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

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, DORA STUTLER in her official capacity as Harrison County Superintendent, and THE STATE OF WEST VIRGINIA,

Defendants,

and

LAINEY ARMISTEAD,

Defendant-Intervenor.

Civil Action No. 2:21-cv-00316

Hon. Joseph R. Goodwin

DECLARATION OF TARA L. BORELLI

I, Tara L. Borelli, pursuant to 28 U.S.C. § 1746, declare as follows:

1. I am an attorney at Lambda Legal and counsel of record for Plaintiff B.P.J, with her next friend and mother, Heather Jackson. The following is true of my own personal knowledge, and, if called as a witness, I would and could testify competently thereto.

2. I submit this declaration in support of Plaintiff B.P.J.'s Opposition to Defendant-Intervenor and Defendant State of West Virginia's Motion to Exclude Expert Testimony of Dr. Deanna Adkins.

3. Attached to this declaration are true and correct copies of the documents listed in the table below:

Exhibit	Description
A	Endocrine Society, The Journal of Clinical Endocrinology & Metabolism, https://www.endocrine.org/journals/jcem.
B	Rafferty, Jason, et al., American Academy of Pediatrics, *Ensuring Comprehensive Care and Support for Transgender and Gender-Diverse Children and Adolescents*, Pediatrics, 142(4), October 2018, doi: 10.1542/peds.2018-2162.
C	Excerpt of Turban, Jack, et al., *Gender Incongruence & Gender Dysphoria*. In Martin A, Bloch MH, Volkmar FR (Editors): Lewis's Child and Adolescent Psychiatry: A Comprehensive Textbook, Fifth Edition. Philadelphia: Wolters Kluwer 2018.
D	The Royal Australian & New Zealand College of Psychiatrists, *Recognising and addressing the mental health needs of people experiencing Gender Dysphoria / Gender Incongruence* (Aug. 2021).
E	Rebuttal Expert Report and Declaration of Deanna Adkins, M.D. (March 11, 2022)

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

Executed on May 26, 2022

/s/ Tara L. Borelli
Tara L. Borelli

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,

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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, DORA STUTLER in her official capacity as Harrison County Superintendent, and THE STATE OF WEST VIRGINIA,

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Hon. Joseph R. Goodwin

CERTIFICATE OF SERVICE

I, Loree Stark, do hereby certify that on this 26th day of May, 2022, I electronically filed a true and exact copy of the foregoing document with the Clerk of Court and all parties using the CM/ECF System.

/s/ Loree Stark
Loree Stark
West Virginia Bar No. 12936

Exhibit A

JOURNALS & ARTICLES

The Journal of Clinical Endocrinology & Metabolism

The ***Journal of Clinical Endocrinology & Metabolism*** is the world's leading peer-reviewed journal for the dissemination of original research as it relates to the clinical practice of endocrinology, diabetes, and metabolism. Spanning the full spectrum of translational research from discovery science to experimental medicine and from critical evaluation of new treatments to patient-population-related outcomes, each issue provides up-to-date coverage of novel developments that enhance our understanding of the pathophysiology, diagnosis and treatment of endocrine and metabolic disorders or give insight into the metabolic basis of other human diseases. Over and above new findings submitted from researchers across the globe, regular features of special interest include personal perspectives and commentaries on new developments, results of prismatic clinical trials, mini-reviews, and clinical practice guidelines.

Journal Website

Contact

Journal of Clinical Endocrinology & Metabolism
Endocrine Society
2055 L Street NW, Suite 600
Washington, DC 20036
Phone: 202-971-3669
publications@endocrine.org

FEATURED ARTICLES

THE JOURNAL OF CLINICAL ENDOCRINOLOGY AND METABOLISM Journal Article

Papillary Thyroid Cancer Recurrence Risk Factors

May 17, 2022

Here analysis of existing next-generation sequencing data was employed to investigate gene expression changes and somatic mutational profiles associated with thyroid cancer recurrence.

THE JOURNAL OF CLINICAL ENDOCRINOLOGY AND METABOLISM Journal Article

SARS-CoV-2 vaccine-Induced Thyroiditis Revaccination

May 10, 2022

This study aims to present long-term clinical follow-up of SARS-CoV-2 vaccine-induced SAT or GD cases and provide data regarding the safety of revaccinations.

THE JOURNAL OF CLINICAL ENDOCRINOLOGY AND METABOLISM Journal Article

Inflammation and COVID-19 Mortality in Type 2 Diabetes

May 03, 2022

This study seeks to determine the relationship of inflammation with mortality in COVID-19 hospitalized patients and to assess if the relationship differs by strata of type 2 diabetes status.

THE JOURNAL OF CLINICAL ENDOCRINOLOGY AND METABOLISM Journal Article

NGS in Chinese Children With Short Stature

April 26, 2022

We aim to explore the diagnostic efficiency of the associated risk factors of short stature and their exome sequences for screening.

THE JOURNAL OF CLINICAL ENDOCRINOLOGY AND METABOLISM Journal Article

OC and Menopausal HT and Risk of Pituitary Adenoma

April 19, 2022

This study aims to determine the association between use of oral contraceptives and menopausal hormone therapy and risk of pituitary adenoma in two separate datasets.

Tweets by @EndoSocJournals

Endocrine Society Journals
@EndoSocJournals

Meet #JCEM Editor in Chief Paul M. Stewart MD FRCP FMedSci at #ECE2022 in Milan! Paul will be @TheEndoSociety booth in the exhibition hall (#33) from 1.30 pm to 2.30 pm CEST on Sunday 22 May and Monday 23 May, ready to discuss your submission ideas.

Embed View on Twitter

Exhibit B

POLICY STATEMENT Organizational Principles to Guide and Define the Child Health Care System and/or Improve the Health of all Children

American Academy of Pediatrics

DEDICATED TO THE HEALTH OF ALL CHILDREN™

Ensuring Comprehensive Care and Support for Transgender and Gender-Diverse Children and Adolescents

Jason Rafferty, MD, MPH, EdM, FAAP, COMMITTEE ON PSYCHOSOCIAL ASPECTS OF CHILD AND FAMILY HEALTH, COMMITTEE ON ADOLESCENCE, SECTION ON LESBIAN, GAY, BISEXUAL, AND TRANSGENDER HEALTH AND WELLNESS

As a traditionally underserved population that faces numerous health disparities, youth who identify as transgender and gender diverse (TGD) and their families are increasingly presenting to pediatric providers for education, care, and referrals. The need for more formal training, standardized treatment, and research on safety and medical outcomes often leaves providers feeling ill equipped to support and care for patients that identify as TGD and families. In this policy statement, we review relevant concepts and challenges and provide suggestions for pediatric providers that are focused on promoting the health and positive development of youth that identify as TGD while eliminating discrimination and stigma.

INTRODUCTION

In its dedication to the health of all children, the American Academy of Pediatrics (AAP) strives to improve health care access and eliminate disparities for children and teenagers who identify as lesbian, gay, bisexual, transgender, or questioning (LGBTQ) of their sexual or gender identity.[1,2] Despite some advances in public awareness and legal protections, youth who identify as LGBTQ continue to face disparities that stem from multiple sources, including inequitable laws and policies, societal discrimination, and a lack of access to quality health care, including mental health care. Such challenges are often more intense for youth who do not conform to social expectations and norms regarding gender. Pediatric providers are increasingly encountering such youth and their families, who seek medical advice and interventions, yet they may lack the formal training to care for youth that identify as transgender and gender diverse (TGD) and their families.[3]

This policy statement is focused specifically on children and youth that identify as TGD rather than the larger LGBTQ population, providing brief, relevant background on the basis of current available research

abstract

FREE

Department of Pediatrics, Hasbro Children's Hospital, Providence, Rhode Island; Thundermist Health Centers, Providence, Rhode Island; and Department of Child Psychiatry, Emma Pendleton Bradley Hospital, East Providence, Rhode Island

Dr Rafferty conceptualized the statement, drafted the initial manuscript, reviewed and revised the manuscript, approved the final manuscript as submitted, and agrees to be accountable for all aspects of the work.

Policy statements from the American Academy of Pediatrics benefit from expertise and resources of liaisons and internal (AAP) and external reviewers. However, policy statements from the American Academy of Pediatrics may not reflect the views of the liaisons or the organizations or government agencies that they represent.

The guidance in this statement does not indicate an exclusive course of treatment or serve as a standard of medical care. Variations, taking into account individual circumstances, may be appropriate.

All policy statements from the American Academy of Pediatrics automatically expire 5 years after publication unless reaffirmed, revised, or retired at or before that time.

To cite: Rafferty J, AAP COMMITTEE ON PSYCHOSOCIAL ASPECTS OF CHILD AND FAMILY HEALTH, AAP COMMITTEE ON ADOLESCENCE, AAP SECTION ON LESBIAN, GAY, BISEXUAL, AND TRANSGENDER HEALTH AND WELLNESS. Ensuring Comprehensive Care and Support for Transgender and Gender-Diverse Children and Adolescents. *Pediatrics*. 2018;142(4): e20182162

FROM THE AMERICAN ACADEMY OF PEDIATRICS

TABLE 1 Relevant Terms and Definitions Related to Gender Care

Term	Definition
Sex	An assignment that is made at birth, usually male or female, typically on the basis of external genital anatomy but sometimes on the basis of internal gonads, chromosomes, or hormone levels
Gender identity	A person's deep internal sense of being female, male, a combination of both, somewhere in between, or neither, resulting from a multifaceted interaction of biological traits, environmental factors, self-understanding, and cultural expectations
Gender expression	The external way a person expresses their gender, such as with clothing, hair, mannerisms, activities, or social roles
Gender perception	The way others interpret a person's gender expression
Gender diverse	A term that is used to describe people with gender behaviors, appearances, or identities that are incongruent with those culturally assigned to their birth sex; gender-diverse individuals may refer to themselves with many different terms, such as transgender, nonbinary, genderqueer,[7] gender fluid, gender creative, gender independent, or noncisgender. "Gender diverse" is used to acknowledge and include the vast diversity of gender identities that exists. It replaces the former term, "gender nonconforming," which has a negative and exclusionary connotation.
Transgender	A subset of gender-diverse youth whose gender identity does not match their assigned sex and generally remains persistent, consistent, and insistent over time; the term "transgender" also encompasses many other labels individuals may use to refer to themselves.
Cisgender	A term that is used to describe a person who identifies and expresses a gender that is consistent with the culturally defined norms of the sex they were assigned at birth
Agender	A term that is used to describe a person who does not identify as having a particular gender
Affirmed gender	When a person's true gender identity, or concern about their gender identity, is communicated to and validated from others as authentic
MTF; affirmed female; trans female	Terms that are used to describe individuals who were assigned male sex at birth but who have a gender identity and/or expression that is asserted to be more feminine
FTM; affirmed male; trans male	Terms that are used to describe individuals who were assigned female sex at birth but who have a gender identity and/or expression that is asserted to be more masculine
Gender dysphoria	A clinical symptom that is characterized by a sense of alienation to some or all of the physical characteristics or social roles of one's assigned gender; also, gender dysphoria is the psychiatric diagnosis in the *DSM-5*, which has focus on the distress that stems from the incongruence between one's expressed or experienced (affirmed) gender and the gender assigned at birth.
Gender identity disorder	A psychiatric diagnosis defined previously in the *DSM-IV* (changed to "gender dysphoria" in the *DSM-5*); the primary criteria include a strong, persistent cross-sex identification and significant distress and social impairment. This diagnosis is no longer appropriate for use and may lead to stigma, but the term may be found in older research.
Sexual orientation	A person's sexual identity in relation to the gender(s) to which they are attracted; sexual orientation and gender identity develop separately.

This list is not intended to be all inclusive. The pronouns "they" and "their" are used intentionally to be inclusive rather than the binary pronouns "he" and "she" and "his" and "her." Adapted from Bonifacio HJ, Rosenthal SM. Gender variance and dysphoria in children and adolescents. *Pediatr Clin North Am.* 2015;62(4):1001–1016. Adapted from Vance SR Jr, Ehrensaft D, Rosenthal SM. Psychological and medical care of gender nonconforming youth. *Pediatrics.* 2014;134(6):1184–1192. DSM-5, *Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition*; DSM-IV, *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition*; FTM, female to male; MTF, male to female.

and expert opinion from clinical and research leaders, which will serve as the basis for recommendations. It is not a comprehensive review of clinical approaches and nuances to pediatric care for children and youth that identify as TGD. Professional understanding of youth that identify as TGD is a rapidly evolving clinical field in which research on appropriate clinical management is limited by insufficient funding.[3,4]

DEFINITIONS

To clarify recommendations and discussions in this policy statement, some definitions are provided. However, brief descriptions of human behavior or identities may not capture nuance in this evolving field. "Sex," or "natal gender," is a label, generally "male" or "female," that is typically assigned at birth on the basis of genetic and anatomic characteristics, such as genital anatomy, chromosomes, and sex hormone levels. Meanwhile, "gender identity" is one's internal sense of who one is, which results from a multifaceted interaction of biological traits, developmental influences, and environmental conditions. It may be male, female, somewhere in between, a combination of both, or neither (ie, not conforming to a binary conceptualization of gender). Self-recognition of gender identity develops over time, much the same way as a child's physical body does. For some people, gender identity can be fluid, shifting in different contexts. "Gender expression" refers to the wide array of ways people display their gender through clothing, hair styles, mannerisms, or social roles. Exploring different ways of expressing gender is common for children and may challenge social expectations. The way others interpret this expression is referred to as "gender perception" (Table 1).[5,6]

These labels may or may not be congruent. The term "cisgender" is used if someone identifies and expresses a gender that is consistent with the culturally defined norms of the sex that was assigned at birth. "Gender diverse" is an umbrella term to describe an ever-evolving array of labels that people may apply when their gender identity, expression, or even perception does not conform

to the norms and stereotypes others expect of their assigned sex. "Transgender" is usually reserved for a subset of such youth whose gender identity does not match their assigned sex and generally remains persistent, consistent, and insistent over time. These terms are not diagnoses; rather, they are personal and often dynamic ways of describing one's own gender experience.

Gender identity is not synonymous with "sexual orientation," which refers to a person's identity in relation to the gender(s) to which they are sexually and romantically attracted. Gender identity and sexual orientation are distinct but interrelated constructs.[8] Therefore, being transgender does not imply a sexual orientation, and people who identify as transgender still identify as straight, gay, bisexual, etc, on the basis of their attractions. (For more information, *The Gender Book*, found at www.thegenderbook.com, is a resource with illustrations that are used to highlight these core terms and concepts.)

EPIDEMIOLOGY

In population-based surveys, questions related to gender identity are rarely asked, which makes it difficult to assess the size and characteristics of the population that is TGD. In the 2014 Behavioral Risk Factor Surveillance System of the Centers for Disease Control and Prevention, only 19 states elected to include optional questions on gender identity. Extrapolation from these data suggests that the US prevalence of adults who identify as transgender or "gender nonconforming" is 0.6% (1.4 million), ranging from 0.3% in North Dakota to 0.8% in Hawaii.[9] On the basis of these data, it has been estimated that 0.7% of youth ages 13 to 17 years (~150 000) identify as transgender.[10] This number is much higher than previous estimates, which were extrapolated from individual states or specialty clinics, and is likely an underestimate given the stigma regarding those who openly identify as transgender and the difficulty in defining "transgender" in a way that is inclusive of all gender-diverse identities.[11]

There have been no large-scale prevalence studies among children and adolescents, and there is no evidence that adult statistics reflect young children or adolescents. In the 2014 Behavioral Risk Factor Surveillance System, those 18 to 24 years of age were more likely than older age groups to identify as transgender (0.7%).[9] Children report being aware of gender incongruence at young ages. Children who later identify as TGD report first having recognized their gender as "different" at an average age of 8.5 years; however, they did not disclose such feelings until an average of 10 years later.[12]

MENTAL HEALTH IMPLICATIONS

Adolescents and adults who identify as transgender have high rates of depression, anxiety, eating disorders, self-harm, and suicide.[13–20] Evidence suggests that an identity of TGD has an increased prevalence among individuals with autism spectrum disorder, but this association is not yet well understood.[21,22] In 1 retrospective cohort study, 56% of youth who identified as transgender reported previous suicidal ideation, and 31% reported a previous suicide attempt, compared with 20% and 11% among matched youth who identified as cisgender, respectively.[13] Some youth who identify as TGD also experience gender dysphoria, which is a specific diagnosis given to those who experience impairment in peer and/or family relationships, school performance, or other aspects of their life as a consequence of the incongruence between their assigned sex and their gender identity.[23]

There is no evidence that risk for mental illness is inherently attributable to one's identity of TGD. Rather, it is believed to be multifactorial, stemming from an internal conflict between one's appearance and identity, limited availability of mental health services, low access to health care providers with expertise in caring for youth who identify as TGD, discrimination, stigma, and social rejection.[24] This was affirmed by the American Psychological Association in 2008[25] (with practice guidelines released in 2015[8]) and the American Psychiatric Association, which made the following statement in 2012:

> *Being transgender or gender variant implies no impairment in judgment, stability, reliability, or general social or vocational capabilities; however, these individuals often experience discrimination due to a lack of civil rights protections for their gender identity or expression.… [Such] discrimination and lack of equal civil rights is damaging to the mental health of transgender and gender variant individuals.*[26]

Youth who identify as TGD often confront stigma and discrimination, which contribute to feelings of rejection and isolation that can adversely affect physical and emotional well-being. For example, many youth believe that they must hide their gender identity and expression to avoid bullying, harassment, or victimization. Youth who identify as TGD experience disproportionately high rates of homelessness, physical violence (at home and in the community), substance abuse, and high-risk sexual behaviors.[5,6,12,27–31] Among the 3 million HIV testing events that were reported in 2015, the highest percentages of new infections were among women who identified as transgender[32] and were also at particular risk for not knowing their HIV status.[30]

GENDER-AFFIRMATIVE CARE

In a gender-affirmative care model (GACM), pediatric providers offer developmentally appropriate care that is oriented toward understanding and appreciating the youth's gender experience. A strong, nonjudgmental partnership with youth and their families can facilitate exploration of complicated emotions and gender-diverse expressions while allowing questions and concerns to be raised in a supportive environment.[5] In a GACM, the following messages are conveyed:

- transgender identities and diverse gender expressions do not constitute a mental disorder;
- variations in gender identity and expression are normal aspects of human diversity, and binary definitions of gender do not always reflect emerging gender identities;
- gender identity evolves as an interplay of biology, development, socialization, and culture; and
- if a mental health issue exists, it most often stems from stigma and negative experiences rather than being intrinsic to the child.[27,33]

The GACM is best facilitated through the integration of medical, mental health, and social services, including specific resources and supports for parents and families.[24] Providers work together to destigmatize gender variance, promote the child's self-worth, facilitate access to care, educate families, and advocate for safer community spaces where children are free to develop and explore their gender.[5] A specialized gender-affirmative therapist, when available, may be an asset in helping children and their families build skills for dealing with gender-based stigma, address symptoms of anxiety or depression, and reinforce the child's overall resiliency.[34,35] There is a limited but growing body of evidence that suggests that using an integrated affirmative model results in young people having fewer mental health concerns whether they ultimately identify as transgender.[24,36,37]

In contrast, "conversion" or "reparative" treatment models are used to prevent children and adolescents from identifying as transgender or to dissuade them from exhibiting gender-diverse expressions. The Substance Abuse and Mental Health Services Administration has concluded that any therapeutic intervention with the goal of changing a youth's gender expression or identity is inappropriate.[33] Reparative approaches have been proven to be not only unsuccessful[38] but also deleterious and are considered outside the mainstream of traditional medical practice.[29,39–42] The AAP described reparative approaches as "unfair and deceptive."[43] At the time of this writing,* conversion therapy was banned by executive regulation in New York and by legislative statutes in 9 other states as well as the District of Columbia.[44]

Pediatric providers have an essential role in assessing gender concerns and providing evidence-based information to assist youth and families in medical decision-making. Not doing so can prolong or exacerbate gender dysphoria and contribute to abuse and stigmatization.[35] If a pediatric provider does not feel prepared to address gender concerns when they occur, then referral to a pediatric or mental health provider with more expertise is appropriate. There is little research on communication and efficacy with transfers in care for youth who identify as TGD, particularly from pediatric to adult providers.

