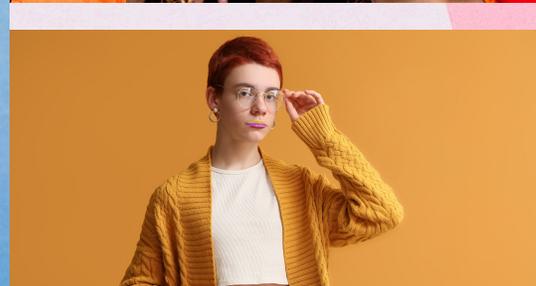


Gender-affirming care for adolescents: Understanding the fundamental components and scientific support for lifesaving gender affirmation

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EXECUTIVE SUMMARY

Millions of transgender and gender diverse (TGD) people have their gender identities affirmed through social, medical, and legal mechanisms that support their health and well-being. These forms of gender-affirming care (GAC) are critical for a population that has historically faced discrimination and marginalization, especially TGD youth.

Furthermore, a growing body of scientific literature has helped demonstrate the efficacy and safety of these interventions for TGD youth. However, GAC has recently become a target of discriminatory political attacks, with many states instituting bans on gender-affirming medical care for TGD youth and introducing exclusionary policies in schools and public services. Many of these legislative assaults are characterized by bias and misinformation surrounding GAC as well as the scientific evidence that supports it.

In this brief, we seek to define some of the fundamental components of GAC for TGD youth, including social affirmation and gender-affirming hormones. We also aim to demystify topics that are often misrepresented by political actors who target TGD communities, such as gender-affirming surgical care. In addition, we highlight the science that underpins current standard practices in gender-affirming medical care. This brief is intended for audiences who may be unfamiliar with GAC, especially those who may have encountered highly politicized misrepresentations of the care that is available to TGD youth.

We hope that this brief will provide a common language and understanding for those who have not yet had a formal introduction to GAC as well as those who wish to better understand the needs of TGD youth. We will allow the science to speak for itself and demonstrate the efficacy and importance of GAC for TGD youth.

INTRODUCTION

GAC encompasses a broad range of social, medical, and legal interventions that affirm and support the gender identities of TGD youth.¹ Social aspects of GAC may include an individual changing their name, their pronouns, or aspects of their gender expression (e.g., hairstyles, clothing, voice). Gender-affirming medical care for TGD adolescents can include medications to prevent or interrupt hormonal changes that do not align with their gender identity as well as gender-affirming hormones (e.g., estrogen or testosterone). In addition, some TGD individuals may undergo surgical procedures to align their bodies with their gender identity, although surgical intervention is rare prior to adulthood and never occurs prior to late adolescence. Finally, legal affirmation can include changes to one's name and/or gender on official government identification.

TGD youth may receive GAC with a number of different goals in mind. TGD youth who experience distress due to incongruence between their assigned and experienced gender can be diagnosed with gender dysphoria as defined by the Diagnostic and Statistical Manual (DSM), which is used by healthcare providers to diagnose mental health disorders.² GAC can help alleviate the distress experienced by TGD youth who meet clinical criteria for gender dysphoria. However, some TGD youth experience distress that does not fit the clinical criteria for gender dysphoria and still desire GAC.³ In addition, there is a strong movement among TGD communities to move away from the stigma associated with diagnoses provided by the DSM.^{4,5} Many feel that the DSM definition of gender dysphoria fails to reflect their experiences and instead pursue GAC out of a desire for affirmation and gender joy, rather than relief of distress. Although the individual components of GAC, as well as people's reasons for pursuing it, may be varied, there is consistent clinical consensus and scientific evidence that supports its efficacy, safety, and value.

Although the individual components of GAC, as well as people's reasons for pursuing it, may be varied, there is consistent clinical consensus and scientific evidence that supports its efficacy, safety, and value.

¹ U.S. Department of Health and Human Services, Office of Population Affairs. *Gender-Affirming Care and Young People*. August 2023. <https://opa.hhs.gov/sites/default/files/2023-08/gender-affirming-care-young-people.pdf>. Accessed November 11, 2023.

² American Psychiatric Association. Gender Dysphoria. In: *Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition, Text Revision (DSM-5-TR)*. American Psychiatric Association Publishing; 2022.

³ Bhatt N, Cannella J, Gentile JP. Gender-affirming Care for Transgender Patients. *Innov Clin Neurosci*. 2022;19(4-6):23-32.

⁴ Johnson AH. Rejecting, reframing, and reintroducing: trans people's strategic engagement with the medicalisation of gender dysphoria. *Sociology of Health & Illness*. 2019;41(3):517-532

⁵ Ducar D. Giving gender-affirming care: 'Gender dysphoria' diagnosis should not be required. *STAT*. March 11, 2022. <https://www.statnews.com/2022/03/11/giving-gender-affirming-care-gender-dysphoria-diagnosis-should-not-be-required/>. Accessed November 16, 2023.

The importance of GAC for TGD youth is supported by a variety of health professional organizations, including the American Medical Association⁶, the American Academy of Pediatrics⁷, the American Psychiatric Association⁸, the American Academy of Child and Adolescent Psychiatry⁹, the Endocrine Society¹⁰, the Pediatric Endocrine Society¹¹, and the World Professional Association for Transgender Health¹². Research has found that social affirmation and access to gender-affirming medical care improve the health and wellbeing of TGD youth, while barriers to GAC are associated with poor mental health outcomes.^{13,14,15} These findings are especially important when considering the high prevalence of negative mental health outcomes and suicidality among TGD youth.¹⁶

It is also critical to acknowledge that GAC looks different from person to person. Although many TGD adolescents choose medical treatments to support their gender affirmation, some only pursue social and/or legal affirmation of their gender identity.

⁶ American Medical Association. AMA reinforces opposition to restrictions on transgender medical care. <https://www.ama-assn.org/press-center/press-releases/ama-reinforces-opposition-restrictions-transgender-medical-care>. Published June 15, 2021. Accessed November 16, 2023.

⁷ Rafferty J; American Academy of Pediatrics Committee on Psychosocial Aspects of Child and Family Health, Committee on Adolescence, 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. *Pediatrics*. 2023;152(4).

⁸ American Psychiatric Association. Position Statement on Treatment of Transgender (Trans) and Gender Diverse Youth. <https://www.psychiatry.org/getattachment/8665a2f2-0b73-4477-8f60-79015ba9f815/Position-Treatment-of-Transgender-Gender-Diverse-Youth.pdf>. Published July 2020.

⁹ American Academy of Child and Adolescent Psychiatry. AACAP Statement Responding to Efforts to ban Evidence-Based Care for Transgender and Gender Diverse Youth. https://www.aacap.org/AACAP/Latest_News/AACAP_Statement_Responding_to_Efforts_to_ban_Evidence-Based_Care_for_Transgender_and_Gender_Diverse.aspx. Published November 8, 2019. Accessed November 16, 2023.

¹⁰ Endocrine Society. Position Statements- Transgender Health. <https://www.endocrine.org/advocacy/position-statements/transgender-health>. Published December 16, 2020. Accessed November 16, 2023.

¹¹ Pediatric Endocrine Society. The Pediatric Endocrine Society Opposes Bills that Harm Transgender Youth. <https://pedsendo.org/wp-content/uploads/2021/04/The-Pediatric-Endocrine-Society-Statement-TG.pdf>. Published April 2021. Accessed November 16, 2023.

¹² World Professional Association for Transgender Health. Statement in Response to Proposed Legislation Denying Evidence-Based Care for Transgender People Under 18 Years of Age and to Penalize Professionals who Provide that Medical Care. Published January 28, 2020. Accessed November 16, 2023.

¹³ Fontanari AMV, Vilanova F, Schneider MA, et al. Gender Affirmation Is Associated with Transgender and Gender Nonbinary Youth Mental Health Improvement. *LGBT Health*. 2020;7(5):237-247.

¹⁴ Edwards-Leeper L, Leibowitz S, Sangganjanavanich VF. Affirmative practice with transgender and gender nonconforming youth: Expanding the model. *Psychology of Sexual Orientation and Gender Diversity*. 2016;3(2):165-172.

