No. 24-539

IN THE

Supreme Court of the United States

KALEY CHILES,

Petitioner,

v.

PATTY SALAZAR, IN HER OFFICIAL CAPACITY AS EXECUTIVE DIRECTOR OF THE COLORADO DEPARTMENT OF REGULATORY AGENCIES, *et al.*,

Respondents.

ON WRIT OF CERTIORARI TO THE UNITED STATES COURT OF APPEALS FOR THE TENTH CIRCUIT

BRIEF OF *AMICI CURIAE* MEDICAL PROFESSIONALS IN SUPPORT OF PETITIONER

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INTEREST OF *AMICI CURIAE*[1]

Amici curiae are a group of healthcare professionals committed to producing treatment and policy recommendations based on the best available research. These individuals strive to ensure that all children reach their optimal physical and emotional health and well-being. This includes ensuring the best treatment for patients struggling with gender dysphoria, especially minors who are likely not to persist in their dysphoria so long as they are not subjected to "gender affirming" treatment that both ignores scientific fact and causes significant physical harm to children.

Amici are concerned with the exploding number of gender-dysphoric children around the world. And while the international medical community is coalescing around "watchful waiting" treatment—*i.e.*, ensuring the patient has psychological support but withholding any affirmative treatment—many U.S. advocates are pushing to silence debate around their preferred aggressive experimental medical interventions.[2] This includes hormone replacement therapy and radically invasive surgical treatments for minors experiencing what was previously understood to be a temporary issue in young people.

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[1] Rule 37 Statement: No attorney for any party authored any part of this brief, and no one apart from *amicus curiae* and its counsel made any financial contribution toward the preparation or submission of this brief.

[2] Diane Ehrensaft, *Gender nonconforming youth: current perspectives*, Adolescent Health, Medicine and Therapeutics (May 25, 2017), *available at* https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5448699/.

As the growing number of detransitioners testify, their permanent scars from these unproven interventions cannot be undone, no matter how great their regret. *Amici* believe that counselors should be able to engage in conversations that alert both minor clients and their parents to the real harms associated with medical intervention for children suffering from gender dysphoria. Silencing reasonable voices has no place in politics and even less of a place in medicine. *Amici* thus have a direct interest in the outcome of this case because it affects the vulnerable population they serve.

Amicus Michelle A. Cretella, M.D., is a pediatrician, writer, researcher, educator and speaker. She is the past executive director of the American College of Pediatricians and is the current Chair of its Adolescent Committee. Dr. Cretella is also on the board of Advocates Protecting Children, a pediatrician spokesperson and educator for the Association of American Physicians and Surgeons and the Catholic Medical Association, as well as a consultant to the Rhode Island Family Institute.

Amicus Jeffrey E. Hansen, Ph.D., is a clinical psychologist with over forty years of experience specializing in pediatric and adolescent mental health. He completed a postdoctoral fellowship in pediatric psychology and has served in the U.S. Army, the Defense Health Agency, and private practice. Dr. Hansen is currently the clinical director of Holdfast Recovery and AnchorPoint, residential, partial hospitalization, and intensive outpatient centers for trauma and addiction. He is the author of seven books, including *Transgender Confusion Amidst the Search for Identity*, in which he examines the medical, psychological, and developmental risks associated with early gender transition. Dr. Hansen's

longstanding clinical concern is to protect vulnerable minors from premature and irreversible interventions lacking sufficient long-term evidence.

Amicus Maria Keffler is a co-founder and a member of the board of directors of Advocates Protecting Children, a 501(c)3 organization that fights to protect children from gender ideology and activism. An author, speaker, and licensed teacher with an M.S.Ed. in educational psychology, Ms. Keffler has fought to support families and protect children from unethical activism and dangerous policies around sexuality and transgender ideology since 2018. She is the author of multiple books, including *Desist, Detrans & Detox: Getting Your Child Out of the Gender Cult* (Sophia Institute Press).