DEVELOPMENTAL CONSIDERATIONS

Acknowledging that the capacity for emerging abstract thinking in childhood is important to conceptualize and reflect on identity, gender-affirmation guidelines are being focused on individually tailored interventions on the basis of the physical and cognitive development of youth who identify as TGD.[45] Accordingly, research substantiates that children who are prepubertal and assert an identity of TGD know their gender as clearly and as consistently as their developmentally equivalent peers who identify as cisgender and benefit from the same level of social acceptance.[46] This developmental approach to gender affirmation is in contrast to the outdated approach in which a child's gender-diverse assertions are held as "possibly true" until an arbitrary age (often after pubertal onset) when they can be considered valid, an approach that authors of the literature have termed "watchful waiting." This outdated approach does not serve the child because critical support is withheld. Watchful waiting is based on binary notions of gender in which gender diversity and fluidity is pathologized; in watchful waiting, it is also assumed that notions of gender identity become fixed at a certain age. The approach is also influenced by a group of early studies with validity concerns, methodologic flaws, and limited follow-up on children who identified as TGD and, by adolescence, did not seek further treatment ("desisters").[45,47] More robust and current research suggests that, rather than focusing on who a child will become, valuing them for who they are, even at a young age, fosters secure attachment and resilience, not only for the child but also for the whole family.[5,45,48,49]

* For more information regarding state-specific laws, please contact the AAP Division of State Government Affairs at stgov@ aap.org.

MEDICAL MANAGEMENT

Pediatric primary care providers are in a unique position to routinely inquire about gender development in children and adolescents as part of recommended well-child visits[50] and to be a reliable source of validation, support, and reassurance. They are often the first provider to be aware that a child may not identify as cisgender or that there may be distress related to a gender-diverse identity. The best way to approach gender with patients is to inquire directly and nonjudgmentally about their experience and feelings before applying any labels.[27,51]

Many medical interventions can be offered to youth who identify as TGD and their families. The decision of whether and when to initiate gender-affirmative treatment is personal and involves careful consideration of risks, benefits, and other factors unique to each patient and family. Many protocols suggest that clinical assessment of youth who identify as TGD is ideally conducted on an ongoing basis in the setting of a collaborative, multidisciplinary approach, which, in addition to the patient and family, may include the pediatric provider, a mental health provider (preferably with expertise in caring for youth who identify as TGD), social and legal supports, and a pediatric endocrinologist or adolescent-medicine gender specialist, if available.[6,28] There is no prescribed path, sequence, or end point. Providers can make every effort to be aware of the influence of their own biases. The medical options also vary depending on pubertal and developmental progression.

Clinical Setting

In the past year, 1 in 4 adults who identified as transgender avoided a necessary doctor's visit because of fear of being mistreated.[31] All clinical office staff have a role in affirming a patient's gender identity. Making flyers available or displaying posters related to LGBTQ health issues, including information for children who identify as TGD and families, reveals inclusivity and awareness. Generally, patients who identify as TGD feel most comfortable when they have access to a gender-neutral restroom. Diversity training that encompasses sensitivity when caring for youth who identify as TGD and their families can be helpful in educating clinical and administrative staff. A patient-asserted name and pronouns are used by staff and are ideally reflected in the electronic medical record without creating duplicate charts.[52,53] The US Centers for Medicare and Medicaid Services and the National Coordinator for Health Information Technology require all electronic health record systems certified under the Meaningful Use incentive program to have the capacity to confidentially collect information on gender identity.[54,55] Explaining and maintaining confidentiality procedures promotes openness and trust, particularly with youth who identify as LGBTQ.[1] Maintaining a safe clinical space can provide at least 1 consistent, protective refuge for patients and families, allowing authentic gender expression and exploration that builds resiliency.

Pubertal Suppression

Gonadotrophin-releasing hormones have been used to delay puberty since the 1980s for central precocious puberty.[56] These reversible treatments can also be used in adolescents who experience gender dysphoria to prevent development of secondary sex characteristics and provide time up until 16 years of age for the individual and the family to explore gender identity, access psychosocial supports, develop coping skills, and further define appropriate treatment goals. If pubertal suppression treatment is suspended, then endogenous puberty will resume.[20,57,58]

Often, pubertal suppression creates an opportunity to reduce distress that may occur with the development of secondary sexual characteristics and allow for gender-affirming care, including mental health support for the adolescent and the family. It reduces the need for later surgery because physical changes that are otherwise irreversible (protrusion of the Adam's apple, male pattern baldness, voice change, breast growth, etc) are prevented. The available data reveal that pubertal suppression in children who identify as TGD generally leads to improved psychological functioning in adolescence and young adulthood.[20,57–59]

Pubertal suppression is not without risks. Delaying puberty beyond one's peers can also be stressful and can lead to lower self-esteem and increased risk taking.[60] Some experts believe that genital underdevelopment may limit some potential reconstructive options.[61] Research on long-term risks, particularly in terms of bone metabolism[62] and fertility,[63] is currently limited and provides varied results.[57,64,65] Families often look to pediatric providers for help in considering whether pubertal suppression is indicated in the context of their child's overall well-being as gender diverse.

Gender Affirmation

As youth who identify as TGD reflect on and evaluate their gender identity, various interventions may be considered to better align their gender expression with their underlying identity. This process of reflection, acceptance, and, for some, intervention is known as "gender affirmation." It was formerly referred to as "transitioning," but many view the process as an affirmation and acceptance of who they have always been rather than a transition

TABLE 2 The Process of Gender Affirmation May Include ≥1 of the Following Components

Component	Definition	General Age Range[a]	Reversibility[a]
Social affirmation	Adopting gender-affirming hairstyles, clothing, name, gender pronouns, and restrooms and other facilities	Any	Reversible
Puberty blockers	Gonadotropin-releasing hormone analogues, such as leuprolide and histrelin	During puberty (Tanner stage 2–5)[b]	Reversible[c]
Cross-sex hormone therapy	Testosterone (for those who were assigned female at birth and are masculinizing); estrogen plus androgen inhibitor (for those who were assigned male at birth and are feminizing)	Early adolescence onward	Partially reversible (skin texture, muscle mass, and fat deposition); irreversible once developed (testosterone: Adam's apple protrusion, voice changes, and male pattern baldness; estrogen: breast development); unknown reversibility (effect on fertility)
Gender-affirming surgeries	"Top" surgery (to create a male-typical chest shape or enhance breasts); "bottom" surgery (surgery on genitals or reproductive organs); facial feminization and other procedures	Typically adults (adolescents on case-by-case basis[d])	Not reversible
Legal affirmation	Changing gender and name recorded on birth certificate, school records, and other documents	Any	Reversible

[a] Note that the provided age range and reversibility is based on the little data that are currently available.
[b] There is limited benefit to starting gonadotropin-releasing hormone after Tanner stage 5 for pubertal suppression. However, when cross-sex hormones are initiated with a gradually increasing schedule, the initial levels are often not high enough to suppress endogenous sex hormone secretion. Therefore, gonadotropin-releasing hormone may be continued in accordance with the Endocrine Society Guidelines.[68]
[c] The effect of sustained puberty suppression on fertility is unknown. Pubertal suppression can be, and often is indicated to be, followed by cross-sex hormone treatment. However, when cross-sex hormones are initiated without endogenous hormones, then fertility may be decreased.[68]
[d] Eligibility criteria for gender-affirmative surgical interventions among adolescents are not clearly defined between established protocols and practice. When applicable, eligibility is usually determined on a case-by-case basis with the adolescent and the family along with input from medical, mental health, and surgical providers.[68–71]

from 1 gender identity to another. Accordingly, some people who have gone through the process prefer to call themselves "affirmed females, males, etc" (or just "females, males, etc"), rather than using the prefix "trans-." Gender affirmation is also used to acknowledge that some individuals who identify as TGD may feel affirmed in their gender without pursuing medical or surgical interventions.[7,66]

Supportive involvement of parents and family is associated with better mental and physical health outcomes.[67] Gender affirmation among adolescents with gender dysphoria often reduces the emphasis on gender in their lives, allowing them to attend to other developmental tasks, such as academic success, relationship building, and future-oriented planning.[64] Most protocols for gender-affirming interventions incorporate World Professional Association of Transgender Health[35] and Endocrine Society[68] recommendations and include ≥1 of the following elements (Table 2):

1. Social Affirmation: This is a reversible intervention in which children and adolescents express partially or completely in their asserted gender identity by adapting hairstyle, clothing, pronouns, name, etc. Children who identify as transgender and socially affirm and are supported in their asserted gender show no increase in depression and only minimal (clinically insignificant) increases in anxiety compared with age-matched averages.[48] Social affirmation can be complicated given the wide range of social interactions children have (eg, extended families, peers, school, community, etc). There is little guidance on the best approach (eg, all at once, gradual, creating new social networks, or affirming within existing networks, etc). Pediatric providers can best support families by anticipating and discussing such complexity proactively, either in their own practice or through enlisting a qualified mental health provider.

2. Legal Affirmation: Elements of a social affirmation, such as a name and gender marker, become official on legal documents, such as birth certificates, passports, identification cards, school documents, etc. The processes for making these changes depend on state laws and may require specific documentation from pediatric providers.

3. Medical Affirmation: This is the process of using cross-sex hormones to allow adolescents who have initiated puberty to develop secondary sex characteristics of the opposite biological sex. Some changes are partially reversible if hormones are stopped, but others become

irreversible once they are fully developed (Table 2).

4. Surgical Affirmation: Surgical approaches may be used to feminize or masculinize features, such as hair distribution, chest, or genitalia, and may include removal of internal organs, such as ovaries or the uterus (affecting fertility). These changes are irreversible. Although current protocols typically reserve surgical interventions for adults,[35,68] they are occasionally pursued during adolescence on a case-by-case basis, considering the necessity and benefit to the adolescent's overall health and often including multidisciplinary input from medical, mental health, and surgical providers as well as from the adolescent and family.[69–71]

For some youth who identify as TGD whose natal gender is female, menstruation, breakthrough bleeding, and dysmenorrhea can lead to significant distress before or during gender affirmation. The American College of Obstetrics and Gynecology suggests that, although limited data are available to outline management, menstruation can be managed without exogenous estrogens by using a progesterone-only pill, a medroxyprogesterone acetate shot, or a progesterone-containing intrauterine or implantable device.[72] If estrogen can be tolerated, oral contraceptives that contain both progesterone and estrogen are more effective at suppressing menses.[73] The Endocrine Society guidelines also suggest that gonadotrophin-releasing hormones can be used for menstrual suppression before the anticipated initiation of testosterone or in combination with testosterone for breakthrough bleeding (enables phenotypic masculinization at a lower dose than if testosterone is used alone).[68] Masculinizing hormones in natal female patients may lead to a cessation of menses, but unplanned pregnancies have been reported, which emphasizes the need for ongoing contraceptive counseling with youth who identify as TGD.[72]

HEALTH DISPARITIES

In addition to societal challenges, youth who identify as TGD face several barriers within the health care system, especially regarding access to care. In 2015, a focus group of youth who identified as transgender in Seattle, Washington, revealed 4 problematic areas related to health care:

1. safety issues, including the lack of safe clinical environments and fear of discrimination by providers;
2. poor access to physical health services, including testing for sexually transmitted infections;
3. inadequate resources to address mental health concerns; and
4. lack of continuity with providers.[74]

This study reveals the obstacles many youth who identify as TGD face in accessing essential services, including the limited supply of appropriately trained medical and psychological providers, fertility options, and insurance coverage denials for gender-related treatments.[74]

Insurance denials for services related to the care of patients who identify as TGD are a significant barrier. Although the Office for Civil Rights of the US Department of Health and Human Services explicitly stated in 2012 that the nondiscrimination provision in the Patient Protection and Affordable Care Act includes people who identify as gender diverse,[75,76] insurance claims for gender affirmation, particularly among youth who identify as TGD, are frequently denied.[54,77] In 1 study, it was found that approximately 25% of individuals who identified as transgender were denied insurance coverage because of being transgender.[31] The burden of covering medical expenses that are not covered by insurance can be financially devastating, and even when expenses are covered, families describe high levels of stress in navigating and submitting claims appropriately.[78] In 2012, a large gender center in Boston, Massachusetts, reported that most young patients who identified as transgender and were deemed appropriate candidates for recommended gender care were unable to obtain it because of such denials, which were based on the premise that gender dysphoria was a mental disorder, not a physical one, and that treatment was not medically or surgically necessary.[24] This practice not only contributes to stigma, prolonged gender dysphoria, and poor mental health outcomes,[77] but it may also lead patients to seek nonmedically supervised treatments that are potentially dangerous.[24] Furthermore, insurance denials can reinforce a socioeconomic divide between those who can finance the high costs of uncovered care and those who cannot.[24,77]

The transgender youth group in Seattle likely reflected the larger TGD population when they described how obstacles adversely affect self-esteem and contribute to the perception that they are undervalued by society and the health care system.[74,77] Professional medical associations, including the AAP, are increasingly calling for equity in health care provisions regardless of gender identity or expression.[1,8,23,72] There is a critical need for investments in research on the prevalence, disparities, biological underpinnings, and standards of care relating to gender-diverse populations. Pediatric providers who work with state government and insurance officials can play an essential role in advocating for

stronger nondiscrimination policies and improved coverage.

There is a lack of quality research on the experience of youth of color who identify as transgender. One theory suggests that the intersection of racism, transphobia, and sexism may result in the extreme marginalization that is experienced among many women of color who identify as transgender,[79] including rejection from their family and dropping out of school at younger ages (often in the setting of rigid religious beliefs regarding gender),[80] increased levels of violence and body objectification,[81] 3 times the risk of poverty compared with the general population,[31] and the highest prevalence of HIV compared with other risk groups (estimated as high as 56.3% in 1 meta-analysis).[30] One model suggests that pervasive stigma and oppression can be associated with psychological distress (anxiety, depression, and suicide) and adoption of risk behaviors by such youth to obtain a sense of validation toward their complex identities.[79]

FAMILY ACCEPTANCE

Research increasingly suggests that familial acceptance or rejection ultimately has little influence on the gender identity of youth; however, it may profoundly affect young people's ability to openly discuss or disclose concerns about their identity. Suppressing such concerns can affect mental health.[82] Families often find it hard to understand and accept their child's gender-diverse traits because of personal beliefs, social pressure, and stigma.[49,83] Legitimate fears may exist for their child's welfare, safety, and acceptance that pediatric providers need to appreciate and address. Families can be encouraged to communicate their concerns and questions. Unacknowledged concerns can contribute to shame and hesitation in regard to offering support and understanding,[84] which is essential for the child's self-esteem, social involvement, and overall health as TGD.[48,85–87] Some caution has been expressed that unquestioning acceptance per se may not best serve questioning youth or their families. Instead, psychological evidence suggests that the most benefit comes when family members and youth are supported and encouraged to engage in reflective perspective taking and validate their own and the other's thoughts and feelings despite divergent views.[49,82]

In this regard, suicide attempt rates among 433 adolescents in Ontario who identified as "trans" were 4% among those with strongly supportive parents and as high as 60% among those whose parents were not supportive.[85] Adolescents who identify as transgender and endorse at least 1 supportive person in their life report significantly less distress than those who only experience rejection. In communities with high levels of support, it was found that nonsupportive families tended to increase their support over time, leading to dramatic improvement in mental health outcomes among their children who identified as transgender.[88]

Pediatric providers can create a safe environment for parents and families to better understand and listen to the needs of their children while receiving reassurance and education.[83] It is often appropriate to assist the child in understanding the parents' concerns as well. Despite expectations by some youth with transgender identity for immediate acceptance after "coming out," family members often proceed through a process of becoming more comfortable and understanding of the youth's gender identity, thoughts, and feelings. One model suggests that the process resembles grieving, wherein the family separates from their expectations for their child to embrace a new reality. This process may proceed through stages of shock, denial, anger, feelings of betrayal, fear, self-discovery, and pride.[89] The amount of time spent in any of these stages and the overall pace varies widely. Many family members also struggle as they are pushed to reflect on their own gender experience and assumptions throughout this process. In some situations, youth who identify as TGD may be at risk for internalizing the difficult emotions that family members may be experiencing. In these cases, individual and group therapy for the family members may be helpful.[49,78]

Family dynamics can be complex, involving disagreement among legal guardians or between guardians and their children, which may affect the ability to obtain consent for any medical management or interventions. Even in states where minors may access care without parental consent for mental health services, contraception, and sexually transmitted infections, parental or guardian consent is required for hormonal and surgical care of patients who identify as TGD.[72,90] Some families may take issue with providers who address gender concerns or offer gender-affirming care. In rare cases, a family may deny access to care that raises concerns about the youth's welfare and safety; in those cases, additional legal or ethical support may be useful to consider. In such rare situations, pediatric providers may want to familiarize themselves with relevant local consent laws and maintain their primary responsibility for the welfare of the child.

SAFE SCHOOLS AND COMMUNITIES

Youth who identify as TGD are becoming more visible because gender-diverse expression is increasingly admissible in the media, on social media, and in schools and communities. Regardless of whether a youth with a gender-diverse

identity ultimately identifies as transgender, challenges exist in nearly every social context, from lack of understanding to outright rejection, isolation, discrimination, and victimization. In the US Transgender Survey of nearly 28 000 respondents, it was found that among those who were out as or perceived to be TGD between kindergarten and eighth grade, 54% were verbally harassed, 24% were physically assaulted, and 13% were sexually assaulted; 17% left school because of maltreatment.[31] Education and advocacy from the medical community on the importance of safe schools for youth who identify as TGD can have a significant effect.

At the time of this writing,* only 18 states and the District of Columbia had laws that prohibited discrimination based on gender expression when it comes to employment, housing, public accommodations, and insurance benefits. Over 200 US cities have such legislation. In addition to basic protections, many youth who identify as TGD also have to navigate legal obstacles when it comes to legally changing their name and/or gender marker.[54] In addition to advocating and working with policy makers to promote equal protections for youth who identify as TGD, pediatric providers can play an important role by developing a familiarity with local laws and organizations that provide social work and legal assistance to youth who identify as TGD and their families.

School environments play a significant role in the social and emotional development of children. Every child has a right to feel safe and respected at school, but for youth who identify as TGD, this can be challenging. Nearly every aspect of school life may present safety concerns and require negotiations regarding their gender expression, including name/pronoun use, use of bathrooms and locker rooms, sports teams, dances and activities, overnight activities, and even peer groups. Conflicts in any of these areas can quickly escalate beyond the school's control to larger debates among the community and even on a national stage.

The formerly known Gay, Lesbian, and Straight Education Network (GLSEN), an advocacy organization for youth who identify as LGBTQ, conducts an annual national survey to measure LGBTQ well-being in US schools. In 2015, students who identified as LGBTQ reported high rates of being discouraged from participation in extracurricular activities. One in 5 students who identified as LGBTQ reported being hindered from forming or participating in a club to support lesbian, gay, bisexual, or transgender students (eg, a gay straight alliance, now often referred to as a genders and sexualities alliance) despite such clubs at schools being associated with decreased reports of negative remarks about sexual orientation or gender expression, increased feelings of safety and connectedness at school, and lower levels of victimization. In addition, >20% of students who identified as LGBTQ reported being blocked from writing about LGBTQ issues in school yearbooks or school newspapers or being prevented or discouraged by coaches and school staff from participating in sports because of their sexual orientation or gender expression.[91]

One strategy to prevent conflict is to proactively support policies and protections that promote inclusion and safety of all students. However, such policies are far from consistent across districts. In 2015, GLSEN found that 43% of children who identified as LGBTQ reported feeling unsafe at school because of their gender expression, but only 6% reported that their school had official policies to support youth who identified as TGD, and only 11% reported that their school's antibullying policies had specific protections for gender expression.[91] Consequently, more than half of the students who identified as transgender in the study were prevented from using the bathroom, names, or pronouns that aligned with their asserted gender at school. A lack of explicit policies that protected youth who identified as TGD was associated with increased reported victimization, with more than half of students who identified as LGBTQ reporting verbal harassment because of their gender expression. Educators and school administrators play an essential role in advocating for and enforcing such policies. GLSEN found that when students recognized actions to reduce gender-based harassment, both students who identified as transgender and cisgender reported a greater connection to staff and feelings of safety.[91] In another study, schools were open to education regarding gender diversity and were willing to implement policies when they were supported by external agencies, such as medical professionals.[92]

Academic content plays an important role in building a safe school environment as well. The 2015 GLSEN survey revealed that when positive representations of people who identified as LGBTQ were included in the curriculum, students who identified as LGBTQ reported less hostile school environments, less victimization and greater feelings of safety, fewer school absences because of feeling unsafe, greater feelings of connectedness to their school

* For more information regarding state-specific laws, please contact the AAP Division of State Government Affairs at stgov@ aap.org.

community, and an increased interest in high school graduation and postsecondary education.[91] At the time of this writing,* 8 states had laws that explicitly forbade teachers from even discussing LGBTQ issues.[54]

MEDICAL EDUCATION

One of the most important ways to promote high-quality health care for youth who identify as TGD and their families is increasing the knowledge base and clinical experience of pediatric providers in providing culturally competent care to such populations, as recommended by the recently released guidelines by the Association of American Medical Colleges.[93] This begins with the medical school curriculum in areas such as human development, sexual health, endocrinology, pediatrics, and psychiatry. In a 2009–2010 survey of US medical schools, it was found that the median number of hours dedicated to LGBTQ health was 5, with one-third of US medical schools reporting no LGBTQ curriculum during the clinical years.[94]

During residency training, there is potential for gender diversity to be emphasized in core rotations, especially in pediatrics, psychiatry, family medicine, and obstetrics and gynecology. Awareness could be promoted through the inclusion of topics relevant to caring for children who identify as TGD in the list of core competencies published by the American Board of Pediatrics, certifying examinations, and relevant study materials. Continuing education and maintenance of certification activities can include topics relevant to TGD populations as well.

