

IN THE UNITED STATES DISTRICT COURT FOR  
THE WESTERN DISTRICT OF OKLAHOMA

UNITED STATES OF AMERICA,

Plaintiff,

RACHEL TUDOR,

Plaintiff-Intervenor,

v.

SOUTHEASTERN OKLAHOMA STATE  
UNIVERSITY, and

THE REGIONAL UNIVERSITY  
SYSTEM OF OKLAHOMA,

Defendants.

Case No. 15-cv-324-C

**DEFENDANTS SOUTHEASTERN OKLAHOMA STATE UNIVERSITY  
AND THE REGIONAL UNIVERSITY SYSTEM OF OKLAHOMA'S  
DAUBERT MOTION REGARDING GEORGE R. BROWN, M.D.**

In this case alleging that Defendants denied tenure to Dr. Tudor because of her sex, Plaintiff/Intervenor offers the testimony of Dr. George W. Brown as a purported expert seeking to testify regarding gender identity and sex. *Dr. Brown's Expert Report*, attached as Exhibit 1. For the reasons set forth below, the report, testimony, and opinions of Plaintiff/Intervenor's proffered gender identity and sex expert should be barred.

The issue before this Court is whether the reason for Dr. Tudor's tenure rejection was unlawful discrimination based on sex – specifically, sex stereotyping.<sup>1</sup>

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<sup>1</sup>Transgender is not a protected class under Title VII, and therefore Plaintiff/Intervenor cannot pursue a claim based upon her transgender status.

Whether Dr. Tudor is of a certain sex or identifies with a certain sex is not a fact in issue before this Court. Accordingly, any testimony Dr. Brown seeks to offer regarding gender identity and sex is not relevant to a fact in issue. Further, the irrelevant testimony is not reliable as it is not applied to the facts of the case, provides no methodology, and it is unclear exactly what the testimony would be or what possible probative value it could have. Dr. Brown's expert report contains absolutely no opinions regarding sex stereotyping. Dr. Brown's expert report contains zero opinions on, or references to, Dr. Tudor. The injection of Dr. Brown into this matter amounts to a classic red herring, an unnecessary distraction from the issues at hand.

For these reasons, Defendants Southeastern Oklahoma State University ("SEOSU") and The Regional University System of Oklahoma ("RUSO") (collectively "Southeastern") ask the Court to exclude the testimony of Dr. Brown because it is improper under Federal Rule of Evidence 702 and does not meet the applicable standard of admissibility for expert testimony.<sup>2</sup>

### **ARGUMENT AND AUTHORITY**

Federal Rule of Evidence 702, which governs the admissibility of expert testimony, provides that:

A witness who is qualified as an expert by knowledge, skill, experience, training, or education may testify in the form of an opinion or otherwise if: (a) the expert's scientific, technical, or other specialized knowledge will help the trier of fact to understand the evidence or to determine a fact in issue; (b) the testimony is based on sufficient facts or data; (c) the testimony is the product of reliable principles and methods; and (d) the

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<sup>2</sup>Defendants also filed a motion in limine to limit Dr. Brown's testimony to the contents of his expert report, or to exclude it entirely pursuant to Fed. R. Evid. 401-403. [Doc. 195].

expert has reliably applied the principles and methods to the facts of the case.

This Rule “establishes a standard of evidentiary reliability” that “requires a valid connection to the pertinent inquiry as a precondition to admissibility,” mandating that the trial judge must prospectively evaluate the “testimony’s factual basis, data, principles, methods, or their application” to “determine whether the testimony has a reliable basis in the knowledge and experience of the relevant discipline.” *Kumho Tire Co. v. Carmichael*, 526 U.S. 137, 149 (1999) (quoting *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 509 U.S. 579, 590-92 (1993)). The proponent of the proffered testimony bears the burden of establishing that it meets the admissibility requirements by a preponderance of the evidence. *Bourjaily v. United States*, 483 U.S. 171, 175 (1987).

The Court in *Daubert* established that, under Rule 702, the district court is tasked with “ensuring that an expert’s testimony both rests on a reliable foundation and is relevant to the task at hand.” *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 509 U.S. 579, 597 (1993). As for the relevancy standard, or Rule 702(a), the district court must determine whether the testimony “will assist the trier of fact to understand or determine a fact in issue.” *Daubert*, 509 U.S. at 592.

As set forth in Proposition I, below, Dr. Brown’s proposed report does not offer testimony sufficient to meet the *relevancy* standard of this two-prong analysis. As for the *reliability* standard, or Rule 702(b)-(d), the district court is to consider whether “the testimony is based on sufficient facts or data,” whether “the testimony is the product of reliable principles and methods,” and whether “the expert has reliably

applied the principles and methods to the facts of the case.” *Daubert*, 509 U.S. at 592-94; *See also* Fed. R. Evid. 702(b)-(d). As set forth in Proposition II, below, Dr. Brown’s proposed report lacks any indicia of reliability to this matter as it fails to assert any opinions or conclusions regarding Dr. Tudor, the Defendants, or any facts in this case, and does not set forth any methodologies or analysis supporting the vague conclusions that it does form.