¹⁵ Marquez-Velarde G, Miller GH, Shircliff JE, Suárez MI. The Impact of Family Support and Rejection on Suicide Ideation and Attempt among Transgender Adults in the U.S. *LGBTQ+ Family: An Interdisciplinary Journal*. 2023;19(4):275-287.

¹⁶ The Trevor Project. 2023 U.S. National Survey on the Mental Health of LGBTQ Young People. 2023. <https://www.thetrevorproject.org/survey-2023/>.

Others receive social and/or medical gender affirmation that does not fall within a strict gender binary. Each person’s exploration of their gender identity is unique, and our discussion of GAC for TGD youth will not be exhaustive nor prescriptive. Instead, we seek to outline common components of GAC to inform members of the public and policymakers who may be unfamiliar with it, including the basics of social affirmation, gender-affirming hormones, and gender-affirming surgical care.

SOCIAL AFFIRMATION

The social aspects of GAC are a crucial part of transitioning for many TGD individuals, as these changes affirm their gender throughout everyday life. In addition, social affirmation represents the only form of GAC for prepubertal TGD youth, as there is no role for medical therapies until puberty. An important part of social affirmation for TGD youth, including some youth who have not yet reached adolescence, involves being “out” (disclosing one’s gender identity) to others. Some are out to everyone in their lives, while others may only disclose their gender identity to select individuals or groups where they feel safe. Sadly, many TGD youth are unable to come out due to a variety of concerns, including the risk of being rejected by family, being kicked out of their home, or facing threats to their safety.^{17,18,19}

Social affirmation represents the only form of GAC for prepubertal youth, as there is no role for medical therapies until puberty.

Social affirmation can also include the use of a chosen name that better reflects the person’s gender identity, rather than the name given to them at birth.²⁰ They may also use pronouns that align with their gender identity instead of the pronouns associated with their sex assigned at birth.²¹ For example, a transgender girl may begin to use she/her pronouns instead of the he/him pronouns that family had used with her previously. Since aspects of social presentation such as clothing, hairstyle, and makeup are a key part of many people’s gender expression, TGD youth may also change these to reflect their experienced gender. Some may seek to emphasize or de-emphasize aspects of their bodies, such as “binding” (using tight materials to flatten breast

¹⁷ The Cost of Coming Out: LGBT Youth Homelessness. Lesley University. <https://lesley.edu/article/the-cost-of-coming-out-lgbt-youth-homelessness>. Accessed November 16, 2023.

¹⁸ Wittlin NM, Kuper LE, Olson KR. Mental Health of Transgender and Gender Diverse Youth. *Annual Review of Clinical Psychology*. 2023;19(1):207-232.

¹⁹ Choi SK, Wilson BDM, Shelton J, Gates G. *Serving Our Youth 2015: The Needs and Experiences of Lesbian, Gay, Bisexual, Transgender, and Questioning Youth Experiencing Homelessness*. The Williams Institute with True Colors Fund. May 2015. <https://truecolorsunited.org/wp-content/uploads/2015/05/Serving-Our-Youth-June-2015.pdf>. Accessed November 16, 2023.

²⁰ UCSF Gender Affirming Health Program. Transition Roadmap. <https://transcare.ucsf.edu/transition-roadmap>. Updated 2019. Accessed November 16, 2023.

²¹ Ibid.

tissue).²² Others may adopt clothing or hairstyles associated with their experienced gender (e.g., makeup, long hair).

These social aspects of GAC are hugely beneficial for the wellbeing of TGD youth. Research has demonstrated that TGD youth who have their gender identity socially affirmed experience better mental health outcomes.^{23,24} Similar mental health benefits have also been observed among TGD adults who are socially affirmed.²⁵ In contrast, TGD youth who struggle to attain social affirmation or face rejection of their gender identity are at risk of poor mental health outcomes.^{26,27}

Sadly, some TGD youth are exposed to “conversion” efforts wherein others attempt to forcibly change their gender identity.²⁸ These attempts to change a person’s gender identity lack any scientific basis and such efforts have been formally disavowed by major medical organizations due to their detrimental impact on the health and safety of TGD youth.^{29,30} Furthermore, TGD youth exposed to “conversion therapies” experience a higher risk of negative mental health outcomes later in life.^{31,32}

Social affirmation represents a vital form of GAC for TGD youth and the use of chosen names and pronouns has the capacity to save lives.^{33,34} With the support and

²² UCSF Gender Affirming Health Program. Transition Roadmap. <https://transcare.ucsf.edu/transition-roadmap>. Updated 2019. Accessed November 16, 2023.

²³ Olson KR, Durwood L, DeMeules M, McLaughlin KA. Mental Health of Transgender Children Who Are Supported in Their Identities. *Pediatrics*. 2016;137(3):e20153223.

²⁴ Simons L, Schrager SM, Clark LF, Belzer M, Olson J. Parental support and mental health among transgender adolescents. *Journal of Adolescent Health*. 2013;53(6):791-793.

²⁵ Hughto JMW, Gunn HA, Rood BA, Pantalone DW. Social and Medical Gender Affirmation Experiences Are Inversely Associated with Mental Health Problems in a U.S. Non-Probability Sample of Transgender Adults. *Arch Sex Behav*. 2020;49(7):2635-2647.

²⁶ Pariseau E, Chevalier L, Long K, Clapham R, Edwards-Leeper L, Tishelman A. The relationship between family acceptance-rejection and transgender youth psychosocial functioning. *Clinical Practice in Pediatric Psychology*. 2019;7:267-277.

²⁷ Simons L et al. Parental support and mental health. *J of Adolescent Health*. 2013;53(6):791-793.

²⁸ Substance Abuse and Mental Health Services Administration. *Ending Conversion Therapy: Supporting and Affirming LGBTQ Youth*. October 2015. HHS Publication No.15-4928. Accessed Nov 16, 2023.

²⁹ American Medical Association, GLMA. *Issue brief: LGBTQ change efforts (so-called "conversion therapy")*. AMA, GLMA. 2022. <https://www.ama-assn.org/system/files/conversion-therapy-issue-brief.pdf>.

³⁰ American Psychiatric Association. Position Statement on Conversion Therapy and LGBTQ Patients. Published December 2018. Accessed November 16, 2023.

³¹ Turban JL, Beckwith N, Reisner SL, Keuroghlian AS. Association Between Recalled Exposure to Gender Identity Conversion Efforts and Psychological Distress and Suicide Attempts Among Transgender Adults. *JAMA Psychiatry*. 2020;77(1):68-76.

³² Forsythe A, Pick C, Tremblay G, Malaviya S, Green A. Humanistic and Economic Burden of Conversion Therapy Among LGBTQ Youths in the United States. *JAMA Pediatrics*. 2022;176(5):493-501.

³³ Russell ST, Pollitt AM, Li G, Grossman AH. Chosen Name Use Is Linked to Reduced Depressive Symptoms, Suicidal Ideation, and Suicidal Behavior Among Transgender Youth. *Journal of Adolescent Health*. 2018;63(4):503-505.

³⁴ Pollitt AM, Ioverno S, Russell ST, Li G, Grossman AH. Predictors and Mental Health Benefits of Chosen Name Use among Transgender Youth. *Youth Soc*. 2019;2019.

affirmation of family, friends, and communities, TGD youth can grow and develop comparably to their cisgender peers and siblings.³⁵

Yet despite these benefits, social affirmation has become popular scapegoat for transphobic legislatures, with bills targeting everything from bathroom access to participation in youth sports.³⁶ With these discriminatory policies in place, TGD youth are unable to safely engage in affirming forms of gender expression and are excluded from formative social experiences. Multiple states have even passed laws requiring school staff to “out” TGD youth to their parents or guardians regardless of whether their home is safe and supportive— potentially exposing them to mistreatment, rejection, or conversion efforts.³⁷ In these hostile environments, TGD youth experience social isolation, negative mental health outcomes, as well as a higher risk of being bullied or assaulted by peers.^{38,39,40}

GENDER-AFFIRMING HORMONES AND PUBERTAL SUPPRESSANTS

Gender-affirming medical care for TGD adolescents can involve the use of pubertal suppressant medications to pause the effects of the endogenous sex hormones their bodies make. TGD adolescents can also receive gender-affirming hormones (GAH)— estrogen (estradiol)- or testosterone-based hormone regimens to change their bodies in ways that align with their gender identity.⁴¹ The use of these hormones alters an individual’s secondary sexual characteristics, causing changes such as breast development, increased muscle mass, and fat redistribution. Treatment with GAH progresses like endogenous puberty and constitutes longitudinal therapy, with the desired changes occurring gradually over the course of months or years.

