Teaching Human Dignity

The Philosophy & Science of Youth Gender Medicine

AN EXPERT GUIDE BY ABIGAIL FAVALE, PHD & PAUL HRUZ, MD PHD

UNIVERSITY OF NOTRE DAME | McGRATH INSTITUTE FOR CHURCH LIFE

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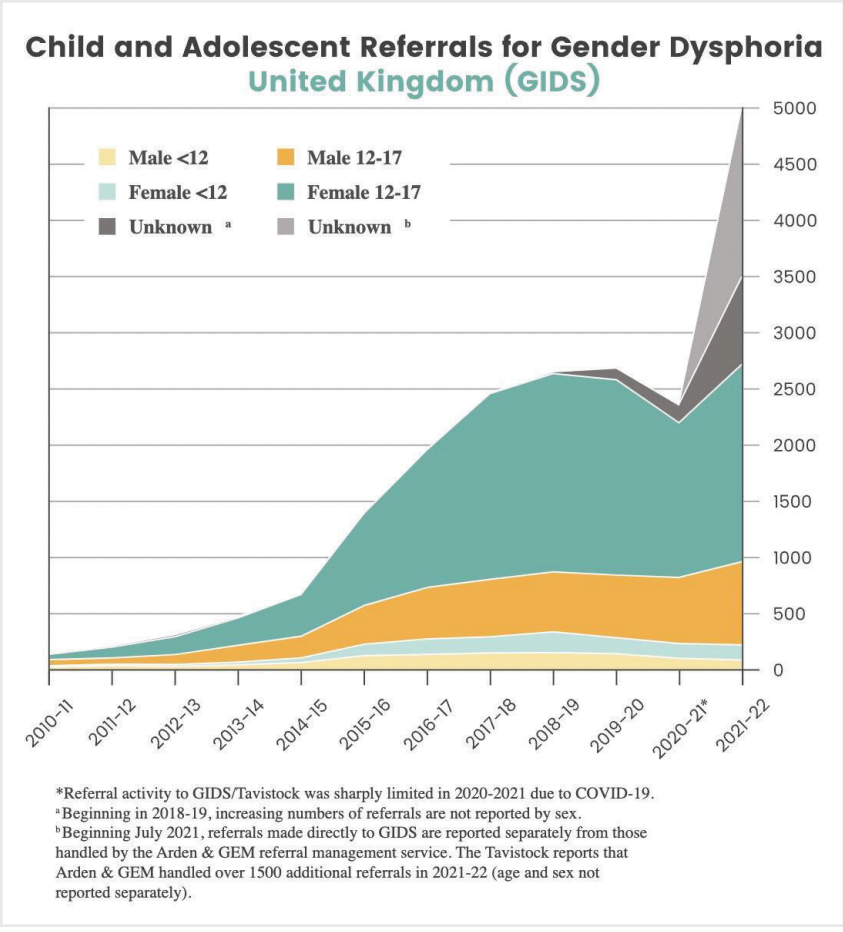
Current Trends

A novel framework for conceptualizing gender has risen to prominence in the Western world. This framework—gender identity theory—has profoundly reshaped how people understand and express their identities as male or female (or neither). This is particularly true for young people. Prior to 2010 or so, trans-identification was a rare phenomenon, and almost unheard of among minors. Those seeking sexual reassignment were typically adult males. Gender dysphoria (GD)—a feeling of distress at a perceived incongruence with one's sex—among children did occur. However, this was rare, mostly affected boys, and gender dysphoric children were not routinely medicalized or even labeled as transgender.[1] Since 2010, however, this landscape has changed significantly. There has been a sharp increase in trans-identification, as well as a pronounced demographic shift: for the first time, more females than males are seeking sex reassignment, and the average age has plummeted to late adolescence.

According to data from the National Health Service (NHS) Gender Identity Development Service (GIDS) in the UK (last updated in September 2022) there has been a dramatic rise in young people seeking medical care for gender-related distress. This is a helpful source of data, because a young person seeking such care in the UK is normally processed through GIDS.

The increase began gradually in 2011-12 before rising precipitously in 2014-15.[2] After a slight dip in referrals in 2020, due to COVID restrictions, there was an even sharper increase in 2021-22.

In just over a single decade, the number of young people seeking gender reassignment has risen by more than 6,500%.[3] While female patients outpace the males considerably, there has been a pronounced uptick among young men as well. This increase is most pronounced between the ages of 12-18 for both sexes, which is another novel phenomenon: late-onset gender dysphoria that first appears in adolescence, in contrast to early-onset gender dysphoria that manifests in childhood.



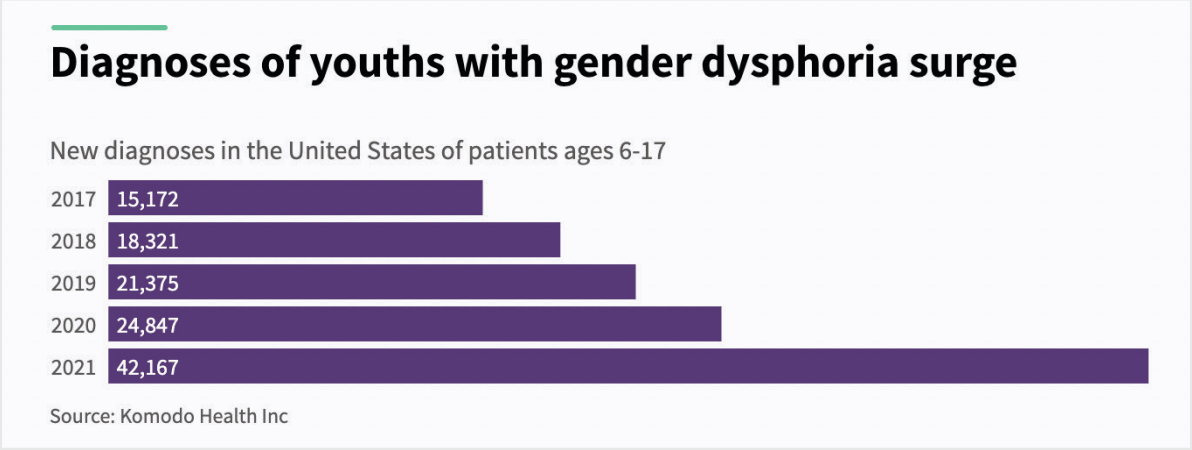
These demographic trends have been consistent across the West: Europe, North America, NZ/Australia have all documented similar escalations in GD among young people, especially adolescent females.[4]