**I. DR. BROWN’S TESTIMONY SHOULD BE EXCLUDED BECAUSE IT IS NOT RELEVANT.**

Rule 702 requires that the proffered expert’s testimony must be relevant to an issue in the case. The touchstone inquiry of the relevancy evaluation is whether the proffered testimony will assist the trier of fact in resolving a factual dispute. *Daubert*, 509 U.S. at 591 (internal citations omitted). While expert testimony may sometimes be helpful to the jury, “courts have excluded expert testimony under Rule 702 on matters within the common knowledge of jurors.” *Tilton v. Capital Cities/ABC Inc.*, 938 F.Supp 751, 753 (N.D. Okla. 1995). Thus, if an expert’s testimony would not assist the trier of fact, then the Court should exclude the testimony under Fed. R. Evid. 702 and *Daubert*. “Although any witness may offer an opinion as to an ultimate issue to be decided by a jury, this opinion should not unduly invade the province of the jury when the assistance of the witness is unnecessary.” *Sims v. Great American Life Ins. Co.* 469 F.3d 870, 889 (10th Cir. 2006); *see also United States v. Dazey*, 403 F.3d 1147, 1172 (10th Cir. 2005).

Some of the named sub-topics highlighted in Dr. Brown's Report include: "Determining a person's sex," "Gender and gender identity," "Genital anatomy," "Chromosomal complement," "What it means to be transgender or transsexual," "The condition of gender dysphoria" (a type of mental disorder), and "Treatment of Gender Dysphoria." None of these topics involve the claims and disputes in this case. Expert testimony which does not relate to any issue in the case is not relevant and non-helpful. *Miller v. Heaven*, 922 F. Supp. 495, 501 (D. Kan. 1996). Conversely, there are no references at all to Dr. Tudor, the Regional University System of Oklahoma, Southeastern Oklahoma State University, employment considerations, tenure, promotion in academia, any individual employees or agents of the Defendants, or even the State of Oklahoma. As revealed by his summary of Opinions/Conclusions, and the lack of discussion of any facts pertinent to this case, Dr. Brown's proposed testimony, based upon his expert report, has no relevance to the issues in this case.

Plaintiff/Intervenor's intentions are unclear. Plaintiff/Intervenor seems to be attempting to use Dr. Brown's testimony to establish that Tudor is a transgender woman (though what exactly Dr. Brown will be testifying to is unclear from his "Expert Report").<sup>3</sup> However, the fact that Tudor is a transgender individual is not a disputed fact. Plaintiff/Intervenor's Complaint alleged it, and Defendants admitted it. As this Court has already acknowledged, "Defendant's Answer to Plaintiff's Complaint in this matter contains sufficient admissions regarding [Tudor's]

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<sup>3</sup> Brown's Report fails to meet the basic requirements of Rule 26(a)(2)(B), particularly but not limited to (i), (ii), and (iii).

transition from male to female” and “Defendant has at no time raised or suggested as a defense to Plaintiff’s claims in this matter that [Tudor] was not, in fact undergoing a transition in her gender.” *Memorandum Opinion and Order*, [Doc. 92]. As such, there is “no basis to find” that the testimony purported by Dr. Brown “has some tendency to either prove or disprove a fact in dispute” nor is it likely to lead to determination of a fact, as this issue has already been settled. *Id.* Dr. Brown’s testimony would not offer any substantive evidence that was not previously disclosed or otherwise produced during discovery. Therefore, there is no evidence or fact to which Dr. Brown can testify, and his testimony and report should be excluded.

If allowed to testify, Dr. Brown would invade the province of the jury. His “Expert Report” does not apply any specialized knowledge to the case at hand. Instead, his report merely contains eighteen pages summarizing data from published articles defining gender, transgender, the steps required to undergo sex-reassignment, and concludes that “sex’ is complex and requires more than a cursory glance at a newborn’s genitalia.” *See Ex. 1 at 2.* Brown does not once mention Tudor, Tudor’s gender transition, or any facts actually related to this case. He offers no opinions specific to Tudor. As Tudor has already been established as transgender or transsexual woman, Brown’s testimony is neither helpful nor relevant, likely only to confuse the jury and the relevant issues, and should be excluded for failure to meet the applicable standard for admissibility for expert testimony under Rule 702.

## II. DR. BROWN'S TESTIMONY SHOULD BE EXCLUDED BECAUSE IT DOES NOT MEET THE RELIABILITY STANDARD OF RULE 702.

Rule 702 requires the expert's testimony be reliable in its foundation and its application to the facts of the case. Plaintiff has the burden of showing that the proffered expert has sufficient expertise to choose and apply a methodology, that the methodology is reliable, that he relied on sufficient facts and data, and that the methodology was otherwise reliably applied. *See Phoenix Ins. Co v. Trinity Universal Ins. Co of Kan.*, 12-CV-01553-REB-KLM, 2013 WL 4594529, at \*6 (D. Colo. Aug. 29, 2013) (citing *Mitchell v. Gencorp*, 165 F.3d 778, 781 (10th Cir. 1999); *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 509 U.S. 579, 595 (1993)); *see also Dodge v. Cotter Corp.*, 328 F.3d 1212, 1222 (10th Cir. 2003). Dr. Brown's proposed expert report and testimony fails this reliability test in every respect.

Fundamentally, Dr. Brown's expert report lacks any indicia of reliability in this context because it does not mention or address Dr. Tudor or any of the facts of this case. But for the style of this case located below the proposed report's title, the report in no way exhibits any applicability to this case at all. *See Ex. 1 at 1*. Dr. Brown does not even state whether he has met Dr. Tudor or reviewed any medical or mental health records or charts, much less formed a medical conclusion regarding Dr. Tudor's gender identity or sex.<sup>4</sup>

Further, Dr. Brown's Expert Report fails to set forth any methodology or application of the contents therein. Rather, it is merely a compilation of statements

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<sup>4</sup> Of course, any such opinion is irrelevant because it is not in dispute.