³⁵ Durwood L, McLaughlin KA, Olson KR. Mental Health and Self-Worth in Socially Transitioned Transgender Youth. *Journal of the American Academy of Child & Adolescent Psychiatry*. 2017;56(2):116-123.e112.

³⁶ American Civil Liberties Union. Mapping Attacks on LGBTQ Rights in U.S. State Legislatures in 2024. American Civil Liberties Union. <https://www.aclu.org/legislative-attacks-on-lgbtq-rights-2024>. Published 2024. Updated March 15, 2024. Accessed March 23, 2024.

³⁷ Equality Maps: Forced Outing of Transgender Youth in Schools. Movement Advancement Project. https://www.lgbtmap.org/equality-maps/youth/forced_outing. Updated March 22, 2024. Accessed March 25, 2024.

³⁸ Murchison GR, Agénor M, Reisner SL, Watson RJ. School Restroom and Locker Room Restrictions and Sexual Assault Risk Among Transgender Youth. *Pediatrics*. 2019;143(6).

³⁹ Pharr JR, Chien LC, Gakh M, Flatt J, Kittle K, Terry E. Serial Mediation Analysis of the Association of Familiarity with Transgender Sports Bans and Suicidality among Sexual and Gender Minority Adults in the United States. *Int J Environ Res Public Health*. 2022;19(17).

⁴⁰ Meckler L, Natanson H, Harden J. In states with laws targeting LGBTQ issues, school hate crimes quadrupled. *The Washington Post*. <https://www.washingtonpost.com/education/2024/03/12/school-lgbtq-hate-crimes-incidents/>. Published March 12, 2024. Accessed March 23, 2024.

⁴¹ Deutsch MB. Initiating hormone therapy. UCSF Gender Affirming Health Program. <https://transcare.ucsf.edu/guidelines/initiating-hormone-therapy>. Updated 2019. Accessed Nov 16, 2023.

Our discussion will primarily explore typical GAH regimens for TGD adolescents. While these are common approaches adopted by many TGD adolescents as part of their gender-affirming medical care, we should emphasize that the use (or non-use) of hormones varies significantly. Some TGD adolescents choose hormone regimens which do not fit within neat categorization, while others may not use GAH at all. Furthermore, a person's gender affirmation goals can change over time and they may adjust their GAH regimens in accordance with an evolving understanding of their gender identity.

Pubertal Suppressants (“Puberty Blockers”)

TGD adolescents can use medications that temporarily prevent the progression of pubertal changes associated with the hormones their bodies make. These medications can provide TGD adolescents with the time they need to understand their gender identity before they develop secondary sex characteristics that may not align with their experienced gender. They can also allow TGD adolescents to experience an affirming puberty in time with their same-gender peers. These medications are particularly important as developing unwanted secondary sex characteristics during a critical period of physiological and psychological development can cause significant harm and such changes can prove difficult to alter retroactively.

Pubertal suppressants can provide TGD adolescents with the time they need to understand their gender identity

Pubertal suppressants (colloquially known as “puberty blockers”) first came into clinical use in the 1980s to treat precocious puberty—the inappropriate early development of secondary sexual characteristics in children.⁴² These treatments have been used in the care of TGD adolescents since the late 1990s and boast an excellent safety profile.^{43,44} Pubertal suppressants are gonadotropin-releasing hormone analogs and work by continuously stimulating the pituitary gland, which prevents it from signaling the testes or ovaries to produce sex hormones like testosterone or estrogen.⁴⁵ This prevents patients from undergoing the physical changes associated with puberty, such as breast growth, menstrual periods, or deepening of the voice.⁴⁶ Patients can

⁴² Giordano S, Holm S. Is puberty delaying treatment 'experimental treatment'? *Int J Transgend Health*. 2020;21(2):113-121.

⁴³ Carswell JM, Lopez X, Rosenthal SM. The Evolution of Adolescent Gender-Affirming Care: An Historical Perspective. *Hormone Research in Paediatrics*. 2022;95(6):649-656.

⁴⁴ Cohen-Kettenis PT, van Goozen SHM. Pubertal delay as an aid in diagnosis and treatment of a transsexual adolescent. *European Child & Adolescent Psychiatry*. 1998;7(4):246-248.

⁴⁵ Ortmann O, Weiss JM, Diedrich K. Gonadotrophin-releasing hormone (GnRH) and GnRH agonists: mechanisms of action. *Reprod Biomed Online*. 2002;5 Suppl 1:1-7.

⁴⁶ Mahfouda S, Moore JK, Siafarikas A, Zepf FD, Lin A. Puberty suppression in transgender children and adolescents. *The Lancet Diabetes & Endocrinology*. 2017;5(10):816-826.

receive these medications via provider-administered injections or in the form of a flexible rod placed under the skin.

These medications are also utilized by some TGD adults to help suppress endogenous testosterone production. Some TGD individuals may start puberty blockers in adolescence and continue to take them as adults while receiving exogenous hormones like estrogen.^{47,48} Although access to these medications can be complicated by issues like insurance coverage, they can prove to be a valuable component of gender-affirming medical care for TGD adults as well.

The effects of pubertal suppressants are thought to be largely reversible, although there is continued scientific debate as to whether some changes may persist after discontinuing these medications.^{49,50,51} If a patient stops using pubertal suppressants, they will subsequently begin (or continue) to undergo the physical changes associated with the sex hormones their bodies make. As a result, TGD adolescents can start pubertal suppressants while they receive support to better understand what changes best align with their gender identity. They can then decide to receive GAH or simply stop using pubertal suppressants if they do not choose to pursue GAH.

The primary side effect of pubertal suppressants that providers work to manage is reduced bone density, as exposure to sex hormones is important for bone development.⁵² However, increased bone mineral density can be achieved with exposure to sex hormones, whether produced by the patient's body or introduced via GAH.⁵³ Thus, clinicians can ensure that TGD patients attain strong bone health. Limited research has also suggested that pubertal suppressants could have an impact on neuropsychological function, but the clinical implications of these findings are unclear.⁵⁴

⁴⁷ Gondin L, Trejo J, Pinkson S, et al. SUN-044 Gonadotropin Releasing Hormone (GnRH) Agonist Therapy Induces a Sustained Reduction in Plasma Testosterone Levels and Is Well Tolerated in Transwomen Veterans. *J Endocr Soc.* 2020;4(Suppl 1).

⁴⁸ Hembree WC, Cohen-Kettenis PT, 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):3869-3903.

⁴⁹ Guss C, Gordon CM. Pubertal Blockade and Subsequent Gender-Affirming Therapy. *JAMA Netw Open.* 2022;5(11):e2239763.

⁵⁰ Hembree WC, Cohen-Kettenis PT, 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):3869-3903.

⁵¹ Varshini M, Megan R, Salem S, et al. Puberty Blocker and Aging Impact on Testicular Cell States and Function. *bioRxiv.* 2024:2024.2003.2023.586441.

⁵² Giacomelli G, Meriggiola MC. Bone health in transgender people: a narrative review. *Ther Adv Endocrinol Metab.* 2022;13:20420188221099346.

⁵³ *Ibid.*

⁵⁴ Baxendale S. The impact of suppressing puberty on neuropsychological function: A review. *Acta Paediatrica.* 2024.

Fully characterizing the reversibility and potential side effects of pubertal suppressants represents a continued area of scientific study. As with any medical intervention, it is important for TGD adolescents, healthcare providers, and parents or guardians to discuss potential harms and side effects of these treatments and make a determination based on the best interests and unique circumstances of each patient.

Estrogen (Estradiol) + Anti-androgens

Many TGD women and TGD adolescents on a feminine gender spectrum take estradiol and/or anti-androgens to achieve desired physical changes such as breast growth and widened hips. In addition, these hormones are also used by TGD adolescents who identify as non-binary and desire those physical changes.