In the absence of a centralized healthcare system, it is more difficult to find clear demographic data in the US, but a 2022 study from the Williams Institute at UCLA found that 43% of trans-identified people in the US are now below the age of 25, and trans-identification in this age group has doubled since 2017.[5] In 2021, the journal *Pediatrics* reported that over 9% of high school students identified as a gender other than their sex, a sharp increase from a 2017 CDC study that found roughly 2% of high schoolers identified as transgender.[6] A 2022 Reuters study of health insurance claims found a surge in diagnoses of gender dysphoria among young people in the US. Since 2017, over 120,000 children have been diagnosed with GD; the numbers tripled between 2017 and 2021.[7]

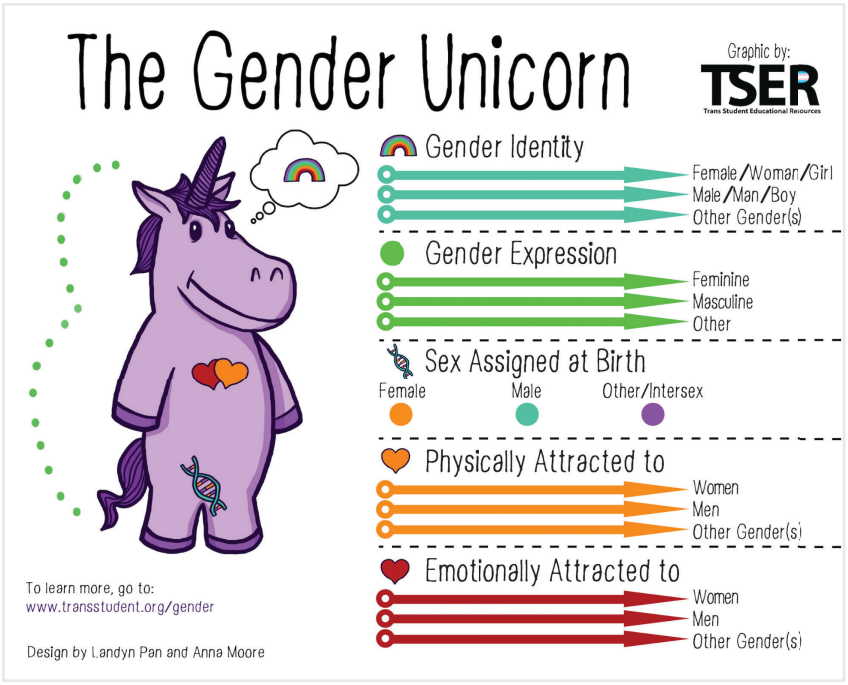
Another major change in the gender landscape is the emergence of a new medicalized therapeutic model for young people, based on a small study from the Netherlands. This approach has been rapidly embraced throughout the West, giving rise to what is now termed "Gender Affirming Care" (GAC).

Prior to 2007, there were no pediatric gender clinics in the United States. Today, there are over 60 pediatric gender clinics in the US, and if all clinics that provide hormonal interventions to minors are included, that number balloons to approximately 300.[8]

The medicalized GAC model has also rapidly gained political and legal prominence in the US at the federal level. For example, in 2016, the HHS of the Obama administration reviewed all existing research and determined that surgical treatments for GD would not be covered by Medicare, because the efficacy of such treatments remains inconclusive.[9] As of 2023, the HHS now endorses those same surgical interventions, even though there has been no ground-breaking study that supports such a policy change.



Gender Identity Theory



What is propelling these sudden changes? The answer to that question is complex, but one key factor has been the rise of gender identity theory (GIT), a framework for reconceptualizing gender that has gained prominence throughout the West.

Within this framework, biological sex does not determine whether one is a man or a woman. Instead, womanhood and manhood are matters of self-perception. When one's subjective sense of sex, known as "gender identity," does not align with one's biological sex, the GIT model endorses body modifications that alter visible sex characteristics, in order to bring the body into alignment with the internal sense of gender identity. Sex is thus viewed as a malleable construct, whereas gender identity is presented as stable and innate. The Gender Unicorn is a pedagogical tool commonly used by proponents of GIT; the first version was created in 2014, coincident with the initial exponential increase of gender dysphoria among young people. This tool illustrates some of the key assumptions of GIT, namely the idea that a person's identity as a female/woman or male/man is grounded in how one thinks of oneself.

> *This tool also depicts sex as something that is "assigned" at birth and reducible to isolated characteristics such as genitalia or chromosomes, rather than the structural organization of the body as a whole according to a specific procreative potential.*

This tool also depicts sex as something that is "assigned" at birth and reducible to isolated characteristics such as genitalia or chromosomes, rather than the structural organization of the body as a whole according to a specific procreative potential. In addition, gender identity theory supplants "sex" with "gender identity," by linking sexed terms like "female" and "male" to self-perception rather than biology. The Gender Unicorn also lists "other/intersex" as an alternative option to male or female sex.

SEX AS "ASSIGNED AT BIRTH": Let's look more closely at how gender identity theory regards biological sex. Take the phrase "sex assigned at birth," which is now standard HR terminology in many institutional settings. The word "assigned" is philosophically loaded, conveying the idea that biological sex is something that is imposed by a physician at birth, rather than an objective reality that is recognized and recorded. The phrase "assigned at birth" has an interesting history. It was first used only in reference to babies born with complex congenital disorders of sexual development—conditions that can result in apparent sexual ambiguity at birth.[10]

In these extremely rare cases, doctors would sometimes initially "assign" a sex, because the maleness or femaleness of the baby

was not readily apparent.

But in the framework of gender identity theory, this terminology is now used in reference to *all births,* as if every human being is born sexually ambiguous. Thus we see a denial of the reality of biological sex, which is typically followed by the assertion that one's "true" gender can only be determined through an inner sense of self, and that identity is *deeply real,* more absolute than biological sex.

SEX AS A "SPECTRUM": Adherents of GIT also routinely make the claim that "sex is a spectrum" rather than a binary. This claim is based on an appeal to those congenital disorders of sexual development just mentioned, also known as "intersex" conditions.

"Intersex" is an umbrella term that encompasses a range of different conditions that result in the abnormal development of certain sexual characteristics. A more precise term, and one used by the medical establishment, is "Disorders of Sexual Development" (DSDs).

