHa at age 12 then

experienced four broken bones by the age of 16 (Bannerman 2019). A Swedish documentary highlighted the case of a female who was given GnRHa from age 11 to 15, and now suffers from severe osteoporosis, including continual skeletal pain (SVT 2021).

The Effect of Puberty Suppression on Sexual Function

28. When GnRHa is used to treat prostate cancer, one side effect is that "sexual desire, sexual interest and sexual intercourse were totally annulled" (Marumo, Baba, and Murai 1999, 19). This is why GnRHa is licensed to chemically castrate men who are sex offenders (Ho et al. 2012; Turner and Briken 2018). Clinicians who use GnRHa off-label to treat gender dysphoria have ignored its effects on sexuality. The Dutch studies, for example, included no measures for libido or capacity for orgasm (de Vries et al. 2011; 2014). The lead author recently described orgasm as "a very interesting and so far not studied question" (Klotz 2022). A Californian surgeon who has performed over 2,000 vaginoplasties (and who is also transgender) recently acknowledged that "every single child who was, or adolescent, who was truly blocked at Tanner Stage 2, has never experienced orgasm. I mean, it's really about zero" (Bowers 2022). This remark refers to males. The effects of puberty suppression at such an early stage on females is unknown.

The Effect of Puberty Suppression on Subsequent Medical Transition

29. Dutch clinicians initially promoted puberty suppression as providing space for therapeutic exploration of gender identity, without the pressure of the physical changes accompanying puberty (Delemarre-van de Waal and Cohen-Kettenis 2006). This was plausible, perhaps, though it was also plausible that stopping normal sexual and cognitive development would impede such exploration. As the Dutch clinicians admitted at the time, "none of the [54] patients who were selected for pubertal suppression has decided to stop taking GnRHa" (Delemarre-van de Waal and Cohen-Kettenis 2006, S136). It could have been argued that this was due to careful selection of a small number of adolescents for this experimental treatment.

30. Although the number of children subjected to puberty suppression has increased dramatically, they almost invariably continue to cross-sex hormones. Out of 333 children given GnRHa in the Amsterdam clinic to the end of 2015, 326 (98%) continued to cross-sex hormones (Wiepjes et al. 2018). Out of 133 children given GnRHa at the Leiden clinic in the Netherlands who attained the age of eligibility for cross-sex hormones, 128 (96%) continued (Brik et al. 2020). Out of 44 children enrolled in the GIDS experiment with GnRHa, 43 (98%) continued to cross-sex hormones (Carmichael et al. 2021). Out of 54 children given GnRHa by the Royal Children's Hospital Gender Service in Australia, 53 (98%) continued to

cross-sex hormones (Tollit et al. 2021). The suspicion is that puberty suppression reinforces gender dysphoria.

31. Given the fact that there are almost no cases of children ceasing GnRHa, the claim for reversibility is moot. The article that first proposed puberty suppression deemed it to be "fully reversible; in other words, no lasting undesired effects are to be expected" (Gooren and Delemarre-van de Waal 1996, 72). The phrasing acknowledged the lack of actual evidence. Suppressing puberty for just one month would have a negligible effect on a child's development, of course, but the Dutch protocol entails suppression for up to four years (from age 12 to 16). It is simply incredible to claim that suppressing puberty for many years would have no lasting effect if the child were to stop GnRHa and restart their natal sex hormones. The manifesto for the Dutch protocol admitted as much: "It is not clear yet how pubertal suppression will influence brain development" (Delemarre-van de Waal and Cohen-Kettenis 2006, S137). Randomized experiments with sheep now provide compelling evidence on this point: GnRHa impairs spatial memory, and this impairment remains after the treatment is stopped and puberty is restarted (Hough et al. 2017a; Hough et al. 2017b).

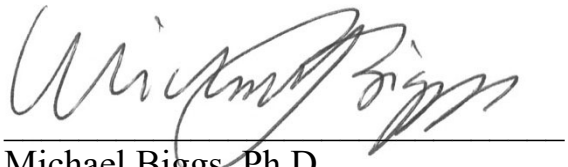
Recent Evaluations of Puberty Suppression by the English and Swedish Health Systems

32. NHS England commissioned a systematic evaluation of every study on puberty suppression published up to July 2020. From detailed analysis spanning

131 pages, it concluded: "The studies included in this evidence review are all small, uncontrolled observational studies, which are subject to bias and confounding, and all the results are of very low certainty using modified GRADE [Grading of Recommendations, Assessment, Development and Evaluations, a framework for summarizing medical evidence]. They all reported physical and mental health comorbidities and concomitant treatments very poorly" (National Institute for Clinical Excellence 2020, 23).

33. The Swedish National Board of Health and Welfare updated its recommendations in February 2022, based on a systematic review of the scientific evidence by the Agency for Health Technology Assessment and Assessment of Social Services (Statens beredning för medicinsk och social utvärdering 2022). It states that "the risks of puberty suppressing treatment with GnRH-analogues and gender-affirming [cross-sex] hormonal treatment currently outweigh the possible benefits, and that the treatments should be offered only in exceptional cases," in part due to the "continued lack of reliable scientific evidence concerning the efficacy and the safety of both treatments" (Socialstyrelsen 2022, 3).

I declare, pursuant to 28 U.S.C. § 1746, under penalty of perjury that the foregoing is true and correct. Executed this 13th day of February, 2023.



Michael Biggs, Ph.D.

References

Anacker, Christoph, Ezra Sydnor, Briana K. Chen, Christina C. LaGamma, Josephine C. McGowan, Alessia Mastrodonato, Holly C. Hunsberger, et al. 2021. "Behavioral and Neurobiological Effects of GnRH Agonist Treatment in Mice: Potential Implications for Puberty Suppression in Transgender Individuals." *Neuropsychopharmacology* 46: 882–90. https://doi.org/10.1038/s41386-020-00826-1.

Bannerman, Lucy. 2019. "Puberty Blocking Drugs: 'For the Past Four Years I've Been Stuck as a Child.'" *Times*, July 26, 2019. https://www.thetimes.co.uk/article/transgender-children-puberty-blocking-drugs-for-the-past-four-years-i-ve-been-stuck-as-a-child-5s6tkh7z2.

Biggs, Michael. 2019a. "A Letter to the Editor Regarding the Original Article by Costa et al: Psychological Support, Puberty Suppression, and Psychosocial Functioning in Adolescents with Gender Dysphoria." *Journal of Sexual Medicine* 16: 2043. https://doi.org/10.1016/j.jsxm.2019.09.002.

———. 2019b. "Britain's Experiment with Puberty Blockers." In *Inventing Transgender Children and Young People*, edited by Michele Moore and Heather Brunskell-Evans, 40–55. Newcastle: Cambridge Scholars Publishing.

———. 2020a. "Gender Dysphoria and Psychological Functioning in Adolescents Treated with GnRHa: Comparing Dutch and English Prospective Studies." *Archives of Sexual Behavior* 49: 2231–36. https://doi.org/10.1007/s10508-020-01764-1.

———. 2020b. "Puberty Blockers and Suicidality in Adolescents Suffering from Gender Dysphoria." *Archives of Sexual Behavior* 49: 2227–29. https://doi.org/10.1007/s10508-020-01743-6.

———. 2021. "Revisiting the Effect of GnRH Analogue Treatment on Bone Mineral Density in Young Adolescents with Gender Dysphoria." *Journal of Pediatric Endocrinology and Metabolism* 34: 937–39. https://doi.org/10.1515/jpem-2021-0180.

———. 2022a. "Suicide by Clinic-Referred Transgender Adolescents in the United Kingdom." *Archives of Sexual Behavior* 51: 685–90. https://doi.org/10.1007/s10508-022-02287-7.

———. 2022b. "The Dutch Protocol for Juvenile Transsexuals: Origins and Evidence." *Journal of Sex & Marital Therapy*. https://doi.org/10.1080/0092623X.2022.2121238.

Blackwood of North Oxford, Baroness. 2019. *Answer to Written Question HL15681 Asked by Lord Lucas*.

Blok, Christel J.M. de, Chantal M. Wiepjes, Daan M. van Velzen, Annemieke S. Staphorsius, Nienke M. Nota, Louis J.G. Gooren, Baudewijntje P.C. Kreukels, and Martin den Heijer. 2021. "Mortality Trends over Five Decades in Adult Transgender People Receiving Hormone Treatment: A Report from the Amsterdam Cohort of Gender Dysphoria." *The Lancet Diabetes & Endocrinology*, S2213858721001856. https://doi.org/10.1016/S2213-8587(21)00185-6.

Bowers, Marci. 2022. "Teen Transitions." Duke University, March 21. https://www.facebook.com/dukesgmhealth/videos/704267637246585/.

Brik, Tessa, Lieke J.J.J. Vrouenraets, Martine C. de Vries, and Sabine E. Hannema. 2020. "Trajectories of Adolescents Treated with Gonadotropin-Releasing Hormone Analogues for Gender Dysphoria." *Archives of Sexual Behavior* 49: 2611–18. https://doi.org/10.1007/s10508-020-01660-8.

Butler, Gary, Nastasja De Graaf, Bernadette Wren, and Polly Carmichael. 2018. "Assessment and Support of Children and Adolescents with Gender Dysphoria." *Archives of Disease in Childhood*, archdischild-2018-314992. https://doi.org/10.1136/archdischild-2018-314992.

Carmichael, Polly, Gary Butler, Una Masic, Tim J Cole, Bianca L De Stavola, Sarah Davidson, Elin M. Skageberg, Sophie Khadr, and Russell Viner. 2020. "Short-Term Outcomes of Pubertal Suppression in a Selected Cohort of 12 to 15 Year Old Young People with Persistent Gender Dysphoria in the UK." Preprint. Sexual and Reproductive Health. https://doi.org/10.1101/2020.12.01.20241653.

Carmichael, Polly, Gary Butler, Una Masic, Tim J. Cole, Bianca L. De Stavola, Sarah Davidson, Elin M. Skageberg, Sophie Khadr, and Russell Viner. 2021. "Short-Term Outcomes of Pubertal Suppression in a Selected Cohort of 12 to 15 Year Old Young People with Persistent Gender Dysphoria in the UK." *PLOS ONE* 16: e0243894.

Centers for Disease Control and Prevention. 2018. "2017 Youth Risk Behavior Survey." https://www.cdc.gov/healthyyouth/data/yrbs/data.htm.

Chen, Diane, Mere Abrams, Leslie Clark, Diane Ehrensaft, Amy C. Tishelman, Yee-Ming Chan, Robert Garofalo, Johanna Olson-Kennedy, Stephen M. Rosenthal, and Marco A. Hidalgo. 2021. "Psychosocial Characteristics of Transgender Youth Seeking Gender-Affirming Medical Treatment: Baseline Findings from the Trans Youth Care Study." *Journal of Adolescent Health* 68: 1104–11. https://doi.org/10.1016/j.jadohealth.2020.07.033.

Children's Hospital Los Angeles. 2015. "NIH Funds First Ever Multi-Site Study of Transgender Youth in the US with a $5.7 Million Award." August 14, 2015. https://www.newswise.com/articles/nih-funds-first-ever-multi-site-study-of-transgender-youth-in-the-us-with-a-5-7-million-award.

Cohen-Kettenis, Peggy T., and Stephanie H.M. van Goozen. 1997. "Sex Reassignment of Adolescent Transsexuals: A Follow-up Study." *Journal of the American Academy of Child and Adolescent Psychiatry* 36: 263–71. https://doi.org/10.1097/00004583-199702000-00017.

Cohen-Kettenis, Peggy T., Sebastiaan E.E. Schagen, Thomas D. Steensma, Annelou L.C. de Vries, and Henriette A. Delemarre-van de Waal. 2011. "Puberty Suppression in a Gender-Dysphoric Adolescent: A 22-Year Follow-Up." *Archives of Sexual Behavior* 40: 843–47. https://doi.org/10.1007/s10508-011-9758-9.

Cohen-Kettenis, P.T., and L.J.G. Gooren. 1999. "Transsexualism: A Review of Etiology, Diagnosis and Treatment." *Journal of Psychosomatic Research* 46: 315–33.

Costa, Rosalia, Michael Dunsford, Elin Skagerberg, Victoria Holt, Polly Carmichael, and Marco Colizzi. 2015. "Psychological Support, Puberty Suppression, and Psychosocial Functioning in Adolescents with Gender Dysphoria." *Journal of Sexual Medicine* 12: 2206–14. https://doi.org/10.1111/jsm.13034.

Delemarre-van de Waal, Henriette A., and Peggy T. Cohen-Kettenis. 2006. "Clinical Management of Gender Identity Disorder in Adolescents: A Protocol on Psychological and Paediatric Endocrinology Aspects." *European Journal of Endocrinology* 155 (suppl_1): S131–37. https://doi.org/10.1530/eje.1.02231.

Department for Education. 2012. "Special Educational Needs in England, January 2012." https://www.gov.uk/government/statistics/special-educational-needs-in-england-january-2012.

———. 2015. "Special Educational Needs in England, January 2015." https://www.gov.uk/government/statistics/special-educational-needs-in-england-january-2015.

Dhejne, Cecilia, Roy Van Vlerken, Gunter Heylens, and Jon Arcelus. 2016. "Mental Health and Gender Dysphoria: A Review of the Literature." *International Review of Psychiatry* 28 (January): 44–57. https://doi.org/10.3109/09540261.2015.1115753.

dickey, lore m., and Stephanie L. Budge. 2020. "Suicide and the Transgender Experience: A Public Health Crisis." *American Psychologist* 75: 380–90. https://doi.org/10.1037/amp0000619.

Ferring Pharmaceuticals Ltd. 2016. "Package Leaflet: … Gonapeptyl® Depot 3.75mg." http://www.medicines.org.uk/emc/product/2229/pil.

Gender Identity Development Service. 2015. "Preliminary Results from the Early Intervention Research." In *Board of Directors Part One: Agenda and Papers … 23rd June 2015*, 50–55.

Gooren, Louis, and Henriette Delemarre-van de Waal. 1996. "The Feasibility of Endocrine Interventions in Juvenile Transsexuals." *Journal of Psychology and Human Sexuality* 8: 69–74. https://doi.org/10.1300/J056v08n04_05.

Green, Richard. 1987. *The Sissy Boy Syndrome: The Development of Homosexuality.* Yale University Press.

Hatchel, Tyler, Joshua R. Polanin, and Dorothy L. Espelage. 2021. "Suicidal Thoughts and Behaviors among LGBTQ Youth: Meta-Analyses and a Systematic Review." *Archives of Suicide Research* 25: 1–37. https://doi.org/10.1080/13811118.2019.1663329.

Health Research Authority. 2019. "Investigation into the Study 'Early Pubertal Suppression in a Carefully Selected Group of Adolescents with Gender Identity Disorders.'" October 14, 2019. https://www.hra.nhs.uk/about-us/governance/feedback-raising-concerns/investigation-study-early-pubertal-suppression-carefully-selected-group-adolescents-gender-identity-disorders/.

Hembree, Wylie C., Peggy Cohen-Kettenis, Henriette A. Delemarre-van de Waal, Louis J. Gooren, Walter J. Meyer, Norman P. Spack, Vin Tangpricha, and Victor M. Montori. 2009. "Endocrine Treatment of Transsexual Persons: An Endocrine Society Clinical Practice Guideline." *Journal of Clinical Endocrinology and Metabolism* 94: 3132–54. https://doi.org/10.1210/jc.2009-0345.

Hirvikoski, Tatja, Ellenor Mittendorfer-Rutz, Marcus Boman, Henrik Larsson, Paul Lichtenstein, and Sven Bölte. 2016. "Premature Mortality in Autism Spectrum Disorder." *British Journal of Psychiatry* 208: 232–38. https://doi.org/10.1192/bjp.bp.114.160192.

Ho, David K., Girija Kottalgi, Callum C. Ross, Jose Romero-Ulceray, and Mrigendra Das. 2012. "Treatment with Triptorelin in Mentally Disordered Sex Offenders: Experience From a Maximum-Security Hospital." *Journal of Clinical Psychopharmacology* 32: 739–40. https://doi.org/10.1097/JCP.0b013e318266c6f5.

Hough, D., M. Bellingham, I.R. Haraldsen, M. McLaughlin, J.E. Robinson, A.K. Solbakk, and N.P. Evans. 2017. "A Reduction in Long-Term Spatial Memory Persists after Discontinuation of Peripubertal GnRH Agonist Treatment in Sheep." *Psychoneuroendocrinology* 77: 1–8. https://doi.org/10.1016/j.psyneuen.2016.11.029.

Hough, D., M. Bellingham, I.R.H. Haraldsen, M. McLaughlin, M. Rennie, J.E. Robinson, A.K. Solbakk, and N.P. Evans. 2017. "Spatial Memory Is Impaired by Peripubertal GnRH Agonist Treatment and Testosterone Replacement in Sheep." *Psychoneuroendocrinology* 75: 173–82. https://doi.org/10.1016/j.psyneuen.2016.10.016.

Ipsen Ltd. 2017. "Package Leaflet: … Decapeptyl® SR 11.25 Mg." http://www.medicines.org.uk/emc/product/780/pil.

Jackman, Kasey B., Billy A. Caceres, Elizabeth J. Kreuze, and Walter O. Bockting. 2021. "Suicidality among Gender Minority Youth: Analysis of 2017 Youth Risk Behavior Survey Data." *Archives of Suicide Research* 25: 208–23. https://doi.org/10.1080/13811118.2019.1678539.

Jackson, Sarah S., Jalen Brown, Ruth M. Pfeiffer, Duncan Shrewsbury, Stewart O'Callaghan, Alison M. Berner, Shahinaz M. Gadalla, and Meredith S. Shiels. 2023. "Analysis of Mortality Among Transgender and Gender Diverse Adults in England." *JAMA Network Open* 6: e2253687. https://doi.org/10.1001/jamanetworkopen.2022.53687.

Johns, Michelle M., Richard Lowry, Jack Andrzejewski, Lisa C Barrios, Zewditu Demissie, Timothy McManus, Catherine N. Rasberry, Leah Robin, and J. Michael Underwood. 2019. "Transgender Identity and Experiences of Violence Victimization, Substance Use, Suicide Risk, and Sexual Risk Behaviors among High School Students: 19 States and Large Urban School Districts, 2017." *Morbidity and Mortality Weekly Report* 68: 69–71.

Joseph, Tobin, Joanna Ting, and Gary Butler. 2019. "The Effect of GnRH Analogue Treatment on Bone Mineral Density in Young Adolescents with Gender Dysphoria: Findings from a Large National Cohort." *Journal of Pediatric Endocrinology and Metabolism* 32: 1077–81. https://doi.org/10.1515/jpem-2019-0046.

Kirby, Anne V., Amanda V. Bakian, Yue Zhang, Deborah A. Bilder, Brooks R. Keeshin, and Hilary Coon. 2019. "A 20-year Study of Suicide Death in a Statewide Autism Population." *Autism Research* 12 (April): 658–66. https://doi.org/10.1002/aur.2076.

Klink, Daniel, Martine Caris, Annemieke Heijboer, Michael van Trotsenburg, and Joost Rotteveel. 2015. "Bone Mass in Young Adulthood Following Gonadotropin-Releasing Hormone Analog Treatment and Cross-Sex Hormone Treatment in Adolescents with Gender Dysphoria." *Journal of Clinical Endocrinology and Metabolism* 100: E270–75. https://doi.org/10.1210/jc.2014-2439.

Klotz, Frieda. 2022. "The Fractious Evolution of Pediatric Transgender Medicine." Undark Magazine. April 6, 2022. https://undark.org/2022/04/06/the-evolution-of-pediatric-transgender-medicine/.

Lee, Janet Y, Courtney Finlayson, Johanna Olson-Kennedy, Robert Garofalo, Yee-Ming Chan, David V Glidden, and Stephen M Rosenthal. 2020. "Low Bone Mineral Density in Early Pubertal Transgender/Gender Diverse Youth: Findings from the Trans Youth Care Study." *Journal of the Endocrine Society* 4: bvaa065. https://doi.org/10.1210/jendso/bvaa065.

Levine, Stephen B., E. Abbruzzese, and Julia M. Mason. 2022. "Reconsidering Informed Consent for Trans-Identified Children, Adolescents, and Young Adults." *Journal of Sex and Marital Therapy*. https://doi.org/10.1080/0092623X.2022.2046221.

Li, Gu, Karson T. F. Kung, and Melissa Hines. 2017. "Childhood Gender-Typed Behavior and Adolescent Sexual Orientation: A Longitudinal Population-Based Study." *Developmental Psychology* 53: 764–77. https://doi.org/10.1037/dev0000281.

Mann, Georgina E, Amelia Taylor, Bernadette Wren, and Nastasja de Graaf. 2019. "Review of the Literature on Self-Injurious Thoughts and Behaviours in Gender-Diverse Children and Young People in the United Kingdom." *Clinical Child Psychology and Psychiatry* 24: 304–21. https://doi.org/10.1177/1359104518812724.

Manning, Sanchez, and Steven Adams. 2014. "NHS to Give Sex Change Drugs to Nine-Year-Olds: Clinic Accused of 'playing God' with Treatment That Stops Puberty." *Mail on Sunday*, May 17, 2014. https://www.dailymail.co.uk/news/article-2631472/NHS-sex-change-drugs-nine-year-olds-Clinic-accused-playing-God-treatment-stops-puberty.html.

Marumo, Ken, Shiro Baba, and Masaru Murai. 1999. "Erectile Function and Nocturnal Penile Tumescence in Patients with Prostate Cancer Undergoing Luteinizing Hormone-releasing Hormone Agonist Therapy." *International Journal of Urology* 6: 19–23. https://doi.org/10.1046/j.1442-2042.1999.06128.x.

Miesen, Anna I.R. van der, Hannah Hurley, and Annelou L.C. de Vries. 2016. "Gender Dysphoria and Autism Spectrum Disorder: A Narrative Review." *International Review of Psychiatry* 28: 70–80. https://doi.org/10.3109/09540261.2015.1111199.

Morandini, James S, Aidan Kelly, Nastasja M de Graaf, Polly Carmichael, and Ilan Dar-Nimrod. 2021. "Shifts in Demographics and Mental Health Co-Morbidities among Gender Dysphoric Youth Referred to a Specialist Gender Dysphoria Service." *Clinical Child Psychology and Psychiatry*, October. https://doi.org/10.1177/13591045211046813.

National Institute for Clinical Excellence. 2020. "Evidence Review: Gonadotrophin Releasing Hormone Analogues for Children and Adolescents with Gender Dysphoria."

Negenborn, Vera L., Wouter B. van der Sluis, Wilhelmus J.H.J. Meijerink, and Mark-Bram Bouman. 2017. "Lethal Necrotizing Cellulitis Caused by ESBL-Producing E. Coli after Laparoscopic Intestinal Vaginoplasty." *Journal of Pediatric and Adolescent Gynecology* 30: e19–21. https://doi.org/10.1016/j.jpag.2016.09.005.

Nock, Matthew K, and Ronald C Kessler. 2006. "Prevalence of and Risk Factors for Suicide Attempts versus Suicide Gestures: Analysis of the National Comorbidity Survey." *Journal of Abnormal Psychology* 115: 616–23. https://doi.org/10.1037/0021-843X.115.3.616.

Olson-Kennedy, Johanna, Yee-Ming Chan, Robert Garofalo, Norman Spack, Diane Chen, Leslie Clark, Diane Ehrensaft, Marco Hidalgo, Amy Tishelman, and Stephen Rosenthal. 2019. "Impact of Early Medical Treatment for Transgender Youth: Protocol for the Longitudinal, Observational Trans Youth Care Study." *JMIR Research Protocols* 8 (July): e14434. https://doi.org/10.2196/14434.

Olson-Kennedy, Johanna, Laer H. Streeter, Robert Garofalo, Yee-Ming Chan, and Stephen M. Rosenthal. 2021. "Histrelin Implants for Suppression of Puberty in Youth with Gender Dysphoria: A Comparison of 50 Mcg/Day (Vantas) and 65 Mcg/Day (SupprelinLA)." *Transgender Health* 6: 36–42. https://doi.org/10.1089/trgh.2020.0055.

Pediatrics. 2021. "Erratum for TURBAN 2019-1725." *Pediatrics* 147: e2020049767. https://doi.org/10.1542/peds.2020-049767.

Savin-Williams, Ritch C. 2001. "Suicide Attempts among Sexual-Minority Youths: Population and Measurement Issues." *Journal of Consulting and Clinical Psychology* 69: 983–91. https://doi.org/10.1037/0022-006X.69.6.983.

Schagen, Sebastian E E, Femke M Wouters, Peggy T Cohen-Kettenis, Louis J Gooren, and Sabine E Hannema. 2020. "Bone Development in Transgender Adolescents Treated with GnRH Analogues and Subsequent Gender-Affirming Hormones." *Journal of Clinical Endocrinology and Metabolism* 105: e4252–63. https://doi.org/10.1210/clinem/dgaa604.

Singal, Jesse. 2022. "Researchers Found Puberty Blockers and Hormones Didn't Improve Trans Kids' Mental Health at Their Clinic. Then They Published a Study Claiming the Opposite. (Updated)." Substack newsletter. *Singal-Minded* (blog). April 6, 2022. https://jessesingal.substack.com/p/researchers-found-puberty-blockers.

Socialstyrelsen. 2020. "Utvecklingen av diagnosen könsdysfori [The evolution of the diagnosis of gender dysphoria]." https://www.socialstyrelsen.se/globalassets/sharepoint-dokument/artikelkatalog/ovrigt/2020-2-6600.pdf.

———. 2022. "Care of Children and Adolescents with Gender Dysphoria: Summary."

Spack, Norman P. 2009. "An Endocrine Perspective on the Care of Transgender Adolescents." *Journal of Gay & Lesbian Mental Health* 13: 309–19. https://doi.org/10.1080/19359700903165381.

Statens beredning för medicinsk och social utvärdering. 2022. "Hormonbehandling vid könsdysfori—barn och unga: En systematisk översikt och utvärdering av medicinska aspekter [Hormone treatment for gender dysphoria—children and young people: A systematic review and evaluation of medical aspects]." https://www.sbu.se/contentassets/ea4e698fa0c4449aaae964c5197cf940/hormonbehandling-vid-konsdysfori_barn-och-unga.pdf.

Stoffers, Iris E., Martine C. de Vries, and Sabine E. Hannema. 2019. "Physical Changes, Laboratory Parameters, and Bone Mineral Density during Testosterone Treatment in Adolescents with Gender Dysphoria." *Journal of Sexual Medicine* 16: 1459–68. https://doi.org/10.1016/j.jsxm.2019.06.014.

SVT. 2021. "Transbarnen [Trans Kids]." *Uppdrag Granskning [Mission Investigate]*. Sveriges Television.

Tollit, Michelle A., Tamara May, Tiba Maloof, Michelle M. Telfer, Denise Chew, Melanie Engel, and Ken Pang. 2021. "The Clinical Profile of Patients Attending a Large, Australian Pediatric Gender Service: A 10-Year Review."

Tominey, Camilla, and Joani Walsh. 2019. "NHS Transgender Clinic Accused of Covering up Negative Impacts of Puberty Blockers on Children by Oxford Professor." *Telegraph*, March 7, 2019. https://www.telegraph.co.uk/news/2019/03/07/nhs-transgender-clinic-accused-covering-negative-impacts-puberty/.

Toomey, Russell B., Amy K. Syvertsen, and Maura Shramko. 2018. "Transgender Adolescent Suicide Behavior." *Pediatrics* 142: e20174218. https://doi.org/10.1542/peds.2017-4218.

Tordoff, Diana M., Jonathon W. Wanta, Arin Collin, Cesalie Stepney, David J. Inwards-Breland, and Kym Ahrens. 2022. "Mental Health Outcomes in Transgender and Nonbinary Youths Receiving Gender-Affirming Care." *JAMA Network Open* 5: e220978. https://doi.org/10.1001/jamanetworkopen.2022.0978.

Turban, Jack L., Dana King, Jeremi M. Carswell, and Alex S. Keuroghlian. 2020. "Pubertal Suppression for Transgender Youth and Risk of Suicidal Ideation." *Pediatrics* 145: e20191725. https://doi.org/10.1542/peds.2019-1725.

Turner, Daniel, and Peer Briken. 2018. "Treatment of Paraphilic Disorders in Sexual Offenders or Men with a Risk of Sexual Offending with Luteinizing Hormone-Releasing Hormone Agonists: An Updated Systematic Review." *Journal of Sexual Medicine* 15: 77–93. https://doi.org/10.1016/j.jsxm.2017.11.013.

Van Cauwenberg, Gaia, Karlien Dhondt, and Joz Motmans. 2021. "Ten Years of Experience in Counseling Gender Diverse Youth in Flanders, Belgium: A

Clinical Overview." *International Journal of Impotence Research*. https://doi.org/10.1038/s41443-021-00441-8.

Viner, Russell, Polly Carmichael, Domenico Di Ceglie, Gary Butler, Caroline Brain, Victoria Holt, Sophie Khadr, and Elin Skagerberg. 2010. "An Evaluation of Early Pubertal Suppression in a Carefully Selected Group of Adolescents with Gender Identity Disorder (v1.0)."

Vlot, Mariska C., Daniel T. Klink, Martin den Heijer, Marinus A. Blankenstein, Joost Rotteveel, and Annemieke C. Heijboer. 2017. "Effect of Pubertal Suppression and Cross-Sex Hormone Therapy on Bone Turnover Markers and Bone Mineral Apparent Density (BMAD) in Transgender Adolescents." *Bone* 95: 11–19. https://doi.org/10.1016/j.bone.2016.11.008.

Vries, Annelou L.C. de. 2010. "Gender Dysphoria in Adolescents: Mental Health and Treatment Evaluation." Vrije Universiteit Amsterdam. https://research.vu.nl/en/publications/gender-dysphoria-in-adolescents-mental-health-and-treatment-evalu.

Vries, Annelou L.C. de, Jennifer K. McGuire, T.D. Steensma, E.C.F. Wagenaar, T.A.H. Doreleijers, and Peggy T. Cohen-Kettenis. 2014. "Young Adult Psychological Outcome After Puberty Suppression and Gender Reassignment." *Pediatrics* 134: 696–704. https://doi.org/10.1542/peds.2013-2958.

Vries, Annelou L.C. de, Thomas D. Steensma, Theo A.H. Doreleijers, and Peggy T. Cohen-Kettenis. 2011. "Puberty Suppression in Adolescents with Gender Identity Disorder: A Prospective Follow-Up Study." *Journal of Sexual Medicine* 8: 2276–83. https://doi.org/10.1111/j.1743-6109.2010.01943.x.

Warrier, Varun, David M. Greenberg, Elizabeth Weir, Clara Buckingham, Paula Smith, Meng-Chuan Lai, Carrie Allison, and Simon Baron-Cohen. 2020. "Elevated Rates of Autism, Other Neurodevelopmental and Psychiatric Diagnoses, and Autistic Traits in Transgender and Gender-Diverse Individuals." *Nature Communications* 11 (3959). https://doi.org/10.1038/s41467-020-17794-1.

Wiepjes, Chantal M., Nienke M. Nota, Christel J.M. de Blok, Maartje Klaver, Annelou L.C. de Vries, S. Annelijn Wensing-Kruger, Renate T. de Jongh, et al. 2018. "The Amsterdam Cohort of Gender Dysphoria Study (1972–2015): Trends in Prevalence, Treatment, and Regrets." *The Journal of Sexual Medicine* 15: 582–90. https://doi.org/10.1016/j.jsxm.2018.01.016.

Appended

1. Curriculum Vitae
2. Michael Biggs. 2020b. "Puberty Blockers and Suicidality in Adolescents Suffering from Gender Dysphoria." *Archives of Sexual Behavior* 49: 2227–29. https://doi.org/10.1007/s10508-020-01743-6.
3. Michael Biggs. 2021. "Revisiting the Effect of GnRH Analogue Treatment on Bone Mineral Density in Young Adolescents with Gender Dysphoria." *Journal of Pediatric Endocrinology and Metabolism* 34: 937–39. https://doi.org/10.1515/jpem-2021-0180.
4. Michael Biggs. 2022a. "Suicide by Clinic-Referred Transgender Adolescents in the United Kingdom." *Archives of Sexual Behavior* 51: 685–90. https://doi.org/10.1007/s10508-022-02287-7.
5. Michael Biggs. 2022b. "The Dutch Protocol for Juvenile Transsexuals: Origins and Evidence." *Journal of Sex and Marital Therapy*, online. https://doi.org/10.1080/0092623X.2022.2121238

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Employment

2006-	Associate Professor (formerly Lecturer), Department of Sociology, University of Oxford; Fellow of St Cross College
2005-06	Lecturer, School of Sociology and Social Policy, Queen's University Belfast
2003-05	Assistant Professor, Department of Sociology, University of Illinois at Urbana-Champaign
2000-02	Junior Lecturer, Department of Sociology, University of Oxford

Education

2000	Doctor of Philosophy, Sociology, Harvard University: 'The Rise and Decline of a Mass Movement: American Workers and the Strike Wave of 1886' (Chair: Theda Skocpol)
1991	Bachelor of Arts—First Class Honours, History and Economic History, Victoria University of Wellington, New Zealand

Publications

'The Dutch Protocol for Juvenile Transsexuals: Origins and Evidence', *Journal of Sex and Marital Therapy*, 2022; DOI: 10.1080/0092623X.2022.2121238 (Stata program provided as DOI 10.7910/DVN/QPRCR1)

'Suicide by Clinic-Referred Transgender Adolescents in the United Kingdom', *Archives of Sexual Behavior*, 2022; DOI 10.1007/s10508-022-02287-7 (supplement provides data)

'Queer Theory and the Transition from Sex to Gender in English Prisons', *Journal of Controversial Ideas*, vol. 2, 2022; DOI 10.35995/jci02010002

'Revisiting the Effect of GnRH Analogue Treatment on Bone Mineral Density in Young Adolescents with Gender Dysphoria'. *Journal of Pediatric Endocrinology and Metabolism*, vol. 34, 2021, pp. 937–939; DOI 10.1515/jpem-2021-0180 (Stata program provided as DOI 10.7910/DVN/FSOMME)

'Gender Dysphoria and Psychological Functioning in Adolescents Treated with GnRHa: Comparing Dutch and English Prospective Studies', *Archives of Sexual Behavior*, vol. 49, 2020, pp. 2231–2236; DOI 10.1007/s10508-020-01764-1 (Stata program provided as DOI 10.7910/DVN/CB1IUH)

'Puberty Blockers and Suicidality in Adolescents Suffering from Gender Dysphoria', *Archives of Sexual Behavior*, vol. 49, 2020, pp. 2227–29; DOI 10.1007/s10508-020-01743-6

'A Letter to the Editor Regarding the Original Article by Costa et al: Psychological Support, Puberty Suppression, and Psychosocial Functioning in Adolescents with Gender Dysphoria', *Journal of Sexual Medicine*, vol. 16, 2019, p. 2043; DOI 10.1016/j.jsxm.2019.09.002

'Britain's Experiment with Puberty Blockers', *Inventing Transgender Children and Young People*, ed. Michele Moore and Heather Brunskell-Evans, Newcastle: Cambridge Scholars Publishing, 2019, pp. 40–55

'Did Local Civil Rights Protest Liberalize Whites' Racial Attitudes?' (with Christopher Barrie and Kenneth T. Andrews), *Research and Politics*, vol. 7, 2020, pp. 1–8; DOI 10.1177/2053168020914757 (data and Stata programs provided as DOI 10.7910/DVN/UIRLFC)

'Size Matters: Quantifying Protest by Counting Participants', *Sociological Methods and Research*, vol. 47, 2018, pp. 351–83; DOI 10.1177/0049124116629166 (supplement provides data and Stata programs)

(with Neil F. Ketchley) 'The Educational Contexts of Islamist Activism: Elite Students and Religious Institutions in Egypt', *Mobilization*, vol. 22, no. 1, 2017, pp. 57–76; DOI 10.17813/1086-671X-22-1-57

(with Juta Kawalerowicz) 'Anarchy in the U.K.: Economic Deprivation, Social Disorganization, and Political Grievances in the London Riot of 2011', *Social Forces*, vol. 94, no. 2, 2015, pp. 673–98; DOI 10.1093/sf/sov052

'Protest Campaigns and Movement Success: Desegregating the U.S. South in the Early 1960s' (with Kenneth T. Andrews), *American Sociological Review*, vol. 80, no. 2, 2015, pp. 416-43; DOI 10.1177/0003122415574328 (data provided as ICPSR 35630)

'Has Protest Increased Since the 1970s? How a Survey Question Can Construct a Spurious Trend', *British Journal of Sociology*, vol. 66, no. 1, 2015, pp. 141-62; DOI 10.1111/1468-4446.12099 (supplement provides data and Stata programs)

'How Repertoires Evolve: The Diffusion of Suicide Protest in the Twentieth Century', *Mobilization*, vol. 18, no. 4 (Frontiers in Social Movement Methodology), 2013, pp. 407-28

(with Raheel Dhattiwala) 'The Political Logic of Ethnic Violence: The Anti-Muslim Pogrom in Gujarat, 2002', *Politics and Society*, vol. 40, no. 4, 2012, pp. 481-514

'Explaining Membership in the British National Party: A Multilevel Analysis of Contact and Threat' (with Steven Knauss), *European Sociological Review*, vol. 28, no. 5, 2012, pp. 633-46

'From Protest to Organization: The Impact of the 1960 Sit-Ins on Movement Organizations in the American South' (with Kenneth T. Andrews), *The Diffusion of Social Movements: Actors, Frames, and Political Effects*, ed. Rebecca Kolins Givan, Sarah A. Soule, and Kenneth M. Roberts, Cambridge University Press, 2010, pp. 187-203 (data provided as ICPSR 35630)

'Self-Fulfilling Prophecies', *The Oxford Handbook of Analytical Sociology*, ed. Peter Bearman and Peter Hedström, Oxford University Press, 2009, pp. 294-314

'Who Joined the Sit-ins and Why: Southern Black Students in the Early 1960s', *Mobilization*, vol. 11, no. 3, 2006, pp. 241-56

(with Kenneth T. Andrews) 'The Dynamics of Protest Diffusion: Movement Organizations, Social Networks, and News Media in the 1960 Sit-Ins', *American Sociological Review*, vol. 71, no. 5, 2006, pp. 752-77 (data provided as ICPSR 35630)

'Dying without Killing: Self-Immolations, 1963-2002', *Making Sense of Suicide Missions*, ed. Diego Gambetta, Oxford University Press, 2005 (revised paperback ed. 2006), pp. 173-208, 320-24; Spanish translation: 'Morir sin matar: las autoinmolaciones, 1963-2002', *El sentido de las misiones suicidas*, Mexico City: Fondo de Cultura Económica, 2009

'Strikes as Forest Fires: Chicago and Paris in the Late 19th Century', *American Journal of Sociology*, vol. 110, no. 6, 2005, pp. 1684-1714

'Positive Feedback in Collective Mobilization: The American Strike Wave of 1886', *Theory and Society*, vol. 32, no. 2, 2003, pp. 217-54

'Strikes as Sequences of Interaction: The American Strike Wave of 1886', *Social Science History*, vol. 26, no. 3, 2002, pp. 583-617—awarded biennial prize for the best article by a graduate student published in *Social Science History*

'Putting the State on the Map: Cartography, Territory, and European State Formation', *Comparative Studies in Society and History*, vol. 41, no. 2, 1999, pp. 374-411

Under review

'Gender Identity in the 2021 Census of England and Wales: Implausible Results'

'The Technology of Puberty Suppression', *Sex and Gender Identity: A Reader*, ed. Alice Sullivan and Selina Todd, under contract with Routledge, manuscript submitted August 2022

'How Protesting Depends on Peers: U.S. Students in the 1960s', revise and resubmit

Conference presentations

Annual meeting of the American Sociological Association, 1995, 1997, 1999, 2002, 2003, 2005, 2006 (invited, thematic session), 2007, 2009, 2010 (presented by coauthor), 2011 (invited, thematic session), 2012 (presented by coauthor), 2013 (roundtable), 2016

Annual conference of the British Sociological Association, 2011, 2013, 2018

Annual meeting of the Social Science History Association, 1999, 2000, 2003, 2004 (also organized panel), 2013, 2016

Sexual Identities Conference, London Society of the New Lacanian School, 2023

1968-2018: Fifty Years After, Scuola Normale Superiore, Florence, 2018

Generational Experience / Transformational Experience of 1968, European Solidarity Centre, Gdańsk, 2018

Cultural Transmission and Social Norms, University of East Anglia, 2017

Conference of the European Consortium for Sociological Research (keynote), 2016

Annual conference of the Political Studies Association, 2014

Conference of the Political Studies Association's Methodology Group, 2017

Social Movements and Protest, University of Brighton, 2016

'Alternative Futures and Social Protest', Manchester Metropolitan University, 2001, 2014, 2016, 2017

Annual workshop on Analytical Sociology / Conference of the International Network of Analytical Sociologists, 2008, 2010, 2016

Annual conference of the Social History Society, 2009

Annual meeting of the Irish Conference of Historians, 2009

Annual conference of the Women's History Network, 2009

'Imprisonment and the Irish', Mater Dei Institute of Education, City University of Dublin, 2009

'Crossing Borders', Wissenschaftszentrum Berlin für Sozialforschung, 2006

'Power Laws in the Social Sciences', George Mason University, 2003

Invited seminars

Chinese University of Hong Kong, 2021

Charles University, Prague, 2018

Centre for Human and Social Sciences, Superior Council for Scientific Research, Madrid, 2018

Department of Social Sciences, Carlos III University, Madrid, 2018

Department of Sociology, University of Edinburgh, 2017

School of Sociology, University College Dublin, 2016

School of Social Sciences, Education and Social Work, Queen's University Belfast, 2016

'Interdisciplinary Perspectives on Modelling Conflict', University of Essex, 2016 (keynote)

Auro University, Surat, India, 2016

'Urban Insecurity and Civil Conflict', Nuffield College, Oxford, 2015

Institute for Analytical Sociology, Linköping University, 2015

Forum for Civil Society and Social Movement Research, University of Gothenburg, 2015

Department of Sociology, University of Cambridge, 2015

Department of History, Victoria University of Wellington, 2015

'The Power of the People: The Dynamics and Limits of Social Mobilization in South Eastern Europe', St Antony's College, Oxford, 2015 (keynote)

'Hunger Striking and Medical Ethics: Historical and Modern Perspectives', Centre for History of Medicine in Ireland, University of Ulster, 2015

'Political Engagement and Political Alternatives in the Age of Austerity in Europe', University of Birmingham, 2015

Contentious Politics Research Seminar, London School of Economics, 2013, 2015

Department of Sociology, University of Essex, 2013

'Suicide Protest: Normative Intrusions', Amherst College, 2013

Faculty of Sociology, Higher School of Economics Moscow, 2013

Summer School, University of Essex, 2012

'Tibet is Burning: Self-immolations, Ritual or Political Protest', Collège de France, 2012

Collegio Carlo Alberto, Turin, 2011

Centro Dondena, Università Bocconi, Milan, 2011

Institute for Social Change, University of Manchester, 2009

European Studies Center, University of Washington, 2009

Juan March Institute, Madrid, 2009

Social and Political Theory Group, Australian National University, 2008

Department of History, Victoria University of Wellington, 2008

Department of Sociology, University of Surrey, 2008

Department of Sociology, University of Kent at Canterbury, 2008

Complexity Seminar, Brunel University, 2007

ESRC Social Capital Seminar, University of Nottingham, 2006

Department of Political and Social Sciences, Universidad Pompeu Fabra, Barcelona, 2004

Department of Sociology, Illinois State University, 2004

Comparative Politics Workshop, University of Chicago, 2003

Other publications

'Research evidence: Gender-Atypical Tots Likely to Become Gay or Lesbian', 4thWaveNow, 7 August 2018

'The Open Society Foundations and the Transgender Movement', 4thWaveNow, 25 May 2018

Review of Emily Beaulieu's *Electoral Protest and Democracy in the Developing World,* in *Mobilization*, vol. 21, no. 1, 2016, pp. 137-8

(with Kenneth T. Andrews) 'Sit-ins and Desegregation in the U.S. South in the Early 1960s', ICPSR 35630, Inter-university Consortium for Political and Social Research, 2015

(with Neil Ketchley) 'Who Actually Died in Egypt's Rabaa Massacre', *Washington Post* Monkey Cage Blog, 14 August 2015

(with Neil Ketchley) 'What Is the Egyptian Anti-Coup Movement Protesting for?', *Washington Post* Monkey Cage Blog, 4 April 2014

Review of Matthew Lange's *Educations in Ethnic Violence: Identity, Educational Bubbles, and Resource Mobilization*, in *British Journal of Sociology*, vol. 64, no. 1, 2013, pp. 184-85

'Prophecy, Self-Fulfilling/Self-Defeating', *Encyclopedia of Philosophy and the Social Sciences*, ed. Byron Kaldis, Thousand Oaks, Calif.: Sage Publications, 2013, vol. 2, pp. 765-6

'Self-Immolation in Context, 1963-2012', *Revue d'Etudes Tibétaines*, no. 25, 2012, pp. 143-50

'Storm in a Teacup? A Comment on Ullmann-Margalit', *Norms and Values: The Role of Social Norms as Instruments of Value Realisation*, ed. Michael Baurmann, Geoffrey Brennan, Bob Goodin, and Nicholas Southwood, Baden-Baden: Nomos Verlagsgesellschaft, 2010, pp. 143-48

'Dying for a Cause—Alone?', *Contexts*, vol. 7, no. 2, 2008, pp. 22-27

Review of Matthias Reiss (ed.), *The Street as Stage: Protest Marches and Public Rallies since the Nineteenth Century*, in *Cultural and Social History*, vol. 6, no. 2, 2009, pp. 250-52

Review of Stathis N. Kalyvas, *The Logic of Violence in Civil War,* in *American Journal of Sociology*, vol. 113, no. 2, 2007, pp. 558-60

Review of Marek M. Kaminski, *Games Prisoners Play: The Tragicomic Worlds of Polish Prison*, in *American Journal of Sociology*, vol. 110, no. 6, 2005, pp. 1820-22

Review of Maryjane Osa, *Solidarity and Contention: Networks of Polish Opposition*, in *Social Forces*, vol. 83, no. 1, 2004, pp. 447-49

Review of Beverly J. Silver, *Forces of Labor: Workers' Movements and Globalization since 1870*, *Contemporary Sociology*, vol. 33, no. 4, 2004, pp. 467-69

'A Century of American Exceptionalism: Review Essay on Seymour Martin Lipset and Gary Marks, *It Didn't Happen Here: Why Socialism Failed in The United States*', *Thesis 11*, no. 68, 2002, pp. 110-21

Review of James C. Scott, *Seeing Like a State: How Certain Schemes to Improve the Human Condition Have Failed*, *Comparative Studies in Society and History*, vol. 44, no. 4, 2002, pp. 852-54

Review of Stephen K. Sanderson, *Social Transformations: A General Theory of Historical Development*, *Contemporary Sociology*, vol. 26, no. 1, 1997, pp. 47-48

Contributor to *New Zealand Historical Atlas*, ed. Malcolm McKinnon, Wellington: David Bateman in association with Historical Branch, Department of Internal Affairs, 1997

Kevin Hince, with Kerry Taylor, Jacqui Peace, and Michael Biggs, *Opening Hours: History of the Wellington Shop Employees Union*, Wellington: Wellington Shop Employees Union, 1990

Research grants

'Social Contexts of Islamist Activism in the United Kingdom', £2,483 awarded by the Economic and Social Research Council's Knowledge Exchange Dialogues Scheme, 2015

'Student Protest and Digital Media: The Campaign Against Tuition Fees', £6,914 awarded by the John Fell OUP Research Fund (102/671), 2011

'Protest Demonstrations in London over Two Centuries', £25,315 awarded by the John Fell OUP Research Fund (072/616), 2008-09

'Hunger Strikes by Suffragettes and Irish Republicans, 1909-1923: Compiling a Database of Individuals and Events', £71,873 awarded by the British Academy (LRG-45549), 2007-09

'Hunger Strikes Against British Rule, 1909-1933: Campaigns for Women's Suffrage, Irish Independence, and Indian Independence', $12,335 awarded by the University of Illinois Research Board, 2004-05

'Self-immolation: A Global Dataset, 1963-2002', £4,216, awarded by the Economic and Social Research Council (000-22-033), 2002

Media

Online and newswire: BBC World News online; BBC News magazine; Associated Press; France 24 online; France TV; Inter Press Service news agency; Al Jazeera; *Foreign Policy*; *Washington Post*'s Monkey Cage

Radio: Outlook and Newshour on BBC World Service; Today on BBC Radio 4; Archive Hour on BBC Radio 4; All Things Considered, Talk of the Nation, The Takeaway, and Interfaith Voices on National Public Radio; Public Radio International; Voice of America; CBC Radio; The Wide Angle on Newstalk Radio Ireland; Rear Vision, Australian Broadcasting Corporation; The Wire, Australia

Television: BBC Newsnight; BBC London TV

Newspaper: *Daily Telegraph*; *Sunday Times*; *Toronto Star*; *Times of India*

PROFESSIONAL SERVICE

Editorial Board of *Mobilization* (from 2007), *Social Forces* (from 2012), *Irish Journal of Sociology* (from 2018); consulting editor for *American Journal of Sociology* (2012-14)

Reviewer for *American Journal of Sociology* (35), *Social Forces* (29), *Mobilization* (19), *American Sociological Review* (16), *British Journal of Sociology* (9), *Social Movement Studies* (9), *European Sociological Review* (5), *Social Science History* (5), *Sociological Methods and Research* (4), *Sociological Forum* (4), *Social Problems* (3), *Comparative Political Studies* (3), *Social Science Research* (3), *International Review for the Sociology of Sport* (3), *Sociological Theory* (2), *World Politics* (2), *Political Studies* (2), *Journal of Peace Research* (2), *Journal of Comparative Politics* (2), *Theory and Society* (2), *Ethnic and Racial Studies* (2), *Acta Sociologica* (2), *Environmental Science and Policy* (2), *Politics, Religion and Ideology* (2), *Archives of Sexual Behavior* (2), *Journal of Early Adolescence* (2), *American Political Science Review*, *Proceedings of the National Academy of Sciences*, *British Journal of Political Science*, *Sociology*, *PLOS One*, *American Journal of Physics*, *Nature Climate Change*, *Organization Studies*, *Political Behavior*, *British Politics*, *Journal of Policy History*, *Qualitative Sociology*, *Urban Studies*, *Journal of Historical Sociology*, *International Labor and Working-Class History*, *Sociological Compass*, *Social Currents*, *Sexuality and Culture*, *American Journal of Physics*, *Journal of Political Philosophy*, *Research in Social Movements, Conflicts and Change*, *Poetics*, *Research and Politics*, *European Societies*, *Security Studies*, *Policy and Politics*, *Journal of Women, Politics and Policy*, *Journal of Controversial Ideas*, *Journal of Medical Ethics*, *Transcultural Psychology*, Oxford Bibliographies

Reviewer for ESRC First Grant Scheme; Volkswagen Stiftung; Netherlands Organisation for Scientific Research; Wellcome Trust, Medical History and Humanities Fellowship; Swiss National Science Foundation; Israel Science Foundation; Irish Research Council

Reviewer for Routledge (2), Polity, Sage's Quantitative Applications in the Social Sciences, Zed Books

External member of committee to appoint Associate Professor of Sociology, University of Konstanz, 2020

Organizer, Sessions on Collective Behavior, annual meeting of the American Sociological Association, 2005 and 2013

TEACHING

Completed doctoral students

Sandra Gonzalez-Bailon, 'Mapping Civil Society on the Web: Networks, Alliances and Informational Landscapes' (2007); Associate Professor of Communication, Annenberg School for Communication, University of Pennsylvania

Thomas Grund, 'Antecedents and Consequences of Social Networks: Macro-Implications of Micro-Dynamics' (2010, jointly with Peter Hedström); Professor of the Chair of Methods of Empirical Social Research, RWTH Aachen University

Christina Fuhr, 'The Construction and Perpetuation of Jewish Identity in Contemporary Britain' (2013, jointly with Gabriella Elgenius)

Samina Luthfa, 'Confronting the Juggernaut of Extraction: Local, National, and Transnational Mobilization against the Phulbari Coal Mine in Bangladesh' (2013); Associate Professor of Sociology, University of Dhaka

Rebeca Ibarra Olivares, 'Social Mechanisms of Tax Behaviour' (2013)

Raheel Dhattiwala, 'Hindu-Muslim Violence in Gujarat, 2002: Political Logic, Spatial Configuration, and Communal Cooperation' (2013)

Fei Yan, 'The Politics of Factional Conflict and Collective Violence: The Cultural Revolution in Guangzhou, 1966-1968' (2014); Associate Professor of Sociology, Tsinghua University

Juta Kawalerowicz, 'How Social Context Influences Political Participation in 21st-Century Britain, from Rioting to Voting' (2016); Postdoctoral Researcher, Department of Human Geography, Stockholm University, Sweden

Rima Majed, 'The Shifting Salience of Sectarianism in Lebanon, 2000-2010' (2016); Assistant Professor of Sociology, American University of Beirut

Effrosyni Charitopoulou, 'The European Refugee Crisis in Greece: Understanding Host Communities' (2020); Postdoctoral Researcher, Department of Politics and International Relations, University of Oxford

Christopher Barrie, 'Dynamics of Conflict and Revolution in Iraq and Tunisia' (2020); Lecturer in Computational Sociology, University of Edinburgh

Adam Brodie, 'Why Parades Are Peaceful: A Study of Mobilisation, Segregation, and Authority in Northern Ireland, 2006-2006' (2020, jointly with Dr Robin Harding)

Nicholas Martindale, 'The Impact of Outsourcing on State School Systems: The Case of the Academies Programme in England' (2021); Postdoctoral Prize Research Fellow, Nuffield College, Oxford

Arun Frey, 'Them Against Us: Assessing the Causes and Consequences of Anti-Immigrant Violence During the German Refugee Crisis', 2021; Postdoctoral Fellow, Leverhulme Centre for Demographic Science, Department of Sociology, University of Oxford

Courses designed and taught

Social Movements: Illinois, undergraduate; Oxford, graduate

Introduction to Social Statistics: Illinois and Queen's, undergraduate

Classical Sociological Theory: Illinois, graduate *(ranked excellent, fall 2004)*; Queen's, undergraduate

Analytical Sociological Theory: Oxford, graduate and undergraduate

Social Dynamics—Theories, Models, Methods: Illinois, graduate

Sociological Analysis: Oxford, graduate

Introduction to Sociology: Illinois, undergraduate

Explaining Knowledge: Harvard, undergraduate

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LETTER TO THE EDITOR

Puberty Blockers and Suicidality in Adolescents Suffering from Gender Dysphoria

Michael Biggs[1]

Received: 11 February 2020 / Revised: 12 May 2020 / Accepted: 14 May 2020 / Published online: 3 June 2020

According to Turban, King, Carswell, and Keuroghlian (2020), suicidal ideation is lower in transgender adults who as adolescents had been prescribed "puberty blockers"—gonadotropin-releasing hormone analogs (GnRHa). This finding was derived from a large nonrepresentative survey of transgender adults in the U.S., which included 89 respondents who reported taking puberty blockers. Turban et al. (2020) tested six measures of suicidality and three other measures of mental health and substance abuse. With multivariate analysis, only one of these nine measures yielded a statistically significant association: the respondents who reported taking puberty blockers were less likely to have thought about killing themselves than were the respondents who reported wanting blockers but not obtaining them. This finding was widely reported in the media; the lead author published a column on its implications for health policy in the *New York Times* (Turban, 2020).

Unfortunately, the finding came from a low-quality survey which is known to have elicited unreliable answers on puberty blockers. The analysis assumed that puberty blockers were available in the U.S. several years before they actually were. Most seriously, Turban et al. (2020) barely acknowledged the fact that adolescents with severe psychological problems would have been less eligible for drug treatment, which confounds the association between treatment and suicidal ideation. The article therefore provided no evidence to support the recommendation "for this treatment to be made available for transgender adolescents who want it" (Turban et al., 2020, p. 7).[1]

Turban et al. (2020) analyzed data from the United States Transgender Survey of 2015 (James et al., 2016). Respondents were not sampled from any defined population, but were recruited online. This convenience sample excluded those who underwent medical intervention and then subsequently stopped identifying as transgender. Obviously, those who actually committed suicide are omitted. Aside from these general problems with the survey, the key questions on puberty blockers evidently confused many respondents. Puberty blockers are given below the age of 16 years, when adolescents become eligible for cross-sex hormones (Hembree et al., 2009). Yet, 73% of respondents who reported having taken puberty blockers (question 12.9) said they started on them *after* the age of 18 years. As the survey report acknowledged, "the question may have been misinterpreted by some respondents who confused puberty blockers with the hormone therapy given to adults and older adolescents" (James et al., 2016, p. 126). Turban et al. (2020) did not mention this misinterpretation but did follow the report's mitigation strategy of ignoring those respondents who reported taking puberty blockers after the age of 18. No such adjustment is possible, however, for the question asking whether the respondent had ever wanted puberty blockers (question 12.8), which Turban et al. (2020) used to define the subset of respondents in their analysis. The comparison group therefore included an unknown number of respondents—possibly the majority—who actually wanted cross-sex hormones.

The subsample was confined to respondents who were aged under 18 in 1998, because Turban et al. (2020, p. 3) assumed that they "would have had health care access to GnRHa for pubertal suppression." GnRHa was first used to treat "juvenile transsexuals" in the Netherlands in the mid-1990s, with the first case study published in 1998 (Cohen-Kettenis & van Goozen, 1998; Gooren & Delemarre-van der Waal, 1996). But it took several years for the U.S. to follow suit. An early advocate was Spack, a pediatric endocrinologist at Boston Children's Hospital, who remembers "salivating" when he first heard about the Dutch model (Hartocollis, 2015). Although this hospital provided cross-sex hormones from 1998, puberty blockers were not offered until Spack co-founded its Gender Management

Editor's note. This Letter was peer reviewed by three members of the Editorial Board and myself.

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[1] The journal that published the target article, *Pediatrics*, rejected an earlier version of this Letter as an online comment without providing a reason.

Service in 2007 (Spack et al., 2012). That was the first specialized gender clinic for children in the U.S. (cf. Zucker, 2015). Only in 2009 did the Endocrine Society recommend puberty suppression for gender identity disorder (as gender dysphoria was then known); Spack helped to write its guidelines (Hembree et al., 2009). "There was an attitudinal shift to be able to say that the Endocrine Society supports this," he recalled a few years later (Ruttimann, 2013, p. 19). If one had to choose a year from which puberty blockers became generally available in the U.S., it would be 2009. This periodization is supported by complete data on prescriptions of one formulation of GnRHa (histrelin acetate) from 43 children's hospitals: it was never prescribed for gender identity disorder between 2004 and 2009 and was then prescribed to 92 patients from 2010 to 2016 (Lopez, Solomon, Boulware, & Christison-Lagay, 2018). That also accords with Turban and Keuroghlian's (2018, p. 451) own statement that transition for young (American) adolescents has been recommended "[d]uring the past 10 years." Faulty periodization means that Turban et al.'s (2020) subsample included older respondents who, in fact, had no opportunity to obtain these drugs and so cannot be used for comparison.

In discussing their results, Turban et al. (2020, p. 7) briefly admitted the possibility that "those without suicidal ideation had better mental health when seeking care and thus were more likely to be considered eligible for pubertal suppression." Indeed, the Endocrine Society's initial guidelines restricted eligibility to adolescents who "[d]o not suffer from psychiatric comorbidity that interferes with the diagnostic work-up or treatment" and "[h]ave adequate psychological and social support during treatment" (Hembree et al., 2009, p. 3138). The revised stipulation is that "[a]ny coexisting psychological, medical, or social problems that could interfere with treatment…have been addressed, such that the adolescent's situation and functioning are stable enough to start treatment" (Hembree et al., 2017, p. 3878). There is evidence that such guidelines are followed in clinical practice, at least to an extent. Gender Management Service at Boston Children's Hospital, for example, does not accept patients with severe psychopathology (Ruttimann, 2013). Analysis of 109 adolescents at one clinic demonstrates that patients who reported more psychological and social problems were less likely to receive puberty blockers, controlling for several other factors (Zucker et al., 2011).

Psychological problems are, therefore, a confounding factor that will create a spurious association between suicidality and treatment. The confounding could be resolved only if we could properly measure the respondent's psychological problems *before* GnRHa was prescribed or withheld.[2] Without any such measures, a negative association found many years after treatment is compatible with three scenarios: puberty blockers reduced suicidal ideation; puberty blockers had no effect on suicidal ideation; puberty blockers increased suicidal ideation, albeit not enough to counteract the initial negative effect of psychological problems on eligibility. Turban et al. (2020, p. 7) acknowledged that "the study's cross-sectional design… does not allow for determination of causation." Such caution was not conveyed in many news reports generated by the study. "Puberty blockers reduce suicidal thoughts in trans people" ran a typical headline (LGBTQ Nation, 2020).

In sum, then, Turban et al. (2020) contributed nothing to our knowledge of the effects of suppressing puberty in adolescents. One study did demonstrate positive psychological effects, based on measures taken from between 41 and 57 individuals, with no control group (de Vries, Steensma, Doreleijers, & Cohen-Kettenis, 2011). A second study cited by Turban et al. (2020) actually showed no statistical difference in improvement in psychological functioning between the group prescribed puberty blockers and the group given therapy (Biggs, 2019; Costa et al., 2015). "Longitudinal clinical trials are needed to better understand the efficacy of pubertal suppression," as Turban et al. (2020, p. 7) observed. It is remarkable that such a call is necessary nearly a quarter of a century after this treatment was first proposed.

[2] Parental support and social class are additional confounding factors, though the analysis did control for these—albeit poorly, as the variables pertain to the respondent's current situation and not their situation before treatment.

References

Biggs, M. (2019). A letter to the editor regarding the original article by Costa et al: Psychological support, puberty suppression, and psychosocial functioning in adolescents with gender dysphoria. *Journal of Sexual Medicine, 16,* 2043. https://doi.org/10.1016/j.jsxm.2019.09.002.

Cohen-Kettenis, P. T., & van Goozen, S. H. M. (1998). Pubertal delay as an aid in diagnosis and treatment of a transsexual adolescent. *European Child and Adolescent Psychiatry, 7,* 246–248.

Costa, R., Dunsford, M., Skagerberg, E., Holt, V., Carmichael, P., & Colizzi, M. (2015). Psychological support, puberty suppression, and psychosocial functioning in adolescents with gender dysphoria. *Journal of Sexual Medicine, 12,* 2206–2214. https://doi.org/10.1111/jsm.13034.

de Vries, A. L. C., Steensma, T. D., Doreleijers, T. A. H., & Cohen-Kettenis, P. T. (2011). Puberty suppression in adolescents with gender identity disorder: A prospective follow-up study. *Journal of Sexual Medicine, 8,* 2276–2283. https://doi.org/10.1111/j.1743-6109.2010.01943.x.

Gooren, L., & Delemarre-van de Waal, H. (1996). The feasibility of endocrine interventions in juvenile transsexuals. *Journal of Psychology and Human Sexuality, 8,* 69–74. https://doi.org/10.1300/J056v08n04_05.

Hartocollis, A. (2015). The new girl in school: Transgender surgery at 18. *New York Times*. Retrieved May 2, 2020 from http://www.nytimes.com/2015/06/17/nyregion/transgender-minors-gender-reassignment-surgery.html.

Hembree, W. C., Cohen-Kettenis, P., Delemarre-van de Waal, H. A., Gooren, L. J., Meyer, W. J., III, Spack, N. P., … Montori, V. M.

(2009). Endocrine treatment of transsexual persons: An Endocrine Society Cinical Practice Guideline. *Journal of Clinical Endocrinology and Metabolism, 94,* 3132–3154. https://doi.org/10.1210/jc.2009-0345.

Hembree, W. C., Cohen-Kettenis, P., Gooren, L. J., Hannema, S. E., Meyer, W. J., III, Murad, M. H., … T'Sjoen, G. G. (2017). Endocrine treatment of gender-dysphoric/gender-incongruent persons: An Endocrine Society Clinical Practice Guideline. *Journal of Clinical Endocrinology and Metabolism, 102,* 3869–3903. https://doi.org/10.1210/jc.2017-01658.

James, S. E., Herman, J. L., Rankin, S., Keisling, M., Mottet, L., & Anafi, M. (2016). *The report of the 2015 U.S. Transgender Survey.* Retrieved January 27, 2020 from National Center for Transgender Equality website, https://www.transequality.org/sites/default/files/docs/USTS-Full-Report-FINAL.PDF.

LGBTQ Nation. (2020). *Puberty blockers reduce suicidal thoughts in trans people: Republicans want to ban them.* Retrieved February 2, 2020 from http://www.lgbtqnation.com/2020/01/puberty-blockers-reduce-suicidal-thoughts-trans-people-republicans-want-ban/.

Lopez, C. M., Solomon, D., Boulware, S. D., & Christison-Lagay, E. R. (2018). Trends in the use of puberty blockers among transgender children in the United States. *Journal of Pediatric Endocrinology and Metabolism, 31,* 665–670. https://doi.org/10.1515/jpem-2018-0048.

Ruttimann, J. (2013, January). Blocking puberty in transgender youth. In *Endocrine News* (pp. 16–20). Retrieved from https://endocrinenews.endocrine.org/blocking-puberty-in-transgender-youth/.

Spack, N. P., Edwards-Leeper, L., Feldman, H. A., Leibowitz, S., Mandel, F., Diamond, D. A., & Vance, S. R. (2012). Children and adolescents with gender identity disorder referred to a pediatric medical center. *Pediatrics, 129,* 418–425. https://doi.org/10.1542/peds.2011-0907.

Turban, J. L. (2020). What South Dakota doesn't get about transgender children. *New York Times*. Retrieved April 22, 2020 from http://www.nytimes.com/2020/02/06/opinion/transgender-children-medical-bills.html.

Turban, J. L., & Keuroghlian, A. S. (2018). Dynamic gender presentations: Understanding transition and "de-transition" among transgender youth. *Journal of the American Academy of Child and Adolescent Psychiatry, 57,* 451–453. https://doi.org/10.1016/j.jaac.2018.03.016.

Turban, J. L., King, D., Carswell, J. M., & Keuroghlian, A. S. (2020). Pubertal suppression for transgender youth and risk of suicidal ideation. *Pediatrics, 145,* e20191725. https://doi.org/10.1542/peds.2019-1725.

Zucker, K. J. (2015). Comment on "Serving Transgender Youth: Challenges, Dilemmas, and Clinical Examples" by Tishelman et al. (2015). *Professional Psychology: Research and Practice*, *46*, 306.

Zucker, K. J., Bradley, S. J., Owen-Anderson, A., Singh, D., Blanchard, R., & Bain, J. (2011). Puberty-blocking hormonal therapy for adolescents with gender identity disorder: A descriptive clinical study. *Journal of Gay and Lesbian Mental Health, 15,* 58–82. https://doi.org/10.1080/19359705.2011.530574.

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Letter to the Editor

Michael Biggs*

Revisiting the effect of GnRH analogue treatment on bone mineral density in young adolescents with gender dysphoria

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Keywords: bone mineral density; gender dysphoria; GnRHa treatment; transgender.

To the Editors,

I write to respond to Joseph, Ting, and Butler's recent article, describing the effect of administering gonadotropin-releasing hormone analogue (GnRHa) to suppress puberty in adolescents diagnosed with gender dysphoria [1]. The mean of the patients' bone mineral density (BMD)—relative to the norm for their sex and age—declined significantly over 2 years. What really matters is the lower tail of the distribution, but this information was omitted by Joseph et al. This letter analyses individual data on 24 patients from Joseph et al.'s sample of 31 [2]. It finds that after 2 years of GnRHa, up to a third of patients had abnormally low bone density, in the lowest 2.3% of the distribution for their sex and age. A few patients recorded extremely low values, in the lowest 0.13% of the distribution. This finding undermines Joseph et al.'s conclusions.

The Dutch pioneers of this experimental treatment for gender dysphoria warned that patients could 'end with a decreased bone density, which is associated with a high risk of osteoporosis' [3]. The effects on bone density have been described by four Dutch studies [4–7], besides Joseph et al. BMD is measured by a dual energy X-ray absorptiometry (DXA) scan over the spine (lumbar) and the hip (femoral neck). The absolute value of BMD is standardized as a Z-score, expressing this individual's BMD relative to the population of the same sex and age. BMD can be adjusted for height to derive the volumetric bone mineral apparent density (BMAD), which is likewise standardized as a Z-score.

A Z-score below −2 is considered low; it indicates bone density in the lowest 2.3% of the population of the same sex and age [8]. Joseph et al. argue that 'this is not the sole definition of low bone mass in children, nor is this criterion a recognized predictor of later fracture risk'. But this threshold was prominent in the experiment which introduced puberty suppression for gender dysphoria to Britain. The original experimental protocol (co-authored by Butler) in 2010 excluded any child with a spine or hip BMD Z-score below −2. In 2012, however, this exclusion criterion was relaxed 'in exceptional circumstances'—if clinicians 'feel that on the balance of risks, pubertal suppression is an appropriate option despite risks of osteoporosis in later adult life' and patients 'understand the risks of GnRH analogue treatment for bone density (i.e., risks of later osteoporosis)' [9].

Information on the lower tail of the distribution of Z-scores—below −2—is omitted by Joseph et al. and by three out of four Dutch studies. Describing distributions by mean (and standard deviation) is not sufficient when clinical concern focuses on very low values. This will be illustrated for patients experiencing 2 years of puberty suppression. Joseph et al.'s sample after 24 months on GnRHa comprised 31 patients. Data on 24 of these patients —or at least patients from the same clinic at University College London Hospital—have recently been released, though sex is unavailable [2]. These patients were enrolled in the British experiment which recruited patients from 2011 to 2015. The Stata do file to replicate the analysis is posted at https://doi.org/10.7910/DVN/FSOMME.

Table 1 shows mean Z-scores for Joseph et al.'s three measures of BMD, at baseline and at 24 months (the hip measure is missing for three patients). The 2011–15 sample is naturally similar to Joseph et al.'s. The decline in the mean of all three scores is statistically significant in both samples ($p \leq 0.004$ in every paired t-test).

Using data from the 2011–15 sample, Figure 1 depicts the distributions of Z-scores at 24 months, along with the

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Table 1: Bone density in adolescents undergoing puberty suppression.

	Hip BMD		Spine BMD		Spine BMAD	
	Joseph et al.	2011–15	Joseph et al.	2011–15	Joseph et al.	2011–15
Mean Z-score at baseline	−0.58	−0.55	−0.44	−0.34	−0.09	−0.46
Mean Z-score at 24 months	−1.40	−1.45	−1.64	−1.46	−0.71	−1.28
Change in Z-score	−0.82	−0.90	−1.20	−1.12	−0.62	−0.81
p-value (two-tailed)	0.000	0.000	0.000	0.000	0.000	0.004
n	31	21	31	24	31	24

BMD, bone mineral density; BMAD, bone mineral apparent density.

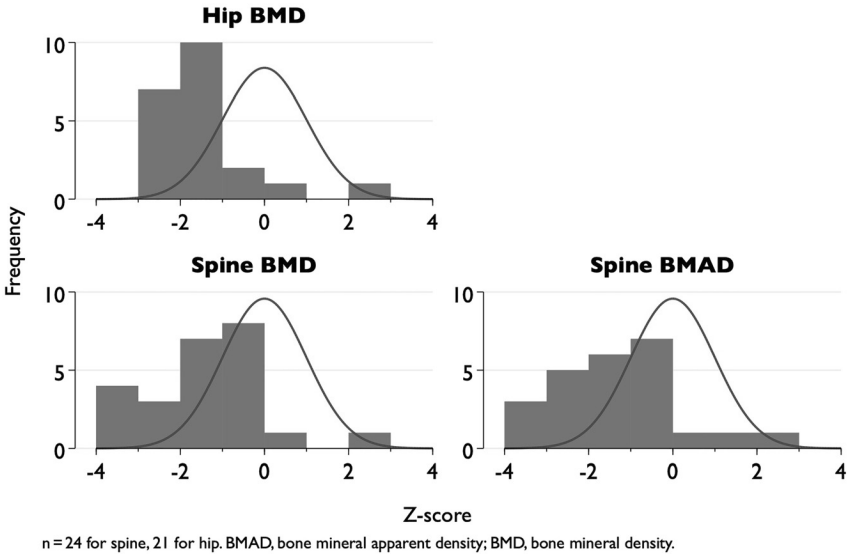

Figure 1: Bone density after 24 months of puberty suppression.

Normal distribution to compare with the population of the same sex and age. For hip BMD, a third of patients had a low Z-score, below −2. For spine BMD, more than a quarter of patients had low Z-scores. The lower tail extended far beyond. Indeed, four patients had Z-scores below −3, putting them in the bottom 0.13% of the population. Adjusting for height, by computing spine BMAD, does not shrink the lower tail.

Given that puberty suppression left up to a third of patients with abnormally low bone density, Joseph et al.'s recommendations are surprisingly complacent. One is to reduce DXA monitoring which 'can have significant financial implications for healthcare providers'. Another is to change the computation of Z-scores; 'reference ranges may need to be re-defined for this select patient cohort'. Rather than altering a measure that provides inconvenient findings, practitioners of puberty suppression must record fractures as adverse events. One British patient who started GnRHa at age 12 then experienced four broken bones by the age of 16 [10]. This history, if it were combined with BMD Z-scores below −2, would meet the diagnostic criteria for paediatric osteoporosis [11]. Whether this case is exceptional is unknown because clinicians have failed to collect relevant data.

References

1. Joseph T, Ting J, Butler G. The effect of GnRH analogue treatment on bone mineral density in young adolescents with gender dysphoria: findings from a large national cohort. J Pediatr Endocrinol Metab 2019;32:1077–81.
2. Carmichael P, Butler G, Masic U, Cole TJ, De Stavola BL, Davidson S, et al. Short-term outcomes of pubertal suppression in a selected cohort of 12 to 15 year old young people with persistent gender dysphoria in the UK. PloS One 2021;16:e0243894.
3. Delemarre-van de Waal HA, Cohen-Kettenis PT. Clinical management of gender identity disorder in adolescents: a protocol on psychological and paediatric endocrinology aspects. Eur J Endocrinol 2006;155:S131–7.
4. Klink D, Caris M, Heijboer A, van Trotsenburg M, Rotteveel J. Bone mass in young adulthood following gonadotropin-releasing hormone analog treatment and cross-sex hormone treatment in adolescents with gender dysphoria. J Clin Endocrinol Metab 2015; 100:E270–5.

5. Schagen SEE, Wouters FM, Cohen-Kettenis PT, Gooren LJ, Hannema SE. Bone development in transgender adolescents treated with GnRH analogues and subsequent gender-affirming hormones. J Clin Endocrinol Metab 2020;105:e4252–63.
6. Stoffers IE, de Vries MC, Hannema SE. Physical changes, laboratory parameters, and bone mineral density during testosterone treatment in adolescents with gender dysphoria. J Sex Med 2019;16:1459–68.
7. Vlot MC, Klink DT, den Heijer M, Blankenstein MA, Rotteveel J, Heijboer AC. Effect of pubertal suppression and cross-sex hormone therapy on bone turnover markers and bone mineral apparent density (BMAD) in transgender adolescents. Bone 2017;95:11–9.
8. Lee JY, Finlayson C, Olson-Kennedy J, Garofalo R, Chan Y-M, Glidden DV, et al. Low bone mineral density in early pubertal transgender/gender diverse youth: findings from the Trans Youth Care Study. J Endocr Soc 2020;4:bvaa065.
9. Viner R, Carmichael P, Ceglie DD, Butler G, Brain C, Holt V, et al. An evaluation of early pubertal suppression in a carefully selected group of adolescents with gender identity disorder (v1.2); 2012.
10. Bannerman L. Puberty blocking drugs: 'for the past four years I've been stuck as a child' (26 July 2019). Times; 2019. Available from: https://www.thetimes.co.uk/article/transgender-children-puberty-blocking-drugs-for-the-past-four-years-i-ve-been-stuck-as-a-child-5s6tkh7z2.
11. Bachrach LK, Gordon CM, AAP Section on Endocrinology. Bone densitometry in children and adolescents. Pediatrics 2016;138: e20162398.

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LETTER TO THE EDITOR

Suicide by Clinic-Referred Transgender Adolescents in the United Kingdom

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Introduction

Surveys show that adolescents who identify as transgender are vulnerable to suicidal thoughts and self-harming behaviors (dickey & Budge, 2020; Hatchel et al., 2021; Mann et al., 2019). Little is known about death by suicide. This Letter presents data from the Gender Identity Development Service (GIDS), the publicly funded clinic for children and adolescents aged under 18 from England, Wales, and Northern Ireland. From 2010 to 2020, four patients were known or suspected to have died by suicide, out of about 15,000 patients (including those on the waiting list). To calculate the annual suicide rate, the total number of years spent by patients under the clinic's care is estimated at about 30,000. This yields an annual suicide rate of 13 per 100,000 (95% confidence interval: 4–34). Compared to the United Kingdom population of similar age and sexual composition, the suicide rate for patients at the GIDS was 5.5 times higher. The proportion of patients dying by suicide was far lower than in the only pediatric gender clinic which has published data, in Belgium (Van Cauwenberg et al., 2021).

Suicidality in Transgender Adolescents

"About half of young trans people…attempt suicide," declared the United Kingdom Parliament's Women and Equalities Committee (2015). Similar figures are cited by news media and campaigning organizations. The *Guardian* reported Stonewall's statistic that "almost half" of transgender young people "have attempted to kill themselves" (Weale, 2017). "Fifty percent of transgender youth attempt suicide before they are at age 21" stated the mother of the most famous transgender youth in the English-speaking world (Jennings & Jennings, 2016). As a transgender theologian has observed, "the statistic about suicide attempts has, in essence, developed a life of its own" (Tanis, 2016).

Representative surveys of students in high schools provide one source of evidence for this statistic. In New Zealand, 20% of transgender students reported attempting suicide in the past 12 months, compared to 4% of all students (Clark et al., 2014). In the United States, 15% of transgender students reported a suicide attempt requiring medical treatment in the last 12 months, compared to 3% of all students (Centers for Disease Control & Prevention, 2018; Jackman et al., 2021; Johns et al., 2019). In another American survey, 41% of transgender students reported having attempted suicide during their lifetime, compared to 14% of all students (Toomey et al., 2018).

To what extent are self-reported suicide attempts reflected in fatalities? The connection is not straightforward. Respondents who report suicide attempts are not necessarily indicating an intent to die. One survey of the American population found that almost half the respondents who reported attempting suicide subsequently stated that their action was a cry for help and not intended to be fatal (Nock & Kessler, 2006). In two small samples of non-heterosexual youth, half the respondents who initially reported attempting suicide subsequently clarified that they went no further than imagining or planning it; for the remainder who did actually attempt suicide, their actions were usually not life-threatening. To an extent, then, "the reports were attempts to communicate the hardships of lives or to identify with a gay community" (Savin-Williams, 2001). Although such elaborate survey methods have not been used to study transgender populations, there is anecdotal evidence for a similar disjuncture. The pediatric endocrinologist who established the first clinic for transgender children in the United States stated that "the majority of self-harmful actions that I see in my clinic are not real suicide attempts and are not usually life threatening" (Spack, 2009).