Estrogen-based therapies, which center around the use of estradiol (the primary form of estrogen involved in pubertal development), have a long history of medical application as contraceptives and treatments for perimenopausal symptoms.^{55,56} They have a well-established safety profile and well known side effects are well known. Estrogen's use in gender-affirming medical care has an extensive history, with early use by transgender women starting in the 1950s, followed by more widespread application at clinics in the United States during the 1960s.^{57,58} The use of estrogen-based GAH in gender-affirming medical care for TGD adolescents became prominent in the late 1990s, with treatment regimens evolving to the modern day.^{59,60,61}

Estrogen's use in gender-affirming medical care has an extensive history, with early use by transgender women starting in the 1950s.

Patients can take estrogen through a number of routes, including oral tablets, patches, and injections.⁶² Over the course of months or years, they can experience physical

⁵⁵ Thomas MP, Potter BV. The structural biology of oestrogen metabolism. *Journal of Steroid Biochemistry and Molecular Biology*. 2013;137:27-49.

⁵⁶ Kohn GE, Rodriguez KM, Hotaling J, Pastuszak AW. The History of Estrogen Therapy. *Sex Med Rev*. 2019;7(3):416-421.

⁵⁷ Hamburger C, Sturup GK, Dahl-Iversen E. Transvestism; hormonal, psychiatric, and surgical treatment. *J Am Med Assoc*. 1953;152(5):391-396.

⁵⁸ Ettner R, Monstrey S, Coleman E. *Principles of transgender medicine and surgery*. 2 ed. London, England: Routledge; 2016

⁵⁹ Carswell JM, Lopez X, Rosenthal SM. The Evolution of Adolescent Gender-Affirming Care: An Historical Perspective. *Hormone Research in Paediatrics*. 2022;95(6):649-656.

⁶⁰ de Vries ALC, Cohen-Kettenis PT, Delemarre-van de Waal H. Clinical Management of Gender Dysphoria in Adolescents. *International Journal of Transgenderism*. 2006;9(3-4):83-94.

⁶¹ Salas-Humara C, Sequeira GM, Rossi W, Dhar CP. Gender affirming medical care of transgender youth. *Curr Probl Pediatr Adolesc Health Care*. 2019;49(9):100683.

⁶² Deutsch MB. Overview of feminizing hormone therapy. UCSF Gender Affirming Health Program. <https://transcare.ucsf.edu/guidelines/feminizing-hormone-therapy>. Published 2016. Accessed November 16, 2023.

changes such as the development of breast tissue, reduced growth of facial and body hair, redistribution of body fat, and widening of the hips.⁶³ It can often take years for a patient to experience the maximum effects of estrogen-based GAH. If a patient stops using estrogen, this can lead to the reversal of many physical changes, including the return of facial hair, increased muscle mass, and the resumption of typical sperm production.⁶⁴ Other changes persist after stopping estrogen, such as breast development and widening of the hips, especially if it has been used for several years.⁶⁵

The involvement of providers is important to manage potential side effects associated with estrogen-based GAH. Patients can experience common side effects such as mood changes, weight gain, and anxiety.⁶⁶ Medications containing estrogen can also increase the risk of blood clots in adult patients who smoke, although this risk is largely limited to older TGD adults receiving estrogen and is not a major concern for TGD adolescents.⁶⁷ Furthermore, the form of estrogen used in GAH has a lower risk of causing clots than the forms of estrogen used for contraception.⁶⁸

Estrogen-based GAH regimens may also involve the use of anti-androgens—medications that block the effects of hormones like testosterone. Anti-androgens allow patients to use lower doses of estrogen to achieve desired effects.⁶⁹ Like estrogen, anti-androgens have a long history of medical use. Spironolactone, a common medication frequently used as an anti-androgen, can block the effects of testosterone and has been used clinically since the late 1950s.⁷⁰ Other anti-androgens like finasteride prevent testosterone from being converted into a more potent hormone known as dihydrotestosterone. Medicines like finasteride are widely used by cisgender men to treat hair loss and prostate growth.⁷¹

⁶³ Deutsch MB. Overview of feminizing hormone therapy. UCSF Gender Affirming Health Program. <https://transcare.ucsf.edu/guidelines/feminizing-hormone-therapy>. Published 2016. Accessed November 16, 2023.

⁶⁴ Hembree WC, Cohen-Kettenis PT, 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):3869-3903.

⁶⁵ Ibid.

⁶⁶ Deutsch MB. Overview of feminizing hormone therapy. UCSF Gender Affirming Health Program. 2016.

⁶⁷ Totaro M, Palazzi S, Castellini C, et al. Risk of Venous Thromboembolism in Transgender People Undergoing Hormone Feminizing Therapy: A Prevalence Meta-Analysis and Meta-Regression Study. *Front Endocrinol (Lausanne)*. 2021;12:741866.

⁶⁸ Arrington-Sanders R, Connell NT, Coon D, et al. Assessing and Addressing the Risk of Venous Thromboembolism Across the Spectrum of Gender Affirming Care: A Review. *Endocr Pract*. 2023;29(4):272-278.

⁶⁹ Deutsch MB. Overview of feminizing hormone therapy. UCSF Gender Affirming Health Program. 2016.

⁷⁰ Sabbadin C, Calò LA, Armanini D. The story of spironolactones from 1957 to now: from sodium balance to inflammation. *G Ital Nefrol*. 2016;33 Suppl 66:33.S66.12.

⁷¹ Salisbury B, Tadi P. 5-Alpha-Reductase Inhibitors. StatPearls. <https://www.ncbi.nlm.nih.gov/books/NBK555930/>. 2023.

Testosterone-based therapy

TGD men and TGD adolescents on a masculine gender spectrum can take testosterone to achieve desired physical changes such as a deepened voice, growth of facial hair, and cessation of menstruation. In addition, these hormones can be utilized by TGD adolescents who identify as non-binary and desire these physical changes.

Testosterone's extensive medical history mirrors that of estrogen, as it has been in widespread application in medical practice since the 1940s.⁷² Its usage in gender-affirming medical care for TGD adolescents arose during the late 1990s alongside estrogen-based therapies.⁷³

Patients can administer testosterone through several routes, including topical gels, creams, injections, or long-acting testosterone pellets placed under the skin.^{74,75} Over months or years of treatment, patients may develop increased muscle mass, a deeper voice, and increased facial and bodily hair. Stopping testosterone-based GAH can lead to the reversal of some physical changes, such as fat redistribution and the resumption of menstrual periods. Other physical changes persist, such as a deepened voice.⁷⁶

Testosterone treatment should be supervised by a medical provider to ensure proper dosing and management of potential side effects. Common side effects associated with the use of testosterone such as acne and receding hair lines can be managed with the help of a medical provider.⁷⁷ An increased red blood cell count is another potential side effect of testosterone that requires lab monitoring, but this is easily managed in clinical practice.^{78,79}

⁷² Nieschlag E, Nieschlag S. The History of Testosterone and The Testes: From Antiquity to Modern Times. In: Hohl A, ed. *Testosterone: From Basic to Clinical Aspects*. Cham: Springer International Publishing; 2017:1-19.

⁷³ Carswell JM, Lopez X, Rosenthal SM. The Evolution of Adolescent Gender-Affirming Care: An Historical Perspective. *Hormone Research in Paediatrics*. 2022;95(6):649-656.

⁷⁴ Deutsch MB. Information on Testosterone Hormone Therapy. UCSF Gender Affirming Health Program. <https://transcare.ucsf.edu/article/information-testosterone-hormone-therapy>. Published 2020. Accessed November 16, 2023.

⁷⁵ Cheng K, Skolnick A. Testosterone Pellet Use in Transgender Men. *Transgender Health*. 2022

⁷⁶ Hembree WC, Cohen-Kettenis PT, 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):3869-3903.

⁷⁷ Deutsch MB. Information on Testosterone Hormone Therapy. UCSF Gender Affirming Health Program. <https://transcare.ucsf.edu/article/information-testosterone-hormone-therapy>. Published 2020. Accessed November 16, 2023.