The label "intersex" is often misused to claim that there is a third sex, or a category *beyond* male and female. This is both inaccurate and dehumanizing, because it implies that males and females who are born with an irregularity in the process of sexual development are not really male or female, but something "other," as shown on the Gender Unicorn diagram. However, DSDs do not indicate a "third sex," but rather a range of conditions that disrupt typical sexual development. DSDs are best understood as variations *within* the categories of male and female; in fact, many DSDs are sex-specific. Furthermore, the vast majority of DSDs do not result in apparent sex ambiguity at birth. An oft-cited statistic that 1.7% of people are intersex is misleading, because it counts *any* atypical variation in sexual development as intersex, not just those that result in sexual ambiguity. When referring to just those complex cases, the number plummets to 0.018% of births. In other words, 99.982% of human beings are born unambiguously male or female.[11]

> *99.982% of human beings are born unambiguously male or female.*

Even in the extremely rare cases that result in genuine ambiguity, a careful look at the entire person throughout the sexual development process can reveal which sex predominates. Sex in mammals refers to the *organization of the entire body* according to the production of large gametes and gestation (female) or small gametes and insemination (male). Female human beings have the innate potential to create life within, and male human beings have the innate potential to create life in another. This potential exists even if it is prevented from being actualized, e.g. because of age or infertility. There has never been, in medical history, a truly hermaphroditic human being, i.e. a person capable of producing both small and large gametes, and of insemination and gestation.

> *Female human beings have the innate potential to create life within, and male human beings have the innate potential to create life in another.*

It is unhelpful and inaccurate to conflate the circumstances of people with DSDs with gender identity theory, because all DSDs have objectively measurable manifestations of a diagnosable condition that is physiological, whereas gender identity is rooted in subjective experience.[12] Conversations about DSDs should always focus on how best to support the unique needs of the individual person, prioritizing holistic health and bodily integrity.

Gender Affirming Care

Gender identity theory has developed in tandem with a medicalization model, now commonly known as Gender Affirming Care (GAC). This section will explore the evidence base for GAC, especially for minors, who are seeking this form of care in unprecedented numbers.

A 2022 memo from the HHS delineates the standard four-stage framework of gender affirming care for young people: social transition, puberty blockers, hormone therapy, and surgeries.[13] *Social transition* includes adopting the name, pronouns, facilities use, clothing, and appearance that align with the subjective sense of gender. Puberty blockers, cross-sex hormones, and surgeries are all aspects of *medical transition.*

Gender-Affirming Care and Young People

Affirming Care	What is it?	When is it used?	Reversible or not
Social Affirmation	Adopting gender-affirming hairstyles, clothing, name, gender pronouns, and restrooms and other facilities	At any age or stage	Reversible
Puberty Blockers	Using certain types of hormones to pause pubertal development	During puberty	Reversible
Hormone Therapy	Testosterone hormones for those who were assigned female at birth Estrogen hormones for those who were assigned male at birth	Early adolescence onward	Partially reversible
Gender-Affirming Surgeries	"Top" surgery – to create male-typical chest shape or enhance breasts "Bottom" surgery – surgery on genitals or reproductive organs Facial feminization or other procedures	Typically used in adulthood or case-by-case in adolescence	Not reversible

incongruence will persist through adolescence, rather than resolve. One fact that is clear from the evidence and largely undisputed is this: gender dysphoric youth need support.

> *Social transition is typically the first step toward medicalization and significantly increases the likelihood that gender incongruence will persist through adolescence, rather than resolve.*

SOCIAL TRANSITION: Social transition, while not a medical pathway *per se,* should be viewed as an active intervention that is likely to concretize a young person's gender exploration. Before the prominence of the GAC model (i.e. before 2011), the desistance rate of childhood gender dysphoria was around 80-85%.[14] In other words, for the vast majority of those children, their dysphoria resolved on its own, without any active intervention. However, a 2022 study in *Pediatrics* found that for 94% of young children who were socially transitioned, gender incongruence persisted into adolescence.[15] This corroborates a 2013 study, which concluded that social transition increased the likelihood that dysphoria would persist and lead to medicalization.[16] Social transition is typically the first step toward medicalization and significantly increases the likelihood that gender

Young people with GD are more likely to have serious mental health comorbidities, such as depression and anxiety, as well as increased suicidality.[17]

In the GAC model, social *support* is often conflated with social *transition.* However, three recent studies on social transition have found no benefits to mental health. Two of those studies suggest that it is the quality of peer and family relationships that is predictive of better psychological function, not social transition status.

A 2023 study in *The Archives of Sexual Behavior* with a fairly robust sample size and clinical mental health assessments found that social transition and name change had *no significant effect on mental health status.*[18]

> *It is the quality of peer and family relationships that is predictive of better psychological function, not social transition status.*

This corroborates a 2021 study that concluded:

> Peer problems and worse family functioning were significantly associated with impaired psychological functioning, whilst the degree of social transition did not significantly predict the outcome. Therefore, claims that gender affirmation through transitioning socially is beneficial for children with GD could not be supported from the present results. Instead, the study highlights the importance of individual social support provided by peers and family, independent of exploring additional possibilities of gender transition.[19]

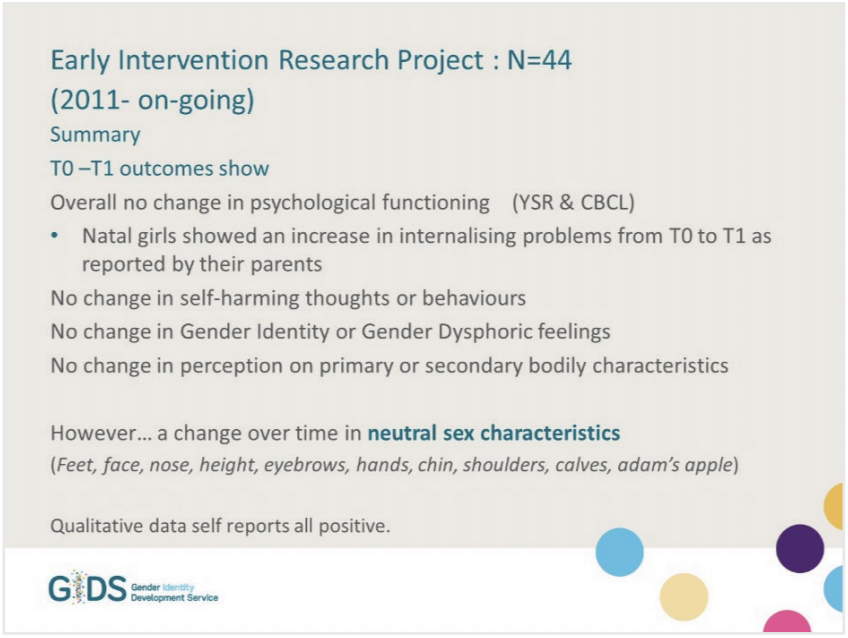
Both of these studies corroborate a 2019 study in *Clinical Practice in Pediatric Psychology* that compared socially transitioned children with gender non-conforming children who had not socially transitioned.[20] This study found that "there was little evidence that psychosocial well-being varied in relation to gender transition status," and "only poor peer relations predicted lower psychological well-being among these children." While further research is needed, these findings indicate that providing young people with love and support is crucial, and that loving support should not be equated with social transition.