Amicus Michael K. Laidlaw, M.D., is specialist in endocrinology—the study of gland, hormone, and metabolic disorders. He received his M.D. from the University of Southern California medical school and completed his residency in internal medicine at the LAC/University of Southern California Medical Center followed by a fellowship in endocrinology there as well. Dr. Laidlaw is a member of The Endocrine Society and the National Board of Physicians and Surgeons. He has written multiple publications in medical journals regarding the harms of medicalized gender transition, including the impact on fertility and sterilization. Dr. Laidlaw has also served as an expert witness on this subject for a number of federal and state courts and works with Resilience Health Network, an organization assisting individuals who choose to detransition.

Amicus Quentin L. Van Meter, M.D., is a board-certified pediatric endocrinologist practicing in Atlanta,

Georgia. During his fifty-two-year-medical career, he spent twenty years as an officer in the U.S. Navy Medical Corps. He trained in pediatric endocrinology at Johns Hopkins and is the Immediate Past President of the American College of Pediatricians. Dr. Van Meter is on the Board of the Medical Institute and has extensive experience in the field of transgender health.

Amicus André Van Mol, M.D., is a board-certified family physician in full-time practice in California. He co-chairs the Christian Medical & Dental Associations Sexual & Gender Identity Task Force, and is the transgenderism scholar for both the CMDA and the American Academy of Medical Ethics. Dr. Van Mol advises legislators, government agencies, and advocacy organizations internationally on both sexuality and gender identity.

SUMMARY OF ARGUMENT

Amici are medical professionals committed to the scientific truth that sex is innate. Indeed, the factual reality of biological sex is foundational to both science and the practice of medicine. As a result, conflating sex and "gender identity" causes problems beyond the self-delusion in which individuals are invited to engage.

If the Tenth Circuit's opinion here is left in place, it will silence dissenting voices and prevent fruitful disagreement in the arena of sexual orientation and gender ideology. This is an even more egregious legal violation given that the subject matter about which Colorado seeks to silence dissent is one on which the State is demonstrably wrong. Prevailing science shows that gender identity and sexual orientation are mutable

concepts, especially in young people. Preventing those young people from accessing quality counseling during a vulnerable time because the political party in power disagrees with what some counselors might say will be catastrophic to many and irreversibly damaging to the American legal landscape.

There is a better way, though. *Amici* are well positioned to highlight different methods of caring for children with gender dysphoria—they need not be subjected to one-sided counseling that promotes an ideological agenda and is accompanied by the grave medical risks involved with gender-affirmative treatment. Indeed, the most reliable evidence available shows that "gender affirming" interventions are a permanent intervention for a temporary disease, often inflicting a lifetime of medicalization on children whose gender dysphoria would otherwise naturally resolve. Considerations such as these are leading governments and medical groups around the world—many of them erstwhile pioneers for the interventionist camp—to pull back in favor of watchful waiting. See, e.g., *Public Consultation: Interim service specification for specialist gender dysphoria services for children and young people*, NHS England (Oct. 20, 2022).[3] Given the risks and unknowns from these experimental treatments, confirmed by the exploding number of detransitioners and the non-U.S. medical community, doctors and counselors—including *amici* here—should be allowed to warn their patients of the risks and unknowns these procedures pose.

[3] *Available at* https://www.engage.england.nhs.uk/specialised-commissioning/gender-dysphoria-services/user_uploads/b1937-ii-interim-service-specification-for-specialist-gender-dysphoria-services-for-children-and-young-people-22.pdf.

Those considerations are paramount here, where the State seeks to foreclose counseling that follows natural science and overrides the right of professionals to exercise their best judgment in treating their patients.

The judgment of the court of appeals should be reversed.

