

**UNITED STATES DISTRICT COURT  
FOR THE MIDDLE DISTRICT OF NORTH CAROLINA**

JOAQUÍN CARCAÑO ET AL.,

*Plaintiffs,*

v.

PATRICK MCCRORY ET AL.,

*Defendants.*

No. 1:16-cv-00236-TDS-JEP

**EXPERT DECLARATION OF DEANNA ADKINS, M.D.**

**PRELIMINARY STATEMENT**

1. I have been retained by counsel for Plaintiffs as an expert in connection with the above-captioned litigation. I have actual knowledge of the matters stated in this declaration. My professional background, experience, and publications are detailed in my curriculum vitae, a true and accurate copy which is attached as Exhibit A to this declaration. I received my medical degree from the Medical College of Georgia in 1997. I am currently the Fellowship Program Director of Pediatric Endocrinology at Duke University School of Medicine and the Director of the Duke Center for Child and Adolescent Gender Care.

2. I have been licensed to practice medicine in the state of North Carolina since 2001.

3. I have extensive experience working with children with endocrine disorders and I am an expert in the treatment of children with differences or disorders of sex development and gender dysphoria.

4. I am a member of the American Academy of Pediatrics, the North Carolina Pediatric Society, the Pediatric Endocrine Society, and The Endocrine Society. I am also a member of the World Professional Association for Transgender Health (“WPATH”), the leading association of medical and mental health professionals in the treatment of transgender individuals.

5. I am the founder of the Duke Center for Child and Adolescent Gender Care (“Gender Care Clinic”), which opened in 2015. I currently serve as the Director of the clinic. The Gender Care Clinic treats children, adolescents, and young adults between the ages of 7 and 22 who have gender dysphoria and/or differences or disorders of sex development. I have been caring for these individuals in my routine practice for many years prior to opening the clinic

6. I currently treat approximately 90 transgender and intersex young people from North Carolina and across the southeast at the Gender Care Clinic. I have treated approximately 150 transgender and intersex young people in my career.

7. As part of my practice, I stay familiar with the latest medical science and treatment protocols related to differences or disorders of sex development and gender dysphoria.

8. I am regularly called upon by colleagues to assist with the sex assignment of infants who cannot be classified as male or female at birth due to a range of variables in which sex-related characteristics are not completely aligned as male or female.

9. In preparing this declaration, I reviewed the materials listed in the attached Bibliography (Exhibit B). I may rely on those documents as additional support for my opinions. I have also relied on my years of experience in this field, as set out in my curriculum vitae (Exhibit A), and on the materials listed therein. The materials I have relied upon in preparing this declaration are the same types of materials that experts in my field of study regularly rely upon when forming opinions on the subject.

10. In the past four years, I have testified as an expert at trial or deposition in the following matter: *United States v. Oversby, Brandon R.*, SPC, U.S. Army, B Company (Second Judicial Circuit, Fort Bragg Oct. 15, 2014).

11. I am being compensated at an hourly rate for actual time devoted, at the rate of \$275 per hour. My compensation does not depend on the outcome of this litigation, the opinions I express, or the testimony I provide.

#### **WHAT DOES IT MEAN TO BE TRANSGENDER OR INTERSEX?**

12. A transgender individual is an individual who has a gender identity that differs from the person's birth-assigned sex.

13. Individuals who are intersex (also known as having "differences of sex development") have sex characteristics that are a mixture of those typically associated with both "male" and "female" sex designations.

14. At birth, infants are generally classified as male or female based on observation of their external genitalia. This classification becomes the person's birth-assigned sex but may not be the same as the person's gender identity.

15. A person's gender identity refers to a person's inner sense of belonging to a particular gender, such as male or female.

16. Gender identity is a deeply felt and core component of a person's identity.

17. Everyone has a gender identity.

18. Children usually become aware of their gender identity early in life.

19. Most people have a gender identity that aligns with the sex they were assigned at birth. However, for some people, their deeply felt, core identification and self-image as a particular gender does not align with the sex they were assigned at birth. This lack of alignment can create significant distress for individuals with this experience and can be felt in children as young as 2 years old.

20. Gender identity cannot be voluntarily altered including for individuals whose gender identity does not align with their birth-assigned sex.

21. Although research regarding the precise determinant of gender identity is still ongoing, evidence strongly suggests that gender identity is innate or fixed at a young age and that gender identity has a strong biological basis.

