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

B.P.J., by her next friend and mother, HEATHER JACKSON, *Plaintiff*, v. WEST VIRGINIA STATE BOARD OF EDUCATION, HARRISON COUNTY BOARD OF EDUCATION, WEST VIRGINIA SECONDARY SCHOOL ACTIVITIES COMMISSION, W. CLAYTON BURCH in his official capacity as State Superintendent, and DORA STUTLER in her official capacity as Harrison County Superintendent, *Defendants*.	Civil Action No. Hon.

DECLARATION OF DEANNA ADKINS, MD

1. I have been retained by counsel for Plaintiffs as an expert in connection with the above-captioned litigation.

2. I intend to provide my expert opinion on: (1) the nature and impact of treatment protocols for transgender youth; and (2) the different biological characteristics of sex and the ways in which they may not align in the same direction within a person.

3. I have knowledge of the matters stated in this declaration and have collected and cite to relevant literature concerning the issues that arise in this litigation in the body of this declaration.

4. In preparing this declaration, I reviewed the text of House Bill 3293 filed in this matter. I also relied on my scientific education and training, my research experience, and my knowledge of the scientific literature in the pertinent fields. The materials I have relied upon in preparing this declaration are the same types of materials that experts in my field of study

regularly rely upon when forming opinions on these subjects. 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.

BACKGROUND AND QUALIFICATIONS

5. I received my medical degree from the Medical College of Georgia in 1997. I served as the Fellowship Program Director of Pediatric Endocrinology at Duke University School of Medicine for fourteen years and am currently the Director of the Duke Center for Child and Adolescent Gender Care.

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

7. 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 in the treatment of children with gender dysphoria.

8. 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 people.

9. 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 and adolescents age 7 through 22 with gender dysphoria and/or differences or disorders of sex development. I have been caring for these patients in my routine practice for many years prior to opening the clinic.

10. I currently treat approximately 400 transgender and intersex young people from

North Carolina and across the Southeast at the Gender Care clinic. I have treated approximately 500 transgender and intersex young people in my career.

11. 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.

12. 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.

13. I have testified twice as an expert at trial or deposition in the past four years.

TREATMENT PROTOCOLS FOR TRANSGENDER PEOPLE

14. A transgender individual is an individual who has a gender identity that differs from the person's sex designated at birth.

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

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

17. For some people, their gender identity does not align with the sex they are designated at birth. This lack of alignment can create significant distress for people with this experience and can be felt in children as young as 2 years old.

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

19. According to the American Psychiatric Association's Diagnostic & Statistical Manual of Mental Disorders ("DSM V"), "gender dysphoria" is the diagnostic term for the

condition where clinically significant distress results from the lack of congruence between a person's gender identity and the sex they are designated at birth. In order to be diagnosed with gender dysphoria, the incongruence must have persisted for at least six months and be accompanied by clinically significant distress or impairment in social, occupational, or other important areas of functioning.

20. Gender dysphoria is a serious medical condition that, if left untreated, can result in severe anxiety and depression, self-harm, and suicidality.[1]

21. Before receiving treatment, many people with gender dysphoria have high rates of anxiety, depression, and suicidal ideation. I have seen in my patients that without appropriate treatment this distress impacts every aspect of life.

22. Attempted suicide rates in the transgender community are as high as 40%. The only treatment to avoid this serious harm is to recognize the gender identity of patients with gender dysphoria and follow appropriate treatment protocols to affirm gender identity and alleviate distress.

23. When appropriately treated, gender dysphoria is easily managed. I currently treat hundreds of transgender patients. All of my patients have suffered from persistent gender dysphoria, which has been alleviated through clinically appropriate treatment.

24. The Endocrine Society and the World Professional Association for Transgender Health have published widely accepted standards of care for treating gender dysphoria.[2] The

[1] Spack NP, Edwards-Leeper L, Feldmain HA, et al. Children and adolescents with gender identity disorder referred to a pediatric medical center. *Pediatrics*. 2012; 129(3):418-425. Olson KR, Durwood L, DeMeules M, McLaughlin KA. Mental health of transgender children who are supported in their identities. *Pediatrics*. 2016; 137:1-8.