ARGUMENT

I. As A Scientific Matter, Sex Is Immutable.

Human beings are either male or female—an innate characteristic. "The existence of two sexes is nearly universal in the animal kingdom," a realm that includes humans. Bronwyn C. Morrish & Andrew H. Sinclair, *Vertebrate Sex Determination: Many Means to an End*, 124 REPRODUCTION 447, 447 (2002). "[I]n mammals the sexual fate of the organism is cast at fertilization." Dagmar Wilhelm et al., *Sex Determination and Gonadal Development in Mammals*, 87 PHYSIOLOGICAL REVS. 1, 1 (2007). The decisive event is the contribution by the father of an "x" or a "y" chromosome: an "X-carrying sperm produces a female (XX) embryo, and a Y-carrying sperm produces a male (XY) embryo. Therefore, the chromosomal sex of the embryo is determined at fertilization." T.W. Sadler, LANGMAN'S MEDICAL EMBRYOLOGY 40 (2004). "Males have XY chromosomes, and females have XX chromosomes. Sex makes us male or female." National Institutes of Health (NIH), *How Sex and Gender Influence Health and Disease*.[4]

[4] *Available at* https://orwh.od.nih.gov/sites/orwh/files/docs/SexGenderInfographic_11x17_508.pdf.

"The essential purpose of sexual differentiation, the development of any male- or female-specific physical or behavioral characteristic, is to equip organisms with the necessary anatomy and physiology to allow sexual reproduction to occur." Dagmar Wilhelm et al., *Sex Determination and Gonadal Development in Mammals,* 87 PHYSIOLOGICAL REVS. 1, 1 (2007); see also *American Psychiatric Association,* DIAGNOSTIC & STATISTICAL MANUAL OF MENTAL DISORDERS 829 (5th ed. 2013) (defining sex as the "biological indication of male and female (understood in the context of reproductive capacity)"); Aditi Bhargava et al., *Considering Sex as a Biological Variable in Basic and Clinical Studies: An Endocrine Society Scientific Statement,* Endocrine Reviews, Volume 42, Issue 3, 219–58 (June 2021).[5]

Contrary to a modern myth, no one can change his or her sex. In other words, sex is immutable. See Stephen B. Levine, *Informed Consent for Transgendered Patients*, 45 J. SEX & MARITAL THERAPY 218–29 (2019) ("Biological sex cannot be changed."). Some people have surgeries which they describe as a "sex-change" operation or a "gender-confirming" procedure. What such interventions can never do, though, is alter the individual's DNA or provide the reproductive capacity of a member of the opposite sex. Such surgeries provide only poorly to non-functional pseudo-genitalia, along with permanent sterilization of the patient. One does not actually "transition" to the opposite sex.

This is unsurprising as the biological differences between male and female go far beyond external genitalia.

[5] *Available at* https://doi.org/10.1210/endrev/bnaa034.

In fact, they inhabit every one of the human body's trillions of nucleated cells. "Every cell in your body has a sex—making up tissues and organs, like your skin, brain, heart, and stomach. Each cell is either male or female depending on whether you are a man or a woman." NIH, *supra*. Because it is imprinted on every cell, sex is immutable.[6]

II. A Correct Understanding Of Sex Is Essential To Science And Medicine.

Clarity about sex is obviously crucial from a medical standpoint. Until recently, the role of the chromosomes that determine sex had been thought to be strictly limited to the development of reproductive organs. See Neil A. Bradbury, *All Cells Have a Sex: Studies of Sex Chromosome Function at the Cellular Level*, in PRINCIPLES OF GENDER-SPECIFIC MEDICINE: GENDER IN THE GENOMIC ERA 285 (Marianne J. Legato, ed., 3d ed., 2017). But "growing evidence attests to the fact that sex chromosomes exert their influence in every cell of the body, and every cell has a sex." *Ibid.* Each and every cell of a woman's body is *female*; each and every cell of a man's body is *male*.

As scientists have recognized:

> The completion of the human genome project in 2003 also influenced our understanding of the effects of sex on human biology and disease through the sequencing of all human genes,

[6] While subsequent events in development may alter the phenotypic expression of sex, none changes anyone's sex from one to the other.