* For more information regarding state-specific laws, please contact the AAP Division of State Government Affairs at stgov@ aap.org.

RECOMMENDATIONS

The AAP works toward all children and adolescents, regardless of gender identity or expression, receiving care to promote optimal physical, mental, and social well-being. Any discrimination based on gender identity or expression, real or perceived, is damaging to the socioemotional health of children, families, and society. In particular, the AAP recommends the following:

1. that youth who identify as TGD have access to comprehensive, gender-affirming, and developmentally appropriate health care that is provided in a safe and inclusive clinical space;
2. that family-based therapy and support be available to recognize and respond to the emotional and mental health needs of parents, caregivers, and siblings of youth who identify as TGD;
3. that electronic health records, billing systems, patient-centered notification systems, and clinical research be designed to respect the asserted gender identity of each patient while maintaining confidentiality and avoiding duplicate charts;
4. that insurance plans offer coverage for health care that is specific to the needs of youth who identify as TGD, including coverage for medical, psychological, and, when indicated, surgical gender-affirming interventions;
5. that provider education, including medical school, residency, and continuing education, integrate core competencies on the emotional and physical health needs and best practices for the care of youth who identify as TGD and their families;
6. that pediatricians have a role in advocating for, educating, and developing liaison relationships with school districts and other community organizations to promote acceptance and inclusion of all children without fear of harassment, exclusion, or bullying because of gender expression;
7. that pediatricians have a role in advocating for policies and laws that protect youth who identify as TGD from discrimination and violence;
8. that the health care workforce protects diversity by offering equal employment opportunities and workplace protections, regardless of gender identity or expression; and
9. that the medical field and federal government prioritize research that is dedicated to improving the quality of evidence-based care for youth who identify as TGD.

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ABBREVIATIONS

AAP: American Academy of Pediatrics
GACM: gender-affirmative care model
GLSEN: Gay, Lesbian, and Straight Education Network
LGBTQ: lesbian, gay, bisexual, transgender, or questioning
TGD: transgender and gender diverse

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Exhibit C

LEWIS'S CHILD AND ADOLESCENT PSYCHIATRY

A Comprehensive Textbook

Andrés Martin
Michael H. Bloch
Fred R. Volkmar

FIFTH EDITION

Wolters Kluwer

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CHAPTER 5.14 ■ GENDER DYSPHORIA AND GENDER INCONGRUENCE

JACK L. TURBAN III, ANNELOU L. C. DE VRIES, AND KENNETH J. ZUCKER

INTRODUCTION

Transgender (gender incongruent) youth include children and adolescents who experience a marked incongruence between their gender assigned at birth and their gender identity (1). Since the last edition of this volume, which was published 10 years ago (2), there has been a remarkable increase in attention to transgender issues across the life span. Television has begun to highlight transgender individuals from childhood to adulthood (3,4). News outlets from *The New York Times Magazine* to *Le Monde* have explored the life experiences of transgender youth (5–7). Legislative bodies have examined transgender rights through restroom access, hate crime legislation, insurance regulations, and antidiscrimination policies, with physicians playing key roles in these discussions (8). Parallel to this growing attention, there has been a marked increase in the establishment of specialized gender identity clinics for children and adolescents in North America and in Europe (9), which likely reflects the marked increase in referrals that has been noted internationally (10–12). At the same time, the scientific literature on gender incongruence has expanded as well, with a flux of new studies on co-occurring psychological functioning, long-term follow-up studies, biologic correlates, and outcomes of medical interventions. Practicing child and adolescent psychiatrists should be familiar with the basics of this field to appropriately assess and treat these patients.

TABLE 5.14.1

TERMINOLOGY

Term	Definition
Gender assigned at birth/natal sex/birth sex	Gender assigned to an infant at birth, generally based on physical characteristics (genitalia, etc.)
Experienced gender/gender identity	An individual's psychological understanding of one's own gender
Affirmed gender	An individual's psychological understanding of one's own gender, typically referring to one who lives socially as that understood gender
Sexuality/sexual orientation	Refers to the types of individuals toward whom one is romantically and/or sexually attracted
Transgender	Refers to an individual whose gender identity is incongruent with that of one's gender assigned at birth. Sometimes also used as a term for an individual whose gender identity is binary opposite one's gender assigned at birth.
Gender dysphoria	Refers to psychological distress in relationship to one's experienced gender; is also the classification used in the DSM 5 (requiring fulfillment of certain

	clinical criteria)
Cisgender	Refers to an individual whose experienced gender matches that of one's gender assigned at birth
Gender non-conforming/gender variant	Refers to variation from developmental norms in gender role behavior that may be considered as nongender stereotypical. This may include identifying as both genders or identifying with neither gender, among others.
Transsexual	Typically used to refer to individuals who desire medical interventions to align their physiologies with the gender identities. This term is used synonymously with transgender by some and has largely fallen out of favor (though it was used commonly in the past).

TERMINOLOGY AND DEFINITIONS

Terminology in this specialized area is continuously evolving. This section describes terms and definitions that are in most common usage at this time, but different regions, cultures, and families may have their own preferred terminology (Table 5.14.1).

The term *gender assigned at birth* refers to a newborn's gender (boy, girl, indeterminate), as generally declared by a medical professional. Other relevant terms include *natal sex* and *birth sex.* The term *biologic sex* is somewhat vague, as it is unclear whether it would be based on karyotyping of the sex chromosomes, internal reproductive structures, the configuration of the external genitalia, etc. The vast majority of newborns are assigned the gender of boy or girl through prenatal diagnostics or, at birth, based on genital anatomy. A small number of newborns may be classified as having a "disorder of sex development" (DSD), or what others have called "differences of sex development" (13), congenital conditions in which biologic parameters of sex (e.g., the sex chromosomes, the gonads or the configuration of the external genitalia, etc.) are incongruent with one another. These conditions include complete or partial androgen insensitivity syndrome, mixed gonadal dysgenesis, 5-alpha-reductase deficiency, penile agenesis, and congenital adrenal hyperplasia (CAH), among others. Such patients may experience gender identity issues that can be unique from those experienced by those without a DSD (14).

Experienced gender refers to one's gendered sense of self as a boy, as a girl, or some alternative gender that is different from the traditional boy–girl dichotomy (e.g., "gender fluid," "agender," or "nonbinary"). Other terms include *affirmed gender* (typically used for individuals who have transitioned socially to living as the desired gender). For the majority of individuals, experienced gender matches the gender assigned at birth. These individuals are referred to as *cisgender.* For some patients, experienced gender is opposite from the gender assigned at birth, and these individuals are referred to as *transgender.*

Transgender, gender variant, and *gender nonconforming* are sometimes used as terms for individuals whose experienced gender does not strictly match that of their

gender assigned at birth. One who experiences psychological distress in relation to one's gender identity may be referred to as *gender dysphoric*. Gender dysphoria is the diagnostic term that has been adopted in the DSM-5 (see below) (1).

Sexual attraction or *sexual orientation* is a separate concept from gender identity. Sexual orientation refers to the types of individuals toward whom one is romantically or sexually attracted. Terms such as androphilia (attraction to males), gynephilia (attraction to females), biphilia (attraction to males and females), and aphilia (attraction to neither males nor females) are used more commonly nowadays, slowly replacing older terms such as heterosexual, bisexual, homosexual, and asexual. In the scientific literature, the sexual orientation of individuals who identify as transgender can be described in relation to their experienced gender or their gender assigned at birth. For example, an adolescent female who identifies as male and is sexually attracted to females can be described as "heterosexual" in relation to experienced gender but as "homosexual" in relation to birth sex (15). From either a clinical or research perspective, it is critical to identify the referent in describing a patient's sexual orientation. Most individuals who identify as transgender will describe their sexual orientation in relation to their gender identity, not their gender assigned at birth (e.g., a transgender woman who is attracted to men would likely consider herself to be heterosexual).

The "genderbread person" has been developed as an educational tool to clarify the distinctions among *gender assigned at birth, experienced gender,* and *sexual orientation* (Figure 5.14.1). Note that as a published educational instrument, this graphic diverges somewhat from the contemporary terminology we described above. Nonetheless, this tool has proven useful for introducing this terminology to families and students new to the topics of gender and sexuality.

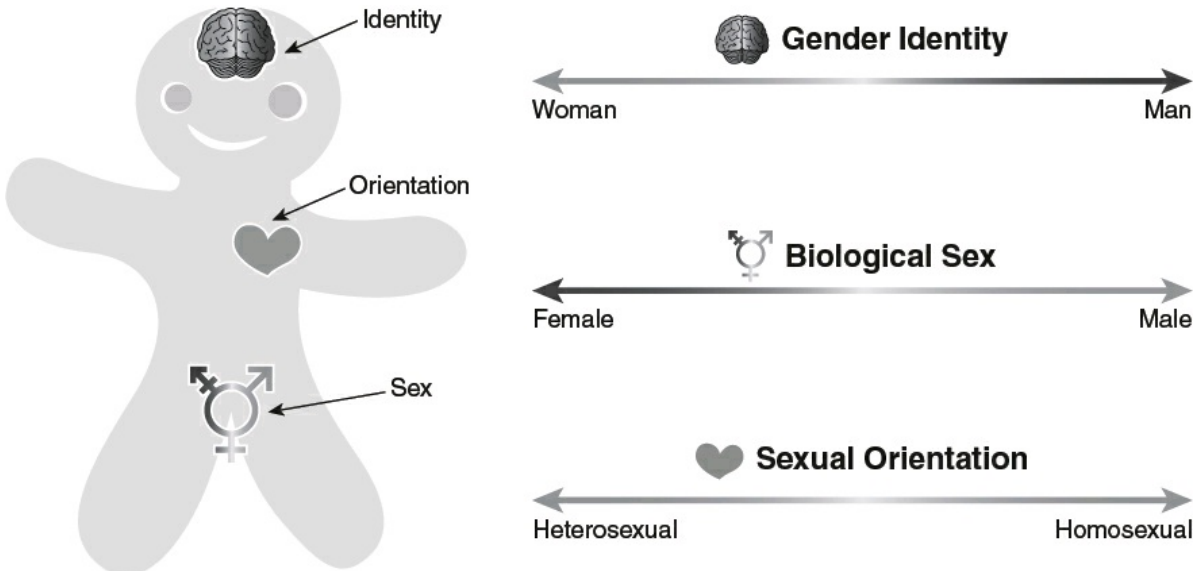

FIGURE 5.14.1. The Genderbread Person. The genderbread person is an educational tool used to explain the distinctions between experienced gender (termed gender identity here), gender

assigned at birth (termed biological sex here), and sexual or romantic orientation. This educational tool may be useful for students new to the field and when explaining these phenomena to families with gender incongruent and gender dysphoric children. These terms are further described in Table 5.14.1. (Modified from Killermann S. (2016). *The Genderbread Person*. Available at: itspronouncedmetrosexual.com)

HISTORY OF GENDER IDENTITY AND MEDICINE

John Money (1921–2006) was a psychologist and sexologist whose empirical and theoretical contributions regarding gender identity, gender role, and gender development were innovative and of great influence, beginning in the 1950s. Money originally proposed a theory of "gender neutrality," suggesting that gender identity was predominantly determined by social factors, including the gender assigned at birth and subsequent socialization processes (16). Money proposed that, for individuals with a DSD, early surgical interventions to correct genital ambiguity were often needed so that a child could then be supported with rearing in the gender assigned at birth.

Over the past few decades, Money's original theory of gender neutrality at birth has been challenged by various lines of evidence suggesting the importance of biologic factors, particularly patterns of prenatal hormone exposure, in also contributing to gender identity formation and differentiation. For example, chromosomal females with CAH, assigned female at birth are exposed to elevated levels of prenatal testosterone and many of these girls are behaviorally masculinized and a higher percentage than the general population develop gender dysphoria and transition from male to female (17,18).

Perhaps the most widely cited case pertains to a biologically "normal" male (one of a pair of identical twins) who, after a circumcision accident at the age of 7 months led to penile ablation, underwent a vaginoplasty and was socially reassigned to female at the age of 17 months (19,20).

Although this patient was described by Money (21) as a "tomboy" during childhood, subsequent follow-up revealed that the patient rejected estrogen therapy at the time of puberty and subsequently transitioned back to living as a male (19,20). Tragically, this patient committed suicide at the age of 38 (22). The "John–Joan" case, as it was called, has been used as evidence of the importance of biologic factors in contributing to a person's sense of gender identity. A subsequent summary of seven similar such patients reared as female after traumatic loss of the penis have shown both male and female gender identities in adolescence and adulthood, further complicating the picture (23).

In the 1960s, research into the developmental histories of adults with

"transsexualism" suggested that childhood cross-gender identification was common in these individuals (24). This work was then followed by research with children who showed patterns of gender-related behavior similar to the recalled patterns of transsexual adults (24). During this period, there was much less attention given to adolescents with a marked history of cross-gender identification.

By the late 1990s, however, more attention was given to adolescents with a DSM diagnosis of gender identity disorder, including the possibility of treatments with gonadotropin-releasing hormone analogs (GnRHa), as reported by a research team in the Netherlands (25). This approach, described below, was ultimately outlined in the 2009 Endocrine Society Guidelines for the Treatment of Transsexual Persons (26) and in the periodically updated Standards of Care by the World Professional Association for Transgender Health (27). Research into these hormonal interventions has since garnered significant attention, including increased NIH funding to study the long-term benefits and risks of these endocrine treatments (28).

DIAGNOSIS AND ASSESSMENT

Gender identity diagnoses first entered the DSM in its third edition with three diagnoses: transsexualism, gender identity disorder of childhood, and atypical gender identity disorder. The essential feature of these three diagnoses was "an incongruence between anatomic sex and gender identity" (29). Revisions in the DSM-III-R were modest, though in this edition, exclusion of individuals with schizophrenia or a DSD was removed, noting that individuals with either of these diagnoses could also have a gender identity disorder (30).

In the DSM-IV, the three diagnoses from DSM-III were collapsed into the overarching diagnosis "gender identity disorder" with distinct criteria sets for children versus adolescents and adults. This edition also added a criterion stating "The disturbance causes clinically significant distress or impairment in social, occupational, or other important areas of functioning" (31).

The DSM-5 renamed "gender identity disorder" as "gender dysphoria," aiming to decrease stigma associated with the diagnosis while maintaining a diagnosis that could be used to secure access to care for those who needed it (32). The DSM-5 removed sexual orientation subtyping, but noted in the text its relevance in understanding variations in developmental trajectories and for research on biologic factors and long-term outcomes (1). The DSM-5 also made an effort to make the childhood diagnosis stricter, requiring more than just gender nonconforming behavior. The new criteria required that a child expresses an actual desire or insistence of being the other gender. The adolescent and adult criteria simultaneously became more inclusive, allowing for nonbinary gender identities that would allow for gender variant, but not strictly binary, transgender adolescents and adults to receive the diagnosis and subsequently access to care.

Current DSM-5 criteria for gender dysphoria in children require a marked incongruence between one's experienced/expressed gender and assigned gender, of at least 6 months' duration, as evidenced by at least six of eight criteria, one of which must be a strong desire to be of the other gender or an insistence that one is the other gender (or some alternative gender different from one's assigned gender) (1). Additionally, the patient must experience clinically significant distress or impairment in social, school, or other important areas of functioning as introduced in the DSM-IV (Table 5.14.2). DSM-5 criteria for gender dysphoria in adolescents and adults are similar, though with different requirements for the manifestation of gender dysphoria. This diagnosis requires at least two of six manifestations (Table 5.14.3). For a summary and rationale for the DSM-5 changes, see Zucker et al. (33).

Some have argued for use of the term "gender incongruence," including the Working Group on Sexual Disorders and Sexual Health for the forthcoming 11th edition of the International Classification of Diseases. This group suggested that the term gender incongruence highlights that not all transgender individuals experience dysphoria. The group noted that the term gender dysphoria might increase inappropriate stigmatization and pathologization. Only for the practical purpose of preserving access to medical care did the group recognize the necessity of classification. The group additionally argued that the diagnosis be moved out of the chapter on mental health and behavioral disorders and into another section, provisionally termed Conditions Related to Sexual Health (34).

TABLE 5.14.2

DSM-5 CRITERIA FOR GENDER DYSPHORIA IN CHILDREN AND IN ADOLESCENTS AND ADULTS

Diagnostic Criteria
Gender Dysphoria in Children
302.6 (F64.2)

A. A marked incongruence between one's experienced/expressed gender and assigned gender, of at least 6 months' duration, as manifested by at least six of the following (one of which must be Criterion A1):
   1. A strong desire to be of the other gender or an insistence that one is the other gender (or some alternative gender different from one's assigned gender).
   2. In boys (assigned gender), a strong preference for cross-dressing or simulating female attire; or in girls (assigned gender), a strong preference for wearing only typical masculine clothing and a strong resistance to the wearing of typical feminine clothing.
   3. A strong preference for cross-gender roles in make-believe play or fantasy play.
   4. A strong preference for the toys, games, or activities stereotypically used or engaged in by the other gender.
   5. A strong preference for playmates of the other gender.
   6. In boys (assigned gender), a strong rejection of typically masculine toys, games, and activities and a strong avoidance of rough-and-tumble play; or in girls (assigned gender), a strong rejection of typically feminine toys, games, and activities.
   7. A strong dislike of one's sexual anatomy.
   8. A strong desire for the primary and/or secondary sex characteristics that match one's experienced gender.

B. The condition is associated with clinically significant distress or impairment in social, school, or

other important areas of functioning.

Specify if:

- With a disorder of sex development (e.g., a congenital adrenogenital disorder such as 255.2 [E25.0] congenital adrenal hyperplasia or 259.50 [E34.50] androgen insensitivity syndrome).
- Coding note: Code the disorder of sex development as well as gender dysphoria.

Gender Dysphoria in Adolescents and Adults

302.85 (F64.1)

A. A marked incongruence between one's experienced/expressed gender and assigned gender, of at least 6 mo duration, as manifested by at least two of the following:
   1. A marked incongruence between one's experienced/expressed gender and primary and/or secondary sex characteristics (or in young adolescents, the anticipated secondary sex characteristics).
   2. A strong desire to be rid of one's primary and/or secondary sex characteristics because of a marked incongruence with one's experienced/expressed gender (or in young adolescents, a desire to prevent the development of the anticipated secondary sex characteristics).
   3. A strong desire for the primary and/or secondary sex characteristics of the other gender.
   4. A strong desire to be of the other gender (or some alternative gender different from one's assigned gender).
   5. A strong desire to be treated as the other gender (or some alternative gender different from one's assigned gender).
   6. A strong conviction that one has the typical feelings and reactions of the other gender (or some alternative gender different from one's assigned gender).

B. The condition is associated with clinically significant distress or impairment in social, occupational, or other important areas of functioning.

Specify if:

- **With a disorder of sex development** (e.g., a congenital adrenogenital disorder such as 255.2 [E25.0] congenital adrenal hyperplasia or 259.50 [E34.50] androgen insensitivity syndrome).
- **Coding note:** Code the disorder of sex development as well as gender dysphoria.

Specify if:

- **Posttransition:** The individual has transitioned to full-time living in the desired gender (with or without legalization of gender change) and has undergone (or is preparing to have) at least one cross-sex medical procedure or treatment regimen—namely regular cross-sex hormone treatment or gender reassignment surgery confirming the desired gender (e.g., penectomy, vaginoplasty in a natal male; mastectomy or phalloplasty in a natal female).

TABLE 5.14.3

TREATMENT OF TRANSGENDER YOUTH

Timing	Intervention
Prepubertal	No endocrine intervention recommended. Patient should have regular psychotherapy to discuss gender identity and assess possible future need for hormonal intervention.
Early signs of puberty	Pubertal blockade with gonadotropin-releasing hormone analogs to prevent the development of secondary sex characteristics and provide additional time for psychotherapy and consideration regarding partially reversible interventions.
Age 14+ or 16+, depending on the center	Cross-sex hormonal therapy with estrogen or testosterone. Less frequently with other endocrine-acting medications that have less favorable side effect profiles.
Age 18 for most centers	Gender-affirming surgeries may be considered. Note that some surgeries may be performed earlier for select patients (generally mastectomies for transgender males).