and definitions from medical journals and resources. For example, in Section II. B. of the report, “Determining a person’s sex,” Dr. Brown supports his ultimate conclusion that “sex is complex” by explaining there are six variables used in determining a person’s biological sex: gender and gender identity, genital anatomy, primary and secondary sexual characteristics, brain anatomy, sexual orientation, hormonal levels in the brain and in the body, and chromosomal complement. Ex. 1 at 3. Dr. Brown goes on to generally identify and describe those six variables, Ex. 1 at 3-7, but never offers any methodologies used, or studies conducted, in actually applying those variables. He does not even bother to state that he applied any of those variables in his own practice and research. Such testimony cannot possibly assist the jury. In fact, Brown’s report and suggested testimony strongly suggest uncertainty as to Tudor’s sex, which would **greatly confuse**, not assist, jurors. A district court must “determine whether the evidence is genuinely scientific, as distinct from being unscientific speculation offered by a genuine scientist.” *Mitchell v. Gencorp, Inc.* 165 F. 3d 778, 783 (10th Cir. 1999) (internal citations omitted). Dr. Brown states that he has “evaluated, treated, and/or conducted research with between 600 and 1000 individuals with gender disorders in person, and over 5100 patients with gender dysphoria during the course of research-related chart reviews.” Ex. 1 at 1. Evaluating, treating, and conducting research on 1000 individuals does not make Brown’s statements or regurgitations of definitions “scientific,” however. Without data, a stated methodology, facts, or any kind of analysis, the proposed report is nothing more than definitions pulled from medical resources, coupled with vague,

unsupported conclusions, none of which have any application to the issues disputed in this case.

Under Rule 702, “*any* step that renders the analysis unreliable . . . renders the expert’s testimony inadmissible.” *In re Paoli R.R. Yard PCB Litigation*, 35 F.3d 717, 745 (3d Cir. 1994). [Emphasis added.] Dr. Brown’s Expert Report does not simply miss one step of the reliability analysis, it fails at every step. To the extent “sex is complex” is an expert opinion or conclusion, the proposed report in support thereof fails to provide any methodology, data, or analysis and further fails to apply that unsupported conclusion to the case at hand. Accordingly, Dr. Brown’s testimony should be excluded for failure to meet the applicable standard for admissibility for expert testimony under Rule 702.

### CONCLUSION

For the foregoing reasons, Defendants SEOSU and RUSO respectfully request that this Honorable Court bar the reports, testimony, and opinions of Plaintiff/Intervenor’s proffered gender identity and sex expert, Dr. Brown, and grant any other relief this Court deems just and proper.

Respectfully submitted,

/s/ Dixie L. Coffey

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**CERTIFICATE OF SERVICE**

I hereby certify that on this 20th day of October 2017, I electronically transmitted the foregoing document to the Clerk of Court using the ECF System for filing and transmittal of a Notice of Electronic Filing to the following ECF registrants:

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**Expert Report of George R. Brown, MD, DFAPA**

*U.S. et al. v. Southeastern Okla. St. Univ. et al.*, 5:15-cv-00324-C (W.D. Okla.)

**I. Qualifications and Experience**

I am a Professor of Psychiatry and Associate Chairman of the Department of Psychiatry at East Tennessee State University in Johnson City, Tennessee. I am board-certified in adult psychiatry. I was named a Fellow of the American Psychiatric Association in 1998 and a Distinguished Fellow in 2003.

I have specialized training and expertise in the diagnosis and treatment of Gender Identity Disorder and Gender Dysphoria (“GID/GD”). I have authored or coauthored 38 papers in peer-reviewed journals and 19 book chapters on topics related to GID/GD, including the chapter on GID/GD in *Treatments of Psychiatric Disorders*, (3rd Ed. 2001), the definitive text on the diagnosis and treatment of psychiatric disorders published by the American Psychiatric Association. I have been a practicing psychiatrist since 1987. Over the last 33 years, I have evaluated, treated, and/or conducted research with between 600 and 1000 individuals with gender disorders in person, and over 5100 patients with gender dysphoria during the course of research-related chart reviews.

Since 1987, I have been extensively involved with the World Professional Association of Transgender Health (“WPATH”), the only international association of medical, surgical, and mental health professionals specializing in the evaluation and treatment of, transsexual, transgender, and gender non-conforming people (WPATH is the same organization which was previously known as the Harry Benjamin International Gender Dysphoria Association until 2006). I served on the Board of Directors of WPATH from 1993-1997 and from 2001 – 2007 and from 2010-2014. I also served on the Executive Committee of this organization as Secretary-Treasurer from 2007-2009. In addition, I was a coauthor in the development and publication of the World Professional Association of Transgender Health Care’s Standards of Care for the Health of Transsexual, Transgender, and Gender-Nonconforming People, Version 7 (published in 2011 and currently in use), and in the previous 2 versions (versions 5 and 6). I served as a member of WPATH’s Standards of Care Revision Committee from 1990-1998 and have been Co-Chairman or a member of that Committee from 2001 to present. These standards for the medical treatment of GID/GD represent the consensus of specialists in the field, and have been recognized as the definitive standards by a number of jurisdictions in the USA and Canada. My current responsibilities involve conducting the largest studies ever developed concerning the health of, and health disparities in, transgender/gender dysphoric people, as well as providing national training programs on transgender health care on a national basis in the Veterans Health Administration

and for the Department of Defense. More detailed information about my background and experience can be found in my curriculum vitae, which is attached as Exhibit 1.<sup>1</sup>

## **II. Opinions**

I have been asked to render expert opinions in the following areas:

- (1) The factors that medical professionals consider when determining a person's sex.
- (2) The traits of "gender" and "gender identity," how they relate to a person's sex, and how they relate to "sexual identity."
- (3) The traits of being "transgender" and "transsexual" and how they relate to a person's sex.
- (4) The condition of "gender dysphoria" (previously called gender identity disorder).
- (5) Treatment of gender dysphoria and gender identity disorder.