MEDICAL TRANSITION: The three subsequent stages of the GAC model all involve medical transition. The medical pathway for minors, which consists of puberty suppressing drugs, cross-sex hormones, and surgeries, is known as the "Dutch Protocol" and was first proposed by researchers in the mid-1990s, based on a single case study of one juvenile.[21]

Puberty suppression for gender dysphoric children remained rare until 2011, when the first longitudinal study on a cohort treated with the Dutch protocol was published in the *Journal of Sexual Medicine*.[22]

This was an uncontrolled study based on a small and carefully vetted group of adolescents with stable mental health and persistent, early-onset gender dysphoria. The study's results showed that gender dysphoria and negative body image actually *worsened* during pubertal suppression. Over a dozen subjects could not continue in the study, some due to severe health complications. One natal male died after necrotizing fasciitis following genital surgery. In all, only forty of the original fifty-five subjects completed the study—an almost 30% attrition rate. The final evaluation, only one year after surgery, showed some alleviation of GD and subjective happiness rates on par with peers. There was no long-term follow-up, and physical health was not assessed.[23]

Beginning in 2011, a London-based gender clinic attempted to replicate the findings of the Amsterdam study, using the same treatment protocol, entry criteria, and outcome measures. Preliminary results, presented at the WPATH conference in 2016, showed no change in psychological functioning, self-harming behavior, or gender dysphoria, as well as an increase



in internalizing problems (i.e. emotional negativity directed inwardly toward the self) among natal girls.[24] These results, which failed to demonstrate positive outcomes of the Dutch protocol, were not published until 2021, and only after significant public pressure.[25]

Despite the clear limitations of the original Dutch study, and the failure to replicate its results in the London study, the Dutch protocol has been widely adopted through the West. In fact, the GAC model actually *goes beyond* the recommendations of the original Danish study, urging earlier social transition and not restricting medical interventions to adolescents with persistent, early-onset GD and stable mental health. The Dutch research team, in a 2020 study, emphasized that the results of their research are *not generalizable to other contexts,* urging for both "extreme caution" and "more research" into the efficacy and safety of the Dutch approach when broadly applied.[26] Thomas Steensma, one of the lead researchers on the original Dutch study, recently stated that the Dutch protocol should not be applied to the newly emerging cohort of gender dysphoric young people, a cohort which has not been well studied.[27]

The use of puberty blockers for children with gender dysphoria is often presented as harmless and fully reversible by GAC proponents, but little is known about the long-term effects, particularly on brain and bone development. Pubertal suppression has been shown to compromise bone density, and there is preliminary evidence that it may lower IQ scores.[28] In 2022, the FDA implemented a class labeling change for puberty blocker use in children after finding rare instances of brain swelling and vision loss.[29]

There are also established health risks of life-long cross-sex hormone therapy. Unlike puberty blockers, which cease to be used once cross-sex hormone therapy begins, the latter must be used continuously to maintain its effects on the body. Long-term use of cross-sex hormones can lead to sex organ atrophy, as well as higher rates of stroke, cancer, osteoporosis, metabolic disruption, and myocardial infarction.[30] Surgical interventions also carry known health risks, such as permanent sterility, loss of sexual function, incontinence, postoperative complications, the need for further corrective surgeries, and even death.[31]

Transition Outcomes: What Does the Evidence Say?

This raises the question of *efficacy:* even if gender-affirming medical treatments carry risks, are they effective? The first challenge we run into in answering this question is a lack of consensus about the specific outcomes medical transition is supposed to produce. The majority of transition-outcome studies focus on whether or not post-surgical outcomes are deemed "satisfactory" by the patient. However, the claim that a person will be satisfied with the results of a surgical procedure is different from the claim that a surgical procedure will significantly increase a person's quality of life and reduce the risk of severe depression and suicide. While the latter claim is regularly made by proponents of GAC, it is the former claim that has most consistently been assessed by transition-outcome researchers.

Nonetheless, when it comes to *adult* transition outcomes, it is the case that "most people providing responses for post-transition studies over the last six-plus decades have reported generally positive outcomes and satisfaction rates."[32] Across dozens of studies on adult transition, "satisfaction rates tend to range in the 60-90 percentiles."[33] There is also, however, a consistent subset of respondents who report negative transition experiences (NTEs), experiences that range from dissatisfaction to transition regret to detransition. The prevalence and severity of NTEs is not well-known, due to the general lack of a clear and standardized typology for assessing them.

This standardization problem is not limited to NTEs, but true of assessing transition outcomes overall. Across the field of transition outcome research, there are no standardized, validated assessment measures, and no agreed-upon definition of a "successful" transition outcome. Instead, we see various researchers measuring disparate outcomes using different methods. A 2020 study highlights these ongoing concerns in relation to gender affirming surgeries (GAS) specifically, noting "the absence of standardized validated GAS outcomes tools," and that "validated trans patient quality-of-life measures have yet to be developed."[34]

METHODOLOGICAL PROBLEMS: This is just one of the many methodological problems limiting the evidence base for gender affirming medical transition. There are no randomized, controlled studies supporting GAC, which is the gold-standard in medical science. The vast majority of studies feature a retrospective, observational, or cross-sectional design, which crucially *cannot determine a causal relationship between intervention and outcome.*[35] Most of the studies, furthermore, rely on *small sample sizes,* limiting the generalizability of the results. An additional problem among many transition outcome studies is high attrition, or *loss to follow-up,* which refers to initial participants in a treatment pool whose outcomes are unknown. Higher rates of attrition (>20%) seriously compromise a study's validity, because those lost participants may have a different outcome than the ones who remain in the study.[36] High loss to follow-up is a "widespread and enduring" methodological problem among transition outcome studies.[37]

Another significant limitation of the GAC evidence base is the lack of research on *long-term outcomes.* This is particularly important because medical transition is a long-term process, and many associated health risks are linked to the duration of cross-sex hormone use. Moreover, two longitudinal studies on transition outcomes show that, for those who choose to detransition, the average timespan between treatment initiation and detransition is eight to eleven years.[38] Negative transition experiences, which do not always culminate in detransition, may not manifest for years. Thus, studies with short-term follow-up and/or high attrition rates are likely to misunderestimate both negative outcomes and detransition rates.

PEDIATRIC TRANSITION OUTCOMES: All of these methodological limitations are widespread throughout the literature on transition outcomes; they are particularly acute when it comes to studies on GAC for young people specifically. In 2020, the UK's National Institute for Health and Care Excellence (NICE) conducted two systematic reviews of the evidence base for pediatric cross-sex hormone therapy and puberty blockade respectively. As part of this review process, NICE assessed the quality of each study published thus far using the GRADE criteria, concluding that the evidence base for these medical interventions is of poor quality and "very low certainty."[39] In 2023, *Acta Paediatrica* published an even more up-to-date evidence review that likewise concluded that the evidence supporting hormonal interventions for young people is "insufficient."[40]

Below is a table overviewing existing research on youth medical transition that tracks psychological, social, and/or quality of life outcomes. This table shows the prevalence of the methodological limitations discussed above, highlighted in red, as well as common confounding factors, such as the provision of mental health support concurrent with hormonal interventions. In the first column, studies that show associations with positive outcomes are highlighted in green; studies that show associations with negative or neutral outcomes are highlighted in red. Most of the studies, highlighted in yellow, have mixed results—some variables shift in a positive direction, others shift in a negative direction or remain unchanged.