> including those located on sex chromosomes. Understanding the location and function of genes located on sex chromosomes throughout the body's cells, not just in reproductive organs, was critical to understanding that biologic sex not only affects human health and disease via sex steroids and reproductive organs but also affects cells in all organ systems.

Tracy Madsen et al., *Sex- and Gender-Based Medicine: The Need for Precise Terminology*, 1 GENDER & GENOME 122, 123 (2017).

Epidemiologists also understand that "[s]ex differences are present across most disease states and organ systems." *Ibid.* "[I]mportant features of an illness * * * may display meaningful differences across the biological sexes. In this way, the actual causes of disease can be more effectively targeted on an individual level." Nathan Huey, *Treating Men and Women Differently: Sex Differences in the Basis of Disease*, HARVARD UNIV. GRADUATE SCH. OF ARTS & SCIS. (Oct. 30, 2018). "Today, the importance of accounting for the variability between male and female biology in research is widely recognized. There exists a clear contribution of biological sex to health outcomes across a wide spectrum of conditions." *Ibid.*[7]

Examples of this abound. From autism to alcoholism, men and women do not suffer from the same diseases at the same rates. For instance, "genetics * * * play a

[7] *Available at* https://sitn.hms.harvard.edu/flash/2018/treating-men-and-women-differently-sex-differences-in-the-basis-of-disease/.

significant role in the development of [Chronic Obstructive Pulmonary Disorder]." *Ibid.* It is therefore unsurprising that the National Institutes of Health recognizes: "Failure to account for sex as a biological variable may undermine the rigor, transparency and generalizability of research findings." NIH, *Consideration of Sex as a Biological Variable in NIH-Funded Research* 1.[8] The NIH also draws a clear line between sex and "gender." It defines sex as "a biological variable defined by characteristics encoded in DNA, such as reproductive organs and other physiological and functional characteristics," and "gender" as "social, cultural, and psychological traits linked to human males and females through social context." *Ibid.* And sex is a far greater consideration than "gender" in research, of course. "Consideration of sex may be critical to the interpretation, validation, and generalizability of research findings. Adequate consideration of both sexes in experiments and disaggregation of data by sex allows for sex-based comparisons and may inform clinical interventions." NIH, *NIH Policy on Sex as a Biological Variable*.[9]

Researchers have pointed out significant differences according to sex in other areas as well. See, e.g., David P. Schmitt, *The Evolution of Culturally-Variable Sex Differences*, in THE EVOLUTION OF SEXUALITY 221, 222 (Todd K. Shackelford & Ranald D. Hansen eds., 2015). For example, one comprehensive review identified sixty-three "psychological sex differences discussed that have been replicated across cultures." *Id.* at 221

[8] *Available at* https://orwh.od.nih.gov/sites/orwh/files/docs/NOT-OD-15-102%20Guidance.pdf.

[9] *Available at* https://orwh.od.nih.gov/sex-gender/nih-policy-sex-biologicalvariable.

(citing Lee Ellis, *Identifying and Explaining Apparent Universal Sex Differences in Cognition and Behavior*, 51 PERSONALITY & INDIVIDUAL DIFFERENCES 552 (2011)). While social expectations partly explain some of these differences, many differences cannot be explained by a cultural pattern. "In fact," Schmitt explains that "most psychological sex differences * * * are conspicuously *larger* in cultures with more egalitarian sex role socialization and greater sociopolitical gender equity." *Id.* at 222.