⁷⁸ Ibid.

⁷⁹ Madsen MC, van Dijk D, Wiepjes CM, Conemans EB, Thijs A, den Heijer M. Erythrocytosis in a Large Cohort of Trans Men Using Testosterone: A Long-Term Follow-Up Study on Prevalence, Determinants, and Exposure Years. *The Journal of Clinical Endocrinology & Metabolism*. 2021;106(6):1710-1717.

Common Medications Used in Gender-Affirming Medical Care		
Medication Class	Medication Trade Name	Method of Administration
Pubertal Suppressants (Puberty Blockers)	Eligard	Subcutaneous (SC) Injection
	Lupron	Intramuscular (IM) Injection
	Zoladex	SC Injection
	Supprelin LA	SC Implant
	Synarel	Nasal Spray
Estrogen	Estradiol	Oral Tablet, Patch
	Delestrogen	IM or SC Injection
	Depot-Estradiol	IM or SC Injection
Anti-Androgens	Aldactone (Spironolactone)	Oral Tablet
	Proscar	Oral Tablet
	Avodart	Oral Tablet
Testosterone	Depo-Testosterone	IM or SC Injection
	Delatestryl	IM or SC Injection
	Androgel	Topical Gel
	Testopel	SC Implant

EVIDENCE SUPPORTING THE USE OF GENDER-AFFIRMING HORMONES

The choice to pursue GAH involves shared decision-making between a patient, their providers, and their parents or guardians if the patient is a minor. Healthcare providers are trained to help patients and parents or guardians understand what is involved in GAH, to establish the goals of a patient’s care, and to weigh potential risks and benefits.

It is important to re-emphasize that although GAH represent a critical component of gender-affirming medical care for many TGD adolescents, each patient’s desire for and experience with GAH is different. Some TGD adolescents may ultimately decide to not pursue GAH or may choose a regimen that does not neatly fit within the categories we have previously described. For TGD adolescents who desire GAH as a part of their gender-affirming medical care, these therapies can be lifesaving, as has been outlined by extensive research.^{80,81,82}

For TGD adolescents who desire GAH as a part of their care, these therapies can be lifesaving

⁸⁰ Tordoff DM, Wanta JW, Collin A, Stepney C, Inwards-Breland DJ, Ahrens K. Mental Health Outcomes in Transgender and Nonbinary Youths Receiving Gender-Affirming Care. *JAMA Netw Open*. 2022;5(2):e220978.

⁸¹ Green AE, DeChants JP, Price MN, Davis CK. Association of Gender-Affirming Hormone Therapy With Depression, Thoughts of Suicide, and Attempted Suicide Among Transgender and Nonbinary Youth. *Journal of Adolescent Health*. 2022;70(4):643-649.

⁸² Allen L, Watson L, Egan A, Moser C. Well-Being and Suicidality Among Transgender Youth After Gender-Affirming Hormones. 2019;7:302-311.

The impact of GAH on the health of TGD adolescents has been an area of scientific study for decades, with providers working to understand the best way to deliver care to a population whose needs have historically gone unmet. The results of this research have consistently demonstrated the benefits of GAH for TGD adolescents, as patients provided with these treatments demonstrate significant improvements to their mental health and social functioning.^{83,84} In contrast, TGD adolescents who desire GAH but cannot access them experience significantly worse long-term mental health outcomes than their TGD peers who received GAH.^{85,86}

Research has found that TGD adolescents receiving GAH are less likely to report depression or suicidal ideation, and are less likely to attempt suicide.^{87,88} Mental health benefits have also been observed with pubertal suppression. TGD adolescents receiving pubertal suppressants have been found to have lower odds of depression, anxiety, and suicidal ideation.⁸⁹ Furthermore, TGD adults who accessed pubertal

TGD adolescents receiving GAH are less likely to report depression, suicidal ideation, or attempt suicide.

suppressants during adolescence experience lower odds of suicidal ideation than their peers who wanted these treatments but could not access them.⁹⁰

TGD adolescents receiving GAH also experience an improved body image, which further contributes to its psychological and social benefits.⁹¹ Since the effects of GAH are gradual, with changes occurring over months to

⁸³ Chen D, Berona J, Chan Y-M, et al. Psychosocial Functioning in Transgender Youth after 2 Years of Hormones. *New England Journal of Medicine*. 2023;388(3):240-250.

⁸⁴ Achille C, Taggart T, Eaton NR, et al. Longitudinal impact of gender-affirming endocrine intervention on the mental health and well-being of transgender youths: preliminary results. *International Journal of Pediatric Endocrinology*. 2020;2020(1):8.

⁸⁵ Tordoff DM, Wanta JW, Collin A, Stepney C, Inwards-Breland DJ, Ahrens K. Mental Health Outcomes in Transgender and Nonbinary Youths Receiving Gender-Affirming Care. *JAMA Netw Open*. 2022;5(2):e220978.

⁸⁶ Turban JL, King D, Kobe J, Reisner SL, Keuroghlian AS. Access to gender-affirming hormones during adolescence and mental health outcomes among transgender adults. *PLoS One*. 2022;17(1):e0261039.

⁸⁷ Costa R, Dunsford M, Skagerberg E, Holt V, Carmichael P, Colizzi M. Psychological Support, Puberty Suppression, and Psychosocial Functioning in Adolescents with Gender Dysphoria. *The Journal of Sexual Medicine*. 2015;12(11):2206-2214.

⁸⁸ Green AE, DeChants JP, Price MN, Davis CK. Association of Gender-Affirming Hormone Therapy With Depression, Thoughts of Suicide, and Attempted Suicide Among Transgender and Nonbinary Youth. *Journal of Adolescent Health*. 2022;70(4):643-649.

⁸⁹ Tordoff DM, Wanta JW, Collin A, Stepney C, Inwards-Breland DJ, Ahrens K. Mental Health Outcomes in Transgender and Nonbinary Youths Receiving Gender-Affirming Care. *JAMA Netw Open*. 2022;5(2):e220978.

⁹⁰ Turban JL, King D, Carswell JM, Keuroghlian AS. Pubertal Suppression for Transgender Youth and Risk of Suicidal Ideation. *Pediatrics*. 2020;145(2).

⁹¹ Kuper LE, Stewart S, Preston S, Lau M, Lopez X. Body Dissatisfaction and Mental Health Outcomes of Youth on Gender-Affirming Hormone Therapy. *Pediatrics*. 2020;145(4):e20193006.

years, researchers have studied the longitudinal benefits of receiving GAH throughout adolescence. They found that TGD adolescents receiving GAH consistently exhibit improved life satisfaction and mental health outcomes over the course of several years of treatment.⁹² The benefits of GAH for TGD adolescents have been demonstrated consistently and these findings are especially important as issues like social isolation, familial rejection, and political attacks on the rights of TGD individuals contribute to an increased risk of depression, substance use disorders, and suicide in this population.^{93,94,95} TGD adolescents who receive GAH have mental health outcomes comparable to their cisgender peers, in spite of these significant challenges.⁹⁶

Although the benefits of accessing GAH during adolescence have been well documented, many parents and guardians grapple with the decision to allow their TGD children to receive these treatments. Some question whether it is better to simply wait until their child turns 18, at which point their child can independently receive GAH as an adult. Yet this choice does not represent a neutral option, since it means their children will experience the traumatic physical changes associated with an undesired puberty. This inaction may also lead to the need for more invasive, painful, expensive gender-affirming medical care in the future that their child could have otherwise avoided.

In addition, research demonstrates that TGD individuals who desire GAH experience better longitudinal outcomes if they access this care as adolescents. Nationally surveyed TGD adults who received GAH during adolescence have been found to have better mental health outcomes than their peers who desired GAH but were unable to get them.⁹⁷ In addition, TGD adults who were followed after receiving GAH as adolescents demonstrated higher self-worth and a more positive body image.⁹⁸

TGD individuals who desire GAH experience better longitudinal outcomes if they access this care as adolescents.

⁹² Chen D, Berona J, Chan Y-M, et al. Psychosocial Functioning in Transgender Youth after 2 Years of Hormones. *New England Journal of Medicine*. 2023;388(3):240-250.