Suicide mortality has been studied in the transgender population using registry data. The annual suicide rate is calculated by dividing the number of suicides by the total number of years each person was at risk. An individual who was observed for 20 years, for instance, contributes 20 person-years to the denominator. The

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largest study covers over 8,000 patients who visited the gender clinic in Amsterdam from 1972 to 2017 (Wiepjes et al., 2020). The annual suicide rate was 29 per 100,000 for transmen, quadruple the rate for the female population, and 64 for transwomen, quadruple the rate for the male population. A Swedish study of 324 individuals who had undergone genital surgery between 1973 and 2003 found much higher annual suicide rates: 250 per 100,000 for transmen, 43 times the rate for matched female controls, and 285 for transwomen, 16 times the rate for matched male controls (M. Boman, personal communication, 12 April 2021; Dhejne et al., 2011). Only one published study has reported suicide fatalities among transgender adolescents. Belgium's pediatric gender clinic provided counseling to 177 youth aged from 12 to 18 years, who had been referred between 2007 and 2016: five of them (2.8%) committed suicide (Van Cauwenberg et al., 2021). The mean age of referral was 15, implying a mean duration of 3 years before transition to an adult clinic, which translates to an annual suicide rate of 942 per 100,000. This is the highest suicide mortality recorded for any transgender population.

Method

This Letter estimates the suicide rate at the world's largest pediatric gender clinic. Based in London, the GIDS is part of the Tavistock and Portman NHS Foundation Trust, and serves youth under 18 from England, Wales, and Northern Ireland who are "experiencing difficulties with their gender identity development" (Carmichael & Davidson, 2009). Like all such services throughout Western Europe and North America, it has experienced enormous growth; referrals increased from 100 in 2009 to a peak of 2700 in 2019. The waiting list in April 2021 exceeded 5300.

The GIDS patients manifest typically high rates of self-harming behavior. In a sample of 900 adolescents (aged from 13 to 17) admitted to the clinic from 2009 to 2017 and given the Youth Self-Report questionnaire, 44% answered that they sometimes or very often "deliberately try to hurt or kill myself" (de Graaf et al., 2020). Unfortunately, both behaviors are combined in this question. In a different sample of over 700 children and adolescents (aged from 4 to 17) assessed by the GIDS in 2012 and 2015, 10% were flagged by clinicians as having attempted suicide (Morandini et al., 2021).

Suicides

Since the early 2000s, the National Health Service has implemented mandatory reporting of "serious incidents" (Department of Health, 2001, 2010). The death of any patient—including those on the waiting list—suspected to be suicide is reported to the Tavistock's Board of Directors. The Tavistock cooperates with a comprehensive surveillance system for every death classified as suicide or (after an open verdict by the coroner) probable suicide in the United Kingdom (National Confidential Inquiry into Suicide & Homicide by People with Mental Illness, 1999; National Confidential Inquiry into Suicide and Safety in Mental Health, 2019). Papers for the Tavistock's Board meetings are available from April 2007 onwards; those not on the Trust's website were acquired by a Freedom of Information request. The pdf files of the *Agenda and Papers* (through September 2021) were searched for the keyword "suicid"; all 442 instances were inspected. From 2007 to 2020, four patients of the GIDS died by suspected suicide: two on the waiting list, in 2016 and 2017; and two after having been seen, in 2017 and 2020. The last case was described as "likely" to be suicide, because the inquest has not yet been held. These figures were confirmed by Freedom of Information requests to the Tavistock.

Triangulation is possible from two sources. Comprehensive mortality data on all adolescents aged from 10 to 19 who committed suicide in the United Kingdom from 2014 to 2016 include five transgender individuals (Rodway et al., 2020). Due to confidentiality restrictions, it is not possible to disaggregate these further by age or by country. Presumably, one of these is the patient of GIDS who died in 2016. The remaining four might have been 18 or 19—the risk of suicide increases significantly in the late teens—or might have lived in Scotland. Alternatively, they might have been eligible for the GIDS but had not sought a clinical referral (made by the local Child and Adolescent Mental Health Service, the child's general practitioner, social worker, or teacher) or had not obtained it.

Another source is the Transgender Day of Remembrance website, which aims to record all deaths by suicide or violence (Metcalfe, 2021). For the United Kingdom between 2007 and 2020, the website names 3 adolescents under the age of 18 who committed suicide. One was one of the GIDS patients (the match is certain because they were named in the *Agenda and Papers*). The other two had no involvement with the GIDS (or any other gender clinician), as was evident from their inquests, though one was under the psychiatric care of another NHS Trust (BBC News, 2021; Bunyan, 2008). In addition, the website lists suicides by two "young" transgender people, sourced from Twitter, without information on their name or age. In one case, it is not clear whether the person lived in the United Kingdom.

Patients

With suicides as numerator, two denominators are relevant. Because comprehensive data on patient numbers became available from 2010, the period will be the 11 years from 2010 to 2020. (These are financial years; thus, 2020 runs from April 2020 to March 2021.) The first denominator is the total number of individual patients, estimated by summing the annual number of referrals to the GIDS from 2010 to 2020—excluding those aged 18 or over, as they are not accepted. The total number is 15,032. This sum omits patients at the clinic who had been referred before

2010, and so is a slight underestimate. (The Online Supplement provides full details.)

The second denominator is the total number of patient-years: the sum of the number of years spent by each individual as a patient of the GIDS. The number of patients seen by the GIDS each year was available from 2014 to 2020. Before 2014 only the number of patients first seen was available. From 2014 to 2016, the number of patients seen was consistently double the number first seen, and so the former number for 2010 to 2013 was estimated by doubling the latter. All these numbers exclude patients on the waiting list. The number waiting at the beginning of each year from 2016 to 2020 was obtained by Freedom of Information request. Before then the number was not available, and so must be treated as zero. This leads to an underestimate, of course, but the waiting list became appreciable only from 2015. The total number of patient-years over this period is estimated as 30,080. In other words, patients spent on average 2 years at the GIDS (including time on the waiting list). Time on the waiting list contributed 41% of the total patient-years.

Results

From 2010 to 2020, the four suicide deaths equate to 0.03% of the 15,032 patients. Taking the denominator as 30,080 patient-years, the annual suicide rate is calculated as 13 per 100,000 (95% confidence interval: 4 to 34 per 100,000). For comparison, the annual suicide rate in England and Wales between 2010 and 2020 for adolescents aged from 15 to 19 years averaged 4.7 (Office for National Statistics, 2021). This does not quite correspond to the age range of the GIDS patients, however. At referral, the patients ranged in age from 3 to 17 years; only 7% were younger than 10. The mean was 14 years and the median 15. Most patients stay with the GIDS until transitioning to an adult service. Therefore, the average age of patients at any point in time will lie somewhere between 14 and 17. A better comparison is therefore the overall suicide rate for adolescents aged from 14 to 17 (available only for the entire United Kingdom for 2015–2017), which was 2.7 per 100,000 (Office for National Statistics, 2018; Rodway et al., 2020). Comparison should also account for the difference between the sexes, because males are more likely to commit suicide than females. Of the GIDS patients, 69% were female. Adjusting for sex, the GIDS patients were 5.5 times more likely to commit suicide than the overall population of adolescents aged 14 to 17.

Discussion

How reliable are these estimates? The chief uncertainty about the numerator is whether the fourth death will be ruled as suicide when the inquest is eventually held. It could be speculated that there were further suicides unknown to the Tavistock and to the National Confidential Inquiry into Suicide and Safety in Mental Health. All that can be said is that the single suicide by a GIDS patient from 2014 to 2016 is not out of line with comprehensive mortality data on suicides by transgender adolescents in the United Kingdom which counted five suicides in a longer age range and wider geographical area. The denominator for the annual suicide rate, however, is pieced together from various series and so is inevitably approximate. Statistics from the early 2010s are less reliable, though they make only a small contribution to the grand total; the last three years contribute more than half of the total number of patient-years. The most significant limitation is the lack of information on the age and sex of all the patients who committed suicide.

Direct comparison can be made with the Belgian pediatric gender clinic (Van Cauwenberg et al., 2021). Its annual suicide rate was about 70 times greater than the rate at the GIDS. This is especially puzzling because patients at the Belgian clinic scored better, on average, than those at the GIDS on tests of psychological functioning (de Graaf et al., 2018). The explanation for the huge disparity in suicide is not clear. The Amsterdam's clinic annual suicide rate was four times greater than the rate at the GIDS. The higher rate is not surprising, however, because the Dutch clinical population was dominated by older adults: the median age at first visit was 25 (Wiepjes et al., 2020). Suicide rates peak in middle age, and so a population of older adults would be at higher risk than a population of adolescents.

The suicide rate of the GIDS patients is not necessarily indicative of the rate among all adolescents who identify as transgender. On the one hand, individuals with more serious problems (and their families) would be particularly motivated to seek referral and more likely to obtain it, and so the clinical subset would be more prone to suicide. One study suggests that a child who frequently attempted suicide was more readily referred to the GIDS (Carlile et al., 2021). On the other hand, young people facing hostility from their families would be less able to seek referral, and this hostility could make them especially vulnerable to suicide.

Taking into account these limitations, the estimated suicide rate at the GIDS provides the strongest evidence yet published that transgender adolescents are more likely to commit suicide than the overall adolescent population. The higher risk could have various causes: gender dysphoria, accompanying psychological conditions, and ensuing social disadvantages such as bullying. Studies of young people referred to the GIDS in 2012 and 2015 found a high prevalence of eating disorders, depression, and autism spectrum conditions (ASC) (Holt et al., 2016; Morandini et al., 2021)—all known to increase the probability of suicide (Simon & VonKorff, 1998; Smith et al., 2018). Eating disorders and depression could be consequences of transgender identity and its ensuing social repercussions, but this is implausible for ASC insofar as it originates in genes or the prenatal environment. From a sample of over 700 referrals to the GIDS in 2012 and 2015, 14–15% were diagnosed with ASC (Morandini

et al., 2021). This compared to 0.8–1.1% of students in England (Department for Education, 2012, 2015). The association between autism and gender dysphoria is found in many populations (Socialstyrelsen, 2020; Warrier et al., 2020). Autism is known to increase the risk of suicide mortality, especially in females (Hirvikoski et al., 2016; Kirby et al., 2019; Socialstyrelsen, 2020). To some extent, therefore, the elevated suicide rate for transgender youth compared to their peers reflects the higher incidence of ASC. The same holds for other psychiatric disorders associated with gender dysphoria (Dhejne et al., 2016). Ideally, the suicide rate for patients of the GIDS would be compared to the suicide rate for patients in contact with other NHS mental health services, but the latter rate is not available.

One final caveat is that these data shed no light on the question of whether counseling or endocrinological interventions—gonadotropin-releasing hormone agonist or cross-sex hormones—affect the risk of suicide (Biggs, 2020; Turban et al., 2020). Although two out of the four suicides were of patients on the waiting list, and thus would not have obtained treatment, this is not disproportionate: the waiting list contributed nearly half of the total patient-years.

Conclusion

Data from the world's largest clinic for transgender youth over 11 years yield an estimated annual suicide rate of 13 per 100,000. This rate was 5.5 times greater than the overall suicide rate of adolescents of similar age, adjusting for sex composition. The estimate demonstrates the elevated risk of suicide among adolescents who identify as transgender, albeit without adjusting for accompanying psychological conditions such as autism. The proportion of individual patients who died by suicide was 0.03%, which is orders of magnitude smaller than the proportion of transgender adolescents who report attempting suicide when surveyed. The fact that deaths were so rare should provide some reassurance to transgender youth and their families, though of course this does not detract from the distress caused by self-harming behaviors that are non-fatal. It is irresponsible to exaggerate the prevalence of suicide. Aside from anything else, this trope might exacerbate the vulnerability of transgender adolescents. As the former lead psychologist at the Tavistock has warned, "when inaccurate data and alarmist opinion are conveyed very authoritatively to families we have to wonder what the impact would be on children's understanding of the kind of person they are…and their likely fate" (Wren, 2015).

Supplementary Information The online version contains supplementary material available at https://doi.org/10.1007/s10508-022-02287-7.

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Declarations

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References

BBC News. (2021, June 4). Ellis Murphy-Richards: NHS care questioned over suicide. *BBC News*. https://www.bbc.com/news/uk-england-kent-57358063

Biggs, M. (2020). Puberty blockers and suicidality in adolescents suffering from gender dysphoria [Letter to the Editor]. *Archives of Sexual Behavior, 49*, 2227–2229. https://doi.org/10.1007/s10508-020-01743-6

Bunyan, N. (2008, February 15). Boy, 10, hangs himself after talking to his mother about craze. *Daily Telegraph*.

Carlile, A., Butteriss, E., & Sansfaçon, A. P. (2021). "It's like my kid came back overnight": Experiences of trans and non-binary young people and their families seeking, finding and engaging with clinical care in England. *International Journal of Transgender Health, 22*, 412–424. https://doi.org/10.1080/26895269.2020.1870188

Carmichael, P., & Davidson, S. (2009). A gender identity development service. *Psychologist, 22*, 916–917.

Centers for Disease Control and Prevention. (2018). *2017 Youth Risk Behavior Survey*. https://www.cdc.gov/healthyyouth/data/yrbs/data.htm

Clark, T. C., Lucassen, M. F. G., Bullen, P., Denny, S. J., Fleming, T. M., Robinson, E. M., & Rossen, F. V. (2014). The health and well-being of transgender high school students: Results from the New Zealand Adolescent Health Survey (Youth'12). *Journal of Adolescent Health, 55*, 93–99. https://doi.org/10.1016/j.jadohealth.2013.11.008

de Graaf, N. M., Cohen-Kettenis, P. T., Carmichael, P., de Vries, A. L. C., Dhondt, K., Laridaen, J., Pauli, D., Ball, J., & Steensma, T. D. (2018). Psychological functioning in adolescents referred to specialist gender identity clinics across Europe: A clinical comparison study between four clinics. *European Child & Adolescent Psychiatry, 27*, 909–919. https://doi.org/10.1007/s00787-017-1098-4

de Graaf, N. M., Steensma, T. D., Carmichael, P., VanderLaan, D. P., Aitken, M., Cohen-Kettenis, P. T., de Vries, A. L. C., Kreukels, B. P. C., Wasserman, L., Wood, H., & Zucker, K. J. (2020). Suicidality in clinic-referred transgender adolescents. *European Child & Adolescent Psychiatry*. https://doi.org/10.1007/s00787-020-01663-9

Department for Education. (2012). *Special educational needs in England, January 2012*. https://www.gov.uk/government/statistics/special-educational-needs-in-england-january-2012

Department for Education. (2015). *Special educational needs in England, January 2015*. https://www.gov.uk/government/statistics/special-educational-needs-in-england-january-2015

Department of Health. (2001). *Building a safer NHS for patients: Implementing 'an organisation with a memory'*.

Department of Health. (2010). *National framework for reporting and learning from serious incidents requiring investigation*. https://web.archive.org/web/20101126102908/http://www.nrls.npsa.nhs.uk/EasySiteWeb/getresource.axd?AssetID=68464&type=full&servicetype=Attachment

Dhejne, C., Lichtenstein, P., Boman, M., Johansson, A. L. V., Långström, N., & Landén, M. (2011). Long-term follow-up of transsexual persons undergoing sex reassignment surgery: Cohort study in Sweden. *PLoS ONE, 6*, e16885. https://doi.org/10.1371/journal.pone.0016885

Dhejne, C., Van Vlerken, R., Heylens, G., & Arcelus, J. (2016). Mental health and gender dysphoria: A review of the literature. *International Review of Psychiatry, 28*, 44–57. https://doi.org/10.3109/09540261.2015.1115753

dickey, l. m., & Budge, S. L. (2020). Suicide and the transgender experience: A public health crisis. *American Psychologist, 75*, 380–390. https://doi.org/10.1037/amp0000619

Hatchel, T., Polanin, J. R., & Espelage, D. L. (2021). Suicidal thoughts and behaviors among LGBTQ youth: Meta-analyses and a systematic review. *Archives of Suicide Research, 25*, 1–37. https://doi.org/10.1080/13811118.2019.1663329

Hirvikoski, T., Mittendorfer-Rutz, E., Boman, M., Larsson, H., Lichtenstein, P., & Bölte, S. (2016). Premature mortality in autism spectrum disorder. *British Journal of Psychiatry, 208*, 232–238. https://doi.org/10.1192/bjp.bp.114.160192

Holt, V., Skagerberg, E., & Dunsford, M. (2016). Young people with features of gender dysphoria: Demographics and associated difficulties. *Clinical Child Psychology & Psychiatry, 21*, 108–118. https://doi.org/10.1177/1359104514558431

Jackman, K. B., Caceres, B. A., Kreuze, E. J., & Bockting, W. O. (2021). Suicidality among gender minority youth: Analysis of 2017 Youth Risk Behavior Survey data. *Archives of Suicide Research, 25*, 208–223. https://doi.org/10.1080/13811118.2019.1678539

Jennings, J., & Jennings, J. (2016). Trans teen shares her story. *Pediatrics in Review, 37*, 99–100. https://doi.org/10.1542/pir.2016-002

Johns, M. M., Lowry, R., Andrzejewski, J., Barrios, L. C., Demissie, Z., McManus, T., Rasberry, C. N., Robin, L., & Underwood, J. M. (2019). Transgender identity and experiences of violence victimization, substance use, suicide risk, and sexual risk behaviors among high school students: 19 states and large urban school districts, 2017. *Morbidity and Mortality Weekly Report, 68*, 69–71.

Kirby, A. V., Bakian, A. V., Zhang, Y., Bilder, D. A., Keeshin, B. R., & Coon, H. (2019). A 20-year study of suicide death in a statewide autism population. *Autism Research, 12*, 658–666. https://doi.org/10.1002/aur.2076

Mann, G. E., Taylor, A., Wren, B., & de Graaf, N. (2019). Review of the literature on self-injurious thoughts and behaviours in gender-diverse children and young people in the United Kingdom. *Clinical Child Psychology & Psychiatry, 24*, 304–321. https://doi.org/10.1177/1359104518812724

Metcalfe, A.-J. (2021). *Remembering our dead: Reports*. https://tdor.translivesmatter.info/reports

Morandini, J. S., Kelly, A., de Graaf, N. M., Carmichael, P., & Dar-Nimrod, I. (2021). Shifts in demographics and mental health comorbidities among gender dysphoric youth referred to a specialist gender dysphoria service. *Clinical Child Psychology & Psychiatry*. https://doi.org/10.1177/13591045211046813

National Confidential Inquiry into Suicide and Homicide by People with Mental Illness. (1999). *Safer services: National confidential inquiry into suicide and homicide by people with mental illness*.

National Confidential Inquiry into Suicide and Safety in Mental Health. (2019). *Annual Report: England, Northern Ireland, Scotland and Wales*. Healthcare Quality Improvement Partnership. https://www.hqip.org.uk/resource/national-confidential-inquiry-into-suicide-and-safety-in-mental-health-annual-report-2019/#.YdQiOy-l3KY

Nock, M. K., & Kessler, R. C. (2006). Prevalence of and risk factors for suicide attempts versus suicide gestures: Analysis of the National Comorbidity Survey. *Journal of Abnormal Psychology, 115*, 616–623. https://doi.org/10.1037/0021-843X.115.3.616

Office for National Statistics. (2018). *Population estimates for UK, England and Wales, Scotland and Northern Ireland: Mid-2012 to mid-2016*. https://www.ons.gov.uk/file?uri=%2fpeoplepopulationandcommunity%2fpopulationandmigration%2fpopulationestimates%2fdatasets%2fpopulationestimatesforukenglandandwalesscotlandandnorthernireland%2fmid2012tomid2016

Office for National Statistics. (2021). *Suicides in England and Wales*. https://www.ons.gov.uk/peoplepopulationandcommunity/birthsdeathsandmarriages/deaths/datasets/suicidesintheunitedkingdomreferencetables

Rodway, C., Tham, S.-G., Ibrahim, S., Turnbull, P., Kapur, N., & Appleby, L. (2020). Children and young people who die by suicide: Childhood-related antecedents, gender differences and service contact. *Bjpsych Open, 6*, e49. https://doi.org/10.1192/bjo.2020.33

Savin-Williams, R. C. (2001). Suicide attempts among sexual-minority youths: Population and measurement issues. *Journal of Consulting and Clinical Psychology, 69*, 983–991. https://doi.org/10.1037/0022-006X.69.6.983

Simon, G. E., & VonKorff, M. (1998). Suicide mortality among patients treated for depression in an insured population. *American Journal of Epidemiology, 147*, 155–160. https://doi.org/10.1093/oxfordjournals.aje.a009428

Smith, A. R., Zuromski, K. L., & Dodd, D. R. (2018). Eating disorders and suicidality: What we know, what we don't know, and suggestions for future research. *Current Opinion in Psychology, 22*, 63–67. https://doi.org/10.1016/j.copsyc.2017.08.023

Socialstyrelsen. (2020). *Utvecklingen av diagnosen könsdysfori* [The evolution of the diagnosis of gender dysphoria]. https://www.socialstyrelsen.se/globalassets/sharepoint-dokument/artikelkatalog/ovrigt/2020-2-6600.pdf

Spack, N. P. (2009). An endocrine perspective on the care of transgender adolescents. *Journal of Gay & Lesbian Mental Health, 13*, 309–319. https://doi.org/10.1080/19359700903165381

Tanis, J. (2016). The power of 41%: A glimpse into the life of a statistic. *American Journal of Orthopsychiatry, 86*, 373–377. https://doi.org/10.1037/ort0000200

Toomey, R. B., Syvertsen, A. K., & Shramko, M. (2018). Transgender adolescent suicide behavior. *Pediatrics, 142*, e20174218. https://doi.org/10.1542/peds.2017-4218

Turban, J. L., King, D., Carswell, J. M., & Keuroghlian, A. S. (2020). Pubertal suppression for transgender youth and risk of suicidal ideation. *Pediatrics, 145*, e20191725. https://doi.org/10.1542/peds.2019-1725

Van Cauwenberg, G., Dhondt, K., & Motmans, J. (2021). Ten years of experience in counseling gender diverse youth in Flanders, Belgium: A clinical overview. *International Journal of Impotence Research., 33*, 671–678. https://doi.org/10.1038/s41443-021-00441-8

Warrier, V., Greenberg, D. M., Weir, E., Buckingham, C., Smith, P., Lai, M.-C., Allison, C., & Baron-Cohen, S. (2020). Elevated rates of autism, other neurodevelopmental and psychiatric diagnoses, and autistic traits in transgender and gender-diverse individuals. *Nature Communications, 11*(3959). https://doi.org/10.1038/s41467-020-17794-1

Weale, S. (2017, June 27). Almost half of trans pupils in UK have attempted suicide, survey finds. *Guardian*. Retrieved from https://www.theguardian.com/education/2017/jun/27/half-of-trans-pupils-in-the-uk-tried-to-take-their-own-livessurvey-finds

Wiepjes, C. M., den Heijer, M., Bremmer, M. A., Nota, N. M., Blok, C. J. M., Coumou, B. J. G., & Steensma, T. D. (2020). Trends in

suicide death risk in transgender people: Results from the Amsterdam Cohort of Gender Dysphoria study (1972–2017). *Acta Psychiatrica Scandinavica, 141*, 486–491. https://doi.org/10.1111/acps.13164

Women and Equalities Committee, UK Parliament. (2015). *Transgender equality: First report of session 2015–16*. https://publications.parliament.uk/pa/cm201516/cmselect/cmwomeq/390/390.pdf

Wren, B. (2015). *Making up people*. Presented at the meeting of the European Professional Association for Transgender Health, Ghent, Belgium.

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The Dutch Protocol for Juvenile Transsexuals: Origins and Evidence

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ABSTRACT

It has been a quarter of a century since Dutch clinicians proposed puberty suppression as an intervention for "juvenile transsexuals," which became the international standard for treating gender dysphoria. This paper reviews the history of this intervention and scrutinizes the evidence adduced to support it. The intervention was justified by claims that it was reversible and that it was a tool for diagnosis, but these claims are increasingly implausible. The main evidence for the Dutch protocol came from a longitudinal study of 70 adolescents who had been subjected to puberty suppression followed by cross-sex hormones and surgery. Their outcomes shortly after surgery appeared positive, except for the one patient who died, but these findings rested on a small number of observations and incommensurable measures of gender dysphoria. A replication study conducted in Britain found no improvement. While some effects of puberty suppression have been carefully studied, such as on bone density, others have been ignored, like on sexual functioning.

The use of Gonadotropin-Releasing Hormone agonist (GnRHa) drugs to suppress puberty in "juvenile transsexuals" was first proposed in print in the mid-1990s (Gooren & Delemarre-van de Waal, 1996). Developed by three clinicians at Utrecht and Amsterdam, this intervention became known as the Dutch protocol. It rapidly became standard practice in the treatment of adolescents diagnosed with gender dysphoria (HBIGDA, 2001). This intervention has been described in several manifestos by its proponents (e.g. de Vries & Cohen-Kettenis, 2012; Delemarre-van de Waal, 2014; Delemarre-van de Waal & Cohen-Kettenis, 2006) and subjected to brief critical commentaries (Byng et al., 2018; Laidlaw et al., 2019; Levine et al., 2022). The aim of this paper to provide an historical account of the invention of the Dutch protocol and a critical review of the evidence that has accumulated in the quarter of a century since it was proposed.

Before proceeding, some definitions are in order. Gender dysphoria will be used here to describe a persistent desire to become the opposite sex (Zucker, 2010). Medical terminology has changed over time, from "gender identity disorder" and "transsexualism" (both introduced in the *Diagnostic and Statistical Manual of Mental Disorders–III* in 1980) to "gender dysphoria" (as renamed in the 2013 *DSM–5*) and "gender incongruence" (as renamed in the 2019 *International Classification of Diseases–11*). There is no need to dwell on these diagnostic criteria because the condition in practice is defined by the patient's wish for endocrinological and surgical interventions. In the nomenclature of transgender medicine, "puberty blockers" denote GnRHa drugs (alternatively known as Luteinizing Hormone-Releasing Hormone agonists) which stop the production of sex hormones.[1] Drugs in this class include triptorelin (branded Decapeptyl or

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Gonapeptyl), which is used in the Netherlands and Britain, and leuprorelin (branded Lupron) in North America. GnRHa drugs are licensed to treat several medical conditions including precocious puberty in children; endometriosis and uterine fibroids in women; and advanced prostate cancer and sexual deviance in men. The drugs have never been licensed as a treatment for gender dysphoria.

The paper begins by describing how puberty suppression was invented, primarily by the psychologist Peggy Cohen-Kettenis, in the 1990s. It reveals the gap between the protocol described in formal manifestos and actual clinical practice. The second section examines the rationale for this intervention, focusing on two claims—that GnRHa is reversible and that it serves as diagnosis—and two omissions—the association between gender dysphoria and homosexuality and the effect of GnRHa on sexual development. The third section traces the international adoption of the Dutch protocol. The fourth section scrutinizes evidence from an early cohort of 70 adolescents subjected to puberty suppression at the Amsterdam clinic (de Vries et al., 2011, 2014). This cohort provides the only significant evidence that GnRHa followed by cross-sex hormones and surgery results in improved psychological function and reduced gender dysphoria. The evidence is less persuasive than it appears: the number of observations was considerably fewer than 70, the reported reduction in gender dysphoria depended on incommensurable scales, and the outcomes omit one patient who died because puberty suppression dictated a riskier vaginoplasty. The fifth section pursues the British study designed to replicate the Dutch one; it was withheld from publication for some years, presumably because puberty suppression in this sample failed to improve gender dysphoria or psychological functioning. The poor quality of American studies is also noted. The final section evaluates evidence for the side effects of GnRHa. The negative effect on the accrual of bone mass is well studied, while there is increasing evidence for negative effects on cognitive and emotional development and on sexual functioning.

Origins of the Dutch protocol

Transsexualism as a concept emerged in the mid-twentieth century, following the discovery of cross-sex hormones and advances in plastic surgery (Hausman, 1995). Novel physical interventions were justified by the new theoretical construct of "gender identity" invented by American psychologists and psychiatrists, most notably John Money (1994). Gender identity was conceived as developing in infancy (e.g. Green, 1968), but physical interventions for transsexuals under the age of 18 were vanishingly rare. Money in 1973 advised a doctor to prescribe testosterone to a 15-year-old girl and even to consider mastectomy—but he was unusually reckless and there is no evidence that his advice was followed (Gill-Peterson, 2018, pp. 163–164). Specialist clinics for children and adolescents with gender identity problems were founded in Toronto in 1975, in Utrecht in 1987, and in London in 1989. They provided counseling. Cross-sex hormones had to wait until the patient was referred to an adult clinic, at an age ranging from 16 to 18 (Bradley & Zucker, 1990). Surgeries were not performed under the age of 18 (Petersen & Dickey, 1995). Referrals of children were rare. The London clinic—the only specialized clinic for children with gender dysphoria in the United Kingdom—over its first decade accepted an annual average of 14 patients (Di Ceglie, 2018). In its first seven years the Utrecht clinic averaged 9 per year (Cohen-Kettenis, 1994).

Lowering the age of intervention was driven by the founder of the Utrecht children's clinic, Peggy Cohen-Kettenis. She had established herself in the field of gender medicine in the 1980s, presenting research to international conferences of the Harry Benjamin International Gender Dysphoria Association (HBIGDA), which had been formed by clinicians and academics. She eventually became professor of psychology in the Department of Child and Adolescent Psychiatry at University Medical Center Utrecht (Everaerd et al., 2014). She was closely connected to clinicians at VU Medical Center Amsterdam (affiliated with Vrije Universiteit Amsterdam), which housed the country's clinic for adult transsexuals.

Cohen-Kettenis believed that transsexuals would experience better outcomes if they started treatment before adulthood. By the mid-1990s, she was referring some patients aged 16 and 17 to the Amsterdam clinic for endocrinological intervention prior to cross-sex hormones (Cohen-Kettenis, 1994). Males were given an antiandrogen, cyproterone acetate, which prevented erections and caused breast tissue to grow; females were given progestin to stop menstruation (Gooren & Delemarre-van de Waal, 1996). Johanna, for example, "fulfilled all necessary requirements for early treatment": she did not favor girly things (though neither did her sisters), she was fond of soccer, she never dated in school (perhaps not surprising given that she was homosexual), and her parents discovered her wearing a tight t-shirt to conceal her breasts (Cohen-Kettenis et al., 1998, p. 124). Brought to the clinic at 17, she was prescribed progestin for four months and then testosterone. Within two years Jaap (as Johanna had become) underwent mastectomy, hysterectomy, and oophorectomy, and obtained a new birth certificate. Evidence to support such early treatment came from the first 22 patients from the Utrecht clinic, interviewed in their twenties, from one to five years after surgery (Cohen-Kettenis & van Goozen, 1997; Kuiper & Cohen-Kettenis, 1988). They were compared to a larger group of transsexuals who had transitioned later in adulthood in previous decades (Kuiper and Cohen-Kettenis 1988). Her former patients showed better psychological functioning and "more easily pass in the desired gender role" (Cohen-Kettenis & van Goozen, 1997, p. 270). One problem with the comparison is that they had transitioned in a more tolerant era. Another is the fact that they were still young; most had no sexual partner. Moreover they had not reached an age at which they might regret their inability to conceive children. (This group has not since been followed up.) Cohen-Kettenis' initiative was praised by Money: he singled out her contribution to a conference in London as "the bravest" (1998, p. xviii).

Cohen-Kettenis had two collaborators at Amsterdam. One was Henriette Delemarre-van de Waal, a pediatric endocrinologist. She had expertise using the new GnRHa drugs—developed in the 1980s—to treat precocious puberty and other conditions (e.g. Schroor et al. 1995). The other was Louis Gooren, a psychiatrist and endocrinologist who was installed as the world's first professor of transsexuality in 1989. His inaugural professorial lecture was addressed by Cohen-Kettenis and by Money, who flew over from Johns Hopkins University (Nederlands Tijdschrift voor Geneeskunde 1989). Like the pioneering generation who created transsexualism, Gooren saw gender dysphoria as an intersex condition: "there is a contradiction between the genetic, gonadal and genital sex on the one hand, and the brain sex on the other" and therefore "we must provide them with reassignment treatment which meets their needs" (Gooren, 1993, p. 238). This hypothesis was apparently vindicated when he coauthored an article in *Nature* showing that the volume of the central subdivision of the bed nucleus of the stria terminalis in six male-to-female transsexuals was closer to the volume found in females than in males (Zhou et al., 1995). "Unfortunately," as he recently acknowledged, "the research has never been replicated" (Gooren, 2021, p. 50; see also Kreukels & Burke, 2020).

GnRHa was introduced as a treatment for gender dysphoria in two articles. Gooren and Delemarre-van de Waal (1996) proposed the "Feasibility of Endocrine Interventions in Juvenile Transsexuals." More influential was a case study of the first "adolescent transsexual" treated with GnRHa (Cohen-Kettenis and van Goozen 1998). From the age of 5, FG "had made it very clear that I was supposed to be a boy" (FG, 2021, p. 131). It later transpired that FG was sexually attracted to women. FG's father, an Italian with traditional views on gender, disapproved of his daughter's masculinity, and serious conflict ensued. Extensive psychotherapy did not improve matters; FG wrote a suicide note at the age of 12. When FG was 13, Delemarre-van de Waal prescribed triptorelin.[2] Three years later, around 1990, FG came to the Utrecht gender clinic, and Cohen-Kettenis was impressed by FG's "boyish appearance" (Cohen-Kettenis, 2021, p. 115). The clinic provided therapy and introduced FG to other adolescent girls who identified as transsexual. (Whether FG was introduced to any adolescents who identified as lesbian is not recorded.) FG's puberty suppression continued until the age of 18, when testosterone commenced, followed by multiple surgeries: mastectomy, hysterectomy, oophorectomy, and

metaidoioplasty. Awaiting the last surgery at the age of 20, FG was "happy with his life" and "never felt any regrets"; gender dysphoria was apparently cured (Cohen-Kettenis & van Goozen, 1998, p. 247).

Puberty suppression remained exceptional for some years. By 2000, GnRHa had been administered to only 7 children under the age of 16 (Cohen-Kettenis et al., 2000). The new treatment regime was codified at VU Medical Center in Amsterdam, where Cohen-Kettenis was appointed professor of medical psychology in 2002, moving with her clinic. The "Dutch protocol" was published in an influential article in 2006, supported financially by Ferring Pharmaceuticals, the manufacturer of triptorelin (Delemarre-van de Waal & Cohen-Kettenis, 2006, p. S137). GnRHa could be administered to transsexuals as young as Tanner stage 2—marked by the first growth of pubic hair and for girls by budding breasts and for boys by growing testicles—as long as they had reached the age of 12. The adolescent would usually then begin "to live permanently in the role of their desired sex" (Delemarre-van de Waal & Cohen-Kettenis, 2006, p. S132). After some years of puberty suppression, the youth would start cross-sex hormones at the age of 16 and then surgeries at the age of 18. Eligibility criteria for puberty suppression appeared strict. First, gender dysphoria should have begun early in childhood, and dysphoria should have worsened with the onset of puberty. Second, the patient should be psychologically stable, and not suffer from other mental health problems. Third, the patient should have support from their family. As the protocol was formalized, the number of children undergoing puberty suppression increased markedly. Between 2000 and 2008, GnRHa was prescribed to 111 children, about one per month (de Vries et al., 2011). One of them was Valentijn de Hingh, the subject of a television documentary (Nietsch, 2007). After a teacher was disconcerted by the boy's passion for dolls, de Hingh at the age of 5 was diagnosed with gender dysphoria by Cohen-Kettenis (de Hingh, 2021). GnRHa was administered from the age of 12 in 2002.

The protocol as published was not always strictly followed by the clinicians. The minimum age of 12 for puberty suppression was not observed in every case (de Vries, 2010, p. 104). De Hingh had regular endocrinological checkups from the age of 10, presumably so that puberty suppression could commence as soon as Tanner stage 2 was reached. Likewise, cross-sex hormones sometimes started before the age of 16, as young as 13.9 years (de Vries et al., 2011, p. 2278). Family support was not essential, as the clinic administered GnRHa to a 14-year-old—who was institutionalized due to a physical handicap—against the parents' objections (Cohen-Kettenis and Pfäfflin 2003). A British television documentary from the mid-1990s provides a glimpse of actual practice (Morse, 1996). *The Wrong Body* took three English young people to Amsterdam and Utrecht, to see transgender medicine at its most advanced. Fredd Foley, aged 13, met Gooren to learn about puberty suppression; this was around the time it was proposed in the medical literature (Gooren and Delemarre-van de Waal 1996). After returning to England and being refused GnRHa by the London clinic, Foley's mother telephoned Gooren who agreed to write a three-month prescription of triptorelin. "If your child knows for sure he is transsexual," he said, "I would not let puberty happen." Gooren's willingness to prescribe drugs for a child in another country, met briefly in front of the cameras, against the wishes of the child's own psychiatrist, hints that the assessment process was not always as rigorous as portrayed in the published literature. As Cohen-Kettenis said in the documentary, "it's very difficult to give exact criteria, in some cases you have the feeling that the adolescent has thought about it and knows pretty well what she or he is doing."

The Dutch protocol scrutinized

The Dutch protocol comprised not just a drug (GnRHa) and a treatment regime (from age 12 or Tanner stage 2) but also two discursive claims. The first was reversibility. The initial article declared GnRHa to be "fully reversible; in other words, no lasting undesired effects are to be expected" (Gooren & Delemarre-van de Waal, 1996, p. 72). The phrasing hinted at the lack of actual evidence. Suppressing puberty for a short time, on the order of months, might be expected

to have a negligible effect on a child's development. Yet the Dutch protocol entailed suppression for up to four years (from age 12 to 16); for FG it lasted at least five years (from 13 to 18). It was implausible to claim that suppressing puberty for so many years would have no lasting effect if the child were to stop GnRHa and restart their natal sex hormones. On occasion this was acknowledged, as when Delemarre-van de Waal and Cohen-Kettenis' (2006, p. S137) manifesto stated that "It is not clear yet how pubertal suppression will influence brain development." Ten years later, however, Cohen-Kettenis still claimed that puberty suppression was "completely reversible" (Cohen-Kettenis, 2016; see also de Vries et al., 2016). The postulate of reversibility, however implausible, helped to avoid the question of whether a child aged 12 (or below) could give consent to this endocrinological experiment. HBIGDA's Standards of Care warned that cross-sex hormones "are not, or are not readily, reversible" (HBIGDA, 1985, p. 83). By pronouncing GnRHa to be reversible, the Dutch protocol demarcated a boundary between one endocrinological intervention and another.

The second claim was that puberty suppression was a diagnostic tool. The case study of FG described GnRHa as an "aid in diagnosis and treatment" (Cohen-Kettenis & van Goozen, 1998). This echoed the conception of cross-sex hormones as "both therapeutic and diagnostic in that the patient requesting such therapy either reports satisfaction or dissatisfaction regarding the results" (HBIGDA, 1985, p. 85). GnRHa was posited to provide space for therapeutic exploration of gender identity, without the pressure of the physical changes accompanying puberty (Delemarre-van de Waal & Cohen-Kettenis, 2006). This claim was plausible, though it was also plausible that stopping normal cognitive, emotional, and sexual development would impede such exploration. In the event, the Dutch clinicians found that the diagnostic test invariably yielded the same result: "none of the [54] patients who were selected for pubertal suppression has decided to stop taking GnRHa" (Delemarre-van de Waal & Cohen-Kettenis, 2006, p. S136). This might be explained by a rigorous selection process. An alternative explanation is that puberty suppression becomes a self-fulfilling prophecy. Subsequent experience in the Netherlands and in other countries confirms the fact that 96%–98% of children who undergo puberty suppression continue to cross-sex hormones (Brik et al., 2020; Carmichael et al., 2021; Wiepjes et al., 2018).

The framing of GnRHa as diagnostic circumvented a problem recognized in the earliest articles. "Not all children with GID [Gender Identity Disorder] will turn out to be transsexuals after puberty," acknowledged Cohen-Kettenis and Gooren (1999, p. 319). "Prospective studies of GID boys show that this phenomenon is more closely related to later homosexuality than to later transsexualism." They cited three longitudinal studies of feminine boys (Green, 1987; Money & Russo, 1979; Zuger, 1984).[3] The best known is Richard Green's attempt at "studying pretranssexuals" by selecting a group of "sissy boys" (Green, 1987, p. 12). After fifteen years, to his surprise, only one out of 44 was contemplating transsexuality, whereas two thirds had become bisexual or homosexual men. Given such studies, Cohen-Kettenis concluded that "most GID children under 12 will not grow up to become transsexuals" (Cohen-Kettenis & van Goozen, 1997, p. 246). These findings were downplayed in subsequent publications; the key manifestos for the Dutch protocol did not mention homosexuality and did not cite any study of feminine boys (Cohen-Kettenis et al., 2008; Delemarre-van de Waal & Cohen-Kettenis, 2006). The assertion that "GID persisting into early puberty appears to be highly persistent" rested on slender evidence (Cohen-Kettenis et al., 2008, p. 1895). The only relevant cited source described adolescents who had been first assessed at ages ranging from 13 to 18, a range extending well beyond early puberty (Smith et al., 2001). This source did not support the hypothesis that the probability of gender dysphoria persisting to adulthood jumped suddenly on the cusp of age 12, from under 50% to virtually 100%. What is known is that most adolescents subjected to puberty suppression were homosexual. Of the first 70 adolescents referred to the Amsterdam clinic from 2000 to 2008 and given GnRHa, 62 were homosexual while only 1 was heterosexual (de Vries et al., 2011).

The crucial advantage of puberty suppression was creating "individuals who more easily pass in to the opposite gender role" (Delemarre-van de Waal & Cohen-Kettenis, 2006, p. 155). The emphasis was on external appearance, especially height.[4] That word appears 23 times in

Delemarre-van de Waal's review of puberty suppression (Delemarre-van de Waal, 2014). There is one cursory reference to "loss of fertility." The words orgasm, libido, and sexuality do not appear. This is curious because it was well known that men taking GnRHa for prostate cancer experience complete loss of erotic interest (Marumo et al., 1999). The drug is therefore licensed to chemically castrate men with sexual obsessions. Gooren was an early advocate for this usage. He warned that the side effects "may be very uncomfortable" for men with paraphilias (Gijs & Gooren, 1996, p. 279); no such warning accompanied his recommendation of the same drug for adolescents experiencing gender dysphoria. The Dutch clinicians did not ask whether blocking the normal development of erotic desire would affect their patients' understanding of their own body and their interest in future sexual and romantic relationships.

One significant disadvantage of puberty suppression for males was not mentioned in the 2006 manifesto for the Dutch protocol, though it had been raised at a conference in the previous year (GIRES, 2005). Stopping sexual development meant the penis did not grow, and so "the genital tissue available for vaginoplasty may be less than optimal" (Cohen-Kettenis et al., 2008, p. 1895). This made it more likely that the orifice would need to be lined with a portion of the patient's intestine rather than the inverted penis (van de Grift et al., 2020). Out of 49 patients at Amsterdam who started GnRHa at Tanner stage 2 or 3, 71% required intestinal vaginoplasty (van der Sluis et al., 2021). This procedure is more invasive, requiring a second surgical site, and it entails greater risk of complications such as rectal fistula. Surgical techniques have been refined so that the "possible occurrence of intestinal discharge could be kept under control" (Bouman, 2021, p. 141), but one quarter of the patients need further corrective surgeries (Bouman et al., 2016).

International adoption of the Dutch protocol

The Dutch protocol immediately attracted interest in other countries. Cohen-Kettenis and Gooren were already prominent in the field of transgender medicine, exemplified by their election to the Board of Directors of HBIGDA (the former served two four-year terms from 1995 and 2003, while the latter served one term from 1999). Puberty suppression soon entered HBIGDA's Standards of Care in the Sixth Version, approved in 2001. It closely followed the Dutch protocol, but did not specify any minimum age. It was "recommended that the adolescent experience the onset of puberty in his or her biologic sex, at least to Tanner stage Two," while also allowing earlier intervention on the recommendation of more than one psychiatrist (HBIGDA, 2001, p. 10). Recall that the published evidence for the benefits of puberty suppression then comprised a single case study of one patient—FG—awaiting final surgery.

In the United States, adoption was led by Norman Spack, a pediatric endocrinologist. More than once he recalled "salivating" at the prospect of treating patients with GnRHa (Hartocollis 2015; Spack 2008, xi). In 2007 he cofounded the Gender Management Service at Boston Children's Hospital, which was the first dedicated clinic for transgender children in America. Its program was based on the Dutch model; the hospital sent a psychologist to Amsterdam to be trained by Cohen-Kettenis (Tishelman et al., 2015). From the outset the Boston clinic offered GnRHa at Tanner stage 2 or 3 with no minimum age (Spack et al. 2012). Spack joined Cohen-Kettenis, Gooren, and Delemarre-van de Waal on the Endocrine Society's committee tasked with writing their first clinical guidelines for "transsexual persons," which recommended GnRHa for children at Tanner stage 2 or 3 (Hembree et al., 2009). "There was an attitudinal shift to be able to say that the Endocrine Society supports this," he later recalled (Ruttimann, 2013, p. 19). The shift is visible in data from 43 children's hospitals on prescriptions of one GnRHa drug (histrelin acetate): it was never prescribed for gender dysphoria between 2004 and 2009 and was then prescribed to 92 patients from 2010 to 2016, most in the final years of the period (Lopez et al., 2018).

Oprah Winfrey Television broadcast the documentary *I Am Jazz: A Family in Transition* in 2011 (Stocks, 2011). Its dramatic structure was similar to *The Wrong Body*, focusing on the

looming threat of puberty as Jazz Jennings reached the age of 11. Jennings had been diagnosed with gender dysphoria at the age of 3 and had appeared on national television at the age of 7, when the family created the TransKids Purple Rainbow Foundation (Jennings & Jennings, 2016). The documentary showed the family consulting with a pediatric endocrinologist, who confirmed that Tanner stage 2 had been reached. The denouement was not shown, but Jenning's mother was clear: "you have to kinda nip puberty in the bud, you want to block it" (Stocks, 2011). Jennings did indeed commence puberty suppression some months later. The number of clinics for "gender-nonconforming children and adolescents" multiplied, and within a few years 32 of them advertised puberty blockers (Hsieh & Leininger, 2014).

England provides an example of adoption driven by patients rather than clinicians. *The Wrong Body* had promoted the Dutch approach to 3 million viewers (Nataf, 1999). Dissatisfaction at the cautious policy of the London clinic—still headed by its founder, Domenico Di Ceglie—became increasingly vocal. Sustained pressure came from the parents of children who identified as transgender, organized in the Gender Identity Research and Education Society (GIRES) and Mermaids. GIRES obtained funding from medical charities to organize an international symposium in London in 2005 to develop consensus guidelines for endocrinological intervention, which was attended by Cohen-Kettenis, Delemarre-van de Waal, and Spack. GIRES (2006) warned that "those who can in any way afford to do so have to consider taking their children to the USA." The first was Susie Green, later the chief executive of Mermaids. In 2007 she took her son Jackie, aged 12, to Boston to obtain GnRHa from Spack (Sloan, 2011). A presentation at Mermaids instructed parents in this medical tourism (Mermaids, 2007). Spack treated seven more British children over the next few years (Glass, 2012). The conflict between parents and clinicians climaxed in 2008, with two clashing conferences. The Royal Society of Medicine organized a meeting on adolescent gender dysphoria, which drew criticism for the lack of overseas speakers advocating for puberty blockers, even though it had invited Delemarre-van de Waal. The cofounder of GIRES, whose child had transitioned in their late teens two decades earlier, used the new epithet "transphobic" to describe the cautious clinicians (Groskop, 2008). Richard Green—the author of *Sissy Boys*, then in London as a visiting professor—quickly organized a rival conference to demand puberty suppression (Green, 2008). Speakers included the usual cast of clinicians, including Spack, and also patients and their parents, including two Dutch transgender adolescents. The demand for puberty suppression was becoming irresistible.

Di Ceglie was soon replaced as director of the London clinic (renamed the Gender Identity Development Service and located at the Tavistock and Portman NHS Foundation Trust) by Polly Carmichael, a clinical psychologist. The clinic in 2011 began to offer GnRHa from the age of 12, initially as part of an experimental study (Biggs, 2019b, 2019c). Before any outcomes were published, Carmichael declared success: "Now we've done the study and the results thus far have been positive we've decided to continue with it" (Manning and Adams, 2014). She even appeared on BBC Children's Television to promote puberty suppression, in a documentary about a 13-year-old girl who wanted to be a boy, Leo. Carmichael reassured Leo about GnRHa: "the good thing about it is, if you stop the injections, it's like pressing a start button and the body just carries on developing as it would if you hadn't taken the injection" (Niland, 2014). In 2015 the National Health Service adopted a policy of offering GnRHa for adolescents at Tanner stage 2, without age restriction (NHS England, 2015).

Evidence from the Amsterdam clinic

By the mid-2010s, then, the Dutch protocol was established as the standard for transgender medicine. It was apparently vindicated when longitudinal data was published on a cohort of 70 adolescents referred to the clinic between 2000 and 2008 and then subjected to puberty suppression. The lead author, Annelou de Vries, received her doctorate under the supervision of Cohen-Kettenis. Outcomes were initially measured as the patient was transitioning from GnRHa to cross-sex hormones, at ages ranging from 14 to 19. "Behavioral and emotional problems and

depressive symptoms decreased, while general functioning improved" (de Vries et al., 2011, p. 2276). Outcomes were subsequently measured soon after the patient's final surgery (vaginoplasty or mastectomy and hysterectomy with oophorectomy), at ages ranging from 19 to 22. The authors concluded that "gender dysphoria had resolved, psychological functioning had steadily improved, and well-being was comparable to same-age peers" (de Vries et al., 2014, p. 696).

When scrutinized, however, the evidence is less persuasive. The sample was small: final outcome measures were available for subsets of patients numbering between 32 and 55. The finding that gender dysphoria had resolved depended on the Utrecht Gender Dysphoria Scale and the Body Image Scale, which have separate questionnaires for each sex. The researchers switched versions over the course of the study (Levine et al., 2022). A boy who wanted to become a girl, for example, answered the male questionnaires at baseline before puberty suppression, and then the female versions following surgery—so would be rating agreement with the statement "I hate menstruating because it makes me feel like a girl" (C. Schneider et al., 2016) and satisfaction with "ovaries-uterus" (Lindgren & Pauly, 1975). The inclusion of such meaningless questions compromises the measurement of change in gender dysphoria. The results after surgery exclude eight patients who refused to participate in the follow-up or were ineligible for surgery, and one patient killed by necrotizing fasciitis during vaginoplasty. The authors did not mention the fact that this death was a consequence of puberty suppression: the patient's penis, prevented from developing normally, was too small for the regular vaginoplasty and so surgery was attempted with a portion of the intestine, which became infected (Negenborn et al., 2017). A fatality rate exceeding 1% would surely halt any other experimental treatment on healthy teenagers.

One inevitable limitation of the study was the measurement of results soon after surgery, which repeated the problem with the first study of adolescent transsexuals (Cohen-Kettenis & van Goozen, 1997). As Cohen-Kettenis notes, "a truly proper follow-up needs to span a minimum period of 20 years" (Cohen-Kettenis, 2021, pp. 117–118). A subsequent follow-up of this cohort is in preparation (Bazelon, 2022). The only long-term outcome published in the literature is that of the very first patient, FG, who was followed up again at the age of 35. FG did not regret transition, but scored high on the measure for depression. Owing to "shame about his genital appearance and his feelings of inadequacy in sexual matters," he could not sustain a romantic relationship with a girlfriend (Cohen-Kettenis et al., 2011, p. 845). Ironically, a "strong dislike of one's sexual anatomy" is one of the diagnostic criteria for gender dysphoria in children (according to *DSM*-5), and so in this respect it is not clear how the dysphoria had been resolved. The clinicians were more interested in FG's height, which they compared punctiliously to the Italian as well as the Dutch height distribution. Cohen-Kettenis concluded that "the negative side effects are limited" (Cohen-Kettenis et al., 2011, p. 843). Delemarre-van de Waal's (2014, p. 194) summary was even more optimistic: "He was functioning well psychologically, intellectually, and socially." Now aged 48, FG has given two recent interviews. FG's situation seems to have improved, and he now has a serious girlfriend. He describes puberty suppression as "life-saving" in his case (FG, 2021, p. 132) but also recommends that it should require a significant assessment process (Bazelon, 2022). In a recent interview, Valentijn de Hingh, who at the age of 31 now identifies as non-binary, emphasizes that "diagnosis and treatment at a young age were not wrong." At the same time, de Hingh wonders "wasn't that very young? To have been seeing a psychologist, having been examined and diagnosed from the age of five" (de Hingh, 2021, p. 182).

Replicating the Dutch results

An international study of puberty suppression—involving London and Boston as well as Amsterdam—was first mooted in 2005 (GIRES, 2005). The Boston clinic dropped out, but eventually an experiment along Dutch lines was begun in London in 2010. The entry criteria were "consistent with the protocol used at the Amsterdam Gender Clinic" (Viner et al., 2010, p. 6) and the outcome measures replicated those used by the Amsterdam longitudinal study (de

Vries et al., 2011, 2014). From 2011 to 2014, 44 adolescents aged from 12 to 15 years commenced puberty suppression. Outcomes for all subjects after two years on GnRHa were thus collected by 2016. Preliminary results were presented to the World Professional Association for Transgender Health (as HBIGDA had been renamed) in Amsterdam. In her keynote address, Carmichael observed that "our results have been different to the Dutch" (Carmichael, 2016). According to one presentation, adolescents after one year of GnRHa "report an increase in internalising problems and body dissatisfaction, especially natal girls" (Carmichael et al., 2016). Another presentation was also negative: "Expectations of improvement in functioning and relief of the dysphoria are not as extensive as anticipated, and psychometric indices do not always improve nor does the prevalence of measures of disturbance such as deliberate self harm improve" (Butler, 2016). These conference papers were not published as articles, following the typical fate of medical experiments that fail to produce positive results (Johnson & Dickersin, 2007).

Instead, the London clinic published an article claiming that "adolescents receiving also puberty suppression had significantly better psychosocial functioning after 12 months of GnRHa … compared with when they had received only psychological support" (Costa et al., 2015, p. 2206). The group subjected to puberty suppression were aged between 13 and 17, and must have included some of the 44 experimental subjects. This group comprised 101 adolescents at the outset, diminishing to 35 after twelve months. This high rate of attrition was not explained in the article. Anyway, the data showed no statistically significant difference between the group given GnRHa and counseling and the group given only counseling (Biggs, 2019a).

The full outcomes from the experiment were published following a protracted campaign involving publicity in newspapers and television (e.g. Tominey & Walsh, 2019), complaints to the ethics committee which approved the research (Health Research Authority, 2019), a Parliamentary question (Blackwood of North Oxford, 2019), and a judicial review (Keira Bell and Mrs A v Tavistock NHS Trust, 2020). Out of the 44 subjects in the experiment, all but one transitioned to cross-sex hormones. Outcomes were taken after 12 months of puberty suppression for all patients, and after 24 months for the subset waiting to reach the age of 16 when they could start cross-sex hormones. The headline finding was that "GnRHa treatment brought no measurable benefit nor harm to psychological function in these young people," and gender dysphoria likewise did not improve (Carmichael et al., 2021, p. 20). This is all the more surprising because a placebo response would be expected in patients who had volunteered to pioneer this intervention in Britain (Kirsch, 2019). There was no disaggregation by sex, which is unfortunate because outcomes were evidently worse for natal girls than for boys (Biggs, 2020; Carmichael et al., 2016).

The researchers did not compare their findings to the outcomes from the Amsterdam clinic after puberty suppression (de Vries et al., 2011). Comparison is undertaken here, using available data on two question batteries.[5] The Youth Self-Report (YSR) enables the adolescent to describe their problems, while the Child Behavior Checklist (CBCL) provides a parent's assessment. YSR and CBCL each yield three *T*-scores: one for Internalizing Problems like anxiety; one for Externalizing Problems like anger; and a Total Problem score, combining these two along with other problems such as social isolation (Achenbach & Rescorla, 2001). *T*-scores are normalized relative to reference scores (for males and for females aged 12–18), with a mean of 50 and standard deviation of 10. The Amsterdam clinic reported these measures for 54 subjects, compared to 41 for the London clinic. The two samples were similar at the outset of puberty suppression: the mean age at Amsterdam was 14.8, the median at London was 13.6; females comprised 53% of the Amsterdam sample, 43% of the London one. Figure 1 depicts the mean scores at baseline before the commencement of puberty suppression, along with the 95% confidence interval. There was no discernible difference between the Amsterdam and London samples in any component of CBCL or YSR. At the Amsterdam clinic, the subjects completed the questionnaires again when they transitioned to cross-sex hormones, after a mean of 1.9 years. At the London clinic, the questionnaires were completed at 12-month intervals, and so I take the latest available before the end of puberty suppression; the mean duration is 1.4 years. Figure 2

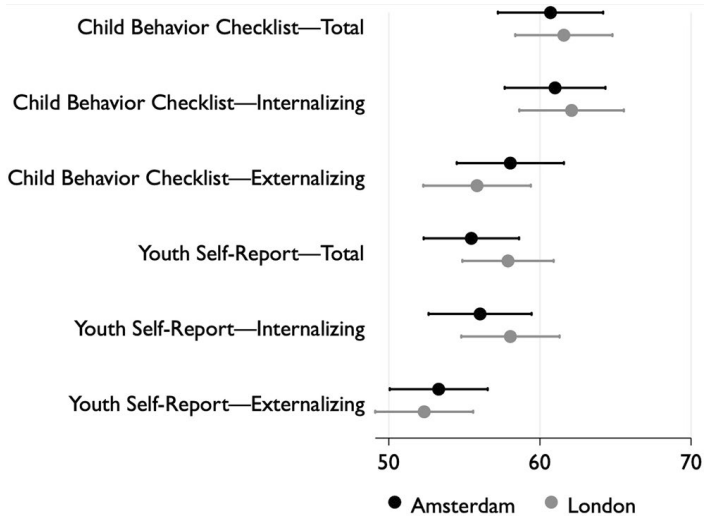

Figure 1. Psychological functioning before puberty suppression with GnRHa. The circle shows the mean *T*-score at baseline. The line traces the 95% confidence interval. *N* = 54 at Amsterdam, 41 at London. Data from de Vries et al. (2011, Table 2) and Carmichael et al. (2021).

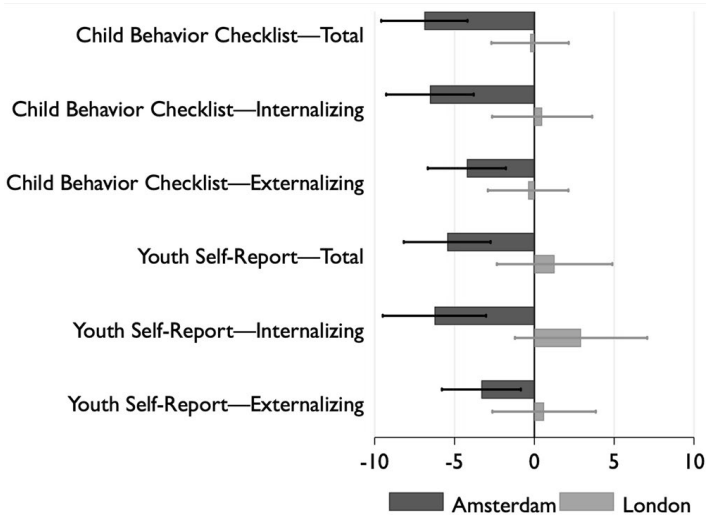

Figure 2. Change in psychological functioning after puberty suppression with GnRHa. The bar shows the change in *T*-score from baseline; negative values indicate reduced problems. The line traces the 95% confidence interval. *N* = 54 at Amsterdam, 41 at London. Data reported from de Vries et al. (2011, Table 2) and Carmichael et al. (2021).

shows how the scores changed since baseline. The Amsterdam sample improved—fewer problems were reported by the subjects and their parents—on all six measures (p = .000004 … .003). The London sample, by contrast, experienced no discernible change (p = .16 … .82). With one exception (YSR Externalizing Problems), the differences between the change in Amsterdam and the change in London are statistically significant (p = .0006 … .03, assuming equal variance).

The London clinic's failure to replicate the positive results found by the Amsterdam clinic after puberty suppression demonstrates that the Dutch results cannot be extrapolated to other countries. The reason for the failure to replicate could perhaps lie in the quality of care offered by the clinics or in the characteristics of their patients. Although the two samples had indistinguishable baseline scores on YSR and CBCL, on another measure of psychological functioning—the Children's Global Assessment Scale (CGAS), which is scored by the clinician—the adolescents attending the London clinic were significantly worse at the outset. This fits the general pattern in adolescents referred to European gender clinics: those at Amsterdam have fewer psychological problems and better peer relationships than those at London (de Graaf et al., 2018). The failure

to replicate could simply exemplify a general phenomenon in medicine (and science generally): a large effect found in a nonrandomized study with a small sample usually either declines in magnitude or disappears altogether in subsequent studies (e.g. Ioannidis, 2005). Given the London clinic's failure to find favorable results after puberty suppression, it has no incentive to follow up the 43 subjects who transitioned to cross-sex hormones and potential surgery. It loses track of all its patients after the age of 18, blaming "the frequent change in nominal and legal identity, including NHS number in those referred on to adult services" (Butler et al., 2018, p. 635).

One other clinic has published a comparable longitudinal study of puberty suppression. The Hamburg Gender Identity Service followed 11 adolescents who were administered GnRHa for an average of one year, but such a tiny sample provides insufficient statistical power for any conclusions (Becker-Hebly et al., 2021). Three American studies of puberty suppression have been published: from Stony Brook (Achille et al., 2020), Dallas (Kuper et al., 2020), and Seattle (Tordoff et al., 2022).[6] None tried to replicate the Amsterdam and London longitudinal studies, choosing completely different measures, with one exception (BIS is used by Kuper et al., 2020). Each introduced a different set of measures: Quick Inventory of Depressive Symptoms, Screen for Child Anxiety Related Emotional Disorders, Center for Epidemiologic Studies Depression Scale, Quality of Life Enjoyment and Satisfaction Questionnaire, Generalized Anxiety Disorder 7-item scale, and the Patient Health Questionnaire 9-item scale. The last scale was common to two studies, but even they were not comparable: one used the version for teenagers, the other the adult version which the researchers chose to dichotomize. All the samples were tiny: 19, 23 (including an unspecified number of males given anti-androgens and females given medroxyprogesterone rather than GnRHa), and 25. Results were reported inconsistently: sometimes the outcomes for the sample subjected to puberty suppression were combined with a much larger sample on cross-sex hormones; sometimes the parameters of complex multivariate models were reported while the within-subject change during puberty suppression was concealed (Singal, 2022). Finally, some results were vitiated by high—and unexplained—rates of attrition: 47% of the subjects in one study were excluded because they failed to fill in the questionnaires at three points in time (Achille et al., 2020). What is frustrating is that if these researchers had simply followed the methods of de Vries et al. (2011), these three small samples would have contributed to cumulative knowledge. Finally, a large-scale American study recruited 90 subjects for puberty suppression—from Boston, Chicago, Los Angeles, and San Francisco—between 2016 and 2018 (Olson-Kennedy et al., 2019). Outcomes after 24 months have evidently been collected, but only baseline results have been published (Chen et al., 2021).

Evidence on side effects

On the side effects of puberty suppression, there is most evidence on bone density. That GnRHa would cause "an insufficient formation of bone mass" was initially dismissed "of no great concern" (Gooren & Delemarre-van de Waal, 1996, p. 72). Then it was recognized that patients could "end with a decreased bone density, which is associated with a high risk of osteoporosis" (Delemarre-van de Waal & Cohen-Kettenis, 2006, p. S134). The detrimental effect of GnRHa on the accrual of normal bone mass has been documented in several longitudinal studies from the Amsterdam clinic (Klink et al., 2015; Schagen et al., 2020; Stoffers et al., 2019; Vlot et al., 2017), the London clinic (Biggs, 2021; Joseph et al., 2019), and a clinic in Ottawa (Navabi et al., 2021). Less obviously, adolescents who seek GnRHa for gender dysphoria have a lower distribution of bone density compared to the population of the same sex and age (see also Lee et al., 2020). This reflects in part the high prevalence of eating disorders.

Bone mineral density (BMD) is measured by a dual energy X-ray absorptiometry scan over the spine and the hip. The absolute value of BMD is standardized as a *Z*-score, expressing this individual's BMD relative to the population of the same sex and age. BMD can be adjusted for height to derive the volumetric bone mineral apparent density (BMAD), which is likewise standardized as a *Z*-score. A *Z*-score below −2 is considered low; it indicates bone density in the

lowest 2.3% of the population. The salience of this threshold is revealed by the London clinic's protocol which required both spine and hip *Z*-scores to exceed −2 to be eligible for GnRHa (Viner et al., 2010). This was subsequently relaxed "in exceptional circumstances" if clinicians "feel that on the balance of risks, pubertal suppression is an appropriate option despite risks of osteoporosis in later adult life" and patients "understand the risks of GnRH analogue treatment for bone density (i.e. risks of later osteoporosis)" (Viner et al., 2012).

Most studies of bone density after puberty suppression summarize the distribution of *Z*-scores by mean and standard deviation; only two provide information on the lower tail of the distribution, which is what matters clinically. At the Amsterdam clinic, 56 transgender adolescents were treated with GnRHa, commencing at ages ranging from 11 to 18, for an average duration of 1.7 years. After puberty suppression, the minimum *Z*-score for spine BMAD was −2.4, and the minimum hip BMAD was −3.4 (Vlot et al., 2017). Normally we would expect to find a *Z*-score below −3 in only 0.13% of the population—1 in 741. At the London clinic, 24 adolescents were treated with GnRHa, commencing at ages ranging from 12 to 14, for a duration of 24 months. After puberty suppression, the hip BMD *Z*-score was below −2 for 7 patients. The spine BMD *Z*-score was below −2 for 7 patients, including 4 patients with *Z*-score below −3; the spine BMAD *Z*-score was below −2 for 8 patients, including 3 with *Z*-score below −3 (Biggs, 2021). Clearly, then, a significant minority of patients have abnormally low bone density after puberty suppression. The subsequent administration of cross-sex hormones increases bone mass, but *Z*-scores remain below the baseline recorded at the outset of puberty suppression (Klink et al., 2015; Stoffers et al., 2019; Vlot et al., 2017), with the possible exception of females who take testosterone after starting GnRHa early in puberty (Schagen et al., 2020).

What is not clear is the consequence of abnormally low bone density. Information on fractures, for example, has been published only for adults taking cross-sex hormones who had not undergone puberty suppression (Wiepjes et al., 2020). Anecdotally, a female patient at the London clinic who started GnRHa at age 12 then experienced four broken bones by the age of 16 (Bannerman, 2019). A Swedish television documentary discovered one female who was given GnRHa from age 11 to 15 by the Karolinska University Hospital in Stockholm, and now suffers from severe osteoporosis, including continual skeletal pain (SVT, 2022). This case—along with two others whose puberty suppression was terminated following concerns about bone density—led Sweden to restrict the use of GnRHa for adolescents with gender dysphoria.

The effects of puberty suppression on emotional and cognitive development are more difficult to ascertain, but more consequential as they could potentially affect the capacity to consent to cross-sex hormones and surgery. One case report of puberty suppression commencing just before age of 12 measured a drop in IQ by 10 points after 28 months (M. A. Schneider et al., 2017). A single case is insubstantial, of course, but there are similar findings from children treated with GnRHa for precocious puberty. A study of 25 children measured a drop of 7 points after two years (Mul et al., 2007); another study found a gap of 8 points between 15 treated children and a matched control group (Hayes, 2017; Wojniusz et al., 2016). Unfortunately the Amsterdam clinic's longitudinal study of puberty suppression measured IQ only at baseline and did not measure it again (de Vries et al., 2011, 2014). A small study from the clinic found that 8 adolescent males undergoing puberty suppression performed worse in a test of executive functioning than three control groups; the differences are statistically significant, but the samples are small (Staphorsius et al., 2015). Randomized control trials of non-human animals provide evidence of the substantial effects of puberty suppression. In sheep, GnRHa impairs spatial memory, and this effect remains after the treatment is stopped—thus demonstrating the irreversibility of puberty suppression (Hough et al. 2017a; 2017b). Counterintuitively, GnRHa also leads to greater differences between males and females in foraging behavior (Wojniusz et al., 2011). In mice, the effects of GnRHa vary by sex: males develop stronger preference for other males and an increased stress response; females exhibit increased anxiety and despair-like behavior (Anacker et al., 2021).

Even less is known about the effects of puberty suppression on sexual functioning. Jennings, who started on GnRHa at the age of 11, has no libido and cannot orgasm. Jennings' surgeon,

Marci Bowers, who has performed over 2,000 vaginoplasties, acknowledges that "every single child … who was truly blocked at Tanner stage 2, has never experienced orgasm. I mean, it's really about zero" (Bowers, 2022). This remark refers to males. The effects of puberty suppression at such an early stage on females is unknown. FG is reportedly able to orgasm (de Vries et al., 2011). One patient at the London clinic who took GnRHa from the age of 12 to 16 but did not continue to cross-sex hormones has experienced no sexual desire in the two years since ceasing GnRHa (Bannerman, 2022). According to de Vries, orgasm is "a very interesting and so far not studied question" (Klotz, 2022).

Conclusion

The use of GnRHa to suppress puberty has proved more popular than could have been envisaged in the mid-1990s. It has become the international standard for treating gender dysphoria and has attracted increasing numbers of patients. Down to 2015, the Amsterdam clinic administered GnRHa to a total of 333 youth aged under the age of 18 (Wiepjes et al., 2018). From 2012 to 2020, the London clinic administered GnRHa to 344 children under the age of 15. Both clinics were overwhelmed by referrals from the mid-2010s, and the lengthening waiting lists provided scope for unscrupulous commercial operations. GenderGP, for example, is a company registered in Singapore and owned by a Welsh doctor which will diagnose a 9-year-old with gender dysphoria over video and prescribe GnRHa on the same day (Medical Practitioners Tribunal Service, 2022). The total number of patients subjected to puberty suppression, worldwide, must run to several thousand. The proponents of GnRHa never reassessed the rationale for the intervention as the numbers multiplied. It is one thing to assert that very rare cases of extreme gender dysphoria—one per year in the Netherlands in the late 1990s—should be treated as juvenile transsexuals. It is another to make this claim for numerous adolescents—currently over a hundred a year in the Netherlands. Given the fact that gender dysphoria lacks an objective diagnosis, the potential for puberty suppression is expansive. When a recent survey in one American school district found 7% of students identifying as "gender diverse," the authors urged that all receive "access to gender affirming care," which in effect means giving GnRHa on request (Kidd et al., 2021, p. 3).[7]

Whether the availability of puberty suppression has increased demand is a question that should be raised. Taking GnRHa early in puberty promises a more passable resemblance to the opposite sex, and this is why it proved so fascinating to television audiences. It is no coincidence that media coverage of transgender youth focuses on those who suppressed puberty at a young age, most famously Jennings. Positive media coverage is known to increase referrals to gender clinics, at least over the short term (Indremo et al., 2022; Pang, de Graaf, et al., 2020). Although Dutch clinicians advise against "a complete social transition … before the very early stages of puberty" (de Vries & Cohen-Kettenis, 2012, pp. 308–309), the availability of GnRHa now makes it feasible for parents to treat a young child as the opposite sex, which guarantees that the child will experience the onset of puberty as catastrophic and thus demand endocrinological intervention. For boys, social transition prior to puberty is a powerful predictor of gender dysphoria persisting into adolescence, even controlling for the degree of dysphoria in childhood (Steensma et al., 2013). This pathway is illustrated by interviews with 30 British parents who had started raising their children as the opposite sex between the ages of 3 and 10. According to one parent, "If you don't give a child puberty-blockers there is a consequence—it's not that nothing happens. There's a massive consequence" (Horton, 2022, p. 13). Another candidly described their child's attitude to counseling at the gender clinic: "at the end of the day, he's just gonna say whatever it is, that makes you shut up, so that he can get the blocker" (Horton, 2022, p. 14).

What has happened to the majority of children with gender dysphoria who used to grow up into gay or lesbian adults? The original articles promoting GnRHa (Cohen-Kettenis & van Goozen, 1998; Gooren & Delemarre-van de Waal, 1996) hypothesized that children whose dysphoria persisted to the age of 12 were destined to become transsexual. This arbitrary age threshold

was soon forgotten. Outside the Netherlands, GnRHa was adopted with no minimum age, and has been prescribed to children as young as 8 years old.[8] Delemarre-van de Waal eventually advocated for GnRHa to be administered before Tanner stage 2, "right at the onset of puberty," followed quickly by cross-sex hormones (Delemarre-van de Waal, 2014, p. 202). And of course the transsexual pathway now begins long before puberty, with social transition and psychological diagnosis. As de Hingh observes, "a diagnosis says you've got a problem that needs to be treated … The medical process, with pills and protocols, takes over the normal process of identification formation" (de Hingh, 2021, pp. 182–183). Clinicians need to explain how they are sure that some of the adolescents being prescribed GnRHa would not have grown into gay or lesbian adults, with their sexuality and fertility intact.

The article that introduced puberty suppression to the medical literature was accurately titled: this endocrinological intervention is designed for juvenile transsexuals (Gooren & Delemarre-van de Waal, 1996). This fact should not be obscured by claiming that puberty suppression is reversible and diagnostic. It is not diagnostic because over 95% of adolescents given GnRHa will continue to cross-sex hormones, and this fraction has not declined even as the number of youths subjected to GnRHa has multiplied by two orders of magnitude. The claim for reversibility was contradicted from the outset by the unknown effect of puberty suppression on brain development. Irreversibility has now been demonstrated by randomized control trials in non-human animals. The central justification for puberty suppression was that it increases outward resemblance to the opposite sex and requires less surgical intervention. Paradoxically, however, early puberty suppression for males will most likely make subsequent genital surgery more risky—this is what killed one of the initial Dutch cohort—with worse results.

Evidence for the benefits of puberty suppression must be acknowledged as slender. Decisions made by clinicians have prevented the collection of robust evidence. The Dutch proponents of GnRHa chose not to conduct a randomized control trial, giving two reasons (de Vries et al., 2011). Firstly, adolescents would have refused to participate, which does not make sense unless they could have obtained GnRHa from another source. Secondly, it would have been unethical to withhold GnRHa from the control group, because the clinicians believed the treatment to be beneficial—this rationale is circular because discovering whether a treatment is truly beneficial requires a randomized control trial. A lesson can be drawn from the use of GnRHa to pause precocious puberty. This was supposed to mitigate short stature, as was apparently shown by small uncontrolled studies (Hayes, 2016), but this effect was called into question by a randomized control trial (Cassio et al., 1999). When the London clinic designed a study to replicate the findings from Amsterdam, the same reasons for avoiding a randomized control study were repeated, along with an argument that subjects would soon realize whether they were receiving treatment or placebo (Viner et al., 2010). Yet this had been no impediment to the trial for children with early puberty.

The decision to rely on uncontrolled studies was exacerbated by other decisions. The Dutch clinicians chose incommensurable scales to measure gender dysphoria, which calls into question their finding that dysphoria declined following cross-sex hormones and surgery. Worse still, American clinicians eschewed the measures of psychological functioning used by the Amsterdam and London clinics (YSR, CBCL, and CGAS), thus ensuring that their tiny samples could not contribute to cumulative knowledge. One final point to remember in evaluating published studies is that the field of transgender medicine is subject to the same publication bias as every other field: unsuccessful results will not be published. This bias is illustrated by the London clinic's attempt to replicate the Amsterdam clinic's findings: the lack of improvement on GnRHa appeared in print only after the clinic was taken to the High Court of Justice for England and Wales.

While the use of GnRHa to suppress puberty helped to create the juvenile transsexual, it could now be creating another "new way of being a person" (Wren, 2020): a sexless adult. This follows from the premise that natal puberty can be a kind of disease, and therefore failure to prevent an "irreversible development of secondary sex characteristics … may be considered unethical" (de Vries et al., 2011, p. 2282). Although the Dutch protocol envisages GnRHa as a

preparatory phase before cross-sex hormones—imagined as undergoing puberty of the opposite sex—the logical conclusion is that hormones of either sex can be treated as vectors of disease. An Australian girl, Phoenix, was socially transitioned into a nonbinary identity at the age of 5 and took GnRHa from age 11. Reaching the age of 16, Phoenix refused to take testosterone because "remaining in an androgynous, peripubertal state is the only way their body can truly reflect their non-binary gender identity" (Notini et al., 2020, p. 743). The clinicians agreed to provide perpetual puberty suppression, despite the known deleterious physical effects—most obviously on bone density—and despite the unknown effects on emotional and cognitive development—which would affect Phoenix's capacity to consent. Phoenix is not the only individual seeking indefinite puberty suppression (Pang, Notini, et al., 2020). Such cases are still exceptional. But cases like FG also used to be exceptional.

Notes

1. The literature sometimes refers to GnRH (or LHRH) analogues, which is a broader classification comprising antagonists as well as agonists.
2. The pediatric endocrinologist was not named in the original article, but her identity is clear from later sources (e.g. Delemarre-van de Waal, 2014). FG is known as "B" in the published literature.
3. Bailey and Zucker (1995) had by then reviewed four additional prospective studies in the same vein as well as numerous retrospective ones. Later prospective studies demonstrated that girls who manifested cross-gender behavior as infants were also more likely to grow up as lesbian, though the association was weaker than for boys (e.g. Li et al., 2017).
4. Pediatric endocrinology's obsession with height has motivated the use of artificial estrogen to accelerate puberty in girls judged as too tall (Cohen & Cosgrove, 2009) and the use of GnRHa to delay puberty in girls judged as too short (Hayes, 2016).
5. A previous comparison (Biggs, 2020) included only 30 subjects from the London clinic and measured outcomes after 12 months. The Stata do-file is posted on Harvard dataverse at https://doi.org/10.7910/DVN/QPRCR1.
6. De Vries (2022) also cites a study from Kansas City (Allen et al., 2019) which includes an unknown number of children subjected to GnRHa before cross-sex hormones, but it took no baseline measure before puberty suppression.
7. The authors calculate the "gender diverse" proportion as 9% because they omit students who skipped the question (Kidd et al., 2021). It is more plausible to include the latter in the denominator, which yields 7%.
8. The London clinic referred a 7-year-old for endocrinological intervention, but it is not known whether GnRHa was actually prescribed before she turned 8 (Butler et al., 2022).

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References

Achenbach, T. M., & Rescorla, L. (2001). *Manual for the ASEBA school-age forms and profiles: An integrated system of multi-informant assessment*. Burlington, VT: ASEBA.