EPIDEMIOLOGY OF GENDER DYSPHORIA AND GENDER NONCONFORMITY

A range of methodologic challenges, including but not limited to shifting terminology and stigma associated with self-identification, have made it difficult to establish the true prevalence of gender dysphoria or gender incongruence.

Prevalence in Adults

In adults, most studies have used the numbers of individuals that seek out clinical care for gender-affirming treatment as a proxy for determining prevalence in a certain country or catchment area. A recent meta-analysis based on 21 studies that applied this method concluded that the prevalence of transsexualism (the definition used in most of these studies) was 6.8 transwomen in 100,000 gender at birth-assigned males (1:14,705) and 2.6 transmen in 100,000 gender at birth-assigned females (1:38,461) (35). A time trend was also found, with recent studies reporting higher prevalence rates. These studies are, of course, limited by the fact that they do not include transgender individuals who do not seek medical care. Indeed, much higher prevalence rates, ranging from 4.2% having an ambivalent gender identity to around 0.5% identifying as transgender and considering medical interventions, are suggested by recent studies that have used broader definitions and probability samples (36–38). A recent population-based survey in the United States found that 0.6% of adults self-identified as transgender, with rates ranging from 0.3% to 0.8% in the states for which data were available. Compared to the older age groups, young adults between 18 and 24 years old were most likely to identify as transgender (39).

Prevalence in Children and Adolescents

Although formal epidemiologic studies of gender dysphoria in children and adolescents have not been conducted, looser or more liberal definitions of "caseness" in children and adolescents have been examined in several recent studies. In a random sample of 2,730 grade 6 to 8 students from San Francisco, Shields et al. (40) found that 1.3% self-identified as "transgender" in response to the question "What is your gender?," with the other response options being female or male. In a random sample of 8,166 high school students from New Zealand, Clark et al. (41) found that 1.2% self-identified as transgender and 2.5% reported that they were not sure about their gender, in response to the question "Do you think you are a transgender?" which was followed by a definition of the term. Interestingly, another 1.7% reported that they did not understand the question.

In the 1999 standardization sample of the Child Behavior Checklist (CBCL) for children aged 6 to 18 years and the Youth Self-Report (YSR) form, aged 11 to 18

years, there is one item pertaining to gender identity ("Wishes to be of opposite sex") (42). On the CBCL (total $N = 3,210$), less than 1% of parents of nonreferred boys and 1.2% of nonreferred girls endorsed this item as either somewhat or sometimes true or very true or often true. The percentages were higher for referred boys and girls (2.8% and 5.4%, respectively). On the YSR, about 10% of nonreferred girls and 2% of nonreferred boys endorsed this item compared to about 18% of referred girls and 3% of referred boys. In the prior 1991 CBCL standardization sample, two age groups were reported (4 to 11 and 12 to 18). For the 4 to 11 year olds, 1% of parents of nonreferred boys and girls endorsed this item compared to 3% and 5% of referred boys and girls. For the 12 to 18 year olds, none of the parents endorsed this item for nonreferred boys and girls compared to 2% and 5% of referred boys and girls. Consistent with the original CBCL and YSR standardization studies, two consistent findings emerge: the item is endorsed more often for girls than for boys and it is endorsed more often for referred than for nonreferred children and adolescents.

Gender Assigned at Birth Ratio

Of prepubertal children referred to gender identity clinics, the majority has a male gender assigned at birth. Among 577 Canadian children referred to a gender identity clinic between 1976 and 2011, the male-to-female ratio was 4.49:1 (12). This was significantly higher than the 2.02:1 ratio in the Netherlands (12). These differences are theorized, in part, to be a reflection of increased parental anxiety regarding gender-variant behavior in males compared to females, particularly in North America. For adolescents with gender dysphoria, the gender ratio is much closer to 1:1 and appears to be more consistent across nations (10). Of note, however, there has been a recent temporal shift from more birth-assigned males (prior to 2006) to more birth-assigned females (2006 to 2013), though the ratio remains closer to 2:1 in either direction (10).

BIOLOGIC AND PSYCHOSOCIAL DETERMINANTS

The etiology of cross-gender identification and behavior continues to be elusive. While psychological and social factors were once the focus of study, especially in normative gender development, attention has shifted to biologic mechanisms more recently. At present, the evidence suggests that both psychosocial and biologic elements are involved. A monocausal mechanism is unlikely and gender dysphoria most likely results from a complex interaction between these factors (43).

Biologic Factors

Twin studies suggest a strong heritable component with additional environmental

contributors. In a large-scale CBCL study of Dutch twins ($N = 23,393$) ages 7 and 10 (44), monozygotic (MZ) and dizygotic (DZ) twins were compared and estimated genetic factors contributed to 70% of cross-gender behavior (as assessed via the two CBCL gender items). Another study of 314 MZ and DZ twins (mean ages 9.4 and 10.1 years, respectively) roughly replicated this finding, with genetic factors contributing to 62% of the variance on a DSM-IV-based gender dysphoria scale (45). In a third study of 3,337 Japanese MZ and DZ twins ranging in age from 3 to 26 years (46), there was also strong evidence for genetic factors for females, but much less so for males.

Many studies, both in animals and humans, have shown that differences in brain anatomy and function in cis-gender males and females underlie the sex differences in their behavioral (47). Sex hormones play an important role in these differences. The *organizational* effect, predominantly prenatally but also during puberty, leads to the sex differences in brain structures. On average, males have larger brain volumes, more white matter, gray matter, and cerebrospinal fluid than females, although when corrected for total volume, females have more gray matter and a larger volume of the cortex (48–50).

The sexual differentiation hypothesis suggests that transgender individuals may have brain structures and brain functioning more closely aligned with their experienced gender (51). Postmortem studies have suggested a sex reversal in several hypothalamic nuclei in transgender adults (52,53). More recent neuroimaging techniques have allowed the in vivo study of brain morphology and functioning of larger numbers of adolescents and adults with gender incongruent feelings (50,54). Findings of these studies are more mixed. Before they received any medical gender affirmative treatment, brain anatomy with regard to volume, gray and white matter, and cerebrospinal fluid did not differ compared to their birth-assigned sex (50). Differences are, however, found with regard to the white matter microstructure, with results of transgender individuals in between males and females (50). In the realm of functional neuroimaging, task-related imaging studies show that transgender people may have either similar reactions as their experienced gender (e.g., smelling odorous steroids (55)) or activity different from their assigned gender as well as their experienced gender (e.g., mental rotation (56)), or not different from their assigned gender (e.g., verbal fluency (57)). The results so far show that we are still far away from a situation where imaging or other medical testing may serve as a diagnostic tool.

In animal studies, where prenatal hormones can be manipulated, the strong effect of prenatal testosterone on gender role behavior is clear (47). The effects on gender identity, however, can only be studied in humans. Individuals with DSD may be exposed to high levels of prenatal testosterone, and XX individuals with CAH (58) indeed have higher rates of gender dysphoria and cross-gender identification (18). The majority of female-raised individuals with CAH (~95%), however, appear to

develop a female gender identity (17). Other evidence for the importance of prenatal testosterone comes from studies in XY individuals with complete androgen insensitivity syndrome (CAIS) who lack the receptors necessary to respond to endogenous testosterone. The vast majority of these patients develop a female gender identity, suggesting that downstream testosterone signaling may be important for the development of a male gender identity (59). Others have noted that these patients are reared unambiguously as females and that social factors may play a strong role in their female identity formation (60). Some studies have shown that those with CAIS have lower scores on tests of female identity scales (61) and there have been some case reports of gender dysphoria ultimately leading to gender-affirming surgeries (62). This notably could be secondary to the psychological stress of learning about the diagnosis, as well as the possibility of undetected functional androgen receptors (43). Overall, studies of gender identity in individuals with DSD, while implicating androgens in the development of gender identity, have yet to show a simple direct relationship.

Psychosocial Factors

Past literature has investigated the potential role of parental characteristics on the development of gender dysphoria (maternal wish for a child of the opposite gender, paternal absence, and parental psychological functioning, among others). None of these hypotheses have been validated (43). Mothers of gender dysphoric boys have been noted to have higher scores on the Beck Depression Inventory and the Diagnostic Interview for Borderlines (63), but these higher scores might be due to external pressures placed on these parents by unaccepting social environments and such studies cannot determine the direction of causation. One study noted that gender dysphoric boys were rated as more feminine and "beautiful" by blinded college students (64) while another study of gender dysphoric girls showed that these girls were rated as less "cute" (65), raising the question of whether perceived physical appearance and resultant social treatment may contribute to gender incongruence. An alternative interpretation of this data is that those with a more male gender identity might alter their appearances to appear more "masculine" (e.g., culturally masculine haircuts) while those with a more female gender identity alter their appearances to appear more "feminine" (66). Some have suggested that a lack of parental limit-setting, particularly around cross-gender behavior, is associated with gender dysphoria (67), though this again does not prove causation, as more insistence on cross-gender behavior (i.e., transgender identity or stronger cross-gender behavior preferences) may make this limit-setting more difficult. Overall, there have been no proven causative psychosocial factors in the development of gender incongruence. Since studies on normative gender identity development show that cognitive psychological factors and social environment play a role, this may also be the case

for gender nonconforming development.

CLINICAL COURSE

Persistence of Gender Dysphoria from Childhood to Adolescence

The natural history of gender identity for children who express gender nonconforming or transgender identities is an area of active research (68). To date, the long-term follow-up studies of clinic-referred children have been based on samples that have included children who were either threshold or subthreshold for the gender identity diagnosis in DSM-III, III-R, or IV and some of the earliest studies began prior to the availability of formal diagnostic criteria.

These follow-up studies have classified participants as either "persisters" or "desisters" with regard to their cross-gender identification, using various metrics (semi-structured interviews based on DSM criteria for gender identity disorder, dimensional scores on standardized questionnaires, etc.). Ristori and Steensma (69) have provided the most recent summary of 10 follow-up studies, in which the percentage of participants classified as persisters ranged from 2% to 39% (collapsed across natal boys and girls). In one study (70), the percentage of natal girls who were persisters appeared to be substantially higher than the percentage of natal boys (50% vs. 12%), but in two other studies from the same clinic, the percentage was similar across natal sex (71,72).

One criticism of these studies is that either formal diagnostic criteria were not used (because they were not available at the time of the study) or that subthreshold cases were included. Some studies have found that threshold cases were more likely to be classified as persisters (73), but other studies have not (72). It has also been suggested that more recent cohorts (after the year 2000) have found higher rates of persistence (12% to 39% (61,64–66)) than older cohorts (2% to 9% prior to 2000 (74,75)); however, it is not clear if such differences are related to variations in sampling procedures or something more substantive. Comparisons of persisters with desisters have found that the intensity of gender dysphoria (using dimensional metrics), older age at the time of assessment in childhood, a lower social class background, and having a female gender assigned at birth are associated with higher rates of persistence (72,73). Despite this work, it remains difficult to predict, for an individual child, the likelihood of cross-gender identification persistence from childhood into adolescence (73).

Persistence of Gender Dysphoria from Adolescence to Adulthood

In contrast to the low rates of persistence from childhood into adolescence, it appears that the vast majority of transgender adolescents persist in their transgender identity (76).

Childhood Gender-Variant Behavior and Sexual Orientation

Childhood gender-variant behavior has been found to be a strong predictor of a same-sex sexual orientation (using gender assigned at birth as a reference point) in adults. In a study of 879 Dutch boys and girls, gender-variant behavior was assessed using the CBCL and sexual orientation was assessed 24 years later (77). It was found that the prevalence of a same-sex sexual orientation was, depending on the domain (attraction, fantasy, behavior, and identity), between 8.4 and 15.8 times higher in the gender-variant subgroup as compared to the nongender-variant subgroup. In summary, the current literature, though limited as described above, suggests that the majority of gender incongruent prepubescent children will grow up to identify as cisgender individuals with either a bisexual or a same-sex sexual orientation (70,72,74).

ASSOCIATED COEXISTING PSYCHIATRIC CONDITIONS AND BEHAVIORS

Children and adolescents with gender incongruence exhibit higher internalizing and externalizing psychopathology as compared to nonreferred controls, with internalizing psychopathology being more common, particularly in natal boys (78–84). One hypothesis is that this problem behavior is a result of minority stress and dysphoria toward their gender assigned at birth. These individuals are also subjected to rates of peer bullying as high as 80% (85). Poor peer relations is one of the strongest investigated predictors for behavioral and emotional problems in gender incongruent youth (79). In a study of 105 gender dysphoric Dutch adolescents whose parents completed the Diagnostic Interview Schedule for Children (DISC), 32.4% had one or more psychiatric disorders, with 21% suffering from anxiety, 12.4% from mood disorders, and 11.4% from disruptive disorders (85). A study with the same DISC measure in prepubertal children revealed higher percentages, with 52% having one or more psychiatric disorders other than GD (80).

Chart review studies of gender incongruent youth presenting to specialized gender identity clinics have shown similarly high or even higher rates of psychiatric conditions: mood (12.4% to 64%), anxiety (16.3% to 55%), and disruptive disorders (9% to 11.4%) (82,83,86–88). The prevalence range across studies may be secondary to cultural differences, differing diagnostic criteria, and differing ages of clinical populations. These psychiatric conditions appear to become more common in

gender incongruent individuals with increasing age. Some studies have shown that older transgender youth suffer a greater burden of co-occurring psychiatric conditions (82), and that gender incongruent adults suffer a greater burden of co-occurring psychiatric conditions as compared to adolescents (89).

Self-harming Behavior and Suicidality

Self-harming behavior and suicide attempts are prevalent among gender incongruent youth. Gender clinics have reported high rates of past suicide attempts by patients presenting for care: Boston (9.3%, mean age 14.8 (87)), London (10%, mean age 13.5 (82)), Los Angeles (30%, mean age 19.2 (86)). Rates of self-harm and suicidality appear to increase with age within this population (90).

Autism Spectrum Disorder

A number of studies have shown autism spectrum disorder (ASD) symptoms to be over-represented among transgender individuals. Clinical level rates of ASD symptomatology in transgender adults have been reported in the range of approximately 5% to 20% (91–93). A single study of 204 children and adolescents referred for gender dysphoria reported an ASD prevalence of 7.8% as measured by the Diagnostic Interview for Social and Communication Disorders (94). This compares to rates of ASD in the general population of around 1% (95). Two studies found increased gender variance (5.4%, 11.3%), defined by a positive response to "wishes to be of opposite sex" sometimes or often on the CBCL or YSR) in referred children, adolescents, and adults with ASD compared to nonreferred controls (96,97). However, the same was true for an ADHD-referred control sample (97), raising the issue that a higher probability of gender variance is characteristic of clinic-referred samples in general. Several hypotheses for shared underlying etiology that explains the link between these two conditions have been suggested (98–100).

Clinically, the co-occurrence of gender dysphoria and ASD may complicate transgender care, as diagnosing gender dysphoria can be difficult (e.g., in the context of the rigid thinking that is characteristic of ASD). Case reports have described instances cross-gender identification represented a transient preoccupation in youth with ASD (101). Additionally, language difficulties can make expression of gender dysphoria difficult for patients with ASD. Nonetheless, a comprehensive narrative review of the literature has shown a role for transition with pubertal blockade and cross-sex hormonal therapy in these patients following an extended diagnostic process (99). By use of a Delphi method, a group of experts on the ASD-gender dysphoria co-occurrence developed initial clinical guidelines assessment and treatment for adolescent transgender care (98). Careful diagnosis of both conditions by specific specialists, collaboration of clinicians from both fields, an extended

diagnostic phase, and risk assessment and safety issues are part of the suggested management protocol.

THERAPEUTICS

Treatment of Prepubescent Children

Over the past 10 years, best practice treatment for children with gender dysphoria has been the subject of intense controversy (102). As noted below, there are now three broad approaches that have been delineated in the literature: (1) the oldest one —characterized by Dreger (103) as the "therapeutic model"—consists of efforts, either directly (e.g., via specific suggestions that parents can implement in the day-to-day environment) or indirectly (e.g., psychodynamically informed approaches that treat the putative underlying "causes" of the gender dysphoria) and actively attempt to reduce cross-gender identification (104); (2) an intermediate approach, which some have characterized as "watchful waiting" (105), in which no direct efforts are made to "prohibit" a child's gender-variant behavior, but one that also advises parents to keep options open about the child's long-term gender identity and to avoid early social transition; (3) and, more recently, an approach characterized by Ehrensaft (106) as the "affirmative model" that considers all outcomes of gender identity to be equally valid and desirable and allows children who express a desire to socially transition to do so after careful counseling. These approaches have been discussed in great detail in three Task Force reports (107–109), in a special volume of the *Journal of Homosexuality* (102), and various other essays and case reports, the references for which can be found in these major reviews.

For the nonspecialist, there are several key issues to keep in mind when appraising this literature: (1) Some of these approaches may be influenced by particular theoretical formulations regarding the determinants of gender dysphoria and these formulations guide or influence recommended treatment plans; (2) there are no randomized controlled trials that have compared the effects of these treatments with regard to both short-term and long-term outcomes. Indeed, Byne et al. (109) noted that, by and large, "the highest level of evidence … can best be characterized as expert opinion" (p. 762); (3) with some rare exceptions (110), there are no manualized or even semi-manualized treatments that a clinician can follow in developing a therapeutic plan. Thus, the clinician needs to self-educate by reading about the therapeutic model that one intends to follow and tailor it on a case-by-case basis. Below, we provide relatively brief summaries of these three treatment approaches.

Promoting Identification with the Gender Assigned at Birth

This first approach aims, through psychosocial interventions, to reduce the child's cross-gender identification and gender dysphoria. These treatments (which have been described in the literature since the 1960s) have, however, been quite varied. They include classical behavior therapy, psychodynamic therapy (including psychoanalysis and dynamically informed play psychotherapy), parental counseling, and parent-guided interventions in the naturalistic environment (e.g., encouragement of peer relations of the same natal sex) (110,111).

Perhaps the underlying assumption of all of these approaches rests on the view that gender identity is not yet fixed in childhood and may be malleable through psychosocial treatments. There is also an implicit assumption or value judgment that might be inferred from this approach, namely that all things considered a child's long-term adaptation might be easier if he or she could come to feel content with a gender identity that matches their natal sex and to avoid the necessity of a lifelong regimen of cross-sex hormonal treatment and sex-reassignment surgery (or what nowadays is also called gender-affirming surgery).

Critics of this approach have argued that there is nothing inherently "wrong" with a cross-gender identity and have challenged the view that trying to change such an identity is warranted. Indeed, there are now several US states and one province in Canada that have passed legislation stating that it is inappropriate to try and change a minor's gender identity when the minor is unable to consent to the treatment, but exempt from this directive is "identity exploration" (112). Critics have also rightly noted that some of the earliest proponents of this treatment held the belief that it might also reduce the odds of the child's later development of a same-sex sexual orientation (113), although other proponents of this treatment rejected this as an ethically defensible treatment goal (111). Another expressed concern has been that this type of treatment might cause a child to feel shame or other negative and maladaptive feelings (108).

Watchful Waiting

The second approach takes an intermediate therapeutic position. On the one hand, it does not recommend an early gender social transition on the grounds that the extant follow-up studies have shown that the majority of children with gender dysphoria desist for one reason or another. On the other hand, it does not explicitly recommend any type of limit-setting on the child's gender-variant behavior, with the exception that in certain environments it might be risky or dangerous to display such behavior, which Hill et al. (114) described as the "only at home" rule.

This approach also does not privilege one type of long-term outcome over another, noting that it is difficult to predict outcome for an individual child and that the more important focus should be on the child's general psychosocial adjustment and well-being. This approach does, however, include recommendations to parents that they try to encourage in their child a variety of gender-related interests and social

affiliation with children of both genders. In some respects, the "watchful waiting" label is a bit of a misnomer because clinical protocols appear to include information provided to the parents that is more than "wait-and-see." As noted by de Vries and Cohen-Kettenis (115), appropriate limit-setting with good explanation of why the limits are set to their child may be helpful so that the child will learn "that not all desires will be met," which is important because "someone's deepest desire or fantasy to have been born in the body of the other gender will never be completely fulfilled." Although social transition according to this approach is not recommended at a very young age, an increasing number of children have already socially transitioned when they come to gender identity clinics (115). Some of these children may have no clear memories of a time that they were socially living in the birth-assigned gender and have stopped talking about being born different from their experienced gender. In these cases, it is encouraged that parents create an open situation where the child has the possibility of returning to the birth-assigned gender. It is discussed with the child that when gender identity feelings change, it is nothing to be ashamed of, that nobody will be angry, that the child may speak out, and that it is good to have tried. A form of psychotherapy that helps the child to verbalize his or her feelings may be advised so that, by the time the child may come back for GnRHa, the child is able to talk about his or her feelings and can give informed consent.