[2] Hembree WC, et al. Endocrine treatment of gender-dysphoria/gender incongruent persons: An Endocrine Society clinical practice guideline. *J Clin Endocrinol Metab* 2017; 102: 3869–3903;

precise treatment for gender dysphoria depends on each person's individualized need, and the medical standards of care differ depending on whether the treatment is for a pre-pubertal child, an adolescent, or an adult.

25. The medical treatment for gender dysphoria is to eliminate the clinically significant distress by helping a transgender person live in alignment with their gender identity. This treatment is sometimes referred to as "gender transition," "transition related care," or "gender affirming care." The American Academy of Pediatrics agrees that this care is safe, effective, and medically necessary treatment for the health and wellbeing of children and adolescents suffering from gender dysphoria.[3]

26. The Endocrine Society Guidelines were developed through rigorous scientific processes which "followed the approach recommended by the Grading of Recommendations, Assessment, Development, and Evaluation group, an international group with expertise in the development and implementation of evidence-based guidelines." The guidelines affirm that patients with gender dysphoria often must be treated with "a safe and effective hormone regimen that will (1) suppress endogenous sex hormone secretion determined by the person's genetic/gonadal sex and (2) maintain sex hormone levels within the normal range for the person's affirmed gender."

World Prof'l Ass'n for Transgender Health, Standards of Care for the Health of Transsexual, Transgender, and Gender-Nonconforming People (7th Version, 2011), http://www.wpath.org/site_page.cfm?pk_association_webpage_menu=1351&pk_association_webpage=4655.

[3] Rafferty J, Committee on Psychosocial Aspects of Child and Family Health, Committee on Adolescence and Section on Lesbian, Gay, Bisexual, and Transgender Health and Wellness, *Pediatrics* October 2018; 142(4): 2018-2162.

27. Before puberty, treatment does not include any drug or surgical intervention. For this group of patients, treatment is limited to "social transition," which means allowing a transgender child to live and be socially recognized in accordance with their gender identity. This can include allowing children to wear clothing, to cut or grow their hair, to use names and pronouns, and to access restrooms and other sex-separated facilities and activities in line with their gender identity instead of the sex assigned to them at birth. Social transition is a critical part of treatment of patients with gender dysphoria of all ages and it is the only treatment for pre-pubertal children.

28. It undermines social transition – a critical part of gender dysphoria treatment – to force a person with gender dysphoria to live in a manner that does not align with the person's gender identity. For example, requiring a girl who is transgender to use facilities or participate in single-sex activities for boys can be deeply harmful and disruptive to treatment. In the context of activities like athletics, which are typically separated by sex, I know from experience with my patients that it can be extremely harmful for transgender youth to be excluded from the team consistent with their gender identity.

29. For many transgender youth, going through endogenous puberty can cause extreme distress. Puberty blocking treatment allows transgender youth to avoid going through their endogenous puberty thereby avoiding the heightened gender dysphoria and permanent physical changes that puberty would cause.

30. Puberty blocking treatment works by pausing endogenous puberty at whatever stage it is at when the treatment begins. This has the impact of limiting the influence of a person's endogenous hormones on the body. For example, after the initiation of puberty blocking

treatment, a girl who is transgender will experience none of the impacts of testosterone that would be typical if she underwent her full endogenous puberty.

31. When treating a transgender young person, when medically indicated, I prescribe puberty blocking treatment at the Tanner 2 stage of puberty. For girls who are transgender, this means that puberty is put on pause usually around the time that the patient has circulating testosterone at a level of 50 ng/dL or 1.735 nMol/L. A patient that undergoes puberty blocking treatment at this stage and then proceeds to gender-affirming hormone therapy will never have circulating testosterone above what is typical of girls who are not transgender.

32. Under the Endocrine Society Clinical Guidelines, once a transgender youth establishes further maturity and competence to make decisions about additional treatment, it may then be medically necessary and appropriate to provide gender-affirming hormone therapy to initiate puberty consistent with gender identity. For girls who are transgender this means administering both testosterone suppressing treatment as well as estrogen to initiate hormonal puberty consistent with the patient's female gender identity. For boys who are transgender this means administering testosterone.