In forming my opinions, I have relied on my scientific education and training, my research experience, my knowledge of the scientific literature in the pertinent fields (a nonexhaustive list of those references are included at the end of this document), and my 33 years of clinical experience in evaluating, treating, and conducting research with patients with sexual and gender identity issues and gender identity/gender dysphoria disorders. My opinions are set forth below. I may wish to supplement these opinions or the bases for them as a result of new scientific research or publications or in response to statements and issues that may arise in my area of expertise.

### **A. Summary of Opinions/Conclusions**

"Sex" is complex and requires more than a cursory glance at a newborn's genitalia. Sex involves biological constructs that may or may not be readily observed, and includes the important component of gender. "Gender" involves both gender identity and gender role/expression. Gender identity is an internal, subjective sense of oneself as masculine, feminine, or occasionally some other sense of gender that does not fit readily into the "binary" construct of male/masculine and female/feminine that predominates in our Western culture. Gender role, or expression, is the objective presentation that each of us has as we dress, behave, and interact in society in ways that are understood by others as masculine, feminine, or occasionally some other gender role/expression that does not seem to fit into the binary construct of male/masculine or female/feminine. Everyone has a gender identity and role, and in the vast majority of people, there is consonance between the sex of assignment at birth

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<sup>1</sup> Please see Exhibit 2 for information about my compensation for preparing reports and testifying in this case.

(“birth sex”) and both gender identity and role. Rarely, there is significant incongruity between “birth sex” and one’s gender identity, which can result in a set of clinically significant symptoms described in psychiatric manuals as “gender dysphoria” (GD).

Treatment of GD is guided by the WPATH standards of care, and many individuals with this diagnosis can be fully cured of all symptoms with appropriate treatment. Treatment typically consists of psychological evaluation and therapy, hormonal therapy, living in the felt gender role, and, for some, irreversible surgeries to bring the body into alignment with the subjective experience of gender identity. Part of this transition necessitates the legal assumption of an identity that is consistent with gender identity, e.g. driver’s license, amended/changed birth certificate, passport.

## **B. Determining a person’s sex**

A person’s “sex” is not exclusively or solely defined by one’s anatomy or ability to procreate as was often believed in the past (Ovesey and Person, 1973). “Biological sex” is a broad and complex concept that consists of a number of variables, including gender and gender identity, genital anatomy (internal and externally visible), secondary sexual characteristics, brain anatomy, sexual orientation, hormonal levels in the brain and body, and chromosomal complement. Most commonly, the factors that constitute biological sex align and there is little variation. For example, for the vast majority of men, there is a total matching of chromosomes (XY), sexual organ appearance as male (penis and testicles), male hormone levels (predominantly testosterone), and the overall psychological sense of being a man. The American Psychological Association defines “[s]ex as a person’s biological status and is typically categorized as male, female, or intersex (i.e., atypical combinations of features that usually distinguish male from female).” “Birth sex” is another term frequently used in medical professionals’ discussions of sex, and refers to the sex of assignment at birth as recorded on a birth certificate. “Birth sex” (the sex of assignment at, or near, the time of birth) can be recorded as only “male” or “female” and as such, is an administrative binary terminology that does not take into account the complexity of human experience.

The variables identified above and their role in determining a person’s sex are discussed in more detail below.

### **1. Gender and gender identity**

Gender is a component of sex, and like sex, has both a subjective and an objective component. The subjective sense of oneself as masculine, feminine, both, neither or some other gender is commonly referred to as gender identity, is a critical component in determining a person’s sex, and is inextricably linked, although partially distinct, from sexual orientation. Gender role is the objective, social expression of gender identity and is usually aligned with gender identity. Most people give no thought to their gender

identity and whether or not it matches their physical anatomy because no conflict exists. For example, most men get up in the morning, put on clothes that identify them as men in our society, and experience no conflicts or incongruity between their sense of being a man and how they look anatomically and how they present themselves in society as men. However, in rare individuals (recent estimates are 4.6/100,000 births; Arcelus, 2015), gender identity and gender role may not align, and gender identity may not align with the other components of sex. For example, transsexual persons generally experience a lack of alignment between their subjective sense of themselves (gender) and their genital/physical anatomy. Note that “sex” is an integral part of the term “transsexual” (discussed below) which indicates the linkage between gender and sex.

A person’s “gender identity” is a component of one’s biological sex and refers to “one’s sense of oneself as male, female, or transgender” (American Psychological Association, 2006). The American Psychiatric Association defines gender identity as a “category of social identity and refers to an individual’s identification as male, female, or occasionally, some category other than male or female.” (APA, DSM-5, 2013, pg 451). When one’s gender identity and other biological characteristics are not congruent, the individual may experience gender dysphoria (defined below). While “birth sex” (sex of assignment at birth) is usually congruent with a child’s gender identity (as experienced and expressed later in childhood), children are sometimes born with anatomical, hormonal, and/or chromosomal variations that do not align with the “birth sex” (genital anatomy) that was recorded by a physician at or near the time of birth. Such children may then develop gender identities and roles that do not align with their “birth sex.”

All individuals, not just transgender individuals (who are discussed in section II.C below), have a gender identity. Studies have shown that gender role, as an expression of gender identity, is usually established early in life, by the age of 2-3 years old, and that gender role (behaving as a typical boy or girl in our culture) usually displays very little malleability over time for the vast majority of people (Stoller, 1968), especially after the onset of puberty. Children as young as one year old may display gender-specific behaviors readily recognizable as associated with the “other” sex (Zucker and Bradley, 1995, Chapter 1, page 11).