Affirmative Approach

The affirmative approach theorizes that clinician and parental attempts to push children with gender incongruence toward conforming to their gender assigned at birth might produce shame and stigma that can ultimately lead to internalizing psychopathology (108). The approach considers all outcomes of gender identity to be equally desirable and affirms any gender identity the child expresses.

Though similar to the watchful waiting approach, an important departure is in its approach regarding early social transition. In the affirmative model, prepubertal children who ultimately express a desire to socially transition and live full time in their experienced gender (i.e., using cross-gender pronouns, a cross-gender name, cross-gender clothing, etc.) are allowed to do so. The approach to social transition must be carefully individualized with a nuanced understanding of the child's gender identification and the level of support within the child's community; there must also be an open discussion with the child highlighting that despite the social transition that the patient is free to transition back at any time (115).

Some have noted cases where this transition back to living as one's birth gender can be particularly difficult mostly due to fear of peer judgment (116), though this must be weighed against the potential negative consequences of refusing to affirm a child's identity and desire to transition socially. The affirmative model predicts that this lack of affirmation might lead to shame and consequent internalizing

psychopathology (117). The therapeutic relationship in these cases could also be negatively affected if the clinician strongly discourages an early transition for a patient who ultimately persists in cross-gender identification.

Critics of social transitions in prepubertal children have raised the question of whether early social transition increases the rates of gender incongruence persistence from childhood into adolescence. Indeed, a multivariate regression analysis revealed that early social transition was associated with persistence (73). However, the direction of this association cannot be determined by this study. While some believe that prepubertal social transition makes children more likely to persist, the alternative interpretation is that those likely to persist are also more likely to undergo early social transition, due to currently unidentified factors. This additionally raises the ethical question of whether persistence should be considered an undesirable outcome. The affirmative model suggests that all outcomes of gender identity are equally desirable.

Separate from the question of persistence is the question of mental health outcomes following social transition. There is a relative paucity of literature studying the effect of prepubertal social transition. One study examined 73 American prepubertal children who were transgender in a binary fashion and allowed to socially transition. Parents of these children completed short forms for anxiety and depression at an unspecified time following the transition (118). Data from these scales revealed that these children had notably lower rates of internalizing psychopathology than previously reported children who did not transition. Furthermore, socially transitioned children in this study showed developmentally normal levels of depression and only minimally elevated (subclinical) levels of anxiety. It is important to note that families in this study had a relatively high median income, raising the question of whether this cohort is representative of a broader sociodemographic cohort (119). Though this early work suggests that socially transitioned children have better mental health metrics than previously reported children who did not socially transition, future research is needed to fully understand the dynamic and long-term effects of social transition in a broader population (119).

Treatment of Adolescents

Once children have reached puberty, transgender identity persists in the vast majority of cases, and medical intervention is often considered. At present, the effectiveness of an approach that includes puberty suppression and is followed by cross-hormones and surgeries has been evaluated in two studies on the same cohort of Dutch adolescents. The first study evaluated gender dysphoria and psychological functioning at two time points; first, when the 70 adolescents entered the clinic (mean age, 13.65 years), and second, just before they started cross-hormones (mean age, 16.64 years). Of interest, while adolescents improved with regard to psychological

functioning on several domains, gender dysphoria did not improve and all adolescents went on with the next step of gender-affirming hormones (120). The second study added a third assessment, around one year after gender affirmative surgeries, when the first 55 adolescents who had been in this treatment protocol had reached young adulthood (mean age, 20.70 years). This time, gender dysphoria was resolved and psychological functioning measures had even further improved with scores that were comparable to normative samples. The same accounted for quality of life, subjective happiness, and satisfaction with life scores (121). These positive results are promising and give trust that starting treatment at a relatively young age is possible. However, the results come from only one clinic and concern a highly selected sample that received support from their parents and often their further school and social environment that started the treatment only after extensive assessment and received further mental health counseling during the years of treatment. Whether the same positive results can be expected for the larger number of adolescents that are treated at clinics that strongly vary in their approach to gender-variant adolescents has yet to be determined.

Assessing Eligibility

According to Endocrine Society Guidelines, hormonally based medical intervention may be initiated at the earliest signs of puberty (i.e., Tanner 2 or 3) (26). Other eligibility criteria include meeting criteria for gender dysphoria (termed gender identity disorder in the 2009 guidelines), experiencing dysphoria toward early pubertal changes, having adequate psychological and social support for treatment, understanding the risks and benefits of treatment, and not suffering from a psychiatric comorbidity that would interfere with treatment (26). To assess eligibility, most clinics offer an assessment by a mental health professional that sees the adolescent and his or her family over a longer period of time before decisions regarding medical interventions are made. This time is used to prepare for the long period of medical treatment with lifelong consequences that is likely to follow and weigh the pros and cons of treatment so that an informed decision can be made. Although many adolescents come with a clear wish for medical treatment, some are not sure yet and want to explore their gender dysphoric feelings more broadly. Sometimes co-occurring psychiatric difficulties like ASD with rigid thinking, severe depression with acute suicidality or anxiety with worrisome avoidance and school refusal, complicate this diagnostic work and make coming to regular medical checkups and taking medication impossible. Treatment of these psychiatric disorders may then be necessary before endocrine intervention. The importance of parental support for the psychological well-being of adolescents is widely acknowledged (122). The time that is used for assessment may also be helpful in addressing parents' concerns and improving the adolescent–parent relationship. The time that is needed before medical intervention is provided may vary for each individual case, but tends to be longer

when psychosocial comorbidities occur (115,123).

Fully Reversible Interventions (Pubertal Blockade)

The first such intervention (implemented at Tanner 2 or 3 of puberty) is pubertal blockade with GnRHa. Gonadotropin-releasing hormone is produced by neurons in hypothalamus. In prepubertal children, this hormone is secreted at very low levels. At the initiation of puberty, release of gonadotropin-releasing hormone becomes cyclical. This cyclical release of hormone results in release of follicle-stimulating hormone (FSH) and luteinizing hormone (LH) from the anterior pituitary. These hormones then enter the peripheral circulation, where they initiate the production of sex hormones (estrogen in natal women and testosterone in natal men). These hormones then initiate the irreversible development of secondary sex characteristics.

GnRHa (either implants, depot injections, or regular injections) maintain high levels of gonadotropin-releasing hormone in the circulation. Without physiologic cyclical fluctuations in GnRH levels, FSH and LH are not released and all downstream signaling is prevented. This allows the patient to remain in a prepubertal state (124).

Pubertal blockade prevents the development of irreversible secondary sex characteristics (voice deepening, breast development, etc.) and provides additional time for gender dysphoric children to decide if they wish to fully transition physically into the body of the opposite sex. Therefore, it does not need to be considered actual gender affirmative medical treatment, but rather may function as an extended diagnostic phase. If the GnRHa implant is removed or the injections discontinued, the effects of the medication are reversible. With removal or discontinuation of the GnRHa, the patient will undergo natal puberty. Follow-up studies into young adulthood on the first cohort of puberty-suppressed adolescents are reassuring with regard to side effects. Although there was some deprived bone density, there were no concerns regarding liver and kidney functioning and lipid profile (125,126). Some advise clinicians to evaluate bone age for these patients every 3 months (26) and have regular blood monitoring to ensure that the central axis of puberty is sufficiently suppressed (26).

Partially Reversible Interventions (Cross-sex Hormonal Therapy)

Around the age of 16, patients may choose to move onto the next intervention of cross-sex hormonal therapy with estrogen or testosterone, according to Endocrine Society guidelines. Some groups have noted that cross-sex hormones can be instituted earlier, as delaying puberty outside the developmentally appropriate age may cause social problems for these youth (127). Additional criteria for cross-sex hormonal therapy are identical to those for GnRHa in the Endocrine Society guidelines.

Cross-sex hormones will initiate the development of secondary sex characteristics

of the desired puberty. These interventions are mostly irreversible and carry a more significant side-effect profile. The most prominent side effect of estrogen therapy is hypercoagulability, though clinicians prescribing these medications should be aware of the full spectrum of side effects. Of note, this hypercoagulability can be particularly problematic for patients undergoing high-risk surgery such as vaginoplasty. Patients on these medications should be regularly monitored for serum hormone concentrations and maintained within normal testosterone and estrogen serum concentrations for their desired gender. Spironolactone has been used for its antiandrogenic properties in select cases but is generally not considered a first-line treatment given its unfavorable side-effect profile as a diuretic (26).

Irreversible Interventions (Gender-Affirming Surgeries)

At the legal age of adulthood, patients may choose to undergo a variety of surgical interventions, including vaginoplasty, phalloplasty, scrotoplasty, breast augmentation, facial reconstruction, hysterectomy, reduction thyroid chondroplasty, among others. Patients should be carefully counseled on the risks and benefits of surgery. Specific surgical interventions are many and are out of scope for the purpose of this review. Of note, some surgical interventions may be considered earlier in the course of treatment. In the WPATH's Standards of Care, mastectomies are being considered earlier than age 18 (27).

Fertility Considerations

There is a paucity of research on the effects of pubertal blockade and cross-sex hormonal therapy on future fertility. Interested patients should be counseled on fertility preservation options early in treatment. Include LGBT Health study showing that most transgender youth do not desire fertility preservation, however most adults which they had. More longitudinal research needed (128).

SUMMARY

Gender incongruent and gender dysphoric youth represent a vulnerable demographic with high rates of co-occurring psychiatric conditions and suicidal behavior, likely secondary to minority stress and dysphoria related to living in a body that does not match one's experienced gender. Prepubescent children with gender-variant behavior or identification are best supported with psychotherapy. For those children who continue to have strong cross-sex identification in adolescence, pubertal blockade, and cross-sex hormone therapy to align patients' bodies with their identities have been shown to improve mental health outcomes.

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Exhibit D

Recognising and addressing the mental health needs of people experiencing Gender Dysphoria / Gender Incongruence

August 2021

Position statement 103

Summary

This position statement developed by the Royal Australian and New Zealand College of Psychiatrists (RANZCP) provides an overview of Gender Dysphoria and highlights the importance of respecting an individual's gender identity.

Purpose

This position statement developed by the Royal Australian and New Zealand College of Psychiatrists (RANZCP) provides an overview of Gender Dysphoria and highlights the importance of respecting an individual's gender identity. This statement offers insight into the key issues relevant to the mental health needs of people experiencing Gender Dysphoria and guidance is provided on how psychiatrists and mental health services can support individuals constructively. People experiencing Gender Dysphoria may experience a disproportionate level of mental illness and psychological distress. This position statement makes recommendations for enhancing the mental health sector's responsiveness to these needs.

Key messages

- Gender Dysphoria is associated with significant distress.
- There are polarised views and mixed evidence regarding treatment options for people presenting with gender identity concerns, especially children and young people. It is important to understand the different factors, complexities, theories, and research relating to Gender Dysphoria.
- It is important that there is adequate, person-centred care, for the mental health needs of people experiencing Gender Dysphoria.
- Psychiatrists play a crucial role in caring for the mental health needs of people experiencing Gender Dysphoria.
- Psychiatrists should act in a manner which is supportive, ethical, and non-judgmental.
- Comprehensive assessment is crucial. Assessment and treatment should be evidence-informed, fully explore the patient's gender identity, the context in which this has arisen, other features of mental illness

and a thorough assessment of personal and family history. This should lead to a formulation. The assessment will be always responsive to and supportive of the person's needs.
- Psychiatrists must have regard to the relevant laws and professional standards in relation to assessing capacity and obtaining consent, including the RANZCP Code of Ethics.
- Gender Dysphoria is an emerging field of research and, at present, there is a paucity of evidence. Better evidence in relation to outcomes, especially for children and adolescents is required.

Definition

Gender Dysphoria, as defined in the Diagnostic and Statistical Manual of Mental Disorders, fifth edition (DSM-5), refers to marked incongruence between one's experienced or expressed gender and one's assigned gender, associated with clinically significant distress or impairment in functioning.[1] Gender Incongruence is defined in the International Classification of Diseases 11th revision (ICD-11) as is 'a marked and persistent incongruence between an individual's experienced gender and the assigned sex'.[2]

Terminology

The RANZCP acknowledges the importance of using appropriate terminology when discussing issues of sexual, sex and gender identity.[3] Inclusive language engenders respect and promotes visibility for important issues, and this is integral to improving the health of LGBTIQ+ people.[4] The key terminology section below provides an overview of some key terms used in Australia and New Zealand.

It is important to be mindful of the importance of individual terminology preferences when talking about someone's sexual orientation or gender identity. Using the individual's preferred terms, especially pronouns, is very important for trans, gender diverse and non-binary people. Healthcare providers should not refer to someone using terms or pronouns that are against the individual's wishes. For example, an individual may wish to be referred to by the pronouns 'they and them' so as to avoid the gendered pronouns 'she' and 'he', and this should be respected. It is important to also be aware of the rapidity with which language and terminology can change and develop in this area, and to consider additional research or inquiry with relevant organisations as appropriate (please refer to the list of resources below for more information).

Key Terminology

- **Transphobia** encompasses a range of negative attitudes and feelings such as hatred, disgust, contempt, prejudice and fear towards people who are gender variant.
- **Trans,** or **TGD (trans and gender diverse)** are commonly used to describe a broad range of non-conforming gender identities or expressions including **transgender, agender** (having no gender), **bigender** (identifying as both a woman and a man), or **non-binary** (neither woman nor man). Some people may describe themselves as **MTF/M2F** (male-to-female), **FTM/F2M** (female-to-male), **AFAB** (assigned female at birth) or **AMAB** (assigned male at birth). The term **genderqueer** is used to refer to gender identity that does not conform to sociocultural norms. **Gender fluid** is used to refer to gender identity which shifts over time.
- For **TGDNB** (trans, gender diverse and non-binary) people, preferred pronouns may include 'he/him', 'she/her', 'they/them' or neopronouns like 'zi/zim'.
- Some Aboriginal and Torres Strait Islander peoples use the term **sistergirl** to refer to sex assigned at birth males who live partly or fully as women and **brotherboy** to refer to sex assigned at birth females who live partly or fully as men.[3]
- **Takatāpui** as a self-descriptor is often used by Māori to describe non-binary gender and/or sexual identity. Specific meaning can vary depending on context.[5] There are several Māori words for transgender people, including whakawahine (trans woman) and **whakatāne** (trans man).[6]

- In Pacific Island cultures, there are a number of gender-diverse identities including the Samoan **fa'afafine** and Tongan **fakaleiti**.[7]

Background

People experiencing Gender Dysphoria should be supported by mental health services to navigate their experience in a constructive way. Gender Dysphoria can emerge in a variety of ways. Each case should be assessed by a mental health professional, which will frequently be a psychiatrist, with the person at the centre of care. It is important the psychological state and context in which Gender Dysphoria has arisen is explored to assess the most appropriate treatment.

The views about whether psychiatric diagnosis is warranted for people who experience incongruence of gender identity are changing.[8] While 'Gender Dysphoria' is classified as a mental disorder in DSM-5, ICD-11 classifies the condition 'Gender Incongruence' not as a 'mental, behavioural and neurodevelopmental disorder' but as a 'condition related to sexual health'.[1, 2] ICD-11 has undergone significant revisions to ensure that disorders relating to sexuality and gender identity reflect contemporary evidence while appropriately distinguishing between health conditions and private behaviours.[9]

Gender Dysphoria continues to be widely debated across jurisdictions in Australia and New Zealand. The RANZCP has developed this position statement from the perspective of psychiatry.

Supporting people experiencing Gender Dysphoria/Gender Incongruence

There is evidence that people who experience incongruence between their gender identity and assigned gender have higher levels of mental illness than the general population.[10] In a retrospective study, Reisner et al (2015) found higher rates of depression, anxiety, suicidal ideation and self-harm in youth who identified as transgender.[11]

Data suggest that the number of people seeking help for gender identity issues has increased worldwide, with referrals to gender clinics increasing across age groups, including amongst children and adolescents.[12, 13] Clinics seeing young people have also reported an increasing preponderance of sex assigned at birth females among those seeking intervention and a co-occurrence of autism spectrum disorder and Gender Dysphoria. [14, 15]

Gender Dysphoria emerges in many different ways and is associated with significant distress for those who experience it. However, Gender Incongruence is not in and of itself pathological. There are polarised views and mixed evidence regarding treatment options for people presenting with gender identity concerns, especially children and young people.

The World Professional Association for Transgender Health (WPATH) uses the terminology "real life experience" defining it as "the act of fully adopting a new or evolving gender role or gender presentation in everyday life".[16] Real life experience allows transgender individuals who wish to permanently change their gender role, to transition from imagined experience to a lived experience. This experience can differ between individuals, for some the experience is liberating, whereas others can experience disappointment due to transition not living up to the desired expectation.[17]

A major challenge for clinicians working with children and adolescents who present for treatment of Gender Dysphoria is the impact of polarised socio-political discourse on clinical assessment and decision-making. Polarised views can be unhelpful and can make the task of clinicians assisting young people presenting with complex presentations more difficult.[18] Whilst these debates must be acknowledged, the most important goal currently is to ensure that there is adequate care available to meet the mental health needs of people experiencing Gender Dysphoria.

Role of psychiatrists

There are a number of guidelines and resources available which relate to Gender Dysphoria. [19-27] The RANZCP does not preference any specific guidelines. The RANZCP encourages psychiatrists to be aware there are multiple perspectives and views.

There is some evidence to suggest positive psychosocial outcomes for those who are supported in their gender identity.[28] However, evidence and professional opinion is divided as to whether an affirmative approach should be taken in relation to treatment of transgender children or whether other approaches are more appropriate.[24]

A gender affirmative approach endorses the belief system that children should be able to 'live in the gender that feels most real or comfortable to that child and to express that gender with freedom from restriction, aspersion, or rejection' therefore the child's statements regarding their gender identity should not be questioned, but instead accepted.[29] Affirmative approaches may include consideration of the need for medical treatments including gender affirming hormones, gonadotrophin releasing hormone analogues (GnRH) (in children and adolescents) and surgery. Approaches which don't include medical treatments may focus on utilising psychotherapy to aid individuals with Gender Dysphoria in exploring their gender identity, and aid alleviation of any co-existing mental health concerns identified in screening and assessment.[24]

The RANZCP endorses practice which supports and validates the identity, strength, and experience of the individual, recognising that all experiences of gender are equally healthy and valuable. In all cases, clinicians have a crucial role in empathetically supporting the individual and family/whānau assertions and lived experiences. The RANZCP acknowledges the dynamic changes in a child or adolescent's identity and brain development, appreciating the inherent complexities in the clinical care and assessment of the individual.

Mental health professionals should acknowledge the concerns of children, adolescents, and their families whilst not expressing any negative attitudes towards experiences of Gender Dysphoria. Acceptance, and alleviation of secrecy can provide relief to individuals experiencing Gender Dysphoria as well as their families.[24]

Psychiatric assessment and treatment should be both based on available evidence and allow for full exploration of the person's gender identity.[20] The RANZCP emphasises the importance of the psychiatrist's role to undertake thorough assessment and evidence-based treatment ideally as part of a multidisciplinary team, especially highlighting co-existing issues which may need addressing and treating. Psychiatric assessment and treatment must also occur in accordance with professional standards, and in a way which is person-centred, responsive to and supportive of the person's needs. Psychosocial support should be continuously offered and provided to people and their families before, during and after any treatment to maximise positive mental health outcomes.[20] If appropriate, psychiatrists can additionally facilitate the assessment of eligibility, preparation and referral for treatment.[24]

Mental health professionals including psychiatrists should maintain a collaborative and multidisciplinary approach to the treatment of Gender Dysphoria. Psychiatrists should discuss progress and obtain peer consultation from other professionals competent in the assessment and treatment of Gender Dysphoria, within both mental health and other medical disciplines.[24]

Health professionals should also be aware of ethical and medicolegal dilemmas in relation to medical and surgical treatment for people experiencing Gender Dysphoria. Psychiatrists should practise within the relevant laws and accepted professional standards in relation to assessing capacity and obtaining consent, including the RANZCP Code of Ethics.[30] Consent and authorisation for children and adolescents to commence GnRH and gender affirming hormones are subject to specific legislation in Australia and New Zealand. The legal position is rapidly changing, with the implications for policy and practice differing by jurisdiction. It is important that psychiatrists are aware of the policies and practices within the jurisdiction in which they work.