As can be seen from this table, every study has multiple methodological flaws and none provide long-term follow-up. Crucially, none can provide evidence of a causal relationship between treatment and outcome; they show associations and correlations only.

This leads us to the following conclusion: there is some evidence that shows positive outcomes of GAC for youth, but this evidence is very low in quality. There is also counterevidence, of similar low quality, that shows GAC to be ineffective in improving mental health outcomes. In addition, alternate

Study	Control	Sample Size	Duration	Missing Data	Design	Cofounders
DeVries 2011	None	70	< 2 yr		Longitudinal	X
DeVries 2014	None	55		27%	Longitudinal	X
Costa 2015	X +/- PB	201	1.5 yr	67%	Longitudinal	
Allen 2019	None	47	< 1 yr		Longitudinal	X
Kaltiala 2020	None	52	1 yr	N/A	Retrospective	
Lopez de Lara 2020	"cis-gender"	23	1 yr		Longitudinal	Sample Bias
Achille 2020	None	50	1 yr	47%	Longitudinal	X
Kuper 2020	None	148	1 yr	33%	Longitudinal	X
Turban 2020	None	3,494	N/A	N/A	Retrospective	Sample Bias
Van der Meisen 2020[41]	+/- GAT	278 / 129	N/A	N/A	Cross-sectional	Age, X
Carmichael 2021[42]	None	44	1-3 yr	46% / 68%	Longitudinal	X
Grannis 2021	+/- Test	19 / 23	N/A	N/A	Cross-sectional	Age
Roberts 2021[43]	sblings	3,754 / 6,603	8 yr	N/A	Retrospective	
Green 2021	None	12K	N/A	N/A	Cross-sectional	Sample Bias
Turban 2022	None	??	N/A	N/A	Cross-sectional	Sample Bias
Tordoff 2022[44]	+/- GAT	69 / 36	1 yr	36% / 96%	Cross-sectional	Sample Bias
Chen 2023[45]	None	315	2 yr	49%*	Cross-sectional	X
	GAT=gender affirming therapy			***incomplete data**		**X=psychotherapy**

etiologic and treatment hypotheses have not been rigorously investigated, including the possible benefits of contemporary psychotherapeutic approaches that are less invasive and carry no risks to physical health.

SUICIDALITY: The narrative behind the GAC model is that medical interventions will lead to improved mental health, psychosocial well-being, and overall quality of life. Medical transition is offered as a "life-saving" solution to the very real problem of elevated suicide rates in the transgender population. However, this rhetorically powerful claim that transition reduces suicide risk is not well-supported by scientific evidence, particularly when it comes to young people.[14] In fact, numerous studies on suicide rates after medical transition consistently find that those rates remain high.

A 2011 longitudinal Swedish study found a 19-fold increase in suicidality after transition.[46] This study compared transgender people with the general population and found that the mental health of trans people began to negatively diverge from the general population after about 10 years post-surgical transition, which underscores the need to track outcomes over the long-term. Lacking controls, this study cannot determine the effect of the intervention on these outcomes, but it nonetheless shows that this population continued to have high rates of suicide after the intervention. More recently, a 2021 Dutch population-based study tracked mortality for transgender people over five decades and found a consistently higher all-cause mortality and suicide rate.[47]

In 2016, an international metanalysis of over twenty studies found that "the prevalence of suicide remains high among transgender persons irrespective of disclosing their transgender status to others and undergoing sex reassignment surgery."[48] A 2020 study found a "lower frequency of NSSI, suicidal thoughts, and suicidal ideation after initially affirming one's

gender identity." However, this study also found that self-injury and suicide contemplation "remained high after initiating the gender affirmation process," pointing to "time-limited gains" in mental health that may not persist.[49]

Researchers who favor GAC tend to offer a "social stress theory" to explain increased suicidality among transgender people. In other words, elevated suicide rates are due to social stigma and discrimination. This is a potentially valid hypothesis, but currently unproven.[50] Notably, this theory is in tension with the "social acceptance" hypothesis offered to explain the sharp rise in trans-identification among young people. Researchers often point to increasing social acceptance as the primary explanation for the rapid shift, while simultaneously citing *lack* of social acceptance as the reason for persistently high suicidality. It is unclear how these conflicting hypotheses can explain both pronounced trends.

It is also important to note that, in the existing research, the pattern of heightened suicidality remains consistent both *over time* and *across cultures.* This suggests that social attitudes—which greatly vary over time and cross-culturally—do not significantly affect the elevated mortality and suicidality rates. At the very least, this evidence complicates the overly simplistic and potentially harmful "transition or suicide" narrative that is prevalent in activist discourse. In truth, we do not have consistent or high-quality evidence that medical transition meaningfully alleviates the problem of suicidality.

THE EUROPEAN TURN: The current framework of GAC for youth arose from research first conducted in Europe and, tellingly, several European countries are now moving away from that framework after carefully reviewing the evidence base. In February 2022, the Swedish National Board of Health and Welfare issued new guidelines of care based on a systematic evidence review, concluding that "the risks of puberty suppressing treatment with GnRH-analogues and gender-affirming hormonal treatment currently outweigh the possible benefits, and that the treatments should be offered only in exceptional cases."[51] Finland, France, and the United Kingdom have likewise changed protocols.[52] The British NHS announced the impending closure of the Tavistock gender clinic based on preliminary findings from the ongoing Cass Review that concluded the current model of care poses "considerable risk" to young people.[53] In March 2023, Norway became the latest country to change their approach, after finding that "research-based knowledge for gender-affirming treatment (hormonal and surgical), is deficient and the long-term effects are little known."[54]

In the United States, however, major medical associations still endorse guidelines based on the GAC model, *even though those guidelines are not evidence-based.* In February of 2023, the *British Medical Journal*—one of the world's most respected medical publications—published an investigative report on the debate surrounding GAC for minors.[55] This report revealed that the GAC model endorsed by The Endocrine Society, the American Academy of Pediatrics (AAP), and the World Professional Association for Transgender Health (WPATH) fails to meet the basic criteria for considering a protocol evidence-based. There are two criteria: first, the completion of an "unbiased, thorough, critical systematic review of all the relevant evidence"; second, guidelines that connect "the strength of the recommendation to the quality of the evidence." The gender-affirmative protocols recommended by all three associations fail to meet both criteria and are thus not evidence-based.[56]

Every single systematic review of the evidence base for GAC has reached the same conclusion: namely, that the evidence is inconclusive and low in quality. In other words, we cannot say with any confidence that gender affirming care is beneficial to people experiencing gender dysphoria, but we can say that it poses known and unknown risks. This population, like any other, deserves medical care that is based on high-quality evidence rather than novel and rapidly changing theories about gender.