Gender identity is distinguishable from and exists separately from sexual orientation, which refers to whom a person is sexually attracted. Just as with other individuals, transgender people can have sexual identities/orientations as heterosexual, homosexual, bisexual or asexual.

## **2. Genital anatomy (internal and externally visible)**

A critical component in determining a person’s sex is the genital anatomy, which includes both internal (not observable) and external (observable) components. It is the

appearance of the observable external genitalia that determines the classification of “birth sex,” the sex of assignment at birth, and whether “Male” or “Female” is registered on a birth certificate.

### **3. Primary and Secondary sexual characteristics**

Primary sexual characteristics are those features that are not subject to the hormonal changes associated with puberty. These typically include: testes, prostate, seminal vesicles, penis, in “birth sex” males, and ovaries, vagina, uterus, fallopian tubes, clitoris, labia in “birth sex” females. Secondary sexual characteristics are those physical features that develop under the influence of rising levels of sex steroid hormones beginning at puberty. Examples include breasts in women, “Adam’s Apple” (enlargement of the front part of the laryngeal cartilage) in men, facial hair in men, widening of the pelvis in women, deepening of the voice in men, and hip-to-waist measurement ratios that are lower in adult females, on average, compared to adult males. These physical changes are dependent on production of adequate amounts of estrogens in females and testosterone in males.

### **4. Brain anatomy**

Brain anatomy is another determinant of a person’s sex. Many areas of the brain are different between males and females (“sexually dimorphic” areas of the brain), due to genetics and the amounts of sex steroid hormones present in the developing fetal brain (from any source, including from the woman carrying the fetus).

It is well known that the brains of “birth sex” men and women differ in size in many regions of the brain. These include specific parts of the brain that are visible on MRI studies, including the hippocampus, caudate nucleus, and anterior cingulate gyrus, to name a few, that are larger in “birth sex” women and the amygdala and gray matter volumes that are larger in “birth sex” men. Most studies of gender-typical male and female brains also indicate that the right hemisphere is larger in men than in women.

### **5. Sexual orientation**

“Sexual orientation” refers to the sex of those to whom one is sexually and/or romantically attracted. The term “sexual identity” is often used interchangeably with sexual orientation. Categories of sexual orientation typically have included attraction to members of one’s own “birth sex” (gay men or lesbians), attraction to members of the other “birth sex” (heterosexuals), and attraction to members of both sexes (bisexuals). Rarely, some individuals report that they have no attraction to either sex (“asexual”). While these categories continue to be widely used, research has suggested that sexual orientation does not always appear in such definable categories and instead occurs on a continuum. In addition, some research indicates that sexual orientation is fluid for

some people; this may be especially true for women (Nichols, 2004; Peplau and Garnets, 2000).

Although usually aligned, sexual expression/role may or may not be consistent with the subjective sexual identity. For example, a person who has male genitals, a male-differentiated brain, male secondary sexual characteristics (e.g. facial hair, Adam's apple, strong upper body strength), XY chromosomal complement, male levels of brain and body testosterone, and sexual attraction to women (i.e., a heterosexual sexual orientation) as well as a subjective sexual identity as a heterosexual male may nonetheless engage in occasional same-sex sexual behaviors, indicating that sexual identity/orientation and sexual role/behavior may not always align.

## **6. Hormonal levels in the brain and body**

The relative levels of estrogen and testosterone (and their metabolites, or what is left after they are processed by the body) present in the brain and body are also factors that determine a person's sex. Estrogen and testosterone are referred to as "sex steroid hormones" and testosterone and its byproducts are referred to as "androgens." Both the brain and the body have receptors for estrogen and testosterone, which means that the brain and various organs in the body are changed by the presence, or absence, of these two major hormone classes. For example, it is known that both testosterone and estrogen are present in all people, but the relative amount of estrogen compared to testosterone is typically far, far higher in female bodies than in male bodies, whereas the amount of testosterone is typically far greater in male bodies than in female bodies. Variabilities in the amount of these sex hormones, both before and after birth, can have major consequences on the primary and secondary sexual characteristics, the likelihood of homosexual or heterosexual orientation, and the gender role behavior of people with these variances. For example, defects in prenatal sex hormone production can result in ambiguously appearing genitalia at birth, or misclassification of "birth sex" as female when the baby meets the criteria for male sex otherwise (MacGillivray and Mazur 2005). "Birth sex" females with much higher levels of androgens early in life (e.g., congenital adrenal hyperplasia, a genetic absence of an important sex steroid enzyme) may appear to have male genitalia at birth even though they have typically female chromosomes (46XX; see below). Gender identity in these girls is typically female, while gender role behavior may be masculine ("tomboys") and the likelihood of homosexual identity and orientation is much higher (Zurenda and Sandberg, 2003). There are many such conditions, present in both "birth sex" males and females, and collectively these conditions are known as "intersex," disorders of sex development, or "atypical sexual development." (Mazur, et al, 2007).

## **7. Chromosomal complement**

Chromosomes are an important determinant of sex. Typically, most people have 46 total chromosomes, two of which are “sex chromosomes” known as X and Y. The usual situation is for “birth sex” females to have a 46XX pattern, and for “birth sex” males to have a 46XY pattern. If the genes associated with the chromosomes are also typical, there is production of sex steroid hormones in various amounts and at various times during typical physical development such that 46XX is associated with female sex, female genitals, female gender identity and role (see below), and in a similar way, 46XY is associated with male sex, male genitals, male gender identity and role. A single gene on the Y chromosome is responsible for the differentiation of a human embryo into a “birth sex” male fetus with testicular development at approximately 6 to 7 weeks into a pregnancy (Mazur, et al, 2007).