Given the complexity of these issues, it is essential that sufficient information is provided to people (and their family/whānau, or carer where relevant) to enable informed consent.[31] Further, evidence for clinical decisions about whether a child or adolescent is capable and competent to consent to treatment should be clearly recorded. In all cases, the risks and benefits of different treatments must be carefully assessed and balanced by the multidisciplinary team providing care and support to the person experiencing Gender Dysphoria.

Research on Gender Dysphoria is still emerging. At present, there is a paucity of quality evidence on the outcomes of those presenting with Gender Dysphoria. In particular, there is a need for better evidence in relation to outcomes for children and young people.[20] The RANZCP supports further research being undertaken into the long-term effects of medical and surgical affirming treatment in all age groups, including children and adolescents. Findings from the

Australian Trans20 longitudinal cohort study and Gender identity Longitudinal Experience (GENTLE) cohort study are expected to improve our understanding.[32, 33] Such research is crucial in ensuring that individuals can safely access evidence-based therapies for Gender Dysphoria/Gender Incongruence as needed.[34, 35]

Recommendations

The RANZCP recommends the following actions to support the mental health needs of people experiencing Gender Dysphoria/Gender Incongruence:

- Psychiatrists should engage with people experiencing Gender Dysphoria in a way which is person-centred, non-judgmental and cares for their mental health needs.
- Assessment and treatment should be based on the best available evidence and fully explore the person's gender identity and the biopsychosocial context from which this has emerged.
- Health services should take steps to accommodate the needs and ensure the cultural safety of people experiencing Gender Dysphoria/Gender Incongruence.
- Further research should be supported and funded in relation to wellbeing and quality of life during and after medical and surgical interventions for Gender Dysphoria/Gender Incongruence.

Further reading

Royal Australian and New Zealand College of Psychiatrists Position Statement 83: Recognising and addressing the mental health needs of the LGBTIQ+ population

Responsible committee: Practice, Policy and Partnerships Committee

References ›

Exhibit E

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

B.P.J. by her next friend and mother, HEATHER JACKSON, *Plaintiff*, v. WEST VIRGINIA STATE BOARD OF EDUCATION, et al., *Defendants*, and LAINEY ARMISTEAD, *Defendant-Intervenor*.	Civil Action No. 2:21-cv-00316 Hon. Joseph R. Goodwin

EXPERT REBUTTAL REPORT AND DECLARATION OF DEANNA ADKINS, M.D.

I, Deanna Adkins, M.D., hereby declare as follows:

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

2. I have actual knowledge of the matters stated in this rebuttal report and declaration ("Adkins Rebuttal") and have collected and cite to relevant literature concerning the issues that arise in this litigation in the body of the report. I refer herein to my initial expert report in this matter as "Adkins Report."

3. My credentials are set forth in my initial report executed on January 21, 2022.

4. I reviewed the reports of Dr. Stephen Levine and Dr. James M. Cantor (referred to herein as the "Levine Report" and "Cantor Report" respectively). I respond in this report to some of the central points in those disclosures. I do not specifically address each study or article cited

but instead explain the overall problems with some of the conclusions that Dr. Levine and Dr. Cantor draw and provide data showing why such conclusions are in error. I reserve the right to supplement my opinions if necessary as the case proceeds.

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

6. In preparing this report, I reviewed the text of House Bill 3293 ("H.B. 3293") at issue 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 and expert report 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.

SEX ASSIGNMENT AND BIOLOGICAL SEX CHARACTERISTICS

7. Dr. Levine does not appear to have any experience with the process of assigning sex to newborns at birth. Despite that lack of experience, he disputes the scientific consensus described in my initial report that the term "biological sex" is imprecise and should be avoided, as the Endocrine Society has advised.[1] Adkins Report ¶ 41; Levine Report ¶¶ 19-20. Dr. Levine

[1] 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.

instead asserts that sex is "determined at conception." Levine Report ¶ 20. His only reference for that claim does not support it, but rather is a one-page, undated handout by the National Institutes of Health ("NIH") Office of Research on Women's Health on the topic of sex and gender influences on health. *Id.*[2] Dr. Levine's repeated assertions that sex is "binary" (*e.g.*, Levine Report ¶ 24) ignore the extensive explanation in my initial report about the many differences of sex development that occur naturally in the population, affecting approximately one out of every 300 births. Adkins Report ¶¶ 47-49. The NIH recognizes "gender minorities" including transgender individuals. Indeed, the NIH has a whole section devoted to research to improve care for these populations as well as to ensure adequate inclusion of these populations in all research. (*See* NIH policy regarding Sexual and Gender Minorities, https://dpcpsi.nih.gov/sgmro.) A paper from Bhargava that Dr. Levine relies on in the Levine Report also goes into great detail about human reproductive development and how many other genes, hormones, and other processes that occur well after conception are necessary for typical male or female reproductive tracts to develop. The paper further supports the conclusion that there is wide variation in presentation of human reproductive organs depending on whether all of these steps occur appropriately. There are scientifically validated tools including the Prader Scale that are used to describe variability in external genitalia of humans at birth. These tools are widely used in endocrinology and urology.

8. In addition, Dr. Levine offers selective references to an NIH requirement to include "sex as a biological variable" in research, Levine Report ¶ 21, and an Endocrine Society statement authored by Bhargava, et al. with observations about applying that requirement. Levine Report ¶¶ 21-22. None of these sources contradict my opinions in this case.

[2] *See id.* (citing National Institutes of Health, Office of Research on Women's Health. *How Sex and Gender Influence Health and Disease*, https://orwh.od.nih.gov/sites/orwh/files/docs/SexGenderInfographic_11x17_508.pdf).

9. Dr. Levine also invokes human brain development and "differences between genders in function studies" to support his claim that sex is a binary concept established at birth, Levine Report ¶ 23, but ignores the literature showing that transgender women share some gender-differentiated brain structures with cisgender women, and that transgender men share some gender-differentiated brain structures with cisgender men. (*See* Bhargava et al. 2021.) Additionally, there are several studies that show an increase in the likelihood of being transgender with certain variations in the androgen receptor, as well as in utero exposure to certain hormones and hormone related medications.

10. Dr. Levine seeks to refute the biological underpinnings for transgender status by reference to supposed changes in incidence of gender dysphoria, changes in the ratio of transgender boys versus girls, alleged "clustering" among friend groups, claims of desistance, and nonscientific labels some individuals use such as gender fluidity. Levine Report ¶¶ 97-102. He also invokes these examples to contest the explanation in my initial report that gender identity is not subject to voluntary change. Adkins Report ¶ 18; *see also* Cantor Report ¶ 13. But the increase in the number of people known to be transgender in no way suggests that people's gender identity can be changed. We are able to see and treat more transgender people now because of increased societal acceptance and improved medical treatments over the past decade. And that some people describe their gender as fluid does not mean that they can change their gender identity. Gender identity—whether cisgender, transgender, or something that does not fall into a binary male or female category—cannot be changed voluntarily or by external factors and is therefore fixed. That some people have changing understandings of their gender identity or express it differently at different times in no way changes that.

11. It is also not the case that there are high numbers of transgender people who "desist" in their transgender identity once they reach puberty. Adolescents with persistent gender dysphoria after reaching Tanner Stage 2 almost always persist in their gender identity in the long-term, whether or not they were provided gender-affirming care.[3] No medical treatment is provided to transgender youth until they have reached Tanner Stage 2. But for pre-pubertal children who may explore transgender identity and later realize that they are not transgender, that does not mean their gender identity is not "fixed" but rather that their understanding of it evolved.

12. Dr. Levine and Dr. Cantor misconstrue my statements in my opening report that differences of sex development help us understand the importance of one's gender identity. Adkins Report ¶¶ 42-47. As I explained, surgical interventions undertaken on children with differences of sex development to supposedly normalize their genital structures, without adequate information about the child's gender identity, have sometimes had disastrous results because gender identity cannot be involuntarily altered. Adkins Report ¶ 46. Dr. Levine asserts that it is "an error to conflate the two distinct concepts." Levine Report ¶¶ 105-107; *see also* Cantor Report ¶¶ 25-26. But my testimony is not that having a difference of sex development and being transgender are the same, but that the similarities in these conditions help demonstrate that gender identity is deeply rooted for people who are transgender or intersex, just as for cisgender people. Dr. Levine suggests that if you identify with a gender other than those that are represented by your chromosomes that you are transgender. Levine Report ¶¶ 109-111. Under that inaccurate premise, all women with complete androgen insensitivity, who have XY chromosomes and cannot sense

[3] Turban JL, DeVries ALC, Zucker K. Gender Incongruence & Gender Dysphoria. In Martin A, Bloch MH, Volkmar FR (Editors): *Lewis's Child and Adolescent Psychiatry: A Comprehensive Textbook*, Fifth Edition. Philadelphia: Wolters Kluwer 2018.

testosterone at all, would also be categorized as transgender. Dr. Levine's theory is erroneous and does not represent my testimony, or the relevant science, on the matter.

13. Although in medicine we endeavor through research and scholarship to learn the causes of various conditions, illness, and diseases, we do not do so to the exclusion of providing decades-long documented safe and efficacious treatment to the patient immediately in front of us. Such is the case with gender-affirming care and patients with gender dysphoria. It is unnecessary for us to know the exact cause of a medical condition before we can provide treatment to alleviate distress and suffering. There are many other conditions in medicine that do not have a known genetic cause, and yet we still provide medical treatments that have been shown for decades to be helpful in treatment as we continue to study and learn more about their precise causes or etiologies These conditions include autism as well as the multitude of different medical issues that affect people with Down syndrome. For example, I would not hesitate to treat someone with Down syndrome who has hyper- or hypo-thyroidism, which is common in this patient population, simply because I did not know the exact explanation or source for the hyper or hypo-thyroidism. In the medical profession, there are well-documented research and clear treatments for autism and Down syndrome, and I do not need to know the exact reason behind the condition before I would use those treatments to save the lives of my patients.

TREATMENT PROTOCOLS FOR GENDER DYSPHORIA

14. Dr. Levine offers a variety of opinions about treatment models for persons who are transgender, Levine Report ¶¶ 34-54, with an emphasis on treatment for prepubertal children. It is worth clarifying that opinions about this population are irrelevant to this case based on my understanding of H.B. 3293, which does not apply to elementary schools, and therefore generally does not affect prepubertal children. Additionally, while the vast majority of Dr. Levine's opinions

appear focused on the appropriate behavioral and medical care for minors with gender dysphoria, H.B. 3293 (which is about sports participation) does not have any effect on those decisions, which are reserved to parents, their children, and their team of medical and mental health care providers.

15. Dr. Levine and Dr. Cantor repeatedly express concerns about the purported lack of mental health evaluation before medical interventions are determined to be medically indicated for adolescents (*e.g.*, Levine Report ¶¶ 73, 83; Cantor Report ¶¶ 14, 19), but this misunderstands the standards of care and how practitioners administer this care. Both the Endocrine Society Clinical Practice Guideline (the "Endocrine Society Guideline") and the World Professional Association of Transgender Health Standards of Care (the "WPATH SOC") require mental health assessments and informed consent processes before any medical treatment is initiated. In my experience treating over 600 youth with gender dysphoria during my tenure at the Duke Center for Child and Adolescent Gender Care (commonly referred to as the Duke Gender Clinic), each patient undergoes a psychological assessment and, if medical interventions are deemed medically appropriate, an extensive informed consent process before such interventions are provided. Any and all decisions about medical care involve not just the adolescent, but also their legal guardians, ensuring that informed consent is provided both by the patient and adults responsible for their care. Additionally, Dr. Cantor's suggestion that gender dysphoric children should be treated *exclusively* with counseling as opposed to any gender affirming medical care underscores his lack of clinical experience in providing any treatment whatsoever to this population. Cantor Report ¶ 17. Cantor's assertion that my opinion about possible outcomes of untreated gender dysphoria misrepresents Spack et al.'s views or conclusions from the 2012 article are also unfounded. *Id*. Dr. Cantor cherry-picked various sentences from the Spack article and strung them together to fit his hypothesis, even going so far as to ignore the clear statement from the article that "Our

observations reflect the Dutch finding that psychological functioning improves with medical intervention and suggests that the patients' psychiatric symptoms might be secondary to a medical incongruence between mind and body, not primarily psychiatric." (Spack, *et al.,* 2012, at 422-23). Finally, Dr. Levine incorrectly and without evidence asserts that the role of psychotherapy in the treatment of gender dysphoria was "downgraded" in the WPATH SOC Version 7. Levine Report ¶¶ 70, 73. Dr. Levine's apparent concern is that if patients are not "required" to undergo psychotherapy for an arbitrary amount of time even when it is clear that medical treatment is indicated, advocates of conversion therapy like himself will be unable to "enable[e] a patient to return to or achieve comfort with the gender identity aligned with his or her biology"—in other words, to not be transgender. The medical community has learned a great deal from the harms inflicted on transgender patients by delaying medical intervention because of the faulty assumption that being transgender was an inherent pathology. Levine Report ¶ 5.

16. Contrary to Dr. Levine's suggestions, providers who treat patients do not encourage any patient to initiate gender-affirming care, nor do they rush patients into medical treatment. *See, e.g.*, Levine ¶¶ 123, 126. Nor does gender-affirming care consist of treatment "on-demand" as Dr. Cantor repeatedly suggests. *See, e.g.*, Cantor Report ¶ 45. Consistent with the WPATH SOC and the Endocrine Society Guideline, each patient in my clinic is met first by mental health providers who explore the patient's medical and mental health history and identity. When following the Standards of Care, no provider rushes any patient into any treatment, much less medical treatment, and no treatment is initiated without the mental health evaluations and a thorough informed consent process for patients and their guardians.

17. Dr. Levine and Dr. Cantor express a view that care should be withheld from adolescents so that they can be encouraged to identify with their birth-assigned sex. This view

contravenes the standard of care; encourages "conversion therapy," which has been widely discredited as unethical and profoundly harmful; and is wholly unsupported by any scientific evidence, as both admit. Levine Report ¶ 49 (admitting that "there is no evidence beyond anecdotal reports that psychotherapy can enable a return" to identifying as one's birth-assigned sex); Cantor Report ¶ 42 (admitting "there has not yet been any such study" that supports withholding care). Additionally, being deprived of access to medically necessary care for gender dysphoria can impose serious and potentially irreversible harms. Many physiological changes that happen during endogenous puberty cause severe distress for patients with gender dysphoria and can be difficult, if not impossible, to reverse with subsequent treatment. Based on my clinical experience, patients with severe dysphoria who are able to receive medically indicated treatment as adolescents experience substantial mental health improvements.

WPATH IS A PROFESSIONAL MEDICAL ORGANIZATION

18. Dr. Levine critiques WPATH because it is "a voluntary membership organization" and "attendance at its biennial meetings has been open to trans individuals who are not licensed professionals." Levine Report ¶ 67. This critique is misplaced, as an organization can both advocate for patients and pursue rigorous scientific research, which WPATH and many other medical associations do. This is not an isolated or new phenomenon in medicine. The American Diabetes Association, for example, is a professional association that both advocates for patients with diabetes and is a scientific organization that conducts research, hosts meetings with open attendance, and reports on developments in the field. Similarly, rigorously researched papers are presented at the WPATH biennial meetings and well-funded scientific scholarship is reported on to other attendees. I have attended many of these meetings and have heard open, collegial and cordial debate. I have not had the experience suggested by Dr. Levine in the last decade, nor has

he, as he has admittedly not been a member of WPATH for more than two decades. Levine Report ¶ 66.

19. Dr. Levine additionally critiques WPATH and its members, claiming, "some current members of WPATH have little ongoing experience with the mentally ill" and recognizing and treating psychiatric comorbidities. Levine Report ¶ 73. In my clinic, as is recommended by the Endocrine Society Guideline, every patient is treated by a multidisciplinary team that includes a social worker, psychologist, psychiatrist, and endocrinologist. The mental health providers are all well-trained faculty and clinicians at Duke University Medical School with years of experience diagnosing and treating mental health conditions. For patients who have other mental health diagnoses, they are treated by a team of mental health providers before medical treatment for gender dysphoria is initiated. Clinic protocol requires written confirmation from the patient's mental health team that any other underlying mental health conditions are well-managed, and the patient is able to begin treatment.

20. Similarly, Dr. Levine asserts that the 2017 Endocrine Society Guidelines are not "standards of care." Levine Report ¶¶ 85-86. Dr. Levine misinterprets my testimony in that the titles of the clinical care recommendations based in the medical literature published by the Endocrine Society are all titled "clinical care guidelines." These guidelines are meant to be useful to providers in this field, and are recommendations from the Endocrine Society to improve care for transgender individuals.

SAFETY AND EFFICACY OF TREATMENTS

Safety and Efficacy of Puberty-Delaying Treatment

21. Puberty blockers have been used to treat patients with gender dysphoria since at least 2004 in the United States. We have almost 20 years of data showing the safety and efficacy

of this treatment for patients with gender dysphoria. We have over 30 years of data about the safety of this treatment based on data from treating children with precocious (i.e., early onset) puberty. Even with all of this supporting data, the Duke Gender Clinic still does not treat patients with a "one-size-fits-all approach" that Drs. Levine and Cantor proclaim exists. Not all patients who are experiencing their endogenous puberty when they present for care at our clinic are indicated for treatment with puberty blockers. This avenue of treatment is a case-by-case decision made with the expertise and thoughtful analysis of the entire multidisciplinary team, and with the patient and their family weighing the risks and benefits of each treatment path.

22. Though Dr. Levine warns throughout his report about delaying puberty, pubertal suppression in transgender youth does not delay puberty beyond the typical age range. Pubertal development has a very wide age variation among individuals. Puberty in individuals assigned male at birth typically begins anywhere from age nine to age 14, and sometimes does not complete until a person's early twenties. For those individuals assigned female at birth, puberty typically occurs sometime within the ages of eight to 17, generally beginning between the ages of eight and 13. Protocols used to treat adolescents with gender dysphoria would tend to put them in the latter third of typical pubertal age ranges but nothing outside of the typical range.[4] Though some peers of a patient on pubertal suppression may undergo pubertal changes earlier than the gender dysphoric patient, many peers will have comparably timed or even later puberty. There is no data to support Dr. Levine's assertion that delaying puberty within these normal age ranges will have negative social and developmental consequences, including Dr. Levine's unsupported claim that

[4] Hembree, W.C., Cohen-Kettenis, P.T., Gooren, L., et al. Endocrine Treatment of Gender-Dysphoric/Gender-Incongruent Persons: An Endocrine Society Clinical Practice Guideline. *The Journal of Clinical Endocrinology & Metabolism*. 2017; 102(11): 3869-903; Euling, S.Y., Herman-Giddens, M.E., Lee, P.A., et al. Examination of U.S. Puberty-Timing Data from 1940 to 1994 for Secular Trends: Panel Findings. *Pediatrics*. 2008; 121 (Supplemental 3): S172-S191.

transgender youth will experience psychosocial harms from their purportedly delayed puberty. Levine Report ¶ 192. Contrary to the suggestions by Dr. Cantor and Dr. Levine, my clinical experience has shown that adolescents who access needed gender-affirming medical treatment have improved social and romantic relationships and are able to develop positive peer relationships with cisgender and transgender people alike.

23. Dr. Levine claims that patients treated with puberty-delaying medication will experience a range of health consequences. Levine Report ¶¶ 185-94. For example, he says that patients treated with puberty suppressants will be at an elevated risk of lower bone density. Levine Report ¶ 186. During the course of treatment, patients may have reduced bone mineral density, but after two years on hormone therapy, their bone structure and strength generally matches that of cisgender people who went through the same puberty. This has been shown in research[5] and has also been my experience with patients. Additionally, studies have shown no changes in bone mineralization among patients with central precocious puberty treated with pubertal suppression for a period of four years.[6] As with all of the risks of puberty suppression, the risks related to bone mineralization and the state of the evidence are discussed extensively with patients and their parents during the informed consent process.

24. Dr. Levine's claim that brain development occurring during puberty is negatively affected by pubertal suppression is not accurate. Levine Report ¶ 187. Patients with gender dysphoria who are treated with puberty-delaying medication undergo hormonal puberty with all

[5] van der Loos, M.A., Hellinga, I., Vlot, M.C., et al. Development of Hip Bone Geometry During Gender-Affirming Hormone Therapy in Transgender Adolescents Resembles That of the Experienced Gender When Pubertal Suspension Is Started in Early Puberty. *Journal of Bone and Mineral Research*. 2021; 36(5): 931-41. doi: https://doi.org/10.1002/jbmr.4262.