⁹³ Connolly MD, Zervos MJ, Barone CJ, 2nd, Johnson CC, Joseph CL. The Mental Health of Transgender Youth: Advances in Understanding. *Journal of Adolescent Health*. 2016;59(5):489-495.

⁹⁴ Day JK, Fish JN, Perez-Brumer A, Hatzenbuehler ML, Russell ST. Transgender Youth Substance Use Disparities: Results From Population-Based Sample. *Journal of Adolescent Health*. 2017;61(6):729-735.

⁹⁵ Puckett JA, Maroney MR, Wadsworth LP, Mustanski B, Newcomb ME. Coping with discrimination: The insidious effects of gender minority stigma on depression and anxiety in transgender individuals. *J Clin Psychol*. 2020;76(1):176-194.

⁹⁶ van der Miesen AIR, Steensma TD, de Vries ALC, Bos H, Popma A. Psychological Functioning in Transgender Adolescents Before and After Gender-Affirmative Care Compared With Cisgender General Population Peers. *Journal of Adolescent Health*. 2020;66(6):699-704.

⁹⁷ Turban JL, King D, Kobe J, Reisner SL, Keuroghlian AS. Access to gender-affirming hormones during adolescence and mental health outcomes among transgender adults. *PLoS One*. 2022;17(1):e0261039.

⁹⁸ Arnoldussen M, van der Miesen AIR, Elzinga WS, et al. Self-Perception of Transgender Adolescents After Gender-Affirming Treatment: A Follow-Up Study into Young Adulthood. *LGBT Health*. 2022;9(4).

Regret about starting GAH is extremely rare and the vast majority of TGD adolescents who start pubertal suppressants continue with GAH.

Families may also grapple with concerns surrounding the potential impacts of GAH on fertility. Although GAH reduce ovulation or sperm production, they do not represent an absolute barrier to reproduction. In fact, TGD adolescents receiving GAH are counseled on the need for contraception if they or their sexual partners are capable of becoming pregnant.⁹⁹ The longitudinal

impacts of GAH on fertility represent an area of continued study- limited research has indicated that typical sperm production or pregnancy can resume following the cessation of GAH.^{100,101} However, the full extent of their impact on fertility likely varies based on factors such as length of time receiving GAH and whether an individual ever started endogenous puberty. Furthermore, healthcare providers seek to address this issue early in a person's pursuit of gender-affirming medical care and TGD adolescents can use options such as cryopreservation of sperm or eggs as methods of longitudinal fertility preservation.¹⁰²

Some parents or guardians might also wonder whether their child may "regret" taking GAH later on in life. However, regret about starting GAH is extremely rare and the vast majority of TGD adolescents who start their gender affirmation journey with pubertal suppressants choose to continue with additional GAH.^{103, 104, 105}

While the sociopolitical pressures surrounding gender-affirming medical care can cause some parents to feel that deferring GAH represents a "safer" option, extensive research demonstrates that accessing GAH in adolescence benefits TGD individuals, while delays can result in poorer social, physical, and mental health outcomes.

⁹⁹ Amato P. Fertility options for transgender persons. UCSF Gender Affirming Health Program. <https://transcare.ucsf.edu/guidelines/fertility>. Updated June 17, 2016. Accessed March 24, 2024.

¹⁰⁰ Light AD, Obedin-Maliver J, Sevelius JM, Kerns JL. Transgender men who experienced pregnancy after female-to-male gender transitioning. *Obstet Gynecol*. 2014;124(6):1120-1127.

¹⁰¹ de Nie I, van Mello NM, Vlahakis E, et al. Successful restoration of spermatogenesis following gender-affirming hormone therapy in transgender women. *Cell Rep Med*. 2023;4(1):100858.

¹⁰² T'Sjoen G, Van Caenegem E, Wierckx K. Transgenderism and reproduction. *Curr Opin Endocrinol Diabetes Obes*. 2013;20(6):575-579.

¹⁰³ van der Loos MATC, Hannema SE, Klink DT, den Heijer M, Wiepjes CM. Continuation of gender-affirming hormones in transgender people starting puberty suppression in adolescence: a cohort study in the Netherlands. *The Lancet Child & Adolescent Health*. 2022;6(12):869-875.

¹⁰⁴ Wiepjes CM, Nota NM, de Blok CJM, et al. The Amsterdam Cohort of Gender Dysphoria Study (1972-2015): Trends in Prevalence, Treatment, and Regrets. *J Sex Med*. 2018;15(4):582-590.

¹⁰⁵ Cavve BS, Bickendorf X, Ball J, et al. Reidentification With Birth-Registered Sex in a Western Australian Pediatric Gender Clinic Cohort. *JAMA Pediatrics*. 2024.

GENDER-AFFIRMING SURGICAL CARE

Surgical procedures help some TGD people change their bodies in ways that affirm their gender identity, improving their mental and physical health. Gender-affirming surgical care can include several different procedures, and what surgeries an individual pursues (if they choose to pursue surgery) can vary significantly. Public discourse regarding gender-affirming surgical care often centers around “top” surgeries (gender-affirming chest surgeries like mastectomy or mammoplasty) and “bottom” surgeries (such as vaginoplasty and phalloplasty). However, this framing is overly simplistic. Many TGD people pursue “top” or “bottom” surgery, while others undergo procedures to alter features like facial structure or remove organs that do not align with their gender identity, such as the uterus.^{106,107} Gender-affirming surgical care uses the same procedures offered to cisgender patients for various medical concerns (for example, mastectomies in breast cancer patients), and postsurgical complication rates mirror those seen among cisgender patients undergoing the same procedures.^{108,109}

Although gender-affirming surgical care is primarily utilized by TGD adults, small numbers of TGD adolescents undergo select procedures, the vast majority being gender-affirming chest surgeries. TGD adolescents may receive these procedures after extensive consultation with their parents or guardians, medical providers, and surgeons.¹¹⁰ It is difficult to determine the number of gender-affirming surgeries provided annually to TGD adolescents in the United States, as American medical records are fragmented and procedures are often improperly coded.

Although gender-affirming surgical care is primarily utilized by TGD adults, small numbers of TGD adolescents undergo select procedures, the vast majority being gender-affirming chest surgeries.

One project using nationwide insurance claims data found that around 200-300 TGD patients under the age of 18 received gender-affirming surgeries annually between 2019 and 2021 in the United States, although this did not capture procedures which

¹⁰⁶ Coon D, Berli J, Oles N, et al. Facial Gender Surgery: Systematic Review and Evidence-Based Consensus Guidelines from the International Facial Gender Symposium. *Plast Recon Surg.* 2022;149(1).

¹⁰⁷ Makhija N, Mihalov L. Hysterectomy as Gender-Affirmation Surgery in Female-to-Male Transgender Persons [37P]. *Obstetrics & Gynecology.* 2017;129(5).

¹⁰⁸ Nguyen V, Rihua X, Wen S-W, Liao Y, Choudhry AJ, Chen I. Surgical Outcomes For Transgender Men Undergoing Mastectomy and Hysterectomy. *Journal of Obstetrics and Gynaecology Canada.* 2019;41(5):728.

¹⁰⁹ Saxena N, Jolly D, Wu CA, Boskey ER, Ganor O. Comparing scrotoplasty complication rates in transgender and cisgender men: An ACS NSQIP study. *JPRAS Open.* 2023;36:55-61.

¹¹⁰ Coleman E, Radix AE, Bouman WP, et al. Standards of Care for the Health of Transgender and Gender Diverse People, Version 8. *International Journal of Transgender Health.* 2022;23(sup1):S1-S259.

were paid for out-of-pocket.¹¹¹ This analysis also found that the vast majority of TGD adolescent patients had gender-affirming chest surgeries.¹¹² Another recent study looking at national surgical data reported that 3,678 TGD patients aged 12-18 years underwent gender-affirming surgeries between 2016 and 2020.¹¹³ However, the study's inclusion of 18 year olds in the cohort makes it difficult to determine how many patients were minors when they had their procedures.