In a fetus with 46XX chromosomes, no testosterone/androgens are secreted, and therefore female genitalia develop.

Uncommonly (but not rarely), there are genetic abnormalities in the fertilized egg that lead to chromosome patterns that are different from either 46XX or 46XY. Examples are numerous and can be found in Mazur, et al, 2007. Classic examples include Turner's Syndrome, estimated at 1:2500 live “birth sex” females (46XO, where one sex chromosome is missing), Klinefelter's Syndrome, where an extra X chromosome is present (for example, 47XXY, 48XXYY). This nonheritable genetic abnormality is present in 1:600 live “birth sex” males (Nielsen and Wohlert, 1991).

Some, but not all, disorders of the sex chromosomes are associated with atypical sexual organ appearance, higher rates of homosexuality, bisexuality, or asexuality (that is, little to no sexual attraction to anyone or interest in having sexual relations). Some, but not all, may have atypical gender identity and/or gender role development as well. The key point is that the presence of a typical 46XX or 46XY chromosome pattern is relevant for determining a person's sex but not sufficient, in and of itself, to determine a person's sex.

### **C. What it means to be transgender or transsexual**

The term “transgender” is a relatively recent term used as an umbrella concept for anyone who experiences any significant degree of “mismatch” between subjective gender identity and objective physical/anatomic sex. The term “transgender” is also used to describe people who have transitioned to living as a gender different from what they were assigned at birth. Many people who self-identify as transgender may have only transient problems which may or may not reach a threshold for a psychiatric diagnosis as defined below. “Transsexual” is frequently used to describe people whose gender identity is substantially inconsistent with the sex they were assigned at birth and

such individuals usually seek social transition and some type of medical, psychological, and/or surgical intervention(s) to align their physical anatomy with their subjective gender identity. Therefore, many researchers in this field of study consider the smaller group of transsexual people to be a subset of the much larger group of transgender persons. In any event, the population of transgender people is not known, as there are no large population-based studies. Since many people who self-identify as transgender do not come to clinical attention and gender identity questions are generally not asked on census forms or medical documents, it is not currently possible to know the size of this population. Estimates for transsexual people, who are more likely to come to clinical attention, vary widely, but are listed as from 0.005% to 0.014% for “birth sex” males and from 0.002% to 0.003% of “birth sex” females (APA, DSM-5, 2013, pg 454).

Although the precise etiology of transsexualism is unknown (Ettner, 2007; Lev, 2004), most experts in the study of transgender phenomena agree that there is likely a biological basis for transsexualism and perhaps other transgender phenomena. Even those who espouse the idea that postnatal factors, such as familial interactions, play an important role in gender identity development suspect that biological factors play a role in “inducing a vulnerability that then allows the psychosocial factors within the family to exert their effect” (Bradley, 1985, p. 175).

Much of the evidence in support of a biological basis for gender identity (typical or atypical) is based on comparison studies of the brains of transsexual persons using imaging techniques with live subjects or measurements taken post-mortem (after death). Such techniques were not possible a short time ago, but nonetheless, the concept of a “critical period effect” during fetal brain development was espoused decades ago as an explanation for why some (few) individuals experience gender nonconformity (Kimura 1992). Although it is not possible to directly study the developing human brain before birth, it was proposed that the hormones present in the bloodstream surrounding the developing brain at certain, undetermined critical periods in brain sexual differentiation was altered to the extent that the “brain sex” did not match the otherwise “normal” anatomic/genital sex at birth. This theory more recently received support in a study of fetal testosterone exposure, which showed that amniotic fluid levels of testosterone for “birth sex” male and female fetuses correlated positively with male-typical play patterns in both “birth sex” male and female children (Auyeung, et al, 2009).

Zhou and others reported in 1995 that areas of the brain known to differ in size between men and women generally could be studied in transsexual persons. At least one of these sexually dimorphic brain regions in male-to-female transsexual subjects was consistent with the size seen in “birth sex” females, and not males.

Additional support for a biological basis for transsexualism was reported by Luders and colleagues, who analyzed MRI data of 24 male-to-female (MtF) transsexuals not yet treated with cross-sex hormones in order to determine whether gray matter volumes in the brains of MtF transsexuals more closely resemble people who share their “birth sex” (30 control men), or people who share their gender identity (30 control women). Results revealed that MtF transsexuals showed a significantly larger volume of regional gray matter in the right putamen compared to the control group of non-transsexual, “birth sex” men. These researchers concluded that their findings provided new evidence that transsexualism is associated with a distinct cerebral pattern, which supports the assumption that brain anatomy plays a role in gender identity.

Savic and Stefan (2011) studied the brains of male-to-female transsexuals compared to “birth sex” controls of the same sexual orientation. The brains of the MtF subjects differed from controls in several regions (e.g., smaller volumes in the putamen and thalamus in MtF). They concluded: “Gender dysphoria is suggested to be a consequence of sex atypical cerebral differentiation.”

Additional studies in support of the hypothesis that gender dysphoria (defined below) is caused by sex atypical differentiation of parts of the brain before birth due to genetic and/or an early organizational effect of testosterone levels during fetal brain development include: Giedd J, Castellanos F, et al, 1997; Green R and Keverne E, 2000; van Goozen S, Slabbekoorn D, et al, 2002; and Swaab D, 2007.

Finally, several other studies have also found distinctive brain patterns in transsexual subjects that differ from what would be expected to be seen in non-transsexual subjects of the same “birth sex” in post-mortem studies: Kruijver F, Zhou J, et al, 2000; Berglund H, Lindstrom P, et al, 2008.