[6] Park, H.K., Lee, H.S., Ko, J.H., et al. The effect of gonadotrophin-releasing hormone agonist treatment over 3 years on bone mineral density and body composition in girls with central precocious puberty. *Clinical Endocrinology*. 2012; 77(5): 743-48.

the same brain and other bodily system development.[7] Dr. Levine's claim is inaccurate for the additional reason that some people never go through hormonal puberty, such as patients with Turner Syndrome, and still have normal brain development with respect to cognition and executive function. His claim also seems to imply that youth with gender dysphoria have their puberty delayed beyond the typical age range, but, as I discussed above, this is not accurate. He also implies that gender dysphoric youth treated with pubertal suppression remain on puberty blockers longer than those treated for precocious puberty. Levine Report ¶ 184. This is also not accurate. The longest period of time that my patients with gender dysphoria are treated with pubertal suppression before the introduction of pubertal hormones is approximately three years. By contrast, many patients with precocious puberty are treated with pubertal suppression for five to seven years.

25. As I explained in my initial report, Adkins Report ¶ 30, puberty-delaying medication simply pauses development at the stage it has reached at the time treatment is initiated. On its own, pubertal-delaying medication has no permanent effects on the maturation of sexual organs. For patients treated with puberty blockers who do not go on to gender-affirming hormones, once they stop taking blockers, puberty—including maturation of sexual organs—resumes. Dr. Levine's concerns about potentially diminished sexual response are also misplaced. Levine Report ¶ 199. For transgender women on estrogen who experience sexual side effects from the treatment, these are effectively managed through dosing as well. None of these side effects are inevitable, unmanageable, or unique to this treatment, and all potential side effects are discussed with patients

[7] Staphorsius, A. S., Kreukels, B. P., Cohen-Kettenis, P. T., et al. Puberty suppression and executive functioning: An fMRI-study in adolescents with gender dysphoria. *Psychoneuroendocrinology*. 2015; 56: 190-99. doi: https://doi.org/10.1016/j.psyneuen.2015.03.007.

during the informed consent process required to initiate treatment. And, in my experience, many patients experience no side effects whatsoever from treatment, and instead experience exactly their intended effect: the diminishment of distress caused by untreated gender dysphoria. There is also data that shows that the majority of transgender individuals see an improvement in their sexual satisfaction after gender-affirming care.

26. Dr. Levine's theories about the unknown impact of puberty blockers on fertility and the supposed "irreversibility" of this treatment are again uninformed. Levine Report ¶¶ 179, 180, 185. In addition to treating precious puberty and gender dysphoria, puberty blockers are used to *preserve* gonadal function and ensure fertility when patients undergo gonadotoxic treatments. For example, puberty blockers have been shown to protect gonadal function and preserve fertility in patients undergoing cancer and rheumatologic treatment.[8] Puberty delaying medication is supported as the standard of care to preserve fertility in oncology patients who may undergo gonadal injuring treatments. When patients are no longer undergoing this treatment, their natal gonads resume their normal function and development. It is precisely for this reason, and for the decades of safe and efficient use of these treatments for children with precocious puberty that puberty blockers are relied upon as the least invasive intervention for medical treatment of gender dysphoria.

27. An additional claim by Dr. Levine that lacks evidentiary bases is that an "irreversible" and "inevitable" outcome of the administration of puberty blockers is the later use

[8] Int J Rheum Dis. 2018 Jun ; 21(6):1287-1292. doi: 10.1111/1756-185X.13318.
Effect of a gonadotropin-releasing hormone analog for ovarian function preservation after intravenous cyclophosphamide therapy in systemic lupus erythematosus patients: a retrospective inception cohort study; nt J Mol Sci 2020 Oct 21;21(20):7792. doi: 10.3390/ijms21207792.
Advances in the Treatment and Prevention of Chemotherapy-Induced Ovarian Toxicity
Hyun-Woong Cho, et al.

of hormone therapy. In contrast to Dr Levine's baselessly imagined world of unethical medical professionals, in actual medical practice in actual medical clinics like mine, no treatment is decided in advance for every single patient, and that is a foremost standard of care. While the majority of my patients who undergo puberty delaying treatment do go on to initiate hormone therapy, some do not. Dr. Levine' imbedded premise is that puberty blockers work as a cause-and-effect mechanism for later use of hormone therapy, but that misses reality entirely, when the cause for any medical treatment is the appropriate management of gender dysphoria with the goal of finding the best treatment possible for each patient, without a predetermined idea of what that will be.

28. Finally, Dr. Levine makes it appear as if the Endocrine Society has significant reservations about puberty-delaying treatment by again misquoting and misrepresenting quoted portions of the 2017 Guidelines. Levine Report ¶¶ 87, 188. To begin with, Dr. Levine asserts that on page 3872, the Guidelines "go no further than 'suggest[ing]' use of puberty blockers." *Id.* ¶ 87. This quote can be found nowhere on page 3872. Instead, in the abstract section labeled "Conclusion" beginning on the first page of the Guidelines (3869) and continuing onto page 3870 is the direct quote "We ***recommend*** treating gender-dysphoric/gender-incongruent adolescents who have entered puberty at Tanner Stage G2/B2 by suppression with gonadotropin-releasing hormone agonists." (emphasis added). Levine then goes on to quote several disconnected sentences from the Guidelines out of context as support for his wholly unsupported hypothesis that there is a "negative impact" on brain development of adolescents treated with puberty delaying medication. Levine Report ¶¶ 187-88. Notably, while Dr. Levine offers no insight about the impact of the anxiety, depression, and overall distress caused by untreated gender dysphoria on adolescent brain development, he maintains that the Guidelines support his unsubstantiated hypothesis by "acknowledging as much." Levine Report ¶ 188. The Guidelines do no such thing; instead they

merely acknowledge the data existing at the current moment, and like any field of medicine, the need for additional study and information. For example, Dr. Levine's first out of context quote ignores the Guidelines' following statements from the same page that "[i]nitial data in GD/gender-incongruent subjects demonstrated *no change* of absolute areal BMD [bone mineral density] during 2 years of GnRH analog therapy but a decrease in BMD z scores." The Guidelines also note, and Levine omits, that "[r]esearchers reported normal BMD z scores at age 35 years in one individual who used GnRH analogs from age 13.7 until age 18.6 years before initiating sex hormone treatment." Additionally, Dr. Levine leaves out the entire first half of the sentence before his reference to "animal data," from page 3883, which in complete form states that "[a] single cross-sectional study demonstrated no compromise of executive function." Regardless of Dr. Levine's mischaracterizations of the purpose or words of the Endocrine Society Guidelines, in the five years since they were published, additional research has been completed by clinicians and researchers in the area, resulting in findings like those recently included in a study in the Best Practice & Research Clinical Endocrinology and Metabolism: "With more than 30 years of experience, we can affirm that GnRHa treatment is safe. The most frequently documented side effects are headaches and hot flashes."[9]

Safety and Efficacy of Hormone Therapy

29. Dr. Levine expresses concern that the evidence supporting hormone therapy for treatment of gender dysphoria is graded as low quality. Levine Report ¶¶ 144-47. It is common that standard treatments in medicine generally, and endocrinology specifically, receive reviews that the quality of evidence is "low" or "very low" because of the evidence available at the moment

[9] Leandro Soriano-Guillén, Jesús Argente, Central precocious puberty, functional and tumor-related, Best Practice & Research Clinical Endocrinology & Metabolism, Volume 33, Issue 3, 2019, 101262, ISSN 1521-690X, https://doi.org/10.1016/j.beem.2019.01.003.

a review is conducted and because of the limited and rigid definitions of "evidence" used by the reviewing organizations. For example, the Endocrine Society also has a Clinical Practice Guideline for the Treatment of Pediatric Obesity which was released the same year as the Endocrine Society Guideline for the Treatment of Gender Dysphoric Persons. In the Pediatric Obesity Guideline, the Guideline's strong recommendation for the prevention of obesity is that clinicians prescribe "healthy eating habits"—an obviously time-tested and well-founded recommendation—but this recommendation has a "very low" quality rating of the evidence—just like puberty blockers. Similarly, the Cochrane Database of Systemic Reviews on which Dr. Levine relies has similar levels of evidence for treatments that are standard of care in medicine. For example, in 2021 the Cochrane Database provided a review of "early versus delayed appendectomy for abscess." Despite appendectomies being one of the oldest and most common surgical procedures completed on children in the United States, the Cochrane Review looked at 66 years' worth of study and research and found just two studies with 80 total patients that were acceptable for their review and from that data deemed that the evidence is "of very low quality." (Cochrane Database 2017).

30. Finally, Dr. Levine's assertion that random control trials are necessary in order to establish any worthwhile science on the safe and effective medical treatment for gender dysphoria is unethical. When withholding treatment is more dangerous (likely to result in death or injury) than providing that treatment, clinicians will, with informed consent and appropriate screening mechanisms, use that treatment even if the amount of evidence supporting the treatment is not vast. In the case of gender-affirming hormone therapy, available data supports that these treatments lower suicide attempts and suicidal ideation as much as four-fold. When combined with the fact that the second leading cause of death in all adolescents is suicide, there are ample

reasons to utilize this treatment pathway even if evidence does not meet the stringent levels of the Cochrane Review. Significantly, there are no reported deaths in youth from receiving puberty blockers or hormone therapy. Given that withholding this care increases the likelihood of death, it is unethical to do so in order to perform a randomized control trial ("RCT"). RCTs are only ethically performed between treatments that are at equal in treating a condition. Providing gender-affirming care to transgender young people and not providing it are not equal in treating the condition, as decades of evidence of the death of transgender individuals before gender-affirming hormone treatments were available demonstrate.

31. Dr. Levine warns of risks of infertility related to gender-affirming hormone therapy, Levine Report ¶ 197, but many transgender individuals conceive children both during and after undergoing hormone therapy.[10] Pregnancy among trans men after undergoing testosterone therapy is very common.[11] A recent eight-year study found that four months after stopping testosterone treatment, transgender men had comparable egg yields to non-transgender women.[12] Going directly from pubertal suppression to gender-affirming hormones does affect fertility. For these patients, and any patients treated with estrogen, who are concerned about the impact of estrogen

[10] Light A.D., Obedin-Maliver J., Sevelius J.M., et al. Transgender men who experienced pregnancy after female-to-male gender transitioning. *Obstetrics Gynecology*. 2014; 124(6): 1120-27; Maxwell S., Noyes N., Keefe D., Berkeley A.S., et al. Pregnancy Outcomes After Fertility Preservation in Transgender Men. *Obstetrics Gynecology*. 2017; 129(6):1031-34; Neblett M.F. & Hipp H.S. Fertility Considerations in Transgender Persons. *Endocrinology and Metabolism Clinics*. 2019; 48(2): 391-402.

[11] See, *e.g.*, Moseson, H., Fix, L., Hastings, J., et al. Pregnancy intentions and outcomes among transgender, nonbinary, and gender-expansive people assigned female or intersex at birth in the United States: Results from a national, quantitative survey. *International Journal of Transgender Health*. 2020; 22(1-2): 30-41. doi: .

[12] Leung, A., Sakkas, D., Pang, S., et al. Assisted reproductive technology outcomes in female-to-male transgender patients compared with cisgender patients: a new frontier in reproductive medicine. *Fertility and Sterility*. 2019; 112(5): 858-65.

on fertility, fertility preservation remains a viable option we communicate to patients. More generally, many medical interventions necessary to preserve a person's health and well-being can impact an individual's fertility, but as with virtually every decision in medicine, we carefully weigh the risks and the benefits of treatment and proceed with the treatment after informed consent.

32. Dr. Levine asserts that transgender people "most likely [] require regular administration of hormones for the rest of their lives." Levine Report ¶ 129. Some patients may take hormones for some number of years and then decide to discontinue the treatment if dysphoria is well-managed. For those who do remain on maintenance doses of hormone therapy for their lifetime, the risks of ongoing hormone therapy can be well-managed and are not unlike risks associated with those present for other patients who undergo long-term hormone therapy for different conditions like hypothyroidism, Kleinfelter's Syndrome, Turner Syndrome, or hypopituitism. Generally, in endocrinology, our treatment goals for all patients are to maintain hormone levels at the range of normal human physiology, regardless of a person's chromosomes, reproductive anatomy, or gender identity. When this is done, the body knows no difference in the source of the hormones and functions in normal physiologic fashion, regardless of whether the patient is cisgender or transgender.

33. Ultimately, Dr. Levine's and Dr. Cantor's reports reveal a central opinion is that it is not healthy to be transgender and that government policies and medical practice should undertake efforts to make people not transgender (*i.e.*, use endless psychotherapy to encourage people to live in accordance with their assigned sex at birth rather than their gender identity, deny them medical treatment when it is indicated, ignore their distress unless science and medicine is 100 percent certain there is no possible risk to any intervention). This approach to the management of any condition is counter to medicine and science overall. And attempts to "treat" transgender

people in this manner is historically well-known to be not only entirely ineffective, but to be extremely harmful and is considered unethical by every major medical association.[13] My clinical experience and the peer-reviewed literature overwhelmingly demonstrate that gender-affirming medical care drastically improves the health and well-being of adolescents with gender dysphoria for whom the care is medically indicated.

[13] American Academy of Child & Adolescent Psychiatry. Conversion Therapy. 2018. https://www.aacap.org/AACAP/Policy_Statements/2018/Conversion_Therapy.aspx; American Medical Association. Health care needs of lesbian, gay, bisexual and transgender populations. H-160.991. 2017. https://policysearch.ama-assn.org/policyfinder/detail/H-160.991%20?uri=%2FAMADoc%2FHOD.xml-0-805.xml/

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

Executed on this 10th day of March 2022.

Deanna Adkins, M.D.

DUKE UNIVERSITY MEDICAL CENTER

CURRICULUM VITAE

Date Prepared: January 21, 2022

Name:	Deanna Adkins, BS, MD
Primary Academic Appointment:	Associate Professor of Pediatrics, Career Track
Primary Academic Department :	Pediatrics
Secondary Appointment :	n/a
Present Academic Rank and Title :	Associate Professor
Date and Rank of First Duke Faculty Appointment:	July 1, 2004 Clinical Associate
Medical Licensure:	Since March 15, 2001
License #:	200100207 NC
Date:	06/29/2022 expires
Specialty Certification(s) and Dates:	10/16/2001-2018 General Pediatrics 8/18/2003 and current-Pediatric Endocrinology
Date of Birth:	06/29/1970
Place:	Albany, GA USA
Citizen of:	USA
Visa Status:	n/a

Education	**Institution**	**Date (Year)**	**Degree**
High School	Tift County High School	1988	Graduated with High Honors
College	Georgia Institute of Technology	1993	BS Applied Biology/Genetics High Honors

Education	Institution	Date (Year)	Degree
Graduate or Professional School	Medical College of Georgia	1997	MD

Professional Training and Academic Career

Institution	Position/Title	Dates
University of North Carolina Hospitals, Chapel Hill, North Carolina	Pediatrics Resident	1997-2000
University of North Carolina Hospitals, Chapel Hill, North Carolina	Pediatric Endocrine Fellow	2000-2004
Duke University Medical Center, Durham, North Carolina	Clinical Associate/Medical Instructor	2004-2008
Duke University Medical Center, Durham, North Carolina	Assistant Professor Track IV	2008-2020
Duke University Medical Center, Durham, North Carolina	Fellowship Program Director Pediatric Endocrinology- Associate PD-	2008-2010 & 2014-12/2019 2010-2014
Duke University Medical Center, Durham, North Carolina	Director Duke Child and Adolescent Gender Care Clinic	July 2015-present
Duke University Medical Center, Durham, North Carolina	Medical Director-Duke Children's Specialty of Raleigh	3/2017-1/2022
Duke University Medical Center, Durham, North Carolina	Associate Professor Pediatrics	1/2020-present
Duke University Medical Center, Durham, North Carolina	Co-Clinical Lead Duke Sexual and Gender Wellness Program	10/2021-present

Publications
Refereed Journals

Original Manuscripts:

1. Zeger M, **Adkins D**, Fordham LA, White KE, Schoenau E, Rauch F, Loechner KJ. " Hypophosphatemic rickets in opsismodysplasia," J Pediatr Endocrinol Metab. 2007 Jan;20(1):79-86. PMID: 17315533

2. Worley G, Crissman BG, Cadogan E, Milleson C, **Adkins DW**, Kishnani PS "Down Syndrome Disintegrative Disorder: New-Onset Autistic Regression, Dementia, and Insomnia in Older Children and Adolescents With Down Syndrome". J Child Neurol. 2015 Aug;30(9):1147-52. doi: 10.1177/0883073814554654. Epub 2014 Nov 3.PMID:25367918

3. Tejwani R, Jiang R, Wolf S, **Adkins DW**, Young BJ, Alkazemi M, Wiener JS, Pomann GM, Purves JT, Routh JC**,"** Contemporary Demographic, Treatment, and Geographic Distribution Patterns for Disorders of Sex Development".Clin Pediatr (Phila). 2017 Jul 1:9922817722013. doi: 10.1177/0009922817722013. PMID:28758411

4. Lapinski J1, Covas T2, Perkins JM3, Russell K4, **Adkins D** 5, Coffigny MC6, Hull S7. "Best Practices in Transgender Health: A Clinician's GuidePrim Care". 2018 Dec;45(4):687-703. doi: 10.1016/j.pop.2018.07.007. Epub 2018 Oct 5. PMID: 30401350 DOI: 10.1016/j.pop.2018.07.007

5. Paula Trief, Nicole Foster, Naomi Chaytor, Marisa Hilliard, Julie Kittelsrud, Sarah Jaser, Shideh Majidi, Sarah Corathers, Suzan Bzdick, **Adkins DW**, Ruth Weinstock; "Longitudinal Changes in Depression Symptoms and Glycemia in Adults with Type 1 Diabetes", Diabetes Care; 2019 Jul;42(7):1194-1201. doi: 10.2337/dc18-2441. Epub 2019 May; PMID: 31221694

6. Mann, Courtney M., Kristen Russell, Alexy Hernandez, Nicole Lucas, Erik Savereide, Dane R. Whicker, **Deanna W. Adkins**, Nancy L. Zucker, Raye Dooley, and Bryce B. Reeve. "**Concept elicitation for the development of quality measures in transgender health**." In *Quality of Life Research*, 28:S104–S104. SPRINGER, 2019.