While these estimates represent incomplete data, we can compare them to numbers of similar surgical procedures accessed by cisgender adolescents, particularly cosmetic surgery. The American Society of Plastic Surgeons (ASPS) reports on national trends in cosmetic procedures among patients aged 19 and younger. Although this represents an imperfect comparison, as many patients were 18 or 19 when having their surgeries, the ASPS reports that 10,308 patients aged 19 and younger had breast lifts or breast reductions in 2022 alone*.¹¹⁴

Studies looking at the demographic characteristics of TGD adolescents receiving gender-affirming surgical care often find average ages of 16 to 17 years old, though this varies by data set.^{115,116,117} Research on surgical outcomes among TGD adolescents receiving gender-affirming chest surgery has revealed very low rates of complications and postsurgical regret.¹¹⁸ These findings are also consistent with the low postsurgical regret rates observed among TGD adults who have had gender-affirming surgeries.^{119,120} Regret rates among TGD adults who have undergone gender-affirming

¹¹¹ Respaut R, Terhune C. Putting numbers on the rise in children seeking gender care. *Reuters*. <https://www.reuters.com/investigates/special-report/usa-transyouth-data/>. Published October 6, 2022. Accessed December 14, 2023.

¹¹² Ibid.

¹¹³ Wright JD, Chen L, Suzuki Y, Matsuo K, Hershman DL. National Estimates of Gender-Affirming Surgery in the US. *JAMA Network Open*. 2023;6(8):e2330348-e2330348.

¹¹⁴ American Society of Plastic Surgeons. 2022 ASPS Procedural Statistics Release. <https://www.plasticsurgery.org/documents/News/Statistics/2022/plastic-surgery-statistics-report-2022.pdf>. Published September 26, 2023. Accessed December 14, 2023.

*The ASPS only reports breast augmentation (placement, revision, or removal of implants) in patients aged 18 and 19 and does not make statistics on augmentation in those under 18 publicly available.

¹¹⁵ Hassan B, Zeitouni F, Ascha M, Sanders R, Liang F. Temporal Trends in Gender Affirmation Surgery Among Transgender and Non-Binary Minors. *Cureus*. 2023;15(9):e45948.

¹¹⁶ Tang A, Hojilla JC, Jackson JE, et al. Gender-Affirming Mastectomy Trends and Surgical Outcomes in Adolescents. *Ann Plast Surg*. 2022;88(4 Suppl):S325-s331.

¹¹⁷ Das RK, Perdakis G, Al Kassis S, Drolet BC. Gender-Affirming Chest Reconstruction Among Transgender and Gender-Diverse Adolescents in the US From 2016 to 2019. *JAMA Pediatrics*. 2023;177(1):89-90.

¹¹⁸ Tang A, Hojilla JC, Jackson JE, et al. Gender-Affirming Mastectomy Trends and Surgical Outcomes in Adolescents. *Ann Plast Surg*. 2022;88(4 Suppl):S325-s331.

¹¹⁹ Bustos VP, Bustos SS, Mascaró A, et al. Regret after Gender-affirmation Surgery: A Systematic Review and Meta-analysis of Prevalence. *Plast Reconstr Surg Glob Open*. 2021;9(3):e3477.

¹²⁰ Narayan SK, Hontscharuk R, Danker S, et al. Guiding the conversation—types of regret after gender-affirming surgery and their associated etiologies. *Annals of Translational Medicine*. 2021;9(7):605.

Regret rates among TGD adults who underwent gender-affirming surgeries are substantially lower than typical postsurgical regret rates among cisgender adults.

surgeries are substantially lower than typical postsurgical regret rates among cisgender adults. Comprehensive research on postsurgical regret following procedures unrelated to gender affirmation found a 14.4% mean regret rate, while studies looking at gender-affirming surgeries often report regret rates below 1%.^{121,122,123}

Studies on the longitudinal benefits of gender-affirming surgical care have primarily focused on outcomes in adults, although these findings remain informative for TGD adolescents receiving gender-affirming surgical care. TGD adults who have undergone gender-affirming surgeries

report improved body images and gender congruence.^{124,125} In addition, TGD adults who have had gender-affirming surgeries have a lower odds of psychological distress and suicidal ideation than their TGD peers who have not had gender-affirming surgeries.¹²⁶ This is further supported by research which found that TGD adults who received gender-affirming surgeries were less likely to require mental health treatment in the years following their procedure.¹²⁷ Furthermore, while research on outcomes following gender-affirming surgical care in those under 18 is limited, a study found that dysphoria among transmasculine adolescents who underwent gender-affirming chest surgery was lower than their peers who had not had surgery.¹²⁸

Ultimately, the discussion of gender-affirming surgical care is largely one of gender-affirming medical care for TGD *adults*, as these procedures are primarily accessed by patients who are at least 18 years old. A limited number of TGD adolescents under 18 may receive gender-affirming surgical procedures, but these are largely limited to

¹²¹ Wilson A, Ronnekleiv-Kelly S, Pawlik T. Regret in Surgical Decision Making: A Systematic Review of Patient and Physician Perspectives. *World Journal of Surgery*. 2017;41.

¹²² Bustos VP, Bustos SS, Mascaro A, et al. Regret after Gender-affirmation Surgery: A Systematic Review and Meta-analysis of Prevalence. *Plast Reconstr Surg Glob Open*. 2021;9(3):e3477.

¹²³ Bruce L, Khouri AN, Bolze A, et al. Long-Term Regret and Satisfaction With Decision Following Gender-Affirming Mastectomy. *JAMA Surgery*. 2023;158(10):1070-1077.

¹²⁴ van de Grift TC, Elaut E, Cerwenka SC, et al. Effects of Medical Interventions on Gender Dysphoria and Body Image: A Follow-Up Study. *Psychosom Med*. 2017;79(7):815-823.

¹²⁵ van de Grift TC, Elfering L, Greijdanus M, et al. Subcutaneous Mastectomy Improves Satisfaction with Body and Psychosocial Function in Trans Men: Findings of a Cross-Sectional Study Using the BODY-Q Chest Module. *Plastic and Reconstructive Surgery*. 2018;142(5).

¹²⁶ Almazan AN, Keuroghlian AS. Association Between Gender-Affirming Surgeries and Mental Health Outcomes. *JAMA Surgery*. 2021;156(7):611-618.

¹²⁷ Bränström R, Pachankis JE. Reduction in Mental Health Treatment Utilization Among Transgender Individuals After Gender-Affirming Surgeries: A Total Population Study. *American Journal of Psychiatry*. 2019;177(8):727-734.

¹²⁸ Olson-Kennedy J, Warus J, Okonta V, Belzer M, Clark LF. Chest Reconstruction and Chest Dysphoria in Transmasculine Minors and Young Adults: Comparisons of Nonsurgical and Postsurgical Cohorts. *JAMA Pediatrics*. 2018;172(5):431-436.

gender-affirming chest surgeries among 16- and 17-year-old patients. Furthermore, research has demonstrated the significant benefits of gender-affirming surgical care for TGD individuals, as well as low rates of postsurgical complications and postsurgical regret.

Finally, we should appreciate the ability of TGD patients under the age of 18 to meaningfully participate in their own medical care and effectively appreciate the risks and benefits of gender-affirming surgery. Studies have indicated that adolescents can meet legal standards of competency and make informed decisions about medical treatment and research participation under specific conditions.^{129,130,131} The ability of young patients to appropriately consider these decisions also informs clinicians' desire to obtain their consent when providing lifesaving medical care, even if this is not strictly necessary in the eyes of the law.¹³² It is important to recognize that although 18 years may represent a legal threshold for independently pursuing gender-affirming medical care, this boundary is not informed by whether this care may be beneficial for select TGD adolescent patients nor the ability of said patients to meaningfully appreciate the nuances of these decisions.

¹²⁹ Weithorn LA, Campbell SB. The competency of children and adolescents to make informed treatment decisions. *Child Dev.* 1982;53(6):1589-1598.

¹³⁰ Beidler S, Dickey S. Children's Competence to Participate in Healthcare Decisions. *JONA'S healthcare law, ethics and regulation.* 2001;3:80-87.

¹³¹ Mathews B. Adolescent Capacity to Consent to Participate in Research: A Review and Analysis Informed by Law, Human Rights, Ethics, and Developmental Science. *Laws.* 2023;12(1). doi:10.3390/laws12010002.