Achille, C., Taggart, T., Eaton, N. R., Osipoff, J., Tafuri, K., Lane, A., & Wilson, T. A. (2020). Longitudinal impact of gender-affirming endocrine intervention on the mental health and well-being of transgender youths: Preliminary results. *International Journal of Pediatric Endocrinology*, *2020*(8). doi:10.1186/s13633-020-00078-2

Allen, L. R., Watson, L. B., Egan, A. M., & Moser, C. N. (2019). Well-being and suicidality among transgender youth after gender-affirming hormones. *Clinical Practice in Pediatric Psychology*, *7*, 302–311. doi:10.1037/cpp0000288

Anacker, C., Sydnor, E., Chen, B. K., LaGamma, C. C., McGowan, J. C., Mastrodonato, A., … Denny, C. A. (2021). Behavioral and neurobiological effects of GnRH agonist treatment in mice: Potential implications for puberty suppression in transgender individuals. *Neuropsychopharmacology*, *46*, 882–890. doi:10.1038/s41386-020-00826-1

Bailey, J. M., & Zucker, K. J. (1995). Childhood sex-typed behavior and sexual orientation: A conceptual analysis and quantitative review. *Developmental Psychology*, *31*, 43–55. doi:10.1037/0012-1649.31.1.43

Bannerman, L. (2019, July 26). Puberty blocking drugs: 'For the past four years I've been stuck as a child'. *Times*. https://www.thetimes.co.uk/article/transgender-children-puberty-blocking-drugs-for-the-past-four-years-i-ve-been-stuck-as-a-child-5s6tkh7z2

Bannerman, L. (2022, June 17). 'My puberty was chemically delayed: I was their guinea pig'. *Times*. https://www.thetimes.co.uk/article/my-adolescence-was-chemically-delayed-i-was-their-guinea-pig-bbs3w00ph

Bazelon, E. (2022, June 15). The battle over gender therapy. *New York Times*. https://www.nytimes.com/2022/06/15/magazine/gender-therapy.html

Becker-Hebly, I., Fahrenkrug, S., Campion, F., Richter-Appelt, H., Schulte-Markwort, M., & Barkmann, C. (2021). Psychosocial health in adolescents and young adults with gender dysphoria before and after gender-affirming medical interventions: A descriptive study from the Hamburg Gender Identity Service. *European Child & Adolescent Psychiatry*, *30*, 1755–1767. doi:10.1007/s00787-020-01640-2

Biggs, M. (2019a). A letter to the editor regarding the original article by Costa et al: Psychological support, puberty suppression, and psychosocial functioning in adolescents with gender dysphoria. *Journal of Sexual Medicine*, *16*, 2043. doi:10.1016/j.jsxm.2019.09.002

Biggs, M. (2019b). Britain's experiment with puberty blockers. In M. Moore & H. Brunskell-Evans (Eds.), *Inventing Transgender Children and Young People* (pp. 40–55). UK: Cambridge Scholars Publishing.

Biggs, M. (2019c). *The Tavistock's experiment with puberty blockers*. http://users.ox.ac.uk/~sfos0060/Biggs_ExperimentPubertyBlockers.pdf

Biggs, M. (2020). Gender dysphoria and psychological functioning in adolescents treated with GnRHa: Comparing Dutch and English prospective studies. *Archives of Sexual Behavior*, *49*, 2231–2236. doi:10.1007/s10508-020-01764-1

Biggs, M. (2021). Revisiting the effect of GnRH analogue treatment on bone mineral density in young adolescents with gender dysphoria. *Journal of Pediatric Endocrinology and Metabolism*, *34*, 937–939. doi:10.1515/jpem-2021-0180

Blackwood of North Oxford, B. (2019). *Answer to written question HL15681 asked by Lord Lucas*. UK: House of Lords.

Bouman, M.-B. (2021). Interview. In A. Bakker (Ed.), *The Dutch approach: Fifty years of transgender health care at the VU Amsterdam gender clinic* (pp. 141–146). Los Angeles, CA: Boom.

Bouman, M.-B., van der Sluis, W. B., Buncamper, M. E., Özer, M., Mullender, M. G., & Meijerink, W. J. H. J. (2016). Primary total laparoscopic sigmoid vaginoplasty in transgender women with penoscrotal hypoplasia: A prospective cohort study of surgical outcomes and follow-up of 42 patients. *Plastic and Reconstructive Surgery*, *138*, 614e–623e. doi:10.1097/PRS.0000000000002549

Bowers, M. (2022, March 21). Teen transitions. In *Trans and Gender Diverse Policies, Care, Practices, and Wellbeing Symposium*, Duke University. https://www.facebook.com/dukesgmhealth/videos/704267637246585/

Bradley, S. J., & Zucker, K. J. (1990). Gender identity disorder and psychosexual problems in children and adolescents. *Canadian Journal of Psychiatry*, *35*, 477–486. doi:10.1177/070674379003500603

Brik, T., Vrouenraets, L. J. J. J., de Vries, M. C., & Hannema, S. E. (2020). Trajectories of adolescents treated with gonadotropin-releasing hormone analogues for gender dysphoria. *Archives of Sexual Behavior*, *49*, 2611–2618. 10.1007/s10508-020-01660-8

Butler, G. (2016, June 19). *How effective is puberty suspension with GnRH analogues*. World Professional Association for Transgender Health. http://wpath2016.conferencespot.org/62620-wpathv2-1.3138789/t001-1.3140111/f001-1.3140333/0706-000441-1.3140337

Butler, G., Adu-Gyamfi, K., Clarkson, K., El Khairi, R., Kleczewski, S., Roberts, A., … Carmichael, P. (2022). Discharge outcome analysis of 1089 transgender young people referred to paediatric endocrine clinics in England 2008–2021. *Archives of Disease in Childhood*. doi:10.1136/archdischild-2022-324302

Butler, G., De Graaf, N., Wren, B., & Carmichael, P. (2018). Assessment and support of children and adolescents with gender dysphoria. *Archives of Disease in Childhood*, *103*, 631–636. 10.1136/archdischild-2018-314992

Byng, R., Bewley, S., Clifford, D., & McCartney, M. (2018). Gender-questioning children deserve better science. *Lancet*, *392*(10163), 2435. doi:10.1016/S0140-6736(18)32223-2

Carmichael, P. (2016, June 18). *Time to reflect: Gender dysphoria in children and adolescents, defining best practice in a fast changing context*. World Professional Association for Transgender Health. http://av-media.vu.nl/VUMedia/Play/581e58c338984dafb455c72c56c0bfa31d?catalog=2d190891-4e3f-4936-a4fa-2e9766ae0d0d

Carmichael, P., Butler, G., Masic, U., Cole, T. J., De Stavola, B. L., Davidson, S., Skageberg, E. M., Khadr, S., & Viner, R. (2021). Short-term outcomes of pubertal suppression in a selected cohort of 12 to 15 year old young people with persistent gender dysphoria in the UK. *PLoS One*, *16*, e0243894. 10.1371/journal.pone.0243894

Carmichael, P., Phillott, S., Dunsford, M., Taylor, A., & de Graaf, N. (2016, June 19). *Gender dysphoria in younger children: Support and care in an evolving context*. World Professional Association for Transgender Health. http://wpath2016.conferencespot.org/62620-wpathv2-1.3138789/t001-1.3140111/f009a-1.3140266/0706-000523-1.3140268

Cassio, A., Cacciari, E., Balsamo, A., Bal, M., & Tassinari, D. (1999). Randomised trial of LHRH analogue treatment on final height in girls with onset of puberty aged 7.5–8.5 years. *Archives of Disease in Childhood*, *81*, 329–332. 10.1136/adc.81.4.329

Chen, D., Abrams, M., Clark, L., Ehrensaft, D., Tishelman, A. C., Chan, Y.-M., … Hidalgo, M. A. (2021). Psychosocial characteristics of transgender youth seeking gender-affirming medical treatment: Baseline findings from the Trans Youth Care study. *Journal of Adolescent Health*, *68*, 1104–1111. doi:10.1016/j.jadohealth.2020.07.033

Cohen, S., & Cosgrove, C. (2009). *Normal at any cost: Tall girls, short boys, and the medical industry's quest to manipulate height*. New York, NY: Penguin Publishing Group.

Cohen-Kettenis, P. (2021). Interview. In A. Bakker (Ed.), *The Dutch approach: Fifty years of transgender health care at the VU Amsterdam gender clinic* (pp. 112–118). Los Angeles, CA: Boom.

Cohen-Kettenis, P., van Goozen, S. H. M., & Cohen, L. (1998). Transsexualism during adolescence. In D. Di Ceglie & D. Freedman (Eds.), *A stranger in my own body: Atypical gender identity development and mental health* (pp. 118–125). London: Karnac Books.

Cohen-Kettenis, P. T. (1994). Die Behandlung von Kindern und Jugendlichen mit Geschlechtsidentitätsstörungen an der Universität Utrecht. *Zeitschrift für Sexualforschung*, *7*, 231–239.

Cohen-Kettenis, P. T. (2016, November 25). *Lessons Learned in 10+ Years of Experience Using Puberty Blockers at VUMC Amsterdam*. 10 ans de la Fondation Agnodice, Lausanne. https://vimeo.com/241880094/46dd8a76af

Cohen-Kettenis, P. T., Delemarre-van de Waal, H. A., & Gooren, L. J. G. (2008). The treatment of adolescent transsexuals: Changing insights. *Journal of Sexual Medicine*, *5*, 1892–1897. doi:10.1111/j.1743-6109.2008.00870.x

Cohen-Kettenis, P. T., Dillen, C. M., & Gooren, L. J. (2000). De behandeling van jonge transseksuelen in Nederland. *Nederlands Tijdschrift voor Geneeskunde*, *144*, 698–702.

Cohen-Kettenis, P. T., & Gooren, L. J. G. (1999). Transsexualism: A review of etiology, diagnosis and treatment. *Journal of Psychosomatic Research*, *46*, 315–333.

Cohen-Kettenis, P. T., & Pfäfflin, F. (2003). *Transgenderism and intersexuality in childhood and adolescence: Making choices*. Thousand Oaks, CA: Sage.

Cohen-Kettenis, P. T., Schagen, S. E. E., Steensma, T. D., de Vries, A. L. C., & Delemarre-van de Waal, H. A. (2011). Puberty suppression in a gender-dysphoric adolescent: A 22-year follow-up. *Archives of Sexual Behavior*, *40*, 843–847. doi:10.1007/s10508-011-9758-9

Cohen-Kettenis, P. T., & van Goozen, S. H. M. (1997). Sex reassignment of adolescent transsexuals: A follow-up study. *Journal of the American Academy of Child and Adolescent Psychiatry*, *36*, 263–271. doi:10.1097/00004583-199702000-00017

Cohen-Kettenis, P. T., & van Goozen, S. H. M. (1998). Pubertal delay as an aid in diagnosis and treatment of a transsexual adolescent. *European Child and Adolescent Psychiatry*, *7*, 246–248. doi:10.1007/s007870050073

Costa, R., Dunsford, M., Skagerberg, E., Holt, V., Carmichael, P., & Colizzi, M. (2015). Psychological support, puberty suppression, and psychosocial functioning in adolescents with gender dysphoria. *Journal of Sexual Medicine*, *12*, 2206–2214. doi:10.1111/jsm.13034

de Graaf, N. M., Cohen-Kettenis, P. T., Carmichael, P., de Vries, A. L. C., Dhondt, K., Laridaen, J., Pauli, D., Ball, J., & Steensma, T. D. (2018). Psychological functioning in adolescents referred to specialist gender identity clinics across Europe: A clinical comparison study between four clinics. *European Child and Adolescent Psychiatry*, *27*, 909–919. doi:10.1007/s00787-017-1098-4

de Hingh, V. (2021). Interview. In A. Bakker (Ed.), *The Dutch approach: Fifty years of transgender health care at the VU Amsterdam gender clinic* (pp. 112–118). Los Angeles, CA: Boom.

de Vries, A. L. C. (2010). *Gender dysphoria in adolescents: Mental health and treatment evaluation* (PhD Thesis), Vrije Universiteit, Amsterdam. https://research.vu.nl/en/publications/gender-dysphoria-in-adolescents-mental-health-and-treatment-evalu

de Vries, A. L. C. (2022). Ensuring care for transgender people who need it: Response to 'reconsidering informed consent for trans-identified children, adolescents and young adults'. *Journal of Sex and Marital Therapy*. doi:10.1080/0092623X.2022.2084479

de Vries, A. L. C., & Cohen-Kettenis, P. T. (2012). Clinical management of gender dysphoria in children and adolescents: The Dutch approach. *Journal of Homosexuality*, *59*, 301–320. doi:10.1080/00918369.2012.653300

de Vries, A. L. C., Klink, D., & Cohen-Kettenis, P. T. (2016). What the primary care pediatrician needs to know about gender incongruence and gender dysphoria in children and adolescents. *Pediatric Clinics of North America*, *63*, 1121–1135. 10.1016/j.pcl.2016.07.011

de Vries, A. L. C., McGuire, J. K., Steensma, T. D., Wagenaar, E. C. F., Doreleijers, T. A. H., & Cohen-Kettenis, P. T. (2014). Young adult psychological outcome after puberty suppression and gender reassignment. *Pediatrics*, *134*, 696–704. doi:10.1542/peds.2013-2958

de Vries, A. L. C., Steensma, T. D., Doreleijers, T. A. H., & Cohen-Kettenis, P. T. (2011). Puberty suppression in adolescents with gender identity disorder: A prospective follow-up study. *Journal of Sexual Medicine*, *8*, 2276–2283. doi:10.1111/j.1743-6109.2010.01943.x

Delemarre-van de Waal, H. A. (2014). Early medical intervention in adolescents with gender dysphoria. In B. P. C. Kreukels, T. D. Steensma, & A. L. C. de Vries (Eds.), *Gender dysphoria and disorders of sex development* (pp. 193–203). Berlin: Springer.

Delemarre-van de Waal, H. A., & Cohen-Kettenis, P. T. (2006). Clinical management of gender identity disorder in adolescents: A protocol on psychological and paediatric endocrinology aspects. *European Journal of Endocrinology*, *155*(suppl_1), S131–S137. doi:10.1530/eje.1.02231

Di Ceglie, D. (2018). The use of metaphors in understanding atypical gender identity development and its psychosocial impact. *Journal of Child Psychotherapy*, *44*, 5–28. doi:10.1080/0075417X.2018.1443151

Everaerd, W., Swaab, H., Gooren, L., Megens, J., & van Trotsenburg, M. (2014). Preface. In B. P. C. Kreukels, T. D. Steensma, & A. L. C. De Vries (Eds.), *Gender dysphoria and disorders of sex development: Progress in care and knowledge* (pp. vii–xxi). Berlin: Springer.

FG. (2021). Interview. In A. Bakker (Ed.), *The Dutch approach: Fifty years of transgender health care at the VU Amsterdam gender clinic* (pp. 131–132). Los Angeles, CA: Boom.
Gender Identity Research and Education Society. (2005). *Consensus Report on Symposium in May 2005*. https://www.gires.org.uk/consensus-report-on-symposium-in-may-2005/
Gender Identity Research and Education Society. (2006). *Final Report to the Nuffield Foundation*. https://www.gires.org.uk/gires-final-report-to-the-nuffield-foundation/
Gijs, L., & Gooren, L. (1996). Hormonal and psychopharmacological interventions in the treatment of paraphilias: An update. *Journal of Sex Research*, *33*, 273–290. doi:10.1080/00224499609551845
Gill-Peterson, J. (2018). *Histories of the transgender child*. Minneapolis, MN: University of Minnesota Press.
Glass, K. (2012, January 22). A boy's own story. *Sunday Times*. https://www.thetimes.co.uk/article/a-boys-own-story-2wpctfb6pxt
Gooren, L. J. G. (1993). Closing speech. In Transsexualism, medicine and law: Proceedings of the 23rd Colloquy on European Law (pp. 233–238). Council of Europe Publishing.
Gooren, L. (2021). Interview. In A. Bakker (Ed.), *The Dutch approach: Fifty years of transgender health care at the VU Amsterdam gender clinic*. Los Angeles, CA: Boom.
Gooren, L., & Delemarre-van de Waal, H. (1996). The feasibility of endocrine interventions in juvenile transsexuals. *Journal of Psychology and Human Sexuality*, *8*, 69–74. doi:10.1300/J056v08n04_05
Green, R. (1968). Childhood cross-gender identification. *Journal of Nervous and Mental Disease*, *147*, 500–509. doi:10.1097/00005053-196811000-00006
Green, R. (1987). *The sissy boy syndrome: The development of homosexuality*. London: Yale University Press.
Green, R. (2008, Autumn). A Tale of Two Conferences. *GT News*, 73.
Groskop, V. (2008, August 14). 'My body is wrong'. *Guardian*. https://www.theguardian.com/society/2008/aug/14/children.youngpeople
Harry Benjamin International Gender Dysphoria Association. (1985). Standards of care: The hormonal and surgical sex reassignment of gender dysphoric persons. *Archives of Sexual Behavior*, *14*, 79–90. doi:10.1007/BF01541354
Harry Benjamin International Gender Dysphoria Association. (2001). *Standards of Care for Gender Identity Disorders, Sixth Version*. http://www.genderpsychology.org/transsexual/hbsoc_1990.html
Hartocollis, A. (2015, June 17). The new girl in school: Transgender surgery at 18. *New York Times*. https://www.nytimes.com/2015/06/17/nyregion/transgender-minors-gender-reassignment-surgery.html
Hausman, B. L. (1995). *Changing sex: Transsexuality, technology and the idea of gender*. Durham, NC: Duke University Press.
Hayes, P. (2016). Early puberty, medicalisation and the ideology of normality. *Women's Studies International Forum*, *56*, 9–18. doi:10.1016/j.wsif.2016.01.003
Hayes, P. (2017). Commentary: Cognitive, emotional, and psychosocial functioning of girls treated with pharmacological puberty blockage for idiopathic central precocious puberty. *Frontiers in Psychology*, *8*. doi:10.3389/fpsyg.2017.00044
Health Research Authority. (2019, October 14). *Investigation into the study 'Early pubertal suppression in a carefully selected group of adolescents with gender identity disorders'*. https://www.hra.nhs.uk/about-us/governance/feedback-raising-concerns/investigation-study-early-pubertal-suppression-carefully-selected-group-adolescents-gender-identity-disorders/
Hembree, W. C., Cohen-Kettenis, P., Delemarre-van de Waal, H. A., Gooren, L. J., Meyer, W. J., Spack, N. P., Tangpricha, V., & Montori, V. M. (2009). Endocrine treatment of transsexual persons: An Endocrine Society clinical practice guideline. *Journal of Clinical Endocrinology and Metabolism*, *94*, 3132–3154. doi:10.1210/jc.2009-0345
Horton, C. (2022). "I didn't want him to disappear": Parental decision-making on access to puberty blockers for trans early adolescents. *Journal of Early Adolescence*. doi:10.1177/02724316221107076
Hough, D., Bellingham, M., Haraldsen, I. R. H., McLaughlin, M., Rennie, M., Robinson, J. E., Solbakk, A. K., & Evans, N. P. (2017). Spatial memory is impaired by peripubertal GnRH agonist treatment and testosterone replacement in sheep. *Psychoneuroendocrinology*, *75*, 173–182. doi:10.1016/j.psyneuen.2016.10.016
Hough, D., Bellingham, M., Haraldsen, I. R., McLaughlin, M., Robinson, J. E., Solbakk, A. K., & Evans, N. P. (2017). A reduction in long-term spatial memory persists after discontinuation of peripubertal GnRH agonist treatment in sheep. *Psychoneuroendocrinology*, *77*, 1–8. doi:10.1016/j.psyneuen.2016.11.029
Hsieh, S., & Leininger, J. (2014). Resource list: Clinical care programs for gender-nonconforming children and adolescents. *Pediatric Annals*, *43*, 238–244. 10.3928/00904481-20140522-11
Indremo, M., Jodensvi, A. C., Arinell, H., Isaksson, J., & Papadopoulos, F. C. (2022). Association of media coverage on transgender health with referrals to child and adolescent gender identity clinics in Sweden. *JAMA Network Open*, *5*, e2146531. doi:10.1001/jamanetworkopen.2021.46531
Ioannidis, J. P. A. (2005). Contradicted and initially stronger effects in highly cited clinical research. *Journal of the American Medical Association*, *294*, 218–228. doi:10.1001/jama.294.2.218
Jennings, J., & Jennings, J. (2016). Trans teen shares her story. *Pediatrics in Review*, *37*, 99–100. 10.1542/pir.2016-002
Johnson, R. T., & Dickersin, K. (2007). Publication bias against negative results from clinical trials: Three of the seven deadly sins. *Nature Clinical Practice Neurology*, *3*, 590–591. doi:10.1038/ncpneuro0618

Joseph, T., Ting, J., & Butler, G. (2019). The effect of GnRH analogue treatment on bone mineral density in young adolescents with gender dysphoria: Findings from a large national cohort. *Journal of Pediatric Endocrinology and Metabolism*, *32*, 1077–1081. doi:10.1515/jpem-2019-0046

Keira Bell and Mrs A v Tavistock NHS Trust (2020). Her Majesty's High Court of Justice in England. Case [2020] EWHC 3274 (Admin).

Kidd, K. M., Sequeira, G. M., Douglas, C., Paglisotti, T., Inwards-Breland, D. J., Miller, E., & Coulter, R. W. S. (2021). Prevalence of gender-diverse youth in an urban school district. *Pediatrics*, *147*, e2020049823. doi:10.1542/peds.2020-049823

Kirsch, I. (2019). Placebo effect in the treatment of depression and anxiety. *Frontiers in Psychiatry*, *10*, article 407. 10.3389/fpsyt.2019.00407

Klink, D., Caris, M., Heijboer, A., van Trotsenburg, M., & Rotteveel, J. (2015). Bone mass in young adulthood following gonadotropin-releasing hormone analog treatment and cross-sex hormone treatment in adolescents with gender dysphoria. *Journal of Clinical Endocrinology and Metabolism*, *100*, E270–E275. 10.1210/jc.2014-2439

Klotz, F. (2022, April 6). The fractious evolution of pediatric transgender medicine. *Undark Magazine*. https://undark.org/2022/04/06/the-evolution-of-pediatric-transgender-medicine/

Kreukels, B. P. C., & Burke, S. M. (2020). Neurobiology of pediatric gender identity. In M. Forcier, G. Van Schalkwyk, & J. L. Turban (Eds.), *Pediatric gender identity* (pp. 47–62). Berlin: Springer International Publishing. doi:10.1007/978-3-030-38909-3_4

Kuiper, B., & Cohen-Kettenis, P. (1988). Sex reassignment surgery: A study of 141 Dutch transsexuals. *Archives of Sexual Behavior*, *17*, 439–457.

Kuper, L. E., Stewart, S., Preston, S., Lau, M., & Lopez, X. (2020). Body dissatisfaction and mental health outcomes of youth on gender-affirming hormone therapy. *Pediatrics*, *145*, e20193006. doi:10.1542/peds.2019-3006

Laidlaw, M. K., Van Meter, Q. L., Hruz, P. W., Van Mol, A., & Malone, W. J. (2019). Letter to the editor: "Endocrine treatment of gender-dysphoric/gender-incongruent persons: An Endocrine Society clinical practice guideline". *Journal of Clinical Endocrinology and Metabolism*, *104*, 686–687. 10.1210/jc.2018-01925

Lee, J. Y., Finlayson, C., Olson-Kennedy, J., Garofalo, R., Chan, Y.-M., Glidden, D. V., & Rosenthal, S. M. (2020). Low bone mineral density in early pubertal transgender/gender diverse youth: Findings from the Trans Youth Care Study. *Journal of the Endocrine Society*, *4*, bvaa065. doi:10.1210/jendso/bvaa065

Levine, S. B., Abbruzzese, E., & Mason, J. M. (2022). Reconsidering informed consent for trans-identified children, adolescents, and young adults. *Journal of Sex and Marital Therapy*. doi:10.1080/0092623X.2022.2046221

Li, G., Kung, K. T. F., & Hines, M. (2017). Childhood gender-typed behavior and adolescent sexual orientation: A longitudinal population-based study. *Developmental Psychology*, *53*, 764–777. doi:10.1037/dev0000281

Lindgren, T. W., & Pauly, I. B. (1975). A body image scale for evaluating transsexuals. *Archives of Sexual Behavior*, *4*, 639–656. doi:10.1007/BF01544272

Lopez, C. M., Solomon, D., Boulware, S. D., & Christison-Lagay, E. R. (2018). Trends in the use of puberty blockers among transgender children in the United States. *Journal of Pediatric Endocrinology and Metabolism*, *31*, 665–670. doi:10.1515/jpem-2018-0048

Manning, S., & Adams, S. (2014, May 17). NHS to give sex change drugs to nine-year-olds. *Mail on Sunday.* https://www.dailymail.co.uk/news/article-2631472/NHS-sex-change-drugs-nine-year-olds-Clinic-accused-playing-God-treatment-stops-puberty.html

Marumo, K., Baba, S., & Murai, M. (1999). Erectile function and nocturnal penile tumescence in patients with prostate cancer undergoing luteinizing hormone-releasing hormone agonist therapy. *International Journal of Urology*, *6*, 19–23. doi:10.1046/j.1442-2042.1999.06128.x

Medical Practitioners Tribunal Service. (2022). *Record of Determinations: Dr Michael Webberley (2620107)*. https://www.mpts-uk.org/-/media/mpts-rod-files/dr-michael-webberley-25-may-22.pdf

Mermaids. (2007). Obtaining help from the Children's Hospital Boston. In Mermaids *Annual Meeting*. http://www.gires.org.uk/wp-content/uploads/2014/08/mermaids-presentation.ppt

Money, J. (1994). The Concept of gender identity disorder in childhood and adolescence after 39 years. *Journal of Sex and Marital Therapy*, *20*, 163–177. doi:10.1080/00926239408403428

Money, J. (1998). Foreword. In D. Di Ceglie & D. Freedman (Eds.), *A stranger in my own body: Atypical gender identity development and mental health* (pp. xvii–xviii). London: Karnac Books.

Money, J., & Russo, A. J. (1979). Homosexual outcome of discordant gender identity/role in childhood: Longitudinal follow-up. *Journal of Pediatric Psychology*, *4*, 29–41. doi:10.1093/jpepsy/4.1.29

Morse, O. (Director). (1996). The wrong body. In *The Decision*. London: Windfall Films (Channel 4).

Mul, D., Versluis-den Bieman, H., Slijper, F., Oostdijk, W., Waelkens, J., & Drop, S. (2007). Psychological assessments before and after treatment of early puberty in adopted children. *Acta Paediatrica*, *90*, 965–971. doi:10.1111/j.1651-2227.2001.tb01349.x

Nataf, Z. (1999). *Interview*. https://rainbowreeltokyo.com/99/English/interview/zacharynataf.html

Navabi, B., Tang, K., Khatchadourian, K., & Lawson, M. L. (2021). Pubertal suppression, bone mass, and body composition in youth with gender dysphoria. *Pediatrics*, *148*, e2020039339. doi:10.1542/peds.2020-039339

Nederlands Tijdschrift voor Geneeskunde. (1989). Transseksualiteit. *Nederlands Tijdschrift voor Geneeskunde*, *133*, 1475.

Negenborn, V. L., van der Sluis, W. B., Meijerink, W. J. H. J., & Bouman, M.-B. (2017). Lethal necrotizing cellulitis caused by ESBL-producing E. coli after laparoscopic intestinal vaginoplasty. *Journal of Pediatric and Adolescent Gynecology*, *30*, e19–e21. doi:10.1016/j.jpag.2016.09.005

NHS England. (2015). *NHS standard contract for Gender Identity Development Service for children and adolescents*.

Nietsch, H. (Director). (2007). *Valentijn*. Amsterdam: VARA.

Niland, P. (Director). (2014). I Am Leo. In *My Life*. London: CBBC.

Notini, L., Earp, B. D., Gillam, L., McDougall, R. J., Savulescu, J., Telfer, M., & Pang, K. C. (2020). Forever young? The ethics of ongoing puberty suppression for non-binary adults. *Journal of Medical Ethics*, *46*, 743–752. doi:10.1136/medethics-2019-106012

Olson-Kennedy, J., Chan, Y.-M., Garofalo, R., Spack, N., Chen, D., Clark, L., … Rosenthal, S. (2019). Impact of early medical treatment for transgender youth: Protocol for the longitudinal, observational Trans Youth Care Study. *JMIR Research Protocols*, *8*, e14434. doi:10.2196/14434

Pang, K. C., de Graaf, N. M., Chew, D., Hoq, M., Keith, D. R., Carmichael, P., & Steensma, T. D. (2020). Association of media coverage of transgender and gender diverse issues with rates of referral of transgender children and adolescents to specialist gender clinics in the UK and Australia. *JAMA Network Open*, *3*, e2011161. doi:10.1001/jamanetworkopen.2020.11161

Pang, K. C., Notini, L., McDougall, R., Gillam, L., Savulescu, J., Wilkinson, D., … Lantos, J. D. (2020). Long-term puberty suppression for a nonbinary teenager. *Pediatrics*, *145*, e20191606. doi:10.1542/peds.2019-1606

Petersen, M. E., & Dickey, R. (1995). Surgical sex reassignment: A comparative survey of International centers. *Archives of Sexual Behavior*, *24*, 135–156. doi:10.1007/BF01541578

Ruttimann, J. (2013, January). Blocking puberty in transgender youth. *Endocrine News*, 16–20.

Schagen, S. E. E., Wouters, F. M., Cohen-Kettenis, P. T., Gooren, L. J., & Hannema, S. E. (2020). Bone development in transgender adolescents treated with GnRH analogues and subsequent gender-affirming hormones. *Journal of Clinical Endocrinology and Metabolism*, *105*, e4252–e4263. doi:10.1210/clinem/dgaa604

Schneider, C., Cerwenka, S., Nieder, T. O., Briken, P., Cohen-Kettenis, P. T., De Cuypere, G., … Richter-Appelt, H. (2016). Measuring gender dysphoria: A multicenter examination and comparison of the Utrecht gender dysphoria scale and the gender identity/gender dysphoria questionnaire for adolescents and adults. *Archives of Sexual Behavior*, *45*, 551–558. doi:10.1007/s10508-016-0702-x

Schneider, M. A., Spritzer, P. M., Soll, B. M. B., Fontanari, A. M. V., Carneiro, M., Tovar-Moll, F., … Lobato, M. I. R. (2017). Brain maturation, cognition and voice pattern in a gender dysphoria case under pubertal suppression. *Frontiers in Human Neuroscience*, *11*, article 528. doi:10.3389/fnhum.2017.00528

Schroor, E. J., Van Weissenbruch, M. M., & Delemarre-van de Waal, H. A. (1995). Long-term GnRH-agonist treatment does not postpone central development of the GnRH pule generator in girls with idiopathic precocious puberty. *Journal of Clinical Endocrinology and Metabolism*, *80*, 1696–1701. doi:10.1210/jcem.80.5.7745021

Singal, J. (2022, April 6). Researchers found puberty blockers and hormones didn't improve trans kids' mental health at their clinic, then they published a study claiming the opposite. *Singal-Minded*. https://jessesingal.substack.com/p/researchers-found-puberty-blockers

Sloan, J. (2011, October 19). I had sex swap op on my 16th birthday. *Sun*. https://www.thesun.co.uk/fabulous/851138/i-had-sex-swap-op-on-my-16th-birthday/

Smith, Y. L. S., van Goozen, S. H. M., & Cohen-Kettenis, P. T. (2001). Adolescents with gender identity disorder who were accepted or rejected for sex reassignment surgery: A prospective follow-up study. *Journal of the American Academy of Child and Adolescent Psychiatry*, *40*, 472–481. doi:10.1097/00004583-200104000-00017

Spack, N. (2008). Foreword. In S. A. Brill & R. Pepper, *The transgender child: A handbook for families and professionals* (pp. ix–xi). Jersey City, NJ: Cleis Press.

Spack, N. P., Edwards-Leeper, L., Feldman, H. A., Leibowitz, S., Mandel, F., Diamond, D. A., & Vance, S. R. (2012). Children and adolescents with gender identity disorder referred to a pediatric medical center. *Pediatrics*, *129*, 418–425. doi:10.1542/peds.2011-0907

Staphorsius, A. S., Kreukels, B. P. C., Cohen-Kettenis, P. T., Veltman, D. J., Burke, S. M., Schagen, S. E. E., … Bakker, J. (2015). Puberty suppression and executive functioning: An fMRI-study in adolescents with gender dysphoria. *Psychoneuroendocrinology*, *56*, 190–199. doi:10.1016/j.psyneuen.2015.03.007

Steensma, T. D., McGuire, J. K., Kreukels, B. P. C., Beekman, A. J., & Cohen-Kettenis, P. T. (2013). Factors associated with desistence and persistence of childhood gender dysphoria: A quantitative follow-up study. *Journal of the American Academy of Child and Adolescent Psychiatry*, *52*, 582–590. doi:10.1016/j.jaac.2013.03.016

Stocks, J. (Director). (2011). *I am Jazz: A family in transition*. Los Angeles, CA: Oprah Winfrey Network.

Stoffers, I. E., de Vries, M. C., & Hannema, S. E. (2019). Physical changes, laboratory parameters, and bone mineral density during testosterone treatment in adolescents with gender dysphoria. *Journal of Sexual Medicine*, *16*, 1459–1468. 10.1016/j.jsxm.2019.06.014

SVT. (2022, February 23). *Uppdrag granskning avslöjar: Flera barn har fått skador i transvården*. SVT Nyheter. https://www.svt.se/nyheter/granskning/ug/uppdrag-granskning-avslojar-flera-barn-har-fatt-skador-i-transvarden

Tishelman, A. C., Kaufman, R., Edwards-Leeper, L., Mandel, F. H., Shumer, D. E., & Spack, N. P. (2015). Serving transgender youth: Challenges, dilemmas, and clinical examples. *Professional Psychology: Research and Practice*, *46*, 37–45. doi:10.1037/a0037490

Tominey, C., & Walsh, J. (2019, March 7). NHS transgender clinic accused of covering up negative impacts of puberty blockers on children by Oxford professor. *Telegraph*. https://www.telegraph.co.uk/news/2019/03/07/nhs-transgender-clinic-accused-covering-negative-impacts-puberty/

Tordoff, D. M., Wanta, J. W., Collin, A., Stepney, C., Inwards-Breland, D. J., & Ahrens, K. (2022). Mental health outcomes in transgender and nonbinary youths receiving gender-affirming care. *JAMA Network Open*, *5*, e220978. 10.1001/jamanetworkopen.2022.0978

van de Grift, T. C., van Gelder, Z. J., Mullender, M. G., Steensma, T. D., de Vries, A. L. C., & Bouman, M.-B. (2020). Timing of puberty suppression and surgical options for transgender youth. *Pediatrics*, *146*, e20193653. doi:10.1542/peds.2019-3653

van der Sluis, W. B., de Nie, I., Steensma, T. D., van Mello, N. M., Lissenberg-Witte, B. I., & Bouman, M.-B. (2021). Surgical and demographic trends in genital gender-affirming surgery in transgender women: 40 years of experience in Amsterdam. *British Journal of Surgery*, *109*, 8–11. doi:10.1093/bjs/znab213

Viner, R., Carmichael, P., Ceglie, D. D., Butler, G., Brain, C., Holt, V., …Skagerberg, E. (2010). *An evaluation of early pubertal suppression in a carefully selected group of adolescents with gender identity disorder (v1.0).*

Viner, R., Carmichael, P., Ceglie, D. D., Butler, G., Brain, C., Holt, V., …Skagerberg, E. (2012). *An evaluation of early pubertal suppression in a carefully selected group of adolescents with gender identity disorder (v1.2).*

Vlot, M. C., Klink, D. T., den Heijer, M., Blankenstein, M. A., Rotteveel, J., & Heijboer, A. C. (2017). Effect of pubertal suppression and cross-sex hormone therapy on bone turnover markers and bone mineral apparent density (BMAD) in transgender adolescents. *Bone*, *95*, 11–19. doi:10.1016/j.bone.2016.11.008

Wiepjes, C. M., Blok, C. J., Staphorsius, A. S., Nota, N. M., Vlot, M. C., Jongh, R. T., & Heijer, M. (2020). Fracture risk in trans women and trans men using long-term gender-affirming hormonal treatment: A nationwide cohort study. *Journal of Bone and Mineral Research*, *35*, 64–70. doi:10.1002/jbmr.3862

Wiepjes, C. M., Nota, N. M., de Blok, C. J. M., Klaver, M., de Vries, A. L. C., Wensing-Kruger, S. A., …den Heijer, M. (2018). The Amsterdam cohort of gender dysphoria study (1972–2015): Trends in prevalence, treatment, and regrets. *Journal of Sexual Medicine*, *15*, 582–590. doi:10.1016/j.jsxm.2018.01.016

Wojniusz, S., Callens, N., Sütterlin, S., Andersson, S., De Schepper, J., Gies, I., …Haraldsen, I. R. (2016). Cognitive, emotional, and psychosocial functioning of girls treated with pharmacological puberty blockage for idiopathic central precocious puberty. *Frontiers in Psychology*, *7*, article 1053. doi:10.3389/fpsyg.2016.01053

Wojniusz, S., Vögele, C., Ropstad, E., Evans, N., Robinson, J., Sütterlin, S., …Haraldsen, I. R. H. (2011). Prepubertal gonadotropin-releasing hormone analog leads to exaggerated behavioral and emotional sex differences in sheep. *Hormones and Behavior*, *59*, 22–27. doi:10.1016/j.yhbeh.2010.09.010

Wren, B. (2020). New way of being a person? *Journal of Medical Ethics*, *46*, 755–756. 10.1136/medethics-2020-106584

Zhou, J.-N., Hofman, M. A., Gooren, L. J. G., & Swaab, D. F. (1995). A sex difference in the human brain and its relation to transsexuality. *Nature*, *378*(6552), 68–70. doi:10.1038/378068a0

Zucker, K. J. (2010). The DSM diagnostic criteria for gender identity disorder in children. *Archives of Sexual Behavior*, *39*, 477–498. doi:10.1007/s10508-009-9540-4

Zuger, B. (1984). Early effeminate behavior in boys: Outcome and significance for homosexuality. *Journal of Nervous and Mental Disease*, *172*, 90–97. doi:10.1097/00005053-198402000-00005

UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF FLORIDA

CASE NO.: 4:22-cv-00325-RH-MAF

AUGUST DEKKER, et al.,

Plaintiff(s),

-vs-

JASON WEIDA, et al.,

Defendant(s).
_____/

ZOOM

DATE: Tuesday, March 21, 2023
TIME: 10:02 a.m. - 3:44 p.m.

*****PORTIONS OF TRANSCRIPT MARKED CONFIDENTIAL*****

DEPOSITION OF MICHAEL BIGGS, PH.D.

Taken on behalf of the PLAINTIFFS before Jennifer L. Bush, RPR, FPR, FPR-C, Notary Public in and for the State of Florida at Large, pursuant to Notice of Taking Deposition in the above cause.

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I N D E X

THE WITNESS:				
MICHAEL BIGGS, PH.D.				
	DIRECT	CROSS	REDIRECT	RECROSS
BY MS. ALTMAN	4		237	
BY MR. BEATO		236		

	Page
CERTIFICATE OF NOTARY PUBLIC	239
ERRATA SHEET	240
CERTIFICATE OF OATH OF WITNESS	241
CERTIFICATE OF REPORTER	242
READ LETTER	243

PLAINTIFFS' EXHIBITS

Exhibit	Description	Page
Exhibit 1	Notice of Deposition	22
Exhibit 2	Report	23

WHEREUPON,

MICHAEL BIGGS, PH.D.,

called as a witness on behalf of the PLAINTIFFS, after having been first duly sworn, was examined and testified as follows:

THE WITNESS: I do.

DIRECT EXAMINATION

BY MS. ALTMAN.

Q. All right. Well, good afternoon, sir. I know for us it's morning but for you it is afternoon. Can you hear me okay?

A. I can, yes.

Q. So I tend to have a loud voice. If for any reason you think I'm yelling at you, I want to warn you in advance I'm not. I do tend to have a loud voice, and I am using the computer audio. So just keep that in mind.

Also keep in mind that if you can't hear me or the questions break up, certainly ask me or tell me what the electronic situation is and I'm happy to try and nullify it.

So I'm going to take your deposition today. My name is Jennifer Altman. I'm with the law firm of Pillsbury Winthrop Shaw Pittman. Have you had your deposition taken before?

A. No, I haven't.

Q. So let me give you a few of the ground rules that we're going to hopefully live by today. I'm going to ask you questions and you are going to answer them. I'm not trying to trick you. So that means if you don't understand a question, simply ask me to rephrase it. I'm happy to do so.

If you don't hear a question, simply tell me you didn't hear it and I'm happy to repeat it for you. If you answer a question, I'm going to assume that you understood the question, is that fair?

A. Yep.

Q. So you just hit on without -- unintentionally one of the garden-variety rules of depos. You can't shake your head no or shake your head yes. The wonderful court reporter on my screen over to the right can't take down nods or head shaking. You need to answer out loud audibly.

That means if it's a yes, it's a yes. If it's a no, it's a no. Uh-huh is not an answer because that could be yes or no. So please always answer the question out loud for the court reporter's benefit.

Also for the court reporter 's benefit, who is going to be working really hard today to make sure the transcript is accurate, you may be able to predict the

question that I'm going to ask you, or you may feel it incumbent upon you to start answering a question because you want to either clarify something or bring something up.

For the court reporter's benefit, you always need to wait until I've completed my question fully, take a pause because Michael may want to object, put an objection on the record, and then answer the question. That way we'll have a clean record for the Court. Does that make sense to you?

A. Yes.

Q. Okay. You are nodding a lot. But make sure you say yes or no.

A. Yes.

Q. If you need to take a break, I'm happy to accommodate you. I can't do so when there is a question pending, so keep that in mind in terms of timing any breaks that you think you'll need. Does that make sense?

A. Yes.

Q. And, sir, have you ever been -- have you ever been charged with or convicted for any crime of malfeasance, fraud, any kind of misstatements?

A. No.

Q. And are you taking any drugs today that would impact your ability to fully and robustly answer

the questions that I'm about to ask you?

A. No.

Q. All right. So let's get started. So are you a medical doctor?

A. No.

Q. Have you gone to medical school?

A. No.

Q. Have you had any medical training whatsoever?

A. No.

Q. Have you ever treated anyone with gender dysphoria?

A. No.

Q. Have you ever prescribed treatment for anyone with gender dysphoria?

A. No.

Q. Do you perform medical research relating to gender dysphoria?

A. Yes.

Q. What medical research do you perform relating to gender dysphoria, sir?

A. One example would be getting data -- getting data on the suicide rate of transgender adolescence at the London clinic.

MS. ALTMAN: Someone needs to mute their

phone, please. Thank you.

BY MS. ALTMAN:

Q. Getting data on suicide rates, and I didn't hear the rest of it, sir.

A. Suicide rates of children attending their pediatric clinic, gender clinic in London, called the Tavistock, and publishing that research.

Q. Okay. So you didn't conduct the research, did you, sir?

A. Yes, I conducted the research. I submitted freedom of information requests to get the numbers that I used in the article.

Q. Uh-huh. What -- what actual research, sir, did you perform in order to determine the basis or reasoning for any suicides that you allegedly studied?

A. There was no information on the reason -- on the reasons for the suicides. It was the number --

(Audio interference.)

THE WITNESS: -- I was doing research on.

(Reporter asks for clarification.)

MS. ALTMAN: Yes, sir -- yes, ma'am. Can you hear him okay?

MS. REPORTER: Yes, I can. It was just that the word "the number" blurbed out. That's all.

MS. ALTMAN: No problem.

BY MS. ALTMAN:

Q. Sir, so again, you didn't perform any analysis to determine the basis for any suicides that occurred at the Tavistock clinic, did you?

A. I performed the analysis to estimate the suicide rate.

Q. Right. You -- you got a number from someone using a Freedom of Information Act, right?

A. Yes.

Q. Okay. Freedom of Information Act request, correct?

A. Yes.

Q. And you multiplied a number by the number of individuals treated, correct?

A. I also had to ascertain the number of individuals treated, which was a required extensive Freedom of Information Act requests.

Q. Right. So you issued some Freedom of Information Act request, but that's not my question. What analysis did you perform into the reasons that anyone in your Freedom of Information Act requests committed suicide?

A. My research was not on the reasons. It was on the rate of suicides, the number of suicides as

proportion of patient -- of patient time spent in the clinic.

Q. Okay. And we're going to -- and we're going to get to that research later. But I just want to be clear on the record. As you sit here today, you have no basis on which you can testify as to the reasons why any individuals from the Tavistock clinic committed suicide, correct?

A. That's correct. Just a correction. It is Tavistock, T-A-V-I-S-T-O-C-K.

Q. Okay. Sorry if I'm pronouncing it wrong. I will do better. But your answer is the same, correct?

A. Yes.

Q. Okay. Excellent. Have you performed any clinical studies relating to gender dysphoria?

A. Could you define "clinical"?

Q. What do you understand that word to mean, sir?

A. Do you mean that whether I was acting in a clinical capacity?

Q. Do you understand the word "clinical" to mean acting in a clinical capacity, sir?

A. That could be one interpretation, yes.

Q. Okay. And so I want you to then use that interpretation and tell me whether or not you've

performed any clinical studies -- studies relating to gender dysphoria?

A. No.

Q. Do you believe gender dysphoria exists?

A. Yes.

Q. Do you believe people can be transgender?

A. Yes.

Q. Do you believe that being transgender is a choice?

A. I'm struggling to answer that question.

Q. Why?

A. Because in some ways, everything is a choice, isn't it?

Q. No. Do you have an answer for the question, sir?

A. I don't -- I think in some cases it might be a choice and some cases it's not.

Q. Okay. Do you believe people can have gender -- gender identity that is not aligned with their gender assigned at birth?

A. Yes.

Q. Do you believe that a trans -- transgender male is a boy?

A. Yes.

Q. Do you believe that a transgender female is

a girl?

A. Yes.

Q. Do you believe the medical professionals are in the best position to determine proper health care treatment?

A. Sometimes.

Q. And by your "sometimes," I assume you mean sometimes not?

A. Sometimes not, correct.

Q. Okay. What would be the scenarios under which a health -- a medical professional would not be in the best position to determine proper health care treatment?

A. If their treatment was based on faulty research.

Q. Anything else?

A. That would be the main -- of course it could also be if they had a financial incentive to offer certain treatments.

Q. Are you being paid for your time today, sir?

A. Yes.

Q. Do you have a financial incentive to testify consistent with the defendants' position in this case?

A. No.

Q. So why would your character be any better or worse than a medical professional who is making medical decisions who has a financial interest in the treatment?

A. I think the sums -- the amount of money matters. And I didn't say that medical professionals always had -- were influenced by financial incentives, but sometimes they might be.

Q. Well, as you sit here today, do you have an example of any individual that you are aware of, relevant to this case, that you think is financially incented (sic) to perform a certain treatment?

A. No.

Q. Okay. So you are just using that sometimes that's the case, correct?

A. Yes.

Q. Do you believe that -- that experts sometimes have a financial incentive to testify in a particular way?

A. Sometimes, yes.

Q. Okay. You would agree with me, would you not, sir, that a medical professional is in the best position -- the best position to determine the appropriate care to be rendered to transgender

individuals, right?

A. Sometimes.

Q. And the -- the sometimes not is the same answer you gave a moment ago?

A. Yes. If it's based on -- if a medical judgment is based on faulty research.

Q. Would you agree with me, sir -- I'm sorry, were you done or no? I apologize.

A. I'm done.

Q. Okay. You would agree with me, sir, that it's -- it's medical professionals that -- that should be conducting medical research, correct?

A. I think academics of all -- if they have the skills and competence should be conducting important research, including medical research.

Q. Sir, you are not suggesting to the Court that a academic is qualified to render medical opinions, are you?

A. Opinions on an individual patient, no.

Q. Well, what -- what about a class of patients, sir, are you suggesting to this Court that a academic has the capacity to render medical opinions?

A. That really depends on whether that -- for example, the academic could come up with good arguments, good data, published in a peer review journal, for

example.

Q. But that -- they can't perform medical or clinical research, can they, sir?

A. Well, they can perform scientific research.

Q. Based on other people's research, right, you can report on other people's research. You don't perform the research yourself, correct?

A. Not taking measurements, for example, no, that's certainly true.

Q. Well, let's use an example here, sir. You've not performed any medical research, have you?

A. Well, I gave you an example earlier of my suicide paper, which I believe would come under the category of medical research. I can give you another example on bone density, if you'd like.

Q. Okay. Why don't you give me that example. I won't stipulate that I think your example on suicide complies but let's try bone density.

A. So bone density was published by the same gender clinic. Information on bone density was released thanks to my complaints to the health research authority in Britain. They released the data and I was able to publish a short letter to the editor in the Journal of Pediatric Endocrinology and Metabolism that analyzed the distribution of bone density after two years on

gonadotropin-releasing hormone agonists.

Q. Okay. We're going to get to that study later. But with regard to that, again, all you did was make a Freedom of Information Act request to the Tavistock clinic, correct?

A. No, I made a complaint -- I made a complaint to the health research authority. The health research authority forced the researchers to release that data.

Q. Okay. And it was their data, sir --

A. Yes.

Q. -- that you relied upon, correct?

A. Yes.

Q. And so you didn't perform any actual clinical or medical research. You relied on the data that was compiled by someone else, correct?

A. I did not perform the bone density scans, that's correct.

Q. And -- and you are not qualified to read a bone density scan, are you, sir?

MR. BEATO: Object to form.

But, Dr. Biggs, you can answer that question.

THE WITNESS: What I analyzed was Z-scores which are based on normal distribution. It's very

standard statistics.

BY MS. ALTMAN:

Q. Did you understand my question?

A. Yes, and I -- yes.

Q. Okay. My question was, you are not qualified to review a bone density scan, correct, sir?

A. The bone density is converted into a Z-score which is based on a normal distribution and met the standard statistics of a normal distribution.

So the original bone density score, I could not -- that would not be within my ambit. When it is converted into a Z-score, normalized for aging sakes, then I -- that is within the ambit of myself or anybody else who is qualified who understands statistics.

Q. So, again, the answer to my question is you are not qualified to read the scan, correct?

MR. BEATO: Object to form.

But, Dr. Biggs, you can answer that question.

THE WITNESS: Correct.

BY MS. ALTMAN:

Q. Okay. Thank you. Do your -- do your personal beliefs in any way impact your opinions in this case?

A. My personal beliefs are based on what

I've -- what -- the research that I've done. So, of course, that then in turn contributes to my opinions.

Q. Okay. Other than the -- the two instances you mentioned and the research that you've done, which we're going to get to in a little bit, I'm just trying to understand where you -- whether you have any other personal beliefs that impact your testimony here today.

A. Yes.

Q. Okay. And what are those personal beliefs that impact your testimony here today?

A. Those personal beliefs are that gays -- being gay and lesbian or being a feminine boy or a masculine girl are entirely normal variations on human experience and do not require medicalization.

Q. What about transgender individuals?

A. Sorry, what about -- can you -- can you --

Q. Yes -- yeah, you said gays and lesbians, if I wrote this down correctly, are normal variations and do not require medicalization, did I hear you correctly?

A. Yes.

Q. Okay. And so my question is, what about transgender individuals, do they require medical -- medicalization?

A. They might or they might not.

Q. Okay. Tell me the circumstances, sir, in

which you are qualified to determine when a transgender individual requires medicalization?

A. Well, it's partly, of course, their choice and it's partly whether they can consent as an adult to treatments.

Q. Did you understand my question, sir? My question is, tell me how you are qualified to determine when a transgender individual requires medicalization?

A. It's my belief that lifelong medical intervention requires an adult to consent to that -- that -- that serious significant step.

Q. So maybe third time is the charm. Did you understand my question? My question is, please tell me how you are qualified to determine --

MR. BEATO: Counsel -- counsel -- counsel, he already answered the question twice.

MS. ALTMAN: He actually didn't answer the question at all, Michael.

MR. BEATO: He did answer the question.

MS. ALTMAN: Michael, he didn't answer the question. You get to object to the form.

BY MS. ALTMAN:

Q. Sir, my question is, how is it that you are qualified to determine when a transgender individual requires medicalization?

MR. BEATO: Object to form.

Dr. Biggs, you can answer that question.

THE WITNESS: I've already answered it.

BY MS. ALTMAN:

Q. Really, what was your answer, sir, how you are qualified to determine when a transgender individual's entitled to medicalization?

MR. BEATO: Object to form.

Dr. Biggs, you can answer that question.

THE WITNESS: I believe that the -- the -- the lifelong medical intervention that comes with, let's say, cross-sex hormones is something that an adult can consent to make a good choice when they are presented with the cost and the benefits of that treatment.

BY MS. ALTMAN:

Q. Sir, my question is about your qualification, not your beliefs, your qualifications. My question was and is, what qualifies you to make determinations as to when a transgender individual receives medical care?

MR. BEATO: Object to form.

Dr. Biggs, you can answer that question.

THE WITNESS: I'm making a statement, a general statement about principles of treatment

and consent. I'm not choosing whether one particular individual can or cannot get treatment.

BY MS. ALTMAN:

Q. But that's not my question, sir. My question is not about them. It's about you. What is your qualifications, what are your qualifications to make a statement that a transgender individual sometimes or sometimes not requires medicalization?

MR. BEATO: Object to form.

Dr. Biggs, you can answer that question.

THE WITNESS: I won't.

BY MS. ALTMAN:

Q. You won't what?

A. I -- I -- I have answered to the best of my ability that question.

Q. So as you sit here today, you can't tell the Court what qualifications, if any, you have to make determinations as to when a transgender individual requires medicalization, correct?

MR. BEATO: Object to form.

Dr. Biggs, you can answer that question.

THE WITNESS: I'm -- I -- I've said what I've -- what I -- what I want to say on that question.

BY MS. ALTMAN:

Q. Okay. Sir, you were retained by the experts in this case, correct?

A. Yes.

Q. What -- and today, as I understand it, you are here to provide testimony relating to your opinions, correct?

A. Yes.

Q. And we're going to mark as Exhibit 1 to this deposition the deposition notice. And Ana is going to bring that up just so that you can see it. Maybe she is. Maybe she's not?

MS. GONZALEZ: I need -- I'm sorry. I need somebody to give me my -- the hostess disabled my screen sharing, so they need to allow me to do it.

MS. REPORTER: It's enabled.

MS. GONZALEZ: Okay.

(Plaintiffs' Exhibit 1 is marked for Identification.)

BY MS. ALTMAN:

Q. All right. Sir, do you see what we've put up on the screen, which we'll mark as Exhibit 1 for identification?

A. Yes.

Q. And have you seen a copy of this before?

A. Yes.

Q. And it's this notice of your deposition that has brought you here today, correct?
A. Yes.
Q. And we're going to also mark --
MS. ALTMAN: Thank you very much, Ana.
BY MS. ALTMAN:
Q. Sir, did you prepare an expert report in this matter?
A. Yes.
Q. And we're going to bring that up and we're going to mark that as Exhibit 2 to your deposition.
(Plaintiffs' Exhibit 2 is marked for Identification.)
THE WITNESS: Yes.
BY MS. ALTMAN:
Q. And do you recognize this? And Ana will scroll through it for you just so that you can see it.
A. Yes.
Q. And if you can confirm for the record, sir, that this is indeed the expert report that you prepared on behalf of the defendants in this case. And we'll mark this as Exhibit 2 for identification.
A. Yeah, insofar as all I've seen on the screen looks like my deposition.
Q. Your report, sir?

A. The report, sorry, report, yes.
Q. Okay. Sir, did anyone assist you in writing this report?
A. No.
Q. Did anyone write any portion of the report for you?
A. No.
Q. Did you share the report with anyone before it was finalized?
A. No.
Q. Did you review any of the defendants' other experts' reports before you finalized your own?
A. No.
Q. Have you reviewed any of the deposition testimony of experts in this case?
A. No.
Q. Okay. And we're going to get back to your report later. But that was your --
MS. ALTMAN: If we go to the last page, Ana, with his signature. Up one, up one, there you go.
BY MS. ALTMAN:
Q. That's your signature, sir, on page 22?
A. Yes.
Q. Okay. And -- and in it you see above it

that you swore under the penalty of perjury that the statements and opinions contained therein are your own, correct?

A. Correct, yes.

Q. Okay.

MS. ALTMAN: Thank you, Ana. We'll be using it later, so we can just put them aside for now.

BY MS. ALTMAN:

Q. Sir, you wrote your doctorate, your Ph.D. in the rise and decline of a mass movement, American workers and strike wave of 1886; is that right?

A. Yes.

Q. And you would agree with me that that has nothing to do with gender dysphoria, correct?

A. Yes.

Q. And you would agree with me it has nothing to do with transgenderism, correct?

A. Yes.

Q. And you don't treat patients who suffer from gender dysphoria, correct?

A. No, I don't.

MS. ALTMAN: Somebody needs to mute their phone, please. Thank you. Somebody.

BY MS. ALTMAN:

Q. You are not an ethicist, are you?
A. No.
Q. You are not a clinician of any kind, correct?
A. Correct.
Q. You are not a bioethicist, correct?
A. Correct.
Q. You are not an endocrinologist, correct?
A. Correct.
Q. You are not a psychiatrist, correct?
A. Correct.
Q. You are not a psychologist, correct?
A. Correct.
Q. You are not a surgeon, correct?
A. Correct.
Q. You are not engaged in the drafting of health care policy, are you, sir?
A. No.
Q. You are not a pharmacist; isn't that right?
A. I'm not a pharmacist.
Q. And you've never worked under a pharmacist; isn't that correct?
A. Correct.
Q. And we've discussed, at least as I understand from your testimony, you have no medical

training, correct?

A. Correct.

Q. You have no training or experience in endocrinology, correct?

A. Correct.

Q. No clinical experience in providing gender affirming care, correct?

A. Correct.

Q. You have no mental health training, correct, sir?

A. Correct.

Q. You are not a licensed nurse, are you?

A. I'm not a licensed nurse.

Q. And you are not licensed to practice medicine in any country in the world, right?

A. Correct.

Q. Now, sir, you would agree with me that you first began considering issues relating to gender dysphoria in 2016 or 2017, do I understand that correctly?

A. I believe 2017.

Q. So about five years or so, correct?

A. Yes, that would be six years, yes, I think.

Q. I guess depending on when it was in 2017, but I'll give you -- I'll give you six years, no worries.

What independent research have you performed on gender dysphoria as opposed to simply critiquing other people's research and articles?

A. So I would say that my independent research was the article on suicide rates at the Tavistock, which we've discussed; the analysis of bone density; and the article -- my most recent article on the Dutch part on the history and -- on the Dutch Protocol.

Q. Well, we talked about the suicide rates and the bone density and we're going to talk about them a little more later.

But with regard to the Dutch Protocol, what you did was merely analyze what they did; isn't that correct?

A. It was an extensive literature of historical account, yes.

Q. Right. You reviewed what they did, correct, and gave your spin on it; isn't that right?

A. That's not how I would -- would -- would refer to an extent -- a literature review and -- and analysis and historical account.

Q. Okay. But it's a literature review of what -- of someone else's work, correct?

A. Correct.

Q. And it's a historical account of someone

else's work, correct?

A. Correct.

Q. You didn't perform any of the underlying clinical research, did you, sir?

A. No.

Q. Have you gone back personally and interviewed any of the cohorts that were involved in the Dutch Protocol?

A. I have talked to two patients from the Dutch -- from the Dutch clinic subsequent -- subsequent to that article.

Q. So after the article, you spoke to them?

A. Yes.

Q. So when you published the article, you would agree with me, you had not spoken to anyone that participated in the Dutch Protocol, correct?

A. Well, there is one -- the -- the article acknowledges some input at the end from one Dutch patient, but the -- most of the article was completed before I met that person.

Q. Okay. And so who are the two patients that you say you spoke to?

A. I'm not going to name them.

Q. Sir, you are under oath, obligated by law to tell the truth and to answer my questions. Who are

the two patients? We're happy to mark this part of the transcript as confidential. There is a protective order in place.

A. Okay. One is called [redacted], [redacted]

[redacted]

Q. And the other?

A. Is called [redacted], [redacted], and I don't have his sir name to hand.

Q. Okay. Do you have it somewhere in your office?

A. I do -- I could get that, yes.

Q. Well, did you list your interviews of these individuals in your -- your research or -- or attachments to your report as something that informed your decisions in this case and your opinions in this case?

A. The article and the Dutch Protocol has a footnote acknowledging feedback from a Dutch de- -- one Dutch detransitioner. There is a footnote in there, I believe as an exhibit in my report.

Q. And which of the two that you just mentioned is the detransitioner?

A. [redacted].

Q. When did you speak to this individual?

A. Six months ago.

Q. Do you have notes of your conversation with

this individual?

A. No.

Q. Did you take notes of your conversation with this individual?

A. No.

Q. Did you record the conversation?

A. No.

Q. Does your conversation with this person influence your testimony or opinions in this case?

A. It provides background.

Q. Other than background, sir?

A. No, not other than background.

Q. So, again, with regard to the Dutch Protocol, just so that we're on the same page, you reviewed other people's clinical work and other people's research and reported on it, correct?

A. Correct.

Q. You didn't perform any of the underlying studies or tests, did you, sir?

A. No.

Q. Did you interview any of the -- the physicians or medical professionals that were involved in that study?

A. No.

Q. Did anyone stop you from doing that?

A. No.

Q. Did anyone stop you from interviewing any of the other individuals that participated in that study?

A. No.

Q. You were trying to do in-depth and independent research, sir. Any reason why you didn't reach out to the authors of the study or any of the other participants in the study to get a robust analysis of the import of the research and the historical, I guess, recreation of the Dutch Protocol?

A. As an academic, we rely on what is published in the literature. Including, of course -- and that includes, let's say, journalist interviews with the -- with the clinicians. That's also part of the literature --

Q. Is it your testimony -- just so I understand the scope of what an academic does, is it your testimony under oath that academics don't interview individuals to get background or other information to ensure that what they are publishing is accurate?

A. There is a wide variety of academic research. Some is statistical; some is based on hypnography. This particular case was based on the published literature.

Q. Okay. But you are not suggesting that --

that all academics would not interview, whether it be doctors, physicians, statisticians or others that perform clinical research, are you?

A. No.

Q. Have you performed any scientific studies?

A. Yes, the articles that I've already discussed earlier. I would consider those scientific.

Q. You are referring to the -- the bone density, the suicidality, and the Dutch Protocol?

A. Well, the bone density and the suicidality, yes.

Q. Okay. And you believe those qualify as scientific studies, sir?

A. Yes.

Q. Okay. And we'll get in more detail with them later.

You are not a scientist, are you?

A. I would consider myself a social scientist.

Q. Well, you are a sociologist, correct?

A. Yes.

Q. Have you ever conducted any peer-reviewed studies?

A. Yes.

Q. And what peer-reviewed studies have you conducted?

A. The four peer-reviewed studies, which are listed in my expert report, are the study on suicide.

Q. Uh-huh.

A. The -- the comparison of Dutch and English gonadotropin-releasing hormone agonist. The critique of Turban, all three, were published in Archives of Sexual Behavior. And all three were peer-reviewed. And the fourth would be the article we just discussed on the Dutch Protocol, which is published in the Journal of Sex & Marital Therapy, also peer-reviewed.

Q. Okay. Sir, you would agree with me that because an article -- I'm sorry, strike that.

Because a journal is peer-reviewed, doesn't mean that your work was peer-reviewed, correct?

A. No, this is -- that's -- that's incorrect. All of those four that I listed were peer reviewed.

Q. That wasn't my question, sir. My question was, you would agree with me that just because an article or a letter to the editor appears in a peer-reviewed journal, doesn't mean they are peer reviewed, correct?

A. Correct.

Q. Okay. What is your specific bases for claiming that your study on suicide was peer-reviewed?

A. Because I received reviewers' reports from my peers, and I had to revise and resubmit the articles

to meet their objections. And on the second round of revisions, it was accepted. That is what peer review means.

Q. And we're going to talk about those later. I just want to get your testimony on each of these now. And your article regarding the comparison of Dutch and other GnRH --

A. Again, it was sent to three or four peer reviewers. The editor said that I had to meet their objections and their criticisms. And then I submitted the revised version, along with my response to their criticisms, and it was ultimately accepted. That's what peer review means.

Q. Well, so we'll talk about what peer review means. Right now I just want to get your answers to my question, thanks.

And the -- the third one, was that the bone density?

A. The third was the critique of what Turbans were on puberty blockers and suicide.

Q. Okay.

A. And very helpfully, the editor included the first footnote on this article. This article was peer reviewed by three reviewers and the editor. But it was the same process as I just -- as I explained previously.

The same peers, they sent back critiques. I had to meet those objections. And it was ultimately -- after revision, it was published.

Q. You would agree with me that the study on suicide and the -- the second one, the comparison of the Dutch GnRH don't contain such a footnote, correct?

A. They don't contain such a footnote, correct.

Q. Right. And your testimony is the only basis on which you could support a position that they were indeed peer-reviewed, correct?

A. That's incorrect. I could give you the reviewers' reports.

Q. Did you include those with your production in this case?

A. No.

Q. And the fourth one, sir?

A. The fourth one is the Journal of Sex & Marital Therapy, the Dutch Protocol.

Q. Same question, sir, what is the basis on which you --

A. It was sent --

Q. Let me just finish the question.

-- have evidence of this publication was peer-reviewed?

A. Was sent off to review by two or three, I can't quite recall, but it was two or three of -- reviewers. They sent back criticisms and suggestions. I revised the paper in light of their criticisms and suggestions. And it was then accepted for publication.

Q. And with regard to at least numbers one, two, and four that we've been talking about, the -- the fact that you deemed them being peer-reviewed because you responded to certain responses and criticisms does not necessarily mean they were indeed peer-reviewed within the medical community; isn't that right, sir?

A. I disagree completely with that, with your assertion.

Q. So it is your testimony under oath that you believe that -- that your articles number -- the first one, the second one and the fourth one qualify as peer-reviewed studies?

A. Yes.

Q. Is that your testimony?

A. Yes, indeed, yes.

Q. And we're going to get back to those articles later. But have you participated in any scientific studies about the efficacy of gender-affirming care?

A. No.

Q. Have you interviewed any transgender individuals who benefited from gender-affirming care?
A. No.
Q. Has anyone stopped you from interviewing any transgender individuals who benefited from gender-affirming care?
A. No.
Q. Has anyone stopped you from participating in any scientific studies about the efficacy of gender-affirming care?
A. No.
Q. Did you ask to interview the plaintiffs in this case?
A. No.
Q. Did you interview or speak with anyone from WPATH before issuing your opinions in this case?
A. No.
Q. Have you ever interviewed or spoken with anyone from WPATH in order to formulate your opinions regarding puberty blockers?
A. No.
Q. Have you spoken to or interviewed anyone with a contrary point of view before issuing your opinions in this case?
A. Well, I've spoken to many people with

contrary points of view, yes.

Q. Okay. Who have you spoken with?

A. Not -- not in the -- you know, in the last, let's say, you know, month or two months or something.

Q. Well, what about the last six months, who have you spoken to that holds contrary views to yours about puberty blockers?

A. Probably not in the last six months, no.

Q. What about the last year?

A. Yes, I've spoken to people -- individuals, yes.

Q. Okay. Who?

A. A doctoral student of mine.

Q. Who?

A. Rema -- well, a former doctoral student of mine called Rema Maja (Phonetic).

Q. Anyone else?

A. No.

Q. Any reason, sir, you don't, as an academic, seek out people who have contrary views so that you can have a full and robust analysis of particular issues?

A. Well, we seek out contrary views when we look at the published literature. I mean, that's what we do. We look at, you know, contrary views as -- as published.

Q. Okay. So, for the record, what contrary literature have you looked at in the past year?

A. Well, almost everything I -- a lot of the material that I cite would have contrary points of view.

Q. Okay. And when you say that you cite, you mean in connection with your report in this case?

A. Yes.

Q. Okay. Anything else?

A. No.

Q. Did you participate in the drafting of the GAPMS memo at issue in this case?

A. No.

Q. Did you participate in the drafting of the rule at issue in this case?

A. No.

Q. Did you refer to the DSM-5 as part of your work?

A. Yes.

Q. And describe for the record, sir, how specifically you refer to it and what ways you utilized the DSM-5 in your opinions -- in forming your opinions in this case?

A. Well, the DSM-5 provides the -- the accepted definitions of gender dysphoria.

Q. Okay. How did you use that definition,

sir, in your opinions in this case?

A. Well, I think I -- I believe I cited in my article on the Dutch Protocol, which was one of the exhibits.

Q. Okay. And how did that inform your opinions in this case?

A. It provides a good --

Q. The definition of gender dysphoria, how did the DSM-5 definition of gender dysphoria inform your opinions in this case?

A. It demonstrates that gender dysphoria is based on the patient's beliefs and desires.

Q. Is that all it says, sir?

A. Yes.

Q. It's just a patient's belief and desire --

A. Well, there are certain particular --

Q. Let me just -- we agreed I get to finish the question and then you get to answer. So I'm going to try not to interrupt you. You could try not to interrupt me as well.

Sir, is it your testimony that gender -- someone being gender dysphoria is solely based on their belief and desire?

A. Yes.

Q. Anything else that informs whether or not

somebody is suffering from gender dysphoria other than their belief and desire?

A. Clinical -- clinically significant impairment or distress.

Q. Anything else?

A. No.

Q. You would agree that it is outside your area of expertise to interpret the DSM-5, correct, because you are not a clinician; isn't that right?

(Simultaneously speaking.)

MR. BEATO: Object to form.

And, Dr. Biggs, you can answer that question.

(Simultaneously speaking.)

MS. REPORTER: Wait a minute. Hold on. What was the objection?

MR. BEATO: Form.

And, Dr. Biggs, you can answer that question.

THE WITNESS: Correct, I'm not a clinician.

BY MS. ALTMAN:

Q. Right. And, therefore, it is outside your expertise to interpret the DSM-5; isn't that right?

A. I can interpret what is written in the DSM-5.

Q. You are not a clinician, sir, correct?
A. Correct.
Q. So by "interpret it," you mean you can read the words on the page, is that your definition?
A. I can read, interpret, and analyze, yes.
Q. Well, sir, you are not a clinician who is qualified to analyze the DSM-5, are you?
A. I'm qualified to analyze the DSM-5. I'm not a clinician.
Q. And what qualifies you to do that, sir?
A. My academic training.
Q. Anything else?
A. No.
Q. Now, sir, you would agree with me that a letter to the editor is not the same thing as an actual peer-reviewed publication, correct?
A. I disagree with you.
Q. And what's the basis for your disagreement, sir?
A. My disagreement is based on the fact that my -- in almost all journals -- in all journals, apart from one that I know of, that is correct, namely a literature by definition is not peer-reviewed.
Archives of Sexual Behavior is peculiar in that it calls what -- another journal would be called a

research note or a short article, which would be peer-reviewed. For some reason, the Archives of Sexual Behavior calls that a letter to the editor. I do not know the --

Q. Okay.

A. -- category for a short research note or short article.

Q. Apologies. I didn't mean to interrupt you.

But above the four studies that you claim were peer-reviewed, only one of them has a footnote indicating that it was peer-reviewed, right?

A. Correct. But just to add -- add to that, no article -- peer-reviewed articles never have a footnote saying if they are peer-reviewed. And in -- and in any -- in other journals.

So the absence of a -- the absence of a footnote indicating it is peer-reviewed is not evidence that it was not peer-reviewed.

Q. Agreed. So let's -- as you sit here today under oath, what actual evidence do you have that they are deemed peer-reviewed letters to the evidence -- and let me finish the question, because it -- you might think I'm done. I understand, and I don't want you to repeat your testimony, that you received comments from people and that you incorporated those comments and then it was

published.

My question is, what actual evidence do you have that that constitutes peer-reviewed?

A. That is the definition of peer-reviewed. I know the difference between something that's not peer-reviewed and not -- and something that is peer-reviewed because other letters to the editors which are published in other journals were not peer-reviewed, and I've never claimed them to be peer-reviewed.

Q. Right. And I think your definition, using it loosely, has said if you get comments from people and are required to incorporate them before publishing, that constitutes peer-reviewed.

Do I understand your definition correctly?

MR. BEATO: Object to the form.

Dr. Biggs, you can answer that question.

THE WITNESS: Yes; that's right.

BY MS. ALTMAN:

Q. Okay. Other than that belief, that anyone that provides commentary or suggestions or criticisms to your report and you review them, and then your letter to the editor is published, in your mind, that constitutes peer review, is that fair?

A. With -- one addition should be made, and that is that you are not -- you have to meet those

objections. And it is not clear whether it will be ultimately published or not. So you get criticisms but you have -- you -- you don't know, when you try to reshape the article based on those criticisms, you've got no guarantee whether the editor might say, well, you haven't done enough to meet those.

Q. Understood. I just want to make sure we're speaking the same language. That your definition of peer review is that the Archive of Sexual Behavior provided you with some criticisms, suggestions from a few of your colleagues, you -- you reviewed those, incorporated them, and ultimately, your letters to the editor were published, correct?

A. Correct.

Q. And I just want to make sure, definitionally, that is your definition of peer-reviewed, correct?

A. Correct.

Q. And beyond that, just so we don't leave the deposition today with any questions about it, you have no other evidence that your letters to the editor were peer-reviewed, correct?

A. Correct.

Q. And you would agree with me that journals don't peer review every type of publication, correct?

A. Correct.
Q. What patient-based independent research did you undertake to write these articles, these letters to the editor?
A. There was no patient-based research.
Q. Have you engaged in any clinical trials?
A. No.
Q. Have you ever had any of your letters to the editor or other writings rejected by a medical association publication on gender dysphoria?
A. Yes.
Q. And can you explain which --
A. I -- for example, I had a letter to the editor to Pediatrics that was rejected.
Q. What was it about?
A. It was a comment on a study of cross-sex hormones.
Q. And is that study on cross-sex hormones something that you've included in your materials in this case?
A. No.
Q. Why not?
A. Because I wanted to focus entirely on puberty blockers.
MS. ALTMAN: Counsel, we would ask that

that be produced.
BY MS. ALTMAN:
Q. Any other letters to the editor or submissions that you -- on gender dysphoria or transgenderism or cross-sex hormones or puberty blockers that have been rejected by any medical association publication?
A. Well, certainly I have an article on surgeries that was rejected by Archives of Sexual Behavior.
Q. What kind of surgery?
A. Gender -- transgender-related surgeries.
Q. Was that article included in your bibliography, sir?
A. No. Well, it wasn't an article.
Q. What was it?
A. Well, it's -- an article that implies it's been published. It's not been published, so it is like it's a rejected paper.
Q. Okay. I'm sorry. Was your rejected paper listed in your bibliography?
A. No.
Q. Okay. Why not?
A. Because I wanted to focus on puberty suppression.

MS. ALTMAN: Michael, we would ask that that rejected -- what did you refer to it as? Rejected paper --

THE WITNESS: Paper.

MS. ALTMAN: -- be produced to us.

MR. BEATO: So just to clarify, you would like us to produce to you an article that he did not cite in his bibliography and in his expert report?

MS. ALTMAN: Correct. Two articles, actually -- or rejected papers.

MR. BEATO: I will consult with my colleagues, thank you.

MS. ALTMAN: No problem.

BY MS. ALTMAN:

Q. Any other articles or rejected papers, sir?

A. I think -- I -- as I recall now, I believe that is -- that is all.

Q. Okay. Well, if you think of any others during the deposition, please let me know, okay?

A. Yes.

Q. Okay. Thank you. Have you made any commentary submission on gender-affirming medical care?

A. Sorry, I didn't understand the question.

Q. Yeah, have you -- have you provided or

written any commentary submissions on gender-affirming medical care?

A. What is commentary submission?

Q. Have you done any -- other than letters to the editor and what you refer to as peer-reviewed letters to the editor, and other than what you've already testified, is there anything else that you have written on gender dysphoria that's not otherwise listed in your bibliography?

A. No.

Q. Do you consider the archive on sexual health to be a peer-reviewed medical journal?

A. It's a peer-reviewed journal. I believe it's under -- might be classified under psychology or sexology.

Q. Right. So I'm asking, do -- you would agree with me it is not a peer-reviewed medical journal, correct?

A. Correct.

Q. Have you -- have any of your writings related to gender dysphoria been published in a peer-reviewed medical journal?

A. Yes.

Q. And which ones are those?

A. The -- the -- the journal of pediatric and

endocrino- -- pediatric and endo- -- pediatric and -- yeah, pediatric and endocrinology -- pediatric medicine and endo- -- endocrinology. There's -- one on bone density was published in that medical journal. That particular letter was not peer-reviewed but it is a peer-reviewed journal.

Q. Okay. Anything else?

A. No -- no, I should correct that. Another letter to the editor, which was not peer-reviewed, was published in The Journal of Sexual Medicine.

Q. Which one was that?

A. It is a comment on the -- the Costa study. It is -- it is cited in my report.

Q. Okay. Which one -- just say it again, the comment on what, I'm sorry?

A. It's a -- it's a comment on a -- an article by Costa, et al.

Q. Okay.

A. Again, I should emphasize, that was not peer-reviewed but it is a peer-reviewed journal.

Q. Anything else?

A. No.

Q. You had a submission on Turbans and credible assumptions about sex, does that sound familiar?

A. Yes.

Q. Was that rejected by any publication?
A. Yes. I should -- that -- I -- thank you for reminding me of that. That was rejected from a --
Q. You are welcome.
A. -- pediatric -- I'm not -- I wouldn't want to give you -- mislead you by giving you the journal but it was rejected by one journal, yes.
Q. Anything else?
A. No, I do not believe so.
Q. Now, sir, in your report, you don't -- you also don't mention that you participated in a panel before the Florida Board of Medicine, do you?
A. No, I did not. I did not think that was relevant.
Q. Right. You didn't include it on your CV either, right?
A. Possibly not.
Q. Why?
A. Because it was a eight-minute presentation and that's not really significant enough to be included on my CV.
Q. Well, for what it's worth, I think it was 12 minutes because I've listened to it. But I could be wrong.
But you would agree with me that it -- it's

relevant because it's the very issue for which we're here today; isn't that correct?

MR. BEATO: Object to form.

THE WITNESS: Correct.

MR. BEATO: Dr. Biggs, you can answer that question.

THE WITNESS: Correct.

BY MS. ALTMAN:

Q. Okay. So is there any reason why you chose not to disclose the fact that you were a panelist in the Florida Board of Medicine meeting held in October?

A. No. I was told explicitly in preparing my report that I had to say which -- what legal cases I had participated in and it did not -- it did not occur to me that that could be counted as a -- as a legal case.

Q. Who asked you to participate in that?

A. It was one of the members of the board of medicine.

Q. Who?

A. Patrick -- Patrick -- I'm afraid I'm blanking on the surname.

Q. Okay. Were you paid for your time?

A. No.

Q. And you would agree with me that your testimony before the board of medicine was essentially

the same as the opinions you are rendering in this case, correct?

A. Very similarly, yes.

Q. Okay. And you also testified and answered questions at a committee -- the Health and Human Services committee, right?

A. No, I don't -- oh, yes, sorry, yes, I did. Yes, yes, you're right. Yes.

Q. Okay. And you didn't list that in your bibliography or CV either, correct?

A. No, correct.

Q. Who asked you to participate in that?

A. I believe somebody from the Health and Human Services e-mailed me and asked me if I would participate. I'm afraid I can't recall their name.

Q. Were you paid for that?

A. No.

Q. You volunteer a lot of your time, sir, to this issue, correct?

A. Well, one was 12 minutes and the other one was, I don't know, same amount of time.

Q. You had prepared materials for those meetings?

A. Yes, but I believe as an academic, if you've done research in the public interest of your

research, then you should be willing to -- that's part of the job description.