33. Hormone therapy and social transition significantly change a person's physical appearance. For example, boys who are transgender treated with puberty blockers and gender affirming hormones will receive the same amount of testosterone during puberty that non-transgender boys generate with their testes. They will grow darker and thicker facial and body hair, experience fat distribution away from the hips, have decreased breast growth, and develop lower vocal pitch. Likewise, girls who are transgender and treated with puberty blockers and gender affirming hormones will receive the same amount of estrogen during puberty that non-

transgender girls generate endogenously. They will develop breast tissue, fat will be distributed to their hips, their skin will soften, and their vocal pitch will not deepen further.

34. Treatment for transgender youth is safe, effective, and essential for their well-being. My patients who receive medically appropriate hormone therapy and who are treated consistent with their gender identity in all aspects of life experience significant improvement in their health.

35. For many patients, social transition and hormone therapy are sufficient forms of treatment for gender dysphoria. Others also need one or more forms of surgical treatment to alleviate gender dysphoria. Transgender boys may receive chest reconstruction surgery as young as 16. Genital surgery for transgender women and men is not performed until the person has reached the age of at least 18. Genital surgery for transgender women can result in a vulva and vagina—external genitalia typical of women—as well as removal of the testes, which eliminates the need for medical testosterone suppression. Because surgery does not produce ovaries, transgender women who have had this form of surgery typically continue to need estrogen therapy.

36. Consistentwith extensive research literature, my clinical experience with my patients has been that they suffer and experience worse health outcomes when they are ostracized from their peers through policies that exclude them from spaces and activities that other boys and girls are able to participate in consistent with gender identity.

SEX ASSIGNMENT AND BIOLOGICAL SEX CHARACTERISTICS

37. When a child is born, a sex designation is usually made based on the infant's externally visible genitals. This designation is then recorded and usually becomes the sex designation listed on the infant's birth certificate.

38. Usually, though not always, a person's gender identity aligns with the sex designation based on the person's genitals at birth.

39. For transgender people and people with differences of sex development (DSDs), however, there is not complete alignment between gender identity and physical sex-related characteristics.

40. Differences of sex development refer to the range of variations in which a person's sex-related characteristics do not all align in one direction. Some describe people with these variations as "intersex."

41. Sex-related characteristics include external genitalia, internal reproductive organs, gender identity, chromosomes, and secondary sex characteristics. These biological sex-related characteristics do not always align as completely male or completely female in a single individual. And none of these characteristics exists in a binary. As the Endocrine Society guidelines explain, the terms "[b]iological sex, biological male or female . . . are imprecise and should be avoided." Generally speaking, "[t]hese terms refer to physical aspects of maleness and femaleness [but] these may not be in line with each other (e.g., a person with XY chromosomes may have female-appearing genitalia)."[4]

[4] Hembree, Wiley C., et al., Endocrine Treatment of Gender-Dysphoric/Gender-Incongruent Persons: An Endocrine Society Clinical Practice Guideline, J Clin Endocrinol Metab, Vol. 102, Issue 11, 1 November 2017, 3869–3903.; Berenbaum S., et al., Effects on gender identity of prenatal androgens and genital appearance: Evidence from girls with congenital adrenal hyperplasia. J Clin Endocrinol Metab 2003;88(3):1102-6; Dittmann R, et al., Congenital adrenal hyperplasia. I: Gender-related behavior and attitudes in female patients and sisters. Psychoneuroendocrinology 1990;15(5-6):401-20; Cohen-Kettenis P. Gender change in 46,XY persons with 5alpha-reductase-2 deficiency and 17beta-hydroxysteroid dehydrogenase-3 deficiency. Arch Sex Behav 2005;34(4):399-410; Reiner W, Gearhart J. Discordant sexual identity in some genetic males with cloacal exstrophy assigned to female sex at birth. N Engl J Med 2004;350(4):333-41.

42. Although we generally label infants as "male" or "female" based on observing their external genitalia at birth, external genitalia are not always clearly identifiable as typically male or typically female. And external genitalia do not account for the full spectrum of sex-related characteristics nor are they alone a proxy for how we understand sex.

43. In one out of every 1,000 live births, the infant's genitals are not typically male or female.

44. For people with DSDs, sex assignment at birth can involve the evaluation of the 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 a difference in sex development in a person.