7. M. Hassan Alkazemi, MD, MS, Leigh Nicholl, MS, Ashley W. Johnston, MD, Steven Wolf, MS, Gina-Maria Pomann, PhD, Diane Meglin, MSW**, Deanna Adkins, MD**, Jonathan C. Routh, MD, MPH; Community Perspectives on Difference of Sex Development (DSD) Diagnoses: a Crowdsourced Survey, 2020 Jun;16(3):384.e1-384.e8. doi: 10.1016/j.jpurol.2020.03.023. Epub 2020 Apr 27.PMID: 32409277

8. McGuire H, Frey L, Woodcock LR, Dake E, Carl A, Matthews D, Russell K, **Adkins DA** "Differences in Patient and Parent Informant Reports of Depression and Anxiety Symptoms in a Clinical Sample of Transgender and Gender Diverse Youth" LGBT Health 2021-LGBT Health. Aug-Sep 2021;8(6):404-411. doi: 10.1089/lgbt.2020.0478. Epub 2021 Aug 12

9. Lund A, **Adkins DA**, Simmons C*, "*Simulation-Based Teaching to Improve Perioperative Care of Transgender Patients*".* In press. Clinical Simulation in Nursing

Non Author publications

1. Turner DA, Curran ML, Myers A, Hsu DC, Kesselheim JC, Carraccio CL and the Steering Committee of the Subspecialty Pediatrics Investigator Network (SPIN). Validity of Level of Supervision Scales for Assessing Pediatric Fellows on the Common Pediatric Subspecialty Entrustable Professional Activities. *Acad Med*. 2017 Jul 11. doi: 10.1097/ACM.0000000000001820. PMID:28700462
2. Mink R, Carraccio C, High P, Dammann C, McGann K, Kesselheim J, Herman B. Creating the Subspecialty Pediatrics Investigator Network (SPIN). Creating the Subspecialty Pediatrics Investigator Network Richard Mink, MD, MACM1, Alan Schwartz, PhD2, Carol Carraccio, MD, MA3, Pamela High, MD4, Christiane Dammann, MD5, Kathleen A. McGann, MD6, Jennifer Kesselheim, MD, EdM7, J Peds 2018 Jan;192:3-4.e2. PMID: 29246355 DOI: 10.1016/j.jpeds.2017.09.079
3. Erratum 2018. PMID: 29246355 DOI: 10.1016/j.jpeds.2017.09.079
4. Mink RB[1], Myers AL, Turner DA, Carraccio CL. Competencies, Milestones, and a Level of Supervision Scale for Entrustable Professional Activities for Scholarship. Acad Med. 2018 Jul 10. doi: 10.1097/ACM.0000000000002353. [Epub ahead of print] PMID: 29995669 DOI:10.1097/ACM.0000000000002353 Mink RB, Schwartz A, Herman BE,

Editorials

a. Editorial Charlotte News and Observer-"**NC pediatric specialists say HB2 'flawed' and 'harmful,' call for repeal**"; April 18, 2016; authors: Deanna Adkins, Ali Calikoglu, Nina Jain, Michael Freemark, Nancie MacIver, Robert Benjamin, Beth Sandberg, etc.
b. Editorial Raleigh News and Observer-"**Beverly Gray: Repeal HB2"** May 2016: authors Beverly Gray, Deanna Adkins, Judy Sidenstein, Jonathan Routh, Haywood Brown, Clayton Afonso, William Meyer, Kristen Russell, Caroline Duke, Nancy Zucker, Kevin Weinfurt, Jennifer St. Claire, Angela Annas, Katherine Keitcher

Chapters in Books

1. Endocrinology Chapter writer and editor in **Fetal and Neonatal Physiology for the Advanced Practice Nurse**; Editors: Amy Jnah DNP, NNP-BC, Andrea Nicole Trembath MD, MPH, FAAP. December 21, 2018 ISBN-10 0826157319
2. Chapter in **Dental Clinics of North America Adolescent Oral Health Edition** Understanding and Caring for LGBTQ+ Youth for the Oral Health Care Provider; Authors Joshua Raisin, DDS, Deanna Adkins MD, Scott B. Schwartz, DDS, MPH. 2021
3. Intersex Identity and Gender Assignment; **Encyclopedia of Adolescent Health**; Editor Brian Eichner, MD; Author Deanna Adkins MD 2021-pending

Selected Abstracts:

1. Redding-Lallinger RC, **Adkins DW,** Gray N: The use of diaries in the study of priapism in sickle cell disease. Poster Abstract in Blood November 2003
2. **Adkins, D.W.** and Calikoglu, A.S.: Delayed puberty due to isolated FSH deficiency in a male. Pediatric Research Suppl. 51: Abstract #690. page 118A, 2004
3. Zeger, M.P.D**., Adkins, D.W.,** White, K., Loechner, K.L.: Opsismodysplasia and Hypophosphatemic Rickets. Pediatric Research Suppl.-from PAS 2005
4. Kellee M. Miller[1], David M. Maahs[2]**, Deanna W. Adkins[3]**, Sureka Bollepalli[4], Larry A. Fox[5], Joanne M. Hathway[6], Andrea K. Steck[2], Roy W. Beck[1] and Maria J. Redondo[7] for the T1D Exchange Clinic Network; Twins Concordant for Type 1 Diabetes in the T1D Exchange -poster at ADA scientific sessions 6/2014
5. Laura Page, MD; Benjamin Mouser, MD; Kelly Mason, MD; Richard L. Auten, MD; **Deanna Adkins, MD** CHOLESTEROL SUPPLEMENTATION IN SMITH-LEMLI-OPITZ: A Case of Treatment During Neonatal Critical Illness; - poster 06/2014
6. Lydia Snyder**, MD, Deanna Adkins, MD,** Ali Calikoglu, MD; Celiac Disease and Type 1 Diabetes: Evening of Scholarship UNC Chapel Hill 3/2015 poster
7. **Deanna W. Adkins, MD,** Kristen Russell, LCSW, Dane Whicker, PhD, Nancy Zucker, Ph. D**:** Departments of Pediatrics and Psychiatry, Duke University Medical Center*;* Evaluation of Eating Disturbance and Body Image Disturbance in the Trans Youth Population; WPATH International Scientific Meeting June 2016; Amsterdam, The Netherlands

8. Rohit Tejwani**, Deanna Adkins,** Brian J. Young, Muhammad H. Alkazemi,Steven Wolf[3], John S. Wiener, J. Todd Purves, and Jonathan C. Routh; Contemporary Demographic and Treatment Patterns for Newborns Diagnosed with Disorders of Sex Development; Poster presentation at AUA meeting 2016
9. S.A. Johnson, **D.W. Adkins,** Case Report: The Co-diagnosis of Hypopituitarism with Klinefelter in a patient with short stature; Pediatric Academic Society Meeting 2018
10. Lapinski J, Dooley R, Russell K, Whicker D, Gray, B**, Adkins DW; Title:** Developing a Pediatric Gender Care Clinic at a Major Medical Setting in the South; Workshop Philadelphia Trans Wellness Conference 2018
11. Jessica Lapinski, DO, Deanna Adkins, MD, Tiffany Covas, MD, MPH, Kristen Russell, MSW, LCSW; An Interdisciplinary Approach to Full Spectrum Transgender Care; WPATH Conference Buenos Aires, Argentina, November 3, 2018
12. Leigh Spivey, MS, Nancy Zucker, PhD, Erik Severiede, B.S., Kristen Russell, LCSW, Deanna Adkins, MD; USPATH Washington, DC Sept. 2019. Platform presentation; "Psychological Distress Among Clinically Referred Transgender Adolescents: A latent Profile Analysis"

<u>Non-Refereed Publications</u>

i. Print
   i. Editorial Charlotte News and Observer-"**NC pediatric specialists say HB2 'flawed' and 'harmful,' call for repeal**"; April 18, 2016
   ii. Editorial News and Observer-HB2 May 2016 -"**Beverly Gray: Repeal HB2"** May 2016
ii. Digital
   i. Supporting and Caring for Transgender Children-HRC guide 2017
   ii. Initial endocrine workup and referral guidelines for primary care Providers-Pediatric Endocrine Society Education Committee Website Publication
   iii. Only Human Podcast August 2, 2016; https://www.wnycstudios.org/podcasts/onlyhuman/episodes/id-rather-have-living-son-dead-daughter
iii. Media and Community Interviews
   i. Greensboro News and Record Community Forum October 2017-*Transgender Panel Moderator*
   ii. Playmakers Repertory Company-Chapel Hill: *Draw the Circle* Transgender Community Panel 2017
   iii. Duke Alumni Magazine
   iv. Duke Stories
   v. DukeMed Alumni Magazine
   vi. NPR Podcast Only Human piece on caring for transgender youth and follow up piece 1 year later
   vii. ABC11, WRAL, WNCN News Coverage
   viii. News and Observer: Charlotte and Raleigh
   ix. Duke Chronicle and Daily Tarheel Article
   x. Huffington Post Article

xi. https://www.businessinsider.com/the-olympics-uses-testosterone-to-treat-trans-athletes-like-cheaters-2021-7
xii. https://www.wral.com/top-transgender-doctor-warns-teen-treatment-ban-could-be-deadly/19618762/
xiii. http://www.ncpolicywatch.com/2021/04/07/experts-bills-targeting-trans-people-get-the-science-wrong/

Published Scientific Reviews for Mass Distribution

Position and Background Papers

Other Publications

Editorial Experience

Editorial Boards
Ad Hoc scientific review journals
Hormone Research, Lancet, NC Medical journal, Journal of Pediatrics, Pediatrics, Transgender Health, International Journal of Pediatric Endocrinology, Journal of Adolescent Health

Consultant Appointments

North Carolina Newborn Screening Committee
Human Rights Campaign Transgender Youth Advisory Board

Scholarly Societies

Professional Awards and Special Recognitions

ESPE Fellows Summer School, 2001
NIH Loan Repayment Program Recipient
Lawson Wilkins AstraZeneca Research Fellow, 2003-2004
HEI 2017 Leaders in LGBTQ Healthcare Equality
Inside Out Durham Appreciation Award
Duke Health System Diversity and Inclusion Award January 2018
America's Top Doctor's 2020, 2021
Duke Health System Diversity and Inclusion Award January 2020- CDHD Course Team
Teaching for Equity Fellow 2021

Organizations and Participation

Organization	Role	Dates
American Academy of Pediatrics	Member Council on Information Technology Member Reviewer COCIT Member Section on Endocrinology	1998 to present 2004 to present
Pediatric Endocrine Society	Member Member Education Committee SIG member-Transgender, DSD, liaison to Advocacy SIG Writer Web Publication for Pediatricians	2000 to present
NC Pediatric Society	Member	1998 to present
Endocrine Society	Member	2000 to present
WPATH-International Transgender Society	Member	2014 to present

External Support

Approximate Duration	PI	% Effort	Purpose	Amount Duration
Past	JAEB Center-Deanna Adkins	0.5%	Type 1 diabetes research	$ 5yr
Past	Josiah Trent Foundation Grant-Deanna Adkins	0.5%	Transgender and eating disorder research	$5000 3 yr
Pending: Submitted	NIH-Kate Whetten	0.1%	Analysis of TransgenderHealth in Adolescents in Rural Africa, India, and Thailand	Consultant

Approximate Duration	PI	% Effort	Purpose	Amount Duration
Re-Submitting June 2022	NIH R21 Deanna Adkins	2%	Development of New Gender Dysphoria Measures in Youth	Co PI
ReSubmitting February 2022	NIH R21 Sarah Legrand	2%	Glow and Grow	consultant
Submitted November 2020	CMS-Deanna Adkins and Rob Benjamin	1%	Innovations Grant	Co PI 3 yrs
Gifts	Private Family		Multiple including leadership training initiatives as well as other LGBTQ work	Approx. $18,000 Unlimited duration

Mentoring Activities

Faculty	
Fellows, Doctoral, Post docs	**Nancie MacIver-fellow**
	Dorothee Newbern-fellow
	Krystal Irizarry-fellow
	Kelly Mason-fellow
	Laura Page-fellow
	Elizabeth Sandberg fellow UNC
	Dane Whicker-psychology post doc **Leigh Spivey-psychology post doc** **Joey Honeycutt, Chaplain Intern** **Kathryn Blew-research mentor**
Residents	**Yung-Ping Chin-mentor**
	Kristen Moryan-mentor
	Jessica Lapinski-mentor
	Kathryn Blew-research mentor
	Matthew Pizzuto, Briana Scott-Coach, Laura Hampton Coach

Medical students	**Tulsi Patel-continuity clinic mentor** **Ernest Barrel-continuity clinic mentor** **Sonali Biswas-research mentor 3rd year project** **Katha Desai-research mentor 3rd year project**
Undergraduates High School Students	**Erik Severeide-Duke University** **Lindsay Carey-Dickinson College** **Jeremy Gottleib-Duke University** **Jay Zussman-Duke University** **Aeryn Colton-Intern Apex High School**
Graduate Student MBS program	**Nicholas Hastings**
UNC Gillings School of Public Health MPH students	**Lauren Frey, Emily Dake, Alexandra Carle, Lindsay Woodcock, Hunter McGuire**
Nurse Practioners	**ECU, Duke-multiple**
DNP candidates Pediatric Dental Fellow UNC	**Ethan Cicero-PhD committee member** **Amanda Lund-PhD committee member** **Joshua Raisin-research associate**

Education / Teaching Activities
Didactic classes

High School

c. Cary Academy: Work Experience Program 2021

Undergraduate

1. Creating Excellence and Ambulatory Nursing 2008
2. Profile in Sexuality Research Series at Duke CGSD 2016
3. Duke School of Nursing BSN Course on Sexual and Gender Health guest lecturer: fall 2017, spring 2018, fall 2018, spring 2019, fall 2019, spring 2020, fall 2020, spring 2021, fall 2021
4. Duke School of Nursing Lecture on Transgender Care-recorded for reuse
5. Duke Physician Assistant Program guest lecturer; fall 2017, spring 2018
6. Duke Global Health Course guest lecturer fall 2016
7. Duke Neuroscience course on Gender and Sex guest lecturer fall 2016
8. Duke Ethics Interest group guest lecturer fall 2018, 2020
9. Duke EMS group lecture fall 2018
10. Duke Physician Assistant Program LGBTQ+ Rotation Educator 2019 to present
11. Global Health Sexual and Gender Minority Seminar Lecturer 2020

UME:

1. Cultural Determinants of Health and Health Disparities Course: Facilitator and developed one class; 2017-18 and 2018-19, 2019-20, 2020-21, 2021-22; Steering Committee member for course development
2. UNC School of Medicine Lecturer for LGBTQ Health series 2016-recorded for reuse
3. Duke Pediatrics Interest Group lecture Nov 2020
4. Duke Med Pediatrics Interest Group lecture fall 2018, 2020
5. Lecturer Body and Disease Course MS1 2019, 2020, 2021 Clinical Correlation Differences of Sex Development
6. Lecturer Body and Disease Course MS1 2020, 2021 Transgender Medicine
7. Lecture on Cancer in Transgender and Intersex Individuals April 14, 2021 Mount Sinai School of Medicine
8. Lecture on Transgender Medicine Univ. of Tenn. Health Science Center School of Medicine May 7,2021

Graduate School Courses:

1. Master of Biomedical Science Program-guest lecturer on Transgender Medicine fall 2016
2. School of Nursing Graduate Intensive Course Lecturer on Sexual and Gender Health; fall 2017, spring 2018, fall 2018, spring 2019, Fall 2019
3. Fuqua School of Business Med Pride Panel and presentation fall 2017
4. Master of Biomedical Science Program Mentor 2019-2020
5. Endocrinology for Nurse Practioners Duke Neonatal Nurse Practioner Program August 2021

DUHS Employee Education

1. Annual Duke Human Resources Lunch and Learn on Gender Diversity 2016, 2017, 2018
2. Over 100 lectures across the institution on gender including CHC front desk/nursing staff, hospital wide social work/case management, radiology, PDC clinic front desk/nursing staff
3. Steering Committee for Sexual and Gender Identity Epic Module development and Educational module development
4. DCRI Pride invited speaker
5. Duke Children's staff update 2021

GME:

1. Adult Endocrinology Fellows every year on growth and/or gender
2. Pediatric Residency Noon conferences on Growth and Gender-yearly
3. Reproductive Endocrinology Noon Conferences every 2 to 3 years
4. Psychiatry Noon Conferences periodically
5. Family Practice Noon Conference periodically
6. Pediatric Endocrine Fellow lectures twice a year or more

7. Pediatrics grand rounds: Vitamin D, Type 2 diabetes, Pubertal Development, Gender Diverse Youth
8. Duke Urology Grand Rounds 2016
9. Duke Ob/Gyn Grand Rounds 2017
10. Webinar for Arkansas Children's Hospital on transgender care 2018
11. Reproductive Challenges for Transgender people-Reproductive Endocrinology-2020
12. Metabolic Bone Disease in Neonates-NICU fellows 2019
13. Duke Psychiatry Grand Rounds 2017
14. Duke Pathology Grand Rounds fall 2020
15. Duke Family Medicine Community Rotation Educator 2019 to present
16. NC NAPNAP Symposium Keynote Speaker October 10, 2020
17. Duke Internal Medicine LEADS program speaker; Transgender Care 8/3/2021
18. Equity and Social Justice Webinar: Clinical Advocacy and Care of Transgender and Gender Diverse Youth October 27, 2021Harvard Equity and Social Justice Webinar

Development of Courses Educational programs

1. Pituitary Day October 2019-full day multispecialty seminar for caregivers of patients with hypopituitarism-Organized and developed the curriculum
2. Development of Gender Diversity Education for Health System education
3. Steering Committee for Cultural Determinants and Health Disparities Course
4. Helping to Adapt Resident Coaching Program to Pediatric Fellowships
5. Developed half day course for Duke Student Health on Care of the Gender Diverse Student with multiple disciplines included
6. Course Director: American Diabetes Association Camp Carolina Trails rotation for fellows and residents: 2009, 2011 – 2019
7. Medical Education for Camp Morris 2019, 2021

Development of Assessment Tools and Methods

1. Currently under development with Population Health Sciences-method to assess gender dysphoria; received Brief High Intensity Production (BHIP) grant for this collaboration; NIH grant Submitted March 2020; I am writing the portion of grant giving background on the population and the need for better measures.
2. Collaborating with the Duke Chaplain group to develop a spiritual assessment tool for gender diverse children and their families. Completed 2019

Educational leadership roles

1. Fellowship Program Director Pediatric Endocrinology 2008-2019
2. Course Director: American Diabetes Association Camp Carolina Trails rotation for fellows and residents: 2009, 2011 to 2019

Educational Research

1. Working with coaching program for residents modified and applied in pediatric fellows
2. Worked with the Council on Pediatric Subspecialties EPA study

Invited Lectures and Presentations

1. NC Peds Conference: Pubertal Development 2016
2. Trent Center for Ethics Lecture May 2017: Transgender Medicine: a Wealth of Ethical Issues
3. Visiting Professorship: ECU Brody School of Medicine Invited Professor October 2017
4. College of Diplomates-pediatric dentistry society-Webinar on transgender care 4/1/2020
5. NAPNAP keynote speaker Annual Meeting October 2020
6. Wake County Duke CME program: Type 2 diabetes treatments in pediatrics 2019
7. Lecture on Cancer in Transgender and Intersex Individuals April 14, 2021 Mount Sinai School of Medicine
8. Lecture on Transgender Medicine Univ. of Tenn. Health Science Center School of Medicine May 7,2021
9. Equity and Social Justice Webinar: Clinical Advocacy and Care of Transgender and Gender Diverse Youth October 27, 2021Harvard Equity and Social Justice Webinar

International Meetings

1. WPATH Amsterdam 2016
2. WPATH Buenos Aires 2018

National Scientific Meetings (invited)

1. Transgender SIG Developing a Patient Registry
2. Patient Advocacy for Transgender Youth Philadelphia 2018

Instructional Courses, Workshops, Symposiums (National)

1. Time to Thrive Arkansas Children's Hospital April 2018
2. National Transgender Health Summit UCSF Jan 2018: Providers as Advocates Workshop
3. Magic Foundation-Chicago, IL Annual Speaker on Precocious Puberty, Adrenal Insufficiency, and Growth Hormone at National Conference 2016, 2017, 2019, 2020, 2021
4. The Seminar-Fort Lauderdale, FL Invited Speaker on Care of Transgender Youth 2017

Regional Presentations and Posters

a. North Carolina Pediatric Society: Pubertal Development Presentation– Pinehurst, NC 2017
b. North Carolina Psychiatric Association: Caring for Transgender Children Presentation and Workshop on key concepts in care of transgender child-Asheville, NC 2017
c. ECU Campus Health Presentation Caring for Transgender Patients 2018
d. Radiology Technology Symposium Presentation on Caring for Transgender Patients 2018
e. Duke CME in Wake County-Update on Type 2 Diabetes Treatments Feb 2019
f. Hilton Head Pediatric CME Course-Update on Type 2 Diabetes, Short Stature, and Caring for Transgender Patients June 2019

g. Wake County Duke Pediatrics CME Type 2 diabetes treatments Feb 2019
h. NAPNAP Annual Meeting Keynote Speaker 2020
i. Sexual and Gender Minorities Research Symposium Duke Feb 2020; speaker and organizer

Local Presentations

1. Grand Rounds: 2016 to present-Duke Pediatrics twice, Moses Cones Pediatrics, ECU Ob/Gyn, Duke Ob/Gyn, Duke Psychiatry, Duke Urology, Duke Adult Endocrinology, Duke Pathology
2. Prior to 2016-Rex Grand rounds: Salt and Water balance, New treatments in Pediatric Diabetes, Adrenal Insufficiency, Duke peds grand rounds Bone Health, Type 2 Diabetes Mellitus
3. Duke Women's Weekend 2018 hosted by Duke Alumni Association
4. NCCAN Social Work Training 2016
5. NAPNAP lecture 2016 and 2018 and 2020
6. Profiles in Sexuality Research Presentation at Duke Center for Sexual and Gender Diversity 2017
7. Duke LGBTQ Alumni Weekend Presentation 2017
8. UNC Chapel Hill Campus Health Presentation 2018
9. Duke Student Health Presentation 2017, 2018, 2019 (workshop)

Clinical Activity

1. Duke Consultative Services of Raleigh-2.5 days per week in endocrinology and diabetes
2. Duke Child and Adolescent Gender Care Clinic 1.2 day per week at the CHC
3. Inpatient Consult Service Pediatric Endocrinology 1 week per month

<u>Administrative and Leadership Positions</u>

1. Medical Director Duke Children's and WakeMed Consultative Services of Raleigh
2. Director Duke Child and Adolescent Gender Care Clinic
3. Pediatric Endocrinology Fellowship Program Director 2008-2019

<u>Committees</u>

1. Graduate Medical Education Committee-2008-2019
2. School of Medicine Sexual and Gender Diversity Council 2015 to present
3. Pediatrics Clinical Practice Committee-2015? To present
4. Pediatric Diversity and Inclusion Committee

<u>Community</u>

1. Test proctor local schools
2. Guest lecture GSA multiple years
3. Diabetes Camp over 10 years
4. 100 Women who give a hoot
5. Collaborated to bring "Becoming Johanna" to Duke along with multiple screenings with the director and the lead actor
6. Teddy Bear Hospital volunteer both years