Q. And you would agree with me that both the board of medicine meeting that I referred to and the committee meeting relating to the Health and Human Services, they're aligned with the defendants in this case in terms of the work that they are trying to do, correct?

A. Yes, correct.

Q. And you're being paid by the defendants in this case for your time today?

A. Yes.

Q. And you were paid for your work in connection with preparing your report?

A. Yes.

Q. How many hours in total have you expended in your analysis and in preparing your report in this case?

A. I'm not -- probably about -- I think my -- preparing my report was like eight hours, but I couldn't -- I don't have the exact figures to hand. And preparing rebuttals to three -- the rebuttals that I -- I received was another six hours. Preparation for this deposition was maybe another two hours.

Q. And when did you prepare for this

deposition?

A. I prepared for it yesterday.

Q. Did you meet with anyone?

A. No.

Q. Did you speak to anyone from the defendants or their counsel?

A. We had a five-minute discussion on just the procedures with Michael I think on -- it was on Friday.

Q. And the Michael you are referring to is the Michael Beato that's here on this call?

A. Yes, indeed, yes.

Q. Other than your five-minute meeting with Mr. Beato and you said you spent two hours yesterday, correct?

A. Yes.

Q. What did you do to prepare yesterday?

A. I reviewed my -- my -- my statement. And I looked at several of the references that were in the rebuttals.

Q. Okay. And we're going to get back to that in a second.

A minute ago you mentioned there was a Patrick who you couldn't remember his last name. Does the last name Hunter sound familiar?

A. That sounds familiar, yes.

Q. Okay. And is he the same Patrick Hunter that's also involved with SEGM and Genspect?

A. I don't know about Genspect, but SEGM, yes, definitely. Yes, that's him.

Q. Okay. And for -- for the Court's benefit, can you describe the work of SEGM, the way -- the way you pronounced it?

A. So SEGM, S-E-G-M, the Society for Evidence-Based Gender Medicine, is a group of concerned clinicians, doctors, researchers who are concerned about the basis for medical care of children, in particular, who identify as transgender.

Q. Well, they are not just concerned about it they are against it, correct?

A. Not against -- no, we're -- we're against what we see as unjustified -- medically unjustified care. We're in favor of care of people with gender dysphoria.

Q. Okay. And the "we," you included yourself, correct?

A. I'm on the board of advisors, yes.

Q. Correct. And we're going to talk about that later but I think you described it as being against medically unjustified care, correct?

A. Yes, correct.

Q. And I don't want to beat the dead horse but

it's not within your purview to determine what is medically justified or not, correct?

MR. BEATO: Object to form.

Dr. Biggs, you can answer that question.

BY MS. ALTMAN:

Q. Let -- I'll -- I'll withdraw it and I'll ask it different.

Sir, it's -- you've already agreed, you're not a medical doctor, correct?

A. Correct.

Q. Okay. And it's not within your purview to determine what is medically justified or not, correct?

A. I disagree with that because I believe that anyone who can look at the empirically researched literature, published literature and can make their own evaluation based on their reading of the literature.

Q. Meaning -- I'll give you that. You can read the literature and draw your own personal conclusion, right?

A. Correct.

Q. But you are not qualified to make a medical determination as to what is justified; isn't that right?

MR. BEATO: Object to form.

Dr. Biggs, you can answer the question.

THE WITNESS: Correct.

BY MS. ALTMAN:

Q. Okay. When did you get on the board of SEGM?

A. I can't give you the exact date. Two years ago, three years ago.

Q. How did you have occasion to decide to join that board?

A. I believe I was invited by somebody but I can't quite remember who invited me.

Q. You would agree that -- that SEGM is an advocacy group, correct, for their -- for their position, correct?

A. Correct. Like WPATH in that regard.

Q. Well, I asked you earlier whether or not you met with anyone from WPATH and you said no, correct?

A. Correct.

Q. And I think you also testified that you've never even tried to reach with any -- reach out or meet with anyone from WPATH, correct?

A. Correct.

Q. Have you ever been qualified as an expert in the United States?

A. No.

Q. Have you ever testified as an expert in the United States?

A. No.
Q. Have you ever been qualified as an expert ever?
A. Well, I have testified as an expert witness in -- in one court case in United Kingdom and one court case in Australia.
Q. Okay. Let's talk about those for a minute. The one you referenced, the first one is the Keira Bell matter; is that correct?
A. Correct.
Q. And you refer to it on page 2 of your report as Keira Bell and Mrs. A versus Tavistock NHS Trust, correct?
A. Yes.
Q. And what was the subject matter of your testimony in that case?
A. It was about the puberty blockers in general and the -- the Tavistock's concealing of information about their research on puberty blockers in particular.
Q. Now, that case was ultimately reversed, correct?
A. Correct.
Q. And ultimately, an Appellate Court ruled in favor of Tavistock, correct?

A. Correct.
Q. And with regard to your testimony, were you actually qualified by that Court as an expert in the efficacy of puberty blockers?
A. I don't know. I don't know -- I know that my -- my report was submitted. I know that my report was referred to by -- by the barrister in their proceedings. I know it was part of the bundle that was submitted to the judges.
Q. But you don't know whether or not the Court ever qualified you as an expert on the efficacy of puberty blockers, correct, sir?
A. Correct.
Q. And perhaps I missed it but did you produce that report in this case?
A. No.
Q. Why not?
A. Because I was superseded by -- that was quite a few years older. My -- the expert report that I provided is much more comprehensive and based on much more research and later -- later -- later publications.
Q. Is that the only reason you didn't produce it, sir?
A. Yes.
Q. And what year was that?

A. I -- I don't recall. I know that the case was during the -- just after -- must have been 2021, I believe, but I'm not swearing to that.

Q. And so what post -- we're in -- I hope I found one thing we can agree on today. We're in the year 2023, right?

A. Correct.

Q. March of 2023, correct? What research have you reviewed post 2021 up through today that has altered, impact, or otherwise changed your opinions than those you offered in the Tavistock case?

You mentioned that you looked at additional research. I just want to understand what you looked at between 2021, so all of 2022 and the three months that is 2023, what new research have you looked at?

A. Well, for example, the -- the study on mice, I believe, is -- postdates my Tavistock testimony.

Q. Anything else?

A. Dutch. I mean, many -- many, many Dutch -- of the Dutch articles have come out since then.

Q. Anything else?

A. I can't -- I'm not -- I can't go through and -- and give you every list, every article that has come out between 2021 and 2023, but my bibliography is -- should include all of those.

Q. Right. Well, I don't want to rely on your bibliography. I want to understand what you personally relied on in rendering your opinions in this case that came out post your -- your work in the Tavistock matter.

A. Well, I've -- I've explained -- I mean, several articles from the -- from the -- from the Netherlands.

Q. Uh-huh.

A. There was, for example, another -- it was an article from an Australian clinic that demon- -- that showed -- that had very, very high rates, I think some near 97, 98 percent of -- of children who started releasing hormone agonists continued on to cross-sex hormones. That would be an example.

Q. Okay. Well, let's talk about that for -- for just a second.

Did you interview any of the children that started on GnRH that were referenced in that Australian article?

A. No.

Q. Did you do any analysis of -- of what -- what medical or psychological factors influenced determinations as to whether or not they went on to cross-sex hormones?

A. No.

Q. Did you do any kind of clinical studies to determine whether or not those individuals were indeed transgender?

A. No.

Q. Have you done any kind of clinical studies of -- associated with the Australian article that you represented that 97 to 98 percent of children who went on GnRH went on to take cross-sex hormones?

A. No.

Q. Now, sir, you indicate in your report that you testified, if I understand you correctly, in another matter which you identify as expert witness statement for name suppressed Australian family court, 2022, do you recall that in your report?

A. Correct.

Q. What is that? Putting the name aside for the minute, what was the nature of your testimony, what were you asked to do?

A. It was one of six experts asked by the Australian family court to -- to discuss the case of a child, age 11, who was wanting the -- the mother wanted the child to get puberty blockers, the father did not. And so the conflict came to the Australian family court.

Q. What were you asked to do?

A. I was asked to provide my -- my evidence on

the -- the efficacy and side effects of -- of puberty blockers.

Q. And were you qualified as an expert in that case?

A. I don't believe that the Australian family court system either qualifies or not qualifies experts.

Q. Did you testify in the Australian court?

A. Again, the Australian system does not have testimony from the experts. So I had -- we had an expert conference of -- all the experts on both sides had a meeting to decide where we agreed and where we disagreed. But as in the Keira Bell case, experts did not -- do not testify.

Q. Okay. So were you deposed -- I guess not, because you said you've never been deposed before.

A. Yeah, correct.

Q. So the two matters in which you've been engaged -- just want to make sure I understand it correctly -- to your knowledge, you weren't qualified as an expert in either case, correct?

A. Correct.

Q. And neither case you gave testimony, correct?

A. Correct.

Q. Neither case you gave a deposition,

correct?

A. Correct.

Q. And in the latter case of the Australian family, you said there was an expert conference of the experts on both sides?

A. Correct.

Q. And do the experts make a recommendation to the court?

A. The -- our aim was to -- to decide where we agreed and where we disagreed.

Q. Right. And so my question is, did you -- the six of you, if I got the number right, collectively make a recommendation to the court?

A. No, because we agreed. But we agreed on where we disagreed, if you like.

Q. Okay. Was there any -- any recommendation that you provided to the court in that case?

A. Other than my -- my -- my -- the report that I submitted, no.

Q. Okay. So you did submit a report in that case?

A. Yes, yes.

Q. And that was in 2022, correct?

A. Correct.

Q. And you haven't included that in your

materials in this case, correct?

A. Correct.

Q. In -- in each of those matters, the Tavistock matter and the Australian family matter, were the individuals in those cases suffering from gender dysphoria?

A. Yes.

Q. In both cases?

A. Yes.

Q. And if I understood you correctly, the expertise for which you were retained in the Tavistock matter was to provide your opinions on -- on puberty blockers; is that correct?

A. Correct.

Q. And I think the second basis for your opinions was, according to you, the failure to have provided certain information or disclose certain information, correct?

A. Correct.

Q. Now, in that case, the appeals court determined that medical professionals are -- are indeed qualified to determine whether or not an individual provides consent, correct?

A. Yes.

Q. Now, sir, if I recall correctly, on the

Health and Human Services committee, there were other individuals who testified or spoke -- were speakers along with you, correct?

A. Correct.

Q. One of them was Dr. Laidlaw, correct?

A. Yes.

Q. One of them was Dr. Levine, right?

A. Yes.

Q. Another was Chloe Cole, a detransitioner; isn't that right?

A. Yes.

Q. Was anyone present to speak on behalf of -- of those that support gender-affirming care?

A. I can't recall.

Q. As you sit here today, are you aware of anyone that -- that was invited to speak about the provision of gender-affirming care?

A. I believe the chair of the committee said that he had invited a surgeon in Florida with a very Irish name, I'm afraid it is not on the tip of my tongue, and that she had -- Galica, is it -- Galica her surname? -- and she had refused to attend.

Q. Anything else that you recall about those that believe gender-affirming care is appropriate in terms of their invitation to speak at that committee

meeting?

A. No, I'm afraid I'm not -- I'm not aware of anything.

Q. Fair enough. But you would agree with me that no one did speak on the provision of gender-affirming care in a positive way, correct?

A. I believe not.

Q. Now, sir, you would agree with me that Dr. Laidlaw, Dr. Levine also are against providing gender-affirming care, in particular to minors, correct?

A. Correct.

Q. Do you have any opinions on puberty blockers that -- and I know the answer to this but I'm going to ask it anyway -- as it pertains to adults?

A. No.

Q. Do you have any opinions on the provision of cross-sex hormones as it pertains to adults?

A. No.

Q. Do you have any opinions with regard to cross-sex or -- or surgical procedures as it pertains to adults?

A. No.

Q. Now, at that committee meeting --

MR. BEATO: I apologize, Ms. Altman. I just note that we've been going for about an hour

and 30 minutes. Do you mind if somewhere we work in just a brief five-minute break? I -- I don't mean to interrupt.

MS. ALTMAN: Oh, no, it is okay. Happy to do it right now. That's fine. So five minutes. It is 11:24, why don't we regroup at 11:30.

(A brief recess was taken from 11:24 a.m. to 11:31 a.m.)

BY MS. ALTMAN:

Q. Sir, just to -- to put a finer point on it, other than the opinions in your report on puberty blockers, you are not offering any opinions on cross-sex hormones, correct?

A. Correct.

Q. You are not offering any opinion on the medical care to be received by adults, correct?

A. Correct.

Q. Sir, do you know who finances SEGM?

A. No.

Q. You have no knowledge whatsoever as to who finances that organization?

A. No, I don't.

Q. Do you know how many members it has?

A. I don't believe it has members.

Q. What do you think it has; if they are not

members, what would you call it?

A. Well, there is a board of advisors. I don't know how many people are on the board of advisors, maybe 20, 12. I really don't know.

Q. Do you meet?

A. There is a common library of articles in Zotero, in a software called Zotero.

Q. I assume these articles are all anti providing gender-affirming care to individuals; is that correct?

MR. BEATO: Objection -- object to form.

Dr. Biggs, you can answer that question.

THE WITNESS: No, that's incorrect. It is the literature of rela- -- relevant to gender care.

BY MS. ALTMAN:

Q. Okay. And so you would -- your -- it's your testimony that the literature relevant to gender care is both those that propose it and those that are against it?

A. Yes.

Q. Okay. And do individuals upload information into that database?

A. Yes.

Q. And would that be individuals that are on

the board of advisors or can anyone update or upload information into that database?

A. I don't know. I just use it, so I assume that there are maybe five people who can -- who can upload information. I'm not -- I'm not aware of the details.

Q. Do you know who the five people are?

A. No.

Q. Can you upload information into that database?

A. I don't know if I have uploading permission or not. I've never uploaded anything.

Q. But you indicated that you do use it; is that correct?

A. Yes, if I can come across a reference, then -- and then I can look in the second database to get the article quickly.

Q. Sir, your opinions in this case are limited to puberty blockers, correct?

A. Yes.

Q. And, again, you are not -- you are not providing any opinions relating to gender dysphoria specifically as it pertains to adults, correct?

A. Correct.

Q. Now, sir, at the committee meeting for the

Health and Human Services, you -- you stated that you read published literature regarding gender-affirming care and determined that it was of poor quality, do you recall that testimony?

A. Yes.

Q. What literature specifically did you review that you believe is of poor quality?

A. There -- well, one of the landmark studies would be the de Vries, et al., 2011 and the de Vries, et al., 2014, which was the -- the first cohort of -- well, they started out with 70 children who were -- who got puberty blockers in the Netherlands.

Q. And it's -- it is your position that -- that those -- that published literature was of poor quality, is that your testimony?

A. Yes.

Q. Based on what qualifications, sir, do you have to make a determination that those -- the published literature was of poor quality?

A. Well, it's The National Institute For Clinical Excellence, called NICE, N-I-C-E, in Britain has reviewed -- has reviewed the literature -- that literature with reference to the GRADE system, G-R-A-D-E, of -- of research, where -- where the research is of high quality and low quality, and has assessed those studies

of -- as being of very low quality.

Q. So you've not done any studies to determine whether it's of poor quality or low quality. You are, again, citing to someone else's analysis, correct?

A. I've also considered the -- the literature myself.

Q. When you just answered my question, sir, you referred to NICE's evaluation of whether or not using their grading system it was of low quality; isn't that right?

A. Yes.

Q. Okay. And that's what you were relying upon when you were before the Health and Human Services committee when you represented that the published literature was of poor quality?

A. It's partly -- that's one -- that's one contributor to my judgment. I also base it on the -- my own review of the literature. So another example of poor quality would be very high rates of attrition that are not explained.

Q. Well, let's just focus on that for a second. You didn't try and reach out to the individuals that -- that you claim were no longer available or didn't participate in order to determine their results, did you?

A. Correct.

Q. So you are just saying the -- the mere fact that there was what you refer to as a significant amount of attrition, in your opinion, makes -- makes it of poor quality; is that correct?

A. Yes, that's one factor, yes.

Q. Okay. But as far as you know, those individuals could all be very happy, well adjusted, not suffering from depression or anxiety or any other disease, correct?

A. Correct.

Q. You don't know one way or another?

A. Correct.

Q. So you have no way to dispute the results of those -- the two studies you mentioned, de Vries 2011 and 2014, correct?

A. Correct -- no, actually, hold on. Can I -- can I change my answer there? One -- one -- one example was the -- one of the major findings was the gender dysphoria was eliminated after -- after the -- after the medical procedures. And that is based on the scale, which they changed the scale halfway through the study.

Q. Okay. So that doesn't tell you, sir, that gender dysphoria wasn't eliminated. All you could say is that they changed the scale, correct?

A. Yes --

MR. BEATO: Object to form.

Dr. Biggs, you can answer that question.

BY MS. ALTMAN:

Q. Right?

A. There was no evidence either way.

Q. Right. So you can't say the evidence is bad or good, correct?

A. If researchers change the scale halfway through a study, that is a sign of very poor research.

Q. Well, sir, while it may be, in your opinion, a sign of very poor research, what it isn't a sign of is individuals who originally had gender dysphoria who no longer suffer from gender dysphoria, correct?

A. Correct.

Q. And you can't testify and you have no information from which you could testify or provide opinions about whether or not any of these individuals indeed were -- received relief from -- from their gender dysphoria because of the medical treatments that they received, correct?

A. Largely correct. I mean, the -- the child who died as a result of surgery, I don't believe that they were cured of their gender dysphoria.

Q. Okay. Well, let's talk about that

individual for a minute. You would agree with me, sir, that that individual, if I'm remembering the one that you referred to in your report, died of a surgical procedure, correct?

A. Yes, correct.

Q. And you would agree with me that the -- the -- to your knowledge, you have no basis on which to opine that puberty blockers had any causation whatsoever in that individual's death; is that right?

A. I disagree because puberty blockers meant that the -- the individual had to go through a more dangerous form of vaginoplasty.

Q. Okay. But, sir, puberty blockers was not the causation of that individual's death, correct?

A. It was indirect -- an indirect cause.

Q. Sir, you understand my question. The person died of a complication from surgery; isn't that right?

A. Correct, but the chance of a surgical complication was increased because of the particular type of procedure they had to undergo because of puberty blockers.

Q. Sir, what medical basis do you have to make that statement? Are you a surgeon?

A. Because the surgeons who -- who performed

that operation stated that that was the reason why they had to undergo that more complicated surgery.

Q. Are you a surgeon?

A. No.

Q. Did you review the surgical notes from that case?

A. I reviewed the article.

Q. I didn't ask if you reviewed the article. I understand the confusion. My question is, did you review the surgical notes of that patient from that case?

A. No.

Q. Did you do any analysis whatsoever of the medical treatment, meaning looking at the actual medical records, of the individual that died in that case?

A. No.

Q. Did you speak to the doctors directly to determine what happened in that particular case to that particular patient?

A. No, they -- they -- there was no need to speak to them because they published an article which described what happened.

Q. So the answer to my question is no, you didn't, right?

A. Correct.

Q. Okay. Have you ever spoken to a surgeon

who provides surgery, gender-affirming surgery, to determine how that procedure is performed today?

A. No.

Q. Have you spoken to any surgeon that performs bottom surgery today to determine what impact, if any, puberty blockers has on their ability to provide such surgery?

A. No.

Q. Sir, are -- are you suggesting or representing to the Court that you've read all of the published literature on the provision of gender-affirming care?

A. No, not all of it, no.

Q. Other than what you've testified with regards to the two de Vries studies, is there any other literature that you reviewed that you believe is of poor quality?

A. I guess there is other research. For example, there is a study by Tordoff, which again had a very high rate of attrition which was unexplained, Tordoff 2022, I believe.

Q. Okay. And, sir, the fact that there is a high rate of attrition doesn't mean that the underlying merits of the study were incorrect; isn't that right?

A. Well, the higher the rates of attrition,

the worse the -- the study because the less inferences can be drawn from it.

Q. Well, I'm talking about the actual care, sir. Just because there is a high rate of attrition doesn't mean that the results of the care that are reported in that study are not correct, are not reliable; isn't that right?

A. Well, we don't know the results for the -- the patients who were -- who -- who were not measured, who did not come back to the clinic, correct.

Q. You don't know one way or the other, right?

A. Correct.

Q. And you can't surmise that -- that their results were bad, can you?

A. Correct.

Q. And -- or the other way around, right, you just don't know?

A. Correct.

Q. And you didn't do anything yourself to reach out to any of the individuals that were part of the Tordoff study that -- that had left the study or weren't reporting back to determine what their -- their results were, did you?

A. Correct.

Q. And I assume you would agree with me that

medical professionals are in a better position to ascertain and weigh the reliability of studies and research in the area of gender dysphoria, correct, sir?

A. Correct.

Q. And you are not suggesting to this Court that as between yourself and a medical director, that you are in a better position to evaluate research than they would be, right?

A. I think one's ability to evaluate should be based on, you know, one's publications, for example.

Q. Okay. And in the committee meeting, the Health and Human Services committee meeting, you said you have published original research of your own, do you recall making that statement?

A. Yes.

Q. Is that the research that we discussed earlier with regard to suicidality and bone density?

A. Yes.

Q. Is there anything else?

A. No.

Q. That you were referring to?

A. No.

Q. What statistical methodology did you employ in your -- your analysis of suicidality?

A. Calculating a -- calculating a rate. So

you have a denominator and numerator. The denominator is the number of deaths and the -- sorry, the numerator is the number of deaths and the denominator is the number of years -- individual years at risk.

Q. So simple math, right?

A. Yes.

Q. But -- but what you also testified and -- and extrapolated that somehow this suicide rate, as compared to healthy teenagers, was greater than 1 percent, correct?

A. I don't recognize what you are saying in the question.

Q. Okay. You don't recall saying that in your report and at the -- at the Health and Human Services meeting?

A. I believe what I said was that the suicide rate of the -- of clinic referred adolescence to the Tavistock was, by my best estimate, about five or six times higher than comparable in the overall population.

Q. Well, let's just make sure we're talking about the same thing so that there is no confusion. So I'm looking at page 5 and 6 of your report. And, again, you were referring to the teenager that died of fasciitis, correct?

A. Can I -- I'm just consulting my -- can I --

Q. Well, I'm going to read you the relevant portion but feel free to pick up your report or we can pull it up on the screen. But I'm at the bottom of page 5 --

MR. BEATO: Would it be best to pull it up on the screen, just so everyone is reading the same thing?

MS. ALTMAN: Yes. I'm going to wake Ana up.

Ana, if you can go to page 5 of the report, Exhibit 2, that would be --

MS. GONZALEZ: I'm here. Let me just share the screen again and I'll take you to it.

MS. ALTMAN: Bottom of page 5.

MS. GONZALEZ: Okay. I'm there.

BY MS. ALTMAN:

Q. Okay, sir, do you see at the bottom of page 5?

A. Yes.

Q. And if we can go on to page 6. There you go, top of page 6. Did I not read that correctly? "In a cohort of healthy teenagers, a death rate exceeding 1 percent is alarming."

A. Yes.

Q. Do you see that now?

A. Yes, yes.

Q. Okay. And so you referred in your -- in your statistical methodology, you compared the death rate to a cohort of healthy teenagers; isn't that right?

A. I'm sorry, when I was -- when I was replying earlier, I thought you were talking about my suicide -- the study of suicide at Tavistock.

Q. Oh, okay. So now that we're -- again, that's why we pulled it up, to make sure we're on the same page. Do you see your opinion in this case?

A. Yes, yes.

Q. Okay. And here you say, "In a cohort of healthy teenagers, a death rate exceeding 1 percent is alarming."

A. Yes.

Q. I read that right?

A. Correct.

Q. Okay. And so you would agree with me that individuals suffering from gender dysphoria are not necessarily healthy teenagers, are they?

A. They are physically -- often physically healthy.

Q. Do you know, sir? Did you do any analysis to determine whether or not the death rate, using the example that you gave, which we'll go into why I don't

agree with it, but did you do any analysis to determine what the death rate of those suffering from gender dysphoria is?

A. We do -- the Amsterdam gender clinic does have a very good -- does actually keep extremely good records of the number of patients it sees and their death rate. And that's -- the death rate is certainly much lower than 1 percent, normally, of its -- of its clinical referred patients.

Q. Well, what is it?

A. I don't have the figures at hand.

Q. Okay. So as you sit here today, you don't know what the death rate is of those that suffer with gender dysphoria, correct?

A. Correct.

Q. And, sir, with regard to this 1 percent that you calculated as some reliable measure of the death rate, you are basing it on one patient who died from a failed surgical proceeding; isn't that right?

A. Correct.

Q. They didn't die from puberty blockers, from the administration of puberty blockers, did they?

A. The administration of puberty blockers increased the risk of dying in surgery because of the effect of -- on -- of the vagio- -- the --

Q. I -- and I heard when you said that before, sir. But you would agree with me that giving puberty blockers did not cause this individual to die. They had a failed result from a surgical procedure; isn't that right?

A. Correct.

Q. And giving cross-sex hormones was not the cause of death of this individual, correct?

A. Correct.

Q. And so you would agree with me, sir, that your statement in your report is grossly misleading to suggest to this Court that there is a 1 percent death rate in this particular study because an individual died from a surgical complication; isn't that right?

MR. BEATO: Object to form.

But, Dr. Biggs, you can answer that.

THE WITNESS: I disagree with that characterization. 70 -- there were 70 patients in the study and one died. So that's a death rate exceeding -- in that study, a death rate exceeding 1 percent.

BY MS. ALTMAN:

Q. And that's -- that's the sole basis for your opinion that the -- that it's an exceedingly high death rate?

A. In that study, yes.
Q. Yeah. And in that study, sir, that study wasn't designed to analyze the efficacy or return rate of surgical procedures, was it?
A. It was designed to look at the Dutch Protocol, which was three -- which had three components; puberty blockers, cross-sex hormones, and then surgeries up to 18.
Q. Okay. And so it's your -- it's your position, based upon your statistical analysis of dividing the numerator and the denominator, that -- that the death rate is greater than 1 percent, correct?
A. In that study, yes. I'm not claiming that that is extrapolating that -- other situations or other -- other groups of patients.
Q. Okay. But that -- your report doesn't say that, does it?
A. It is implied by the -- the wording of the -- of that sentence.
Q. No, sir. What -- what your sentence says, "In a cohort of healthy teenagers, a death rate exceeding 1 percent is alarming." Isn't that what your sentence says in your report?
A. Yes, but it is clearly based on a discussion of those 70 -- of those 70 patients.

Q. But those 70 patients were not healthy teenagers. They were those that suffered from gender dysphoria; isn't that correct?

A. Yes, but they're physically health -- they were physically healthy.

Q. How do you know that, sir, what did you look at in order to make this statement you just made?

A. There was no -- they would not have been given gonadotropin-releasing hormone agonist if they -- if they were not physically healthy.

Q. Have you done any research or analysis to determine whether or not this statement you just made on the record under oath is accurate?

A. That is based on my reading of the 2011 and 2014 articles by de Vries, et al.

Q. Okay. So other than reading those two articles, my question is, have you done any study or analysis to determine whether or not any of the individuals in that 70-person study suffered from comorbidity?

A. No.

Q. Have you done any analysis whatsoever in either of those studies to determine whether or not any of those individuals had -- had other health issues or concerns?

A. No.

Q. Sir, if there are 70 people in a study about puberty blockers and one dies in a car accident, does that mean the death rate as a result of the puberty blockers is greater than 1 percent?

A. No.

Q. And just to -- to make sure I -- I put a pin -- a fine pin in this, in your report, what your statement is, is unrelated really to the 70-person study because you make a blanket general statement that "in a cohort of healthy teenagers, a death rate exceeding 1 percent is alarming," did I read that statement -- that sentence correctly?

A. Yes, you read that sentence correctly, yes.

Q. Now, sir, with regard to puberty blockers, what specific studies or analysis have you personally performed or participated in performing?

A. May we have the full screen again, if we're finished with that expert -- or do you want to keep it?

Q. You mean you would like to take away the expert report?

A. No, just -- I mean, it just -- just it might be easier just so I can see.

Q. Sure, sure, sure. I just want to make sure I understood your request.

A. So --
Q. And, actually, before you answer that question, I have a different question for you.
Do you have anything other than our names and our pictures up on your screen in front of you?
A. No.
Q. Are you reading from any e-mails?
A. No.
Q. Are you reading from any texts?
A. No.
Q. Are you receiving, reviewing, or reading any e-mails, texts, or other information about your testimony in this case today?
A. Absolutely not.
Q. Okay. Excellent. So do you have any materials in front of you?
A. Yes, I have the printed-out deposition -- or sorry, the report, report, expert report.
Q. No worries. Anything else?
A. No.
Q. Anything else up on your screen?
A. No.
Q. Okay. So now I go back to my question. With regard to puberty blockers, what specific studies or analysis have you personally performed or participated in

performing?

A. I have not personally performed any studies on -- on puberty blockers.

Q. Have you participated in performing any studies on puberty blockers?

A. No.

Q. Now, sir, I did listen to your testimony before the Health and Human Services committee, and one of the things you said during that committee meeting is that puberty-blocking drugs perform, and I quote, "chemical castration," do you recall that testimony?

A. Yes.

Q. And is that an opinion that you are rendering in this case, that puberty blockers perform chemical castration?

A. Well, if they block the -- the production of sex hormones.

Q. Well, you didn't say that, sir, you said chemical castration.

A. Correct.

Q. You would agree with me those are two different things. One sounds pretty ominous, right?

MR. BEATO: Object to form.

But, Dr. Biggs, you can answer that.

THE WITNESS: Yes, castration is -- does

sound ominous, yes.
BY MS. ALTMAN:
Q. Correct. But you chose to use those words in the Health and Human Services committee meeting, right, "chemical castration"?
A. Yes.
Q. Because you wanted to send a particular message, right?
A. Correct.
Q. You could have said they blocked the production of sex hormones, right?
A. Correct.
Q. And you could have also said that once you stop taking puberty blockers, the production of sex hormones reignites, correct?
A. Yes.
Q. But you didn't do that, did you, sir?
A. No.
Q. Why?
A. Because in 93 or 95 or 98 percent of cases, the child will continue on to cross-sex hormones. It's -- it's very unusual for a child to stop taking hormone agonists.
Q. But, sir, the puberty blockers does not, in fact, create or -- or result in chemical castration;

isn't that correct?

A. Correct.

Q. But that's not what you said to the Health and Human Services committee, right? I assure you, I've listened to your testimony.

A. Correct.

Q. You said that puberty blockers performed chemical castration. That's not correct, is it, sir?

A. Well, that is the terminology that is used when the drugs are used for, let's say, people -- a man with severe sexual disorders.

Q. But we're not talking about that, sir, and you weren't talking about that before the Health and Human Services committee, were you, about a pedophile, right?

A. That's the same drugs, it's the same drugs being used in the same dose.

Q. Sir, do -- are puberty blocker -- puberty blockers used for gender dysphoria in perpetuity?

A. Not normally, no.

Q. Okay. So we're not talking about the same thing, are we, sir?

A. They are also not used in perpetuity necessarily for -- for men with severe sexual deviation.

Q. Sir, why did you not tell the Health and

Human Services committee that puberty blockers merely block the production of sex hormones until you stop using them?

A. Because I wanted to draw the parallel with their use in -- in prisons and mental institutions.

Q. Is that where you believe people with gender -- gender dysphoria belong, in prisons and mental institutions?

MR. BEATO: Object to form.

Dr. Biggs, you can answer that.

THE WITNESS: No.

BY MS. ALTMAN:

Q. Then why would you draw that parallel?

A. I draw that parallel because the same drugs are being used in -- to -- to chemically castrate sex offenders as a -- used for gender dysphoric youth.

Q. And they are also used for precocious puberty, right?

A. Yes.

Q. And they are also used for endometriosis, correct?

A. Correct.

Q. Well, why didn't you draw one of those parallels?

A. Because for endometriosis, for example,

they would be used for a much shorter period of time than they are used for -- for gender dysphoric youths -- youth.

Q. What about for puberty -- for precocious puberty, sir, they can be used for years in precocious puberty?

A. Precocious puberty means -- use of -- the use for precocious puberty means blocking an abnormally early puberty in order to allow natural puberty to commence at the -- at the sort of more appropriate time, which is very different from stopping natural puberty altogether.

Q. Sir, the reason you chose to use the words "chemical castration" was because you wanted the committee in that particular case to see puberty blockers utilized in some way as -- as a lethal medication rather than its actual use in treatment of gender dysphoria; isn't that right?

A. No, I disagree that -- that the -- that puberty blockers are ever a lethal -- a lethal medication. I mean, that's -- that's not how I would cast -- how I would characterize puberty blockers, as lethal.

Q. Really? Well, then I'm sorry. Then I guess we can go back to your greater percent -- greater

than 1 percent death rate a few minutes ago when you attributed this one death to puberty blockers.

So which one is it, is it lethal or is it not lethal?

A. Lethal suggests that it has a very, very high rate of -- of -- of death or, indeed, inevitably causes death. That is not my -- that has never -- not and never been my -- my -- my position.

Q. It hasn't. Even when you said in your report "in a cohort of healthy teenagers, a death rate exceeding 1 percent is alarming"?

A. Alarming, yes.

Q. Alarming, okay. So -- so back to your -- your testimony. What do you mean by the terminology that you use, chemical castration? What did you mean by that when you said that to the committee?

A. I wanted to draw the parallel between the use of the same -- the same drug in the same dose to children who are suffering from gender dysphoria to the use of men with severe sexual deviation.

Q. Do you think people who suffer from gender dysphoria have -- are sexual deviants?

A. Absolutely not.

Q. Do you believe people who are transgender are sexual deviants?

A. Absolutely not.
Q. But yet you chose to make that parallel before the Health and Human Services committee, right?
A. Correct. The parallel is saying that maybe we should take -- think twice before providing the same sort of drugs that -- with those effects to young children as we do to men with sexual deviation.
Q. Uh-huh. And the people that should think twice, though, are those people that are qualified to render medical opinions, right?
A. I think everybody should think twice about it.
Q. Uh-huh. Other than what you've testified on the record and what's contained in your report, what is the specific bases for your testimony that providing puberty blockers is equivalent to chemical castration?
A. It's my review -- review -- reading of the two articles -- or three articles reviewing the use of gonadotropin-releasing hormone agonist for sex offenders or for men with -- with severe deviation. One of the articles is Dutch, one of them is American, and one is English.
Q. Anything else?
A. No.
Q. As a sociologist, sir, what qualifications

do you have to make such a statement?

A. I read the -- I read those articles and I looked at the -- the drugs that were being used and the dose that they were being used, and I compared those to the -- to the literature on gender dysphoria.

Q. And any other basis, sir, on which you believe you are qualified to make such a statement?

A. No.

Q. What studies have you performed on this issue other than reading other people's research on the subject?

A. None.

Q. Now, sir, you would agree with me that GnRH merely suppresses certain hormones while the person is taking the medication; and that once they stop the medication, they typically begin producing the hormones that were suppressed, correct?

A. Correct.

Q. And you are not rendering an opinion in this case to the contrary, are you?

A. No.

Q. And you are not offering an opinion on the medical efficacy of puberty blockers for those with gender dysphoria, are you?

A. I'm not sure I understand the question.

Q. I'm happy to rephrase it. Are you offering any opinions in this case on the medical efficacy of gender-affirming care?

A. I'm offering opinions on -- on puberty blockers, yes.

Q. Okay. And, specifically, other than what you've testified on the record, do you have any other opinions about puberty blockers other than what you've already testified on the record?

A. No.

Q. And you are not qualified, sir, to render any opinion on whether or not there are any medical side effects to puberty blockers, are you?

A. No.

Q. And as you sit here today, you have no medical training or experience that would qualify you to render any such opinions; isn't that right?

A. Correct.

Q. Now, you would agree with me, and I believe you've already acknowledged, that puberty suppressors are prescribed to children with precocious puberty, right?

A. Yes.

Q. Precocious puberty occurs in children, correct?

A. Yes.

Q. Sometimes as young as 5, I believe, according to your own testimony, correct?
A. Yes.
Q. And for how many years might those children take puberty blockers?
A. I believe up until the age of around 9.
Q. So it could be as much as four or five years, correct?
A. Correct.
Q. And you would agree that that's a standard protocol for precocious puberty if in a five-year-old, might be to give them puberty blockers, correct?
A. Yes -- yes.
Q. And you agree that when a child stops taking the puberty blockers, he or she should begin normal puberty as usual, correct?
A. Yes.
Q. I would assume, sir, since you are not a doctor or a pharmacist, you've never prescribed puberty -- puberty suppressors for children experiencing precocious puberty, have you?
A. Correct.
Q. And you are unqualified to do so, correct?
A. Correct.
Q. Have you performed any research in the area

of providing puberty suppressors to children with precocious puberty?

A. No.

Q. You seem to be very interested in the provision of puberty suppressors to children. Why have you not engaged in any research of providing children with precocious puberty -- puberty suppressors?

A. Well, that's not -- just not a topic that I've investigated, except insofar as it pertains to gender dysphoria.

Q. Well, it's the same thing, right, it's providing puberty blockers to children, right? Different diagnoses but both to children, correct?

A. At a different -- at a different age as well.

Q. One, generally teenagers, one younger, correct?

A. Precocious puberty, let's say, a child may start puberty at 5 and they would be stopped until 8 or 9, and then they would allow their normal puberty to continue to -- to emerge.

Whereas for gender dysphoria, you are stopping and you will not -- typically, in 93 and 95 and 98 percent of cases, you will -- the child will never experience puberty.

Q. Well, sir, you would agree with me that -- that it would be up to the minor, their parents, and their medical professionals whether or not they would go on to take cross-sex hormones; isn't that right?

A. Correct.

Q. It's not up to you to decide that, is it?

A. Certainly not up to me, correct.

Q. Okay. And you would agree with me that -- that the child, the parent, and the medical professional is in the best position to make those determinations, correct?

A. Well, it would have to be based on the evidence, right.

Q. But -- but not you, right?

A. Not me personally but on the -- on the evidence.

Q. Right. And it's not your testimony, as -- as you are providing to the Court, that the medical professionals that are treating these individuals aren't as facile with the medical literature as you are?

MR. BEATO: Object to form.

BY MS. ALTMAN:

Q. That's all right. It was a bad question, I'm going to withdraw it.

Sir, it is not your testimony or your

opinion in this case that medical professionals -- well, strike that.

It is not your testimony, sir, that you are the only individual that's reviewing medical literature with regard to the treatment of gender dysphoria and puberty blockers, is it?

A. No; that's correct.

Q. You would agree with me that other individuals, even myself, could read the same literature that you are reading and draw conclusions from it, correct?

A. Correct.

Q. And -- and, in fact, they might draw different conclusions than you, correct?

A. Yes.

Q. Have you ever provided an opinion that giving GnRH to children for precocious puberty will impact their -- impact their brain development?

A. No.

Q. Have you ever provided an opinion that giving GnRH to children for precocious puberty will impact their bone density?

A. No.

Q. Have you ever provided an opinion that giving GnRH to children for precocious puberty is a -- is

equivalent to the chemical castration?

A. No.

Q. But these are all opinions that -- that you've rendered in this case when that same drug is given for gender dysphoria, correct?

A. Correct.

Q. You believe providing puberty blockers for precocious puberty will impact a child's mental health?

A. I have no opinion on that.

Q. Have you -- have you performed any independent research whatsoever with regard to providing puberty blockers to children with precocious puberty?

A. No.

Q. Do you believe that providing puberty blockers to children for precocious puberty will impact a young child's sexual function?

A. I have no opinions on that.

Q. But you do have an opinion on it when it comes to providing that same drug for those with gender dysphoria, right?

A. Yes.

Q. And those opinions are encapsulated in your report in this case, correct?

A. Correct.

Q. Are you qualified to determine when a child

has precocious puberty?

A. No.

Q. Would you agree with me or do you agree with me that you are not qualified to opine on the physiological differences in administering GnRH to a five-year-old with precocious puberty versus a 13-year-old who is evidencing gender dysphoria, correct, sir?

A. Correct.

Q. Who diagnoses precocious puberty?

A. An endocrinologist.

Q. Who diagnoses gender dysphoria?

A. It would usually be a psychologist.

Q. You would agree with me that in neither case it is a sociologist, right?

A. Correct.

Q. Who determines the course of treatment for a child with precocious puberty?

A. An endocrine -- endocrinologist.

Q. Who determines the course of treatment for a child with gender dysphoria?

A. It would be a psychologist, perhaps with a endocrinologist as well.

Q. You would agree with me it is not a sociologist, correct?

A. Correct.

Q. In your testimony, you told the Health and Human Services committee that taking GnRH decreases bone density, right?

A. Yes.

Q. But, sir, you are not qualified to render an opinion on the medical impact of using puberty blockers with regards to bone density; as you've already testified, all you've done is read other people's research, correct?

A. No. I've conducted my own statistical analysis of the bone density that was produced by data from the -- from the Tavistock.

Q. And that's what we talked about earlier, right, those were other people's scans and analysis, and then you just relied on that, correct, you didn't do the scans yourself?

A. I did not do the scans myself.

Q. Right. So you are relying upon, you know, the -- the quality of somebody else's work, correct?

A. Correct.

Q. Good or bad?

A. Correct.

Q. What education, skill, or training do you have that would enable you to provide opinions on the

medical consequences of using puberty blockers?

A. Well, I have a Ph.D. in -- from Harvard for -- which gives me an ability to look at quantitative research and to analysis literature.

Q. And your Ph.D., sir, was not in anything related to the treatment of gender dysphoria, correct?

A. Correct.

Q. And it wasn't anything related to the use of puberty blockers, was it?

A. Correct.

Q. And, sir, you would agree with me that if there were any side effects from taking puberty blockers, they would be the same whether someone takes it for precocious puberty or gender dysphoria, correct?

A. Well, that would depend on what age they took it and for how long.

Q. Okay. But you would agree with me, depending upon what age they are and how long they took it, the side effects could be the same, correct?

A. Yes.

Q. Have you ever advocated that puberty blockers not be given to children for precocious puberty?

A. No.

Q. And you are not suggesting to this Court that it has an impact on bone density only when it is

given for gender dysphoria, are you?

A. No.

Q. Could have an impact in precocious puberty, right?

A. It could, yes. That's not my --

Q. And -- and it would be up to medical professionals -- not yourself as a sociologist -- if giving puberty blockers, to monitor the patient to whom they are given, correct?

A. Correct.

Q. And they would do testing, correct?

A. Correct.

Q. And if they saw issues, vis-à-vis decreases in bone density, they could take medical intervention as a result of that, correct?

A. Yes.

Q. And that's true whether they were given for precocious puberty or gender dysphoria, correct?

A. Yes. But the -- the crucial difference is the age at which you are doing -- doing the intervention.

Q. Because you believe that at -- at a -- at an older age, the level of hormones increase -- the increase in hormones has a greater impact on bone density, is that your position?

A. Bone density is laid down in adolescence,

yes. So that's the -- that's the most important time in which you are laying down the -- the bone density for which you are using -- you are -- for life -- you know, you are then using it for the rest -- for the rest of your life.

Q. And you would agree with me, sir, that those that are prescribing puberty blockers for those with gender dysphoria during adolescence have the ability to monitor those patients, correct?

A. They do have the ability to monitor the patients, yes.

Q. And they have the ability to utilize medical intervention if they see decreases or impact on bone density, correct?

A. I don't know that there is any medical intervention for decreases in bone density. The only -- they are recommending taking vitamin D and more weightbearing exercise. I suppose vitamin D is medical intervention.

Q. Well, you just named two of them right there, right?

A. Yes.

Q. Okay. And there might be others. You don't know because you are not a medical doctor, correct?

A. Correct.

Q. Now, in your testimony before the committee, you referenced -- and I believe this is also in your report -- one individual who had -- at 15 had osteoporosis, do you recall that?

A. Yes.

Q. Did you review that individual's medical records to determine the origin or diagnosis of that person's osteoporosis?

A. No.

Q. You would agree with me that -- that many teenagers who are not -- do not suffer from gender dysphoria and don't take puberty blockers can have osteoporosis, correct?

A. Yes.

Q. And yet you chose to suggest to the Health and Human Services committee that this one individual, because they had osteoporosis, it was in some way related to puberty blockers, even though you had absolutely no basis to make that statement; isn't that correct?

MR. BEATO: Object to form.

Dr. Biggs, you can answer that question.

THE WITNESS: Are we -- are you referring to the English child that I mentioned or the Swedish child?

BY MS. ALTMAN:

Q. The 15-year-old child. I don't have -- I can pull up your audio from the Health and Human Services. I honestly don't remember if she was Swedish or English. But regardless, you didn't do any investigation whatsoever to determine whether or not there was a pre-existing condition or reason for the osteoporosis; isn't that right?

A. The Swedish clinicians were so concerned about this case that it changed their policy on giving puberty blockers. So the Swedish had made that determination.

Q. Did you understand my question?

A. Yes.

Q. Did you understand my question?

A. Yes.

Q. Do you need me to ask it again?

A. Sure.

Q. Okay. My question is, you didn't do any independent research or analysis to determine whether or not the 15-year-old that you referenced in your testimony before the Health and Human Services committee had any pre-existing condition or other reason that she suffered from osteoporosis; isn't that right?

A. I did not, no. I was repeating what the Swedish clinicians had found.

Q. Right. You were repeating somebody else's research, correct?

A. Yes.

Q. Okay. And you didn't do any independent study or analysis to determine whether or not that particular individual that you represented to the Health and Human Services committee in a way as to suggest that the osteoporosis was derived from giving the puberty blockers. You did not do any independent analysis to determine whether that's correct; isn't that right?

A. Yes.

MR. BEATO: Object to form.

But, Dr. Biggs, you can answer the question.

BY MS. ALTMAN:

Q. I think he said I was right, correct?

A. Yes.

Q. As you sit here today, you don't have any basis to testify under oath that the individual you noted to the committee was diagnosed with osteoporosis because of receiving puberty blockers; isn't that true?

A. I was reporting what the Swedish -- the Swedish doctors had found.

Q. Right. And so what I said was true, correct, you have no basis under which to testify to this

Court or to have testified before the committee under oath that the individual you noted was diagnosed with osteoporosis as a result of receiving puberty blockers, correct?

A. No, I disagree with that characterization. I did have a basis for my statement. The statement -- the basis was based on the -- the conclusions drawn from the -- by the Swedish clinicians.

Q. And you don't know, as you sit here today, whether or not anyone, whether it is in the Swedish clinicians or the English ones, whether or not they did any independent analysis to determine whether or not the 15-year-old's osteoporosis was caused from factors other than or in addition to puberty blockers; isn't that correct?

A. Yes.

Q. And, sir, even though -- well, strike that.

You would agree with me that there is no consensus on any long-term impact on bone density with regards to the use of GnRH alone or with cross-sex hormones; isn't that correct?

A. No, there is a consensus.

Q. Of the long-term impact? What is the consensus, sir, in your opinion?

A. Well, the consensus is that puberty

blockers will reduce bone density or bone density will not accrue as fast as it should, so it will reduce relative to the age and sex. And then in some cases it will increase again with cross-sex hormones. But it will not increase -- it will remain below the level relative to age and sex than it was at the commencement.

Q. Okay. And other than what you just said, do you have any other opinions on that subject?

A. No.

Q. And so if I understood you correctly, you agree with me that providing cross-sex hormones, at that point an individual's bone density would accrete, perhaps not at the same level, but would continue to accrete while they are taking cross-sex hormones, correct?

A. Yes, but they do not reach the level at which they -- they remain below where they were in terms of relevant to age and sex.

Q. Okay. And you don't know -- as you sit here today, you have no ability to opine or provide an opinion on whether or not that will have any long-term detrimental impact on any individual's life, correct?

A. Well, we know that the lower your Z-score, typically below 2.5, the more likely you are to have osteoporosis in later life.

Q. And as you sit here today, sir, you can't

testify or provide an opinion on how many individuals who took puberty blockers and then cross-sex hormones will suffer with osteoporosis later in life, correct?

A. Correct.

Q. You have no basis to provide an opinion in this court on that subject, correct?

A. Well, this is -- if we know that people that -- that have a Z-score minus 2.5 are very high -- are very likely to have a very high risk of osteoporosis than -- in -- later in life, then we know that if we have a group of people with a large number below minus 2.5, then the risk of them developing osteoporosis later in life is elevated.

Q. Okay. And my question is, as you sit here today, do you know how many people with a Z of less than minus 2.5, who took puberty blockers and cross-sex hormones, suffer from osteoporosis?

A. No, there is no published study on that.

Q. Okay. Have you taken any steps to conduct a published -- conduct and then publish a study on that?

A. No.

Q. But it sounds like it is something important to you, correct?

A. Yes, yes.

Q. And you are espousing that concern in the

Health and Human Services committee and in your report in this case, correct?

A. Yes.

Q. Well, sir, what have you done to study it?

A. I don't have access to the patients to study it. But I believe that that's an -- that is an urgent thing for, for example, the Tavistock gender clinic to have -- to study.

Q. Okay. And what have you done to try and create interest in studying this issue?

A. Publishing a letter to the editor in the journal of pediatric and endocrinology and metabolism showing that the -- that the initial results of puberty suppression after two years are very -- unusually high number of children have low bone density.

Q. And anything else that you've done other than publish your letter to the editor?

A. That's the main thing I've done, yes.

Q. And you haven't independently studied this, correct?

A. Correct.

Q. Sir, you would agree with me that it is a medical doctor, not a sociologist, who determines whether or not GnRH should be used with a patient, correct?

A. For an individual patient, yes.

Q. Sir, what is the basis of your statement that you made at the Health and Human Services committee, what is the scientific basis for the statement that the purpose of treating someone with puberty suppressors who has been diagnosed with gender dysphoria is, and I quote, "to begin taking cross-sex hormones for the rest of their lives."

What is the scientific basis for that statement that you made to the committee?

A. Because that is the explicit stages of the -- in the Dutch protocol. First stage is puberty suppression, second stage is cross-sex hormones, and the third stage is surgery.

Q. Well, sir, that's not the statement you made. And I just want to make sure we unpack it. You told the committee that the purpose of someone taking puberty suppressors for gender dysphoria is to begin taking cross-sex hormones for the rest of their lives. What is your scientific basis for that statement?

A. This is the rationale that was advocated by the Dutch clinicians, like Peggy Cohen-Kettenis and Gooren and Henrietta Delemarre-van de Waal -- quite a mouthful -- of why puberty blockers were -- why they advocated for puberty blockers.

Q. But I didn't ask what their scientific

basis is. I asked what yours was. What is your scientific basis for making that statement to the Health and Human Services committee?

A. Reading the explicit statements by the advocates for puberty blockers.

Q. The Dutch Protocol?

A. Yes.

Q. And that was how long ago?

A. Well, the -- that was in -- well, that -- published many things from the 1990s to -- down to today.

Q. Okay. And -- but your specific rationale for that statement was the Dutch Protocol, correct?

A. Yes.

Q. Okay. And that's one study, correct?

A. The Dutch Protocol is a generic term to describe the use of puberty -- early puberty suppression followed by cross-sex hormones.

Q. Right. And you --

A. When it was adopted in America, it was known as the Dutch Protocol. When it was adopted in Britain, it was known as the Dutch Protocol. That's the generic name for it.

Q. I got that. And so my question, though, sir, is a little more nuance. And that is, you made a statement that the purpose of taking puberty suppressors

in those -- in those diagnosed with gender dysphoria, is to begin taking cross-sex hormones for the rest of their lives. That's what you said.

And, sir, you would not be in a position to determine for any specific patient on any specific day in any -- with any specific doctor what the purpose that they were prescribed puberty suppressors was; isn't that right?

MR. BEATO: Object to form.

But, Dr. Briggs, you can answer that.

BY MS. ALTMAN:

Q. Do you understand the question?

A. Yes, but the -- the rationale of this is to enable the individual to pass better to prevent the development of secondary sex characteristics. So --

Q. Sir, you don't know what anyone's individual purpose is in taking puberty suppressors; isn't that right? That's between an individual, their family, if they are a minor, and their physician; isn't that correct? You can't jump into the mind of any particular person and determine what their purpose for taking puberty blockers is; isn't that right?

MR. BEATO: Object to form.

Dr. Biggs, you can answer that question.

THE WITNESS: I certainly can't jump into

the mind of any particular person, correct.
BY MS. ALTMAN:
Q. And so you make these broad sweeping statements that the purpose of taking puberty blockers is to take -- is so that they can take cross-sex hormones for the rest of their life. But that's up to the individual, isn't that correct, and their physician and their family; isn't that right?
MR. BEATO: Object to form.
But, Dr. Biggs, you can answer that question.
THE WITNESS: Yeah, I mean, we know that not -- from 93, 95, 97, 98 percent of children who go on puberty blockers will continue to cross-sex hormones.
BY MS. ALTMAN:
Q. Did you understand my question?
A. Yes, and I answered it.
Q. No. You told me the percentages of people that you believe will go on to cross-sex hormones. You didn't answer my question, which was, the decision of whether or not to take puberty blockers and the decision whether or not to take cross-sex hormones is not one for you to make. It is between a patient, their physician, and their parents; isn't that correct?

A. Correct.

Q. And you would agree with me that the purpose of taking puberty blockers at a time when a person is experiencing distress due to gender dysphoria is actually to alleviate the distress for the child; isn't that correct?

A. That's possibly the short-term aim, yes.

Q. Sir, have you reviewed any studies that attributed a greater than 1 percent death rate in healthy teenagers for those taking puberty blockers?

A. No.

Q. What is the death rate of children diagnosed with gender dysphoria who are prohibited from receiving gender-affirming care?

A. I don't believe we know that -- those figures.

Q. Sorry about that.

What research have you performed on the impact of children with gender dysphoria who are prevented from reading -- from receiving gender-affirming care?

A. I've not conducted such research.

Q. Since you professed to be interested in the subject matter, why have you not undertaken any independent research into what medical interventions can

assist those with -- those suffering from gender dysphoria?

A. Can you repeat the question, sorry.

Q. Sure. You seem to be interested in -- if I understand what your report is in this case and your testimony before the Health and Human Services committee, and the two cases in which you indicate in your report that you participated in, you seem to be interested in puberty suppressors and those with gender dysphoria.

Did I get that right?

A. Yes.

Q. Okay. And so, since you seem to be interested in the subject matter, why have you not undertaken any independent research into what medical interventions can assist those suffering from gender dysphoria?

A. I'm concerned about puberty blockers and that's the thing that I've been focused on.

Q. But we talked about -- talked about it earlier. You are very concerned about puberty blockers but only as it pertains to gender dysphoria, not as it pertains to precocious puberty, correct?

A. Yes.

Q. What is the death rate of children diagnosed with gender dysphoria?

A. I don't think we have figures -- any figures -- any sort of figures that would be, you know, generalizable across different situations.

Q. In your testimony before the Health and Human Services committee, you acknowledge that "puberty suppressors for gender dysphoria have been provided for more than a quarter of a century," that's a quote; isn't that correct?

A. Yes.

Q. As you sit here today, are you aware of a single death caused by an individual who was diagnosed with gender dysphoria and was also taking puberty suppressors?

A. Well, the individual we discussed earlier who died of the necrotizing fasciitis, that I would -- I think that was an indirect consequence of puberty blockers.

Q. Anyone else?

A. No.

Q. And what about, as you sit here today, are you aware of a single death caused by anyone who initially took puberty blockers and then cross-sex hormones and that their death was a consequence of taking cross-sex hormones and puberty blockers?

A. No.

Q. Now, you told the committee that one of the more serious concerns of taking puberty suppression medication along with cross-sex hormones is the impact on sexual function, correct?

A. Yes.

Q. Sir, again, you are not qualified to render an opinion on whether or not puberty suppressors impact sexual function; isn't that correct?

A. Well, I can render an opinion by quoting Dr. Marci Bowers, for example.

Q. So you can -- it is your opinion that you can give an opinion based on someone else's opinion?

A. Well, that's Marci Bowers' experience, yes. Not just --

Q. Well, it is not your experience, is it, sir?

A. No.

Q. And you don't have any basis under which you can provide any testimony to this Court that taking puberty blockers impacts sexual function; isn't that correct?

A. That would -- basis for that would be my reading of the literature, again.

Q. Okay. Have you conducted any studies or research with regard to sexual function other than

reading Marci Bowers?

A. No.

Q. Conducted any peer-reviewed studies?

A. No.

Q. And I think you also mentioned in your testimony before the Health and Human Services committee that there is an unknown impact on emotional, cognitive development, do you recall saying that?

A. Yes.

Q. And you say that in your report as well, correct?

A. Yes.

Q. And so this unknown emotional, cognitive development, if it's unknown, it means you don't know whether there is such an impact; isn't that right?

A. Correct.

Q. So you are just kind of throwing it out there for open discussion?

A. Well --

(Simultaneously speaking.)

BY MS. ALTMAN:

Q. -- whether or not that might be the case?

A. The Dutch clinicians have continued to emphasize that they have known -- no idea of what the cognitive and emotional effects will be. And they can --

they state that many times over -- in many articles.

Q. They do. And so you've repeated that, and I appreciate that. But as we sit here today, sir, "they have no idea" means there could be none, right?

A. Correct.

Q. But, nonetheless, you include that in your report and you talked about it at the Health and Human Services committee, right?

A. Yes, but I think randomized clinical trials on animals provide good evidence. And this is the best evidence because it is based on randomized clinical -- randomized trials, that there are broad -- broad impacts of puberty suppression on emotional, cognitive development in nonhuman animals.

Q. Is that the mice study that you referred to in your report?

A. Mice, sheep, and also there is a primate study as well. I don't remember exactly which -- what type of primate --

Q. Did you rely on that primate study in forming your opinions in this case?

A. Not the prime -- the primate study I know about from one of the rebuttals.

Q. Right. Again, you didn't rely on that in rendering your opinions in this case, correct?

A. Correct.
Q. You have not personally performed any studies on any impact on the emotional, cognitive development, correct?
A. Correct.
Q. And there is no studies, that you are aware of, that there is any impact on cognitive IQ, either, right?
A. There are some studies on cognition.
Q. What studies are you referring to?
A. There was one by the Dutch clinicians about the tower of London exercise and the tower -- and they showed that puberty blocked -- children with puberty blockers did perform less well on executive functioning than the controlled group. But it was a very small sample.
Q. How small?
A. I don't remember off the top of my head. It wasn't significant. But it was a...
Q. It was not significant -- statistically significant, correct?
A. It was statistically significant.
Q. It was significant, okay. And you say you don't recall the name of the study?
A. The first author was Stufforsus (Phonetic),

I think some Dutch name like that.

Q. Is it cited in your report?

A. I can't remember whether I cited that particular article.

Q. Did you rely on it for your opinions in this case?

A. Yes, because I've cited it in the -- I believe I've cited it in my article with the Dutch Protocol. I've certainly known about that study for a while.

Q. Okay. Now, as you sit here today, sir, you are not qualified and cannot render an opinion to this Court that GnRH has any negative impact on cognitive development; isn't that right?

It's just a question, it's an open question, right?

A. I believe that the animal studies strongly are suggestive that blocking normal puberty for quite a few years will have cognitive and emotional effects. Effects on --

Q. You believe that based on reading other people's work, right?

A. Yes.

Q. Not any independent research of your own, correct?

A. Correct.
Q. Sir, have you reviewed the Tower of London study?
A. I've read it, yes.
Q. Have you read Dr. Edmiston's rebuttal report in this case?
A. Yes.
Q. And you would agree with me that he says that the Tower of London study shows no effect on -- of GnRH on executive function, do you agree with that?
A. No, I disagree.
Q. No, did you see that in his report, is my question?
A. I did see it, yes.
Q. Okay. So you two have a difference of opinion, right?
A. Yes.
Q. Okay. And you would agree with me, reasonable people can disagree, correct?
A. No. I went back to look at the abstract and the abstract says very clearly that there was a difference.
Q. You would agree with me, Dr. Edmiston is a medical doctor?
A. Yes.

Q. And you are not, right?
A. Correct.
Q. And you would agree with me that the impact on emotional, cognitive development would be the same whether it is prescribed for precocious puberty or gender dysphoria; isn't that right?
A. Well, it's -- it's prescribed at completely different ages for those two conditions.
Q. Do you understand my question?
A. I don't believe the two are directly comparable because precocious -- GnRH for precocious puberty is prescribed much -- at much younger ages than GnRH for --
Q. Fair enough. What impact does GnRH have on the emotional, cognitive development with those precocious puberty?
A. I don't think we have -- well, I think there are a few studies that -- again, very small, that suggest that may be deleterious effects on IQ for precocious puberty.
Q. Okay. But doctors haven't stopped prescribing GnRH for those with precocious puberty because of those studies you just mentioned, have they?
A. I believe there is more caution now, but I'm not an expert, so I wouldn't like to really state my

claim on that.

Q. You don't know one way or another, right?

A. Correct.

Q. And you haven't analyzed it, correct?

A. Correct.

Q. And as you just said, you are not an expert, right?

A. Not -- I have not reviewed extensively the literature on precocious puberty, no.

Q. Right. Or on the impact of GnRH on individuals who were diagnosed with gender -- with precocious puberty who are taking it, correct?

A. For precocious puberty, correct, yes.

Q. I think I said that, precocious puberty, correct, okay.

Now, you mentioned a recent randomized test on mice that were -- GnRH was provided to mice and it showed high level of stress and anxiety, correct?

A. Yes.

Q. You didn't perform that study, did you, sir?

A. No.

Q. Have you ever asked an individual diagnosed with gender dysphoria what psychological impact taking puberty blockers has had on him or her?

A. Yes.
Q. And is that the one individual you mentioned earlier from the Dutch Protocol, I forget their name?
A. Yes.
Q. Anyone else?
A. Yes.
Q. Who? I think it was -- [redacted] was the one you mentioned earlier?
A. Yes. Keira Bell.
Q. Okay. Anybody else?
A. No.
Q. So two people, right?
A. Yes.
Q. Has anyone stopped you from speaking to individuals with gender dysphoria who are taking puberty suppressors, which you profess to be interested in, from finding out the specific impact that it's had on them?
A. No.
Q. Now, if I understood your testimony before the Health and Human Services committee, you said that "puberty blockers should only be offered in a proper randomized controlled trial," do you recall saying that?
A. Yes.
Q. Do you believe that's true for those with

precocious puberty also?

A. Yes. In fact, there have been some randomized control trials used for precocious puberty.

Q. And what were the results of those?

A. The results were that it has very -- the only rationale for treatment for precocious puberty is the effect on height. And unless you start very young, that the -- the actual gains in height from block -- stopping -- from stopping precocious puberty are minimal.

Q. Okay. Anything else?

A. No. Not --

Q. Now, sir, could you explain to me how can you conduct a -- to use your words, a proper randomized control trial if the medical care has been prohibited?

A. You can't.

Q. But you think that's what's necessary in order to utilize puberty blockers for those with gender dysphoria, is a proper randomized control trial, right, that's what you told the Health and Human Services committee?

A. Yes. I believe that puberty blockers should be offered only as part of a randomized control trial, yes.

Q. Uh-huh. And in order to do a proper randomized control trial, you need to be able to provide

such care, correct?

A. Yes.

Q. Sir, you also spoke at the Florida Board of Medicine meeting relating to the development of rules regarding gender-affirming care on October 28, 2022, correct?

A. Yes.

Q. And I don't know if you saw the agenda for that meeting, but you are identified as an MD?

A. That was not my -- that was a mistake, yeah.

Q. Right. I just -- did you correct them on that? Did you --

A. This is the first time I've heard -- the first time I've heard of it.

Q. Okay. And you were listed on that agenda, if you are aware, as a subject matter expert, do -- are you aware of that?

A. I did not -- I don't believe I saw the agenda.

Q. Okay. But do you consider yourself a subject matter expert?

A. Yes, based on my publications, yes.

Q. And the subject matter which you are an expert is reading other people's research and then

reporting on it, is that the subject matter in which you are an expert?

MR. BEATO: Object to form.

But, Dr. Biggs, you can answer that question.

THE WITNESS: I wouldn't agree with that characterization. I believe that I've done original research on, for example, suicide and on bone density. And I believe that my, you know, publications stand on their own.

BY MS. ALTMAN:

Q. Sir, who invited you to attend the Florida Board of Medicine meeting?

A. I believe it was Patrick. I thought we covered that. Did we not cover that?

Q. Well, you said that he invited you to the Health and Human Services committee. Did he also invite you to the Florida Board of Medicine meeting?

A. I don't -- I don't believe that I said that. I believe that I said that he invited me to the board of medicine. But I -- for the Health and Human Services, I just got an e-mail from whoever was organizing that, I believe. Maybe --

Q. Okay. So just to make sure I'm on the same page with you, Patrick Hunter invited you to the Florida

Board of Medicine meeting, and you got an e-mail for the Health and Human Services committee meeting, but you don't recall who it is from?

A. Correct.

Q. Were you paid for your time at the Florida Board of Medicine?

A. I believe I've already said no.

Q. What expertise do you have with regard to the medical treatment of gender dysphoria?

A. The expertise is the articles that I've published.

Q. Well, that's -- that's with regard to puberty blockers?

A. Yes. And suicide.

Q. My question was broader. What expertise do you have with regard to the medical treatment of gender dysphoria?

A. Well, my expertise is concentrated in those areas.

Q. And at the meeting, do you recall you provided a statement in research on gender dysphoria, according to the meeting minutes, do you agree with that?

A. Yes.

Q. And your statement at the Florida Board of Medicine meeting essentially, if not verbatim, mirrored

the testimony that you gave at the Health and Human Services committee; isn't that correct?

A. Yes.

Q. And it's essentially mirrored your report in this case, correct?

A. Similar, yes.

Q. And I didn't do a side-by-side comparison, but based upon my review of both of your testimony at the committee and your testimony, which I heard the audio of at the Florida Board of Medicine, it appeared as though you were reading from the identical script in both instances; is that correct?

A. Yes. That's probably roughly correct, yes.

Q. Prior to your statement at the Florida Board of Medicine meeting, had you performed any independent research with regard to gender dysphoria that you were asked to speak about at the meeting?

A. No.

Q. And, again, I'm not asking you to repeat anything we've talked about on the record. But you didn't perform any independent research on gender dysphoria for your statements that you made at the Florida Board of Medicine meeting, did you?

A. Correct.

Q. And all of your research is merely

reviewing the research of others and then opining on it, isn't that correct, other than we'll get back to your suicidality report and your bone density, correct?

A. Correct.

Q. And your letter to the editor, okay.

Is there any instance in which you believe in individual suffering with gender dysphoria should receive GnRH? Do you have an opinion on that?

A. Well, do you mean under 18 or in general?

Q. I'm asking if you have an opinion on that.

A. For those under 18, I believe that they should -- or under 16, they should have -- they could access GnRH as part of a proper randomized clinical trial.

Q. So under 16, part of a proper randomized trial, correct?

A. Clinical trial, yes.

Q. Right, okay. Older than 16, do you have an opinion on that?

A. Well, possibly -- over 18, GnRH is sometimes used as a -- it's called a testosterone blocker but it -- to go with estrogen. And, as I said, I don't have any opinions on, you know, what adults can consider.

Q. So we kind of got lost in the question there. And I apologize, I'm sure it is my fault. You

said less than 16, proper randomized control trial, right? Clinica trial, correct?

A. Yes.

Q. Yes, you've got to answer out loud. Sorry about that.

A. Yes.

Q. And then my question was 16 -- between 16 and one, not over 18, what about the people -- the sloth of people between 16 and 18, what do they get? If under 16 has to be part of a randomized controlled clinical trial, what about the people between 16 and 18?

A. I believe that in some circumstances they may be able to access if they have -- if they are told, you know, about the cost as well as the benefits of that treatment.

Q. Okay. So you would agree with me then that someone between the age of 16 and 18, so long as their medical provider consults with them, along with their parents, and discusses the risks versus the rewards of that treatment, that they should be entitled to receive that treatment, correct?

A. Yes.

Q. All right.

MS. ALTMAN: Now is probably a good time for a lunch break. I know for you it is probably

a dinner break. We can try -- let's see, it is four hours. It's 1 o'clock here so it's 5 o'clock there, am I right?

THE WITNESS: Yes.

MS. ALTMAN: Okay.

Michael, how long would you like to take?

MR. BEATO: Oh, gosh, I defer to Dr. Biggs, what do you think an appropriate time would be?

THE WITNESS: Half an hour.

MS. ALTMAN: Fine with me. So it's 1 o'clock here, 5 o'clock there. So 5:30, 1:30 for the rest of us.

(A lunch recess is taken at 12:58 p.m. to 1:33 p.m.)

BY MS. ALTMAN:

Q. Sir, did you have a nice short break?

A. Yes, yes, good to have a break.

MS. ALTMAN: Okay. Michael, and I know you had asked -- I should have probably said this before we got back on the record, but you had asked how long I think I'll go. I think on the outside, like the longest would probably be two hours.

MR. BEATO: Oh, okay. Okay.

MS. ALTMAN: Fingers crossed. Trying to be

as efficient as possible. All right. Well, let's see.

BY MS. ALTMAN:

Q. Sir, before -- during the break, did you speak with anyone?

A. My girlfriend to ask her for a coffee.

Q. Other than that, did you speak with anyone about your testimony or about this case?

A. No.

Q. Okay, good. And did she bring you the coffee?

A. She did indeed, yes, yes.

Q. Okay, excellent. Excellent. So you are ready to go. Good.

So I think you mentioned, if I understood you correctly, that there were randomized controlled trials relating to central precocious puberty, and in particular with regard to the impact on height, do you recall that?

A. Yes.

Q. What study specifically have you reviewed on that subject?

A. I don't have that information to hand.

Q. Do you know when those studies were published?

A. In the last ten years, I believe.
Q. Would they postdate 2019?
A. I couldn't say but possibly not.
Q. Are you familiar with a study Treatment of Central Precocious Puberty?
A. What's the author?
Q. I will tell you one second. Erica E-U-G-S-T-E-R?
A. That author is not familiar.
Q. And that study, sir, was published in 2019 -- one second. I just lost my e-mail. And in that study, the author, who -- it was a survey of the literature up in to 2019.

And I'll quote what she says, "The main goal of treatment in children with CPP is the preservation of height potential. Although this sounds straightforward, any consideration of height outcomes must acknowledge several limitations."

"One is no randomized control studies examining the effect of treatment versus no treatment on height in CPP has ever been conducted, to this author's knowledge."

Does that impact your testimony, sir, where you testified that there were indeed random controlled trials?

A. No, because --

MR. BEATO: Object to form.

Dr. Biggs, you can answer that.

THE WITNESS: I did cite them in the Dutch -- I did cite at least one randomized control trial on height in my Dutch Protocol article.

BY MS. ALTMAN:

Q. Okay. We'll get to that. So you would take issue with this author's statement?

A. Or perhaps it was an article since 2019.

Q. And as you sit here today, you don't know?

A. No.

Q. Okay. Sir, you appeared on the podcast, Gender: A Wider Lens, do you recall that?

A. Yes.

Q. And the title of the program in which you appeared was called Medicalization of Children With Gender Identity: Impact of Puberty Blockers, and that was in February of 2023, correct?

A. Yes.

Q. And that podcast, Gender: A Wider Lens, is supported by Genspect, correct?

A. Yes.

Q. And Genspect is an organization that holds

itself out as an alternative to WPATH; isn't that right?

A. That sounds correct, yes.

Q. And Genspect believes that gender identity ideology has caused damage and harm; isn't that right?

A. Probably, yes. I could -- yes.

Q. Do you believe that?

A. I believe in many cases, yes.

Q. And those cases are, as we've discussed today, nothing different, correct?

A. Sorry, could you repeat the question.

Q. Yeah, my -- my point was -- and my question was unartful, I apologize. The bases on which you believe gender identity ideology has caused damages and harm are those that you have elucidated in your report?

A. Yes.

Q. Okay. Nothing other than that is what I'm trying to understand, correct?

A. Well, I believe -- there are some other issues, for example, putting rapists in women's prisons that may be under the umbrella of gender identity -- gender ideology, but I think that's -- yeah, I didn't know if that's what you were...

Q. Well, what do you understand gender identity ideology to be referring to?

A. Well, it's not a phrase that I myself use,

but I believe it would be suggesting that, for example, that people have a certain -- a gendered soul, which is more important than their biological physical body. And that that gendered soul sort of takes precedence over their -- the reality of their -- of the sex body.

Q. Sir, are you suggesting that it is lesser than?

A. Well, it's certainly unobservable, like a soul. I'm not saying that -- yeah...

It is like a soul, right, it is not observable.

Q. Well, not observable to you but it's observable to the person that's experiencing it, isn't that correct, sir?

A. Yes, yes.

Q. So the fact that you don't see it doesn't mean it doesn't exist, right?

A. Yes, exactly. Just as I don't see a Christian soul and I don't know if the Christian soul exists but it is very real to the Christian.

Q. Sir, during the podcast, you refer to F.G., the letters of F.G., and you said was previously identified as B., who was part of an original study and who was followed up on in her 30s.

Do you recall giving that statement during

your podcast -- during the podcast?

A. Yes.

Q. And if I understood you correctly, you indicated she did not have a good outcome. That she was ashamed of her genitals and could not hold a relationship, referencing a 2014 follow-up study, do you recall that?

A. Yes.

Q. And I believe you also referenced that in your report, correct?

A. Yes.

Q. But that -- that was one person out of an entire group, correct?

A. That was the first individual, that was the first individual who had ever been given puberty blockers as a treatment for gender dysphoria, yes.

Q. Right. But did you do anything to follow up on any of the others to determine what their outcomes were?

A. Well, that person was the only person who was the subject of the case study, which made puberty blockers -- made puberty -- introduced puberty blockers to the -- to their medical community.

Q. Right. But I'm asking what steps you took, since you are interested in the subject matter of puberty

blockers, to understand what the case studies would be of the other individuals, what specific actions have you taken to undertake that analysis?

A. Well, there is only -- that's the one individual who was the subject of a case study. The others are -- come in groups, like the cohort of 17, which was discussed earlier, referred to in de Vries, et al., 2011 and 2014.

Q. You would agree with me, would you not, that one example can't be extrapolated to an entire group, correct, that wouldn't be statistically sound?

A. Yes.

Q. Now, during the podcast and before the Florida Human Health and Services Committee, you said that GnRH for the treatment of gender dysphoria would only be appropriate after proper clinical trials and randomized control group. Remember, we talked about that a little bit earlier, correct?

A. (Nodding head yes.)

Q. Yes? You have to answer out loud.

A. Yes.

Q. Sorry.

Has any organization that you are a part of attempted to perform such randomized -- proper clinical trials with randomized control groups?

A. No, but I know that the Cass inquiry were -- is looking into that.

Q. Okay. And why haven't you urged any of the groups that you are a part of to conduct clinical trials with randomized control groups?

A. Well, the -- SEGM is probably the most relevant example, we don't have the resources to. But, of course, we advocate. Or many of us would advocate.

Q. Well -- and, again, maybe I missed it, but did you -- when you were testifying or speaking at the Florida Board of Medicine, did you encourage them not to ban gender-affirming care so that they could conduct clinical trials with randomized control groups? Because I listened to your statement, I didn't hear that. Did you do it off the record and maybe I missed it?

A. I think the implication of saying that puberty blockers should be offered only as part of a clinical trial is a recommendation that those doctors and institutions that are currently offering puberty blockers should do so as part of a clinical -- randomized clinical trial.

Q. But you understood, sir, at the time that you were testifying before the board of medicine that Florida had already imposed a ban on gender-affirming care; isn't that correct?

MR. BEATO: Object to form.

Dr. Biggs, you can answer that question.

THE WITNESS: The rule that was being discussed, as I understood it, was to mean that -- that would remove the license of somebody who was doing -- providing these kinds of treatments outside of the kind of research that would be constituted as a randomized clinical trial.

BY MS. ALTMAN:

Q. Have you -- did you -- have you read the rule at issue in this case?

A. Issue in this case now, Dekker versus --

Q. The case for which you are providing expert opinion, have you read that -- the rule that's at issue?

A. I have read the reports on the rule but I don't think I've read the rule itself.

Q. Okay. And so you don't know one way or another what the impact of the rule is, correct?

A. I don't know the details, no.

Q. Okay. Well, would it surprise you that -- that the rule prohibits those who receive Medicaid from receiving any kind of gender-affirming care whatsoever, whether they are a child or an adult, does that surprise you?

A. No. No, that's my understanding.

Q. Right. And so when you were before the Florida medicine, you understood that the rule in place was prohibiting the payment for care for those who are on Medicaid for gender-affirming care of any kind, whether they are a child or an adult, correct?

A. I was not aware of that Florida rule when I presented to the board of medicine because I was addressing the proposition before the Florida Board of Medicine.

Q. Okay. And do you understand that -- well, strike that.

What do you understand the board of medicine rule now is with regard to providing such care?

A. It enables -- it means that doctors can lose their license if they provide this care outside of a research setting.

Q. And are you aware of any clinical trials and randomized control groups that the state of Florida, the Agency for Health Care Administration has undertaken?

A. No, but I would not -- I presume it wouldn't be up to the Agency. It would be up to university clinicians to undertake these trials.

Q. And is it your understanding that they could undertake these trials without any risk whatsoever to their license, is that your understanding?

A. Yes.

Q. Are you aware that there is research indicating that there are benefits to treating individuals with gender dysphoria with puberty blockers?

A. Yes.

Q. So as you sit here today, you understand that there are both risks and benefits to taking GnRH, correct, for gender dysphoria?

A. Yes.

Q. And you would agree with me that it is incumbent upon a medical professional, dealing with each individual patient, to explain to that patient the risks and rewards of taking puberty blockers, correct?

A. I believe that that sort of discussion must be based on a rigorous review of the costs and the benefits, yes.

Q. Okay. And -- but you would agree with me, that's not for you to opine on, correct?

A. Well, I believe it is up to me not to opine on but to publish articles or to uncover the results of experiments, like at the Tavistock, which was suppressed by the clinicians. And I believe that it is the duty -- incumbent upon somebody like me to publish the results of those -- of those investigations to inform the way that patients and their parents and clinicians undertake

there.

Q. And you did that, right, you -- you put out your Freedom of Information Act request and you published on the subject, correct?

A. Yes.

Q. And -- and the import of your publication is that a medical professional, a parent, and a child can read that research and draw their own conclusions as to how they want to proceed, correct?

A. Yes.

Q. Now, sir, during the podcast, the Gender: A Wider Lens podcast, you acknowledge that suicide rates are five to six times higher for transgender teenagers than non-transgender teenagers, do you recall making that statement?

A. Yes, that's based on -- I should say that's based the -- on my research that was done on the Tavistock, yes.

Q. Okay. And I just want to juxtapose that with, you don't say that in your report, do you, sir, to the Court?

A. I believe I do -- I believe I do. I can --

Q. You think your report -- you say somewhere that suicide rates for transgender teenagers is five to six times higher than non-transgender teenagers?

A. If I don't in my report, it was with one of the exhibits that was with the report.

Q. And, sir, in your report, what you do say is that individuals who -- who report suicide attempts or suicidal ideation don't really want to kill themselves. They are just crying out for help, isn't that what you say?

A. I don't believe that's a fair characterization of what I say. What I say is that it would be -- you cannot just simply take suicidal ideation, extrapolate to that suicide intelligence.