Endnotes

[1] There is a robust body of research documenting early-onset gender dysphoria in children, with consistent findings that gender-related distress tends to resolve by late adolescence for a large majority of these children (80-85%). See: R. Kaltiala-Heino et al, "Gender dysphoria in adolescence: current perspectives," *Adolescent Health, Medicine and Therapeutics,* no. 9 (2018): 31–41. See also: D. Singh et al, "A Follow-Up Study of Boys With Gender Identity Disorder," *Frontiers in Psychiatry* no. 12 (2021): 632784. Also: TD Steensma et al, "Gender Transitioning before Puberty?" *Archives of Sexual Behavior* no. 40.4 (2011): 649-650.

[2] Graph courtesy of the Society for Evidence-Based Gender Medicine.

[3] This data is taken from the Gender Identity Service of the NHS in the UK. There were 77 total referrals in 2009-2010 (Referrals to the Gender Identity Development Service (GIDS) level off in 2018-19). In 2021-22 there were 3,585 referrals to GIDS (Number of referrals to GIDS - Gender Identity Development Service), plus an additional 1,500 referrals from NHS England (Regional model for gender care announced for children and young people), totaling 5,085.

[4] CM Wiepjes et al, "The Amsterdam Cohort of Gender Dysphoria Study (1972-2015): Trends in Prevalence, Treatment, and Regrets," *Journal of Sexual Medicine* 15.4 (2018): 582–590. See also: JW Delahunt et al, "Increasing rates of people identifying as transgender presenting to Endocrine Services in the Wellington region," *New Zealand Medical Journal* 131 (2018): 33-42. See also: R. Kaltiala-Heino et al, "Two years of gender identity service for minors: overrepresentation of natal girls with severe problems in adolescent development," *Child and Adolescent Psychiatry and Mental Health* 9.1 (2015): 9. Also: M. Aitken et al, "Evidence for an altered sex ratio in clinic-referred adolescents with gender dysphoria," *Journal of Sexual Medicine* 12.3 (2015): 756-63.

[5] A. Ghorayshi. "Report Reveals Sharp Rise in Transgender Young People in the U.S." *The New York Times.* June 10, 2022. The full report from the Williams Institute can be found here: How Many Adults and Youth Identify as Transgender in the United States?.

[6] KM Kidd et al, "Prevalence of Gender-Diverse Youth in an Urban School District," *Pediatrics* 147.6 (2021): 1.

[7] R. Respaut et al, "Putting numbers on the rise in children seeking gender care," *Reuters* (October 2022).

[8] Planned Parenthood, to name one prominent example, is now one of the largest providers of cross-sex hormones in the US. Their clinics provide hormones and referral letters for surgery on an informed-consent basis, i.e. without a thorough medical or psychological evaluation or physician oversight. E. Bazelon, "The Battle Over Gender Therapy," *The New York Times.* June 19, 2022. See also: "Gender-affirming" Hormones and Surgeries for Gender-Dysphoric US Youth from the Society for Evidence Based Gender Medicine.

[9] T Jensen et al. "Final Decision Memorandum on Gender Reassignment Surgery for Medicare Beneficiaries with Gender Dysphoria," (CAG #00446N), CMS.gov, Aug 30, 2016.

[10] Disorders of Sexual Development that result in sexual ambiguity are extremely rare, numbering only 0.018% of all births. See L. Sax, "How common is intersex? A response to Anne Fausto-Sterling," *Journal of Sex Research* 39.2 (2002): 174-8.

[11] Sax, "How common is intersex?" pp. 174-8.

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[12] SF Witchel, "Disorders of Sexual Development," *Best Practice & Research. Clinical Obstetrics & Gynaecology* 48 (2018): 90-102.

[13] "Gender-Affirming Care and Young People," HHS Office of Population Affairs, March 2022.

[14] R. Kaltiala-Heino et al, "Gender dysphoria in adolescence: current perspectives," *Adolescent Health, Medicine and Therapeutics* 9 (2018): 31–41. See also: D. Singh et al, "A Follow-Up Study of Boys With Gender Identity Disorder." Also: TD Steensma et al, "Gender Transitioning before Puberty?" *Archives of Sexual Behavior* 40.4 (2011): 649-50.

[15] KR Olson et al, "Gender Identity 5 Years After Social Transition," *Pediatrics* 150 (2022).

[16] TD Steensma et al, "Factors associated with desistence and persistence of childhood gender dysphoria: a quantitative follow-up study," *Journal of the American Academy of Child and Adolescent Psychiatry* 52.6 (2013): 582-90.

[17] JM Cantor, "Transgender and gender diverse children and adolescents: Fact-checking of AAP policy," *Journal of Sex & Marital Therapy* 46:4 (2020): 307–313. See also: S. Evans et al, "Gender Dysphoria: A Therapeutic Model for Working with Children, Adolescents and Young Adults," *British Journal of Psychotherapy* 38, no. 3 (2022): 616-618. Also: DG Perry et al, "Gender identity in childhood: A review of the literature," *International Journal of Behavioral Development* 43.4 (2019): 289-304. Also: V. Warrier et al, "Elevated rates of autism, other neurodevelopmental and psychiatric diagnosis, and autistic traits in transgender and gender-diverse individuals," *Nature Communications* 11 (2020): 39-59. Also: H. Bishoy et al, "Psychiatric disorders in the U.S. transgender population," *Annals of Epidemiology* 39 (2019): 1-7. Also: R. Kaltiala-Heino et al, "Two years of gender identity service for minors: overrepresentation of natal girls with severe problems in adolescent development," *Child and Adolescent Psychiatry and Mental Health* 9.9 (2015): 756-63.

[18] JS Morandini et al, "Is Social Gender Transition Associated with Mental Health Status in Children and Adolescents with Gender Dysphoria?" *Archives of Sexual Behavior* 52.3 (2023): 1045-60.

[19] ED Sievert et al, "Not social transition status, but peer relations and family functioning predict psychological functioning in a German clinical sample of children with Gender Dysphoria," *Clinical Child Psychology and Psychiatry* 26.1 (2021): 79-95.

[20] W. Wong et al, "Childhood social gender transition and psychosocial well-being: A comparison to cisgender gender-variant children," *Clinical Practice in Pediatric Psychology* 7 (2019): 241-253.