22. Both post-mortem and functional brain studies that have been done on the brains of individuals with gender dysphoria show that these individuals have brain structure, connectivity, and function that do not match their birth-assigned sex. Variations in these studies include overall brain size, intra- and inter-hemispheric connectivity (number of connections within each half of the brain and between halves of the brain). Differences have been shown in visuospatial and verbal fluency tasks and their activation patterns in the brain. Variations in cortical thickness in the sensory motor

areas, the white matter microstructure, and regional cerebral blood flow are also present in those with gender incongruence compared to those without.

### **HOW DO EXPERTS ASSIGN OR “DETERMINE” SEX?**

23. From a medical perspective, the appropriate determinant of sex is gender identity.

24. For many people, gender identity aligns with the sex assigned to the individual at birth, so assigning sex based on sex-characteristics such as external genitalia is a proxy for assigning sex based on one’s gender identity.

25. For transgender people and people with differences or disorders of sex development, however, there is not complete alignment among sex-related characteristics. Medicine and science require that where a more careful consideration of sex assignment is needed that it be based on gender identity rather than other sex characteristics.

26. In the past, when mental health and medical practitioners identified a disconnect between a person’s gender identity and assigned sex at birth, treatment often focused on efforts to bring the individual’s gender identity into alignment with the assigned sex. These practices were unsuccessful and incredibly harmful. Deep depression, psychosis, and suicide frequently resulted.

27. Medical science has since recognized that appropriate treatment for individuals who are transgender must focus on alleviating distress through supporting outward expressions of the person’s gender identity and bringing the body into alignment with that identity to the extent deemed medically appropriate based on assessments

between individual patients and their medical and mental health providers. These treatments have been very successful.

28. In infants with sex-characteristics associated with both males and females, if an assignment is made that later conflicts with gender identity, then the only appropriate medical course is to re-assign or re-classify the individual's sex to align with gender identity.

29. It is harmful to make sex assignments based on characteristics other than gender identity. For example, in cases where surgery was done prior to the ability of the child to understand and express their gender identity, there has been significant distress in these individuals who then have to endure further surgeries to reverse the earlier treatments. It has become standard practice to wait until the gender identity is clear to make permanent surgical changes in these patients unless the changes are required to maintain the life or health of the child.

30. A person's gender identity (regardless of whether that identity matches other sex-related characteristics) is fixed, cannot be changed by others, and is not undermined or altered by the existence of other sex-related characteristics that do not align with it.

31. Today, medical and mental health care providers who specialize in the treatment of these individuals with gender dysphoria recognize that being transgender is a normal developmental variation.

32. For individuals with gender dysphoria and individuals with differences of sex development, gender identity is the only medically supported determinant of sex when sex assignment as male or female is necessary. It would be unethical and

extremely harmful to, for example, force a man with congenital adrenal hyperplasia, discussed below, to be classified as a woman simply because he was classified as female at birth. Likewise it would be unethical and extremely harmful to force a man who has gender dysphoria to be classified as female simply because he was assigned female at birth.

33. The cost of not assigning sex based on gender identity is dire. It is counter to medical science to use chromosomes, hormones, internal reproductive organs, external genitalia, or secondary sex characteristics to override gender identity for purposes of classifying someone as male or female. Gender identity does and should control when there is a need to classify an individual as a particular sex.

34. With the exception of some serious childhood cancers, gender dysphoria is the most fatal condition that I treat because of the harms that flow from not properly recognizing gender identity. Attempted suicide rates in the transgender community are over 40%, which is a risk of death that far exceeds most other medical conditions. The only treatment to avoid this serious harm is to recognize the gender identity of patients with gender dysphoria and differences of sex development.

### **WHAT IS “BIOLOGICAL SEX”?**

35. Rather than assign sex based on gender identity, North Carolina, because of H.B. 2, now by law requires sex assignment in single-sex facilities within public buildings to be based on “biological sex,” defined as “the physical condition of being male or female, which is stated on a person’s birth certificate.” In addition to being

counter to medical science as explained above, this definition and conception of “biological sex” is inherently flawed.

36. Although we generally label infants as “male” or “female” based on observing their external genitalia at birth, external genitalia do not account for the full spectrum of sex-related characteristics nor do they “determine” one’s sex. Instead, sex-related characteristics include external genitalia, internal reproductive organs, gender identity, chromosomes, secondary sex characteristics and genes. These sex-related characteristics do not always align as completely male or completely female in a single individual. In fact, this occurs frequently enough that doctors use a scale called the Prader Scale to describe the genitalia on a spectrum from male to female.