There is a spectrum of severity in the disconnect between subjective gender identity and “birth sex”, with gender dysphoric transsexualism (see D. below) being on the far end of this spectrum. The evidence for transsexualism arising from strictly, or mostly, postnatal influences (such as family interactions, social factors, maternal/paternal rearing styles) is not compelling; nor is the theory that transsexualism is “a lifestyle choice.” Importantly, “birth sex” males who consider themselves to be females (“transwomen” or “male-to-female transsexuals”) and have a female gender identity and female gender role are considered to be women, and not men, whether or not they have had any surgery to alter the appearance or function of their genitalia. Likewise, “birth sex” females who self-identify as male (“transmen”, “female-to-male transsexuals”) and have a male gender identity and gender role are considered to be men and not women irrespective of whether they have had any surgical interventions to change their bodies.

#### **D. The condition of gender dysphoria**

Gender dysphoria (GD) is both a symptom complex and a psychiatric diagnosis. As a set of symptoms, gender dysphoria is a mixture of mood symptoms (irritability, depression, anxiety) and mental distress or discomfort based on the experience of a mismatch between the sex of the body (“birth sex”) and the inner, subjective sense of gender. There are degrees of severity of gender dysphoria symptoms, ranging from mild to severe, and such symptoms may be episodic. It is well known that gender dysphoric persons may live in denial of those symptoms and sometimes make life choices that they feel are likely to “purge” cross-gender feelings, e.g. joining the military or pursuing other hypermasculine pursuits in the case of gender dysphoric “birth sex” males (Brown, 1988; 2015; Brown and McDuffie, 2010). It is therefore not uncommon for adults later in life to first “come out” or acknowledge to others their transgender feelings (Lev, 2004).

The Diagnostic and Statistical Manual of Mental Disorders (DSM 5; APA, 2013) is the current, generally recognized authoritative handbook on the diagnosis of mental disorders relied upon by mental health professionals in the United States, Canada, and other countries. Its content reflects a non-ideological, science-based, and peer-reviewed process by experts in the field who have varying perspectives. Prior to the current iteration of the DSM, persons with clinically significant levels of GD symptoms were diagnosed with Gender Identity Disorder (GID).

That diagnosis has since been replaced by the diagnosis of GD in recognition that the essence of the diagnosis is the treatable symptom complex of gender dysphoria, and not a disorder of identity, which remains fixed irrespective of treatment. Most adult patients who would meet the criteria for the past diagnosis of GID would meet the criteria for the current diagnosis of GD. Both GD and GID are diagnostically coded the same (302.85).

Individuals with GID/GD, experience a persistent and recurrent discordance between their anatomical “birth sex” and psychological gender. “Birth sex” males with GID/GD, for example, feel female in their mind and emotions. Individuals with GD are, in essence, psychologically in the “wrong body” and experience significant emotional distress as a result.

The diagnosis of GD in the DSM-5 (pgs 451-459) involves two major diagnostic criteria for adolescents and adults, synopsized below:

- A. A marked incongruence between one’s experienced/expressed gender and assigned gender, of at least 6 months’ duration, as manifested by at least two of the following:

1. A marked incongruence between one's experience/expressed gender and primary and/or secondary sex characteristics
  2. A strong desire to be rid of one's primary and/or secondary sex characteristics because of a marked incongruence with one's experience/expressed gender.
  3. A strong desire for the primary and/or secondary sex characteristics of the other gender.
  4. A strong desire to be of the other gender
  5. A strong desire to be treated as the other gender
  6. A strong conviction that one has the typical feelings and reactions of the other gender
- B. The condition is associated with clinically significant distress or impairment in social, occupational, or other important areas as of functioning.

Diagnoses of gender dysphoria may also be designated by one, or both, of two "specifiers:" gender dysphoria with a disorder of sex development; post-transition gender dysphoria (e.g., an individual who has transitioned, or is in the process of transitioning to the desired /felt 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 (for example, regular cross-sex hormonal treatment or gender reassignment surgeries). Like all psychiatric diagnoses, symptoms must be of significant severity to cause notable distress and/or dysfunction in a person's life. The presence of gender nonconformity alone is insufficient to warrant a psychiatric diagnosis.

There is a general agreement in mainstream psychiatry that GID/GD is a legitimate mental disorder and it is recognized as such in standard medical texts (Saddock and Saddock, 2007; Gabbard, 2007). For example, GD, as defined in various iterations of DSM since 1980, is defined and explained in numerous psychiatric textbooks and resources. The term "transsexualism" is no longer a diagnostic term, having been replaced by GID and GD, but the term is still used in professional circles, scholarly works, and treatment guidelines to refer to persons on the extreme end of a continuum of gender dysphoric symptoms (Coleman, et al, 2012).

The World Health Organization also recognizes the discordance between anatomical sex and gender as a disorder in its publication, The International Classification of Diseases (known as ICD 10). The ICD and DSM codes are generally now compatible with each other. The code for transsexualism in ICD-10 corresponds with the DSM-5

diagnosis of GD. While DSM-5 is the primary diagnostic tool used by mental health professionals in the United States, the ICD is also used in this country, predominantly for research, billing and coding purposes.

In spite of research evidence in support of a biological basis for GID/GD, there are no commercially available or reliable biological or laboratory tests that are used in clinical practice to diagnose GID/GD. This is true for virtually all of the mental disorders in the DSM-5 and its predecessors. In fact, Strategic Objective #1 of the National Institute of Mental Health (NIMH) is to “define the mechanisms of complex behaviors,” including molecules and genomic factors (NIMH, 2015). This statement is in recognition that even in 2016, we don’t know the definitive root cause for mental disorders listed in DSM-5, and we do not have objective tests of body, brain, or fluids that definitively diagnose any mental disorders.