[21] L Gooren et al, "The Feasibility of Endocrine Interventions in Juvenile Transsexuals," *Journal of Psychology and Human Sexuality* 8.4 (1996): 69-74. See also PT Cohen-Kettenis et al, "Pubertal delay as an aid in diagnosis and treatment of a transsexual adolescent," *European Child & Adolescent Psychiatry* 7.4 (1998): 246-248.

[22] ALC De Vries et al, "Puberty suppression in adolescents with gender identity disorder: a prospective follow-up study," *Journal of Sexual Medicine* 8.8 (2011): 2276-2283.

[23] ALC De Vries et al, "Puberty Suppression in Adolescents."

[24] Dr. P. Carmichael, *The Tavistock GIDS Experience.* WPATH Symposium, 2016. Internalizing problems refer to emotional negativity directed inwardly toward the self, e.g. depression, anxiety, eating disorders, social withdrawal. These contrast with externalizing problems that are directed toward others, such as aggression or violence.

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[26] AIR van der Miedsen et al, "Psychological Functioning in Transgender Adolescents Before and After Gender-Affirmative Care Compared With Cisgender General Population Peers," *Journal of Adolescent Health* 66.6 (2020): 699-704.

[27] B. Tetelepta, "More research is urgently needed into transgender care for young people: 'Where does the large increase of children come from?" *Voorzij* (February 2021).

[28] M. Vlot et al, "Effect of pubertal suppression and cross-sex hormone therapy on bone turnover markers and bone mineral apparent density (BMAD) in transgender adolescents," *Bone* 95 (2017): 11-19; Biggs, "Dutch Protocol for Juvenile Transsexuals;" MA Schneider et al, "Brain Maturation, cognition and voice pattern in a gender dysphoria case under pubertal suppression," *Frontiers in Human Neuroscience* 11 (2017): 528; D. Mul et al, "Psychological assessments before and after treatment of early puberty in adopted children," *Acta Paediatrica* 90.9 (2007): 965–971; P. Hayes, "Commentary: Cognitive, emotional, and psychosocial functioning of girls treated with pharmacological puberty blockage for idiopathic central precocious puberty," *Frontiers in Psychology* 8 (2017): 44; S. Wojniusz et al, "Cognitive, emotional, and psychosocial functioning of girls treated with pharmacological puberty blockage for idiopathic central precocious puberty," *Frontiers in Psychology* 7 (2016): 1053. D. Klink et al, "Bone Mass in Young Adulthood Following Gonadotropin-Releasing Hormone Analog Treatment and Cross-Sex Hormone Treatment in Adolescents With Gender Dysphoria," *The Journal of Clinical Endocrinology & Metabolism* 100 (2015): E270-E275.

[29] "Risk of pseudotumor cerebri added to labeling for gonadotropin-releasing hormone agonists," *AAP News,* American Academy of Pediatrics, July 1, 2022.

[30] M. Vlot et al. Also: D. Getahun et al, "Cross-Sex Hormones and Acute Cardiovascular Events in Transgender Persons: A Cohort Study," *Annals of Internal Medicine* 169.4 (2018): 205-13. T. Alzahrani et al, "Cardiovascular Disease Risk Factors and Myocardial Infarction in the Transgender Population," *Circulation Cardiovascular Quality and Outcomes* 12.4 (2019). AL Bourgeois et al, "Risk of hormonal therapy in transgender people: Literature review and data from the French Database of Pharmacovigilance," *Annales d'endocrinologie* 77.1 (2016): 14-21. KS Lee et al, "A systematic review and meta-analysis of the association between cyproterone acetate and intracranial meningiomas," *Scientific Reports* 12.1 (2022): 1942. S. Maraka et al, "Sex Steroids and Cardiovascular Outcomes in Transgender Individuals: A Systematic Review and Meta-Analysis," *The Journal of Clinical Endocrinology & Metabolism* 102. 11 (2017): 3914–3923. NM Nota et al, "Occurrence of Acute Cardiovascular Events in Transgender Individuals Receiving Hormone Therapy," *Circulation* 139.11 (2019): 1461-1462. KC Pang et al, "Rates of Fertility Preservation Use Among Transgender Adolescents," *JAMA Pediatrics* 174.9 (2020): 890-891. L. Turrion-Merino et al, "Severe Acne in Female-to-Male Transgender Patients," *JAMA Dermatology* 151.11 (2015): 1260. LJ Seal, "Cardiovascular disease in transgendered people: A review of the literature and discussion of risk," *JRSM Cardiovascular Disease* 8 (2019).

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[31] IS Robinson et al, "Surgical Outcomes Following Gender Affirming Penile Reconstruction: Patient-Reported Outcomes From a Multi-Center, International Survey of 129 Transmasculine Patients," *Journal of Sexual Medicine* (2021): 800-811. Also: PJ Cheng et al, "Fertility concerns of the transgender patient," *Translational Andrology and Urology,* 8.3 (2021): 209-218. See also O. Manrique et al, "Complications and Patient-Reported Outcomes in Male-to-Female Vaginoplasty-Where We Are Today: A Systematic Review and Meta-Analysis," *Annals of Plastic Surgery* 80 (2018): 684-691. Also: PC Dreher et al, "Complications of the neovagina in male-to-female transgender surgery: A systematic review and meta-analysis with discussion of management," *Clinical Anatomy,* (2018): 191-199. And also: N. Nassiri et al, "Urethral complications after gender reassignment surgery: a systematic review," *International Journal of Impotence Research* 33 (2020): 793-800. In addition, as noted earlier, one child in the original Dutch study cohort died from necrotising fasciitis following genital surgery. The Dutch study thus has a 4.5% fatality rate for natal males.

[32] P. Eddy, "Rethinking Transition: On the History, Experience, and Current Research Regarding Gender Transition, Transition Regret, and Detransition," *Center for Faith, Sexuality, and Gender* (2022): 207.

[33] Eddy, "Rethinking Transition," p. 207.

[34] K. MacKinnon et al, "Lost in transition: Addressing the absence of quality surgical outcomes data in gender-affirming surgeries," *Canadian Urology Association Journal* 14.6 (2020):157-158.

[35] Eddy, "Rethinking Transition," p. 207.

[36] JR Dettori, "Loss to Follow-up," *Evidence-Based Spine-Care Journal* 2.1 (2011): 7-10.

[37] Eddy, "Rethinking Transition," p. 234.

[38] CM Wiepjes et al, "Amsterdam Cohort of Gender Dysphoria Study (1972–2015): Trends in Prevalence, Treatment, and Regrets," *The Journal of Sexual Medicine* 15.4 (2018): 582–590. C. Dhejne et al, "An analysis of all applications for sex reassignment surgery in Sweden, 1960-2010: prevalence, incidence, and regrets," *Archives of Sexual Behavior* 43.8 (2014): 1535-45.