37. Particularly for individuals with a difference or disorder of sex development, sex assignment at birth can involve the evaluation of the sex chromosomes, the external genitalia, the internal genitalia, hormonal levels, and sometimes, specific genes. There are also cases in which the appearance of the external genitalia can change at puberty as well as variations in the appearance of secondary sex characteristics that may signal that there is a difference in sex development in a person.

38. Many individuals, including individuals who have intersex traits or gender dysphoria, have biological, sex-related characteristics that are typically associated with both men and women. For example:

- a. Individuals with Complete Androgen Insensitivity have 46-XY chromosomes, which are typically associated with males, but do not have the tissue receptors that respond to testosterone or other androgens. The body, therefore, does not develop external genitalia or secondary sex

characteristics typically associated with males but does, generally, have testes. At birth, based on the appearance of the external genitalia, individuals with Complete Androgen Insensitivity are generally assigned female.

- b. Individuals with Klinefelter Syndrome have 47-XXY chromosomes and internal and external genitalia typically associated with males, however, the testicles in individuals diagnosed with Klinefelter Syndrome lose function over time. This may lead to breast development and infertility in addition to a number of other health issues.
- c. Individuals with Turner Syndrome have 45-XO chromosomes, which means they have one less chromosome than everyone else. In utero, these individuals form sex characteristics typically associated with females including all internal structures but the ovaries begin to die soon after birth and the individuals are unable to make estrogen. Without treatment, individuals with Turner Syndrome do not develop secondary sex characteristics typically associated with women.
- d. Individuals with Mosaic Turner Syndrome may have two different sets of chromosomes. They lose a sex chromosome in the early stages of embryonic development. The cells that are descendants of the cell that lost a chromosome will have Turner Syndrome features. The cells that are descendants of the cells that did not lose a sex chromosome will have features of the embryo's initial chromosomal sex. Sometimes this initial sex was XX and sometimes it is XY. When there are cells with XY

chromosomes present, the fetus produces testosterone and there is at least some testicular tissue. There may also be ovarian tissue. The external genitalia can then be a mixture of external genitalia typically associated with both males and females.

- e. Individuals with congenital adrenal hyperplasia (CAH) are individuals who have XX chromosomes and external genitalia typically associated with women but are born with extra androgens, including testosterone, and from early in gestation, their brains are exposed to high levels of androgen. Despite frequently being assigned female at birth because of external genitalia, many individuals with this condition have a male gender identity.
- f. Individuals with 5-alpha reductase are chromosomally XY but they have an enzyme deficiency that does not allow them to convert testosterone to dihydrotestosterone, the active form of testosterone. At birth, based on external genitalia, they are often assigned female, but their gender identity is almost always male as adults. Their external genitalia also changes at puberty because hormonal changes allow them to make more dihydrotestosterone which is needed for the physical changes that occur causing the development of external genitalia typically associated with males. During early development there is enough testosterone to affect the brain, which often results in a male gender identity.
- g. Individuals with cloacal exstrophy have external genitalia at birth that is often split in half and most of their internal pelvic organs are located on

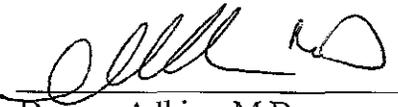
the outside of their bodies. They are born with both XX and XY chromosomes. However, because of the severity of the changes in their external genitalia, most of the XY patients had sex reassignment in infancy and were raised as females. Follow-up studies of these patients as adults show that almost all of the XY patients have a gender identity of male, despite their female sex assignment. This is powerful evidence that one's core gender identity cannot be changed.

- h. A transgender person who transitioned at a young age and takes hormone blockers would not develop the secondary sex characteristics typically associated with their birth-assigned sex. This process suspends their pubertal development until the blockers are stopped or until gender affirming hormones are added.
- i. A woman who is transgender may have XY chromosomes, undergo hormone treatment and surgery, and have external genitalia and secondary sex characteristics typically associated with women.
- j. A man who is transgender may undergo hormone therapy, have hormone levels comparable to non-transgender men, and thus develop masculine secondary sex characteristics.

39. As the examples above underscore, “biological sex” as used in H.B. 2 is not an accurate or useful medical term with respect to individuals whose sex-related characteristics are not in alignment with each other. Rather, the medically appropriate determinant of sex is gender identity.

Pursuant to 28 U.S.C. § 1746, I declare under penalty of perjury under the laws of the United States of America that the foregoing is true and correct.

Executed on 5/13, 2016.

By:   
Deanna Adkins, M.D.