Q. Sir, it is not within your wheelhouse to diagnose somebody who has suicidal ideation, is it?

A. No.

Q. And it is not within your wheelhouse to determine whether or not someone who -- who reports a suicide attempt really means it or not, correct?

A. Not in the individual case, no.

Q. Well, not in any individual case, correct, sir?

A. Not in the individual case, no.

Q. Not in any individual case, correct, sir?

MR. BEATO: Object to form.

Dr. Biggs, you can answer that question.

THE WITNESS: Yes.

BY MS. ALTMAN:

Q. And you -- you didn't mean to imply in your expert report that you, as a sociologist, have any complications to opine on the mental state of an individual and whether they really want to kill themselves or not; isn't that right?

A. Correct.

Q. And you would agree you have no such qualifications, correct?

A. Correct.

Q. What was the -- what is the point in your report of -- of that -- that, for lack of a better word, opinion -- of that opinion that most who suffer from gender dysphoria who -- who report a suicide attempt don't really want to kill themselves, what is the basis for you to provide that opinion?

A. The point is to combat a particular argument that is often used to advocate for medicalization, saying that -- rather cliche, is it is better to have a live son than a dead daughter or vice versa.

And so by exaggerating, the possibility of suicide, it means that individuals or patients and their families more -- have an exaggerated degree of the risk of suicide if they don't take the medication that

influences their views on whether they should or shouldn't take the medication.

Q. Well, regardless of whether or not you think it is exaggerated, you've acknowledged that transgender individuals have a five or six times greater risk of suicide; isn't that right?

A. Yes, there is a difference between absolute rates and relative rates. Absolute rate, fortunately, is very low. The relative rate is, as you say -- at least what I've calculated from the Tavistock, five or six times higher.

Q. Okay. And in that regard, sir, I hope you would agree with me that -- that even one suicide is bad, right?

A. Yes, absolutely.

Q. And you are not suggesting to the Court that we don't pay attention to whether a child is transgender or not to any inclination that they might commit suicide. You are not suggesting we just disregard it because we think they don't really mean it, are you?

A. No, absolutely correct.

Q. So I guess I'm just trying to understand what the import of including that opinion in your report is, what does it add to your conclusions in this case?

A. It adds, as I said, an important caveat to

an argument that is often made to push for the medicalization of children, which is they would kill themselves unless they get these drugs. What I was pointing out, based on my research, is that the absolute rate of suicide is thankfully low, at least from what I've -- from the Tavistock clinic.

Q. From one study in one jurisdiction, right?

A. It's the largest pediatric clinic in the world, but yes, one -- one clinic.

Q. You understood my question?

A. Yes.

Q. Yeah, okay. It's one clinic, correct?

A. Yes.

Q. Based on data from one fixed period of time?

A. Yes, a span over ten years, right.

Q. Right. And when was that published?

A. Sorry?

Q. When was the results finalized?

A. When was my article published?

Q. Uh-huh.

A. I believe it's 2021, I think.

Q. Okay. And, sir -- well, strike that.

Do you believe that medical doctors who are providing gender-affirming care, that they are attempting

to convert cisgender individuals to be transgender?

A. No. But I don't know quite what a cisgender individual is.

Q. You don't know what, I'm sorry?

A. I don't know what you mean by a cisgender individual. That's why it took a while to answer that question.

Q. A non-transgender individual, a non -- not homosexual, not lesbian, a heterosexual person, do you believe that doctors who render gender-affirming care are trying to convert cisgender individuals to be transgender?

A. No.

Q. Do you think that they are trying to convert those who are gay or lesbian to be transgender?

A. I don't believe they are intending to do that, no.

Q. Okay. Now, sir, on your website you include a blog post that you author, and I'm going to read the title of it. "The astonishing admission in the health research authority report the purpose of puberty blockers is to commit children to permanent physical transition."

Do you recall that blog post?

A. Yes, yes.

Q. And we talked about this a little earlier in connection with another similar statement that you've made. But in this case, you made it on a blog post on your website.

And in your blog post, you state that the researchers made what you referred to as "an astonishing admission," and you go on to state that "the admission is the purpose -- that the purpose of puberty blockers is to commit children to permanent physical transition."

That's what you say, do you recall that statement?

A. Yes.

Q. And we talked about it in another context earlier, but I want to then read to you this statement from which you drew that conclusion on your blog post. So I'm going to read that to you.

The actual statement that you quote in your blog post says, "It would have reduced confusion if the purpose of the treatment had been described as being offered specifically to children demonstrating a strong and persistent gender identity dysphoria at an early stage in puberty, such that suppression of puberty would allow subsequent cross-sex hormone treatment without the need to surgically reverse or otherwise mask the unwanted physical effects of puberty in the birth gender."

Do you recall that quote?

A. Yes.

Q. Now, that quote, sir, does not say that the purpose of puberty blockers is to ensure transition to cross-sex hormones, correct?

A. Well, the purpose is to enable or allow.

Q. No, sir, what it says is, for those individuals that persist and are transgender, allowing them to not have fully developed, which would require more complex surgery, is a benefit to those individuals; isn't that what it says?

MR. BEATO: Object to form.

Dr. Biggs, you can answer that.

THE WITNESS: Yes, they -- the -- what I was pointing to is that that statement is a clear statement that the purpose of puberty blockers is the first stage in a course of treatment that will continue on to cross-sex hormones.

BY MS. ALTMAN:

Q. Sir, that is not what it says. What it says is, for those individuals that choose to go on to cross-sex hormones, puberty blockers will ensure that they have less surgical intervention than those that don't have their puberty blockers; isn't that what the import of the paragraph is?

A. Yes. And we know that in that particular study, I believe you are referring to the 44 children in the Tavistock trial, 40 -- out of the 44, 43 went on cross-sex hormones.

Q. But that isn't the point, sir, is it? Of the 43, that was their choice because they were -- by choice I mean they were transgender, not that that is a choice. But those individuals that were transgender chose to go on to cross-sex hormones, which would be expected if you are transgender, correct, sir?

A. Well, they were diagnosed with gender dysphoria. I don't believe that in the protocol there was any mention of them being transgender. I think the diagnosis was gender dysphoria or gender identity disorder, whichever was the one prevailing.

Q. Do you know whether or not the 43 individuals you referred to are indeed transgender, sir?

A. I would assume so but I wouldn't know. But I --

Q. You've not undertaken any analysis to understand that, have you?

A. Well, this was a treatment this was intended to treat gender dysphoria.

Q. Correct. And for those individuals that -- that were indeed transgender, they would go on to

cross-sex hormones.

But there was nothing in that paragraph that I read to you that said the purpose of puberty blockers is to make their way for a lifelong, you know, experience on cross-sex hormones; isn't that correct, sir?

A. I don't agree with that interpretation.

Q. Well, sir, I'm not interpreting it. You're actually the one that interpreted it. I'm reading these -- the written word, as it is written.

You have extrapolated from that a purpose of giving gender -- puberty blockers that is nowhere in the paragraph that you reference?

A. I believe that's an unfair characterization of the way that even clinicians would describe the benefits of puberty blockers.

Q. Well, it may be a benefit of puberty blockers but that's not what you said, sir. You said the purpose of puberty blockers, not that a side benefit of puberty blockers is, that for those that go on to cross-sex hormones, the surgical intervention may be lessoned. That's not what you said.

What you said on your blog post, and you've said it at other times, is that the purpose of puberty blockers is essentially only to transition someone to

cross-sex hormones, correct?

MR. BEATO: Object to form.

Dr. Biggs, you can answer that question.

THE WITNESS: Yes. And that's why I use the -- that's why the first articles refer to juvenile transsexuals. Precisely the logic was you give puberty blockers, you stop the development of secondary sex characteristics, and then the patient will go on to cross-sex hormones and surgeries.

BY MS. ALTMAN:

Q. No, the patient may go on, correct, sir, may go on. You don't know?

MR. BEATO: Object to form.

BY MS. ALTMAN:

Q. It is individual specific, correct?

A. Individual specific but 93, 95, 97, 98 percent will go on --

Q. Which is it, 93, 95 or 97?

A. It depends on which studies you look at. I cite I think four of them from different clinics, Australian, Britain, the Netherlands, and Belgium in my witness statement -- report, I believe.

Q. And, indeed, that section goes on to say -- of the paragraph that you quote, it specifically says,

"For children demonstrating a strong and persistent gender identity dysphoria at an early age in puberty, such that the suppression of puberty would allow subsequent cross-sex hormone treatment without the need to surgically reverse or otherwise mask unwanted physical effects of puberty."

The language is very clear. It's for those children demonstrating a strong and persistent gender identity dysphoria, isn't that what it says?

A. Yes.

Q. Now, you say in your report, sir, that there is no objective physical diagnosis for gender dysphoria, do you recall making that statement?

A. Yes.

Q. Are you suggesting to the Court that you don't believe gender dysphoria exists?

A. No.

Q. And you'd agree with me that there are many medical conditions for which there is no objective physical diagnosis; isn't that right?

A. Yes.

Q. And that doesn't mean the condition doesn't exist, does it?

A. No.

Q. Since you are opining on what treatment

transgender adolescents should not receive, do you have an opinion on what treatment they should receive, are you offering such an opinion in this case?

A. I don't -- I mean, I did not offer an opinion in my expert report, no.

Q. Okay. Are you aware of any research that demonstrates the negative impact on adolescents when they are not prescribed treatment for gender dysphoria?

A. Yes.

Q. Are you offering an opinion on that in this case? Have you been asked to offer an opinion in this case on that?

A. Specifically on puberty blockers, yes.

Q. That's not what I said. Let me read my question again.

Are you aware of any research that demonstrates negative -- the negative impact on adolescents when they are not prescribed treatment for gender dysphoria? My question was not limited to puberty blockers.

A. I'm aware of studies that attempt to demonstrate that, yes.

Q. Have you been asked to offer an opinion in this case on that?

A. No, I don't believe -- no.

Q. You are not providing an opinion in this case on the GAPMS report, are you?
A. No.
Q. You are not providing an opinion on the rule in this case, correct?
A. No. Correct.
Q. You are not -- you are not providing an opinion about the process that AHCA followed when arriving at its rule, are you?
A. Correct.
Q. You are not providing an opinion on the diagnosis of those specific plaintiffs in this case, correct?
A. Correct.
Q. You don't have an opinion about the proper medical treatment for the plaintiffs in this case, correct?
A. Correct.
Q. You haven't reviewed their medical records, correct?
A. Correct.
Q. And you don't review medical records as part of your job as a sociologist generally, correct, sir?
A. Yes.

Q. Yes; that's correct, right?
A. Correct. Yes, correct.
Q. You've never met with any of the plaintiffs in this case?
A. No.
Q. You've never asked to meet with any of the plaintiffs in this case, correct?
A. Correct.
Q. You've never met or asked to meet any of the medical providers of any of the plaintiffs in this case, correct?
A. Correct.
Q. And you are not offering an opinion on the qualification of any of the medical providers that treat any of the plaintiffs in this case, correct?
A. Correct.
Q. As a sociologist, generally speaking, do you -- do you utilize the standards of care for gender-affirming care? Is that part of what you would do, generally speaking, as a sociologist?
A. No.
Q. And the same question about the American Medical Association's position on the standard of care, is that something you would generally utilize as a sociologist in your work?

A. No.
Q. And the same is true, sir, with regard to the WPATH standard of care and the Endocrine Society guidelines. Those are not things that you would typically utilize in your work as a sociologist, correct?
A. Correct.
Q. And you had no role in drafting the WPATH standards of care, correct?
A. Correct.
Q. You've never provided a diagnosis of gender dysphoria, correct?
A. Correct.
Q. You've never provided a diagnoses for any medical condition, correct, sir?
A. Correct.
Q. You've never provided a treatment plan for any medical condition whatsoever, correct?
A. Correct.
Q. And you are not qualified to provide a medical diagnosis for any medical condition, correct?
A. Correct.
Q. You've never prescribed drugs of any kind to anyone who is experiencing gender dysphoria, correct?
A. Correct.
Q. What did you do to prepare your report?

A. I read the literature and -- I mean, the report was the culmination of quite a few years of research in this area that was -- resulted in the -- my publications. And so I prepared a report I believe is the evidence for or against the use of puberty blockers for gender dysphoria.

Q. Does the report contain all the opinions you intended to provide in this matter?

A. Yes.

Q. You indicated a moment ago that you read the literature and that the report is a culmination of reviewing all the literature.

Is there any literature that you reviewed that you have not identified in your report as having been a basis for the opinions you are offering?

A. I don't believe so, no.

Q. Does the report contain all the work you needed to render your opinions in this case?

A. Yes.

Q. Were you provided or did you otherwise have all of the things that you needed to render your opinions in this case?

A. Yes.

Q. If not, what else would you have needed?

A. I said I had everything I needed.

Q. I know and I'm asking you to think if there is anything else that you would have needed, could have considered in order to render full, complete, and robust opinions in this case?

A. I don't believe so, no.

Q. So you don't believe, by example, having conducted any research yourself or -- or spoken to any transgender individuals or people from WPATH or people who have the guidelines published from the endocrine society, none of those things would have helped you inform your opinions in this case?

A. No, I don't believe so, no.

Q. Is there any work left undone to finalize your opinions in this case?

A. No.

Q. Any work that you wanted to do that you haven't done?

A. No, not for this case, no.

Q. Have you been engaged in any other case as a testifying expert?

A. No. Well, apart from the two I mentioned, the one in Australia and the one in the UK.

Q. Without telling me what case, regardless, without disclosing, have you been engaged as a consulting expert in any other cases on gender dysphoria or puberty

blockers?

A. No.

Q. Other than what's identified, is there anything else that you reviewed in connection with rendering your opinions?

A. No.

Q. Was there any information that you got from defense counsel, either related to the individual plaintiffs or their caregivers, or any information that you got from defense counsel that you did not otherwise have for review?

A. No. The only thing I had was -- the only thing they sent me is some -- about three or -- maybe five rebuttals which mentioned my evidence.

Q. Did you review those?

A. Yes, I looked at those.

Q. Okay. Thank you. When did you write your report?

A. January, Feb -- February, I think.

Q. Of 2023?

A. Yes.

Q. And you testified already you did not show a draft of your report to anyone, correct?

A. Correct.

Q. What did you learn about the lawsuit for

which you have been retained as an expert?

A. I'm not sure. It must have been -- yeah, I -- to be honest, I can't recall now. Possibly November, but...

Q. Well, you testified or spoke at the board of medicine meeting in October of 2022. Does that orient you as to when you may have been contacted about providing expert testimony in this case?

A. Perhaps in January, yeah -- yeah, I'm really not clear about the date.

Q. Do you have -- regardless of whether you are clear about the date, do you have any kind of approximation for how long ago was it, a year ago, six months ago, eight months ago?

A. It was a few -- I think it was either sort of -- either the end of last year or the beginning of this year.

Q. Okay. So if I understand you correctly, you believe you were contacted to provide testimony in this case sometime in the late fall of 2022 or early 2023; is that correct?

A. Yes.

Q. Yeah, you can't nod. Yeah, okay.

A. Yes, that's right.

Q. Thank you. Okay.

And who contacted you about being an expert in this case?

A. It was one of the lawyers at Holtzman Vogel.

Q. Do you know how they got your name?

A. I -- no, I don't know but I would assume it was from my appearances in Florida to the Florida Board of Medicine.

Q. Do you recall who from the law firm contacted you?

A. It might be Gary Perko.

Q. Did they ask you your opinions before having you testify in this case?

MR. BEATO: So, Mr. Biggs, I'm going to instruct you not to answer any other questions regard -- excuse me, regarding our communications. That's privileged information.

I'm instructing him not to answer that question.

MS. ALTMAN: Hold on, Michael. My question only called for a yes or no. It wasn't the substance of the conversation.

MR. BEATO: Still, I think that verges into the substance of the conversation. I'm instructing him not to answer any more questions

relating to that.

MS. ALTMAN: Okay. We can talk about it later.

MR. BEATO: Sure.

BY MS. ALTMAN:

Q. You already testified you were not involved with the rulemaking of the GAPMS process, correct?

A. Correct.

Q. But what you say in your report is, "After reading the scientific literature, I became increasingly concerned about the lack of robust evidence."

A. Yes.

Q. Do you recall putting that in your report at paragraph 5?

A. Yes.

Q. Okay. And what specific literature did you review that caused you to be concerned?

A. Well, the -- my initial concern was reading the case study of the individual B. or F.G. And the second was reading the sort of gold standard Dutch study of de Vries, et al., at 2011 and 2014, which I was very surprised to see how little evidence there was to justify puberty blockers. That was many years ago. But that was what initially interested me.

Q. Anything else that caused you to have great

concern?

A. Yes. The fact that I discovered that the Tavistock clinic in London had done an experiment or study -- wasn't a proper experiment -- it was a study of early puberty suppression that was designed to replicate the Dutch study, and that they had never published any of the results.

Q. Anything else?

A. No, those are the main things that led me into this.

Q. Okay. And we've already talked about you are aware of literature studies, findings that have a different conclusion than the ones you rely on, correct?

A. Yes.

Q. In paragraph 6 you state, and I quote, "I have conducted original research on the use of GnRH puberty suppressors," do you recall making that statement in your report?

A. Yes.

Q. And what original research did you conduct?

A. Well, I was the first to publish the results of the -- that English study into -- designed to replicate the Dutch -- the Dutch study.

Q. But you didn't conduct the original research, sir, you just wrote about what someone else

did, correct?

A. It was only due to my efforts that that research saw the light of day. And I was the first person to publish on it.

Q. And congratulations. I'm not trying to undermine or demean what you've done, I just want to make sure the record is clear. Because the statement you made in your report is you conducted original research. And you, in fact, did not conduct original research, sir. Someone else conducted original research and you wrote about it, correct?

MR. BEATO: Object to form.

Dr. Biggs, you can answer that question.

THE WITNESS: I believe that what I've done constitutes original research.

BY MS. ALTMAN:

Q. And the sole original research that you believe you've conducted is publishing the English study that was trying to mimic the Dutch study, correct?

A. That's one -- that was one. Another one would be the analysis of bone density.

Q. Which, again, you were reporting on someone else's work, correct?

A. I was doing original analysis based on data that I myself had elicited -- elicited from the

Tavistock.

Q. No, sir. Someone else created the data and then you provided your analysis of that data, correct?

(Simultaneously speaking.)

MR. BEATO: Object to form.

Dr. Biggs, you can answer the question.

BY MS. ALTMAN:

Q. Go ahead, sir.

MR. BEATO: What's the answer to the question, Mr. Biggs, just for the record?

THE WITNESS: Yes, I conducted the statistical analysis, correct.

BY MS. ALTMAN:

Q. Right, of someone else's data, correct?

A. Yes.

Q. Have you engaged in any kind of clinical study with patients that involved GnRH treatments?

A. Sorry, what do you mean by "critical study" -- oh, you are saying clinical study?

Q. Yes, sir.

A. No.

Q. Have you been involved directly in any longitudinal studies?

A. No.

Q. Any observational studies?

A. No.

Q. Is there any study whatsoever where you have been the primary investigator of data that you collected?

A. No.

Q. Have you published an original article that underwent a peer-review process analyzing data from a clinical study that you performed with patients treated by GnRH analogs?

A. No.

Q. So we've kind of gone over this, and I don't want to retread it. I just want to point out in paragraph 7 of your report, you make the same similar statement about "puberty suppression is designed to stop normal puberty in order to prepare the child for taking hormones of the opposite sex."

Do you recall making that statement in your report?

A. Yes.

Q. And we've kind of gone back and forth, debated what that means and whether or not that's an accurate statement. I'm assuming your testimony isn't going to be any different about what you wrote in paragraph 7 than what it is going to be about what you said on your blog post and what you said to the Health

and Human Services division, right -- committee, rather?

A. Yes.

Q. Okay. I just don't want to go over things that we don't need to.

In -- in -- in paragraph 9, you say, "GnRH is never tested in any randomized clinical trial," do you recall saying that?

A. Yes.

MR. BEATO: Would it be helpful -- I apologize for interjecting -- would it be helpful to, when we're quoting Dr. Biggs' report, to put it on the screen just so everyone sees what's being said?

MS. ALTMAN: We can, if you want. He said he had it there, so I wasn't going to --

THE WITNESS: As long as I can refer to it, then that's fine.

MS. ALTMAN: Sure, if you want.

But, Michael, if you want it to put on the screen, we're happy to do that too.

MR. BEATO: I would prefer that. It just makes things easier so we're all looking at one screen --

MS. ALTMAN: You are making me wake Ana up.

Ana, are you out there? Thank you.

MR. BEATO: Thank you, Ana.

MS. ALTMAN: Paragraph 9. There you go.

BY MS. ALTMAN:

Q. Do you see this statement, sir, paragraph 9, "Puberty suppression as a treatment for gender dysphoria was never tested in any randomized clinical trial, nor were there any preliminary experiments on nonhuman animals"?

A. Yes.

Q. What specifically did you rely upon in making that -- those two statements?

A. The fact that there has -- that there has never been published any -- any randomized clinical trials using puberty suppression as a treatment for gender dysphoria. And the fact that the Dutch endocrinologist, Henrietta Delemarre-van de Waal, actually worked in the laboratory with rats, but she did not do any permanent experiments with rats even though she had the laboratory there.

Q. Anything else that you rely upon in making those two statements?

A. No.

Q. And in paragraph 10, which is on the next page, you make this statement, "The reported improvement in gender dysphoria is flawed because the researchers

switched the questionnaire used to construct the measure."

Did I read that right?

A. Paragraph 10 or paragraph 11?

Q. Let's see. I thought it was in ten.

A. No, it is not in ten.

Q. All right. Hold on. Let me put that one to the side and I'll go back to that in a minute, how about that?

But regardless -- and I'm going to go back to the report in a second -- switching the questionnaires doesn't explain how -- that the conclusion would be wrong or improper, does it, sir?

A. Yes, it does, because if you ask -- if you start off with a male, a boy who says he's -- one of the questions will be, "Are you distressed about having erections?" And he'll say, "Yes, I am because I'm gender dysphoric," that makes sense, right, so he's gender dysphoria.

And then after surgery you say, "Do you hate menstruation?" Now, of course, whether -- if you ask me whether I hate menstruation, I would say no. But it's not because I've been cured of gender dysphoria, it's just because I don't menstruate. So the question is -- obviously can be answered in the negative.

That's the kind -- those are the -- that's the reason why the scales -- switching the scales makes a huge difference.

Q. Well, but you don't know, sir, do you, whether or not -- switching the scales, whether or not the individual recipient even answered that question, do you? You didn't look at the actual survey results, did you?

A. But that is one of the questions that are used in making their gender dysphoria scale.

Q. But that wasn't my question. My question is, you didn't go back and look at the underlying questionnaires to determine whether or not individuals properly and correctly responded to questions that would be associated with their specific gender, did you?

A. Well, the Dutch clinicians asked males a series of questions, including "are you uncomfortable or does" -- "are you very bothered by menstruation?"

Q. Right. My question to you is, you don't know whether or not any particular individual answered that question or how they answered that question, correct?

A. I know they would have answered that question because that was required to -- for the scale. I don't know how any particular individual answered that

question, no.

Q. Right. And what I'm just trying to get at is you didn't go back and look at the underlying results, you relied upon somebody else's reporting of these results, correct?

A. Yes, I relied upon the published articles by de Vries, et al., yes.

Q. And you didn't conduct any of your own, correct?

A. Correct.

Q. Meaning that if you thought it would be more appropriate to ask the questions in a different way, you've not taken upon yourself to engage in a study that asks the questions in a way that you believe would have been more appropriate, correct?

A. Correct.

Q. And I think it is in paragraph 13 but let's just go down there. Hopefully I have it right.

In paragraph 13 do you say, "The suspicion must be that at least some of these children could have grown up to be typical gays and lesbians without requiring lifetime medical treatment, and without loss of fertility and sexual function"?

Do you recall making that statement?

A. Yes.

Q. Okay. And you base your opinion on your suspicion; isn't that right, sir?

A. Yes, that's what the sentence reads, yes.

Q. Right. It's your suspicion. You have no evidence whatsoever to make that statement; isn't that correct?

A. The evidence is in the preceding sentence, the first 70 adolescents, the vast majority were homosexual, and only one was heterosexual. The others were bisexual.

Q. Well, but that doesn't necessarily eliminate the fact that they could be transgender, correct?

A. Correct.

Q. Right. And so I go back to my point, which is throughout your report, you were -- you used words like -- and we'll get to it -- "suspicion," "belief," words that are not scientific. They are your musings about what may or may not be.

That particular quote is the last sentence on paragraph 13 where you say, "The suspicion must be at least some of these individuals could have grown up to be typical gays and lesbians." But that's your musings about it, that's not science, correct, sir?

MR. BEATO: Object to form.

Dr. Biggs, you can answer that question.

THE WITNESS: I think that's synonymous with a credible hypothesis or, you know, potential hypothesis. The word "suspicion" is just saying that, yeah, I'm -- I cannot prove it. There is no proof, but I believe it is a plausible conjecture or plausible hypothesis.

BY MS. ALTMAN:

Q. So it is conjecture and hypothesis, not opinion, right, sir?

A. Yes, I -- yes.

Q. Are you aware of any study that's ever demonstrated that gender affirmation in childhood leads to a child being transgender who otherwise may not have been?

A. Well, that would be unobservable because we wouldn't know what the outcome was.

Q. So you would agree with me that you have no evidence to support that, correct?

You are not aware of any study that supports that, correct?

A. Correct.

Q. That gender affirmation in childhood leads to a child being transgender who otherwise may not have been, correct?

A. Correct.

Q. And you are not opining, sir, that puberty blockers somehow make someone transgender and prevents them from being a typical gay or lesbian, are you?

A. Yes, I am.

Q. You are? That's your testimony, sir, under oath, that if you take puberty blockers, by definition, you won't become a typical gay or lesbian?

A. Well, in some cases I believe that children who are taking puberty blockers and turned into what was originally called juvenile transsexuals could have grown up to be feminine boys, gay men, or butch lesbians. That's -- that's my belief, yes.

Q. And your -- that's your -- that's what I think you called conjecture, right, your speculation because you have no evidence to support that, correct?

A. There is evidence to support that. There is not proof. There is not demonstration. But I would also say -- point out that the Dutch clinicians in an article by Anacker, et al. 2023 acknowledged that possibly gonadotropin-releasing hormone agonists can become a self-fulfilling prophecy. That's not the exact words but that's what they acknowledge as one -- as a credible possibility.

Q. A credible possibility?

A. Yes.
Q. But that's not science, sir, it's just a hypothetical, correct?
A. No. This was a statement in -- by the Dutch clinicians in a published and a peer-reviewed journal. I don't remember off the top of my head what journal it was. So they were entertaining this as a possibility.
Q. As a possibility, correct?
A. Yes.
Q. Not a scientific truism, correct, sir?
A. How science deals with possibilities.
Q. Okay.
A. And probabilities.
Q. Sir, in paragraph 13 of your report, you also make the following statement: "All this evidence predates the promotion of transgenderism in health care and schools and on social media."
Do you see where you wrote that?
A. Yes.
Q. Okay. And you go on to refer to "the manifesto for the Dutch Protocol fails to mention homosexuality and does not cite any of the studies of feminine boys."
Did I read that right?

A. Yes.

Q. Now, it -- starting with the first sentence, "All this evidence predates the promotion of transgenderism in health care and schools and on social media." What evidence do you have that transgenderism is being promoted in health care, schools, and on social media, what specific evidence do you rely upon for that statement?

A. Well, social media was not around then, so clearly there was no promotion on social media. Schools, there is widespread evidence, for example, the use of the book about Jazz Jennings. And on media, you could use Jazz Jennings as perhaps the best example of that.

In terms of health care, more and more of the possibility of being transgender in, for example -- and the growth of the gender clinics -- of the gender clinics like the gender clinic in Tavistock.

Q. Well, how is that promoting transgenderism?

A. Well, it's -- it's suggesting to children that this is a possible and perhaps even a desirable way of being.

Q. Isn't it just, sir, accepting those who are transgender for who they are?

Nobody is converting people to be transgender, are they?

MR. BEATO: Object to the form.

Dr. Biggs, you can answer that question.

THE WITNESS: I would -- I'm quite happy with the phrase that I use there. I do believe that there is more and more publicity to being given -- to being a transgender identity as a potential way of being and a -- and perhaps even a desirable way of being.

BY MS. ALTMAN:

Q. Well, do you think it is an undesirable way of being?

A. I believe that there are -- what is undesirable is becoming a lifelong medical patient.

Q. And what is the basis, the medical basis for your statement, the scientific basis for the statement you just made?

A. Well, I don't think -- I don't -- who wants to be a lifelong medical patient? I don't think -- yeah, I don't think that's a desirable -- a desirable outcome, if it can be avoided.

Q. So that's just more of your suspicions and musings and conjecture. I'm asking whether or not you have actual -- any scientific support for the statements that are in your report?

MR. BEATO: Object to the form.

Dr. Biggs, you can answer that question.

THE WITNESS: That statement, I don't believe, is in my report. It is just simply what you've asked me -- asked me about now.

BY MS. ALTMAN:

Q. Well, no, I read to you the statement that's in your report, that there is -- apparently, there is -- people are promoting transgenderism in health care, schools, and on social media. And I asked you for the evidence that you have to support that statement?

A. Yes, I've said that I think -- believe there is abundant evidence in -- for example, if you look at searches on Google trans. If you look at the --

Q. What specific searches -- sir, what specific searches, what specific evidence did you rely upon when you made that statement in your report. I'm asking you the specific evidence that you relied upon?

A. If you search for various combinations and permutations of the word "transsexual child," "transgender child," "trans child," "trans kid," "trans children" and so on, you can see a massive peak in that, particularly after 2005 but more particularly after 2010.

Q. Okay. So, sir, it is not my responsibility to conduct these searches. I'm asking you what specific scientific basis do you have before you made that

statement in this report, what -- did you do those searches, if so, are they -- are the results listed in your bibliography?

MR. BEATO: Object to form.

Dr. Biggs, you can answer those questions.

THE WITNESS: I did do those searches. The results are not listed in my -- in the bibliography because I thought it was --

BY MS. ALTMAN:

Q. Why not?

A. It was so obvious that the increase in the prominence of transgenderism in health care and schools and social media would be obvious.

Q. Sir, did you look at all of the possible reasons why being transgender is more at the forefront today, like perhaps US states that are banning transgender health care -- just as an example, throwing it out there -- and then putting that in the media. Did you look at that, maybe that's the reason why people are more frequent to be discussing the issue?

A. Well, bans on health care have only been around for a couple of years. I'm talking about a long -- long-term trend from -- I think I did 1990 to 2020. So it's -- yeah, that's the basis of it.

Q. So other than your Google searches, is

there anything else that you relied upon in making that statement in your report?

A. Just to clarify, it wasn't a Google search. It was a search of Google's corpus and the entire body of printed material in -- in the English language.

Q. Right. The one -- the things that you did not list in your report as resources, correct?

A. Yes.

Q. Sir, do you believe it's -- that it is easy to be transgender, it is appealing to be transgender?

A. I believe in some cases it can be appealing, yes.

Q. What about in others?

A. In other cases, it is not.

Q. You are not making a -- you are not providing a general opinion that people are jumping on the transgender bandwagon because it is so easy and it is being promoted, are you?

A. No. I believe that sometimes it makes sense of an individual's predicament of suffering or distress about their body, about their gender roles.

Q. And it might make sense just because they are transgender, right?

A. Yes, it might.

Q. Right. And you don't know in any

particular case whether that's true, right?

A. Not in any individual case, no.

Q. Now, sir, in paragraph 14 of your report, you spend a lot of time talking about that -- the overlap between gender dysphoria and autistic spectrum conditions, do you recall writing about that in your report?

A. Yes.

Q. Sir, you would agree with me that being transgender and being on the spectrum are not mutually exclusive, correct?

A. Correct.

Q. Sir, on the studies pertaining to feminine boys, you agree that all of those studies pertain to preadolescence, mostly prepubertal children under the age of 12, correct?

A. Yes.

Q. And you would also agree that being gender nonconforming is not the same thing as being transgender, correct?

A. It's not necessarily the same, no.

Q. And you would also agree by definition those studies don't indicate a desistance rate for people who are actually transgender abandoning a transgender identity, correct?

A. Well, the study by Green on Sissy Boys that I cite was -- they specifically identified children, boys, who they thought were going to be transsexual, they -- they refer to pre-transsexual. So they are trying to find the most feminine, most dysphoric children, dysphoric male children.

Q. Well, that doesn't mean that they were though, correct, sir?

A. Well, the -- they were identifying the most feminine boys they could find who were -- who they thought would be certain to develop into transsexuals or very highly likely to develop into transsexuals.

Q. Right. But, again, that's subjective, correct, sir? It is somebody else's, you know, views on whether or not they may or may not be, correct?

A. Yes.

Q. Now, sir, again, back to your opinions or musings about gender dysphoria and autistic spectrum conditions. As I just asked you, being autistic and having gender dysphoria are not mutually exclusive, correct?

A. Correct.

Q. And you make this statement, "Children on the autistic spectrum are more likely to face difficulties fitting in with their same sex peers, which

makes a transgender identity obviously appealing as both an explanation and a solution." And that's at -- the bottom of page 9 and goes on to page 10.

Do you recall making that statement?

A. Yes.

Q. Is it -- have you done any studies, sir, as to whether or not autistic children or children on the spectrum have difficulty fitting in with both their same sex peers and opposite sex of peers -- peers?

A. That was reporting the article that was in the previous sentence. So I'm having -- do we have the right page there?

Q. Yeah. Well, that's --

A. In the previous -- the last -- yeah, I was reporting on something that was quoted on a literature reviewed by van der Miesen, Hurley and de Vries, 2016, that quotes -- I'm paraphrasing the evidence that this literature review was producing.

Which said, essentially, particularly de Vries is one of the clinicians who emphasized this, that children on the autistic spectrum are more likely to face difficulties fitting in with their same sex peers. And the original study was, I think, de Vries -- de Vries, et al., 2010, the original article that I don't cite that -- because I'm citing the literature review.

Q. Right. So a couple things. Number one, it is not quoted, correct, there is no quotes around that. It's a statement by you, correct?

A. It's a -- but it's a paraphrase of the evidence that I provided.

Q. Well, it is not attributed to anyone, correct, sir? At the end of the sentence, there's not a footnote, there is not a quote or reference to anybody else's study, right?

MR. BEATO: Object to the form.

Dr. Biggs, you can answer that question.

THE WITNESS: Yes.

BY MS. ALTMAN:

Q. And, sir, my question is, you make this statement, you make this statement, not anybody else, "Children on the autistic spectrum are more likely to face difficulties fitting in with their same sex peers."

And my question to you is, have you done any analysis whatsoever into whether or not children on the autistic spectrum have difficulty fitting in with anyone, whether it is their same sex peers or their opposite sex peers?

A. No, I haven't conducted an original research on that -- on that question, no.

Q. Okay. And so, sir, you don't know whether

or not the fact that -- whether it is same sex or opposite sex peers, that children on the autistic spectrum are, air quotes, becoming transgender because they don't -- they don't feel that they fit in with their peers. You don't have any evidence to support that, correct, sir?

A. Well, apart from my reading of the Dutch clinicians like de Vries, correct.

Q. Right. But I'm asking you, though, what research or studies you've done to support the statement in this report? Other than --

A. I haven't done my own original research on that, no.

Q. And perhaps I'm misreading what you are saying. But, I mean, the implication of what you are saying is that autistic spectrum individuals are pretending to be transgender to fit in.

Is that what you are trying to convince this Court?

MR. BEATO: Object to the form.

Dr. Biggs, you can answer that question.

THE WITNESS: No, that's not -- that's not how I would characterize it at all. I don't believe they're pretending. I believe they're making sense, as we all do, of their experiences.

And that this label helps them make sense of their experiences, and also to provide a potential solution for them.

BY MS. ALTMAN:

Q. Well, is being transgender a label?

A. Yes, among other things, yes.

Q. And so label for what, sir?

A. Well, it is a label for a particular identity, just like Christian or British or sociologist, these are the ways in which we interact with the social world.

Q. Now, you go on to say in the end of that paragraph, "From a sample of over 700 referrals to the G-I-D-S, GIDS, in 2012" -- so ten years ago -- "and 2015" -- so less than ten years ago -- "14 to 15 percent were diagnosed with autism" -- you say ASC -- but autism spectrum conditions -- "and this was more than ten times greater than the rate for students in England," which you then cite to.

Do you recall that statement in your report?

A. Yes.

Q. And you go on to say, "The proportion among those subjected to GnRH could be even higher." What's the scientific basis or the evidence for that statement?

A. Can I -- I think this may be on page 10. Can we scroll forward --

Q. It is on page 10, yes.

A. The evidence for that is in the -- the next sentence, because in the first study that was done by the Tavistock kids, of the first 30 patients, almost half of them had autistic spectrum traits.

Q. Well, again, we discussed a few minutes ago, they are not mutually exclusive, right, somebody could be both -- have autistic spectrum disorder and also be transgender, correct?

A. Yes, yes.

Q. In -- in paragraph 20 of your report, you say, "Because of the risk of suicide" -- "because the risk of suicide increases greatly from prepubescence to late adolescence, altering normal cognitive and emotional development with GnRH could reduce the risk of suicide by preventing the child from maturing."

Did I read that right?

A. Yes.

MR. BEATO: Let me just pause here.

Ana, could you please scroll down --

MS. GONZALEZ: Okay. Sorry.

(Simultaneously speaking.)

MR. BEATO: Page 13, please. Thank you.

Sorry for the interruption, just wanted to...

MS. ALTMAN: No, no worries.

BY MS. ALTMAN:

Q. "Because of the risk of suicide," do you see that, sir, second sentence in paragraph 20?

A. Yes.

Q. What's the basis, the evidential basis for that statement, sir?

A. Well, that's an inference from the way that suicide is much higher, for example, in a 18-year-old than it is in a 10-year-old. We're talking about sort of the general population. So if we're able to sort of -- if you, like, freeze a 12-year-old at a sort of mental state of being 12, then one of the logical consequences of that will be less likely to -- to commit suicide than they would be otherwise.

Q. So the answer to my question is that you don't have any evidential basis for that statement in your report, correct?

A. Correct.

Q. It is just an inference that you've drawn?

A. Yes. Yes. And, in fact, the next says, "As yet, there is no evidence; however," so exactly, that's the case.

Q. But you were engaged to provide opinions in this case, not -- not inferences or musings or suspicions. You were engaged to provide opinions based on scientific evidence, correct, sir?

MR. BEATO: Object to form.

Dr. Biggs, you can answer the question.

THE WITNESS: I mean, the way science works is by entertaining different possibilities and different probabilities.

In that case, I think quite fairly, I said that it could be the case. It is not implausible on a theoretical basis that puberty blockers do reduce suicidality. However, there was no robust empirical evidence that that is the case.

So I think that gives the full panel of potential impacts of puberty blockers.

BY MS. ALTMAN:

Q. Sir, you would agree with me that your opinions are contrary to the WPATH standards of care?

A. Yes.

Q. And they are contrary to the American Medical Association?

A. Yes.

Q. And they are contrary to the American Academy of Pediatrics?

A. Yes.
Q. And they are contrary to the Endocrine Society guidelines?
A. Yes.
Q. And are you aware that your opinion is contrary to the standards of care for gender-affirming care in the United States generally?
A. Established clinical practice as its developed, yes.
Q. And you don't know, in this particular case, whether the treatments that the plaintiffs were receiving have been helpful or not, correct?
A. Correct.
Q. And I hope you would agree that the efficacy of puberty suppressors is best left to the experts in the field, meaning, endocrinologists, psychiatrists, and psychologists, correct?
MR. BEATO: Object to form.
Dr. Biggs, you can answer that question.
THE WITNESS: I believe that there should be a robust empirical debate in the literature, signed literature that robustly scrutinizes the evidence for the efficacy and safety of puberty blocks.
BY MS. ALTMAN:

Q. And I get that. And the robust empirical discussion should occur between medical practitioner, endocrinologist, psychiatrist, psychologist, correct?

A. No. It should occur between everybody who has something to say about this, including -- and can publish their work in a peer-reviewed journal.

Q. Including yourself; is that right?

A. Correct.

Q. And I think I asked you this earlier, but just in case, you don't have any clinical experience with puberty blockers, do you?

MR. BEATO: Objection to form, asked and answered.

Dr. Biggs, you can respond.

THE WITNESS: Correct.

BY MS. ALTMAN:

Q. Yeah, I wasn't trying to ask you the same question again, so I apologize if I did.

Now, sir, you've been quoted as making this statement, and I just want to understand it. This is a direct quote. It was in sex and gender. "I do not, however, believe that gender identity supersedes sex any more than I believe that Jesus was the son of God."

"Therefore, I oppose any attempt by the university to establish an official doctrine on gender,

just as I would oppose the imposition of a single religion or one particular position on Israel, Palestine."

Did I read -- do you remember making that statement?

A. Yes.

Q. Okay. And what does that mean, "I do not, however, believe that gender identity supersedes sex"?

A. I do not believe that gender identity or someone's subjectively perceived understanding of themselves should be -- weigh more in society than -- than their physical sex.

Q. Well, would you agree that it should at least be weighed the same?

A. No -- well, depends on the case -- depends on cases -- depends on the case. If you are talking about, for example, should a rapist be put in a women's prison -- a male who has used his penis to rape a woman should be put in a women's prison because his gender identity is that of a woman. I would say, in that case, for example, no. His physical biological sex should take precedence.

Q. Sir, have you ever been a prison warden?

MR. BEATO: Object to form.

Dr. Biggs, you can answer the question.

THE WITNESS: No, I haven't.

BY MS. ALTMAN:

Q. And have you done any research into whatever standards and guidelines are utilized by prisons in determining where prisoners are placed?

A. Yes.

Q. You have? And is any of that published literature referenced in your bibliography?

A. Of this -- of my expert report, no, because it wasn't relevant to the -- what I was being asked to do.

Q. And where would that published literature be that you've written on this subject?

A. The article is in the -- is in the general controversial ideas.

Q. Okay.

A. It is specifically about England, England and Wales.

Q. Okay. And when was that published?

A. I believe 2022.

Q. Okay. Sir, you wrote a chapter in a book titled, "Inventing transgender children and young people." Do you recall that?

A. Yes.

Q. Do you think that you can invent

transgender people or children?

A. Well, I believe that these labels or social categories are -- vary across cultures and over -- vary over time, like being lesbian or being African American versus, you know, other -- other sorts of identities. So, yes, I believe, in a manner of speaking, that identities are invented, like sociologist or lesbian or so on.

Q. You think being a lesbian is invented?

A. I believe that the -- the identifying as a lesbian as such is -- is a social construct, and that those have genealogies which we can explore, yes.

Q. And you think being transgender is invented?

A. In a way that is very common parlance in the social sciences, we talk about the way that constructs change over time and they vary across cultures.

Q. Well, what does that mean, sir? I mean, you've testified earlier you agree that transgender people exist, so what does it mean, that they are being invented?

A. Well, I believe Christians exist but I -- there is also societies in which there was no such thing as a Christianity, right, there's no such thing as a

Christian.

So there was nobody in 1900 identified as transgender because that -- that label had -- that category had not been created yet.

Q. Uh-huh. So your -- if I understand you correctly, you are just suggesting that the name for it has changed?

A. And the way it is theorized, the way -- the conceptualization of it, yes.

Q. Well, how are we conceptualizing it, how are you conceptualizing it?

A. Well, I'm conceptualizing it as a -- kind of a -- as a social identity, which -- which involves, in many cases, a medical physical intervention.

Q. Well, as a social identity, is that different from an actual identity?

A. Identities are generally social.

Q. So all identities are social?

A. Yes.

MR. BEATO: Counsel, I know we're approaching upon the one hour and 30-minute point. Would it be best --

MS. ALTMAN: Happy to take a break, Michael.

MR. BEATO: Perfect.

MS. ALTMAN: As long as you want.
MR. BEATO: So how about we meet -- I don't know --
MS. ALTMAN: As long as you want. 3:10?
MR. BEATO: I'm sorry?
MS. ALTMAN: 3:10 on -- I have 2:57. So 3:10. You want to do 13 minutes, you want to do 15 minutes, what do you want to do?
MR. BEATO: How about 3:05, if that works with you, Dr. Biggs.
MS. ALTMAN: 3:05.
THE WITNESS: 3:05, yep, that's good.
MR. BEATO: I didn't mean to interrupt your train of thought. Just want to get a quick little break.
MS. ALTMAN: No problem.
MR. BEATO: Thank you very much.
(A brief recess was taken from 2:57 p.m. to 3:04 p.m.)
BY MS. ALTMAN:
Q. So, sir, in paragraph 22 you say, "There are anecdotal reports of children experiencing increased suicidal feelings after GnRHa," did I read that correctly?
Do you need for us to pull it up on the

screen or do you recall making that statement?

A. I recall that.

Q. Okay.

MR. BEATO: And for my benefit, can we -- Ana, could you put that on the screen again for my benefit?

MS. GONZALEZ: I'm sorry, what paragraph was that? I was copying her e-mail.

MS. ALTMAN: P 2, 22.

MS. GONZALEZ: Page 22?

MS. ALTMAN: Yes, ma'am.

MR. BEATO: Paragraph 22.

MS. GONZALEZ: Oh, paragraph 22.

MS. ALTMAN: I'm sorry, yes, paragraph 22.

MR. BEATO: Thank you, Ana.

MS. GONZALEZ: You are welcome.

BY MS. ALTMAN:

Q. All right. Dr. Biggs, first of all, anecdotal reports of children experience increased suicidal feelings of -- feelings after GnRHa is not scientific evidence, can we agree on that?

A. Reports of adverse events are part of the medical -- part of the important documentation and medical -- medical research.

Q. Well, sir, you are not -- the only thing

you cite to that is this Brik 2020, correct, of one --

(Simultaneously speaking.)

BY MS. ALTMAN:

Q. Let me just finish.

Of one teenager who stopped treatment because of the increase in mood problems and suicidal thoughts and confusion attributed to GnRH treatment, correct?

A. There is a -- in the next -- I think -- believe the subsequent sentence, there is another case.

Q. Right. So there is two instances. And -- and in the first instance, the child was obviously monitored, which is what you would do when you put someone on any medication, correct?

You would -- as a medical practitioner, you would evaluate how that person is -- is doing clinically on the medication, correct?

MR. BEATO: Object to the form.

(Simultaneously speaking.)

MR. BEATO: Dr. Biggs, can you please repeat your answer?

THE WITNESS: Yes. So medical practitioners certainly should be monitoring children who are on puberty blockers, definitely.

BY MS. ALTMAN:

Q. Okay. But that's -- so that's a reason to monitor care, not to ban it; isn't that right, sir?

A. Yes.

Q. Now, sir, in paragraph 24 on page 16, and going on to page 17, as well, in paragraphs 26 and 27, so paragraphs 24, 26, 27, you consistently use your -- your interpretation rather than science.

For example, in paragraph 24 you refer to "One obvious explanation is that clinicians were following the WPATH health recommendations against commencing medical intervention when an adolescent is experiencing an acute mental health crisis."

And so you are providing your explanation but that doesn't make it the actual explanation, does it, sir?

MR. BEATO: Object to form.

Dr. Biggs, you can answer that question.

THE WITNESS: Correct. Though, that was not my explanation. It would be the -- of any scientist worth -- any scientist worth his or her salt would suggest that that is a potential explanation.

BY MS. ALTMAN:

Q. It's one explanation, not necessarily the explanation, correct?

A. Absolutely correct.

Q. Right. And in paragraph 26, the first sentence, "The Dutch pioneers warned at the outset that patients 'could' end up with a decreased bone density, which is associated with a high risk of osteoporosis."

So, again, it could happen, that doesn't mean it will happen, correct?

A. Yes.

Q. And then further down in the paragraph you say, "In addition, children given GnRHa already have unusually low bone density, perhaps due to the high prevalence of eating disorders."

So now, if I read your statement, which is not referencing any evidence whatsoever, now you are musing about whether or not people have low -- already have low bone density because they have a high prevalence of eating disorders, right, sir?

MR. BEATO: Object to form.

Dr. Biggs, you can answer that question.

THE WITNESS: My apologies for not providing a citation. I thought that this would have been sort of common knowledge.

One citation I could have used is Olson-Kennedy, who states in her NIH -- Olson-Kennedy is not the first author but one of

the coauthors of this article which is on bone density on 95 children who were given GnRH, and they're in an NIH-funded study.

And suggested that they -- the data were from this 95, that they have unusually low bone density due to -- probably due to eating disorders.

BY MS. ALTMAN:

Q. "Probably" was the word you just used?

A. I couldn't -- I cannot quoting what they are saying, but one of the recommendations was that clinicians must always ask about eating disorders because they suggested that calorific deficiency was what was causing this usually low bone density.

Q. And that would be part of a clinician's job, right, before they put an individual on any medication, they should do a thorough clinical examination of the patient, correct?

A. They certainly should do a thorough clinical examination, yes, you are correct.

Q. Right. And that, again, is a reason to do a thorough clinical analysis but not to ban care, correct?

MR. BEATO: Object to form.

You can answer that, Dr. Biggs.

THE WITNESS: Well, this is one of the reasons why, in this particular population of children with -- starting out with on average -- a lower bone density than average, the risks of decreasing that density is going to be more pronounced.

So it's -- it's a statistical fact that's important -- is very important in evaluating the costs and the benefits of the treatment.

BY MS. ALTMAN:

Q. Which is why the clinicians and medical professionals should monitor the care, correct?

A. Certainly, they -- clinicians should monitor the care, yes.

Q. Right. That's not a reason to ban care, correct, sir?

A. It's not -- by itself, it does not say that the care should be banned, correct.

Q. And at the bottom of page 17, paragraph 7, again, you use the word "Anecdotally, a British female patient who started GnRH at age 12 then experienced four broken bones at the age of 16," correct?

A. Correct.

Q. Did I read that right? Right?

A. Yes.

Q. And, sir, as you sit here today, you don't know why this one individual at the age of 16 had four broken bones, do you?

A. No.

Q. And, again, on page 19, paragraph 29, you said, second or third sentence, referring to the Dutch -- "Dutch clinicians initially promoted puberty suppression as providing space for therapeutic exploration of gender identity without the pressure of physical changes accompanying puberty."

Did I read that right?

A. Yes.

Q. And that makes sense, does it not, sir?

A. It was one -- it was a plausible outcome, yes, yes.

Q. And the bottom of paragraph 30, again, you use the word "suspicion." "The suspicion is that puberty suppression reinforced gender dysphoria." Do you recall making that statement in your report?

A. Yes.

Q. Whose suspicion are you referring to there, sir?

A. Can I see -- let me --

Q. Page 20, the first -- there you go.

A. I'm just looking at what comes -- precedes

that.

Q. Sure.

MR. BEATO: Ana, could you go to page 19, please.

THE WITNESS: That's okay. No, I've seen it on my paper copy.

That is I think any reasonable observer -- or any scientific observer would suspect that is one -- one potential possibility, yes.

BY MS. ALTMAN:

Q. Not to the exclusion of other possibilities, correct, sir?

A. Absolutely.

Q. So this is just, again, one possible scenario, a hypothetical, but it could be something else completely, correct?

A. Yes.

Q. And, sir, we talked about social constructs earlier, and you would agree with me that being male or female is also a social construct, correct?

A. No, I disagree on that.

Q. You do. How so?

A. I believe what male and female are biological -- are biological concepts, not sociological concepts.

Q. And what's your basis for that statement?
A. Reading of the literature around sex.
Q. What literature specifically are you referring to?
A. Evolutionary literature on the evolution of sex.
Q. Is that a specific periodical that you are referring to, the evolution of sex?
A. No, I'm referring to a sort of literature, a large scientific --
(Phone interruption.)
(Reporter asks for clarification.)
THE WITNESS: Literature about why sex evolved.
BY MS. ALTMAN:
Q. And what specific literature are you referring to?
A. Well, I'm not -- I'm not going to cite particular articles, but the reason. This is a -- there's a huge literature on why sex evolved. And sex has been around for many millions of years. And it so long predates humans and long predates culture, human culture.
Q. Based on your -- that's your reading of this sex evolution history, that's your conclusion from

it; is that correct?

A. Correct.

Q. Now, sir, you've been linked to some transphobic tweets, you -- are you aware of that?

MR. BEATO: Object to form.

Dr. Biggs, you can answer that question.

THE WITNESS: Yes.

BY MS. ALTMAN:

Q. And it's correct, sir, have you been tweeting under the pseudonym Henry Wimbush?

A. I used -- that was a student of my Twitter account, yes -- or my -- yes.

Q. And I know you talked a lot today about how you want a free and open discourse and people should be able to, you know, give their opinions on various matters. And in keeping to that, why did you hide behind a pseudonym, why didn't you use your name?

MR. BEATO: Object to form.

Dr. Biggs, you can answer that question.

THE WITNESS: Because I believe that evidence shouldn't be based on who -- on the status or the credentials of the person saying it. It should be based on the logic and empirical evidence of the statement -- incorporating the statement.

BY MS. ALTMAN:

Q. Well, why would you think it would be any less impactful or important if you used your own name versus Henry Wimbush?

A. As I said, I don't believe that views should be judged by the -- the identity of the person or the credentials of the person making those statements but on the content of the statement themselves.

Q. So you believe -- it's most appropriate to hide behind a keyboard, is that what I'm hearing you say?

MR. BEATO: Object to form.

Dr. Biggs, you can answer that question.

THE WITNESS: I think there is a long history of pseudonymity. I mean, the federalist -- I believe The Federalist Papers, the authors of The Federalist Papers chose to hide behind a keyboard, as you might say.

BY MS. ALTMAN:

Q. Well, is there any particular reason why you didn't use your real name, sir?

A. I think I've already explained why I have -- why I made that decision.

Q. Now, you were exposed in an article in The Oxford Student, right?

MR. BEATO: Object to form.

Dr. Biggs, you can answer that question.

THE WITNESS: Correct.

BY MS. ALTMAN:

Q. And I just want to ask you about some of your tweets. One of them is, and I'm quoting, "Transphobia is a word created by fascists and used by cowards to manipulates morons."

Do you recall sending out that tweet?

A. Yes.

Q. What does that mean?

A. So it is a very famous quote by Peter Hitchens, an atheist. And he used the -- originally, of course, the quote was about Islamophobia. And as an atheist, he was objecting to the way his atheism -- or his criticism, let's say, of Islam would be denounced as being Islamophobic.

And I was -- I think the tweet indicates that a similar -- there can be a similar silencing of discourse around using the word "transphobia."

Q. Well, so you changed the quote. It is not a direct quote, correct, sir?

A. No. Exactly. But it's obviously -- to the learned audience, it's obvious what the reference is. I'm ripping off. It's ripping off somebody else's very famous quote.

Q. Right. No, and I apologize. Perhaps I'm not the learned audience that you were trying to reach, but I still have some questions about it because I don't understand.

What is it you were trying to communicate to the reader, sir, by saying -- are you concerned that people perceive -- would perceive you or anyone else as transphobic?

MR. BEATO: Object to form.

Dr. Biggs, you can answer that question.

THE WITNESS: I believe that important public policy debates around sex and gender are sometimes stifled by accusations of transphobia, yes.

BY MS. ALTMAN:

Q. Well, has anyone accused you of being transphobic?

A. Yes.

Q. Who has accused you of that?

A. Well, I believe that The Oxford Student article you mentioned does. I can't quote chapter and verse but I believe that's the -- at least the -- the implication.

Q. Well, sir, that -- the tweet that you -- that they wrote about occurred before the article, right?

A. Yes.

Q. Right. So they were only interpreting what you were -- you or Mr. Wimbush was putting out into the universe, correct?

A. Yes.

Q. So they had no reason -- they were not predetermined to be against your tweets. You put that information out into the universe, correct?

A. Yes.

Q. And so why is "transphobia" a word created by fascists?

A. Well, it is a play on words suggesting that there is an authoritarian streak in some forms of the transgender movement, and that includes the short-circuiting of important debates, such as the one I mentioned earlier about sort of, for example, should a rapist be put in a women's prison by short-circuiting of that proper democratic debate through accusations of transphobia.

Q. Well, you would agree with me, sir, I assume, that for every opinion that the person that holds the opinion -- strike that.

You would agree with me, a actual debate or discussion isn't one-sided. And so the fact that one person believes a person who is a transgender female

should not be put in a women's prison, there is someone else that might feel differently, correct?

MR. BEATO: Object to form.

You can answer, Dr. Biggs.

THE WITNESS: Yes.

BY MS. ALTMAN:

Q. Right. And both can coexist, meaning the person that has the opposite opinion is entitled to that opinion, correct?

A. They should be entitled.

Q. Right. You are not trying to stifle the debate that you claim you want, are you?

A. No, of course not.

Q. Okay. Now, I believe you've also made a tweet that claims "transitioning makes you LESS attractive," do you recall that?

A. I don't recall that. But if you've read it, I -- that may be the case.

Q. And the less is in all caps. Do you believe that transitioning makes somebody less attractive?

A. I believe transitioning is likely to reduce your potential pool of sexual partners or romantic partners, yes.

Q. Well, that's not what this says. This

doesn't say transitioning reduces your pool of potential sexual partners, does it?

MR. BEATO: Object to form.

You can answer, Dr. Biggs.

THE WITNESS: I really do not recall the particular reply or the Twitter thread that -- that that was -- that tweet was embedded in. But I believe that my -- to my -- best of my interpretation now, that is the import of that -- of that statement.

BY MS. ALTMAN:

Q. Okay. So is it your testimony here today you weren't trying to imply that transitioning makes someone physically less attractive, all caps?

A. It reduces their chance that that individual will find -- reduces the potential pool of romantic and sexual partners to that individual.

Q. Why?

A. Because, for example, if I'm a heterosexual man and I transition into a woman, if I have breast augmentation and I take estrogen, and I want to find lesbians, female homosexuals to have sex with, that's going to be a relatively small proportion of the lesbian population who will be interested in me as a potential wife or girlfriend.

Q. Why would you assume that that would be the only pool of people that might be your opportunity for a sexual partner?

A. I believe that that would be one obvious -- not the only pool but a significant pool that one would -- might be hoping that one could, you know, swim in, as it were.

Q. Well, based on what is your analysis of what pool a transgender female wants to swim in?

A. I couldn't cite particular chapter and verse of literature, but I believe there are surveys of who trans people -- their ideal partner would be or what kind of person they are looking for. And a very large number of males who transition, particularly later in life, are looking for lesbian -- lesbian partners.

Q. What particular important social commentary were you trying to make with this tweet, I mean, why were you concerned --

MR. BEATO: Object to form.

BY MS. ALTMAN:

Q. Why are you concerned with what sexual partners a person has who has transitioned?

MR. BEATO: Object to form.

You can answer, Dr. Biggs.

THE WITNESS: I'm afraid I genuinely can't

remember the context of that tweet.
BY MS. ALTMAN:
Q. Okay. Well, do you recall a tweet generally about many cis-gay youth have inappropriately transitioned to become straight?
A. I can't remember the particular one but I understand what -- what you are getting at.
Q. Well, no, what -- what are you getting at?
A. The suspicion that I think is in my report, that children who could grow up without being medicalized to become either feminine boys, gay boys, or masculine lesbians have been -- adopted a transgender identity which puts them on the path to -- for lifelong medicalization. An example would be the very first patient who took gender -- GnRH, B. or F.G.
Q. Sir, do you believe gender-affirming care is akin to eugenics?
MR. BEATO: Object to form.
You can answer, Dr. Biggs.
THE WITNESS: I believe that it is -- yeah, within a robust debate in public policy, that -- that's not an unfair characterization.
BY MS. ALTMAN:
Q. Well, I don't know -- I didn't ask about robust public policy. I asked you if you believe that

gender-affirming care is akin to eugenics?

MR. BEATO: Object to form.

You can answer, Dr. Biggs.

THE WITNESS: Certainly it is creating, particularly when -- it is creating a class of individuals who are not -- who are going to have either no chance or very little chance of giving -- of having children. So it is essentially like sterilizing some individuals.

BY MS. ALTMAN:

Q. Well, when you say "no chance" or "very little chance" of having children, are you specifically referring to whether or not they can physically carry a child as opposed to having children through other means, surrogate, adoption, fill in the blank?

A. Yes, exactly, yes.

Q. And so if I understand you correctly, you think that because someone may not be able to -- to have a child, if they were to go through transition, that that is in some way akin to eugenics, is that your testimony?

MR. BEATO: Object to form.

THE WITNESS: Yes. Could we -- could we remove the deposition so I can just see -- see you a bit better? It just helps me to pick up the questions.

MS. ALTMAN: Sure.

MR. BEATO: The expert report.

THE WITNESS: Sorry, the expert witness statement, yes.

MS. ALTMAN: Ana -- she's got it. There you go. Okay. And I'm almost done, if that helps, so...

THE WITNESS: Yes.

BY MS. ALTMAN:

Q. So in what way -- I'm just trying to understand, in what way this is like eugenics, sir?

MR. BEATO: Object to form.

You can answer, Dr. Biggs.

THE WITNESS: So eugenics was a program of sterilizing certain people who are seen as inferior in order to promote the health of the race. And the analogy that was being drawn here is that contemporary medical practices are also sterilizing some children, or putting them on a path to sterilization, in which case they wouldn't be -- ironically, treating them is almost like an inferior type of individual who shouldn't be allowed to reproduce.

And that was banned, that's why it was being objected to.

BY MS. ALTMAN:

Q. Well, you would agree with me, sir, that people who are transgender are choosing their own path, whereas eugenics is someone else charting a course for them, correct?

MR. BEATO: Object to form.

BY MS. ALTMAN:

Q. Someone else made a decision that they are in some way inferior and making a decision for that person or group of people versus being transgender, which is, we all agree, I think you -- yourself agree, is something that's innate to the person, correct?

MR. BEATO: Object to form.

You can answer, Dr. Biggs.

THE WITNESS: I never believe -- and I do not believe I stated that transgen- -- being a transgender was innate. I don't believe I've ever said that.

BY MS. ALTMAN:

Q. Well, you believe people can be transgender, correct?

A. Correct.

Q. You've testified to that earlier, correct?

A. Correct.

Q. Okay. And so are you now suggesting it's

not innate, that somebody is superimposing it on someone?

MR. BEATO: Object to form.

You can answer, Dr. Biggs.

THE WITNESS: Well, I believe someone can be a Christian. I don't believe that Christianity is innate in the individual.

BY MS. ALTMAN:

Q. Well, sir, are you -- are you correlating Christianity with being transgender, I just want to make sure I'm following?

MR. BEATO: Object to form.

THE WITNESS: I'm just giving you analogy on how to explain -- how I can -- obviously, transgender people exist without necessarily claiming that being transgender is an innate property of the individual.

BY MS. ALTMAN:

Q. Right. And I'm just trying to understand. Is it your testimony under oath that you believe that's a correct analogy?

MR. BEATO: Object to the form.

BY MS. ALTMAN:

Q. That neither of the two things are innate?

MR. BEATO: Object to form.

THE WITNESS: Yes, it's a helpful analogy.

I mean, like any other analogy, it has limitation.
BY MS. ALTMAN:
Q. Well, I thought we went through this earlier. And, again, I don't want to retread. But, sir, I thought we agreed that -- and I'm going to give you the benefit of your testimony -- you thought that in some instances transgender could be a choice, but that in many other instances, it is not a choice, correct, do you recall that testimony?
A. Yes.
Q. Okay. And you -- that's your testimony, right?
A. Yes.
Q. And so at least in your world, there is at least some subset of people that are transgender and it is not a choice, correct?
A. Well, it may not be their choice, it may be the choice, for example, of their parents, for example.
Q. But it may be their choice and it may not be their choice, it may be innate, correct?
MR. BEATO: Object to form.
You can answer, Dr. Biggs.
THE WITNESS: I mean, a child who is brought up in a pious Christian home and Christian school and sent to Bible every -- Bible study and

church and very -- given a very religious upbringing, I would say that child did not really have a choice to be a Christian. But I don't believe that Christianity is somehow sort of physically innate in them in the way that blue eyes would be, for example.

BY MS. ALTMAN:

Q. Well, sir, we want to -- you keep focusing on children. Let's try and unpack it a little by not talking about children for a minute.

You would agree with me that there are adults that -- that live their life as one gender and ultimately come to terms with the fact that they have a gender identity different from their gender at birth, correct?

A. Yes, yes.

Q. So let's not talk about parents and Christians and whatever else you want to talk about. I'm talking about adults now.

Would you agree with me, sir, that there are transgender individuals, that it is not a choice, it is innate to them?

A. I think maybe we have a different understanding of innate.

Q. Okay. Well, what's your understanding of

innate, sir?

A. Innate is something that would -- would be -- would arise regardless of the cultural context.

Q. What does that mean, sir? Are you trying to say that every transgender person arises because of the cultural context, is that your testimony?

MR. BEATO: Object to the form.

BY MS. ALTMAN:

Q. Whatever that means?

MR. BEATO: Object to form.

THE WITNESS: I'm suggesting that there are different societies. Different cultures have different ways of understanding gender. And, obviously, our society, our culture at this moment has an understanding which is encapsulated in the label "transgender." But that is not universal or across -- across different societies, different cultures.

BY MS. ALTMAN:

Q. Meaning what? That it is your testimony under oath that there are people in other societies and other cultures that -- that have no individuals that are transgender, is that what you want this Court to believe?

MR. BEATO: Object to form.

THE WITNESS: They might understand

their -- their experience in quite different ways. For example, they would not be seeking cross-sex hormones, for example.

BY MS. ALTMAN:

Q. Who is the they in your sentence?

A. No individuals and -- before 1900 were seeking cross-sex hormones.

Q. Sir, you are here to provide your opinions today. I'm happy to talk to you at length if you'd like during your deposition about the 1900s. But I'm just trying to understand your testimony here today about what -- what it is today.

Is it your opinion under oath that being transgender is a choice?

MR. BEATO: Object to form.

You can answer, Dr. Biggs.

THE WITNESS: In some cases, yes.

BY MS. ALTMAN:

Q. And in some cases?

A. In some cases no.

Q. Okay. Thank you very much. And I think I asked you this earlier, but just in case, other than talking to -- to Michael for five minutes, did you discuss your deposition testimony with anyone else?

A. No.

Q. And I think you also answered you've not read any of the other depositions in this case, correct?
A. Correct. Expert witness -- yeah, expert reports.
Q. Yes, sir.
A. Correct.
Q. Do you --
A. Except the rebuttals, except the five rebuttals to -- five rebuttals to expert reports.
Q. Right. And my question, I'm sorry, was about deposition transcripts. Have you read any deposition transcripts?
A. No.
Q. No. Did hormone treatments exist before the 1900s?
A. No.
Q. Did we even understand hormones before the 1900s?
A. No.
Q. So using your analogy before in referencing that before the 1900s, you know, transgender was not a thing, that really isn't a good analogy because it didn't exist, correct, the use of cross-sex hormones?
MR. BEATO: Object to the form.
You can answer, Dr. Biggs.

THE WITNESS: Yes, I think medical -- certain medical technologies make certain -- certain identities more -- more likely or more -- more attractive.

MS. ALTMAN: Let me just look at the report real quick, sir, and make sure I don't have any other questions. I'm either just about done or done. So just give me one second.

BY MS. ALTMAN:

Q. Sir, on the bottom of page 13 of your report, I don't think we need to bring the report up, I just have a quick question.

You cite to -- it says, "In the Belgian clinic which experienced the exceptionally high suicide rate," then there is a period and a lowercase, "subsequent correspondence reveals that suicide was" -- and I'm quoting -- "suicide was related to many more psychological problems than G.D., and occurred mostly a few years after the start of hormonal treatment."

And you cite to an e-mail from Gaia Van Cauwenberg, C-A-U-W-E-N-B-E-R-G, to Avi, A-V-I, Ring, R-I-N-G, an e-mail dated May 27, 2022.

Is that your evidence that you are relying upon for that statement, is an e-mail from this one individual to another, or did you have other evidence for

that proposition?

A. That's the evidence. And that -- the -- Van Cauwenberg is one of the authors of that articles -- of the article that talks about the high suicide rate in the Belgian clinic.

Q. Okay.

MS. ALTMAN: I don't have any more questions, sir.

Michael.

MR. BEATO: And thank you again, Dr. Biggs, for your -- for your testimony. I just have two questions for you.

CROSS-EXAMINATION

BY MR. BEATO:

Q. The first question is, do you think that the subject matter of gender-affirming care is controversial?

A. Yes.

Q. Then why did you decide to weigh in and opine into this controversial subject matter?

A. Because I believed that the empirical evidence did not justify the kind of certainty that was being presented in the practice of gender clinics, like the Tavistock in London, and in the sort of media discussion of the care for transgender children and

adolescents.

MR. BEATO: No further questions.

MS. ALTMAN: You want to tell him his right to read or waive or do you want me to do it?

MR. BEATO: You can do it.

MS. ALTMAN: So you have the right to read your transcript. Can't make substantive changes but you can read it. Maybe you said yes, the court reporter wrote no or something else. So you have the right to read or waive your transcript.

THE WITNESS: How long would I have to do -- to read and -- and approve that transcript?

MS. ALTMAN: 30 seconds -- no, I think it's 30 days.

THE WITNESS: I will take -- I would rather -- I probably would like to read it, then.

MS. ALTMAN: Okay.

And then I just have one real quick redirect question.

REDIRECT EXAMINATION

BY MS. ALTMAN:

Q. Have you weighed in on whether surgeries should be provided to intersex infants?

A. No, I haven't, but I have a strong view that they shouldn't be unless absolutely medically

necessary.

MS. ALTMAN: So, Ms. Bush, he is going to read it, I think. Did I get that right?

THE WITNESS: Yes. Yes, please.

MS. ALTMAN: Okay. I believe we are ordering on an expedited basis. So we will take a copy -- the original, I guess. And we want it on an expedited basis.

MS. REPORTER: And when is that, when do you want it by? As soon as I can get it to you?

MS. ALTMAN: Right, but faster than that.

MS. REPORTER: Do you have a specific time frame in mind?

MS. ALTMAN: Well, I mean, we're -- I mean, as soon as possible. As soon as you can humanly get it here.

MS. REPORTER: That's fine.

And then, Michael, do you want a copy?

MR. BEATO: Yes, please.

(The proceeding is adjourned at 3:44 p.m.)

CERTIFICATE OF NOTARY PUBLIC

STATE OF FLORIDA

COUNTY OF _____

I, MICHAEL BIGGS, PH.D., certify that I have read the foregoing transcript of my deposition and that the statements contained therein, together with any additions or corrections made on the attached Errata Sheet are true and correct.

Dated this _____ day of _____, 20__.

_____

MICHAEL BIGGS, PH.D.

The foregoing certificate was subscribed to before me this _____ day of _____, 20__, by the witness who has produced a _____ as identification and who did not take an additional oath.

_____

NOTARY PUBLIC

ERRATA SHEET

IN RE: DEKKER VS. WEIDA, ET AL.

DO NOT WRITE ON TRANSCRIPT - ENTER CHANGES HERE:

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I have read my deposition in this matter and entered any changes in form or substance as reflected above.

_____ _____

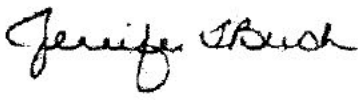
DATE MICHAEL BIGGS, PH.D.

CERTIFICATE OF OATH OF WITNESS

STATE OF FLORIDA)
COUNTY OF ST. LUCIE)

I, the undersigned Notary Public, in and for the State of Florida, hereby certify that MICHAEL BIGGS, PH.D. personally appeared before me and was duly sworn.

WITNESS MY HAND and official seal in the City of Fort Pierce, County of St. Lucie, State of Florida this March 24, 2023.



Jennifer L. Bush, RPR, FPR
Notary Public
State of Florida at Large.
My Commission: #HH 002112
My commission expires: 9/24/24

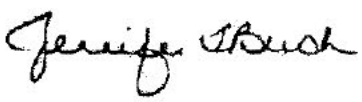
CERTIFICATE OF REPORTER

STATE OF FLORIDA)
COUNTY OF ST. LUCIE)

I, Jennifer L. Bush, Registered Registered Registered Professional Reporter, do hereby certify that I was authorized to and did stenographically report the deposition of MICHAEL BIGGS, PH.D.; and that a review of the transcript was requested; and that pages 1 through 243, inclusive, are a true record of my stenographic notes.

I further certify that I am not a relative, employee, attorney or counsel of any of the parties, nor am I a relative or employee of any of the parties, attorneys or counsel connected with the action, nor am I financially interested in the action.

Dated this March 24, 2023.



Jennifer Bush, RPR, FPR

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March 24, 2023

MICHAEL BIGGS, PH.D.
C/O Michael Beato, Esquire
Holtzman Vogel Barantorchinsky & Josefiak PLLC
119 S Monroe Street, Suite 500
Tallahassee, FL 32301

RE: DEKKER VS. WEIDA, ET AL.
Deposition of MICHAEL BIGGS, PH.D.
Dear Dr. Biggs:

This letter is to advise you that the transcript of the deposition listed above is completed and is awaiting reading and signing. Depending on the length of the transcript, you should allow yourself sufficient time.

If the reading and signing has not been completed prior to the time of trial, we shall conclude that you have waived the reading and signing of the deposition transcript.

Your prompt attention to this matter is appreciated.