¹³² Committee On Bioethics, Katz AL, Macauley RC, et al. Informed Consent in Decision-Making in Pediatric Practice. *Pediatrics.* 2016;138(2):e20161484.

SUMMARY

In this brief, we have introduced the fundamental components of gender-affirming care for transgender and gender diverse youth, as well as the scientific support underlying these social and medical interventions.

We have described the many ways that social affirmation can support TGD youth as they navigate their gender journey, demonstrating how actions as simple as using chosen names and affirming pronouns can save lives. We discussed the usage of pubertal suppressants and gender-affirming hormones, which represent critical components of gender-affirming medical care for TGD adolescents. We then explored the extensive scientific evidence which supports the efficacy of these treatments, demonstrating how TGD adolescents who access this care have better mental health outcomes and a more positive body image. Finally, we sought to clarify the role of gender-affirming surgery in gender-affirming medical care— detailing the select populations of TGD adolescents who may access some of these treatments.

We hope that this publication has helped shed light on a topic that is often distorted or misrepresented in public discourse. In addition, we hope that our work has demonstrated the importance of GAC for TGD youth and conveyed how tools like gender-affirming hormones represent lifesaving care for a population who often faces social and medical marginalization.

Addendum: Addressing the Cass Review

On April 10th, 2024, a report on GAC for TGD youth in the United Kingdom commissioned by their National Health Service and led by Dr. Hillary Cass was published. This publication, known as the Cass Review, has been heavily scrutinized by organizations representing TGD communities due to its recommendations' discordance with the established medical literature surrounding the efficacy of GAC for TGD youth as well as its potential to disrupt access to lifesaving gender-affirming medical care.^{133,134,135} Since this report was released shortly before our brief was distributed, we were not able to meaningfully comment on it prior to publication. We expect that scholars from the Fenway Institute and other organizations dedicated to the care of LGBTQIA+ communities will respond to the Cass Review in the near future.

¹³³ Horton C. The Cass Review: Cis-supremacy in the UK's approach to healthcare for trans children. *International Journal of Transgender Health*.1-25.

¹³⁴ Maung H. Response to the Cass Review. *Gender GP*. <https://www.gendergp.com/response-to-the-cass-review/>. Updated April 12, 2024. Accessed April 16, 2024.

¹³⁵ Riedel S. Advocates Say a Controversial Report on Healthcare for Trans Kids Is "Fundamentally Flawed". *them*. <https://www.them.us/story/cass-review-nhs-trans-youth-healthcare-report>. Updated April 12, 2024. Accessed April 16, 2024.

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GLOSSARY

Adapted from the glossary of the National LGBTQIA+ Health Education Center at The Fenway Institute. Please see the Health Education center website at <https://www.lgbtqiahealtheducation.org/> for additional terms not covered in this brief.

Binding: Wrapping the chest tightly to create the appearance of a flatter chest. The most common way for people to bind is by wearing an undergarment called a binder. People may use other materials to bind such as cloth strips or bandages.

Bottom surgery: A slang term for gender-affirming genital surgery.

Cisgender (Cis): Describes a person whose gender identity aligns with the sex they were assigned at birth, based on societal expectations.

Coming out: The process of discovering and accepting one's sexual orientation or gender identity (coming out to oneself), and the process of sharing one's sexual orientation or gender identity with others (coming out to friends, family, etc.). Coming out occurs at various points throughout one's life.

Conversion therapy: The discredited and harmful practice of trying to forcibly change a person's sexual orientation, gender identity, or gender expression.

Gender affirmation (Transition): An umbrella term for the range of actions that transgender and gender diverse people may undertake to live in greater alignment with their gender identity and/or gender expression, and thus thrive as their authentic selves. A person may affirm their gender identity or expression through social, legal, medical, or surgical means. What gender affirmation looks like for every individual is unique and based on what is personally affirming, what feels safe to do, and what is accessible and available.

Gender diverse: An umbrella term describing people who have gender identities and/or gender expressions that go beyond the gender binary of female/girl/woman or male/boy/man.

Gender dysphoria: Distress experienced by some people whose gender identity does not align with their sex assigned at birth based on societal expectations; or distress experienced when a person's gender identity and/or gender expression is not affirmed. The degree and severity of gender dysphoria is highly variable among transgender and gender diverse people.

Gender expression: The ways in which people present their gender identity to others, such as through gait, mannerisms, voice, dress, and hairstyle. Cultural and historical contexts influence how people interpret and express gender identity.

Gender identity: A person's inner sense of being a girl/woman/female, boy/man/male, both, neither, or beyond the gender binary.

Gender-affirming chest surgery: Surgeries to reduce, construct, and/or reconstruct the chest to be more aligned with a person's gender identity. Types of chest surgeries include breast augmentation, breast construction, mammoplasty, mastectomy, and chest contouring.

Gender-affirming genital surgery: Surgeries to remove and/or construct genitals and/or internal reproductive organs to be more aligned with a person's gender identity. Types of surgeries include-

- Clitoroplasty (creation of a clitoris)
- Hysterectomy (removal of the uterus; may also include removal of the cervix, ovaries, and fallopian tubes)
- Labiaplasty (creation of inner and outer labia)
- Metoidioplasty (creation of a phallus using testosterone-enlarged clitoral tissue)
- Oophorectomy (removal of ovaries)
- Orchiectomy (removal of testicles)
- Penectomy (removal of the penis)
- Phalloplasty (creation of a phallus)
- Scrotoplasty (creation of a scrotum and often paired with testicular implants)
- Urethral lengthening (to allow voiding while standing)
- Vaginectomy (removal of the vagina)
- Vaginoplasty (creation of a neo-vagina)
- Vulvoplasty (creation of a vulva)

Gender-affirming hormones (GAH): The provision of estrogen, androgen blockers, or testosterone to promote changes in the body that align with a person's gender identity.

Gender-affirming medical care: The provision of health services to support a person's process of living in alignment with their gender identity. Services may include gender-affirming hormone therapy and/or gender-affirming surgeries.

Gender-affirming surgery (GAS): Surgeries to help align the body with a person's gender identity. Types of surgeries include chest and genital surgeries, facial surgeries, body sculpting, and hair removal.

LGBTQIA+: An acronym that stands for lesbian, gay, bisexual, transgender, queer, intersex, asexual, and all sexually and gender diverse people. Examples of terms represented by the "+" include pansexual, omnisexual, gender fluid, nonbinary, Two Spirit, and many more terms.

Name used (chosen name, affirmed name): The name a person goes by and wants others to use in personal communication, including when that person's insurance or identification documents lists a different name. The terms "name used," "affirmed name," or "chosen name" are recommended over "preferred name."

Non-binary (Enby, NB): An umbrella term for gender identities that go beyond the gender binary of female and male. Non-binary people may refer to themselves as non-binary, and/or may use a range of identity terms, such as- agender, bigender, genderqueer, and gender fluid.

Outing: Involuntary or unwanted disclosure of another person's sexual orientation or gender identity.

Pronouns and Neopronouns: Pronouns are words used in place of a person's name. Examples of pronouns are she/her/hers, they/them/theirs, he/him/his. Neopronouns are new pronouns that people may use to affirm their gender identity; examples include- xe/xem/xyr and ze/hir/hirs. Some people use their name instead of pronouns.

Sex assigned at birth: Describes the categorization of an infant as female, male, or intersex, based on the appearance of the infant's genitalia and/or sex chromosomes.

Trans feminine/Transfeminine: Describes a person who was assigned male sex at birth and identifies with femininity to a greater extent than with masculinity.

Trans man/Transgender man: A transgender person whose gender identity is boy/man/male may use these terms to describe themselves. Some will use the term man.

Trans masculine/Transmasculine: Describes a person who was assigned female sex at birth and identifies with masculinity to a greater extent than with femininity .

Trans woman/Transgender woman: A transgender person whose gender identity is girl/woman/female may use these terms to describe themselves. Some will use the term woman.

Transgender (Trans): An umbrella term for people whose gender identity does not align with the sex they were assigned at birth, based on societal expectations.