A diagnosis of GID/GD is made by a mental health professional who has training and experience with this disorder and who conducts an in-depth evaluation of the patient, preferably with access to past medical records and collateral history from others who know the individual. The American Psychiatric Association and WPATH (Coleman, et al, Standards of Care, Version 7, 2012) recognize that such diagnoses can be made by a range of trained and experienced mental health professionals.

#### **E. Treatment of Gender Dysphoria (previously Gender Identity Disorder)**

Many people initially do not understand their cross-gender feelings and do not have a language for such feelings until well into adulthood. Many “birth sex” males report an extensive history of cross-gender feelings and cross-dressing followed by a variety of attempts to eradicate such feelings, including by marrying and having children or by excessive involvement in stereotypical male behavior (for example joining the military), a phenomenon known as “flight into masculinity” for transgender women (people who transition from male-to-female; Brown, 1988; McDuffie and Brown, 2010; Brown and Jones, 2015). Attempts to repress and suppress gender identity are ultimately unsuccessful and the cross-gender feelings return, often stronger. It may not be until later in life that a person learns that there is a name for their cross-gender feelings. Individuals with severe and prolonged gender conflict frequently have a frantic preoccupation with trying to change their anatomic sex to match their psychological gender. The severe end of the spectrum of GID/GD (which is often referred to as transsexualism) is characterized by significant symptoms of gender dysphoria, whereas many transgender individuals may not experience the symptoms of gender dysphoria, or only to a mild extent or only transiently.

Early attempts at treatment to change transsexuals’ gender identity to that congruent with “birth sex” were demonstrated to be ineffective in most cases, prompting the

American Medical Association as early as 1972 to support medical and surgical interventions as the treatment of choice for transsexualism (AMA, 1972). Others noted that psychotherapy, often with associated cross-sex hormonal treatment, was of benefit for some transsexual people with respect to life adjustment, but not for changing one's gender identity (Lothstein and Levine, 1981; Seikowski, 2007). In fact it has been stated that there are no demonstrable, successful "conversions" of transsexual persons' gender identities through the use of psychotherapy (Monstrey, et al, 2007, pg 89), a form of psychotherapy known today as "reparative therapy" or "conversion therapy." These types of therapy are widely considered to be unethical by professional organizations based on the premise that gender identity and sexual identity/orientation are not "changed" by conversion psychotherapies and that emotional harm has been demonstrated in many who have received such therapies in the past (Daniel, et al, 2015). The federal Substance Abuse and Mental Health Services Administration recently issued a report showing that conversion therapy is not an appropriate therapeutic approach based on the evidence. The report also included similar consensus statements developed by an expert panel held by the American Psychological Association in July 2015. The professional organization that was arguably the most involved with attempting to convert both homosexual and transgender persons' identities decades ago has also strongly come out against the use of psychotherapy to attempt to change either sexual or gender identity:

"Psychoanalytic technique does not encompass purposeful attempts to 'convert,' 'repair,' change or shift an individual's sexual orientation, gender identity or gender expression. Such directed efforts are against fundamental principles of psychoanalytic treatment and often result in substantial psychological pain by reinforcing damaging internalized attitudes." (American Psychoanalytic Association, 2012).

WPATH has developed Standards of Care ("SOC") for the evaluation and medical treatment of persons with GID/GD. WPATH has over 1000 members worldwide, approximately 70% of whom are in the United States. These members are physicians, psychiatrists, psychologists, social workers, surgeons, and other health professionals who specialize in the diagnosis and treatment of GID/GD. The "SOC" were first developed in 1979. Currently in the seventh version, the SOC are considered to be authoritative for the evaluation and treatment of gender dysphoria (Coleman, et al, 2012). There are no other comprehensive, widely accepted, medical standards of care for the treatment of GID/GD. As with all medical standards, the SOC are guidelines that can be modified based on the individualized patient circumstances and the health care professional's clinical judgment.

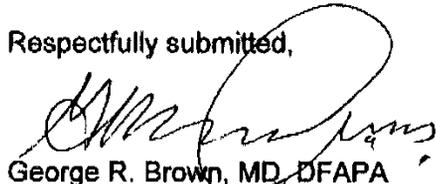
The medical treatment of a person diagnosed with GID/GD is based upon an individualized plan involving one or more of three major components: (1) hormonal

reassignment to the felt/experienced gender identity; (2) 12 continuous months of living in a gender role that is congruent with the patient's identity (previously known as the "real-life experience") and (3) surgery to change the genitalia and, in some cases, secondary sexual characteristics. These elements have been referred to as triadic therapy. Other treatments may also be sought, including electrolysis, voice therapy, breast augmentation, facial reconstruction, etc. (Coleman, et al, 2012). Although it is not an explicit requirement for surgical treatment, it is recommended that patients who seek such procedures have regular contact with a mental health or other medical professional.

Under the SOC, hormone therapy and surgery have established eligibility and readiness criteria that should be met prior to approval for these somatic treatments. Eligibility criteria generally involve timelines of successful experience with one mode of therapy before the next step should be undertaken. Readiness criteria involve the clinician's assessment of whether the client has demonstrated sufficient consolidation of an evolving gender identity to move on to the next step of transition.

The minimum criteria for genital surgery includes the requirement that one have a persistent, well-documented history of gender dysphoria, the capacity to consent to treatment, be of the age of majority and have any significant medical or health care conditions well-controlled. Lastly, a person seeking genital surgery must generally undergo 12 continuous months of living in a gender role that is congruent with the patient's identity, and obtain two letters of referral from experienced clinicians in a qualifying mental health discipline.

Respectfully submitted,



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