III. Current Science Rejects The Unquestioned "Gender Affirmation" Promoted By Partisan Advocacy Groups.

When a child suffers from gender dysphoria, there are three historical approaches to treatment. See Kenneth J. Zucker, *Debate: Different Strokes for Different Folks*, 25 CHILD & ADOLESCENT MENTAL HEALTH 36 (2020). One is psychosocial counseling that helps the child align his/her internal sense of gender with his/her sex. Another is to "watch and wait," while avoiding both shameful and affirming responses to the child's gender expression. The third and most drastic option is gender transitioning which actively shifts the child's gender identity and places the child on the road toward risky and irreversible medical interventions. Emerging practice guidelines recommend exploratory therapy, which "does not favor any particular outcome" but "aims to address the distress of gender dysphoric youth rather than correcting any sense of misalignment." See Sasha Ayad et al., *A Clinical Guide for Therapists Working with Gender-Questioning Youth* 1, 34 (2022).[10] (While the Colorado law

[10] *Available at* https://www.genderexploratory.com/wpcontent/uploads/2022/12/GETA_ClinicalGuide_2022.pdf.

at issue claims to allow "exploratory" counseling, that is a fig leaf—the State only allows such an approach insofar as affirms the new "gender identity" or behaviors.)

Gender affirmative treatment consists of four interventions. First, a child socially transitions, usually aided by (if not triggered by) pro-transition counseling. Second, he or she is given puberty blocking medications, which deliberately induce hypogonadotropic hypogonadism—a disease state where the pituitary gland does not send the hormonal signals to the sex glands, preventing them from making testosterone or estrogen. Third, a child is given very high doses of the opposite sex's hormones. Finally, the child may undergo surgical removal of sex organs and genitalia, such as a double mastectomy for girls or an orchiectomy for boys.

Comprehensive literature reviews are driving an international pushback against these Gender Transition Procedures (GTPs) in favor of intensive psychological evaluation and support. In short, GTPs are out of step with evidence-based care for gender dysphoric youth. For example, NHS England recently closed GIDS/Tavistock—the world's largest pediatric gender clinic—and began placing gender-distressed youth in established clinical settings that begin with psychological treatment instead of rushing to medicalize children under their care. See Jasmine Andersson & Andre Rhoden-Paul, *NHS to close Tavistock child gender identity clinic*, BBC News (July 28, 2022).[11]

[11] *Available at* https://www.bbc.com/news/uk-62335665.

But even as the clinical practice of "gender affirming" care withers under objective systematic review, and with global public health authorities "doing a U-turn" on pediatric gender transitions, certain U.S. organizations claiming to represent a wider medical consensus continue to insist that the science is settled in this highly politicized area. E. Abbruzzese et al., *The Myth of "Reliable Research" in Pediatric Gender Medicine: A critical evaluation of the Dutch Studies—and research that has followed*, Journal of Sex & Marital Therapy (January 02, 2023).[12] These organizations include the American Medical Society (AMA), the American Academy of Pediatrics (AAP), and the World Professional Association for Transgender Health (WPATH). A closer look, however, reveals that these organizations are partisan activists pushing a highly politicized and false narrative that "gender affirming" medical and surgical interventions for youth are benign, well studied, and essential. *Ibid.*[13]

The now common practice of performing gender transitions on youth through counseling, puberty blockers, cross-sex hormones, and surgery is sometimes referred to as "the Dutch Protocol," because the two seminal studies giving rise to this approach originated in the Netherlands. See *ibid.* Recent and rigorous research, however, has shown that these Dutch studies are "methodologically flawed" and cannot justify scaling the "innovative clinical practice" of "gender affirming" transitioning of minors.

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[12] *Available at* https://pubmed.ncbi.nlm.nih.gov/36593754/.

[13] It is now understood that WPATH is "a controversial private organization with a declared point of view" in which "alternate views are not well tolerated." *Edmo* v. *Corizon, Inc.*, 949 F.3d 489, 497 (9th Cir. 2020) (O'Scannlain, J.) (respecting denial of rehearing en banc).

Ibid. Unsurprisingly, the growing international consensus (based on systematic reviews of the evidence) is that the practice of pediatric gender transition is based on "low to very low quality evidence." *Ibid.* In other words, "the benefits reported by the existing studies are unlikely to be true due to profound problems in the study designs." *Ibid.*

Yet today's gender-dysphoric youth continue to be put at risk by politicized organizations demanding silent allegiance to unproven, drastic, and irreversible medical interventions. Advocacy organizations cite discredited research to silence debate on their published "Standards of Care" and "Guidelines" for transgender youth. But history is replete with the dangers that stem from the uncritical acceptance of experimental medicines and recommendations not based on reliable scientific evidence.