Sincerely,

Jennifer L. Bush, RPR, FPR
CC: All counsel on appearance page

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1 2:13 3:18 22:8 22:17,21 82:9 83:22 84:13 85:8,16 86:12 86:21 87:12,22 89:5,11 96:1,11 121:9 140:2,11 242:9
10 179:23 180:4 194:3 198:1,3 199:12
10005 2:10
105 2:13
10:02 1:12
11 64:21 180:4
119 2:23 243:7
11:24 70:6,7
11:30 70:6
11:31 70:8
12 52:23 54:20 71:4 192:16 199:14,15 213:21
120 2:10
1229 2:17
12:58 140:13
12th 2:17
13 105:7 182:17 182:19 183:21 186:15 198:25 207:7 235:10
14 192:3 197:15
15 110:3 111:1 111:20 113:13 197:15 207:8
16 138:12,15,18 139:1,7,7,9,10 139:11,17 210:4 213:22 214:2
17 147:6 210:5 213:19
18 87:8 138:9,11 138:20 139:8,9 139:11,17 199:11
1886 25:12
19 214:5 215:3
1900 206:2 233:6
1900s 233:10 234:15,18,21
1990 190:23
1990s 118:10
19th 2:10
1:33 140:14

2

2 3:19 23:11,12 23:22 60:11 83:11 208:9 243:2
2.5 114:23 115:8 115:11,16
20 71:4 198:13 199:6 214:24 239:12,17
2005 189:22
2010 189:22 194:24
2011 73:9 75:14 88:14 147:8 173:21
2012 197:14
2014 73:10 75:15 88:15 146:6 147:8 173:21
2015 197:15
2016 27:19 194:16
2017 27:19,21 27:24
2019 142:2,11 142:13 143:11
2020 190:24 209:1
2021 62:2,9,14 62:24 156:22
2022 62:14 64:13 66:23 79:21 134:5 171:6,20 204:20 235:22
2023 1:12 62:6,8 62:15,24 143:20 170:20 171:21 185:20 241:13 242:18 243:4
21 1:12
212-809-8585 2:11
22 3:18 24:23 207:21 208:9,10 208:12,13,14
2250 243:2
23 3:19
236 3:7
237 3:6
239 3:10
24 210:4,6,8 241:13 242:18 243:4
240 3:11
241 3:12
242 3:13
243 3:14 242:10
26 210:5,6 211:2
27 210:5,6 235:22
28 134:5
29 214:5
2:57 207:6,18

3

30 70:1 198:6 206:21 214:16 237:13,14
3003 241:18 242:20
30030 2:13
30s 145:24

3100 2:6
32301 2:23 243:7
32601 2:17
33131 2:6 243:2
352-271-8890 2:18
3:04 207:19
3:05 207:9,11 207:12
3:10 207:4,6,7
3:44 1:12 238:20

4

4 3:6
40 160:3
404-897-1880 2:14
43 160:3,6,16
44 160:2,3
4:22 1:2

5

5 40:16,21,23 41:9 42:8,23,25 43:7,8 82:22 83:4,10,14,18 100:1 101:19 140:2,11 173:14
500 2:23 243:7
5:30 140:11

6

6 82:22 83:20,21 174:15
600 2:6

7

7 177:13,24 213:19
70 73:11 86:18 86:18 87:25,25 88:1,19 89:2,9 183:8
700 197:13
786-913-4900 2:7

8

8 101:19
800-726-7007 243:3

9

9 100:6 101:20 178:5 179:2,5 194:3
9/24/24 241:20
93 92:20 101:23 120:13 162:17 162:19
95 92:20 101:23 120:13 162:17 162:19 212:2,5
97 63:12 64:7 120:13 162:17 162:19
98 63:12 64:7 92:20 101:24 120:13 162:17

a

a.m. 1:12 70:7,8
abandoning 192:24
ability 6:25 21:15 79:6 81:9 107:3 109:8,10 109:12 114:19
able 5:25 15:22 133:25 139:13 199:13 217:15 226:18
abnormally 95:8
above 1:25 24:25 44:9 240:23 243:11
absence 44:16 44:16
absolute 155:7,8 156:4
absolutely 90:14 96:23 97:1 110:18 155:15,21 211:1 215:13 237:25
abstract 129:20 129:21
abundant 189:12
academic 14:17 14:22,24 32:11 32:17,21 39:19 43:11 54:24
academics 14:13 32:18 33:1
academy 200:25
accepted 35:2 35:12 37:5 40:24
accepting 187:22
access 116:5 138:13 139:13
accident 89:3
accommodate 6:16
accompanying 214:10
account 28:16 28:21,25 217:12
accrete 114:12 114:13
accrue 114:2
accurate 5:25 32:20 88:13 177:22
accusations 220:13 221:18
accused 220:16 220:19
acknowledge 123:5 142:18 152:12 185:23
acknowledged 99:20 155:4 185:20

acknowledges 29:18
acknowledging 30:17
act 9:9,11,18,20 9:22 16:4 152:3
acting 10:19,22
action 242:15 242:16
actions 147:2
actual 8:13 16:14 43:15 44:20 45:2 78:13 80:3 95:17 133:8 158:17 181:7 188:23 206:16 210:14 221:23
actually 19:17 49:11 61:3 75:16 85:5 90:2 121:5 161:9 179:17 192:24
acute 210:12
add 44:12,12 155:24
addition 45:24 113:14 211:10
additional 62:12 239:19
additions 239:9
addressing 150:8
adds 155:25
adjourned 238:20
adjusted 75:7
administering 105:5
administration 85:22,23 150:19
admission 157:20 158:7,7
adolescence 7:24 82:17 108:25 109:8 198:16
adolescent 210:11
adolescents 164:1,7,18 183:8 237:1
adopted 118:19 118:20 225:12
adoption 226:15
adult 19:4,10 20:13 149:23 150:5
adults 69:14,17 69:21 70:16 72:23 138:23 231:12,19
advance 4:15
adverse 208:22
advise 243:11
advisors 57:20 71:2,3 72:1
advocacy 59:11
advocate 148:8 148:8 154:18
advocated 107:21 117:20 117:24
advocates 118:5
affirmation 184:13,23
affirming 27:7 37:23 38:2,6,10 49:23 50:1 68:13,17,24 69:6,10 71:9 73:2 79:1,11 99:3 121:14,20 134:5 148:12,24 149:22 150:4 156:25 157:10 166:19 201:6 225:16 226:1 236:16
afraid 53:20 54:15 68:20 69:2 224:25
african 205:4
afternoon 4:9 4:10
age 64:21 100:6 101:14 107:15 107:18 108:20 108:22 114:3,6 114:17 139:17 163:2 192:15 213:21,22 214:2
agency 150:19 150:21
agenda 134:8,16 134:20
ages 130:8,12
aging 17:12
ago 14:4 30:24 56:22 59:5,5 96:1 118:8 168:10 171:13 171:13,14,14 173:23 197:14 197:15 198:9
agonist 34:5 88:9 97:19
agonists 16:1 63:13 92:23 185:21
agree 13:22 14:7,10 25:14 25:17 27:17 29:15 34:11,18 36:4 42:7 43:14 46:24 50:17 52:25 53:24 55:3 59:10 62:5 69:4,8 77:1,6 80:25 84:18 85:1 86:2,10 91:21 98:13 99:19 100:10,14 102:1,8 103:8 105:3,3,14,24 107:11,17 109:6 110:10 113:18

114:11 116:22 121:2 129:8,10 129:18,23 130:3 135:6 136:22 139:16 147:9 151:10,17 154:8 155:13 161:7 163:18 184:18 192:9,14,18,22 200:18 201:14 203:13 205:20 208:21 215:19 221:20,23 228:2 228:11,11 231:11,20
agreed 41:17 44:19 58:8 65:11 66:10,14 66:14 230:5
ahca 165:8
ahead 176:8
aim 66:9 121:7
air 196:3
akin 225:17 226:1,20
al 1:3,6 51:17 73:9,10 88:15 147:8 173:21 182:7 185:20 194:24 240:2 243:8
alarming 83:23 84:14 87:22 89:12 96:11,12 96:13
aligned 11:19 55:6
allegedly 8:15
alleviate 121:5
allow 22:14 95:9 101:20 158:23 159:6 163:3 243:12
allowed 227:23
allowing 159:8
altered 62:9
altering 198:16
alternative 144:1
altman 2:3 3:6 4:8,23 7:25 8:2 8:21 9:1,2 17:2 17:21 19:17,20 19:22 20:4,16 21:3,12,25 22:19 23:5,6,15 24:19,22 25:6,9 25:23,25 42:21 45:18 47:25 48:2 49:1,5,10 49:14,15 53:8 58:5 59:1 69:24 70:4,9 71:16 76:3 83:8,14,16 86:22 92:2 94:12 102:22 110:25 112:15 119:11 120:2,16 125:21 135:11 139:24 140:5,10 140:15,18,25 141:3 143:8 149:9 154:1 159:19 162:11 162:15 172:20 173:2,5 175:16 176:7,13 178:14 178:18,24 179:2 179:3 184:8 188:9 189:5 190:9 195:13 197:4 199:3,4 200:17 201:25 202:16 204:2 206:23 207:1,4 207:6,11,16,20 208:9,11,14,17 209:3,25 210:23 212:8 213:10 215:10 216:15 217:8 218:1,18 219:3 220:15 222:6 223:11 224:20 225:2,23 226:10 227:1,5 227:9 228:1,7 228:19 229:7,17 229:22 230:2 231:7 232:8,19 233:4,18 235:5 235:9 236:7 237:3,6,13,17 237:21 238:2,5 238:11,14
altogether 95:12
ambit 17:11,13
america 118:19
american 25:11 97:21 166:22 200:21,24 205:4
amount 13:6 54:21 75:2
amsterdam 85:4
ana 2:5 22:9 23:5,16 24:20 25:6 83:8,10 178:24,25 179:1 198:22 208:5,15 215:3 227:5
anacker 185:20
analogs 177:9
analogy 227:17 229:12,20,25 230:1 234:20,22
analysis 9:4,6 9:21 28:6,21 32:8 39:21 55:17 63:21 74:4 78:12 81:24 84:23 85:1 87:10 88:11,18,22 89:16 90:25 106:12,15 107:4 111:19 112:5,9 113:12 147:3 160:20 175:21 175:24 176:3,12

195:19 212:22 224:8
analyze 28:13 43:5,7,8 87:3
analyzed 15:24 16:24 131:4
analyzing 177:7
anecdotal 207:22 208:19
anecdotally 213:20
animal 128:17
animals 126:10 126:14 179:8
answer 5:4,10 5:17,20,21 6:8 6:25 10:12 11:10,14 14:4 16:22 17:15,18 19:17,19,20 20:2,5,9,23 21:10,21 29:25 41:18 42:12,18 45:16 53:5 58:4 58:24 69:13 71:12 75:17 76:2 78:22 86:16 90:2 91:24 94:10 110:21 112:13 119:10,24 120:10,21 135:4 139:4 143:3 147:20 149:2 153:24 157:6 159:13 162:3 172:15,18,25 175:13 176:6,9 184:1 188:2 189:1 190:5 195:11 196:21 199:18 200:6 201:19 203:25 209:21 210:17 211:19 212:25 217:6,19 218:12 219:1 220:10 222:4 223:4 224:24 225:19 226:3 227:13 228:14 229:3 230:22 233:16 234:25
answered 19:16 20:3 21:14 54:4 74:7 120:18 180:25 181:6,20 181:21,23,25 202:13 234:1
answering 6:2
answers 35:15
anti 71:8
anxiety 75:8 131:18
anybody 17:13 132:11 195:8,15
anyone's 119:16
anyway 69:14
apart 43:21 169:21 196:7
apologies 44:8 211:20
apologize 14:8 69:24 138:25 144:12 178:10 202:18 220:1
apparently 189:7
appealing 191:10,12 194:1
appeals 67:20
appearance 243:22
appearances 172:7
appeared 137:10 143:14 143:18 241:8
appearing 2:2 2:20
appears 34:19
appellate 60:24
apply 242:24
appreciate 126:3
appreciated 243:17
approaching 206:21
appropriate 13:25 68:24 95:10 140:8 147:16 182:12 182:15 218:9
approve 237:12
approximation 171:13
archive 46:9 50:11
archives 34:6 43:24 44:2 48:9
area 42:8 81:3 100:25 168:3
areas 136:19
argument 154:18 156:1
arguments 14:24
arises 232:5
arriving 165:9
article 8:12 28:5 28:7,7 29:11,12 29:14,17,19 30:16 34:8,12 34:18 35:6,23 35:23 41:3 44:1 44:7,13 46:4 48:8,13,15,17 49:7 51:16 62:23 63:10,19 64:6 72:17 78:7 78:8,20 128:4,8 143:7,11 156:20 177:6 185:20 194:10,24 204:14 212:1 218:23 220:21 220:25 236:4

articles 28:3 33:6 34:25 37:15,22 44:13 47:3 49:10,16 62:20 63:6 71:6 71:8 88:15,17 97:18,18,21 98:2 126:1 136:10 151:20 162:5 182:6 216:19 236:3
asc 197:16
ascertain 9:16 81:2
ashamed 146:5
aside 25:7 64:16
asked 53:16 54:12,14 59:14 64:18,19,24,25 118:1 131:23 137:17 140:19 140:21 164:11 164:23 166:6,9 181:16 189:4,4 189:9 193:19 202:9,12 204:10 225:25 233:22
asking 50:16 137:19 138:10 146:24 169:1 188:22 189:17 189:24 196:9
asks 8:20 182:14 216:12
assertion 37:13
assessed 73:25
assigned 11:20
assist 24:2 122:1 122:15
associated 64:6 181:15 211:5
association 47:10 48:6 200:22
association's 166:23
assume 5:10 12:7 71:8 72:3 80:25 100:18 160:18 172:6 221:21 224:1
assuming 177:22
assumptions 51:24
assure 93:4
astonishing 157:20 158:6
atheism 219:14
atheist 219:12 219:14
attached 239:9
attachments 30:13
attempt 153:17 154:14 164:21 202:24
attempted 147:24
attempting 156:25
attempts 153:4
attend 68:22 135:12
attending 8:5
attention 155:17 243:16
attorney 242:13
attorneys 242:15
attractive 222:16,21 223:14 235:4
attributed 96:2 121:9 195:6 209:7
attrition 74:19 75:3 79:20,23 79:25 80:4
audibly 5:18
audience 219:23 220:2
audio 4:16 8:18 111:2 137:9
augmentation 223:21
august 1:3
australia 60:6 169:22
australian 63:10,18 64:6 64:13,20,23 65:5,7,8 66:3 67:4 162:22
author 127:25 142:6,9,12 157:19 211:25
author's 142:21 143:10
authoritarian 221:13
authority 15:21 16:7,8 157:21
authorized 242:7
authors 32:7 218:16 236:3
autism 197:16 197:16
autistic 192:5 193:18,19,24 194:7,21 195:16 195:20 196:2,16 198:7,10
available 74:23
avenue 2:6,17
average 213:3,4
avi 235:21
avoided 188:20
awaiting 243:12
aware 13:11 68:15 69:2 72:5 123:10,21 127:6 134:17,18 150:6 150:17 151:2 164:6,16,21 174:12 184:12 184:20 201:5 217:4

b

b 145:23 173:19 225:15 235:21
back 24:17 29:6 36:1 37:3,21 56:20 80:10,22 90:23 95:25 96:13 129:20 138:2 140:20 177:20 180:8,10 181:12 182:3 183:15 193:17
background 31:10,11,12 32:19
bad 76:7 80:14 102:23 106:22 155:13
ban 148:12,24 210:2 212:22 213:15
bandwagon 191:17
banned 213:18 227:24
banning 190:16
bans 190:21
barantorchinsky 2:22 243:6
barrister 61:7
base 74:17 183:1
based 12:14 14:5,6 15:5 16:25 17:8,25 32:22,23 41:12 41:22 43:20 46:4 47:2,5 57:9 58:16 61:20 73:17 75:20 81:10 87:10,24 88:14 102:12 113:7 124:12 126:11 128:21 134:23 137:8 151:15 152:16 152:17 156:4,14 175:24 200:3 216:24 217:21 217:23 224:8
bases 34:22 97:15 144:12
basing 85:18
basis 8:14 9:4 10:6 36:10,20 43:18 57:11 67:15 77:7,23 86:23 98:6 110:19 112:19 112:25 113:6,7 115:5 117:1,3,8 117:19 118:1,2 124:18,22 154:15 168:15 188:14,14,15 189:25 190:24 197:25 199:8,8 199:19 200:12 216:1 238:6,8
beat 57:25
beato 2:21 3:7 16:21 17:17 19:15,19 20:1,8 20:22 21:9,20 42:11,17 45:15 49:6,12 53:3,5 56:10,13 58:3 58:23 69:24 71:11 76:1 83:5 86:15 91:23 94:9 102:21 110:20 112:12 119:9,23 120:9 135:3 140:7,24 143:2 149:1 153:23 159:12 162:2,14 172:14 172:23 173:4 175:12 176:5,9 178:9,21 179:1 183:25 188:1,25 190:4 195:10 196:20 198:21 198:25 200:5 201:18 202:12 203:24 206:20 206:25 207:2,5 207:9,13,17 208:4,12,15 209:18,20 210:16 211:18 212:24 215:3 217:5,18 218:11 218:25 220:9 222:3 223:3 224:19,23 225:18 226:2,21 227:2,12 228:6 228:13 229:2,11 229:21,24 230:21 232:7,10 232:24 233:15 234:24 236:10 236:14 237:2,5 238:19 243:6
becoming 188:13 196:3
began 27:18
beginning 171:16
behalf 1:22 2:2 2:20 4:3 23:21 68:12
behavior 34:7 43:24 44:3 46:9 48:10
belgian 235:13 236:5
belgium 162:22
belief 19:9 41:15,23 42:2 45:19 183:17 185:13
beliefs 17:23,25 18:7,9,11 20:18 41:12
believe 11:4,6,8 11:18,22,25 12:3 13:18

15:13 20:10 27:21 30:19 33:12 37:15 41:2 49:17 50:13 52:9 54:13,24 58:13 59:8 62:3,17 65:5 68:18,24 69:7 70:24 73:7 76:23 79:16,21 82:16 94:6 96:24 98:7 99:19 100:1,6 104:7,14 108:21 110:2 116:6 120:20 121:15 128:8,17,21 130:10,24 132:25 133:21 134:19 135:7,9 135:14,19,20,23 136:7 138:6,11 139:12 142:1 144:6,7,13,18 145:1 146:9 151:14,19,22 152:22,22 153:8 156:22,24 157:10,16 160:2 160:12 161:14 162:23 163:16 164:25 168:4,16 169:5,6,12 171:19 175:14 175:18 182:14 184:6 185:9 188:4,12 189:3 189:11 191:9,11 191:19 196:24 196:24 201:20 202:22,23 203:8 203:9 204:20 205:2,6,10,23 209:10 215:23 217:20 218:5,9 218:15 220:11 220:20,22 222:14,20,22 223:8 224:4,11 225:16,20,25 228:15,16,17,20 229:4,5,19 231:4 232:23 238:5

believed 236:21

believes 144:3 221:25

bell 60:8,12 65:12 132:10

belong 94:7

benefit 5:22,23 6:5 57:5 159:10 161:17,19 208:4 208:6 230:6

benefited 38:2,5

benefits 20:14 139:14 151:3,7 151:16 161:16 213:9

best 12:4,12 13:23,24 21:14 82:18 83:5 102:10 126:10 187:13 201:15 206:22 223:8

better 10:12 13:2 81:1,7 119:14 154:12 154:20 226:24

beyond 46:19

bible 230:25,25

bibliography 48:14,21 49:8 50:9 54:10 62:24 63:2 190:3,8 204:8

biggs 1:15 3:4 4:2 16:22 17:18 20:2,9,23 21:10 21:21 42:12,18 45:16 53:5 58:4 58:24 71:12 76:2 86:16 91:24 94:10 110:21 112:13 119:24 120:10 135:4 140:7 143:3 149:2 153:24 159:13 162:3 172:14 175:13 176:6,10 178:11 184:1 188:2 189:1 190:5 195:11 196:21 200:6 201:19 202:14 203:25 207:10 208:18 209:20 210:17 211:19 212:25 217:6,19 218:12 219:1 220:10 222:4 223:4 224:24 225:19 226:3 227:13 228:14 229:3 230:22 233:16 234:25 236:10 239:6,14 240:25 241:8 242:8 243:5,9 243:10

bioethicist 26:6

biological 145:3 203:21 215:24 215:24

birth 11:20 158:25 231:14

biscayne 243:1 243:2

bisexual 183:10

bit 18:5 147:18 226:24

blank 226:15

blanket 89:10

blanking 53:21

block 91:16 94:2 133:8

blocked 92:10 127:13

blocker 93:18 138:21
blockers 35:20 38:20 39:7 47:24 48:5 60:17,19 61:4 61:12 64:22 65:2 67:13 69:13 70:12 72:19 73:12 77:8,10,13,22 79:6 85:21,22 85:23 86:3 87:7 89:3,5,15 90:24 91:3,5,14 92:14 92:24 93:7,19 94:1 95:15,20 95:22 96:2 97:16 98:23 99:5,8,13 100:5 100:12,15 101:12 103:6 104:7,12,15 106:8 107:1,9 107:12,22 108:8 109:7 110:12,18 111:10 112:9,21 113:3,14 114:1 115:2,16 117:23 117:24 118:5 119:22 120:4,14 120:22 121:3,10 122:17,20 123:17,22,24 124:20 127:14 131:25 132:22 133:17,21 136:13 143:19 146:15,22,22 147:1 148:17,19 151:4,13 157:22 158:8 159:4,16 159:22,24 161:4 161:12,16,18,19 161:20,25 162:7 164:13,20 168:5 170:1 173:23 185:3,7,10 200:12,16 202:11 209:24
blocking 91:10 95:8 128:18
blocks 201:24
blog 157:19,24 158:3,5,15,18 161:23 177:25
blue 231:5
blurbed 8:24
blvd 243:2
board 52:12 53:11,17,25 55:4 57:20 59:2 59:7 71:2,3 72:1 134:3 135:13,18 135:21 136:1,6 136:24 137:10 137:15,23 148:11,23 150:7 150:8,12 171:5 172:7
body 145:3,5 191:4,21
bone 15:15,18 15:19,20,25 16:17,20 17:6,7 17:10 28:6,10 33:8,10 35:17 51:3 81:17 103:22 106:3,8 106:12 107:25 108:14,23,25 109:2,14,16 113:19 114:1,1 114:12 116:15 135:9 138:3 175:21 211:4,11 211:16 212:1,5 212:14 213:4
bones 213:22 214:3
book 187:12 204:21
bothered 181:18
bottom 79:5 83:3,14,17 194:3 213:19 214:16 235:10
bowers 124:10 124:13 125:1
boy 11:23 18:12 180:15
boys 185:12 186:24 192:14 193:1,3,10 225:11,11
brain 103:18
break 4:19 6:15 70:2 139:25 140:1,16,17 141:4 206:23 207:15
breaks 6:18
breast 223:20
brickell 2:6
brief 70:2,7 207:18
briggs 119:10
brik 209:1
bring 6:3 22:10 23:10 141:10 235:11
britain 15:22 73:21 118:21 162:22
british 197:9 213:20
broad 120:3 126:12,12
broader 136:15
broken 213:22 214:3
brought 23:2 230:24
bundle 61:8
bush 1:23 238:2 241:18 242:5,20 243:21
butch 185:12

c

c 1:23 2:1 10:10 73:21 235:21 243:6
calculated 85:17 155:10
calculating 81:25,25
call 56:10 71:1
called 4:3 8:6 30:4,7 39:16 43:25 71:7 73:21 138:21 143:18 172:21 185:11,15
calls 43:25 44:3
calorific 212:13
capacity 10:20 10:22 14:22
caps 222:19 223:14
car 89:3
care 12:4,12 13:25 20:21 26:17 27:7 37:24 38:2,6,10 49:23 50:2 57:11,16,17,23 68:13,17,24 69:6,10 70:16 71:9,15,19 73:2 79:12 80:3,5 99:3 121:14,21 133:14 134:1,5 148:12,25 149:22 150:3,4 150:13,15,19 156:25 157:10 166:18,19,23 167:3,8 186:17 187:4,6,14 189:8 190:12,17 190:21 200:19 201:6,7 210:2 212:22 213:12 213:14,15,18 225:16 226:1 236:16,25
caregivers 170:9
carl 2:12
carry 226:13
case 1:2 12:25 13:12,16 17:24 22:2 23:21 24:15 30:15,15 31:9 32:23 36:15 38:13,16 38:24 40:6,11 40:14,22 41:1,6 41:10 47:20 53:15 54:1 55:7 55:11,18 60:5,6 60:16,21 61:15 62:1,11 63:3 64:20 65:4,12 65:20,22,25 66:3,17,21 67:1 67:20 72:18 78:6,10,14,17 84:10 90:13 91:14 95:15 98:20 99:2 103:1 104:4,23 105:15 111:9 116:2 122:5 125:22 126:21 126:25 128:6 129:6 137:5 141:8 146:21 147:1,5 149:11 149:12,13 153:18,19,21,22 155:24 158:3 164:3,11,12,24 165:2,5,12,16 166:4,7,11,15 168:18,22 169:4 169:11,14,18,19 169:23 171:8,20 172:2,13 173:19 192:1,2 199:25 200:2,10,11,14 201:11 202:10 203:15,16,20 209:10 222:18 227:20 233:22 234:2
cases 11:16,17 53:13 67:5,8 92:20 101:24 114:3 122:7 144:7,8 169:25 185:9 191:11,14 203:16 206:14 233:17,19,20
cass 148:1
cast 95:22
castrate 94:15
castration 91:11 91:15,19,25 92:5,25 93:8 95:14 96:15 97:16 104:1
categories 205:3
category 15:14 44:6 206:4
causation 77:8 77:14
cause 1:25 77:15 86:3,8
caused 113:13 123:11,21 144:4 144:13 173:17 173:25
causes 96:7
causing 212:14
caution 130:24
cauwenberg 235:21 236:3
caveat 155:25
cc 243:22
ccharles 2:14
central 141:17 142:5
century 123:7
certain 12:19 13:13 37:9 41:16 67:17,17 98:14 145:2

193:11 227:15 235:2,2,3
certainly 4:19 15:9 48:8 85:7 102:7 119:25 128:9 145:8 209:23 212:19 213:13 226:4
certainty 236:22
certificate 3:10 3:12,13 239:1 239:16 241:1 242:1
certification 242:23
certify 239:6 241:7 242:6,12
certifying 242:25
chair 68:18
chance 77:19 223:15 226:7,7 226:11,12
change 75:17 76:8 205:17 240:4
changed 62:10 75:21,24 111:9 206:7 219:20
changes 214:9 237:7 240:3,23
chapter 204:21 220:21 224:10
character 13:2
characteristics 119:15 162:8
characterization 86:18 113:5 135:7 153:9 161:14 225:22
characterize 95:22 196:23
charged 6:21
charles 2:12
charm 19:12
charting 228:4
chelsea 2:16
chemical 91:11 91:15,19 92:5 92:25 93:8 95:14 96:15 97:16 104:1
chemically 94:15
child 64:21,22 76:22 92:21,22 100:14 101:18 101:24 102:9 104:25 105:18 105:21 110:23 110:24 111:1 121:5 149:23 150:5 152:7 155:17 177:15 184:14,24 189:19,20,20 198:18 209:12 226:14,19
230:23 231:2
child's 104:8,16
childhood 184:13,23
children 8:5 57:11 63:12,17 64:7 73:11 96:19 97:7 99:21,23 100:4 100:20 101:1,5 101:6,12,13 103:17,21,25 104:12,15 107:22 116:15 120:13 121:12 121:19 122:24 127:13 142:15 143:18 156:2 157:22 158:9,20 160:2 163:1,8 182:20 185:9 187:19 189:21 192:15 193:2,6 193:6,23 194:7 194:7,21 195:16 195:19 196:2 204:22 205:1 207:22 208:19 209:24 211:10 212:2 213:3 225:10 226:8,12 226:14 227:19 231:9,10 236:25
chloe 68:9
choice 11:9,13 11:17 19:3 20:13 160:6,7,8 230:7,8,16,17 230:18,19,20 231:3,21 233:14
choose 159:21
choosing 21:1 228:3
chose 53:9 92:3 95:13 97:2 110:15 160:9 218:16
chriss 2:15
christian 145:19 145:19,20 197:9 206:1 229:5 230:24,24 231:3
christianity 205:25 229:5,9 231:4
christians 205:23 231:18
church 231:1
circuiting 221:15,17
circumstances 18:25 139:12
cis 225:4
cisgender 157:1 157:3,5,11
citation 211:21 211:23
cite 40:4,5 49:8 143:4,5 162:21

186:23 193:2 194:24 197:19 209:1 216:18 224:10 235:13 235:20
cited 41:2 51:13 128:2,3,7,8
citing 74:4 194:25
city 241:12
claim 44:9 74:23 131:1 222:12
claimed 45:9
claiming 34:23 87:13 229:15
claims 222:15
clarification 8:20 216:12
clarify 6:3 49:6 191:3
class 14:20 226:5
classified 50:14
clean 6:9
clear 10:5 46:1 159:15 163:7 171:10,12 175:7
clearly 87:24 129:21 187:10
cliche 154:19
clinic 7:24 8:6,6 9:5 10:2,7 15:20 16:5 29:10 63:10 80:10 82:17 85:4 116:8 156:6,8,9 156:12 174:3 187:17 235:14 236:5
clinica 139:2
clinical 10:15,16 10:20,21,22 11:1 15:3 16:15 27:6 29:4 31:15 33:3 42:3 47:6 64:1,5 73:21 85:8 126:9,11 138:13,17 139:10 147:16 147:24 148:4,13 148:18,20,20 149:8 150:17 176:16,19 177:8 178:6 179:7,13 201:8 202:10 212:17,20,22
clinically 42:3 209:16
clinician 26:3 42:9,20 43:1,6,9
clinician's 212:15
clinicians 32:14 57:10 111:8,25 113:8,11 117:21 125:23 127:11 150:22 151:22 151:25 161:15 181:16 185:19 186:5 194:20 196:8 210:9 212:12 213:11 213:13 214:7
clinics 162:21 187:16,17 236:23
coauthors 212:1
coexist 222:7
coffee 141:6,11
cognition 127:9
cognitive 125:7 125:13,25 126:13 127:3,7 128:13,19 130:4 130:15 198:16
cohen 117:21
cohort 73:10 83:22 84:4,12 87:21 89:11 96:10 147:6
cohorts 29:7
cole 68:9
colleagues 46:11 49:13
collected 177:4
collectively 66:12
combat 154:17
combinations 189:18
come 14:24 15:13 62:20,24 72:15 80:10 147:6 231:13
comes 20:11 104:19 214:25
commence 95:10
commencement 114:6
commencing 210:11
comment 47:16 51:12,15,16
commentary 45:20 49:23 50:1,3 224:16
comments 44:24 44:25 45:11
commission 241:20,20
commit 155:19 157:22 158:9 199:16
committed 9:23 10:7
committee 54:5 54:6 55:5 68:1 68:18,25 69:23 72:25 74:14 81:11,12 91:8,9 92:4 93:4,14 94:1 95:15 96:16 97:3 106:3 110:2,16 111:21 112:7,20 113:1 116:1 117:2,9,16 118:3 122:6

123:5 124:1 125:6 126:8 132:21 133:20 135:17 136:2 137:2,9 147:14 178:1
common 71:6 205:15 211:22
communicate 220:5
communicatio... 172:16
community 37:11 146:23
comorbidity 88:20
comparable 82:19 130:11
compared 82:9 84:3 98:4
comparison 34:4 35:6 36:5 137:7
competence 14:14
compiled 16:16
complaint 16:6 16:7
complaints 15:21
complete 169:3
completed 6:6 29:19 243:11,14
completely 37:12 130:7
215:16
complex 159:10
complicated 78:2
complication 77:17,20 86:14
complications 154:4
complies 15:18
components 87:6
comprehensive 61:20
computer 4:16
concealing 60:18
concentrated 136:18
concepts 215:24 215:25
conceptualizat... 206:9
conceptualizing 206:10,11,12
concern 115:25 173:18 174:1
concerned 57:9 57:10,13 111:8 122:17,20 173:11,17 220:6 224:18,21
concerns 88:25 124:2
conclude 243:14
conclusion 58:19 158:15 174:13 180:12 216:25
conclusions 103:10,14 113:7 152:8 155:24
condition 111:6 111:22 163:22 167:14,17,20
conditions 130:8 163:19 192:6 193:19 197:17
conduct 8:8 115:19,20 133:13 148:4,12 174:20,24 175:9 182:8 189:24
conducted 8:10 33:21,25 106:11 121:22 124:24 125:3 142:21 169:7 174:16 175:8,10,18 176:11 195:23
conducting 14:12,14
conference 65:10 66:4
confidential 1:14 30:2
confirm 23:19
conflict 64:23
confusion 78:9 82:21 158:18 209:7
congratulations 175:5
conjecture 184:6,9 185:15 188:22
connected 242:15
connection 40:6 55:14 158:2 170:4
consensus 113:19,22,24,25
consent 19:4,10 20:13 21:1 67:23
consequence 123:16,23
consequences 107:1 199:15
consider 33:7 33:18 50:11 134:21 138:23
consideration 142:17
considered 74:5 169:3
considering 27:18
consistent 12:24
consistently 210:6

constituted 149:8
constitutes 45:3 45:13,22 175:15
construct 180:1 205:11 215:20
constructs 205:17 215:18
consult 49:12
consulting 82:25 169:24
consults 139:18
contacted 171:7 171:19 172:1,10
contain 36:6,7 168:7,17
contained 25:2 97:14 239:8
contemporary 227:18
content 218:8
context 158:13 225:1 232:3,6
continue 92:21 101:21 114:13 120:14 159:18
continued 63:13 125:23
contrary 38:23 39:1,6,20,22,24 40:1,4 98:20 200:19,21,24 201:2,6
contributes 18:2
contributor 74:17
control 133:3,14 133:18,22,25 139:1 142:19 143:6 147:17,25 148:5,13 150:18 242:24
controlled 127:15 132:23 139:10 141:16 142:24
controversial 204:15 236:17 236:20
conversation 30:25 31:3,6,8 172:22,24
convert 157:1 157:11,15
converted 17:7 17:12
converting 187:24
convicted 6:21
convince 196:18
copy 22:24 215:6 238:7,18
copying 208:8
corpus 191:4
correct 9:12,15 10:8,9,12 12:9 13:16 14:12 15:7 16:5,12,16 16:18 17:6,16 17:20 21:19 22:2,6 23:2 25:3 25:4,15,18,21 26:4,5,6,7,8,9 26:10,11,12,13 26:14,15,22,23 27:1,2,4,5,7,8 27:10,11,16,22 28:14,18,23,24 29:1,2,16 31:16 31:17 33:19 34:14,20,21 36:6,8,11 42:8 42:20 43:1,2,16 43:22 44:12 46:13,14,17,18 46:22,23,25 47:1 49:10 50:18,19 51:8 53:2,4,7 54:2,10 54:11,19 55:8,9 56:14 57:14,19 57:21,23,24 58:2,9,10,12,20 58:25 59:11,12 59:13,15,16,19 59:20 60:9,10 60:13,22,23,25 61:1,12,13 62:7 62:8 64:15 65:16,20,21,23 65:24 66:1,2,6 66:23,24 67:1,2 67:13,14,18,19 67:23 68:3,4,5 69:6,10,11 70:13,14,16,17 71:10 72:14,19 72:23,24 74:4 74:25 75:4,9,10 75:12,15,16,24 76:7,14,15,21 76:22 77:4,5,14 77:19 78:24 80:6,10,12,15 80:18,24 81:3,4 82:10,24 84:17 85:14,15,20 86:6,8,9 87:12 88:3 91:20 92:3 92:9,12,15 93:1 93:2,6,8 94:21 94:22 97:4 98:17,18 99:18 99:24 100:2,8,9 100:12,16,22,23 100:24 101:13 101:17 102:5,7 102:11 103:7,11 103:12,14 104:5 104:6,23,24 105:7,9,16,25 106:1,10,16,20 106:21,23 107:6 107:7,10,14,19 108:9,10,11,12 108:15,18 109:9 109:14,24,25 110:13,19 112:2 112:10,16,25

113:4,15,21
114:14,21 115:3
115:4,6,23
116:2,20,21,24
118:12,14
119:20 120:1,7
120:25 121:1,6
122:22 123:8
124:4,8,21
125:11,16 126:5
126:25 127:1,4
127:5,21 128:25
129:1,19 130:2
131:3,4,5,12,13
131:15,18 134:1
134:6,12 136:4
137:2,5,12,13
137:24 138:2,3
138:4,16 139:2
139:21 143:20
143:23 144:2,9
144:17 145:14
146:10,13
147:11,18
148:25 149:18
150:5 151:8,13
151:18 152:4,9
153:17,19,22
154:7,9,10
155:21 156:12
159:5 160:10,24
161:5 162:1,12
162:16 165:5,6
165:10,13,14,17
165:18,20,21,23
166:1,2,2,7,8,11
166:12,15,16
167:5,6,8,9,11
167:12,14,15,17
167:18,20,21,23
167:24 170:23
170:24 171:21
173:7,8 174:13
175:1,11,19,23
176:3,12,14
181:22 182:5,9
182:10,15,16
183:6,13,14,24
184:19,21,22,25
185:1,16 186:3
186:9,11 191:7
192:11,12,16,20
192:25 193:8,14
193:15,21,22
195:2,3,7 196:6
196:8 198:11
199:20,21 200:4
201:12,13,17
202:3,8,15
209:1,8,14,17
210:18,25 211:1
211:7 212:18,20
212:23 213:12
213:16,18,22,23
215:12,16,20
217:1,2,9 219:2
219:21 221:4,8
222:2,9 228:5
228:12,21,22,23
228:24 229:20
230:8,16,20
231:15 234:2,3
234:6,23 239:10
correction 10:9
corrections 239:9
correctly 18:18
18:19 27:20
45:14 64:11
65:19 67:10,25
83:21 89:13,14
114:10 141:16
146:3 171:18
181:14 206:6
207:24 226:17
correlating 229:8
correspondence 235:16
cost 20:14
139:14
costa 51:12,17
costs 151:15
213:9
counsel 2:16
19:15,15,15
47:25 56:6
170:8,10 206:20
242:13,15
243:22
counted 53:15
country 27:15
county 239:4
241:4,12 242:4
couple 190:22
195:1
course 12:17
18:2 19:3 32:12
105:17,20 148:8
159:17 180:21
219:13 222:13
228:4
court 1:1 2:13
5:16,22,23 6:5
6:10 14:16,21
21:17 60:5,5,24
61:3,10 64:13
64:20,23 65:6,7
66:8,13,17
67:20 79:10
81:5 86:12
102:18 107:24
113:1 115:6
124:19 128:13
152:21 155:16
163:15 196:19
232:23 237:9
court's 57:5
cover 135:15
covered 135:15
cowards 219:7
cpp 142:15,21
create 92:25
116:10
created 176:2
206:4 219:6
221:10
creating 226:4,5

credentials 217:22 218:7
credible 51:24 184:3 185:24,25
crime 6:21
crisis 210:12
critical 176:18
criticism 219:15
criticisms 35:10 35:12 37:3,4,9 45:20 46:2,4,10
critique 34:5 35:19
critiques 36:1
critiquing 28:3
cross 3:5 20:12 47:16,18 48:5 63:13,24 64:8 69:17,20 70:12 86:7 87:7 92:21 102:4 113:20 114:4,11,14 115:2,16 117:6 117:12,18 118:17 119:2 120:5,14,20,23 123:22,24 124:3 158:23 159:5,18 159:22 160:4,9 161:1,5,21 162:1,9 163:4 233:2,7 234:23 236:13
crossed 140:25
crucial 108:19
crying 153:6
culmination 168:2,11
cultural 232:3,6
culture 216:22 216:23 232:14
cultures 205:3 205:18 232:12 232:18,22
cured 76:24 180:23
currently 148:19
cv 1:2 52:15,21 54:10

d

d 3:1 30:5 73:23 109:17,18 197:14
damage 144:4
damages 144:13
dangerous 77:12
data 7:22,23 8:3 14:25 15:22 16:9,10,15 106:12 156:14 175:24 176:2,3 176:14 177:3,7 212:4
database 71:23 72:2,10,16
date 1:12 59:4 171:10,12 240:25
dated 235:22 239:12 242:18
daughter 154:20
day 119:5 175:3 239:12,17
days 237:14
de 30:17 73:9,9 75:14 79:15 88:15 117:22 147:7 173:21 179:16 182:7 194:16,19,23,23 196:8
dead 57:25 154:20
dealing 151:11
deals 186:12
dear 243:10
death 77:9,14 83:22 84:3,13 84:24 85:2,6,7 85:13,17 86:8 86:12,19,20,25 87:12,21 89:4 89:11 96:1,2,6,7 96:10 121:9,12 122:24 123:11 123:21,23
deaths 82:2,3
debate 201:21 221:18,23 222:12 225:21
debated 177:21
debates 220:12 221:15
decatur 2:13
decide 59:6 65:11 66:9 102:6 236:19
decision 120:21 120:22 218:22 228:8,9
decisions 13:4 30:14
decline 25:11
decreased 211:4
decreases 106:3 108:13 109:13 109:16
decreasing 213:5
deemed 37:8 44:21
defendant 1:7 2:20
defendants 12:24 23:21 24:11 55:6,10 56:5
defense 2:9 170:8,10
defer 140:7
deficiency 212:13
define 10:16
definitely 57:4 209:24

definition 40:25 41:8,9 43:4,23 45:4,10,14 46:8 46:16 185:7 192:22
definitionally 46:16
definitions 40:24
degree 154:24
dekker 1:3 149:12 240:2 243:8
delemarre 117:22 179:16
deleterious 130:19
demean 175:6
democratic 221:18
demon 63:10
demonstrate 164:22
demonstrated 184:13
demonstrates 41:11 164:7,17
demonstrating 158:20 163:1,8
demonstration 185:18
denominator 82:1,1,3 87:11
denounced 219:15
density 15:15,18 15:19,20,25 16:17,20 17:6,7 17:10 28:6,10 33:9,10 35:18 51:4 81:17 103:22 106:4,8 106:12 107:25 108:14,24,25 109:2,14,16 113:19 114:1,1 114:12 116:15 135:9 138:3 175:21 211:4,11 211:16 212:2,6 212:14 213:4,5
depend 107:15
depending 27:24 107:18 243:12
depends 14:23 162:20 203:15 203:15,16
depos 5:14
deposed 65:14 65:15
deposition 1:15 1:25 3:18 4:22 4:25 22:9,9 23:1 23:11,24 24:14 46:20 49:20 55:24 56:1 65:25 90:17 226:23 233:10 233:24 234:11 234:12 239:7 240:23 242:8 243:9,11,15
depositions 234:2
depression 75:8
depth 32:5
der 194:16
derived 112:8
describe 40:19 57:6 118:16 161:15
described 57:22 78:21 158:19
description 3:17 55:2
designed 87:3,5 174:5,22 177:14
desirable 187:20 188:8,19 188:19
desire 41:15,23 42:2
desires 41:12
desistance 192:23
detail 33:15
details 72:6 149:19
determination 58:22 73:18 111:11
determinations 20:20 21:18 63:23 102:10
determine 8:14 9:4 12:4,12 13:24 19:1,7,14 19:24 20:6 58:1 58:12 64:2 67:22 74:2,24 78:17 79:2,5 80:22 84:24 85:1 88:12,18 88:23 104:25 110:7 111:5,19 112:5,10 113:12 119:5,21 146:18 153:16 181:13
determined 67:21 73:3
determines 105:17,20 116:23
determining 204:5
detransitioner 30:18,21 68:9
detrimental 114:21
develop 193:11 193:12
developed 159:9 201:9
developing 115:12
development 103:18 119:15 125:8,14 126:14 127:4 128:14

130:4,15 134:4 162:8 198:17
deviants 96:22 96:25
deviation 93:24 96:20 97:7,20
diagnose 153:13
diagnosed 112:20 113:2 117:5 119:1 121:13 122:25 123:11 131:11 131:23 160:11 197:16
diagnoses 101:13 105:10 105:12 167:13
diagnosis 110:7 160:14 163:12 163:20 165:12 167:10,20
die 85:21 86:3
died 76:23 77:3 77:17 78:14 82:23 85:18 86:13,19 123:15
dies 89:3
difference 45:5 108:19 129:15 129:22 155:7 181:3
differences 105:5
different 58:7 90:3 91:22 95:11 101:12,14 101:14 103:14 123:3 130:8 144:9 162:21 174:13 177:23 182:12 200:8,9 206:16 231:14 231:23 232:12 232:12,13,17,17 233:1
differently 222:2
difficulties 193:25 194:22 195:17
difficulty 194:8 195:20
dinner 140:1
direct 3:5 4:7 202:21 219:21 242:24
direction 242:25
directly 78:16 130:10 176:22
director 81:6
disabled 22:13
disagree 37:12 43:17 58:13 77:10 86:17 95:19 113:5 129:11,19 215:21
disagreed 65:11 66:10,15
disagreement 43:18,20
disclose 53:10 67:17
disclosing 169:24
discourse 217:14 219:19
discovered 174:2
discuss 64:20 233:24
discussed 26:24 28:6 33:7 34:8 81:16 123:14 144:8 147:7 149:4 198:8
discusses 139:19
discussing 190:20
discussion 56:7 87:25 125:18 151:14 202:2 221:24 236:25
disease 75:9
disorder 160:15 198:10
disorders 93:11 211:12,17 212:7 212:12
dispute 75:13
disregard 155:19
distress 42:4 121:4,5 191:21
distressed 180:16
distribution 15:25 16:25 17:8,9
district 1:1,1
dividing 87:11
division 178:1
doctor 7:4 58:9 100:19 109:24 116:23 119:6 129:24
doctoral 39:13 39:15
doctorate 25:10
doctors 33:2 57:10 78:16 112:23 130:21 148:18 150:14 156:24 157:10
doctrine 202:25
documentation 208:23
doing 8:19 31:25 108:20,20 149:6 175:24 209:16
dose 93:17 96:18 98:4
dr 16:22 17:18 20:2,9,23 21:10 21:21 42:12,18 45:16 53:5 58:4

58:24 68:5,7 69:9,9 71:12 76:2 86:16 91:24 94:10 110:21 112:13 119:10,24 120:10 124:10 129:5,23 135:4 140:7 143:3 149:2 153:24 159:13 162:3 175:13 176:6 178:11 184:1 188:2 189:1 190:5 195:11 196:21 200:6 201:19 202:14 203:25 207:10 208:18 209:20 210:17 211:19 212:25 217:6,19 218:12 219:1 220:10 222:4 223:4 224:24 225:19 226:3 227:13 228:14 229:3 230:22 233:16 234:25 236:10 243:10
draft 170:23
drafting 26:16 40:10,13 167:7
draw 58:18 94:4 94:13,14,23 96:17 103:10,13 152:8
drawn 80:2 113:7 199:22 227:17
drew 158:15
drug 96:18 104:4,19
drugs 6:24 91:10 93:10,16 93:16 94:14 97:6 98:3 156:3 167:22
dsm 40:16,21,23 41:9 42:8,23,25 43:7,8
due 121:4 175:2 211:11 212:6,6
duly 4:4 241:8
dunn 2:16
dutch 28:7,8,12 29:8,10,10,16 29:18 30:16,17 30:18 31:13 32:10 33:9 34:4 34:9 35:6 36:6 36:19 41:3 62:19,19,20 87:5 97:21 117:11,21 118:6 118:12,15,20,21 125:23 127:11 128:1,8 132:3 143:5,6 173:20 174:6,23,23 175:19 179:15 181:16 185:19 186:5,22 196:7 211:3 214:6,7
duty 151:22
dying 85:24
dysphoria 7:12 7:15,18,21 10:15 11:2,4 25:15,21 27:19 28:2 40:24 41:8 41:9,11,22 42:1 47:10 48:4 50:8 50:21 57:17 67:6 72:22 75:19,23 76:13 76:13,20,24 81:3 84:19 85:3 85:14 88:3 93:19 94:7 95:17 96:19,22 98:5,24 101:10 101:22 103:5 104:5,20 105:7 105:12,21 107:6 107:14 108:1,18 109:8 110:12 117:5,17 119:1 121:4,13,19 122:2,9,16,21 122:25 123:6,12 130:6 131:24 132:16 133:18 136:9,17,21 137:16,22 138:7 146:16 147:15 151:4,8 154:14 158:21 160:12 160:14,23 163:2 163:9,13,16 164:8,19 167:11 167:23 168:6 169:25 179:6,15 179:25 180:19 180:23 181:10 192:5 193:18,20 214:18
dysphoric 94:16 95:2 180:18 193:5,6

e

e 2:1,1 3:1 30:4 54:14 57:8 73:21,23 90:7 90:12 135:22 136:1 142:8,8 142:11 208:8 235:20,21,21,22 235:24
earlier 15:12 33:7 59:14 81:17 84:6 106:14 122:20 123:14 132:3,9 147:7,18 158:1 158:14 202:9 205:20 215:19 221:16 228:23 230:4 233:22
early 95:9 118:16 158:21

163:2 171:20 174:5
easier 89:23 178:22
easy 191:9,17
eating 211:12 211:17 212:6,12
editor 15:23 34:19 35:9,22 35:24 43:15 44:3 45:22 46:5 46:12,21 47:4,9 47:14 48:3 50:5 50:6 51:9 116:11,17 138:5
editors 45:7
edmiston 129:23
edmiston's 129:5
education 2:9 106:24
effect 85:25 129:9 133:7 142:20
effects 65:1 97:6 99:13 107:12,19 125:25 128:19 128:20 130:19 158:25 163:6
efficacy 37:23 38:9 61:4,11 65:1 87:3 98:23 99:2 201:15,23
efficient 141:1
efforts 175:2
eight 52:19 55:20 171:14
either 6:3 52:16 54:10 65:6,20 76:5 88:23 127:7 170:8 171:15,16 225:11 226:7 235:7
electronic 4:20
elevated 115:13
elicited 175:25 175:25
eliminate 183:12
eliminated 75:19,23
else's 28:23 29:1 74:4 106:20 112:1 124:12 175:23 176:14 182:4 193:14 195:9 219:24
elucidated 144:14
embedded 223:7
emerge 101:21
emotional 125:7 125:13,25 126:13 127:3 128:19 130:4,15 198:16
emphasize 51:19 125:24
emphasized 194:20
empirical 200:14 201:21 202:1 217:23 236:21
empirically 58:14
employ 81:23
employee 242:13,14
enable 106:25 119:14 159:6
enabled 22:15
enables 150:14
encapsulated 104:22 232:15
encourage 148:11
endo 51:1,3
endocrine 105:19 167:3 169:9 201:2
endocrino 51:1
endocrinologist 26:8 105:11,19 105:23 179:16 202:3
endocrinologi... 201:16
endocrinology 15:24 27:4 51:2 51:3 116:12
endometriosis 94:20,25
engage 182:13
engaged 26:16 47:6 65:18 101:6 169:19,24 176:16 200:1,3
england 197:18 204:17,17
english 34:4 97:22 110:23 111:4 113:11 174:22 175:18 191:5
ensure 32:20 159:4,22
enter 240:3
entered 240:23
entertaining 186:7 200:8
entire 146:13 147:10 191:4
entirely 18:13 47:23
entitled 20:7 139:20 222:8,10
equivalent 97:16 104:1
erections 180:17
erica 142:7
errata 3:11 239:9 240:1
espousing 115:25

esquire 2:3,4,4 2:8,12,15,16,21 243:6
essentially 53:25 136:25 137:4 161:25 194:19 226:9
establish 202:25
established 201:8
estimate 9:6 82:18
estrogen 138:22 223:21
et 1:3,6 51:17 73:9,9 88:15 147:7 173:21 182:7 185:20 194:23 240:2 243:8
ethicist 26:1
eugenics 225:17 226:1,20 227:11 227:14 228:4
evaluate 81:7,9 209:16
evaluating 213:8
evaluation 58:16 74:8
events 208:22
everybody 97:11 202:4
evidence 36:24 44:17,20,21 45:2 46:21 57:9 64:25 76:5,6 102:13,16 126:10,11 168:5 170:14 173:11 173:22 183:5,7 184:19 185:16 185:17 186:16 187:3,5,7,11 189:10,12,15,17 194:17 195:5 196:5 197:25 198:4 199:24 200:4,14 201:23 208:21 211:14 217:21,24 235:23,25 236:2 236:22
evidencing 105:7
evidential 199:8 199:19
evolution 216:5 216:8,25
evolutionary 216:5
evolved 216:14 216:20
exact 55:21 59:4 185:22
exactly 126:18 145:18 199:24 219:22 226:16
exaggerated 154:24 155:4
exaggerating 154:22
examination 4:7 212:18,20 236:13 237:20
examined 4:4
examining 142:20
example 7:22 13:11 14:24 15:1,8,10,12,15 15:16,17 47:13 62:16 63:9,14 74:18 75:17 79:19 81:10 84:25 94:25 116:7 124:10 135:8 144:19 145:1 147:10 148:7 169:6 187:11,13,15 189:12 190:17 199:11 203:17 203:21 210:8 221:16 223:19 225:14 230:18 230:18 231:6 233:2,3
exceeding 83:22 84:13 86:20,20 87:21 89:11 96:11
exceedingly 86:24
excellence 73:21
excellent 10:14 90:15 141:13,13
except 101:9 234:8,8
exceptionally 235:14
exclusion 215:11
exclusive 192:11 193:20 198:9
excuse 172:16
executive 127:14 129:10
exercise 109:18 127:12
exhibit 3:17,18 3:19 22:8,17,21 23:11,12,22 30:19 83:11
exhibits 3:16 41:4 153:2
exist 145:17 163:23 205:21 205:23 229:14 234:14,23
existing 111:6 111:22
exists 11:4 145:20 163:16
expected 160:10
expedited 238:6 238:8

expended 55:16
experience 18:14 27:3,6 99:16 101:25 124:13,15 161:5 202:10 208:19 233:1
experienced 213:21 235:14
experiences 196:25 197:2
experiencing 100:20 121:4 145:13 167:23 207:22 210:12
experiment 174:3,4
experiments 151:21 179:8,18
expert 23:7,20 34:2 49:8 59:21 59:24 60:2,4 61:3,11,19 64:12 65:3,9,20 66:4 89:19,21 90:18 130:25 131:7 134:17,22 134:25 135:2 149:13 154:3 164:5 169:20,25 171:1,8 172:1 204:9 227:2,3 234:3,3,9
expertise 42:8 42:23 67:11 136:8,10,15,18
experts 13:18 22:2 24:12,15 64:19 65:6,9,10 65:12 66:5,7 201:16
expires 241:20
explain 47:12 133:12 151:12 180:12 229:13
explained 35:25 63:5 74:20 218:21
explanation 194:2 210:9,13 210:14,19,22,24 210:25
explicit 117:10 118:4
explicitly 53:12
exploration 214:8
explore 205:12
exposed 218:23
extensive 9:17 28:15
extensively 131:8
extent 28:20
extrapolate 153:11
extrapolated 82:8 147:10 161:11
extrapolating 87:14
extremely 85:5
eyes 231:6

f

f.g. 145:21,22 173:19 225:15
face 193:24 194:21 195:17
facile 102:20
fact 37:8 43:20 53:10 75:1 79:22 92:25 103:13 133:2 145:16 174:2 175:9 179:12,15 183:12 196:1 199:23 213:7 221:24 231:13
factor 75:5
factors 63:22 113:13
failed 85:19 86:4
fails 186:22
failure 67:16
fair 5:11 45:23 69:4 130:14 153:8
fairly 200:10
fall 171:20
familiar 51:24 56:24,25 142:4 142:9
families 154:24
family 64:13,20 64:23 65:5 66:4 67:4 119:19 120:8
famous 219:11 219:25
far 75:6
fasciitis 82:24 123:15
fascists 219:6 221:11
fast 114:2
faster 238:11
father 64:22
fault 138:25
faulty 12:14 14:6
favor 57:17 60:25
feb 170:19
february 143:20 170:19
federalist 218:15,15,16
feedback 30:17
feel 6:1 83:2 196:4 222:2
feelings 207:23 208:20,20
female 11:25 213:20 215:20 215:23 221:25 223:22 224:9

feminine 18:12 185:12 186:24 192:13 193:5,10 225:11
fertility 182:23
field 201:16
figures 55:21 85:11 121:16 123:1,2,2
fill 226:15
finalize 169:13
finalized 24:9 24:12 156:19
finances 70:18 70:21
financial 12:18 12:23 13:4,8,19
financially 13:12 242:16
find 193:5,10 223:16,21
finding 132:18
findings 75:18 174:12
fine 70:5 89:8 140:10 178:17 238:17
finer 70:10
fingers 140:25
finish 36:23 41:17 44:22 209:4
finished 89:19
firm 4:23 172:9
first 4:4 27:18 35:23 37:15 60:8 73:10 117:11 127:25 134:14,15 146:14,15 159:17 162:5 174:21 175:3 183:8 187:2 198:5,6 208:18 209:12 211:2,25 214:24 225:14 236:15
fit 196:4,17
fitting 193:25 194:8,22 195:17 195:20
five 27:22 56:7 56:12 70:2,5 72:4,7 82:18 100:7,11 105:6 152:13,24 155:5 155:10 170:14 233:23 234:8,9
fixed 156:14
fl 2:6,17,23 243:2,7
flawed 179:25
floor 2:10
florida 1:1,24 52:12 53:11 68:19 134:3 135:12,18,25 136:5,24 137:10 137:14,23 147:14 148:11 148:24 150:2,6 150:8,18 172:7 172:7 239:3 241:3,7,13,19 242:3
focus 47:23 48:24 74:21
focused 122:18
focusing 231:8
follow 146:6,17
followed 118:17 145:24 165:8
following 186:16 210:10 229:10
follows 4:5
footnote 30:17 30:18 35:23 36:6,7 44:10,14 44:17 195:8
forced 16:8
forefront 190:15
foregoing 239:7 239:16 242:23
forget 132:3
form 16:21 17:17 19:21 20:1,8,22 21:9 21:20 42:11,17 45:15 53:3 58:3 58:23 71:11 76:1 77:12 86:15 91:23 94:9 102:21 110:20 112:12 119:9,23 120:9 135:3 143:2 149:1 153:23 159:12 162:2,14 175:12 176:5 183:25 188:1,25 190:4 195:10 196:20 200:5 201:18 202:12 203:24 209:18 210:16 211:18 212:24 217:5,18 218:11,25 220:9 222:3 223:3 224:19,23 225:18 226:2,21 227:12 228:6,13 229:2,11,21,24 230:21 232:7,10 232:24 233:15 234:24 240:23
former 39:15
forming 40:21 126:21
forms 221:13
formulate 38:19
fort 241:12
forth 177:20
fortunately 155:8
forward 198:2
found 62:5 111:25 112:23

four 34:1,16 35:8 37:7 44:9 100:7 140:2 162:21 213:21 214:2
fourth 34:8 36:17,18 37:16
fpr 1:23,23 241:18 242:20 243:21
frame 238:13
fraud 6:22
free 83:2 217:14
freedom 8:11 9:9,11,18,19,22 16:4 152:3
freeze 199:14
frequent 190:20
friday 56:8
front 90:5,16
fulfilling 185:22
full 39:21 89:18 169:3 200:15
fully 6:7,25 159:9
function 104:16 124:4,8,20,25 129:10 182:23
functioning 127:14
fund 2:9
funded 212:3
further 211:9 237:2 242:12

g

g 57:8 73:23 142:8 197:14 235:21,22
g.d. 235:18
ga 2:13
gaia 235:20
gainesville 2:17
gains 133:8
galica 68:21,21
gapms 40:11 165:2 173:7
garden 5:14
gary 172:11
gay 18:12 157:15 185:4,8 185:12 225:4,11
gays 18:11,17 182:21 183:23
gender 7:11,15 7:18,21 8:6 10:15 11:2,4,19 11:19,20 15:20 25:15,21 27:6 27:18 28:2 37:23 38:2,6,10 40:24 41:8,9,11 41:21,22 42:1 47:10 48:4,12 49:23 50:1,8,21 57:9,17 67:5 68:13,17,24 69:6,10 71:9,14 71:18 72:22 73:2 75:18,23 76:12,13,19,24 79:1,11 81:3 84:19 85:2,4,14 88:2 93:19 94:7 94:7,16 95:2,17 96:19,21 98:5 98:24 99:3 101:10,22 103:5 104:5,19 105:7 105:12,21 107:6 107:14 108:1,18 109:8 110:11 116:7 117:5,17 119:1 121:4,13 121:14,19,20 122:1,9,15,21 122:25 123:6,12 130:5 131:11,24 132:16 133:17 134:5 136:9,16 136:21 137:16 137:21 138:7 143:15,19,22 144:3,13,20,21 144:23 146:16 147:15 148:12 148:24 149:22 150:4 151:4,8 152:11 154:14 156:25 157:10 158:21,25 160:11,14,14,23 161:12 163:2,8 163:12,16 164:8 164:19 166:19 167:10,23 168:6 169:25 179:6,15 179:25 180:17 180:18,23 181:10,15 184:13,23 187:16,16,17 191:21 192:5,18 193:18,20 201:6 202:21,22,25 203:8,9,19 214:8,18 220:12 225:15,16 226:1 231:12,14,14 232:13 236:16 236:23
gendered 145:2 145:4
genealogies 205:12
general 20:25 60:18 89:10 138:9 191:16 199:13 204:14
generalizable 123:3
generally 101:16 165:23 166:17,20,24 201:7 206:17 225:4
generic 118:15 118:22
genitals 146:5

genspect 57:2,3 143:23,25 144:3
genuinely 224:25
getting 7:22,23 8:3 225:7,8
gids 197:14
girl 12:1 18:13
girlfriend 141:6 223:25
give 5:2 15:14 15:16 22:13 27:25,25 36:12 52:6 58:17 59:4 62:23 100:12 124:12 162:7 217:15 230:5 235:8
given 88:9 104:4 107:22 108:1,9 108:17 146:15 188:6 211:10 212:2 231:1
gives 107:3 200:15
giving 52:6 86:2 86:7 103:17,21 103:25 108:8 111:9 112:8 145:25 161:12 226:8 229:12
gnrh 35:7 36:6 63:18 64:8 98:13 103:17,21 103:25 105:5 106:3 113:20 116:24 128:13 129:10 130:11 130:13,14,22 131:10,17 138:8 138:13,20 147:15 151:7 174:16 176:17 177:9 178:5 197:24 198:17 209:7 212:2 213:21 225:15
gnrha 207:23 208:20 211:10
go 24:19,21 62:22 77:11 83:10,20,21 84:25 90:23 95:25 102:3 120:14,20 138:22 140:21 141:14 158:7 159:21 160:9,25 161:20 162:9,12 162:13,18 176:8 178:3 179:2 180:8,10 181:12 182:3,18 183:15 186:21 197:12 197:23 214:24 215:3 226:19 227:6
goal 142:15
god 202:23
goes 162:24 194:3
going 4:22 5:3,4 5:4,10,24 6:1 10:3,4 16:2 18:5 22:8,9 23:4,10 23:11 24:17 28:10 29:23 35:4 37:21 41:18 56:20 57:21 69:14,25 83:1,8 102:24 157:19 158:16 172:14 177:23 177:24 178:15 180:10 193:3 210:5 213:5 216:18 223:23 226:6 230:5 238:2
gold 173:20
gonadotropin 16:1 34:5 88:9 97:19 185:21
gonzalez 2:5,8 22:12,16 83:12 83:15 198:23 208:7,10,13,16
good 4:9 14:24 14:25 20:13 41:7 76:7 85:5,5 106:22 126:10 139:24 140:17 141:10,14 146:4 207:12 234:22
google 189:13 190:25 191:3
google's 191:4
gooren 117:22
gosh 140:7
grade 73:23
grading 74:9
great 173:25
greater 82:9 87:12 89:5 95:25,25 108:23 121:9 155:5 197:18
greatly 198:15
green 193:1
grossly 86:11
ground 5:2
group 57:9 59:11 115:11 127:15 146:13 147:11,17 228:10
groups 87:15 147:6,25 148:4 148:5,13 150:18
grow 225:10
grown 182:21 183:22 185:11
growth 187:16
guarantee 46:5
guess 27:24 32:9 65:14 79:18 95:25 155:22 238:7

guidelines 167:4 169:9 201:3 204:4

h

half 140:9 198:6
halfway 75:21 76:8
hand 30:8 55:21 85:11 141:23 241:11
happen 211:6,7
happened 78:17 78:21
happy 4:20 5:7 5:9 6:15 30:1 70:4 75:7 99:1 178:20 188:3 206:23 233:9
hard 5:24
harm 144:4,14
harvard 107:2
hate 180:21,22
he'll 180:17
head 5:15,15,17 127:18 147:19 186:6
health 12:4,11 12:12 15:21 16:7,7 26:17 27:9 50:12 54:5 54:13 55:5 68:1 73:1 74:13 81:12 82:14 88:4,24 91:8 92:4 93:3,13,25 97:3 104:8 106:2 110:15 111:2,21 112:6 116:1 117:2 118:2 122:6 123:4 125:6 126:7 132:21 133:19 135:17 135:21 136:2 137:1 147:14 150:19 157:21 177:25 186:17 187:4,6,14 189:8 190:12,17 190:21 210:10 210:12 227:16
healthy 82:9 83:22 84:4,13 84:20,22 87:21 88:1,5,10 89:11 96:10 121:9
hear 4:11,18 5:8 5:9 8:4,22 18:19 148:14
heard 86:1 134:14,15 137:9
hearing 218:10
height 133:7,8 141:18 142:16 142:17,21 143:6
held 53:11
help 153:6
helped 169:10
helpful 178:9,10 201:12 229:25
helpfully 35:22
helps 197:1 226:24 227:7
henrietta 117:22 179:16
henry 217:10 218:4
heterosexual 157:9 183:9 223:19
hh 241:20
hide 217:16 218:10,16
high 63:11 73:24 74:19 79:20,23 80:4 86:24 96:6 115:8,9 116:14 131:18 211:5,11 211:16 235:14 236:4
higher 79:25 82:19 152:13,25 155:11 197:24 199:11
highly 193:12
historical 28:16 28:21,25 32:9
history 28:8 216:25 218:14
hit 5:13
hitchens 219:12
hold 42:15 75:16 146:5 172:20 180:7
holds 39:6 143:25 221:21
holtzman 2:22 172:3 243:6
holtzmanvoge... 2:24
home 230:24
homosexual 157:9 183:9
homosexuality 186:23
homosexuals 223:22
honest 171:3
honestly 111:3
hope 62:4 155:12 201:14
hopefully 5:3 182:18
hoping 224:6
hormonal 235:19
hormone 16:1 34:5 63:13 88:9 92:23 97:19 158:23 163:4 185:21 234:14
hormones 20:12 47:17,18 48:5 63:14,24 64:8 69:17 70:13 86:7 87:7 91:17 92:11,15,21 94:2 98:14,16 102:4 108:22,23

113:21 114:4,11 114:14 115:2,17 117:6,12,18 118:17 119:2 120:5,15,20,23 123:23,24 124:3 159:5,18,22 160:4,9 161:1,5 161:21 162:1,9 177:16 233:3,7 234:17,23
horse 57:25
hostess 22:13
hour 69:25 140:9 206:21
hours 55:16,20 55:23,24 56:13 140:2,23
huge 181:3 216:20
huh 5:20 8:13 34:3 63:8 97:8 97:13 133:24 156:21 206:5
human 18:13 54:5,14 55:5 68:1 73:1 74:13 81:12 82:14 91:8 92:4 93:4 93:14 94:1 97:3 106:3 110:16 111:2,21 112:7 116:1 117:2 118:3 122:6 123:5 125:6 126:7 132:21 133:19 135:17 135:21 136:2 137:1 147:14 178:1 216:22
humanly 238:15
humans 216:22
hunter 56:24 57:1 135:25
hurley 194:16
hypnography 32:23
hypothesis 184:3,4,7,9
hypothetical 186:3 215:15

i

idea 125:24 126:4
ideal 224:12
ideas 204:15
ideation 153:5 153:11,13
identical 137:11
identification 22:18,22 23:13 23:22 239:19
identified 134:9 145:23 168:14 170:3 193:2 206:2
identify 57:12 64:12
identifying 193:9 205:10
identities 205:5 205:7 206:17,18 235:3
identity 11:19 143:19 144:3,13 144:20,24 158:21 160:14 163:2,9 188:6 192:25 194:1 197:9 202:22 203:8,9,20 206:13,15,16 214:9 218:6 225:12 231:14
ideology 144:4 144:13,21,24
impact 6:25 17:23 18:7,10 62:10 79:5 103:18,18,22 104:8,15 106:7 107:25 108:3,23 109:13 113:19 113:23 114:21 121:19 124:3,7 125:7,15 127:3 127:7 128:13 130:3,14 131:10 131:24 132:18 141:18 142:23 143:19 149:18 164:7,17
impactful 218:3
impacts 124:20 126:12 200:16
impairment 42:4
implausible 200:11
implication 148:16 196:15 220:23
implied 87:18
implies 48:17
imply 154:2 223:13
import 32:9 152:6 155:23 159:25 223:9
important 14:14 109:1 115:23 145:3 155:25 208:23 213:8,8 218:3 220:11 221:15 224:16
imposed 148:24
imposition 203:1
improper 180:13
improvement 179:24
inappropriately 225:4
incented 13:12
incentive 12:18 12:23 13:19
incentives 13:8
inclination 155:18

include 36:14 52:15 62:25 126:6 157:19
included 35:22 47:19 48:13 52:20 57:18 66:25
includes 32:13 221:14
including 14:15 32:12 155:23 181:17 202:5,7
inclusive 242:10
incorporate 45:12
incorporated 44:25 46:11
incorporating 217:24
incorrect 34:15 36:12 71:13 79:24
increase 108:22 108:23 114:4,5 190:11 209:6
increased 77:20 85:24 207:22 208:19
increases 198:15
increasingly 173:10
incumbent 6:2 151:11,23
independent 28:1,4 32:6 47:2 104:11 111:19 112:4,9 113:12 121:25 122:14 128:24 137:16 137:21
independently 116:19
indicate 64:10 122:7 192:23
indicated 72:13 146:4 168:10
indicates 219:17
indicating 44:11 44:17 151:3
indirect 77:15 77:15 123:16
individual 13:11 14:19 19:2,8,24 20:20 21:2,7,18 30:23 31:1,4 67:22 77:1,2,11 78:14 82:4 86:3,8,13 103:4 110:3,16 112:6,19 113:2 116:25 119:14 119:17,18 120:7 123:11,14 131:23 132:2 138:7 146:14,15 147:5 151:12 153:18,19,21,22 154:5 157:3,6,8 162:16,17 170:8 173:19 181:6,20 181:25 192:2 212:16 214:2 223:16,17 227:22 229:6,16 235:25
individual's 20:7 77:9,14 110:6 114:12,21 191:20
individuals 9:15 9:17 10:7 14:1 18:15,22 30:13 32:3,19 38:2,5 39:10 64:2 67:5 68:2 71:9,22,25 74:22 75:7 76:12,18 80:20 84:19 88:19,24 102:19 103:9 115:1 131:11 132:16 147:2 151:4 153:4 154:23 155:5 157:1,11 159:8 159:10,21 160:8 160:17,24 169:8 181:13 183:22 196:16 226:6,9 231:21 232:22 233:6
inevitably 96:6
infants 237:23
inference 199:10,22
inferences 80:1 200:2
inferior 227:16 227:22 228:9
influence 31:9
influenced 13:8 63:22
influences 155:1
inform 41:5,9 151:24 169:11
information 8:11,16 9:9,11 9:18,20,22 15:20 16:4 32:19 60:19 67:17,18 71:23 72:2,5,9 76:17 90:12 141:23 152:3 170:7,9 172:17 221:8
informed 30:14
informs 41:25
initial 116:13 173:18
initially 123:22 173:24 214:7
innate 228:12 228:17 229:1,6 229:15,23 230:20 231:5,22 231:24 232:1,2
input 29:18

inquiry 148:1
insofar 23:23 101:9
instance 138:6 209:12
instances 18:3 137:12 209:11 230:7,8
institute 73:20
institutions 94:5 94:8 148:19
instruct 172:15
instructing 172:18,25
intelligence 153:11
intended 160:23 168:8
intending 157:16
interact 197:10
interest 13:4 54:25 116:10
interested 101:4 121:23 122:4,8 122:13 132:17 146:25 173:24 223:24 242:16
interference 8:18
interjecting 178:10
interpret 42:8 42:23,24 43:3,5
interpretation 10:23,25 161:7 210:7 223:9
interpreted 161:9
interpreting 161:8 221:2
interrupt 41:19 41:19 44:8 70:3 207:13
interruption 199:1 216:11
intersex 237:23
intervention 19:10 20:11 108:14,20 109:13,16,19 159:23 161:21 206:14 210:11
interventions 121:25 122:15
interview 31:21 32:18 33:1 38:12,15 63:17
interviewed 29:7 38:1,18,22
interviewing 32:2 38:4
interviews 30:12 32:13
introduced 146:22
invent 204:25
invented 205:7 205:9,14,22
inventing 204:22
investigated 101:9
investigation 111:5
investigations 151:24
investigator 177:3
invitation 68:25
invite 135:17
invited 59:8,9 68:16,19 135:12 135:16,20,25
involved 29:7 31:22 57:2 173:6 176:17,22
involves 206:13
iq 127:7 130:19
irish 68:20
ironically 227:21
islam 219:15
islamophobia 219:13
islamophobic 219:16
israel 203:2
issue 40:11,14 53:1 54:19 98:10 116:10 143:10 149:11 149:12,14 190:20
issued 9:19
issues 27:18 39:21 88:24 108:13 144:19
issuing 38:16,23

j

j 30:4,7
january 170:19 171:9
jason 1:6
jazz 187:12,13
jennifer 1:23 2:3 4:23 241:18 242:5,20 243:21
jennifer.altman 2:7
jennings 187:12 187:13
jesus 202:23 [redacted] 30:4,22 132:8
job 55:2 165:23 212:16
join 59:6
josefiak 2:22 243:6
journal 14:25 15:23 34:9,13 34:20 36:18 43:25 50:12,13 50:17,22,25 51:4,6,10,20 52:6,7 116:12 186:6,7 202:6

journalist 32:13
journals 43:21 43:21 44:15 45:8 46:24
judged 218:6
judges 61:9
judgment 14:6 74:17
jump 119:20,25
jumping 191:16
jurisdiction 156:7
justified 58:2,12 58:22
justify 173:22 236:22
juvenile 162:6 185:11
juxtapose 152:19

k

k 10:10 30:7
keep 4:16,18 6:17 85:5 89:19 231:8
keeping 217:16
keira 60:8,12 65:12 132:10
kennedy 211:24 211:25
kettenis 117:21
keyboard 218:10,17
kid 189:20
kids 198:6
kill 153:5 154:5 154:15 156:2
kind 6:22 26:3 48:11 64:1,5 125:17 138:24 149:7,22 150:4 167:22 171:12 176:16 177:11 177:20 181:1 206:12 224:13 236:22
kinds 149:6
kingdom 60:5
know 4:10 39:3 39:4,24 43:22 44:4 45:5 46:3 49:20 54:21 57:3 61:5,5,5,6 61:8,10 62:1 69:13 70:18,23 71:3,4 72:3,7,11 75:6,11 80:8,11 80:17 81:10 84:23 85:13 88:6 106:19 109:3,15,24 113:9 114:18,22 115:7,10,15 119:16 120:12 121:15 123:2 125:14 126:22 131:2 134:8 135:9 138:23 139:14,25 140:18 141:24 143:12 144:22 145:19 148:1 149:17,19 157:2 157:4,5 160:1 160:16,18 161:4 162:13 169:1 172:5,6 181:4 181:20,23,25 184:3,17 191:25 193:14 195:25 201:10 205:5 206:20 207:3 214:2 217:13,15 224:6 225:24 234:21
knowledge 65:19 70:20 77:7 142:22 211:22
known 118:20 118:21 125:24 128:9
[redacted] 30:7

l

l 1:23 30:5 241:18 242:5 243:21
label 197:1,5,7,8 206:3 232:16
labels 205:2
laboratory 179:17,19
lack 154:12 173:11
laid 108:25
laidlaw 68:5 69:9
lambda 2:9
lambdalegal.org 2:11,14
landmark 73:8
language 46:8 163:7 191:5
large 1:24 115:11 216:10 224:13 241:19
largely 76:22
largest 156:8
late 171:20 198:16
law 4:23 29:24 172:9
lawsuit 170:25
lawyers 172:3
laying 109:2
leads 184:13,23
learn 170:25
learned 219:23 220:2
leave 46:19
led 174:9
left 80:21 169:13 201:15
legal 2:9,16 53:13,15 243:1
length 233:9 243:12
lens 143:15,22 152:12

leonard 2:4
lesbian 18:12 157:9,15 185:4 185:8 205:4,7,9 205:11 223:23 224:15,15
lesbians 18:17 182:21 183:23 185:12 223:22 225:12
lesser 145:6
lessoned 161:22
lethal 95:16,20 95:20,23 96:3,4 96:5
letter 3:14 15:23 34:19 43:15 44:3 45:21 47:13 51:5,9 116:11,17 138:5 243:11
letters 44:21 45:7 46:12,21 47:3,8 48:3 50:4 50:5 145:22
level 108:22 114:5,13,15 131:18
levine 68:7 69:9
library 71:6
license 149:5 150:15,25
licensed 27:12 27:13,14
life 109:3,5 114:21,24 115:3 115:10,13 120:6 224:15 231:12
lifelong 19:9 20:11 161:4 188:13,18 225:13
lifetime 182:22
light 37:4 175:3
likely 114:23 115:9 193:12,24 194:21 195:16 199:16 222:22 235:3
limitation 230:1
limitations 142:18
limited 72:18 164:19
line 240:4
linked 217:3
list 30:12 54:9 62:23 191:7
listed 34:2,16 48:21 50:8 134:16 190:2,7 243:11
listen 91:7
listened 52:23 93:5 148:14
literature 28:15 28:20,22 32:12 32:15,24 39:23 40:2 43:23 58:15,15,16,18 71:14,18 73:2,6 73:14,19,22,23 74:5,15,18 79:11,16 98:5 102:20 103:4,9 107:4 124:23 131:9 142:13 168:1,11,12,13 173:10,16 174:12 194:15 194:18,25 201:21,22 204:8 204:12 216:2,3 216:5,9,13,16 216:20 224:11
little 18:5 28:11 118:24 147:18 158:1 173:22 207:14 226:7,12 231:9
live 5:3 154:20 231:12
lives 117:7,18 119:3
llp 2:5
logic 162:6 217:23
logical 199:15 [redacted] 7:24 8:6 30:4 127:12 129:2,9 132:8 174:3 236:24
long 107:16,18 113:19,23 114:20 118:8 139:17 140:6,21 171:13 178:16 190:23,23 207:1 207:4 216:22,22 218:13 237:11
longer 74:23 76:13
longest 140:22
longitudinal 176:23
look 39:23,24 58:14 72:16 87:5 88:7 107:3 129:20 162:20 181:7,12 182:3 189:12,13 190:14,19 235:5
looked 40:2 56:18 62:12,13 62:15 98:3 170:16
looking 78:13 82:22 148:2 178:22 214:25 224:13,15
looks 23:24
loosely 45:11
lose 150:15
loss 182:22
lost 138:24 142:11
lot 6:12 40:3 54:18 192:4 217:13

loud 4:13,15 5:18,22 139:4 147:20
low 73:25 74:1,3 74:9 116:15 155:9 156:5 211:11,15,16 212:5,14
lower 85:8 114:22 213:4
lowercase 235:15
lucie 241:4,12 242:4
lunch 139:25 140:13

m

m 57:8
ma'am 8:21 208:11
made 16:6,6 45:24 49:22 88:7,12 111:10 117:2,9,15 118:24 137:22 146:21,22 156:1 158:3,3,6 175:7 188:16 189:16 189:25 218:22 222:14 228:8 239:9
maf 1:2
mail 135:22 136:1 142:11 208:8 235:20,22 235:24
mailed 54:14
mails 90:7,12
main 12:17 116:18 142:14 174:9
maja 39:16
major 75:18
majority 183:8
make 5:24 6:10 6:12,18 16:4 20:13,19 21:6 21:17 46:7,15 58:15,21 65:18 66:7,13 73:18 77:23 82:20 84:9 88:7 89:7 89:10,24 97:2 98:1,7 102:10 110:19 117:15 120:3,24 135:24 161:4 175:6 177:13 179:24 183:5 185:3 186:16 191:22 193:23 195:14 195:15 197:1 210:14 224:17 229:9 235:2,6 237:7
makes 75:3,3 178:22 180:18 181:2 191:19 194:1 214:13 222:15,20 223:13
making 13:3 20:24 81:14 118:2 152:14 163:13 174:17 177:17 178:24 179:11,20 181:10 182:24 191:1,15 194:4 196:25 202:19 203:4 208:1 214:19 218:7 228:9
male 11:23 180:15 193:6 203:18 215:19 215:23
males 181:16 224:14
malfeasance 6:22
man 93:10 223:20
manifesto 186:22
manipulates 219:7
manner 205:6
march 1:12 62:8 241:13 242:18 243:4
marci 124:10,13 125:1
marcus 2:4
marital 34:10 36:19
mark 22:8,21 23:4,11,21 30:1
marked 1:14 22:17 23:12
masculine 18:13 225:11
mask 158:24 163:5
mass 25:11
massive 189:21
material 40:4 191:5
materials 47:19 54:22 67:1 90:16
math 82:5
matter 23:8 60:9,15 63:4 64:12 67:4,4,12 121:24 122:13 134:17,22,24 135:1 146:25 168:8 236:16,20 240:23 243:16
matters 13:7 65:17 67:3 217:16
maturing 198:18
mbeato 2:24
md 134:9
mean 10:17,19 10:22 12:7

34:14,20 37:10 39:23 40:6 43:3 44:8 62:19 63:5 70:3 76:22 79:23 80:5 89:4 89:20,22 95:21 96:14,15 120:12 138:9 145:17 149:4 154:2 155:20 157:5 160:7 163:22 164:4 168:1 176:18 193:7 196:15 200:7 203:7 205:19,19 205:21 207:13 211:7 218:14 219:10 224:17 230:1,23 232:4 238:14,14
meaning 58:17 78:13 182:11 201:16 222:7 232:20
means 5:5,19 35:3,13,15 95:7 95:8 125:14 126:4 150:14 153:17 154:23 177:21 226:14 232:9 242:24
meant 77:10
measure 85:17 180:2
measured 80:9
measurements 15:8
media 186:18 187:5,7,9,10,12 189:9 190:13,18 236:24
medicaid 149:21 150:4
medical 7:4,6,8 7:17,20 12:3,11 13:3,4,7,23 14:5 14:11,12,15,17 14:22 15:2,11 15:14 16:15 18:22 19:9 20:11,21 26:25 31:22 37:11 47:9 48:6 49:23 50:2,12,17,22 51:4 57:11 58:9 58:21 63:22 67:21 70:16 75:20 76:20 77:23 78:13,13 81:1,6 97:10 98:23 99:2,12 99:16 102:3,9 102:18,20 103:1 103:4 106:7 107:1 108:6,14 109:13,15,18,24 110:6 116:23 121:25 122:14 129:24 133:14 136:9,16 139:18 146:23 151:11 152:7 156:24 163:19 165:16 165:19,22 166:10,14,23 167:14,17,20,20 182:22 188:13 188:14,18 200:22 202:2 206:14 208:23 208:24,24 209:15,22 210:11 213:11 227:18 235:1,2
medicalization 18:14,19,23 19:2,8,25 20:7 21:8,19 143:18 154:19 156:2 225:14
medicalized 225:10
medically 57:16 57:23 58:2,12 237:25
medication 95:16,21 98:15 98:16 124:3 154:25 155:2 209:14,17 212:17
medicine 27:15 51:2,10 52:12 53:11,18,25 55:4 57:9 134:4 135:13,18,21 136:1,6,25 137:10,15,23 148:11,23 150:2 150:7,9,13 171:6 172:8
meet 35:1,9 36:2 45:25 46:6 56:3 59:18 71:5 166:6,9 207:2
meeting 53:11 55:4,5 56:12 65:11 69:1,23 72:25 81:11,12 82:15 91:9 92:4 134:4,9 135:13 135:18 136:1,2 136:20,22,25 137:15,17,23 171:6
meetings 54:23
members 53:17 70:23,24 71:1
memo 40:11
men 93:24 96:20 97:7,20 185:12
menstruate 180:24
menstruation 180:21,22 181:18
mental 27:9 94:5,7 104:8