45. When designation of sex of an infant with a DSD is made at birth, that assignment is temporary until the individual can express their gender identity. In cases where the initial designation was incorrect, appropriate medical protocols instruct that the sex should be updated to align with the individual's gender identity. Similarly, if the sex designation of an infant without a DSD turns out to be inconsistent with the individual's gender identity, as for transgender people, the sex should be updated to align with the individual's gender identity.

46. Where surgery has been done on children with DSDs before the child's understanding and expression of their gender identity, significant distress can result. Many of these children have had to endure further surgeries to reverse earlier surgical intervention because their gender identity did not match the initial sex designation.

47. At least one out of every 300 people in the world has an intersex variation, meaning that the person's sex characteristics do not all align as typically male or typically female.

48. Some examples of these variations include:

a. People with Complete Androgen Insensitivity (CAIS) have 46,XY chromosomes and internal testes that produce testosterone, but do not have the tissue receptors that respond to testosterone or other androgens. The body, therefore, does not develop a penis, thicker facial hair, or other secondary sex characteristics more commonly associated with men. At birth, based on the appearance of the external genitalia, people with CAIS are generally assigned female. If their testes are left in place, the body will convert the hormones into estrogen. Many do not find out they have XY chromosomes or testes until they do not start menstruating at the expected age.

b. Androgen Insensitivity can also be partial (known as PAIS). People with PAIS have XY chromosomes, testes, and some (but still lower than typical) response to testosterone. They may be born with genitals that appear like a typical penis, a typical vulva, or somewhere in between.

c. People with Swyer Syndrome have XY chromosomes and "streak" gonads (gonadal tissue that did not develop into testes or ovaries). Externally, a child with Swyer Syndrome usually develops a vulva. Because their gonads do not produce hormones, they will not develop most secondary sex characteristics without hormone treatment.

d. People with Klinefelter Syndrome have 47,XXY chromosomes and internal and external genitalia typically associated with males, however, their testicles may have reduced testosterone production. This may lead to breast development, low muscle mass and body hair, and infertility.

e. People with Turner Syndrome have 45,XO chromosomes, which means they have one fewer copy of the X chromosome than expected. In utero, they form sex characteristics typically associated with females, including internal structures like a uterus and fallopian tubes, but the ovaries may degenerate before birth (or in some cases, not until young adulthood), leading to an inability to make estrogen. Many people with Turner Syndrome will not go through puberty without hormone therapy.

f. People with Mosaicism have different sets of chromosomes in different cells. Mosaic karyotypes happen as a result of atypical cell division early in embryonic development and could involve various combinations among XX, XY, XO, XXY, and other chromosome patterns. Configuration of gonadal tissue, genitals, and hormone production and response can all vary.

g. People with ovotestes (sometimes known as Ovotesticular DSD) have gonads that contain both ovarian and testicular tissue. Their chromosomes may be XX, XY, or Mosaic. Genital appearance at birth can be male-typical, female-typical, or something else.

h. Congenital Adrenal Hyperplasia (CAH) can occur in people with XX or XY chromosomes. People with CAH and 46,XX chromosomes have ovaries, a uterus, and a higher-than-typical production of androgens in utero that can

lead to the development of genital differences at birth – such as an enlarged clitoris that may look like a penis, or the lack of a vaginal opening. CAH can also cause the development of typically masculine features like increased muscle mass and body hair.

i. People with 5-alpha reductase deficiency (5-ARD) have XY chromosomes, but they have an enzyme deficiency that inhibits conversion of testosterone to dihydrotestosterone (the active form of testosterone) to varying degrees. This can impact genital development, and at birth, people with 5-ARD may have genitals that appear female-typical, neither male-typical nor female-typical, or mostly male-typical with differences like hypospadias (where the urethra is located somewhere other than the tip of the penis). During puberty, hormonal changes allow them to make more dihydrotestosterone, causing the development of some secondary sex characteristics typically associated with males, as well as genital masculinization.

49. As the examples above underscore, from a medical perspective, chromosomes, reproductive anatomy, and endogenous testosterone alone do not determine a person's sex, nor does a single sex-related characteristic.

* * *

I declare under penalty of perjury under the laws of the United States of America that the foregoing is true and correct.

Executed on 5/21/2021

Deanna Adkins, MD