IV. Safeguarding Against Easy Access To "Gender Affirming" Treatment Promotes The Health And Safety Of Minors.

Research shows that a very high proportion of children who experience gender dysphoria will eventually desist, *i.e.*, come to experience a realignment of their internal sense of gender with their sex. See Jiska Ristori & Thomas Steensma, *Gender Dysphoria in Childhood*, 28 INT'L REV. OF PSYCHIATRY 13–20 (2016) (61–98% desisted by adulthood); Devita Singh et al., *A Follow-Up Study of Boys With Gender Identity Disorder*, 12 FRONTIERS IN PSYCHIATRY 1 (2021) (87.8% desisted). There is no way to predict who will desist. "There are no laboratory, imaging, or other objective tests to diagnose a 'true transgender' child." Michael K. Laidlaw et al., *Letter to the Editor: Endocrine Treatment*

of Gender-Dsyphoria/Gender-Incongruent Persons, 104 J. CLINICAL ENDOCRINOLOGY & METABOLISM 686 (2019).

But for the children who would naturally desist, "affirming" interventions disturb that process and instead extend their gender dysphoria. The Endocrine Society guidelines recognize this: "Social transition is associated with the persistence of [gender dysphoria]/gender incongruence as a child progresses into adolescence." See Wylie C Hembree et al., *Endocrine Treatment of Gender-Dysphoric/Gender-Incongruent Persons: An Endocrine Society Clinical Practice Guideline*, 102 J. CLINICAL ENDOCRINOLOGY & METABOLISM 3869, 3879 (2017). A study of 317 transgender youth who had socially transitioned found 94% identified as transgender five years after their initial social transition. See Kristina R. Olson et al., Gender Identity 5 Years After Social Transition, 150 PEDIATRICS 1 (2022). This can be contrasted with the majority of children who, left alone, naturally desist and highlights the impact social transitioning has on children with gender dysphoria.

The Colorado law here thus ensures a disruption of the natural order by banning conversations that help minors realign sex and identity in favor of ideological counseling that inevitably leads to harmful drugs and procedures. Indeed, the transition process may rightly be seen as harm in and of itself. See Zucker, *supra*, at 36–37 ("Gender social transition of prepubertal children will increase dramatically the rate of gender dysphoria persistence when compared to follow-up studies of children with gender dysphoria who did not receive this type of psychosocial intervention and, oddly enough, might be

characterized as iatrogenic."). Rather than alleviating the distress of gender dysphoria, it helps secure the incongruence.

Another reason to approach gender-identity policies aimed at minors with caution is the exploding rate at which young people—especially girls—experience what has been called "rapid-onset gender dysphoria." See Lisa Littman, *Rapid-Onset Gender Dysphoria in Adolescents and Young Adults,* PLOS ONE (2018).[14] And gender dysphoria may become more prevalent as "a catch-all explanation for any kind of distress, psychological pain, and discomfort * * * while transition is being promoted as a cure-all solution." *Id.* At the same time, policies that uniformly promote social transition will result in the neglect of other problems that should be addressed head on, such as underlying mental health or family issues. See APA, APA HANDBOOK OF SEXUALITY AND PSYCHOLOGY 257 (2014) ("Premature labeling of gender identity should be avoided," as "[t]his approach runs the risk of neglecting individual problems the child might be experiencing."); Elisabeth DC 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,* 26 CLINICAL CHILD PSYCH. & PSYCHIATRY 79 (2021).[15]

The risks of "gender affirming" treatment for minors are relevant at every stage of transitioning because each step a child takes down that road makes it much more likely they will persist in their gender dysphoria and

[14] *Available at* https://doi.org/10.1371/journal.pone.0202330.