154:4 199:14 210:12
mention 52:11 160:13 186:22
mentioned 18:4 30:21 56:22 62:12 75:14 110:23 125:5 130:23 131:16 132:3,9 141:15 169:21 170:14 220:21 221:16
mere 75:1
merely 28:13 94:1 98:14 137:25
merits 79:24
message 92:8
met 17:8 29:20 59:15 166:3,9
metabolism 15:24 116:12
methodology 81:23 84:3
miami 2:6 243:2
mice 62:17 126:15,17 131:17,17
michael 1:15 2:21 3:4 4:2 6:7 19:18,20 49:1 56:8,9,10 140:6 140:18 172:20 178:19 206:24 233:23 236:9
238:18 239:6,14 240:25 241:7 242:8 243:5,6,9
miesen 194:16
millions 216:21
mimic 175:19
mind 4:17,18 6:17 45:22 70:1 119:20 120:1 238:13
mine 39:13,16
minimal 133:9
minor 102:2 119:19
minors 69:10
minus 115:8,11 115:16
minute 42:15 52:19 56:7,12 56:22 60:7 64:17 70:2 77:1 180:8 206:21 231:10
minutes 52:23 54:20 70:1,5 96:1 136:22 198:8 207:7,8 233:23
mirrored 136:25 137:4
mislead 52:6
misleading 86:11
misreading 196:14
missed 61:14 148:9,15
misstatements 6:22
mistake 134:10
moment 14:4 168:10 232:14
money 13:6
monitor 108:8 109:9,10 210:2 213:12,14
monitored 209:13
monitoring 209:23
monroe 2:23 243:7
month 39:4
months 30:24 39:4,5,8 62:14 171:14,14
mood 209:6
morning 4:10
morons 219:7
mother 64:21
mouthful 117:23
movement 25:11 221:14
multiplied 9:14
musing 211:15
musings 183:18 183:23 188:22 193:18 200:2
mute 7:25 25:23
mutually 192:10 193:20 198:9

n

n 2:1 3:1 30:5,5 30:7 73:21 235:21,22
name 4:23 29:23 30:8 54:15 56:23,24 64:13,16 68:20 118:22 127:24 128:1 132:4 172:5 206:6 217:17 218:3,20
named 109:20
names 90:4
national 73:20
natural 95:9,11
nature 64:17
near 63:12
necessarily 37:10 84:20 93:24 183:11 192:21 210:24 229:14
necessary 133:16 238:1
necrotizing 123:15
need 5:17 6:6,15 6:18 22:12,12 22:14 78:19 111:16 133:25

158:24 163:4 178:4 207:25 235:11
needed 168:18 168:21,24,25 169:2
needs 7:25 25:23
negative 128:13 164:7,17,17 180:25
neither 65:22,25 105:14 229:23
netherlands 63:7 73:12 162:22
never 26:21 44:13 45:9 59:18 65:15 72:12 96:7,8 100:19 101:24 166:3,6,9 167:10,13,16,22 174:6 178:6 179:6,13 228:15
new 2:10 62:15
nhs 60:12
nice 73:21 140:16
nice's 74:8
nih 211:24 212:3
nod 171:23
nodding 6:12 147:19
nods 5:17
non 152:14,25 157:8,8
nonconforming 192:19
nonhuman 126:14 179:8
normal 16:25 17:8,9 18:13,18 100:16 101:20 128:18 177:15 198:16
normalized 17:12
normally 85:8 93:20
northern 1:1
notary 1:23 3:10 239:1,21 241:6,19
note 44:1,6 69:25
noted 112:19 113:2
notes 30:25 31:3 78:5,10 242:11
notice 1:24 3:18 22:9 23:1
november 171:4
nuance 118:24
nullify 4:21
number 8:17,24 9:8,14,14,16,25 37:15 66:12 82:2,3,3 85:6 115:11 116:15 195:1 224:14
numbers 8:11 37:6
numerator 82:1 82:2 87:11
nurse 27:12,13
nw 2:17
ny 2:10

o

o 10:10 30:5,5 243:6
o'clock 140:2,2 140:11,11
oath 3:12 29:24 32:18 37:14 44:20 88:13 112:19 113:2 185:7 229:19 232:21 233:13 239:19 241:1
object 6:7 16:21 17:17 19:21 20:1,8,22 21:9 21:20 42:11 45:15 53:3 58:3 58:23 71:11 76:1 86:15 91:23 94:9 102:21 110:20 112:12 119:9,23 120:9 135:3 143:2 149:1 153:23 159:12 162:2,14 175:12 176:5 183:25 188:1,25 190:4 195:10 196:20 200:5 201:18 203:24 209:18 210:16 211:18 212:24 217:5,18 218:11,25 220:9 222:3 223:3 224:19,23 225:18 226:2,21 227:12 228:6,13 229:2,11,21,24 230:21 232:7,10 232:24 233:15 234:24
objected 227:25
objecting 219:14
objection 6:8 42:16 71:11 202:12
objections 35:1 35:10 36:2 46:1
objective 163:12,19
obligated 29:24
observable 145:11,12,13
observational 176:25
observer 215:7 215:8
obvious 190:11 190:13 210:9

219:23 224:4
obviously 180:25 194:1 209:12 219:22 229:13 232:14
occasion 59:6
occur 53:14 202:2,4
occurred 9:5 220:25 235:18
occurs 99:23
october 53:11 134:5 171:6
offenders 94:16 97:19
offer 12:18 164:4,11,23
offered 62:11 132:22 133:22 148:17 158:20
offering 70:12 70:15 98:22 99:1,4 148:19 164:3,10 166:13 168:15
office 30:10
official 202:25 241:11
ogonzalez 2:11
oh 54:7 70:4 84:8 140:7,24 176:19 208:13
okay 4:11 6:12 8:8,22 9:11 10:3 10:11,14,24 11:18 12:10 13:15,22 14:10 15:16 16:2,10 17:5,22 18:3,9 18:21,25 22:1 22:16 24:2,17 24:25 25:5 28:22 29:21 30:4,9 32:25 33:12,15 34:11 34:22 35:21 39:2,12 40:1,5,8 40:25 41:5 44:5 45:19 48:20,23 49:19,20,22 51:7,14,18 53:9 53:22 54:4,9 56:20 57:1,5,18 58:11 59:2 60:7 63:15 65:14 66:16,20 70:4 71:17,22 74:12 75:6,22 76:25 77:13 78:25 79:22 81:11 82:13 83:15,17 84:2,8,12,18 85:12 87:9,16 88:16 90:15,23 93:21 96:13 99:6 102:8 107:17 109:23 111:18 112:4 114:7,18 115:14 115:19 116:9 118:11,14 122:12 124:24 127:23 128:11 129:15,18 130:21 131:15 132:11 133:10 134:16,21 135:24 138:5,18 139:16 140:5,18 140:24,24 141:10,13 143:9 143:14 144:16 148:3 149:17,20 150:10 151:17 152:19 155:12 156:12,23 157:18 164:6 170:17 171:18 171:23,25 173:2 173:16 174:11 178:3 183:1 186:13,21 189:23 195:25 198:23 203:7 204:16,19,21 208:3 210:1 215:5 222:14 223:12 225:3 227:6 228:25 230:11 231:25 233:21 236:6 237:17 238:5
old 100:11 105:6,7 111:1 111:20 199:11 199:12,14
old's 113:13
older 61:19 108:22 138:18
olson 211:24,25
omar 2:8
ominous 91:22 92:1
once 92:13 98:15
one's 81:9,10
ones 50:24 113:11 174:13
open 125:18 128:15 217:14
operation 78:1
opine 77:8 105:4 114:19 151:18,19 154:4 236:20
opining 138:1 163:25 185:2
opinion 70:15 75:3 76:11 84:10 86:24 91:13 98:19,22 99:12 103:1,16 103:20,24 104:9 104:18 106:7 113:24 114:20 115:1,5 124:7,9 124:11,12,12 128:12 129:16 138:8,10,19 149:14 154:13

154:13,16 155:23 164:2,3 164:5,10,11,23 165:1,4,8,11,15 166:13 183:1 184:10 191:16 201:5 221:21,22 222:8,9 233:13
opinions 14:17 14:19,22 17:23 18:2 22:5 25:2 30:15 31:9 38:16,19,24 40:21,21 41:1,6 41:10 54:1 62:10 63:3 67:12,16 69:12 69:16,19 70:11 70:12 72:18,22 76:18 97:10 99:2,4,8,17 104:3,17,22 106:25 114:8 126:21,25 128:5 138:23 168:7,15 168:18,21 169:4 169:11,14 170:5 172:12 193:17 200:1,3,19 217:15 233:8
opportunity 224:2
oppose 202:24 203:1
opposed 28:2 226:14
opposite 177:16 194:9 195:22 196:2 222:8
order 8:14 30:2 38:19 74:24 88:7 95:9 133:17,24 169:3 177:15 227:16
ordering 238:6
organization 70:21 143:25 147:23
organizing 135:23
orient 171:6
origin 110:7
original 17:10 81:13 135:8 145:23 174:16 174:20,24 175:8 175:9,10,15,17 175:24 177:6 194:23,24 195:23 196:12 238:7
originally 76:12 185:11 219:12
osteoporosis 110:4,8,13,17 111:7,23 112:8 112:20 113:3,13 114:24 115:3,9 115:12,17 211:5
outcome 146:4 184:17 188:19 214:14
outcomes 142:17 146:18
outset 211:3
outside 42:7,22 140:22 149:7 150:15
overall 82:19
overlap 192:4
own 24:12 25:2 58:15,18 74:18 81:13 100:2 106:11 128:24 135:10 152:8 182:8 196:12 218:3 228:3
oxford 218:24 220:20

p

p 2:1,1 208:9
p.m. 1:12 140:13,14 207:18,19 238:20
pagan 2:8,11
page 3:9,17 24:19,23 31:14 43:4 60:11 82:22 83:3,10 83:14,18,20,21 84:10 135:25 179:24 194:3,3 194:12 198:1,3 198:25 208:10 210:4,5 213:19 214:5,24 215:3 235:10 240:4 243:22
pages 242:9
paid 12:20 53:22 54:16 55:10,13 136:5
palestine 203:3
panel 52:11 200:15
panelist 53:10
paper 15:13 37:4 48:19,20 49:3,4 215:6
papers 49:11,16 218:15,16
paragraph 159:25 161:2,13 162:25 173:14 174:15 177:13 177:24 178:5 179:2,5,23 180:4,4 182:17 182:19 183:21 186:15 192:3 197:13 198:13 199:6 207:21 208:7,12,13,14 210:4,8 211:2,9 213:19 214:5,16
paragraphs 210:5,6

parallel 94:4,13 94:14 96:17 97:2,4
parallels 94:24
paraphrase 195:4
paraphrasing 194:17
parent 102:9 152:7
parents 102:2 120:25 139:19 151:25 230:18 231:17
parlance 205:15
part 28:7 30:1 32:14 40:16 55:1 61:8 80:20 133:22 138:13 138:15 139:10 145:23 147:23 148:4,17,20 165:23 166:19 208:22,23 212:15
participants 32:8
participate 40:10,13 53:16 54:12,15 74:24
participated 29:16 32:3 37:22 52:11 53:14 89:17 90:25 91:4 122:8
participating 38:8
particular 13:20 21:2 32:23 39:21 41:16 51:5 57:11 60:20 69:10 77:20 78:17,18 86:13 92:7 95:15 112:6 119:21 120:1 128:4 141:18 154:17 160:1 181:20,25 183:20 192:1 197:8 201:10 203:2 213:2 216:19 218:19 223:6 224:10,16 225:6
particularly 189:22,22 194:19 224:14 226:5
parties 242:13 242:14
partly 19:3,4 74:16
partner 224:3 224:12
partners 222:23 222:24 223:2,17 224:15,22
pass 119:14
past 40:2
path 225:13 227:20 228:3
patient 10:1,1 14:19 29:19 47:2,5 78:10,18 85:18 108:8 116:24,25 119:5 120:24 151:12 151:12 162:9,12 188:13,18 212:18 213:21 225:15
patient's 41:12 41:15
patients 14:21 25:20 29:9,21 30:1 80:9 85:6,9 86:18 87:15,25 88:1 109:9,11 116:5 151:25 154:23 176:17 177:8 198:6 211:4
patrick 53:20 53:20 56:23 57:1 135:14,25
pause 6:7 198:21
pay 155:17
payment 150:3
peak 189:21
peculiar 43:24
pediatric 8:6 15:24 50:25 51:1,1,2,2 52:5 116:12 156:8
pediatrics 47:14 200:25
pedophile 93:14
peer 14:25 33:21,24 34:1,7 34:10,13,14,16 34:19,20,23 35:2,8,13,14,23 36:11,25 37:8 37:10,17 43:16 43:23 44:2,10 44:11,13,14,17 44:18,21 45:3,4 45:6,7,8,9,13,23 46:8,16,22,25 50:5,12,13,17 50:22 51:5,6,9 51:20,20 125:3 177:7 186:5 202:6
peers 34:25 36:1 193:25 194:9,9 194:9,22 195:17 195:21,22 196:2 196:5
peggy 117:21
penalty 25:1
pending 6:17
penis 203:18
people 11:6,18 38:25 39:10,20

44:24 45:11 57:17 71:3 72:4 72:7 89:2 93:10 94:6 96:21,24 97:8,9 115:7,11 115:15 120:19 129:19 132:13 139:8,9,11 145:2 169:8,8 187:24 189:8 190:19 191:16 192:23 204:23 205:1,21 211:15 217:14 220:7 224:2,12 227:15 228:3,10,20 229:14 230:15 232:21
people's 15:5,6 28:3 31:15,15 98:10 106:9,15 128:22 134:25
perceive 220:7,7
perceived 203:10
percent 63:12 64:7 82:10 83:23 84:13 85:8,16 86:12 86:21 87:12,22 89:5,12 92:20 95:25 96:1,11 101:24 120:13 121:9 162:18 197:15
percentages 120:19
perfect 206:25
perform 7:17,20 8:14 9:3,21 13:13 15:2,4,7 16:14,17 29:3 31:18 33:2 91:10,14 127:14 131:20 137:21 147:24
performed 9:6 10:14 11:1 15:11 28:2 33:5 77:25 79:2 89:17 90:25 91:2 93:7 98:9 100:25 104:10 121:18 127:2 137:15 177:8
performing 89:17 91:1,4
performs 79:5
period 95:1 156:14 235:15
periodical 216:7
perjury 25:1
perko 172:11
permanent 157:22 158:9 179:18
permission 72:11
permutations 189:19
perpetuity 93:19,23
persist 159:8
persistent 158:21 163:1,8
person 29:20 31:8 77:17 88:19 89:9 98:14 119:21 120:1 121:4 145:13 146:12 146:20,20 157:9 175:4 209:16 217:22 218:6,7 221:21,25,25 222:8 224:13,22 228:10,12 232:5
person's 110:8
personal 17:23 17:25 18:7,9,11 58:18
personally 29:6 63:2 89:16 90:25 91:2 102:15 127:2 241:8
pertain 192:14
pertaining 192:13
pertains 69:14 69:17,20 72:23 101:9 122:21,22
peter 219:11
ph.d. 1:15 3:4 4:2 25:10 107:2 107:5 239:6,14 240:25 241:8 242:8 243:5,9
pharmacist 26:19,20,21 100:19
phone 8:1 25:24 216:11
phonetic 39:16 127:25
phrase 144:25 188:4
physical 145:3 157:22 158:9,25 163:5,12,20 203:12,21 206:14 214:9
physically 84:21 84:21 88:4,5,10 223:14 226:13 231:5
physician 119:19 120:7,24
physicians 31:22 33:2
physiological 105:5
pick 83:2 226:24
pictures 90:5
pierce 241:12
pillsbury 2:5 4:24
pillsburylaw.c... 2:7

pin 89:8,8
pioneers 211:3
pious 230:24
pittman 2:5 4:24
place 30:3 150:2
placed 204:5
plaintiff 1:4 2:2
plaintiffs 1:22 3:16 4:3 22:17 23:12 38:12 165:12,16 166:3 166:7,10,15 170:9 201:11
plan 167:16
plausible 184:6 184:7 214:14
play 221:12
please 5:21 8:1 19:13 25:24 49:20 198:22,25 209:20 215:4 238:4,19
pllc 2:22 243:6
podcast 143:14 143:22 145:21 146:1,1 147:13 152:11,12
point 38:23 70:10 114:12 144:11 154:11 154:17 160:5 177:12 183:15 185:19 206:21
pointing 156:4 159:15
points 39:1 40:4
policy 26:17 111:9 220:12 225:21,25
pool 222:23 223:1,16 224:2 224:5,5,9
poor 73:3,7,14 73:19 74:3,15 74:18 75:3 76:9 76:11 79:16
population 82:19 199:13 213:2 223:24
portion 24:5 83:2
portions 1:14
position 12:4,12 12:24 13:24,24 36:10 59:11 73:13 81:1,7 87:10 96:8 102:10 108:24 119:4 166:23 203:2
positive 69:6
possibilities 186:12 200:8 215:12
possibility 154:22 185:24 185:25 186:8,9 187:15 215:9
possible 141:1 187:20 190:14 215:14 238:15
possibly 52:17 121:7 138:20 142:3 171:3 185:21
post 62:4,9 63:4 157:19,24 158:3 158:5,15,18 161:23 177:25
postdate 142:2
postdates 62:17
potential 142:16 184:3 188:7 197:2 200:16 210:21 215:9 222:23 223:1,16 223:24
practice 27:14 201:8 236:23
practices 227:18
practitioner 202:2 209:15
practitioners 209:23
pre 111:6,22 193:4
preadolescence 192:15
precedence 145:4 203:22
precedes 214:25
preceding 183:7
precisely 162:6
precocious 94:17 95:4,5,7,8 99:21,23 100:11 100:21 101:2,7 101:18 103:17 103:21,25 104:8 104:12,15 105:1 105:6,10,18 107:14,22 108:3 108:18 122:22 130:5,11,11,16 130:20,22 131:9 131:12,13,14 133:1,3,6,9 141:17 142:5
predates 186:17 187:3 216:22,22
predetermined 221:7
predicament 191:20
predict 5:25
prefer 178:21
preliminary 179:7
preparation 55:23
prepare 23:7 55:25 56:16 167:25 177:15
prepared 23:20 54:22 56:2 168:4

preparing 53:12 55:14,17,20,22
prepubertal 192:15
prepubescence 198:15
prescribed 7:14 99:21 100:19 119:7 130:5,7 130:12 164:8,18 167:22
prescribing 109:7 130:22
present 68:12
presentation 52:19
presented 20:14 150:7 236:23
preservation 142:16
pressure 214:9
presume 150:20
pretending 196:17,24
pretty 91:22
prevailing 160:15
prevalence 211:12,16
prevent 119:14
prevented 121:20
preventing 198:18
prevents 185:3
previous 194:11 194:14
previously 35:25 145:22
primary 177:3
primate 126:17 126:19,20,22
prime 126:22
principles 20:25
printed 90:17 191:5
prior 137:14 243:14
prison 203:18 203:19,23 221:17 222:1
prisoners 204:5
prisons 94:5,7 144:19 204:4
privileged 172:17
probabilities 186:14 200:9
probably 39:8 55:19 137:13 139:24,25 140:19,22 144:5 148:6 212:6,9 237:16
problem 9:1 49:14 207:16
problems 209:6 235:18
procedure 77:3 77:21 79:2 86:4
procedures 56:8 69:20 75:20 87:4
proceed 152:9
proceeding 85:19 238:20
proceedings 61:7
process 35:25 165:8 173:7 177:7
produce 49:7 61:14,22
produced 48:1 49:5 106:12 239:18
producing 98:16 194:18
production 36:14 91:16 92:11,14 94:2
profess 132:17
professed 121:23
professional 12:11 13:3,23 102:9 151:11 152:7 242:6
professionals 12:3 13:7 14:11 31:22 67:21 81:1 102:3,19 103:1 108:7 213:12
program 143:17 227:14
prohibited 121:13 133:14
prohibiting 150:3
prohibits 149:21
prominence 190:12
promote 227:16
promoted 187:6 191:18 214:7
promoting 187:18 189:8
promotion 186:17 187:3,10
prompt 243:16
pronounced 57:7 213:6
pronouncing 10:11
proof 184:6 185:18
proper 12:4,12 132:22 133:13 133:18,24 138:13,15 139:1 147:16,24 165:15 174:4 221:18
properly 181:14
property 229:16

prophecy 185:22
proportion 10:1 197:23 223:23
propose 71:19
proposition 150:8 236:1
protective 30:2
protocol 28:8,12 29:8,16 30:16 31:14 32:10 33:9 34:9 36:19 41:3 87:6 100:11 117:11 118:6,12,15,20 118:21 128:9 132:3 143:6 160:12 186:22
prove 184:5
provide 22:5 64:25 67:12 76:17 79:6 106:25 114:19 115:1,5 124:19 126:10 133:25 150:15 154:16 167:19 168:8 171:19 197:2 200:1,3 233:8
provided 46:9 49:25 61:20 66:17 67:17 103:16,20,24 123:6 131:17 136:21 167:10 167:13,16 168:20 176:3 195:5 237:23
provider 139:18
providers 166:10,14
provides 31:10 40:23 41:7 45:20 67:23 79:1
providing 27:6 69:9 71:9 72:22 97:5,15 101:1,6 101:12 102:18 104:7,11,14,19 114:11 149:6,13 150:13 156:25 165:1,4,7,11 171:8 191:16 210:13 211:21 214:8
provision 68:17 69:5,16 79:11 101:5
pseudonym 217:10,17
pseudonymity 218:14
psychiatrist 26:10 202:3
psychiatrists 201:17
psychological 63:22 131:24 235:18
psychologist 26:12 105:13,22 202:3
psychologists 201:17
psychology 50:14
puberty 35:20 38:20 39:7 47:24 48:5,24 60:17,19 61:4 61:12 64:22 65:1 67:12 69:12 70:11 72:19 73:12 77:8,10,13,21 79:6 85:21,22 85:23 86:2 87:7 89:3,4,15 90:24 91:3,5,10,14 92:14,24 93:7 93:18,18 94:1 94:18 95:4,5,6,7 95:8,9,9,11,15 95:20,22 96:2 97:16 98:23 99:4,8,13,20,21 99:23 100:5,11 100:12,15,16,20 100:20,21 101:1 101:2,5,7,7,12 101:18,19,20,25 103:6,17,21,25 104:7,8,12,12 104:14,15 105:1 105:6,10,18 106:7 107:1,9 107:12,14,21,22 108:3,8,18 109:7 110:12,18 111:10 112:8,21 113:3,14,25 115:2,16 116:13 117:4,11,17,23 117:24 118:5,16 118:16,25 119:7 119:17,22 120:4 120:14,22 121:3 121:10 122:9,17 122:20,22 123:5 123:12,16,22,24 124:2,7,20 126:13 127:13 127:13 128:18 130:5,12,16,20 130:22 131:9,12 131:13,14,25 132:16,22 133:1 133:3,6,9,17,21 136:13 141:17 142:5 143:19 146:15,21,22,22 146:25 148:17 148:19 151:4,13 157:21 158:8,22 158:22,25 159:4 159:16,22,24 161:3,12,16,17 161:19,20,24 162:7 163:2,3,6

164:13,19 168:5 169:25 173:23 174:5,17 177:14 177:15 179:5,14 185:2,7,10 200:12,16 201:15,23 202:11 209:24 214:7,10,17
public 1:23 3:10 54:25 220:12 225:21,25 239:1 239:21 241:6,19
publication 36:24 37:5 43:16 46:25 47:10 48:7 52:1 152:6
publications 61:21 81:10 134:23 135:10 168:4
publicity 188:5
publish 15:23 115:20 116:17 151:20,23 174:21 175:4 202:6
published 14:25 15:19 29:14 32:12,24 34:6,9 36:3 39:23,25 45:1,8,22 46:2 46:13 48:18,18 50:21 51:4,10 58:15 73:2,14 73:18 74:14 78:20 79:11 81:13 115:18,20 118:10 136:11 141:25 142:10 152:3 156:17,20 169:9 174:6 177:6 179:13 182:6 186:5 204:7,12,19
publishing 8:7 32:20 45:12 116:11 175:18
pull 83:3,5 111:2 207:25
pulled 84:9
purpose 117:4 117:16 118:25 119:6,17,21 120:4 121:3 157:21 158:8,8 158:19 159:4,6 159:16 161:3,11 161:19,24
pursuant 1:24
purview 58:1,11
push 156:1
put 6:8 22:20 25:7 70:10 89:7 152:2 178:11,19 180:7 203:17,19 208:5 209:13 212:16 221:7,17 222:1
puts 225:13
putting 64:16 144:19 173:13 190:18 221:3 227:19

q

qualification 20:18 166:14
qualifications 20:18 21:6,6,17 73:17 97:25 154:9
qualified 14:17 16:19 17:6,14 17:16 19:1,7,14 19:24 20:6 43:7 43:8 58:21 59:21 60:2 61:3 61:11 65:3,19 67:22 97:9 98:7 99:11 104:25 105:4 106:6 124:6 128:12 167:19
qualifies 20:19 43:10 65:6,6
qualify 33:12 37:16 99:16
quality 73:3,7 73:15,19,25,25 74:1,3,3,9,15,19 75:4 79:17 106:20
quantitative 107:3
quarter 123:7
question 5:6,8 5:10,11,22 6:1,2 6:6,9,16 9:20 11:10,15 16:23 17:3,5,15,19 18:21 19:6,7,13 19:13,16,18,19 19:21,23 20:2,9 20:17,19,23 21:4,5,10,15,21 21:24 34:17,17 35:16 36:20,23 41:18 42:13,19 44:22 45:2,16 49:24 53:6 58:4 58:24 66:11 71:12 74:7 76:2 77:16 78:9,22 82:12 88:17 90:3,3,23 98:25 102:23 110:21 111:12,14,18 112:14 115:14 118:23 119:12 119:24 120:11 120:17,21 122:3 128:15,16 129:13 130:9 135:5 136:15 138:24 139:7 144:10,11 149:2 153:24 156:10 157:7 162:3 164:15,19

166:22 172:19 172:20 175:13 176:6,10 180:24 181:6,11,11,19 181:21,21,24 182:1 184:1 188:2 189:1 195:11,14,18,24 196:21 199:18 200:6 201:19 202:18 203:25 210:17 211:19 217:6,19 218:12 219:1 220:10 234:10 235:12 236:15 237:19
questionnaire 180:1
questionnaires 180:11 181:13
questions 4:19 5:4 7:1 29:25 46:20 54:5 172:15,25 180:16 181:9,14 181:17 182:12 182:14 190:5 220:3 226:25 235:7 236:8,12 237:2
quick 207:14 235:6,12 237:18
quickly 72:17
quite 37:2 59:9 61:19 117:22 128:18 157:2 168:2 188:3 200:10 233:1
quote 91:10 117:5 123:7 142:14 158:17 159:1,3 162:25 174:15 183:20 195:8 202:21 219:11,13,20,21 219:25 220:21
quoted 194:15 195:2 202:19
quotes 194:17 195:2 196:3
quoting 124:9 178:11 212:10 219:5 235:17

r

r 2:1 30:7 73:23 142:8 235:21,22
race 227:17
random 142:24
randomized 126:9,11,12 131:16 132:23 133:3,13,18,22 133:25 138:13 138:15 139:1,10 141:16 142:19 143:5 147:17,24 147:25 148:5,13 148:20 149:8 150:18 178:6 179:6,13
rape 203:18
rapist 203:17 221:17
rapists 144:19
rate 7:23 9:7,25 79:20,23 80:4 81:25 82:8,17 83:22 84:3,13 84:24 85:2,7,7 85:13,18 86:13 86:19,20,25 87:3,12,21 89:4 89:11 96:1,6,10 121:9,12 122:24 155:8,9 156:5 192:23 197:18 235:15 236:4
rates 8:3,5 28:5 28:9 63:11 74:19 79:25 152:12,24 155:8 155:8
rather 95:16 154:19 178:1 210:7 237:16
rationale 117:20 118:11 119:13 133:6
rats 179:17,18
reach 32:7 59:18,18 74:22 80:20 114:15 220:2
read 3:14 16:19 17:16 43:3,5 58:18 73:2 79:10 83:1,21 84:16 89:12,14 98:2,2 103:9 106:9 129:4,5 149:10,14,15,16 152:8 157:20 158:14,16 161:3 164:14 168:1,10 180:3 186:25 189:6 198:19 203:4 207:23 211:13 213:24 214:11 222:17 234:2,11 237:4 237:6,8,10,12 237:16 238:3 239:7 240:23
reader 220:6
reading 58:16 83:6 88:14,16 90:7,9,11 97:17 98:10 103:10 118:4 121:20 124:23 125:1 128:21 134:25 137:11 161:9 173:10,18,20 196:7 216:2,24 243:12,14,15
reads 183:3
ready 141:14
real 145:20 218:20 235:6 237:18

reality 145:5
really 5:24 14:23 20:5 52:20 71:4 89:9 95:24 130:25 153:5,17 154:5 154:15 155:20 171:10 223:5 231:2 234:22
reason 4:14 8:16 32:6 39:19 44:2 53:9 61:22 78:1 95:13 111:6,22 181:2 190:19 210:1 212:21 213:15 216:19 218:19 221:6 240:4
reasonable 129:19 215:7
reasoning 8:15
reasons 8:17 9:21,24 10:6 190:15 213:2
rebuttal 129:5
rebuttals 55:22 55:22 56:19 126:23 170:14 234:8,9,9
recall 37:2 49:17 54:15 62:1 64:14 67:25 68:14,23 73:3 81:14 82:13 91:11 110:4 125:8 127:24 132:23 136:3,20 141:19 143:15 145:25 146:7 152:14 157:24 158:10 159:1 163:13 171:3 172:9 173:13 174:17 177:17 178:7 182:24 192:6 194:4 197:20 204:23 208:1,2 214:18 219:8 222:16,17 223:5 225:3 230:9
receive 138:8 139:20 149:21 164:1,2
received 34:24 44:24 55:23 70:16 76:19,21
receives 20:21
receiving 90:11 112:21 113:3 121:14,20 149:22 201:12
recent 28:7 131:16
recess 70:7 140:13 207:18
recipient 181:6
recognize 23:16 82:11
recommendati... 66:7,13,16 148:18
recommendati... 210:10 212:11
recommending 109:17
record 6:8,9 10:5 23:19 31:6 40:1,19 88:13 97:14 99:7,9 137:20 140:20 148:15 175:7 176:10 242:10
records 78:14 85:6 110:7 165:19,22
recreation 32:10
recross 3:5
redirect 3:5 237:19,20
reduce 114:1,2 198:17 200:13 222:22
reduced 158:18
reduces 223:1 223:15,16
refer 28:20 40:16,20 49:2 50:5 60:11 75:2 145:21 162:5 178:16 186:21 193:4 210:8
reference 72:15 73:23 161:13 195:8 219:23
referenced 60:8 63:18 110:2 111:20 146:9 204:8
references 56:18
referencing 146:6 211:14 234:20
referrals 197:13
referred 55:4 61:7 74:8 77:3 82:17 84:2 85:9 126:15 147:7 158:6 160:17
referring 33:8 56:9 81:21 82:23 110:22 127:10 144:24 160:2 214:6,21 216:4,8,9,17 226:13
reflected 240:23
refused 68:22
regard 16:3 28:12 31:13 37:6 59:13 61:2 69:19 81:17 85:16 89:15 90:24 103:5 104:11 124:25 136:8,12,16

137:16 141:18 150:13 155:12 167:2 172:16
regarding 35:6 38:20 73:2 134:5 172:16
regardless 111:4 155:3 169:23 171:11 180:10 232:3
regards 79:15 106:8 113:20
registered 242:5 242:5,6
regroup 70:6
reignites 92:15
reinforced 214:18
rejected 47:9,14 48:6,9,19,20 49:2,3,11,16 52:1,3,7
rela 71:14
related 48:12 50:21 107:6,8 110:17 170:8 235:17
relating 7:17,21 10:15 11:1 22:5 27:18 55:5 72:22 134:4 141:17 173:1
relationship 146:6
relative 114:3,5 155:8,9 242:12 242:14
relatively 223:23
release 16:8
released 15:20 15:22
releasing 16:1 34:5 63:13 88:9 97:19 185:21
relevant 13:11 52:14 53:1 71:14,18 83:1 114:17 148:7 204:10
reliability 81:2
reliable 80:6 85:17
relied 16:12,15 63:3 106:16 182:4,6 189:17 191:1
relief 76:19
religion 203:2
religious 231:1
rely 32:11 63:1 126:20,24 128:5 174:13 179:10 179:20 187:7 189:15
relying 74:12 106:19 235:23
rema 39:15,16
remain 114:5,16
remember 56:23 59:9 111:3 126:18 127:18 128:3 147:17 186:6 203:4 225:1,6
remembering 77:2
reminding 52:3
remove 149:5 226:23
render 14:17,22 97:10 99:11,17 106:6 124:6,9 128:12 157:10 168:18,21 169:3
rendered 13:25 104:4
rendering 54:1 63:3 91:14 98:19 126:25 170:5
repeat 5:9 44:23 122:3 137:19 144:10 209:21
repeated 126:2
repeating 111:24 112:1
rephrase 5:6 99:1
replicate 174:5 174:23
reply 223:6
replying 84:6
report 3:19 15:6 23:7,20,25 24:1 24:1,3,5,8,18 30:14,19 34:2 40:6 45:21 49:9 51:13 52:10 53:13 55:14,17 55:20 60:12 61:6,6,15,19 64:10,14 66:18 66:20 70:11 77:3 82:14,22 83:2,10 86:11 87:16,23 89:8 89:21 90:18,18 90:18 96:10 97:14 104:23 110:3 116:1 122:5,7 125:10 126:7,16 128:2 129:6,12 137:4 138:3 144:14 146:10 152:20 152:23 153:1,2 153:3,4 154:3 154:12,14 155:23 157:21 162:23 163:11 164:5 165:2 167:25 168:2,4 168:7,11,14,17 170:18,23 173:9 173:13 174:18 175:8 177:13,18

178:11 180:11 183:16 186:15 188:24 189:3,7 189:16 190:1 191:2,7 192:3,7 196:11 197:21 198:13 199:20 204:9 214:19 225:9 227:2 235:5,11,11 242:7
reported 31:16 80:6 179:24
reporter 3:13 5:16,23 8:20,23 22:15 42:15 216:12 237:9 238:9,12,17 242:1,6,25
reporter's 5:22 6:5
reporting 80:22 112:22 135:1 175:22 182:4 194:10,15
reports 24:12 34:24 36:13 149:15 153:16 207:22 208:19 208:22 234:4,9
represented 64:7 74:14 112:6
representing 79:10
reproduce 227:23
reproduction 242:24
request 9:11,20 16:4 89:25 152:3
requested 242:9
requests 8:11 9:18,22
require 18:14 18:19,22 159:9
required 9:17 45:12 181:24
requires 19:2,8 19:10,25 21:8 21:19
requiring 182:22
research 7:17 7:20 8:7,8,10,13 8:19 9:24 10:4 12:15 14:6,12 14:15,15 15:3,4 15:5,6,7,11,14 15:21 16:7,8,15 18:1,4 28:1,3,4 29:4 30:13 31:16 32:6,9,22 33:3 44:1,6 47:2 47:5 54:25 55:1 60:19 61:21 62:8,13,15 73:24,24 76:9 76:11 79:18 81:3,7,13,16 88:11 98:10 100:25 101:6 104:11 106:10 107:4 111:19 112:2 121:18,22 121:25 122:14 124:25 128:24 134:25 135:8 136:21 137:16 137:21,25 138:1 149:7 150:16 151:2 152:8,17 156:4 157:21 164:6,16 168:3 169:7 174:16,20 174:25 175:3,8 175:9,10,15,17 195:24 196:10 196:12 204:3 208:24
researched 58:14
researchers 16:8 57:10 76:8 158:6 179:25
reshape 46:4
resources 148:7 191:7
respond 202:14
responded 37:9 181:14
response 35:11
responses 37:9
responsibility 189:23
rest 8:4 109:4,4 117:6,18 119:2 120:6 140:12
resubmit 34:25
result 76:23 86:4 89:4 92:25 108:15 113:3
resulted 168:3
results 74:24 75:13 80:5,8,14 80:22 116:13 133:4,5 151:20 151:23 156:19 174:7,22 181:7 182:3,5 190:2,7
retained 22:1 67:11 171:1
retread 177:12 230:4
return 87:3
reveals 235:16
reverse 158:24 163:5
reversed 60:21
review 14:25 17:6 24:11 28:20,22 35:2 35:13,14 37:1 45:21,23 46:9 46:25 73:6 74:18 78:5,10 97:17,17 110:6 137:8 151:15

165:22 170:11 170:15 173:17 177:7 194:18,25 242:8
reviewed 24:14 28:17 31:15 33:21,24 34:1,7 34:10,13,14,16 34:19,20,23 35:24 36:11,25 37:8,10,17 43:16,23 44:2 44:10,11,13,14 44:17,18,21 45:3,4,6,7,8,9 45:13 46:11,16 46:22 50:5,12 50:13,17,22 51:5,6,9,20,20 56:17 62:9 73:22,22 78:7,8 79:16 121:8 125:3 129:2 131:8 141:21 165:19 168:13 170:4 186:5 194:16 202:6
reviewers 34:24 35:9,24 36:13 37:3
reviewing 90:11 97:18 103:4 138:1 168:12
revise 34:25
revised 35:11 37:4
revision 36:3
revisions 35:2
rewards 139:19 151:13
rh 1:2
right 4:9 5:16 7:3 9:8,9,19 14:1 15:5 22:20 25:12 26:19 27:15 28:17,18 35:15 36:9 37:11 42:9,22 42:23 44:11 45:10,17 50:16 52:15,16 54:6,8 58:19,22 62:6 63:1 66:11,12 68:7,10 70:5 74:10 76:4,6 77:9,18 78:23 79:24 80:7,11 80:16 81:8 82:5 84:4,16 85:19 86:5,14 91:22 92:5,8,11 93:4 93:15 94:18 95:18 97:3,10 99:17,21 101:11 101:12 102:4,13 102:14,17,23 104:20 105:15 106:4,15,19 108:4 109:20,21 111:7,23 112:1 112:10,16,24 118:18 119:8,18 119:22 120:8 122:10 125:15 126:4,8,24 127:8 128:14,16 128:22 129:16 130:1,6 131:2,7 131:10 132:13 133:18 134:12 138:18 139:2,23 140:3 141:1 144:1,4 145:10 145:17 146:17 146:24 150:1 152:2 154:6 155:6,14 156:7 156:16,17 163:20 166:1 171:24 176:14 178:1 180:3,7 180:18 181:19 182:2,18 183:2 183:4,15 184:10 185:15 186:25 191:6,23,25 192:1 193:13 194:12 195:1,9 196:9 198:9,19 202:7 205:25 208:18 209:11 210:2 211:2,17 212:16,21 213:15,24,24 214:11 218:24 220:1,25 221:2 222:7,11 229:18 230:12 234:10 237:3,6,10 238:3,11
rigorous 151:15
ring 235:21
ripping 219:24 219:24
rise 25:11
risk 82:4 85:24 115:9,12 150:24 154:24 155:6 198:14,15,17 199:5 211:5
risks 139:19 151:7,12 213:4
rivaux 2:4
robust 32:8 39:21 169:3 173:11 200:13 201:21 202:1 225:21,25
robustly 6:25 201:22
role 167:7
roles 191:21
romantic 222:23 223:17
roughly 137:13
round 35:1
rpr 1:23 241:18 242:20 243:21

rule 40:14 149:3 149:11,14,15,16 149:18,21 150:2 150:6,13 165:5 165:9
ruled 60:24
rulemaking 173:7
rules 5:3,14 134:4

s

s 1:4,7 2:1,2,12 2:20,23 5:23 10:10 57:8 142:8 197:14 243:7
safety 201:23
sakes 17:12
salt 210:21
sample 127:16 197:13
saw 108:13 134:8,19 175:3
saying 44:14 75:1 82:11,13 97:4 125:8 132:23 145:9 148:16 154:19 176:19 178:7 184:4 196:15,16 212:11 217:22 220:6
says 41:13 87:20 87:23 129:8,21 142:14 158:18 159:7,11,20,21 162:25 163:9 180:15 199:23 222:25 235:13
scale 75:20,21 75:24 76:8 181:10,24
scales 181:2,2,5
scan 16:20 17:6 17:16
scans 16:17 106:15,17,18
scenario 215:15
scenarios 12:10
school 7:6 230:25
schools 186:18 187:4,6,10 189:9 190:12
science 183:24 186:2,12 200:7 210:7
sciences 205:16
scientific 15:4 33:5,7,13 37:23 38:9 117:3,8,19 117:25 118:2 173:10 183:18 186:11 188:15 188:23 189:25 197:25 200:4 208:21 215:8 216:10
scientist 33:17 33:18 210:20,20
scope 32:17
score 17:8,10,12 114:22 115:8
scores 16:24
screen 5:16 22:14,21 23:24 83:3,6,13 89:18 90:5,21 178:12 178:20,23 208:1 208:5
script 137:11
scroll 23:17 198:2,22
scrutinizes 201:22
seal 241:11
search 189:18 191:3,4
searches 189:13 189:14,15,24 190:2,6,25
second 35:1 36:5 37:16 56:21 63:16 67:15 72:16 74:22 117:12 142:7,11 173:20 180:11 199:6 214:6 235:8
secondary 119:15 162:8
seconds 237:13
section 162:24
see 22:10,20 23:17 24:25 57:16 83:17,25 84:10 89:23 95:15 109:13 129:12,14 140:1 141:2 145:16,18 173:22 179:4 180:5 186:19 189:21 199:6 214:23 226:23 226:23
seek 39:20,22
seeking 233:2,7
seem 101:4 122:4,8,12
seen 22:24 23:23 215:5 227:15
sees 85:6 178:12
segm 57:2,3,6,8 59:3,10 70:18 148:6
self 185:22
send 92:7
sending 219:8
sense 6:10,18 180:18 191:20 191:22 196:25 197:1 214:13
sent 35:8 36:1 36:22 37:1,3 170:13 230:25
sentence 87:19 87:20,22 89:13 89:14 183:3,7 183:20 187:3

194:11 195:7 198:5 199:6 209:10 211:3 214:6 233:5
series 181:17
serious 19:11 124:2
services 54:5,14 55:6 68:1 73:1 74:13 81:12 82:14 91:8 92:4 93:4,14 94:1 97:3 106:3 110:16 111:3,21 112:7 116:1 117:2 118:3 122:6 123:5 125:6 126:8 132:21 133:19 135:17,22 136:2 137:2 147:14 178:1
setting 150:16
several 56:18 63:6 142:18
severe 93:11,24 96:20 97:20
sex 20:12 34:9 36:18 47:16,18 48:5 51:24 63:13,24 64:8 69:17,20 70:12 86:7 87:7 91:17 92:11,14,21 94:2,15 97:19 102:4 113:20 114:3,4,6,11,14 114:17 115:2,16 117:6,12,18 118:17 119:2,15 120:5,14,20,23 123:22,24 124:3 145:5 158:23 159:5,18,22 160:4,9 161:1,5 161:21 162:1,8 162:9 163:4 177:16 193:25 194:9,9,22 195:17,21,22 196:1,2 202:21 202:22 203:8,12 203:21 216:2,6 216:8,13,20,20 216:25 220:12 223:22 233:2,7 234:23
sexology 50:15
sexual 34:6 43:24 44:2 46:9 48:9 50:11 51:10 93:11,24 96:20,22,25 97:7 104:16 124:4,8,20,25 182:23 222:23 223:2,17 224:3 224:21
shake 5:15,15
shaking 5:17
shani 2:4
share 24:8 83:12
sharing 22:14
shaw 2:5 4:24
sheep 126:17
sheet 3:11 239:10 240:1
short 15:23 44:1 44:6,7 121:7 140:16 221:15 221:17
shorter 95:1
show 170:22
showed 63:11 127:13 131:18
showing 116:13
shows 129:9
sic 13:13
side 65:1 99:12 107:12,19 137:7 137:7 161:19 180:8
sided 221:24
sides 65:10 66:5
sign 76:9,11,12
signature 24:20 24:23 241:18 242:20
signed 201:22
significant 19:11 42:3 52:20 75:2 127:19,20,21,22 127:23 224:5
signing 243:12 243:14,15
silencing 219:18
similar 137:6 158:2 177:13 219:18,18
similarly 54:3
simone 2:15
simone.chriss 2:18
simple 82:5
simply 5:6,8 28:2 153:10 189:3
simultaneously 42:10,14 125:20 176:4 198:24 209:2,19
sincerely 243:18
single 123:11,21 203:1
sir 4:9 6:20 7:21 8:4,9,13,21 9:3 10:18,22 11:15 12:21 13:23 14:7,10,16,21 15:3,10 16:10 16:20 17:6 18:25 19:6,23 20:5,17 21:4 22:1,20 23:7,19 23:25 24:2,23 25:10 26:17 27:10,17 29:4

29:24 30:8
31:11,19 32:6
33:13 34:11,17
36:17,20 37:11
39:19 40:19
41:1,13,21 43:1
43:6,10,14,19
48:14 49:16
52:10 54:18
58:8 61:12,23
64:10 67:25
69:8 70:10,18
72:18,25 73:17
74:7 75:22
76:10 77:1,13
77:16,23 79:9
79:22 80:4 81:3
83:17 84:23
85:16 86:2,10
87:2,20 88:6
89:2,15 91:7,18
92:17,24 93:8
93:12,18,22,25
95:5,13 97:25
98:6,13 99:11
100:18 102:1,25
103:3 105:8
106:6 107:5,11
109:6 113:17,24
114:25 116:4,22
117:1,14 118:24
119:4,16 121:8
124:6,16 126:3
128:11 129:2
131:21 133:12
134:3 135:12
140:16 141:4
142:10,23
143:14 145:6,14
145:21 148:22
152:11,20 153:3
153:12,20,22
155:12 156:23
157:18 159:3,7
159:20 160:5,10
160:17 161:6,8
161:18 162:12
163:11 165:24
167:2,14 174:25
175:9 176:2,8
176:20 179:4
180:13 181:4
183:2,24 184:10
185:2,6 186:2
186:11,15
187:22 189:14
189:23 190:14
191:9 192:3,9
192:13 193:8,14
193:17 194:6
195:7,14,25
196:6 197:7
199:6,9 200:4
200:18 202:19
203:23 204:21
205:19 207:21
208:25 210:2,4
210:15 211:17
213:16 214:1,13
214:22 215:12
215:18 217:3,9
218:20 219:21
220:6,24 221:20
225:16 227:11
228:2 229:8
230:4 231:8,20
232:1,4 233:8
234:5 235:6,10
236:8
sissy 193:1
sit 10:5 13:10
21:16 44:19
68:15 85:12
99:15 112:18
113:9 114:18,25
115:14 123:10
123:20 126:3
128:11 143:12
151:6 214:1
situation 4:20
situations 87:14
123:3
six 27:23,25
30:24 39:5,8
55:23 64:19
66:12 82:18
152:13,25 155:5
155:10 171:13
skill 106:24
skills 14:14
sloth 139:8
small 127:15,17
130:18 223:23
social 33:18
186:18 187:4,6
187:9,10 189:9
190:13 197:10
205:2,11,16
206:13,15,17,18
215:18,20
224:16
societies 205:24
232:12,17,21
society 57:8
167:3 169:10
201:3 203:11
232:14
sociological
215:24
sociologist
33:19 97:25
105:15,25 108:7
116:23 154:3
165:23 166:17
166:20,25 167:5
197:9 205:7
software 71:7
sole 86:23
175:17
solely 41:22
solution 194:2
197:3
solutions 243:1
somebody 22:13
25:23,24 42:1
54:13 59:8
106:20 112:1
149:5 151:23
153:13 182:4
193:14 198:9

219:24 222:20 229:1
someone's 203:10
son 154:20 202:23
soon 238:10,15 238:15
sorry 10:11 14:7 18:16 22:12 24:1 34:12 48:20 49:24 51:15 54:7 82:2 84:5 90:18 95:24 121:17 122:3 139:4 144:10 147:22 156:18 157:4 176:18 198:23 199:1 207:5 208:7,14 227:3 234:10
sort 95:10 97:6 123:2 145:4 151:14 171:15 173:20 199:12 199:13,14 211:22 216:9 221:16 231:4 236:24
sorts 205:5
soul 145:2,4,9 145:10,19,19
sound 51:24 56:24 92:1 147:11
sounds 56:25 91:22 115:22 142:16 144:2
south 243:2
southern 2:16
southernlegal.... 2:18
space 214:8
span 156:16
speak 30:23 38:15 56:5 68:12,16,25 69:5 78:16,20 137:17 141:5,7
speakers 68:2
speaking 42:10 42:14 46:8 125:20 132:15 148:10 166:17 166:20 176:4 198:24 205:6 209:2,19
specific 34:22 89:16 90:24 97:15 118:11 119:5,5,6 132:18 147:2 162:16,17 165:12 173:16 181:15 187:7 189:14,15,15,17 189:24 216:7,16 238:12
specifically 40:20 72:23 73:6 99:6 141:21 158:20 162:25 164:13 179:10 193:2 204:17 216:3 226:12
spectrum 192:5 192:10 193:18 193:24 194:8,21 195:16,20 196:3 196:16 197:17 198:7,10
speculation 185:15
spend 192:4
spent 10:1 56:13
spin 28:18
spoke 29:12,22 68:2 134:3 171:5
spoken 29:15 38:18,22,25 39:2,6,10 78:25 79:4 169:7
square 2:13
st 241:4,12 242:4
stage 117:11,12 117:13 158:22 159:17
stages 117:10
stand 135:10
standard 17:1,9 100:10 166:23 167:3 173:20
standards 166:18 167:8 200:19 201:6 204:4
start 6:2 101:19 133:7 180:15 235:19
started 7:3 63:12,18 73:11 213:21
starting 187:2 213:3
state 1:24 126:1 130:25 150:18 154:4 158:5,7 174:15 199:15 239:3 241:3,7 241:12,19 242:3
stated 73:1 78:1 228:16
statement 20:24 20:25 21:7 56:17 64:12 77:24 81:14 86:11 88:7,12 89:9,10,12 98:1 98:7 110:19 113:6,6 117:1,3 117:9,14,19 118:2,12,25 136:21,24 137:14 143:10

145:25 148:14 152:15 158:2,11 158:14,17 159:15,16 162:23 163:13 174:17 175:7 177:14,17,22 179:4,24 182:24 183:5 186:4,16 187:8 188:15,16 189:2,6,10,16 190:1 191:2 193:23 194:4 195:3,15,15 196:10 197:20 197:25 199:9,19 202:20 203:5 208:1 211:13 214:19 216:1 217:24,25 218:8 223:10 227:4 235:24
statements 25:2 118:4 120:4 137:22 179:11 179:21 188:23 218:7 239:8
states 1:1 59:22 59:25 190:16 201:7 211:24
statistical 32:22 81:23 84:3 87:10 106:11 176:12 213:7
statistically 127:20,22 147:11
statisticians 33:2
statistics 17:1,9 17:14
status 217:22
stenographic 242:10
stenographica... 242:7
step 19:11
steps 115:19 146:24
sterilization 227:20
sterilizing 226:9 227:15,19
stifle 222:11
stifled 220:13
stipulate 15:17
stop 31:25 32:2 92:14,22 94:2 98:15 162:7 177:14
stopped 38:4,8 101:19 130:21 132:15 209:5
stopping 95:11 101:23 133:9,9
stops 100:14
straight 225:5
straightforward 142:17
streak 221:13
street 2:10,23 243:7
stress 131:18
strike 25:12 34:12 103:2 113:17 150:11 156:23 221:22
strong 158:20 163:1,8 237:24
strongly 128:17
struggling 11:10
student 39:13 39:15 217:11 218:24 220:20
students 197:18
studied 8:15 116:19
studies 10:15 11:1,1 31:19 33:5,13,22,24 34:1 37:17,23 38:9 44:9 64:1,5 73:8,25 74:2 75:14 79:15 81:2 88:23 89:16 90:24 91:2,5 98:9 121:8 124:24 125:3 127:3,6,9 127:10 128:17 130:18,23 141:24 142:19 147:1 162:20 164:21 174:12 176:23,25 186:23 192:13 192:14,23 194:6 196:10
study 16:2 31:23 32:3,7,8 34:2,23 36:4 47:16,18 51:12 62:16 75:21 76:9 79:19,24 80:1,6,21,21 84:7 86:13,19 86:20 87:1,2,2 87:13 88:17,19 89:2,9 112:5 115:18,20 116:4 116:6,8 118:14 126:15,18,20,22 127:24 128:9 129:3,9 131:20 141:21 142:4,10 142:12 145:23 146:6,21 147:5 156:7 160:2 173:19,20 174:4 174:4,6,22,23 175:18,19 176:17,19,19 177:2,8 182:13 184:12,20 193:1 194:23 195:9 198:5 212:3 230:25

studying 116:10
stufforsus 127:25
subject 60:15 98:11 114:8 115:6 121:24 122:13 134:17 134:22,24 135:1 141:22 146:21 146:25 147:5 152:4 204:13 236:16,20
subjected 197:24
subjective 193:13
subjectively 203:10
submission 49:23 50:3 51:23
submissions 48:4 50:1
submit 66:20
submitted 8:10 35:10 61:6,8 66:19
subscribed 239:16
subsequent 29:10,10 158:23 163:4 209:10 235:16
subset 230:15
substance 172:22,24 240:23
substantive 237:7
suffer 25:20 76:13 85:13 96:21 110:11 115:3,17 154:13
suffered 88:2,19 111:22
suffering 42:1 67:5 75:8 84:19 85:2 96:19 122:1,15 138:7 191:20
sufficient 243:13
suggest 86:12 110:15 112:7 130:19 210:21
suggested 212:4 212:13
suggesting 14:16,21 32:25 79:9 81:5 107:24 145:1,6 155:16,19 163:15 187:19 206:6 221:12 228:25 232:11
suggestions 37:3,5 45:20 46:10
suggestive 128:18
suggests 96:5
suicidal 153:5 153:10,13 207:23 208:20 209:6
suicidality 33:9 33:10 81:17,24 138:3 200:13
suicide 7:23 8:3 8:5 9:7,23 10:8 15:13,17 28:5,9 34:2,23 35:20 36:5 82:8,16 84:7,7 135:8 136:14 152:12 152:24 153:4,11 153:17 154:14 154:23,25 155:6 155:13,19 156:5 198:14,15,17 199:5,11,16 235:14,16,17 236:4
suicides 8:15,17 9:4,25,25
suite 2:6,13,23 243:2,7
sums 13:6
superimposing 229:1
superseded 61:18
supersedes 202:22 203:8
support 36:10 68:13 184:19 185:16,17 188:23 189:10 196:5,10
supported 143:23
supports 184:21
suppose 109:18
suppressed 64:13 98:17 151:21
suppresses 98:14
suppression 48:25 116:14 117:12 118:16 124:2 126:13 158:22 163:3 174:5 177:14 179:5,14 214:7 214:18
suppressors 99:20 100:20 101:1,5,7 117:4 117:17 118:25 119:7,17 122:9 123:6,13 124:7 132:17 174:17 201:15
sure 5:24 6:13 46:7,15 65:18 82:20 84:9 89:7

89:24,24,24,24 98:25 111:17 117:15 122:4 135:24 138:25 171:2 173:4 175:7 178:18 215:2 227:1 229:10 235:6
surgeon 26:14 68:19 77:24 78:3,25 79:4
surgeons 77:25
surgeries 48:9 48:12 87:7 162:10 237:22
surgery 48:11 76:23 77:17 78:2 79:1,1,5,7 85:24 117:13 159:10 180:20
surgical 69:20 77:3,19 78:5,10 85:19 86:4,14 87:4 159:23 161:21
surgically 158:24 163:5
surmise 80:13
surname 53:21 68:21
surprise 149:20 149:23
surprised 173:22
surrogate 226:15
survey 142:12 181:7
surveys 224:11
suspect 215:8
suspicion 182:19 183:2,4 183:17,21 184:4 214:17,17,21 225:9
suspicions 188:21 200:3
swearing 62:3
swedish 110:24 111:3,8,10,25 112:22,23 113:8 113:10
sweeping 120:3
swim 224:6,9
switched 180:1
switching 180:11 181:2,5
swore 25:1
sworn 4:4 241:9
synonymous 184:2
system 65:6,8 73:23 74:9

t

t 10:10,10 30:4 142:8
take 4:22 5:17 6:7,15 31:3 64:8 83:13 89:20 97:5 100:5 102:4 108:14 110:12 120:5,5 120:22,23 140:6 143:10 153:10 154:25 155:2 185:7 203:21 206:23 223:21 237:15 238:6 239:19
taken 1:22 4:25 70:7 115:19 140:13 147:3 182:13 207:18
takes 107:13 145:4
talk 28:10 35:4 35:14 57:21 60:7 63:15 76:25 173:2 205:16 231:17 231:18 233:9
talked 28:9 29:9 106:14 122:19 122:19 126:7 137:20 147:17 158:1,13 174:11 215:18 217:13
talking 37:7 80:3 82:20 84:6 93:12,13,21 190:22 192:4 199:12 203:16 231:10,19 233:23
talks 236:4
tallahassee 2:23 243:7
tavistock 8:7 9:5 10:7,10 16:5 28:5 60:12,25 62:11,17 63:4 67:4,11 82:18 84:7 106:13 116:7 151:21 152:18 155:10 156:6 160:3 174:3 176:1 187:17 198:6 236:24
tavistock's 60:18
technologies 235:2
teenager 82:23 209:5
teenagers 82:9 83:22 84:4,13 84:20 87:21 88:2 89:11 96:10 101:16 110:11 121:10 152:13,14,24,25
tell 4:19 5:8 10:25 18:25 19:7,13 21:16 29:25 75:22 93:25 142:7 237:3

telling 169:23
ten 142:1 156:16 180:5,6 197:14,15,17
tend 4:13,15
term 113:19,23 114:20 118:15 121:7 190:23
terminology 93:9 96:14
terms 6:17 55:7 68:25 114:16 187:14 231:13
test 131:16
tested 178:6 179:6
testified 4:4 50:7 54:4 59:17 59:24 60:4 64:11 68:2 79:14 82:7 97:13 99:7,9 106:9 113:1 142:24 170:22 171:5 173:6 205:20 228:23
testify 10:6 12:24 13:19 65:7,13 76:16 76:17 112:19,25 115:1 172:13
testifying 148:10,23 169:20
testimony 18:7 18:10 22:5 24:15 26:25 31:9 32:16,18 35:5 36:9 37:14 37:19 41:21 44:24 53:25 60:16 61:2 62:17 64:17 65:9,22 71:18 73:4,15 90:13 91:7,11 93:5 96:14 97:15 100:2 102:17,25 103:3 106:2 110:1 111:20 122:6 123:4 124:19 125:6 132:20 137:1,8 137:9 141:8 142:23 171:8,19 177:22 185:6 223:12 226:20 229:19 230:6,9 230:11 232:6,20 233:11,24 236:11
testing 108:11
testosterone 138:21
tests 31:19
texts 90:9,12
thank 8:1 17:22 23:5 25:6,24 49:13,22 52:2 170:17 171:25 178:25 179:1 198:25 207:17 208:15 233:21 236:10
thankfully 156:5
thanks 15:21 35:16
theoretical 200:12
theorized 206:8
therapeutic 214:8
therapy 34:10 36:19
thing 43:15 62:5 82:21 83:7 93:22 101:11 116:7,18 122:18 170:12,13 192:19 205:24 205:25 208:25 234:22
things 91:9,22 118:10 167:4 168:21 169:10 174:9 178:3,22 191:6 195:1 197:6 229:23
think 4:14 6:18 11:16 13:6,12 14:13 15:17 27:23 41:2 44:22 45:10 49:17,19 52:13 52:22 55:19 56:8 57:22 59:17 63:11 67:15 70:25 81:9 96:21 97:5 97:8,11,11 112:16 123:1,16 125:5 126:9 128:1 130:17,17 131:14 132:8 133:16 140:8,21 140:21 141:15 144:21 148:16 149:16 152:23 155:4,20 156:22 157:14 160:13 162:21 169:1 170:19 171:15 172:23 182:17 184:2 185:15 188:10,17,18,19 189:11 190:23 194:23 198:1 200:10,15 202:9 204:25 205:9,13 209:9 215:7 218:2,13,21 219:17 225:9 226:18 228:11 231:23 233:21 234:1 235:1,11 236:15 237:13 238:3

third 19:12 35:17,19 117:13 214:6
thorough 212:17,19,22
thought 84:6 135:14 180:5 182:11 190:8 193:3,11 207:14 211:21 230:3,5 230:6
thoughts 209:7
thread 223:6
three 34:6,7 35:8,24 37:1,2 55:22 59:5 62:14 87:6,6 97:18 170:13
throwing 125:17 190:17
time 1:12 10:1 12:20 19:12 53:22 54:18,21 55:11 95:1,10 109:1 121:3 134:14,15 136:5 139:24 140:8 148:22 156:15 192:4 205:4,17 238:12 243:13 243:14
times 82:19 126:1 152:13,25 155:5,11 161:24 197:17
timing 6:17
tip 68:20
title 143:17 157:20
titled 204:22
today 4:22 5:3 5:24 6:24 10:5 12:20 13:10 18:7,10 21:16 22:4 23:2 44:19 46:20 53:2 55:11 62:5,9 68:15 79:2,5 85:12 90:13 99:15 112:18 113:9 114:19,25 115:15 118:10 123:10,20 126:3 128:11 143:12 144:9 151:6 190:16 214:1 217:13 223:12 233:9,11,12
together 239:8
told 53:12 106:2 117:16 120:19 124:1 133:19 139:13
tongue 68:20
took 107:16,18 115:2,16 123:22 146:24 157:6 225:15
top 83:21 127:18 186:6
topic 101:8
tordoff 79:19,21 80:21
total 55:16
tower 127:12,12 129:2,9 243:1
train 207:14
training 7:8 27:1,3,9 43:11 99:16 106:24
traits 198:7
trans 11:22 189:13,20,20,20 224:12
transcript 1:14 5:25 30:2 237:7 237:10,12 239:7 240:3 242:9,24 243:11,12,15
transcripts 234:11,12
transgen 228:16
transgender 7:23 11:6,8,22 11:25 13:25 18:15,22 19:1,8 19:24 20:6,20 21:7,18 38:1,5 48:12 57:12 64:3 96:24 152:13,14,24,25 155:5,18 157:1 157:8,12,15 159:8 160:7,8 160:10,13,17,25 164:1 169:8 183:12 184:14 184:24 185:3 187:15,23,25 188:6 189:20 190:15,17 191:10,10,17,23 192:10,19,24,24 194:1 196:3,17 197:5 198:11 204:22 205:1,13 205:20 206:3 221:14,25 224:9 225:12 228:3,10 228:17,21 229:9 229:14,15 230:7 230:15 231:21 232:5,16,23 233:14 234:21 236:25
transgenderism 25:18 48:5 186:17 187:4,5 187:18 189:8 190:12
transition 157:23 158:9 159:4 161:25 223:20 224:14 226:19
transitioned 224:22 225:5
transitioning 222:15,20,22 223:1,13

transphobia 219:6,19 220:13 221:10,19
transphobic 217:4 220:8,17
transsexual 189:19 193:3,4
transsexuals 162:6 185:11 193:11,12
treat 25:20 160:23 166:14
treated 7:11 9:15,17 177:8
treating 102:19 117:4 151:3 227:21
treatment 7:14 12:5,13,14 13:5 13:13 20:15,25 21:2 78:13 95:17 103:5 105:17,20 107:6 133:6 136:9,16 139:15,20,21 142:4,15,20,20 146:16 147:15 158:19,23 159:17 160:22 163:4,25 164:2 164:8,18 165:16 167:16 179:5,14 182:22 209:5,7 213:9 235:19
treatments 12:19 19:5 76:20 149:6 176:17 201:11 234:14
trend 190:23
trial 132:23 133:14,18,23,25 138:14,16,17 139:1,2,11 143:6 148:18,21 149:8 160:3 178:6 179:7 243:14
trials 47:6 126:9 126:12 133:3 141:17 142:25 147:16,25 148:4 148:13 150:17 150:22,24 179:14
trick 5:5
tried 59:18
true 15:9 108:17 112:21,24 132:25 167:2 192:1 239:10 242:10
truism 186:11
trust 60:13
truth 29:25
try 4:20 15:18 41:19,19 46:3 74:22 116:9 140:1 231:9
trying 5:5 18:5 32:5 55:7 140:25 144:17 155:22 157:11 157:14 175:5,19 182:2 193:5 196:18 202:17 220:2,5 222:11 223:13 224:17 227:10 229:18 232:4 233:11
tuesday 1:12
turban 34:6
turbans 35:19 51:23
turn 18:2
turned 185:10
tweet 219:8,17 220:24 222:15 223:7 224:17 225:1,3
tweeting 217:10
tweets 217:4 219:5 221:7
twice 19:16 97:5 97:9,11
twitter 217:11 223:6
two 15:25 18:3 29:9,21 30:1,20 37:1,2,7 39:4 49:10 55:24 56:13 59:4 65:17 75:14 79:15 88:16 91:21 97:18 109:20 116:14 122:7 129:15 130:8,10 132:13 140:22 169:21 179:11,21 209:11 229:23 236:11
type 46:25 77:20 126:19 227:22
typical 182:21 183:23 185:4,8
typically 98:16 101:23 114:23 167:5

u

u 142:8 235:21
uh 5:20 8:13 34:3 63:8 97:8 97:13 133:24 156:21 206:5
uk 169:22
ultimately 35:12 36:2 46:2,12 60:21,24 231:13
umbrella 144:20
unartful 144:12
uncomfortable 181:17
uncover 151:20
under 12:10 15:13 25:1 26:21 29:24

32:18 37:14 44:20 50:14,14 88:13 112:19,25 113:1 124:18 138:9,11,12,15 139:9 144:20 185:6 192:15 217:10 229:19 232:21 233:13 242:24
undergo 77:21 78:2
underlying 29:3 31:18 79:23 181:12 182:3
undermine 175:6
undersigned 241:6
understand 5:6 10:17,21 17:3 18:6 19:6,13 22:4 26:25 27:19 32:17 44:23 45:14 49:24 62:13 63:2 64:11 65:18 77:16 78:9 98:25 111:12,14 119:12 120:17 122:5 130:9 144:17,23 147:1 150:10,12 151:6 155:22 160:21 171:18 202:20 206:5 220:4 225:7 226:17 227:11 229:18 232:25 233:11 234:17
understanding 149:25 150:23 150:25 203:10 231:24,25 232:13,15
understands 17:14
understood 5:11 46:7 67:10 89:25 114:10 132:20 141:15 146:3 148:22 149:4 150:2 156:10
undertake 47:3 147:3 150:22,24 151:25
undertaken 121:24 122:14 150:19 160:20
underwent 177:7
undesirable 188:10,13
undone 169:13
unexplained 79:20
unfair 161:14 225:22
unintentionally 5:14
united 1:1 59:22 59:25 60:5 201:7
universal 232:16
universe 221:4 221:8
university 150:22 202:25
unjustified 57:16,16,23
unknown 125:7 125:13,14
unobservable 145:8 184:16
unpack 117:15 231:9
unqualified 100:23
unrelated 89:9
unusual 92:22
unusually 116:14 211:11 212:5
unwanted 158:24 163:5
upbringing 231:2
update 72:1
upload 71:22 72:1,5,9
uploaded 72:12
uploading 72:11
urged 148:3
urgent 116:7
use 10:24 15:10 40:25 72:3,13 92:3 94:5 95:7,8 95:13,17 96:15 96:18,20 97:18 107:8 113:20 118:16 133:13 144:25 162:4 168:5 174:16 187:11,12 188:4 210:6 213:20 214:17 217:17 218:20 234:23
used 8:12 93:9 93:10,17,19,23 94:15,16,17,20 95:1,2,5 98:3,4 116:24 133:3 138:21 154:18 180:1 181:10 183:16 203:18 211:23 212:9 217:11 218:3 219:6,12
using 4:16 9:9 13:15 25:7 45:10 74:8 84:24 94:2 106:7 107:1 109:3,4 179:14 219:19 234:20

usual 100:16
usually 105:13 212:14
utilize 109:12 133:17 166:18 166:24 167:5
utilized 40:20 95:16 204:4

v

v 10:10 235:21
vaginoplasty 77:12
vagio 85:25
van 117:22 179:16 194:16 235:20 236:3
variations 18:13 18:18
variety 5:14 32:21
various 189:18 217:15
vary 205:3,3,17
vast 183:8
verbatim 136:25
verges 172:23
veritext 243:1
versa 154:21
verse 220:22 224:11
version 35:11
versus 60:12 105:6 139:19 142:20 149:12 205:5 218:4 228:10
vice 154:20
view 38:23 39:1 40:4 237:24
views 39:6,20 39:22,24 155:1 193:14 218:5
vis 108:13,13
vitamin 109:17 109:18
vogel 2:22 172:4 243:6
voice 4:13,15
volunteer 54:18
vries 73:9,9 75:14 79:15 88:15 147:7 173:21 182:7 194:16,20,23,23 196:8
vs 1:5 240:2 243:8

w

w 235:21
waal 117:22 179:16
wait 6:6 42:15
waive 237:4,10
waived 243:15
wake 83:8 178:24
wales 204:18
wall 2:10
want 4:14 6:3,7 10:4,24 21:23 35:5,15 44:23 46:7,15 52:5 57:25 62:13 63:1,2 65:18 89:19,24 117:15 152:9,19 153:5 154:5,15 158:14 175:6 177:12,12 178:3,14,18,19 202:20 207:1,4 207:7,7,8,14 217:14 219:4 222:12 223:21 229:9 230:4 231:8,18 232:23 237:3,4 238:7 238:10,18
wanted 47:23 48:24 64:21 92:7 94:4 95:14 96:17 169:16 199:1
wanting 64:21
wants 188:17 224:9
warden 203:23
warn 4:14
warned 211:3
wave 25:12
way 6:9 13:20 17:23 57:6,6 69:6 75:11,13 76:5 80:11,16 95:16 110:17 112:7 131:2 149:17 151:24 161:4,15 182:12 182:14 187:20 188:7,8,10 199:10 200:7 205:15,16 206:8 206:8 219:14 226:20 227:10 227:11 228:9 231:5
ways 11:12 40:20 197:10 232:13 233:1
we've 22:20 26:24 28:6 37:7 69:25 137:20 144:8 174:11 177:11,20
website 157:18 158:4
weida 1:6 240:2 243:8
weigh 81:2 203:11 236:19
weighed 203:14 237:22
weightbearing 109:18
welcome 52:4 208:16
went 63:23 64:7 64:8 129:20 160:3 230:3

west 2:13
whatsoever 7:9 70:20 77:8 78:12 88:22 104:11 111:5 149:22 150:24 167:17 177:2 183:5 195:19 211:14
wheelhouse 153:12,15
whichever 160:15
wide 32:21
wider 143:15,22 152:12
widespread 187:11
wife 223:25
willing 55:1
wimbush 217:10 218:4 221:3
winthrop 2:5 4:24
withdraw 58:6 102:24
witness 3:3,12 4:3,6 8:19 16:24 17:20 20:3,10 20:24 21:11,22 23:14 42:20 45:17 49:4 53:4 53:7 58:25 60:4 64:12 71:13 86:17 91:25 94:11 110:22 119:25 120:12 135:6 140:4,9 143:4 149:3 153:25 159:14 162:4,23 175:14 176:11 178:16 184:2 188:3 189:2 190:6 195:12 196:22 200:7 201:20 202:15 204:1 207:12 209:22 210:18 211:20 213:1 215:5 216:13 217:7,20 218:13 219:2 220:11 222:5 223:5 224:25 225:20 226:4,22 227:3,3,8,14 228:15 229:4,12 229:25 230:23 232:11,25 233:17 234:3 235:1 237:11,15 238:4 239:18 241:1,11
woman 203:18 203:20 223:20
women's 144:19 203:17,19 221:17 222:1
wonderful 5:16
word 8:24 10:17 10:21 154:12 161:10 184:4 189:19 212:9 213:20 214:17 219:6,19 221:10
wording 87:18
words 43:4 92:3 95:13 133:13 183:16,18 185:23 221:12
work 28:23 29:1 31:15 34:14 40:17 55:7,13 57:6 63:4 70:1 106:20 128:22 166:25 167:5 168:17 169:13 169:16 175:23 202:6
worked 26:21 179:17
workers 25:12
working 5:24
works 200:7 207:9
world 27:15 156:9 197:11 230:14
worries 27:25 90:19 199:3
worse 13:3 80:1
worth 52:22 210:20,20
wpath 38:16,19 59:13,15,19 144:1 167:3,7 169:8 200:19 210:10
write 24:5 47:3 170:17 240:3
writing 24:3 192:6
writings 47:9 50:20
written 42:24 50:1,7 161:10 161:10 204:13
wrong 10:11 52:24 180:12
wrote 18:18 25:10 174:25 175:10 177:23 186:19 204:21 220:25 237:9

x

x 3:1

y

yeah 18:17 23:23 49:25 51:2 65:16 87:2 120:12 134:11 144:11,21 145:9 156:12 171:2,9 171:9,23,23 184:5 188:18 190:24 194:13 194:14 202:17

225:20 234:3
year 39:9 40:2 61:25 62:5 100:11 105:6,7 111:1,20 113:13 171:13,16,17 199:11,12,14
years 15:25 27:22,23,25 59:4,5 61:19 82:4,4 95:5 100:4,8 116:14 128:19 142:1 156:16 168:2 173:23 190:22 197:14,15 216:21 235:19
yelling 4:14
yep 5:12 207:12
yesterday 56:2 56:13,16
york 2:10
young 97:6 100:1 104:16 133:7 204:22
younger 101:16 130:12
youth 94:16 95:3 225:4
youths 95:2

z

z 16:24 17:8,12 114:22 115:8,15
zoom 1:10
zotero 71:7,7

à

à 108:13

Federal Rules of Civil Procedure

Rule 30

(e) Review By the Witness; Changes.

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

(A) to review the transcript or recording; and

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

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

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TECHNICAL REPORT

Memo Outlining Evidence for Change for Gender Identity Disorder in the DSM-5

Kenneth J. Zucker · Peggy T. Cohen-Kettenis · Jack Drescher · Heino F. L. Meyer-Bahlburg · Friedemann Pfäfflin · William M. Womack

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Introduction

In 2008, when the diagnostic Work Groups for the DSM-5 were established and formally announced by the American Psychiatric Association, one of the first tasks was to review the existing diagnostic categories and to conduct literature reviews. The Gender Identity Disorders (GID) subworkgroup was one of three subworkgroups of the Sexual and Gender Identity Disorders Work Group. Like other working groups, its charge was to evaluate what was, if anything, "good" about the existing diagnosis of GID in the DSM-IV-TR and what, if anything, required changes. The subworkgroup published four literature reviews in which some initial proposals and recommendations were made (Cohen-Kettenis & Pfäfflin, 2010; Drescher, 2010; Meyer-Bahlburg, 2010; Zucker, 2010). The subworkgroup had feedback from its advisors, from other professionals, and from the public, including three periods of APA-sponsored feedback on the DSM-5 website.

Around mid-way during the DSM-5 preparation period, which ended on 1 December 2012, the Task Force added to the review phase two additional committees. One was a Scientific Review Committee (SRC) and the second was a Clinical and Public Health Committee (CPHC).

The SRC was charged with providing feedback on all proposed changes to the diagnostic criteria that were based on empirical evidence. The CPHC was charged with providing feedback with regard to additional parameters, such as clinical utility and public health concerns.

Each Work Group or subworkgroup of the DSM-5 Task Force justified the proposed changes of diagnostic categories in a report entitled Memo Outlining Evidence for Change (MOEC). With the permission of the American Psychiatric Association, we reproduce here the final version of the MOEC prepared by the GID subworkgroup ("in press" references have been updated and typographical errors corrected). Publication of the MOEC thus makes transparent the argumentation advanced by the subworkgroup for interested readers. Comments on the proposal are welcome in the form of a Letter to the Editor of this Journal.[1]

Memo Outlining Evidence for Change

Eleven substantive changes were proposed:

1. Change in name of the diagnosis from GID to Gender Dysphoria (GD).

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[1] Letters can be submitted to the Editor of *Archives of Sexual Behavior* at Ken.Zucker@camh.ca. Letters should be no more than 10 pages in length, double-spaced, with the use of APA reference style.

2. Decoupling of the GID diagnosis from the Sexual Dysfunctions and Paraphilias (Sexual and Gender Identity Disorders in the DSM-IV-TR) and placement in a separate chapter.
3. Change in the introductory descriptor to the Point A criterion.
4. Merging of what were the Point A and B criteria in the DSM-IV-TR.
5. For children, the A1 criterion is proposed to be a necessary indicator for the GD diagnosis.
6. For children, there are minor wording changes to the diagnostic criteria, especially A1–A6. The wording for A7–A8 has been simplified compared to DSM-IV-TR (examples will be given in the text).
7. For adolescents and adults, the proposed diagnostic criteria are much more detailed than they were in DSM-IV-TR and, like the proposed criteria for children, are polythetic in form.
8. For the Point B criterion (in the current diagnostic proposal for DSM-5), we have proposed a particular change in wording to capture distress, impairment, and increased risk of suffering or disability.
9. Elimination of the sexual attraction specifier for adolescents/adults.
10. Inclusion of a subtype pertaining to the presence (or absence) of a disorder of sex development (DSD). A DSD includes (but covers more than) what, in the past, were termed physical intersex conditions.
11. Inclusion of a "Post-transition" specifier (for adolescents/adults).

For each proposed change, we summarize the reasons and, when based on data, indicate the empirical basis that we believe justifies the change. For some of the proposed changes noted below, we relied on secondary data analyses utilizing the best data available to us since the DSM-5 Task Force did not include GID in its field trials.

Evidence for Change

Change in Name of the Diagnoses to GD in Children and GD in Adolescents and Adults

In response to criticisms in some quarters that the term GID was stigmatizing (Drescher, 2010), we originally proposed to replace it with the term Gender Incongruence. This was also accompanied by a re-definition of the condition (see the Point A descriptor in Tables 2, 3). The new term, Gender Incongruence, was descriptive and avoided any presupposition of the presence of clinically significant distress or impairment as a requirement for the diagnosis (Meyer-Bahlburg, 2010). In part, this presupposition was based on a more general discussion in the DSM-5 Task Force on separating out the distress/impairment criterion, with these parameters evaluated as separate dimensions (note, however, that it is very likely that the distress/impairment criterion will be retained in DSM-5, so this line of thinking by us has been abandoned—see below). The proposed change in name, and its rationale, was documented on the DSM5.org website in February 2010 at the time of the first round of commentaries by other professionals and the general public, including "consumers" of psychiatric services and by transgender communities and their supporters.

On the open APA website, we received many favorable comments about the proposed name change, particularly with regard to the removal of the "Disorder" label from the name of the diagnosis. We also had support for this name change in an international survey of consumer organizations that we conducted (Vance et al., 2010). However, we also received many comments from reviewers of the open APA website, as well as from members of the World Professional Association for Transgender Health (WPATH, formerly the Harry Benjamin International Gender Dysphoria Association), expressing concerns that the new descriptive term could easily be misread as applying to individuals with gender-atypical behaviors who had no gender identity problem.