[39] Both NICE reviews can be found here: NICE Evidence Reviews.

[40] JF Ludvigsson et al, "A systematic review of hormone treatment for children with gender dysphoria and recommendations for research," *Acta Paediatrica* (2023): 1-14.

[41] AIR van der Miesen et al, "Psychological Functioning in Transgender Adolescents Before and After Gender-Affirmative Care Compared With Cisgender General Population Peers," *Journal of Adolescent Health* 66.6 (2020): 703. While showing positive outcomes, they nonetheless directly challenge the GAC framework by stating that "the findings of our study might not apply to all transgender adolescents," and "more research is needed to see whether our findings" are "generalizable to other countries." They emphasize that "the present study can, therefore, not provide evidence about the direct benefits of puberty suppression over time and long-term mental health outcomes."

[42] Carmichael et al (2021) was the UK-based attempt to replicate the findings of the original Dutch study, an attempt that did not succeed. Instead, researchers found that participants "experienced little change in psychological functioning across the study," and that a sizable minority (12-17%) "reported only negative changes."

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[43] CM Roberts et al, "Continuation of Gender-affirming Hormones Among Transgender Adolescents and Adults," *Journal of Clinical Endocrinology & Metabolism* 107.9 (2022), is one of the stronger studies in the group in terms of methodology, featuring a retrospective cohort design with a comparison group, relying on a large sample, and tracking outcomes over a period of eight years. For 963 adolescents in this cohort who were using "gender-affirming pharmaceuticals, mental healthcare did not significantly change and psychotropic medications increased." The researchers affirm the need for clinical mental health screening for gender dysphoric youth and conclude that "further research is needed to elucidate the longer-term impact of medical affirmation on mental health."

[44] D. Tordoff, "Mental Health Outcomes in Transgender and Nonbinary Youths Receiving Gender-Affirming Care," *JAMA Network Open* 5.2 (2022): e220978. See Table 3 in appendix. This study compared a group of youths receiving hormonal interventions with a non-medicated group over a span of 12 months. There was an unexplained 96% attrition rate in the latter group, which could thus not serve as an adequate control, and mental health outcomes did not improve among the treatment group. At baseline, 57% participants had moderate to severe depression; at 12 months, this figure was 56%. Gender-affirming hormone recipients did not get less depressed, suicidal, or anxious over the duration of the study. Despite this lack of improvement, the study presents itself as providing evidence that supports GAC.

[45] D. Chen et al, "Psychosocial Functioning in Transgender Youth after 2 Years of Hormones," *New England Journal of Medicine* 388.3 (2023): 240-250. The study authors claim that their results provide "evidence that GAH improved appearance congruence and psychosocial functioning in transgender and nonbinary youth." A closer look at the study reveals, however, that five key variables from the published study protocol have disappeared; the researchers inexplicably did not release any results from outcome measures related to gender dysphoria, trauma symptoms, self-injury, suicidality, body esteem, and quality of life. Moreover, the gains they do report are extremely modest and perhaps clinically insignificant: the improvement in "positive affect" for example, is a mere 1.6 increase on a 100-point scale after two years of treatment. Life satisfaction, anxiety, and depression had small improvements for natal girls, but no improvements for natal boys. Most disturbingly, the cohort exhibited a high suicide rate *after* initiating treatment even though being suicidal was an exclusion criteria at baseline. With two completed suicides in a cohort of 315, the rate is approximately 317 per 100,000, over twenty times higher than the suicide rate of the general adolescent population, per the CDC. Lastly, like every study listed in the table: Chen at al 2023 does not provide evidence of causality, and does not track long-term outcomes. These examples of misrepresented results reveal a further problem within the evidence base for medical transition. In addition to the dearth of high-quality evidence, there is a compounding problem of researchers overinterpreting conclusions from low-quality data.

[46] C. Dhejne et al, "Long-Term Follow-Up of Transsexual Persons Undergoing Sex Reassignment Surgery: Cohort Study in Sweden," *Public Library of Science (PLoS) One* 6.2 (2011): e16885.

[47] CJ Blok et al, "Mortality trends over five decades in adult transgender people receiving hormone treatment: a report from the Amsterdam cohort of gender dysphoria" *The Lancet. Diabetes & Endocrinology* 9.10 (2021): 663-670.

[48] HG Virupaksha et al, "Suicide and Suicidal Behavior among Transgender Persons," *Indian Journal of Psychological Medicine* 38.6 (2016): 505–509.

[49] J. Hughto et al, "Social and Medical Gender Affirmation Experiences Are Inversely Associated with Mental Health Problems in a U.S. Non-Probability Sample of Transgender Adults, *Archives of Sexual Behavior* 49.7 (2020): 2635-2647.

[50] P. Hruz, "Medical Approaches to Gender Dysphoria," *Transgender Issues in Catholic Health Care,* ed. Edward J. Furton, The National Catholic Bioethics Center (2021): 1-41, esp. 6.

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[51] "Uppdaterade rekommendationer för hormonbehandling vid könsdysfori hos unga," *Socialstyrelsen* (2022). (English translation: "Updated recommendations for hormone therapy for gender dysphoria in young people"). See this summary of the recommendations in English from the Society for Evidence Based Gender Medicine: "Summary of Key Recommendations from the Swedish National Board of Health and Welfare (Socialstyrelsen/NBHW)," February 2022.

[52] "Doubts are growing about therapy for gender-dysphoric children," *The Economist,* May 13, 2021. Also: WJ Smith, "Puberty Blockers: French Medical Academy Urges Great Caution," *The National Review,* April 6, 2022. Also: H. Cass et al, "Independent review of gender identity services for children and young people: Interim report," *The Cass Review,* February 2022.

[53] J. Andersson et al, "NHS to close Tavistock child gender identity clinic," *BBC News,* July 2022.

[54] Ukom, "Pasientsikkerhet for barn og unge med kjønnsinkongruens," March 2023. For English translation, see J Block, "Norway's guidance on paediatric gender treatment is unsafe, says review," *The British Medical Journal* 380 (2023): 697.

[55] J. Block, "Gender dysphoria in young people is rising—and so is professional disagreement," *The British Medical Journal* 380 (2023): 382.

[56] Ibid. The AAP failed to meet either criteria before drafting their recommendations. The Endocrine Society met the first criteria by commissioning two systematic reviews, but failed the second criteria by pairing strong recommendations with evidence deemed either "low" or "very low" in quality. For its most recent standards of care, released in 2022, WPATH commissioned a systematic review, but they do not rate the quality of the evidence, and at times their recommendations contradict the conclusions of the systematic review. Thus, the WPATH standards of care fail the second criteria.

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