Many commentators recommended "gender dysphoria" as a semantically more appropriate term (e.g., De Cuypere, Knudson, & Bockting, 2010) because it captures an aversive emotional component. In this regard, it should be noted that the term "gender dysphoria" has a long history in clinical sexology (see Fisk, 1973) and thus is one that is quite familiar to clinicians who specialize in this area. Thus, in our revised posting of May 4, 2011, we made public a second proposed change in the diagnostic term from GID to GD. This proposed name change is also consistent with the general argument that the diagnostic term should, in a more transparent way, indicate that it pertains to "distress" (dysphoria) and not identity per se (Knudson, De Cuypere, & Bockting, 2010). Indeed, in the September 2011 release of the 7th version of *Standards of Care* issued by WPATH (2011), the term gender dysphoria is used to outline both assessment and therapeutic approaches for children, adolescents, and adults.[2]

In summary, it is our view that the proposed name change from GID to GD will (1) highlight a conceptual change in the formulation of the diagnosis (which we will amplify in the text description of the diagnosis) and (2) satisfy critics concerned about the stigmatizing use of the "disorder" term in the name of the diagnosis. The proposed name change to GD has been quite favorably received during the second round of public postings, is acceptable to WPATH experts, and is consistent with some other diagnostic terms in the DSM, such as Anorexia Nervosa,

[2] Subsequently published in Coleman et al. (2011).

Encopresis, and Enuresis, which do not have the term "disorder" in the diagnostic name.

Decoupling of the GID Diagnosis from the Sexual Dysfunctions and Paraphilias

In the DSM-III, the GID diagnosis was placed in the section called Psychosexual Disorders, along with Paraphilias and Psychosexual Dysfunctions (now termed Sexual Dysfunctions). In the DSM-III-R, the three main GID diagnoses (GID of Childhood, Transsexualism, and GID of Adolescence or Adulthood, Nontranssexual Type) were moved to the section termed Disorders Usually First Evident in Infancy, Childhood or Adolescence whereas the Paraphilias and Sexual Dysfunctions appeared in the section termed Sexual Disorders. In the DSM-IV and DSM-IV-TR, the three major diagnostic classes (GID, Sexual Dysfunctions, and the Paraphilias) all appeared in the section termed Sexual and Gender Identity Disorders.

The placement of these three diagnostic classes in the same section in DSM-IV was probably influenced by several considerations, including clinical utility (e.g., that clinicians and researchers who study these phenomena tend to affiliate at common scientific meetings, tend to publish in the same periodicals, and probably have at least some familiarity with all of the conditions more so than clinicians and researchers who specialize in other areas of interest to psychiatry).

Yet, it is also recognized that each of these three diagnostic classes have their own specialists and the theoretical overlap among these conditions is far from complete. For example, sexual dysfunctions are of little direct relevance to GID as it manifests in children. Some critics have also complained that inclusion of GID in a section of the manual that also includes the paraphilias is somewhat stigmatizing.

Although there can be a co-occurrence of one paraphilia, Transvestic Fetishism, with GID in adolescents and adults, it was the consensus of the entire Sexual and Gender Identity Disorders Work Group that the three diagnostic classes be uncoupled, with each having a separate chapter in DSM-5. As of this writing, this recommendation has been accepted by the DSM-5 Task Force.

Change in the Introductory Descriptor to the Point A Criterion

In both GD of Childhood and GD of Adolescence and Adulthood, the proposed introductory descriptor reads as follows: "A marked incongruence between one's experienced/expressed gender and assigned gender, of at least 6 months duration, as manifested by at least…" In the DSM-IV-TR, the introductory descriptor reads as follows: "A strong and persistent cross-gender identification (not merely a desire for any perceived cultural advantages of being the other sex)." The reasons for the proposed changes are as follows:

(a) The use of the term "incongruence" is a descriptive one that better reflects the core of the problem, namely, an incongruence between, on the one hand, the identity that one experiences and/or expresses and, on the other hand, how one is expected to live based on one's assigned gender (usually at birth) (Meyer-Bahlburg, 2010; Winters, 2005). In our view, this is preferable to the term "cross-gender identification" in that a strictly binary gender identity concept is no longer in line with the spectrum of gender identity variations that one sees clinically.

(b) The term "sex" has been replaced by assigned "gender" in order to make the criteria applicable to individuals with a DSD (Meyer-Bahlburg, 2009, 2010). During the course of physical sex differentiation, some aspects of biological sex (e.g., 46,XY genes) may be incongruent with other aspects (e.g., the external genitalia); thus, using the term "sex" would be confusing. The change also makes it possible for individuals who have successfully transitioned to the preferred gender to "lose" the diagnosis after satisfactory treatment (see Inclusion of a "Post-transition" specifier below). This resolves a problem that, in the DSM-IV-TR, there is no "exit clause," meaning that individuals once diagnosed with GID will always be considered to have the diagnosis, regardless of whether they have transitioned and are psychosocially adjusted in the identified gender role (Winters, 2008). The diagnosis without a post-transition specifier will still be applicable to transitioned individuals who have regrets, because they did not feel like the other gender after all. For instance, a natal male living in the female role and having regrets experiences an incongruence between the "newly assigned" female gender and the experienced/expressed (still or again male) gender.

(c) We recommend deletion of the "perceived cultural advantages" proviso. This was also recommended by our predecessor in the DSM-IV Subcommittee on GID (Bradley et al., 1991). There is no reason to "impute" one causal explanation (in this case, a cultural advantage hypothesis) for GD without mentioning any others (Zucker, 1992, 2010). Deleting this phrase would be consistent with a purely phenomenological approach that eschews any reference to putative underlying causal mechanisms with regard to the diagnostic criteria.

(d) The 6 month duration was introduced to make at least a minimal distinction between very transient GD (Linday, 1994) and persistent GD. The duration criterion was decided upon by clinical consensus. Unfortunately, there is no clear empirical literature supporting this particular period (e.g., 3 vs. 6 months or 6 vs. 12 months). There was, however, consensus in the GID subworkgroup that a lower-bound duration of 6 months would be unlikely to yield false positives.

Merging of the Point A and B Criteria from the DSM-IV-TR

In the DSM-IV-TR, there are two sets of clinical indicators (Criteria A and B). The descriptor for Criterion A was noted above. In DSM-IV-TR, the descriptor for Criterion B reads as follows: "Persistent discomfort with his or her sex or sense of inappropriateness in the gender role of that sex."

This distinction is not supported by factor analytic studies. The existing studies suggest that the concept of GD is best captured by one underlying dimension (Cohen-Kettenis & van Goozen, 1997; Deogracias et al., 2007; Green, 1987; Johnson et al., 2004; Singh et al., 2010; Zucker et al., 1998). Historically, it is of interest to note that our predecessor, the Subcommittee on GID (Bradley et al., 1991) for DSM-IV, had already recommended a merger of the Point A and Point B criteria based, in part, on secondary data analysis (Zucker et al., 1998). For reasons that were never made clear to the Subcommittee, this proposal was rejected. Subsequent to DSM-IV, factor-analytic studies continue to provide evidence in favor of one underlying factor. Mokken scale analysis also supported the merger of the Point A and B criteria (Paap et al., 2011).

For Children, the A1 Criterion Is Proposed to be a Necessary Indicator for the GD Diagnosis

In DSM-IV-TR, there are five symptom indicators for the Point A criterion, of which four (or more) are required to meet the threshold for diagnosis. The A1 criterion reads as follows: "repeatedly stated desire to be, or insistence that he or she is, the other sex." Given that four symptoms are required to meet threshold for Point A, it is possible that a child would meet threshold based on behavioral surface markers of "cross-gender identification," i.e., A2–A5. The DSM-IV Subcommittee on GID (Bradley et al., 1991) had argued that there might be a small number of children who showed all the signs of a GID (including the criteria from Point B) (see Table 1), yet did not express the desire to be of the other gender, perhaps because of reasons of social desirability, a harsh social environment, etc. It was therefore argued at the time that the desire to be of the other gender need not be a necessary symptom indicator.

As reviewed in Zucker (2010), some critics of the DSM-IV criteria were concerned that some children who showed pervasive cross-gender behavior (gender nonconformity or gender variance), yet who did not express a desire to be of the other gender, might be inappropriately diagnosed with GID (false positives).

In an attempt to address this criticism, Zucker (2010) conducted a secondary data analysis in which it could be shown that the expressed desire to be of the other gender correlated quite strongly with a series of cross-gender surface behaviors that correspond to the A2–A5 indicators in the DSM-IV. These analyses can be found in Zucker (2010, pp. 484–486). Subsequent to Zucker (2010), we conducted an identical analysis of child patients from a gender identity clinic in Amsterdam (headed by Dr. Cohen-Kettenis, the chair of the GID subworkgroup) and replicated quite precisely the findings reported on by Zucker (2010). These replication findings can be found in Figs. 1–4 of this document. To better understand them, the SRC would find it helpful to first read the findings reported on pp. 484–486 in Zucker (2010).[3]

It was, therefore, argued that, in DSM-5, the currently proposed A1 criterion be a necessary symptom in making the GD diagnosis. We contend that the presence of this symptom will, if anything, make the diagnosis more restrictive and conservative (Zucker, 2010). Given the critiques leveled at the DSM-IV

Table 1 DSM-IV-TR criteria for Gender Identity Disorder

A. A strong and persistent cross-gender identification (not merely a desire for any perceived cultural advantages of being the other sex).
In children, the disturbance is manifested by at least four (or more) of the following:
1. Repeatedly stated desire to be, or insistence that he or she is, the other sex
2. In boys, preference for cross-dressing or simulating female attire; in girls, insistence on wearing only stereotypical masculine clothing
3. Strong and persistent preferences for cross-sex roles in make-believe play or persistent fantasies of being the other sex
4. Intense desire to participate in the stereotypical games and pastimes of the other sex
5. Strong preference for playmates of the other sex
In adolescents and adults, the disturbance is manifested by symptoms such as a stated desire to be the other sex, frequent passing as the other sex, desire to live or be treated as the other sex, or the conviction that he or she has the typical feelings and reactions of the other sex.
B. Persistent discomfort with his or her sex or sense of inappropriateness in the gender role of that sex.
In children, the disturbance is manifested by any of the following: in boys, assertion that his penis or testes are disgusting or will disappear or assertion that it would be better not to have a penis, or aversion toward rough-and-tumble play and rejection of male stereotypical toys, games, and activities; in girls, rejection of urinating in a sitting position, assertion that she has or will grow a penis, or assertion that she does not want to grow breasts or menstruate, or marked aversion toward normative feminine clothing.
In adolescents and adults, the disturbance is manifested by symptoms such as preoccupation with getting rid of primary and secondary sex characteristics (e.g., request for hormones, surgery, or other procedures to physically alter sexual characteristics to simulate the other sex) or belief that he or she was born the wrong sex.
C. The disturbance is not concurrent with a physical intersex condition.
D. The disturbance causes clinically significant distress or impairment in social, occupational, or other important areas of functioning.
Specify if (for sexually mature individuals):
Sexually attracted to males
Sexually attracted to females
Sexually attracted to both
Sexually attracted to neither

[3] These figures are not reproduced here but can be found in Zucker (2010).

criteria, it was deemed that reduction of false positives is preferable to false negatives.

The subworkgroup has also recommended that "strong desire" replace "repeatedly stated desire" to capture some children who, in a coercive environment, may not verbalize the desire to be of the other gender. The text will note that the clinician needs to be attentive to the child's psychosocial environment in considering the presence of this symptom. This will afford the clinician some latitude in forming a judgment about the presence of the A1 indicator.

For Children, There are Minor Wording Changes to the Diagnostic Criteria

For the proposed A2–A8 criteria (see Table 2), there are minor wording changes. For A7 and A8, the wording has been simplified to capture the underlying construct. The desire for the anatomy of the other gender is separated from the rejection of one's own anatomy. Examples will be provided in the text.

Table 2 Proposed DSM-5 **criteria for Gender Dysphoria (in children)**

A. A **marked incongruence between one's experienced/expressed gender and assigned gender, of at least 6 months duration, as manifested by at least 6 of the following indicators (including A1)**:

1. **A strong** desire to be **of the other gender** or **an** insistence that he or she is the other **gender (or some alternative gender different from one's assigned gender)**
2. In boys, **a strong** preference for cross-dressing or simulating female attire; in girls, **a strong preference for** wearing only **typical** masculine clothing **and a strong resistance to the wearing of typical feminine clothing**
3. **A** strong preference for cross-**gender** roles in make-believe play or **fantasy play**
4. **A strong preference for the toys,** games**, or activities** of the other **gender**
5. **A** strong preference for playmates of the other **gender**
6. **In boys, a strong rejection of typically masculine** toys, games, and activities and **a strong avoidance** of rough-and-tumble play; **in girls, a strong rejection of typically feminine toys, games, and activities**
7. **A strong dislike of one's sexual anatomy**
8. **A strong desire for the primary and/or secondary sex characteristics that match one's experienced gender**

B. **The condition is associated with clinically significant distress or impairment in social, school, or other important areas of functioning, or with a significantly increased risk of suffering such distress or disability.**

Subtypes

With a DSD

Without a DSD

The proposed changes are in boldface

For Adolescents and Adults, the Proposed Diagnostic Criteria are Much More Detailed than They were in DSM-IV-TR and, Like the Proposed Criteria for Children, are Polythetic in Form

In DSM-IV, the GID criteria for adolescents and adults were somewhat sketchy and, for some, even lacked a reference to intensity or frequency (e.g., "a stated desire to be the other sex"). This has been viewed as problematic (Zucker, 2006).

Although the DSM-IV diagnosis of GID encompasses more than transsexualism, it is still often used as an equivalent to transsexualism (Sohn & Bosinski, 2007). For instance, a man can meet the two core criteria if he only believes he has the typical feelings of a woman and does not feel at ease in the male gender role (see Table 1). The same holds for a woman who just frequently passes as a man (e.g., in terms of first name, clothing, and/or haircut) and does not feel comfortable living as a conventional woman. Someone having a GID diagnosis based on these subcriteria clearly differs from a person who identifies completely with the other gender, can only relax when permanently living in the other gender role, has a strong aversion against the sex characteristics of his/her body, and wants to adjust his/her body as much as technically possible in the direction of the desired gender. Those who are distressed by having problems with just one of the two criteria (e.g., feeling uncomfortable living as a conventional man or woman) will have a GIDNOS diagnosis. This is highly confusing for clinicians. It perpetuates the search for the "true transsexual" in order to identify the right candidates for hormone and surgical treatment instead of facilitating clinicians to assess the type and severity of any type of GD and offer appropriate treatment. Furthermore, in the DSM-IV, gender identity and gender role were described as a dichotomy (either male or female) rather than a multi-category concept or spectrum (Bockting, 2008; Bornstein, 1994; Drescher, 2010; Ekins & King, 2006; Lev, 2007; Røn, 2002). The current formulation makes it more explicit that a conceptualization of GD acknowledging the wide variation of conditions will make it less likely that only one type of treatment is connected to the diagnosis. Taking the above regarding the avoidance of male–female dichotomies into account, in the new formulation, the focus is on the discrepancy between experienced/expressed gender (which can be either male, female, in-between or otherwise) and assigned gender (in most societies male or female) rather than cross-gender identification and same-gender aversion (Cohen-Kettenis & Pfäfflin, 2010).

For the adolescent/adult criteria, we have, therefore, proposed a more nuanced description of the symptom indicators (see Table 3) and they have been written in a polythetic format.

Based on secondary data analysis, we suggest that the presence of at least two indicators (out of 6) is needed to meet the diagnostic criteria for GD. This was based on an analysis of 154 adolescent and adult patients with GID compared to 684 controls (Deogracias et al., 2007; Singh et al., 2010). From a 27-item

Table 3 Proposed DSM-5 criteria for **Gender Dysphoria (in adolescents/adults)**

A. A **marked incongruence between one's experienced/expressed gender and assigned gender, of at least 6 months duration, as manifested by at least 2 or more of the following indicators**:
1. A marked incongruence between one's experienced/expressed gender and primary and/or secondary sex characteristics (or, in young adolescents, the anticipated secondary sex characteristics)
2. A strong desire to be rid of one's primary and/or secondary sex characteristics because of a marked incongruence with one's experienced/expressed gender (or, in young adolescents, a desire to prevent the development of the anticipated secondary sex characteristics)
3. A strong desire for the primary and/or secondary sex characteristics of the other gender
4. A strong desire to be of the other gender (or some alternative gender different from one's assigned gender)
5. A strong desire to be treated as the other gender (or some alternative gender different from one's assigned gender)
6. A strong conviction that one has the typical feelings and reactions of the other gender (or some alternative gender different from one's assigned gender)
B. The condition is associated with clinically significant distress or impairment in social, occupational, or other important areas of functioning, or with a significantly increased risk of suffering, such as distress or disability
Subtypes
With a DSD
Without a DSD
Specifier
Post-transition, i.e., the individual has transitioned to full-time living in the desired gender (with or without legalization of gender change) and has undergone (or is preparing to have) at least one cross-sex medical procedure or treatment regimen, namely, regular cross-sex hormone treatment or gender reassignment surgery confirming the desired gender (e.g., penectomy, vaginoplasty in a natal male, mastectomy, phalloplasty in a natal female).

The proposed changes are in boldface. It should be noted that, for adolescents and adults, the criteria in DSM-IV-TR were written in a relatively vague manner and were not in polythetic format

dimensional measure of gender dysphoria, the Gender Identity/Gender Dysphoria Questionnaire for Adolescents and Adults (GIDYQ), we extracted five items that corresponded to the proposed A2–A6 indicators (we could not extract a corresponding item for A1). Each item was rated on a 5-point response scale, ranging from Never to Always, with the past 12 months as the time frame. For the current analysis, we coded a symptom as present if the participant endorsed one of the two most extreme response options (frequently or always) and as absent if the participant endorsed one of the three other options (never, rarely, sometimes). This yielded a true positive rate of 94.2 % and a false positive rate of 0.7 %. These findings suggest that the proposed diagnostic criteria will have a very high true positive rate and a very low false positive rate.

Regarding the A2 criterion, in referring to secondary sex characteristics, anticipation of the development of secondary sex characteristics has been added for young adolescents. Adolescents increasingly present at gender identity clinics requesting gender reassignment, before the first signs of puberty are visible (Delemarre-van de Waal & Cohen-Kettenis, 2006; Zucker & Cohen-Kettenis, 2008).

For the Point B Criterion (in the Current Diagnostic Proposal for DSM-5), We have Proposed a Particular Change in Wording to Capture Distress, Impairment, and Increased Risk of Suffering or Disability, Including "A Significantly Increased Risk of Suffering Such Distress or Disability"

This is based on a consensus in the subworkgroup that some adolescents who are planning gender change and are undergoing puberty-blocking hormonal therapy are not distressed when a clear path towards gender change is mapped out for them, but may become strongly distressed if parents or others try to strongly block this path.[4]

Elimination of the Sexual Attraction Specifier for Adolescents/Adults

In DSM-IV, for sexually mature individuals, there is a specifier pertaining to sexual attraction (sexual orientation): sexually attracted to males, sexually attracted to females, sexually attracted to both, sexually attracted to neither.

There is considerable evidence that the sexual attraction specifier (perhaps better characterized as a subtype) is associated with meaningful differences among GD adolescent and adult patients (see, e.g., Blanchard, 1994; Lawrence, 2010; Nieder et al., 2011; Smith, van Goozen, Kuiper, & Cohen-Kettenis, 2005; Zucker et al., 2012), such as age-of-onset of GD symptoms, degree of expression of cross-gender behavior in childhood, age at presentation for clinical evaluation, marital status, co-occurrence with Transvestic Disorder, etc. These findings likely reflect underlying differences in causal mechanisms among subgroups of GD patients.[5] This has been particularly so for natal males with GD, who show much more variability in their sexual attraction patterns than do natal females with GD (Kreukels et al., 2012). Lawrence (2010), among others, has provided an exhaustive review on this topic.

The subworkgroup reviewed this literature carefully and came to the conclusion that sexual attraction (sexual orientation) per se

[4] This proposal did not make its way into the DSM-5 (American Psychiatric Association, 2013). Instead, the DSM-5 adopted a common template with regard to distress/impairment across most diagnoses: "The condition is associated with clinically significant distress or impairment in social, school, or other important areas of functioning" or "The condition is associated with clinically significant distress or impairment in social, occupational, or other important areas of functioning."

[5] "…differences in casual mechanisms…" could have been phrased as "differences in developmental pathways."

plays only a minor role in contemporary treatment protocols or decisions. This is very different from what happened clinically in the early years of gender-reassignment surgery decisions that were managed by psychiatrists in specialized gender identity clinics who would only provide treatment to individuals attracted to their own natal sex and would not endorse the medical creation of post-operative "homosexuals." This change in treatment protocols for adults is reflected in the recent Standards of Care issued by the WPATH (2011).[2] In the entire document, the term sexual orientation or sexual attraction is not even mentioned, suggesting a contemporary consensus that sexual orientation or sexual attraction is of minimal importance to treatment providers.

Although it is accurate to state, for example, that cases of "regret" after gender-reassignment surgery occur most often among natal males with a gynephilic or bisexual sexual orientation (e.g., Blanchard, Steiner, Clemmensen, & Dickey, 1989; Olsson & Möller, 2006), the absolute percentage of regrets is rather low (Gijs & Brewaeys, 2007; Green & Fleming, 1990; Pfäfflin & Junge, 1992, 1998). As a result, the subworkgroup has recommended deleting this specifier. Because sexual attraction (sexual orientation) subtyping is of interest to researchers in the field, it is recommended that reference to it be addressed in the text (but not as a specifier).[6] This recommended change (from a specifier to text) should also reduce the widespread suspicion,[7] especially in LGB (lesbian, gay, bisexual) circles, that the GID diagnosis was originally introduced into the DSM as a cryptic way to maintain the psychopathologization of homosexuality (Drescher, 2010; Zucker & Spitzer, 2005). Lastly, it is noted here that the Paraphilias subworkgroup, for the diagnosis of Transvestic Disorder, has recommended that there be a specifier termed With Autogynephilia (Sexually Aroused by Thought or Image of Self as Female) (Blanchard, 2010) or With Autoandrophilia (Sexually Aroused by Thought or Image of Self as Male) (see www.dsm5.org).

Inclusion of a Subtype Pertaining to the Presence (or Absence) of a DSD

In DSM-III, the presence of a DSD was not an exclusionary criterion for GD, but it became one in DSM-IV.

In the meantime, considerable additional evidence has accumulated that some individuals with a DSD experience GD and may wish to change their assigned gender; the percentage of such individuals who experience GD is syndrome-dependent (Cohen-Kettenis, 2005; Dessens, Slijper, & Drop, 2005; Mazur, 2005; Meyer-Bahlburg, 1994, 2005, 2009, 2010). From a phenomenologic perspective, DSD individuals with GD have both similarities and differences to individuals with GD with no known DSD (Meyer-Bahlburg, 1994, 2009; Richter-Appelt & Sandberg, 2010). Developmental trajectories also have similarities and differences. The presence of a DSD is suggestive of a specific causal mechanism that may not be present in individuals without a diagnosable DSD.

Inclusion of a "Post-transition" Specifier

For adolescents and adults, we proposed a new specifier provisionally labeled "Post-transition." The addition of this specifier is prompted by the observation that many individuals, after transition, do not meet any more the criteria set for GD; however, they continue to undergo chronic hormone treatment, further gender-confirming surgery, or intermittent psychotherapy/counseling to facilitate the adaptation to life in the desired gender and the social consequences of the transition. Although the concept of "post-transition" is modeled on the concept "in [partial or full] remission" as used for mood disorders, "remission" has implications in terms of symptom reduction that do not apply directly to GD. Cross-sex hormone treatment of gonadectomized individuals could, of course, be coded as treatment of hypogonadism, but this would not apply to individuals who have not undergone gonadectomy but receive hormone treatments. In the text, we will, however, also mention that the course specifier of "full remission" in its original meaning does apply to many children with the diagnosis of GD and, perhaps, to a small number of adolescents and adults.

Antecedent Validators

Familial Aggregation

Within sex, there is evidence that the broad construct of gender identity/gender role behavior has a heritable component along with evidence for both shared and non-shared environmental influences (Bailey, Dunne, & Martin, 2000; Elizabeth & Green, 1984; Iervolino, Hines, Golombok, Rust, & Plomin, 2005; Knafo, Iervolino, & Plomin, 2005; Mitchell, Baker, & Jacklin, 1989; van Beijsterveldt, Hudziak, & Boomsma, 2006). In terms of the more narrow construct of GID or GD, there is also evidence of a heritable component (Coolidge, Thede, & Young, 2002). In a review of the twin literature on GID, including unpublished case series from specialized gender identity clinics, concordance for GID was significantly higher among MZ twins than among DZ same-sex twins (Heylens et al., 2012). There is also some evidence that GID runs in families when one studies non-twin siblings (Gómez-Gil et al., 2010), but, in terms of absolute numbers, familiality among non-twin siblings is quite low.

[6] In Dr. Drescher's response to a query from the Board of Trustees, he wrote that "The absence of a sexual orientation specifier should not inhibit research in this area, any more than the absence of a 'gender specifier' for Major Depression or Schizophrenia inhibits research on sex differences in those (or any other) diagnostic categories."

[7] The word "concern" would have been preferable to "suspicion."

Sociodemographic and Cultural Factors

The prevalence of GD may well be higher among natal males than among natal females. In terms of referral rates in childhood (perhaps an indirect marker of prevalence), the sex ratio has favored boys to girls in a number of samples in the U.S., Canada, and the Netherlands (Cohen-Kettenis et al., 2003; Green, 1987). It is possible that the threshold for referral is lower in boys than in girls, since cross-gender behavior in boys is less tolerated than such behavior is in girls and subject to more social sanctions. However, in one study, the percentage of boys and girls diagnosed with GID was comparable (Cohen-Kettenis et al., 2003), but there is also some evidence that girls referred clinically for gender problems show more extreme behavior than boys on dimensional measures (Zucker, Bradley, & Sanikani, 1997a).

The sex ratio in referral rates, however, appears to narrow by adolescence but males still outnumber females (Garrels et al., 2000; Kreukels et al., 2012; Zucker & Lawrence, 2009; Zucker et al., 2012).

GD appears to be expressed in many cultures, including non-Western countries (e.g., Koon, 2002). In Samoa, for example, the fa'afafine constitute a kind of "third gender" category, who, from a phenomenological perspective, bear striking similarity to the Western category of transsexualism or GD. Fa'afafine are biological males who gradually transition to live in this labeled third gender category. The term itself translates into "in the fashion of a woman" (Bartlett & Vasey, 2006; Besnier, 1994). Interestingly, there is very little indication of a corresponding third gender category for natal females in Samoa.

Compared to base rates in the general population, clinic-referred boys with GD show an overrepresentation among adoptees (Zucker & Bradley, 1998) although it is quite likely that the rate is not higher than in clinic-referred children in general.

Individuals with specific DSD diagnoses are at heightened risk for GD. Chromosomal females who have been exposed to higher than normal levels of prenatal androgen, as in the case of congenital adrenal hyperplasia, have an elevated rate of GD compared to population base rates (Dessens et al., 2005). Chromosomal males with at least some degree of male-typical levels of prenatal androgen exposure, who are nevertheless assigned female at birth because of marked genital ambiguity, also show an elevated risk for GD as do chromosomal males with apparently normal prenatal androgen levels who are assigned female because of a congenital absence of the penis or its extremely poor differentiation as in the case of cloacal exstrophy (Meyer-Bahlburg, 2005).

Environmental Risk Factors

Boys with GD (both children and adolescents) have an excess of brothers and are later born among their siblings, particularly brothers (Blanchard, Zucker, Bradley, & Hume, 1995; Blanchard, Zucker, Cohen-Kettenis, Gooren, & Bailey, 1996; Schagen, Delemarre-van de Waal, Blanchard, & Cohen-Kettenis, 2012; Zucker et al., 1997b). Similar findings have been reported for adult males with GD, including Samoan fa'afafine (Blanchard & Sheridan, 1992; Gómez-Gil et al., 2011; Green, 2000; Poasa, Blanchard, & Zucker, 2004; VanderLaan & Vasey, 2011). This fraternal birth order effect, which has also been found repeatedly in gay men without GD, has been postulated to result from a progressive maternal immune response to male fetuses that affects the sexual differentiation of the brain but without affecting the sex-dimorphic differentiation of the genitalia (for review, see Blanchard, 2001; Bogaert & Skorska, 2011).

Boys with GD also have a lower birthweight after taking into account the number of older brothers (Blanchard et al., 2002).

Prior Psychiatric History

No data are available for this parameter.

Concurrent Validators

In providing an appraisal of concurrent validators, one line of evidence has been to identify variables in which there is a shift in the direction of the desired gender or a way from the natal gender. Although this model does not necessarily apply to all relevant validators, it is common enough to alert the reader to this underlying conceptual model (for a sketch of this conceptual model, see Meyer-Bahlburg, 2011).

Cognitive, Emotional, Temperamental, and Personality Correlates (Unrelated to the Diagnostic Criteria)

Boys with GD perform relatively more poorly on visual-spatial tasks than on verbal tasks taken from standardized IQ tests (Zucker & Bradley, 1995, pp. 167–171). Two studies of GD adults have also shown that sex-dimorphic cognitive ability patterns appear to be intermediate between that of control males and females (Cohen-Kettenis, van Goozen, Doorn, & Gooren, 1998; van Goozen, Slabbekoorn, Gooren, Sanders, & Cohen-Kettenis, 2002). In one fMRI study, Schöning et al. (2010) showed that GD adult males, during a spatial cognition task, had less activation of the left parietal cortex (BA 40) than control males.

Boys with GD have a lower parent-reported physical activity level (a sex-dimorphic dimension of temperament) than control boys whereas girls with GID have a higher parent-reported activity level than control girls. Indeed, parent-reported activity level of GD children is sex-inverted compared to control children (Zucker & Bradley, 1995, pp. 189–193).

Biological Markers

Genetics There are no published molecular genetic studies of GD patients. It is unusual to find an abnormal sex chromosome karyotype in patients with GD (Inoubli et al., 2011), but it is possible that the prevalence is elevated compared to base rates in the general population. Nonetheless, most specialized gender clinics do not routinely screen for abnormal sex chromosome patterns.

Hormonal Factors In adult natal females with GD, some reports suggested an elevated rate of polycystic ovary syndrome (e.g., Balen, Schachter, Montgomery, Reid, & Jacobs, 1993; Bosinski et al., 1997; Futterweit, Weiss, & Fagerstorm, 1986), including an astonishing prevalence of 56 % in one Japanese sample (Baba et al., 2007). One recent more rigorous methodological study using the Rotterdam 2003 criteria, however, suggested no elevated rate compared to controls (Mueller et al., 2008).

Sexual differentiation of the mammalian brain is influenced by prenatal sex hormone activity. Consequently, it has been hypothesized that abnormalities in genes that code for sex hormone receptors or for enzymes that catalyze the synthesis or metabolism of sex hormones might show associations with GD/transsexualism. Candidate genes include those coding for the androgen receptor (AR), estrogen receptor alpha (ERα), estrogen receptor beta (ERβ), and progesterone receptor (PR) and for the enzymes aromatase (CYP19), 17-alpha-hydroxylase (CYP17), and 5-alpha-reductase, type II (SRD5A2). Most studies have investigated differences between transsexual/GD patients and same-sex controls in mean repeat numbers of specific polymorphisms in candidate genes or in the frequencies of specific mutant alleles or genotypes. None have attempted to differentiate between transsexual/GD subtypes. In these studies, all of the probands studied were GD patients without a co-occurring DSD.

Henningsson et al. (2005) found no significant differences between GD males and same-sex controls for the AR or CYP19 genes, but did find a significant difference for the ERβ gene. Hare et al. (2009) examined the same three candidate genes in GD males and same-sex controls, but obtained different results: No significant differences for the CYP19 or ERβ genes, but a significant difference for the AR gene, albeit using a one-tailed test; a two-tailed test would have been non-significant (moreover, the "false positive" rate among the controls was substantial). Bentz et al. (2007) reported no differences between GD males and same-sex controls or GD females and same-sex controls for the SRD5A2 gene. Bentz et al. (2008) found no differences between GD males and same-sex controls for CPY17 alleles and genotypes, but did find a significant difference in the case of GD females and same-sex controls. Ujike et al. (2009) detected no significant differences between GD males and same-sex controls or GD females and same-sex controls for the AR, ERα, ERβ, PR, or CYP19 genes. In summary, there is mixed evidence at present that abnormalities related to molecular genetics account for GD/transsexualism: Most investigations have yielded negative results and most positive results have not been replicated by other investigators.

Neuroanatomy Luders et al. (2009) used MRI to compare regional gray matter volumes in 24 GD males (6 androphilic, 18 non-androphilic) and male and female control subjects; the pattern observed in the GD males more closely matched the male controls. Subsequent MRI studies, however, have been more suggestive of an intermediate pattern of sex-dimorphic neural structures between that of control males and control females (Rametti et al., 2011a, b; Savic & Arver, 2011). This has been shown to be particularly true for GD adults with an "early onset" (i.e., in childhood, not adolescence) of GD traits (Savic & Arver, 2011).

The central division of the bed nucleus of the stria terminalis (BSTc), a hypothalamic or limbic nucleus, is sexually dimorphic: significantly larger in men than in women. Zhou, Hofman, Gooren, and Swaab (1995) conducted a postmortem study of six GD males and found that mean BSTc was small in size and in neuron number and female-typical, a sex-reversed pattern. The GD males supposedly included both the androphilic and non-androphilic subtypes. Kruijver et al. (2000) studied the same six GD males and found that mean neuron number in the BSTc was also sex-reversed. Similar postmortem findings in a GD male who had never received hormone therapy suggested that cross-sex hormone therapy could not account for the sex-reversed pattern. Kruijver et al. proposed that "transsexualism may reflect a form of brain hermaphroditism" (p. 2041).

The validity of this putative marker was challenged by the discovery that the BSTc does not become sexually dimorphic until adulthood, long after the symptoms of GD typically appear (Chung, De Vries, & Swaab, 2002). Magnetic resonance imaging (MRI) studies also demonstrated that hormone therapy in MtF transsexuals was associated with significant reductions in the volume of the brain globally and the hypothalamus particularly (Hulshoff Pol et al., 2006). Hulshoff Pol et al. conjectured that, in the Zhou/Kruijver studies, "the altered size of the bed nucleus of the stria terminalis could have been due to the exposure of cross-sex hormones in adult life" (p. S108). Additional information about the sexual orientation of the six Zhou/Kruijver GD males, reported by Garcia-Falgueras and Swaab (2008), was consistent with the hypothesis that all were non-androphilic.

In another study of 11 GD males, Garcia-Falgueras and Swaab (2008) reported that the INAH-3 subnucleus of the hypothalamic uncinate nucleus was similar to that of control females with regard to volume and number of neurons.[8]

[8] The material in this section was drawn from Lawrence and Zucker (2012).

Cerebral Dominance and Anthropometrics Several studies have identified an elevated rate of left-handedness or non-right-handedness in GD boys and GD adult males (Green & Young, 2001; Zucker, Beaulieu, Bradley, Grimshaw, & Wilcox, 2001). However, it is not yet clear if this elevation is diagnostic-specific or characteristic of clinical populations in general. Note here that these findings, if valid, suggest an "exaggerated" male-typical pattern since natal males are more likely to be left-handed than natal females. Evidence for an elevation in non-right-handedness in GD adult females was also reported by Green and Young (2001).

The ratio between the length of the second and fourth digit (2D:4D) shows a strong sex-dimorphic pattern, with a smaller ratio found in natal males than in natal females. There is some evidence for a masculinized pattern of 2D:4D in adult females with GD, but the evidence is much more mixed with regard to adult males with GD (Wallien, Zucker, Steensma, & Cohen-Kettenis, 2008). One study did not find any evidence for an altered 2D:4D pattern in children with GD (Wallien et al., 2008).

Patterns of Co-morbidity

On standardized parent-report measures of behavior problems, such as the Child Behavior Checklist (CBCL), both boys and girls with GD in clinical samples have rates of behavior problems comparable to that of other clinic-referred children (especially when matched carefully for demographic factors) and higher than that of non-referred children, including siblings (Cohen-Kettenis et al., 2003; Zucker & Bradley, 1995). On the CBCL, boys with GD have a predominance of "internalizing" as opposed to "externalizing" behavior problems whereas for girls with GD the pattern is more equally distributed across these two broad-band types of behavior problems. Similar findings have been obtained using teacher ratings using the Teacher's Report Form variant of the CBCL (Steensma, Zucker, Kreukels, & Cohen-Kettenis, 2012; Zucker & Bradley, 1995). There is also some evidence that boys with GD have elevated rates of separation anxiety traits (Coates & Person, 1985; Zucker, Bradley, & Lowry Sullivan, 1996). Lastly, one study showed that children with GD had an elevation in skin conductance level, a physiological marker of anxiety, during a psychological challenge task (Wallien, van Goozen, & Cohen-Kettenis, 2007). Adolescents with GD have elevated rates of behavior problems on the Youth Self-Report Form variant of the CBCL compared to non-referred youth (de Vries, Postema, Steensma, & Cohen-Kettenis, 2011; Zucker et al., 2012). Adults with GD also have elevated rates of psychiatric problems although there is a great deal of variance as a function of method and measures (for review, see Lawrence & Zucker, 2012). There is now also emerging evidence of a relation between GD and autism-spectrum disorders (de Vries et al., 2010; Jones et al., 2012). This is of interest because both disorders are expressed early in development and both show a sex ratio that favors natal males.

Lastly, one important population-based matched cohort study found that the overall morbidity and mortality for GD patients was higher at follow-up than for same-sex controls (Dhejne et al., 2011). There was an increased risk for suicide attempts and a higher rate of psychiatric inpatient care. There was also a higher rate of death, particularly death from suicide.

The higher rate of psychiatric co-morbidity is likely related to a number of factors, including the stigma associated with having GD (e.g., peer ostracism, familial rejection, societal discrimination) as well as generic risk factors, such as the presence of various psychiatric disorders in first-degree relatives.

Predictive Validators

Diagnostic Stability

If one follows children with GD longitudinally, the "persistence" of GD into adolescence and adulthood is variable, ranging from 2 % to 50 % (e.g., Green, 1987; Drummond, Bradley, Badali-Peterson, & Zucker, 2008; Wallien & Cohen-Kettenis, 2008; Zucker, 2011; Zuger, 1984); however, relative to base rates of GD in the general population (however that may be defined), the persistence rate is markedly higher. It should be noted that these follow-up reports cannot be characterized as "natural history" studies, as the children were all seen in clinical settings and one could argue that clinician recommendations, involvement in therapy, etc. contributed, at least in part, to the high rate of "desistance." Nonetheless, that there is some indication of persistence provides evidence for diagnostic stability.

In adolescents and adults, there is considerable evidence of diagnostic stability. For many adolescents and adults, the gender-related distress does not lessen until there is treatment with contra-sex hormones and/or gender-reassignment surgery and the patient transitions to living in the preferred gender (Gijs & Brewaeys, 2007; Green & Fleming, 1990; Pfäfflin & Junge, 1992, 1998).

Course of Condition

The information here is similar to that for diagnostic stability. In general, it appears that the course of GD becomes more fixed over developmental time, with a narrowing of plasticity as affected individuals reach adolescence or adulthood.

Response to Treatment

By definition, full social transitioning and legal sex/gender reassignment make the diagnostic criteria no longer applicable, although these steps support the behavior pattern that was incongruent with the natal sex. These steps also usually reduce

or relieve the distress of the individual. Note that psychosocial and medical approaches that assist individuals with GD in transitioning to a life-style commensurate with their desired gender has no parallel in any other psychiatric category.

There is a great deal of empirical evidence that, in adolescents and adults, the institution of biomedical treatments, such as cross-sex hormonal therapy or gender-reassignment surgery, reduces the gender dysphoria (e.g., Cohen-Kettenis & van Goozen, 1997; Mate-Kole, Freschi, & Robin, 1990; Smith, van Goozen, & Cohen-Kettenis, 2001). Of course, such treatments would not be applied to clinical patients with other psychiatric conditions, so one cannot argue for specificity effects as one might attempt to demonstrate in a pharmacotherapy trial in which patients with diagnosis A respond to the medication, but patients with diagnosis B do not.

More in line with psychiatric treatment approaches in general, several studies and case reports suggest that some psychological treatment approaches may be associated with "desistance," i.e., reduction of cross-gender behavior and desires in children (for review, see Zucker, 2007). Yet, there are no randomized controlled studies in which some children with GD were given a particular treatment compared to a no-treatment comparison group or even a "sham" treatment.

References

American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). Arlington, VA: Author.

Baba, T., Endo, T., Honnma, H., Kitajima, Y., Hayashi, T., Ikeda, H., et al. (2007). Association between polycystic ovary syndrome and female-to-male transsexuality. *Human Reproduction, 22*, 1011–1016.

Bailey, J. M., Dunne, M. P., & Martin, N. G. (2000). Genetic and environmental influences on sexual orientation and its correlates in an Australian twin sample. *Journal of Personality and Social Psychology, 78*, 524–536.

Balen, A. H., Schachter, M. E., Montgomery, D., Reid, R. W., & Jacobs, H. S. (1993). Polycystic ovaries are a common finding in untreated female to male transsexuals. *Clinical Endocrinology, 38*, 325–329.

Bartlett, N. H., & Vasey, P. L. (2006). A retrospective study of childhood gender-atypical behavior in Samoan *Fa'afafine*. *Archives of Sexual Behavior, 35*, 659–666.

Bentz, E. K., Hefler, L. A., Kaufmann, U., Huber, J. C., Kolbus, A., & Tempfer, C. B. (2008). A polymorphism of the CYP17 gene related to sex steroid metabolism is associated with female-to-male but not male-to-female transsexualism. *Fertility and Sterility, 90*, 56–59.

Bentz, E. K., Schneeberger, C., Hefler, L. A., van Trotsenburg, M., Kaufmann, U., Huber, J. C., et al. (2007). A common polymorphism of the SRD5A2 gene and transsexualism. *Reproductive Science, 14*, 705–709.

Besnier, N. (1994). Polynesian gender liminality through time and space. In G. Herdt (Ed.), *Third sex, third gender: Beyond sexual dimorphism in culture and history* (pp. 285–328). New York: Zone Books.

Blanchard, R. (1994). A structural equation model for age at clinical presentation in nonhomosexual male gender dysphorics. *Archives of Sexual Behavior, 23*, 311–320.

Blanchard, R. (2001). Fraternal birth order and the maternal immune hypothesis of male homosexuality. *Hormones and Behavior, 40*, 105–114.

Blanchard, R. (2010). The DSM diagnostic criteria for transvestic fetishism. *Archives of Sexual Behavior, 39*, 363–372.

Blanchard, R., & Sheridan, P. M. (1992). Sibship size, sibling sex ratio, birth order, and parental age in homosexual and nonhomosexual gender dysphorics. *Journal of Nervous and Mental Disease, 180*, 40–47.

Blanchard, R., Steiner, B. W., Clemmensen, L. H., & Dickey, R. (1989). Prediction of regrets in postoperative transsexuals. *Canadian Journal of Psychiatry, 34*, 43–45.

Blanchard, R., Zucker, K. J., Bradley, S. J., & Hume, C. S. (1995). Birth order and sibling sex ratio in homosexual male adolescents and probably prehomosexual feminine boys. *Developmental Psychology, 31*, 22–30.

Blanchard, R., Zucker, K. J., Cavacas, A., Allin, S., Bradley, S. J., & Schachter, D. C. (2002). Fraternal birth order and birth weight in probably prehomosexual feminine boys. *Hormones and Behavior, 41*, 321–327.

Blanchard, R., Zucker, K. J., Cohen-Kettenis, P. T., Gooren, L. J. G., & Bailey, J. M. (1996). Birth order and sibling sex ratio in two samples of Dutch gender-dysphoric homosexual males. *Archives of Sexual Behavior, 25*, 495–514.

Bockting, W. O. (2008). Psychotherapy and the real-life experience: From gender dichotomy to gender diversity. *Sexologies, 17*, 211–224.

Bogaert, A. F., & Skorska, M. (2011). Sexual orientation, fraternal birth order, and the maternal immune hypothesis: A review. *Frontiers in Neuroendocrinology, 32*, 247–254.

Bornstein, K. (1994). *Gender outlaw: On men, women and the rest of us*. London: Routledge.

Bosinski, H. A., Peter, M., Bonatz, G., Arndt, R., Heidenreich, M., Sippell, W. G., et al. (1997). A higher rate of hyperandrogenic disorders in female-to-male transsexuals. *Psychoneuroendocrinology, 22*, 361–380.

Bradley, S. J., Blanchard, R., Coates, S., Green, R., Levine, S. B., Meyer-Bahlburg, H. F. L., et al. (1991). Interim report of the DSM-IV Subcommittee on Gender Identity Disorders. *Archives of Sexual Behavior, 20*, 333–343.

Chung, W. C., De Vries, G. J., & Swaab, D. F. (2002). Sexual differentiation of the bed nucleus of the stria terminalis in humans may extend into adulthood. *Journal of Neuroscience, 22*, 1027–1033.

Coates, S., & Person, E. S. (1985). Extreme boyhood femininity: Isolated behavior or pervasive disorder? *Journal of the American Academy of Child Psychiatry, 24*, 702–709.

Cohen-Kettenis, P. T. (2005). Gender change in 46, XY persons with 5α-reductase-2-deficiency and 17β-hydroxysteroid dehydrogenase-3 deficiency. *Archives of Sexual Behavior, 34*, 399–410.

Cohen-Kettenis, P. T., Owen, A., Kaijser, V. G., Bradley, S. J., & Zucker, K. J. (2003). Demographic characteristics, social competence, and behavior problems in children with gender identity disorder: A cross-national, cross-clinic comparative analysis. *Journal of Abnormal Child Psychology, 31*, 41–53.

Cohen-Kettenis, P. T., & Pfäfflin, F. (2010). The DSM diagnostic criteria for gender identity disorder in adolescents and adults. *Archives of Sexual Behavior, 39*, 499–513.

Cohen-Kettenis, P. T., & van Goozen, S. H. M. (1997). Sex reassignment of adolescent transsexuals: A follow-up study. *Journal of the American Academy of Child and Adolescent Psychiatry, 36*, 263–271.

Cohen-Kettenis, P. T., van Goozen, S. H., Doorn, C. D., & Gooren, L. J. (1998). Cognitive ability and cerebral lateralisation in transsexuals. *Psychoneuroendocrinology, 23*, 631–641.

Coleman, E., Bockting, W., Botzer, M., Cohen-Kettenis, P., DeCuypere, G., et al. (2011). Standards of Care for the Health of Transsexual, Transgender, and Gender-Nonconforming People, Version 7. *International Journal of Transgenderism, 13*, 165–232.

Coolidge, F. L., Thede, L. L., & Young, S. E. (2002). The heritability of gender identity disorder in a child and adolescent twin sample. *Behavior Genetics, 32*, 251–257.

De Cuypere, G., Knudson, G., & Bockting, W. (2010). Response of the World Professional Association for Transgender Health to the proposed *DSM 5* criteria for gender incongruence. *International Journal of Transgenderism, 12*, 119–123.

de Vries, A. L. C., Noens, I. L., Cohen-Kettenis, P. T., van Berckelaer-Onnes, I. A., & Doreleijers, T. A. H. (2010). Autism spectrum disorders in gender dysphoric children and adolescents. *Journal of Autism and Developmental Disorders, 40*, 930–936.

de Vries, A. L. C., Postema, L., Steensma, T. D., & Cohen-Kettenis, P. T. (2011, September). Demographic characteristics and behavior/emotional problems in gender dysphoric adolescents: A cross-national, cross-clinic comparative analysis. In K. J. Zucker (Chair), *Gender identity disorder in children and adolescents: Theoretical and empirical advances*. Symposium presented at the joint meeting of the American Academy of Child and Adolescent Psychiatry and Canadian Academy of Child and Adolescent Psychiatry, Toronto.

Delemarre-van de Waal, H. A., & Cohen-Kettenis, P. T. (2006). Clinical management of gender identity disorder in adolescents: A protocol on psychological and paediatric endocrinology aspects. *European Journal of Endocrinology, 155*(Suppl. 1), S131–S137.

Deogracias, J. J., Johnson, L. L., Meyer-Bahlburg, H. F. L., Kessler, S. J., Schober, J. M., & Zucker, K. J. (2007). The Gender Identity/Gender Dysphoria Questionnaire for Adolescents and Adults. *Journal of Sex Research, 44*, 370–379.

Dessens, A. B., Slijper, F. M. E., & Drop, S. L. S. (2005). Gender dysphoria and gender change in chromosomal females with congenital adrenal hyperplasia. *Archives of Sexual Behavior, 34*, 389–397.

Dhejne, C., Lichtenstein, P., Boman, M., Johansson, A. L., Langstrom, N., & Landen, M. (2011). Long-term follow-up of transsexual persons undergoing sex reassignment surgery: Cohort study in Sweden. *PLoS One, 6*(2), e16885.

Drescher, J. (2010). Queer diagnoses: Parallels and contrasts in the history of homosexuality, gender variance, and the *Diagnostic and Statistical Manual*. *Archives of Sexual Behavior, 39*, 427–460.

Drummond, K. D., Bradley, S. J., Badali-Peterson, M., & Zucker, K. J. (2008). A follow-up study of girls with gender identity disorder. *Developmental Psychology, 44*, 34–45.

Ekins, R., & King, D. (2006). *The transgender phenomenon*. London: Sage.

Elizabeth, P. H., & Green, R. (1984). Childhood sex-role behaviors: Similarities and differences in twins. *Acta Geneticae Medicae et Gemellologiae, 33*, 173–179.

Fisk, N. (1973). Gender dysphoria syndrome (the how, what, and why of a disease). In D. Laub & P. Gandy (Eds.), *Proceedings of the second interdisciplinary symposium on gender dysphoria syndrome* (pp. 7–14). Palo Alto, CA: Stanford University Press.

Futterweit, W., Weiss, R. A., & Fagerstorm, R. M. (1986). Endocrine evaluation of forty female-to-male transsexuals: Increased frequency of polycystic ovarian disease in female transsexualism. *Archives of Sexual Behavior, 15*, 69–78.

Garcia-Falgueras, A., & Swaab, D. F. (2008). A sex difference in the hypothalamic uncinate nucleus: Relationship to gender identity. *Brain, 131*, 3132–3146.

Garrels, L., Kockott, G., Michael, N., Preuss, W., Renter, K., Schmidt, G., et al. (2000). Sex ratio of transsexuals in Germany: The development over three decades. *Acta Psychiatrica Scandinavica, 102*, 445–448.

Gijs, L., & Brewaeys, A. (2007). Surgical treatment of gender dysphoria in adults and adolescents: Recent developments, effectiveness, and challenges. *Annual Review of Sex Research, 18*, 178–224.

Gómez-Gil, E., Esteva, I., Almaraz, M. C., Pasaro, E., Segovia, S., & Guillamon, A. (2010). Familiality of gender identity disorder in non-twin siblings. *Archives of Sexual Behavior, 39*, 546–552.

Gómez-Gil, E., Esteva, I., Carrasco, R., Cruz Almaraz, M., Pasaro, E., Salamero, M., et al. (2011). Birth order and ratio of brothers to sisters in Spanish transsexuals. *Archives of Sexual Behavior, 40*, 505–510.

Green, R. (1987). *The "sissy boy syndrome" and the development of homosexuality*. New Haven, CT: Yale University Press.

Green, R. (2000). Birth order and ratio of brothers to sisters in transsexuals. *Psychological Medicine, 30*, 789–795.

Green, R., & Fleming, D. T. (1990). Transsexual surgery follow-up: Status in the 1990 s. *Annual Review of Sex Research, 1*, 163–174.

Green, R., & Young, R. (2001). Hand preference, sexual preference, and transsexualism. *Archives of Sexual Behavior, 30*, 565–574.

Hare, L., Bernard, P., Sánchez, F. J., Baird, P. N., Vilain, E., Kennedy, T., et al. (2009). Androgen receptor repeat length polymorphism associated with male-to-female transsexualism. *Biological Psychiatry, 65*, 93–96.

Henningsson, S., Westberg, L., Nilsson, S., Lundström, B., Ekselius, L., Bodlund, O., et al. (2005). Sex steroid-related genes and male-to-female transsexualism. *Psychoneuroendocrinology, 30*, 657–664.

Heylens, G., De Cuypere, G., Zucker, K. J., Schelfaut, C., Elaut, E., Vanden Bossche, H., et al. (2012). Gender identity disorder in twins: A review of the literature. *Journal of Sexual Medicine, 9*, 751–757.

Hulshoff Pol, H. E., Cohen-Kettenis, P. T., Van Haren, N. E., Peper, J. S., Brans, R. G., Cahn, W., et al. (2006). Changing your sex changes your brain: Influences of testosterone and estrogen on adult human brain structure. *European Journal of Endocrinology, 155*(Suppl. 1), S107–S114.

Iervolino, A. C., Hines, M., Golombok, S. E., Rust, J., & Plomin, R. (2005). Genetic and environmental influences on sex-typed behavior during the preschool years. *Child Development, 76*, 826–840.

Inoubli, A., De Cuypere, G., Rubens, R., Heylens, G., Elaut, E., Van Caenegem, E., et al. (2011). Karyotyping, is it worthwhile in transsexualism? *Journal of Sexual Medicine, 8*, 475–478.

Johnson, L. L., Bradley, S. J., Birkenfeld-Adams, A. S., Radzins Kuksis, M. A., Maing, D. M., & Zucker, K. J. (2004). A parent-report Gender Identity Questionnaire for Children. *Archives of Sexual Behavior, 33*, 105–116.

Jones, R. M., Wheelwright, S., Farrell, K., Martin, E., Green, R., Di Ceglie, D., et al. (2012). Female-to-male transsexual people and autistic traits. *Journal of Autism and Developmental Disorders, 42*, 301–306.

Knafo, A., Iervolino, A. C., & Plomin, R. (2005). Masculine girls and feminine boys: Genetic and environmental contributions to atypical gender development in early childhood. *Journal of Personality and Social Psychology, 88*, 400–412.

Knudson, G., De Cuypere, G., & Bockting, W. (2010). Recommendations for revision of the *DSM* diagnosis of Gender Identity Disorders: Consensus statement of the World Professional Association for Transgender Health. *International Journal of Transgenderism, 12*, 115–118.

Koon, T. Y. (2002). *The Mak Nyahs: Malaysian male to female transsexuals*. Singapore: Eastern Universities Press.

Kreukels, B. P., Haraldsen, I. R., De Cuypere, G., Richter-Appelt, H., Gijs, L., & Cohen-Kettenis, P. T. (2012). A European network for the investigation of gender incongruence: The ENIGI initiative. *European Psychiatry, 27*, 445–450.

Kruijver, F. P., Zhou, J. N., Pool, C. W., Hofman, M. A., Gooren, L. J., & Swaab, D. F. (2000). Male-to-female transsexuals have female neuron numbers in a limbic nucleus. *Journal of Clinical Endocrinology and Metabolism, 85*, 2034–2041.

Lawrence, A. A. (2010). Sexual orientation versus age of onset as bases for typologies (subtypes) of gender identity disorder in adolescents and adults. *Archives of Sexual Behavior, 39*, 514–545.

Lawrence, A. A., & Zucker, K. J. (2012). Gender identity disorders. In M. Hersen & D. C. Beidel (Eds.), *Adult psychopathology and diagnosis* (6th ed., pp. 601–635). Hoboken, NJ: Wiley.

Lev, A. I. (2007). Transgender communities: Developing identity through connection. In K. J. Bieschke, R. M. Perez, & K. A. Debord (Eds.), *Handbook of counseling and psychotherapy with lesbian,*

gay, bisexual, and transgender clients (2nd ed., pp. 147–175). Washington, DC: American Psychological Association.

Linday, L. A. (1994). Maternal reports of pregnancy, genital, and related fantasies in preschool and kindergarten children. *Journal of the American Academy of Child and Adolescent Psychiatry, 33*, 416–423.

Luders, E., Sánchez, F. J., Gaser, C., Toga, A. W., Narr, K. L., Hamilton, L. S., et al. (2009). Regional gray matter variation in male-to-female transsexualism. *NeuroImage, 46*, 904–907.

Mate-Kole, C., Freschi, M., & Robin, A. (1990). A controlled study of psychological and social change after surgical gender reassignment in selected male transsexuals. *British Journal of Psychiatry, 157*, 261–264.

Mazur, T. (2005). Gender dysphoria and gender change in androgen insensitivity or micropenis. *Archives of Sexual Behavior, 34*, 411–421.

Meyer-Bahlburg, H. F. L. (1994). Intersexuality and the diagnosis of gender identity disorder. *Archives of Sexual Behavior, 23*, 21–40.

Meyer-Bahlburg, H. F. L. (2005). Gender identity outcome in female-raised 46, XY persons with penile agenesis, cloacal exstrophy of the bladder, or penile ablation. *Archives of Sexual Behavior, 34*, 423–438.

Meyer-Bahlburg, H. F. L. (2009). Variants of gender differentiation in somatic disorders of sex development: Recommendations for Version 7 of the World Professional Association for Transgendered Health's Standards of Care. *International Journal of Transgenderism, 11*, 226–237.

Meyer-Bahlburg, H. F. L. (2010). From mental disorder to iatrogenic hypogonadism: Dilemmas in conceptualizing gender identity variants as psychiatric conditions. *Archives of Sexual Behavior, 39*, 461–476.

Meyer-Bahlburg, H. F. L. (2011). Transsexualism ("Gender Identity Disorder")—A CNS-limited form of intersexuality? *Advances in Experimental Medicine and Biology, 707*, 75–79.

Mitchell, J. E., Baker, L. A., & Jacklin, C. N. (1989). Masculinity and femininity in twin children: Genetic and environmental factors. *Child Development, 60*, 1475–1480.

Mueller, A., Gooren, L. J., Naton-Schöotz, S., Cupisti, S., Beckmann, M., & Dittrich, R. (2008). Prevalence of polycystic ovary syndrome and hyperandrogenemia in female-to-male transsexuals. *Journal of Clinical Endocrinology and Metabolism, 93*, 1408–1411.

Nieder, T. O., Herff, M., Cerwenka, S., Preuss, W. F., Cohen-Kettenis, P. T., De Cuypere, G., et al. (2011). Age of onset and sexual orientation in transsexual males and females. *Journal of Sexual Medicine, 8*, 783–791.

Olsson, S. E., & Möller, A. (2006). Regret after sex reassignment surgery in a male-to-female transsexual: A long-term follow-up. *Archives of Sexual Behavior, 35*, 501–506.

Paap, M. C., Kreukels, B. P., Cohen-Kettenis, P. T., Richter-Appelt, H., de Cuypere, G., & Haraldsen, I. R. (2011). Assessing the utility of diagnostic criteria: A multisite study on gender identity disorder. *Journal of Sexual Medicine, 8*, 180–190.

Pfäfflin, F., & Junge, A. (1992). Nachuntersuchungen nach Geschlechtsumwandlung. Eine kommentierte Literaturübersicht 1961–1991. In F. Pfäfflin & A. Junge (Eds.), *Geschlechtsumwandlung. Abhandlungen zur Transsexualität* (pp. 149–457). Stuttgart: Schattauer.

Pfäfflin, F., & Junge, A. (1998). Sex reassignment. *International Journal of Transgenderism*. http://web.archive.org/web/20070503090247/http:/www.symposion.com/ijt/pfaefflin/1000.htm.

Poasa, K. H., Blanchard, R., & Zucker, K. J. (2004). Birth order in transgendered males from Polynesia: A quantitative study of Samoan fa'afāfine. *Journal of Sex and Marital Therapy, 30*, 13–23.

Rametti, G., Carrillo, B., Gómez-Gil, E., Junque, C., Segovia, S., Gomez, A., et al. (2011a). White matter microstructure in female to male transsexuals before cross-sex hormonal treatment. A diffusion tensor imaging study. *Journal of Psychiatric Research, 45*, 199–204.

Rametti, G., Carrillo, B., Gómez-Gil, E., Junque, C., Zubiarre-Elorza, L., Segovia, S., et al. (2011b). The microstructure of white matter in male to female transsexuals before cross-sex hormonal treatment. A DTI study. *Journal of Psychiatric Research, 45*, 949–954.

Richter-Appelt, H., & Sandberg, D. E. (2010). Should disorders of sex development be an exclusion criterion for gender identity disorder in DSM 5? *International Journal of Transgenderism, 12*, 94–99.

Røn, K. (2002). 'Either/or' and 'both/neither': Discursive tensions in transgender politics. *Signs, 27*, 501–522.

Savic, I., & Arver, S. (2011). Sex dimorphism of the brain in male-to-female transsexuals. *Cerebral Cortex, 21*, 2525–2533.

Schagen, S. E. E., Delemarre-van de Waal, H. A., Blanchard, R., & Cohen-Kettenis, P. T. (2012). Sibling sex ratio and birth order in early-onset gender dysphoric adolescents. *Archives of Sexual Behavior, 41*, 541–549.

Schöning, S., Engelien, A., Bauer, C., Kugel, H., Kersting, A., Roesetel, C., et al. (2010). Neuroimaging differences in spatial cognition between men and male-to-female transsexuals before and during hormone therapy. *Journal of Sexual Medicine, 7*, 1858–1867.

Singh, D., Deogracias, J. J., Johnson, L. L., Bradley, S. J., Kibblewhite, S. J., Owen-Anderson, A., et al. (2010). The Gender Identity/Gender Dysphoria Questionnaire for Adolescents and Adults: Further validity evidence. *Journal of Sex Research, 47*, 49–58.

Smith, Y. L. S., van Goozen, S. H. M., & Cohen-Kettenis, P. T. (2001). Adolescents with gender identity disorder who were accepted or rejected for sex reassignment surgery: A prospective follow-up study. *Journal of the American Academy of Child and Adolescent Psychiatry, 40*, 472–481.

Smith, Y. L. S., van Goozen, S. H. M., Kuiper, A. J., & Cohen-Kettenis, P. T. (2005). Transsexual subtypes: Clinical and theoretical significance. *Psychiatry Research, 137*, 151–160.

Sohn, M., & Bosinski, H. A. G. (2007). Gender identity disorders: Diagnostic and surgical aspects. *Journal of Sexual Medicine, 4*, 1193–1208.

Steensma, T. D., Zucker, K. J., Kreukels, B. P. C., & Cohen-Kettenis, P. T. (2012). Behavioral and emotional problems on the Teacher's Report Form: A cross-national, cross-clinic comparative analysis of gender dysphoric children and adolescents. (submitted).

Ujike, H., Otani, K., Nakatsuka, M., Ishii, K., Sasaki, A., Oishi, T., et al. (2009). Association study of gender identity disorder and sex hormone-related genes. *Progress in Neuro-Psychopharmacology and Biological Psychiatry, 33*, 1241–1244.

van Beijsterveldt, C. E. M., Hudziak, J. J., & Boomsma, D. I. (2006). Genetic and environmental influences on cross-gender behavior and relation to behavior problems: A study of Dutch twins at ages 7 and 10 years. *Archives of Sexual Behavior, 35*, 647–658.

van Goozen, S. H., Slabbekoorn, D., Gooren, L. J., Sanders, G., & Cohen-Kettenis, P. T. (2002). Organizing and activating effects of sex hormones in homosexual transsexuals. *Behavioral Neuroscience, 116*, 982–988.

Vance, S. R., Cohen-Kettenis, P. T., Drescher, J., Meyer-Bahlburg, H. F. L., Pfäfflin, F., & Zucker, K. J. (2010). Opinions about the *DSM* Gender Identity Disorder diagnosis: Results from an international survey administered to organizations concerned with the welfare of transgender people. *International Journal of Transgenderism, 12*, 1–14.

VanderLaan, D. P., & Vasey, P. L. (2011). Male sexual orientation in Independent Samoa: Evidence for fraternal birth order and maternal fecundity effects. *Archives of Sexual Behavior, 40*, 495–503.

Wallien, M. S., & Cohen-Kettenis, P. T. (2008). Psychosexual outcome of gender-dysphoric children. *Journal of the American Academy of Child and Adolescent Psychiatry, 47*, 1413–1423.

Wallien, M. S., van Goozen, S. H., & Cohen-Kettenis, P. T. (2007). Physiological correlates of anxiety in children with gender identity disorder. *European Child and Adolescent Psychiatry, 16*, 309–315.

Wallien, M. S. C., Zucker, K. J., Steensma, T. D., & Cohen-Kettenis, P. T. (2008). 2D:4D finger-length ratios in children and adults with gender identity disorder. *Hormones and Behavior, 54*, 450–454.

Winters, K. (2005). Gender dissonance: Diagnostic reform of gender identity disorder for adults. *Journal of Psychology and Human Sexuality, 17*, 71–89.

Winters, K. (2008). *Gender madness in American psychiatry: Essays from the struggle for dignity*. Dillon, CO: GID Reform Advocates.

World Professional Association for Transgender Health. (2011). *Standards of Care for the Health of Transsexual, Transgender, and Gender Nonconforming People* (7th version). Minneapolis, MN: Author. www.wpath.org.

Zhou, J. N., Hofman, M. A., Gooren, L. J., & Swaab, D. F. (1995). A sex difference in the human brain and its relation to transsexuality. *Nature, 378*, 68–70.

Zucker, K. J. (1992). Gender identity disorder. In S. R. Hooper, G. W. Hynd, & R. E. Mattison (Eds.), *Child psychopathology: Diagnostic criteria and clinical assessment* (pp. 305–342). Hillsdale, NJ: Erlbaum.

Zucker, K. J. (2006). Gender identity disorder. In D. A. Wolfe & E. J. Mash (Eds.), *Behavioral and emotional disorders in adolescents: Nature, assessment, and treatment* (pp. 535–562). New York: Guilford Press.

Zucker, K. J. (2007). Gender identity disorder in children, adolescents, and adults. In G. O. Gabbard (Ed.), *Gabbard's treatments of psychiatric disorders* (4th ed., pp. 683–701). Washington, DC: American Psychiatric Press.

Zucker, K. J. (2010). The DSM diagnostic criteria for gender identity disorder in children. *Archives of Sexual Behavior, 39*, 477–498.

Zucker, K. J. (2011, September). *A follow-up study of boys with gender identity disorder*. Paper presented at the meeting of the World Professional Association for Transgender Health, Atlanta, GA.

Zucker, K. J., Beaulieu, N., Bradley, S. J., Grimshaw, G. M., & Wilcox, A. (2001). Handedness in boys with gender identity disorder. *Journal of Child Psychology and Psychiatry, 42*, 767–776.

Zucker, K. J., & Bradley, S. J. (1995). *Gender identity disorder and psychosexual problems in children and adolescents*. New York: Guilford Press.

Zucker, K. J., & Bradley, S. J. (1998). Adoptee overrepresentation among clinic-referred boys with gender identity disorder. *Canadian Journal of Psychiatry, 43*, 1040–1043.

Zucker, K. J., Bradley, S. J., & Lowry Sullivan, C. B. (1996). Traits of separation anxiety in boys with gender identity disorder. *Journal of the American Academy of Child and Adolescent Psychiatry, 35*, 791–798.

Zucker, K. J., Bradley, S. J., Owen-Anderson, A., Kibblewhite, S. J., Wood, H., Singh, D., et al. (2012). Demographics, behavior problems, and psychosexual characteristics of adolescents with gender identity disorder or transvestic fetishism. *Journal of Sex and Marital Therapy, 38*, 151–189.

Zucker, K. J., Bradley, S. J., & Sanikhani, M. (1997a). Sex differences in referral rates of children with gender identity disorder: Some hypotheses. *Journal of Abnormal Child Psychology, 25*, 217–227.

Zucker, K. J., & Cohen-Kettenis, P. T. (2008). Gender identity disorder in children and adolescents. In D. L. Rowland & L. Incrocci (Eds.), *Handbook of sexual and gender identity disorders* (pp. 376–422). New York: Wiley.

Zucker, K. J., Green, R., Bradley, S. J., Williams, K., Rebach, H. M., & Hood, J. E. (1998). Gender identity disorder of childhood: Diagnostic issues. In T. A. Widiger, A. J. Frances, H. A. Pincus, R. Ross, M. B. First, W. Davis, & M. Kline (Eds.), *DSM-IV sourcebook* (Vol. 4, pp. 503–512). Washington, DC: American Psychiatric Association.

Zucker, K. J., Green, R., Coates, S., Zuger, B., Cohen-Kettenis, P. T., Zecca, G. M., et al. (1997b). Sibling sex ratio of boys with gender identity disorder. *Journal of Child Psychology and Psychiatry, 38*, 543–551.

Zucker, K. J., & Lawrence, A. A. (2009). Epidemiology of Gender Identity Disorder: Recommendations for the Standards of Care of the World Professional Association for Transgender Health. *International Journal of Transgenderism, 11*, 8–18.

Zucker, K. J., & Spitzer, R. L. (2005). Was the Gender Identity Disorder of Childhood diagnosis introduced into DSM-III as a backdoor maneuver to replace homosexuality? An historical note. *Journal of Sex and Marital Therapy, 31*, 31–42.

Zuger, B. (1984). Early effeminate behavior in boys: Outcome and significance for homosexuality. *Journal of Nervous and Mental Disease, 172*, 90–97.

The OXFORD STUDENT

Oxford University's Student Newspaper. Est. 1991

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News

University News
College News
Local News
National News
Investigations

Christ Church Appoints New Dean

Berlin Film Festival 2023 – First Look Review – Tótem

University bans “intimate” relations between staff and students

FEATURES

Features

Identity

Editorials – Week 7

To leave or not to leave: that is the question

‘We’ve just got to push the reset button’: Lord Peter Mandelson on Labour, Europe and Modern Communications

COMMENT

National Issues
International Issues

What should Labour's missions be?

How volunteering can save your soul

Andrew Tate: The Mouthpiece of Misogyny

CULTURE

Woolf Works Review: Dancing the Novels

Berlin Film Festival 2023 – First Look Review – Roter Himmel (Afire)

‘That thing that everyone wants but no one has’: The Addams Family Review

PROFILE

Profile

‘We’ve just got to push the reset button’: Lord Peter Mandelson on Labour, Europe and Modern Communications

"It's clear that Cameron wants to make these important decisions." – In Conversation with George Monbiot

"As an owner, you need to be patient and build relationships with the media and the fans."

OXYOU

OxYou

Satire and Student Features

SUNDAY ROAST: CENSORED

Three Men on a Voi

SUNDAY ROAST: TRIBALISM

SCITECH

To leave or not to leave: that is the question

Coffee – are we drinking it wrong?

Are black holes the source of dark energy?

GREEN

Green

Is the UK a Net Zero hero?

We are all Climate Deniers: What if we weren't?

Everything you need to know about COP15

SPORT

Sport

University
Sport
College
Sport

built stadium: an away day at Oxford United

Back on track once again: the 2023 F1 season preview

The New Faces of F1 2023

COLUMN

Column

Blane's Style Files: The Problem With Digital Fashion

Eastern European Expeditions: Warsaw and the Problem of 'Old Towns'

Image Credit: Tom Gould

Investigations · 26th October 2018

Transphobic tweets linked to Oxford sociology professor

James Ashworth and Charlie Willis

Image Credit: Tom Gould. Description: St Cross College.

Please note that this article contains explicit discussion of transphobic statements and images.

Professor of Sociology and Fellow of St Cross College Michael Biggs has been posting transphobic statements online under the Twitter handle @MrHenryWimbush, *The Oxford Student* can reveal.

The Twitter account, named Henry Wimbush and still online at the time of publication, has been tweeting statements such as “transphobia is a word created by fascists, and used by cowards, to manipulate morons” since first Tweeting in January.

In order to substantiate the allegations made that the true identity of the Tweeter was Professor Biggs, it was found that the account in question could be linked to a partial phone number and Yahoo! email using freely available data and by making use of Twitter’s various functions. The Yahoo! email itself is also linked to a phone number ending in the same numbers as those previously identified, while also revealing that it is connected to the email address m**********gs@sociology.ox.ac.uk.

When this email is compared to those freely available on the Sociology Department’s website, Biggs’ is the only name that starts and ends in the correct letters, and also fits the number of characters exactly.

Another tweet states that the person behind the account has gone from "teenage shitlord to Oxford professor" [sic]. While this could refer to Oxford Brookes, the account references an update to their employer's trans policies in a




May 2021, suggesting that the person behind the account was an Oxford University staff member.

Biggs has published a number of articles in his own name about transgender issues, including on University servers. One such article was published by Transgender Trend, which has produced literature for schools which states that teachers should not pretend "to believe an idea that contradicts material reality" for children with gender dysphoria, and includes one suggested answer for primary school children asking questions about a transgender classmate is that they "can't actually change from a boy to a girl". In this article, he suggests that suicide in trans children is "not […] a common occurrence" and that "transgendering organizations [cite evidence] from surveys that recruit respondents haphazardly".

While this article focused on UK-based statistics, it still seems to contradict a study by Becerra-Culqui et al., using a cohort of 1,333 juveniles across California and Georgia. They found that hospitalisation for suicidal ideation before evidence of gender nonconformation could be as high as 29% in transmasculine subjects, though significantly less at 9% in transfeminine individuals. A UK based study by Holt et al., using a smaller cohort of 218 juveniles, saw suicidal ideation placed at 38.3% for transfeminine and 32.8% for transmasculine individuals, while suicide attempts were made by 12.3% of transfeminine and 13.9% of transmasculine individuals. Biggs has also written about his work at the Women's Place UK (WPUK) event in Oxford in April – @MrHenryWimbush mentions attending other WPUK events – described by the Oxford SU LGBTQ+ Campaign in a statement as "predominantly about curtailing transgender people's rights". WPUK described this statement as "containing many inaccuracies".

The account Tweeted 23 June: "If a woman had an unsatisfactory experience at a restaurant, would she get an apology from the city's mayor with 1.5 hours?", apparently in reference to Charlotte Clymer, a trans woman who was removed from a D.C. restaurant when she used the women's bathroom after staff allegedly asked her to show her ID to be allowed in. The incident occurred in the evening, 22 June.

The account also Tweeted that the British medical journal *The Lancet* "endorses eugenics", tagged "#transthegayaway", in response to an article from the journal which states that "based on empirical evidence, clinician consensus, and results of non-randomised and observational studies […] [hormone] treatment should depend on an individual's ability to make informed decisions, duration of puberty suppression, any coexisting health issues, and the level of family support."

Other Tweets posted by the account include multiple posts misgendering New Zealand weightlifter Laurel Hubbard, asking for an explanation of how "the 2nd and 3rd placed women could have ignored this man", accompanying an image of Hubbard atop a podium with two other weightlifters.

Another states that "gender-critical feminists almost invariably outmatch transactivists" with a suggestion that feminists "always have to argue against orthodoxy" while "transactivists are used to safe spaces where their

ideology is affirmed and never challenged." The last remark is accompanied by a snowflake emoji, with "snowflake" here used as "a disparaging term for a person who is seen as overly sensitive and fragile" (Merriam Webster).

The Handmaid's Tale, which shows four "handmaids" (women forced into sex slavery and resultant involuntary childbirth). The implication appears to be a ridicule of supposing that gender identity would matter in such a situation.

The account's bio states: "AMAB transmasculine non-binary demiboy. Polyam aro/ace. 2 + 2 = 4". This appears to be mocking certain labels of the LGBTQ+ community: "polyam[orous]" – "the practice of engaging in multiple sexual relationships" – and "aro/ace" – short for aromantic, meaning "having no interest in or desire for romantic relationships" alongside asexual, meaning "without sexual feelings or associations" – are clearly intended to sound self-contradictory. "2 + 2 = 4" also appears to be a reference to George Orwell's *1984.*

Further Tweets that have been shown to *The Oxford Student* state that "the odd thing about transitioning is that it makes you LESS attractive", while another states that @MrHenryWimbush can "almost picture your ladydick" in response to Tweets by other accounts. A reply to another Tweet alleges that transgender people are "five times more likely to be tweeting "choke on my ladydick, cuntwipe"".

In addition, both the Oxford LGBTQ+ Society and Dr Clara Barker, a trans woman and vice-chair of the Oxford University LGBTQ+ Advisory Board, have confirmed to *The Oxford Student* that they have passed on complaints about Biggs to the University in June. The account's last activity was on July 1st. Further allegations by Mac Harrison could not be substantiated.

Dr Clara Barker, who is mentioned in the account's Tweets, told *The Oxford Student* that she is "concerned by [Biggs'] personal views. That he may be linked to an account is one thing, but he has since started speaking very publicly as an expert of gender diversity.

"I find it hard to believe that he can say these things [referring to articles and printed comments by Biggs] outside of work, when they are so clearly in opposition to University guidelines and policies, [or] that those views can be left completely outside of a lecture hall. I really worry for any trans students that have to work with him. I would be very uncomfortable around him knowing his views."

St Cross College, of which Biggs is a fellow, referred us to the University Press Office, as did the Sociology Department, where he is a Professor. While stating that they "cannot comment on specific allegations", the University's statement said that "The University aims to create an inclusive trans-friendly culture, workplace and learning environment, free from discrimination, harassment or victimisation, where all transgender people are treated with dignity and respect. We aim to anticipate and respond positively to the needs of prospective, current and former students and staff in relation to gender identity issues, providing a professional and consistent service so that all trans members of the University feel welcome, safe, valued and supported to achieve their potential and contribute as a member of the University. Transphobic abuse, harassment and bullying will be dealt with under the University policy on harassment and bullying."

Ellie Oppenheim, President of the Oxford University LGBTQ+ Society, commented that "Upon hearing about the allegations made against Michael Biggs, the OULGBTQ+ Society were very concerned. Having received complaints




communicated with the Vice-Chair of the LGBT+ Advisory Board (Clara Barker), who supported us in our decision to go through the official university channels of complaint. In terms of our next steps, we will continue working under the guidance of Clara Barker, and remain in close communication with the pro-vice chancellor for equality and diversity."

Biggs, in response to a request for statement on his stance on transphobia, said: "It is not transphobic to discuss the merits of legislation or to debate theories about sex and gender. Dictionary definitions such as 'woman: adult human female' and 'lesbian: female homosexual' are not transphobic. Nor is it transphobic to call the convicted rapist Karen White – who was placed in a women's prison – a man."

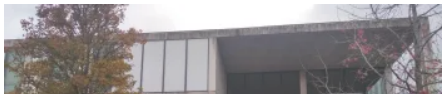
When asked if he supported the University's position on transphobia, he said: "I treat students and colleagues with respect and so would never call a member of the University by a pronoun which he or she found objectionable.

"I do not, however, believe that gender identity supersedes sex, any more than I believe that Jesus was the son of God. Therefore I oppose any attempt by the University to establish an official doctrine on gender, just as I would oppose the imposition of a single religion or one particular position on Israel-Palestine. The enforcement of orthodoxy – often disguised as 'diversity' – would destroy the University's very foundation: academic freedom."

His full statement can be found on his website.

The Oxford Student is currently investigating other claims of harassment and inappropriate comments by staff members of the University. If you have experience of this, and would be happy to be quoted anonymously, please use this anonymous form.

A previous version of this article described polyamory and asexuality as mutually exclusive. We acknowledge that this is not the case and have amended the article accordingly; please get in touch about any further issues with this definition! We have also on recommendation clarified that one quote makes reference to 1984. Thank you to @hans_fowles and @MrsMeadowsweet for clarifying these points. It has also been amended to include further Tweets which have been passed to The Oxford Student.



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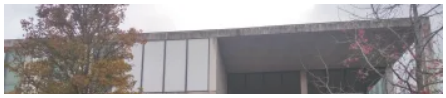

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