[15] *Available at* https://doi.org/10.1177/1359104520964530.

move on to the next intervention. See *Bell v. Tavistock & Portman NHS Found. Tr.* [2020] EWHC 3274 (Admin) [57] (citing evidence that "of the adolescents who started puberty suppression, only 1.9 percent stopped the treatment and did not proceed to [cross sex hormones])." As experience shows, once a child is placed on the gender-affirming conveyer belt, they are unlikely to get off. Puberty blockers end up not being a mere "pause" to consider aspects of mental health; they are generally a pathway toward future sterilizing surgeries.

And each intervention carries with it its own harms. To begin, puberty blockers induce a disease state called hypogonadotropic hypogonadism. This stops the ovaries from producing estrogen and the testicles from producing testosterone. While this is the point of the treatment, there are unintended consequences, too. For example, the lowering of sex hormones during adolescence inhibits bone accumulation during a pivotal time. See K J MacKelvie et al., *Is There a Critical Period for Bone Response to Weight-Bearing Exercise in Children and Adolescents? A Systematic Review*, 36 BRIT. J. SPORTS MED. 250, 254 (2002) ("Importantly, about 26% of final adult bone is accumulated during the two years surrounding peak bone velocity," which is "ages 11.5–13.5 for girls * * * and 13.05–15.05 in boys."). The study of 44 twelve- to fifteen-year-olds in the UK who were given puberty blockers revealed the significant extent of the negative effects on bone density. In other words, puberty blockers put females, in particular, at risk for future osteoporosis and serious fractures. See Nanette Santoro, *Update in Hyper- and Hypogonadotropic Amenorrhea*, 96 J. CLINICAL ENDOCRINOLOGY & METABOLISM 3281 (2011). There may also be negative effects on the brain from inducing hypogonadotropic hypogonadism since

"sex hormones including estrogen, progesterone, and testosterone can influence the development and maturation of the adolescent brain." Mariam Arain et al., *Maturation of the Adolescent Brain*, 9 NEUROPSYCHIATRIC DISEASE & TREATMENT 449, 450 (2013).

The third stage of gender affirmative therapy—providing hormones of the opposite sex at high doses in an attempt to create secondary sex characteristics in the person's body—brings its own set of unintended consequences as well. When females are given high levels of testosterone, this leads to a much higher risk of heart attack. See Talal Alzahrani et al., *Cardiovascular Disease Risk Factors and Myocardial Infarction in the Transgender Population,* 12 CIRCULATION: CARDIOVASCULAR QUALITY & OUTCOMES (2019). They are also susceptible to erythrocytosis, a condition of high red blood cell counts, which is an independent risk factor for cardiovascular disease and coronary heart disease. See Milou Cecilia Madsen et al., *Erythrocytosis in a Large Cohort of Trans Men Using Testosterone*, 106 J. CLINICAL ENDOCRINOLOGY & METABOLISM 1710 (2021); David R. Gagnon MD et al., *Hematocrit and the Risk of Cardiovascular Disease*, 127 AM. HEART J. 674 (1994). Other risks include irreversible changes to the vocal cords, hirsutism, polycystic ovaries, clitoromegaly, atrophy of the lining of the uterus and vagina, and potentially higher risks for ovarian and breast cancer. See Hembree, *supra*, at 3880, 3886–87, 3892.

Males receiving high doses of estrogen likewise face additional risks. Long-term consequences include increased risk of heart attack and death due to cardiovascular disease. See Michael S. Irwig, *Cardiovascular Health*

in Transgender People, 19 REVS. ENDOCRINE & METABOLIC DISORDERS 243 (2018). Also, "[t]here is strong evidence that estrogen therapy for trans women increases their risk for venous thromboembolism over five fold." *Ibid.* This is a blood clot that develops in a deep vein and "can cause serious illness, disability, and in some cases, death." Center for Disease Control and Prevention, *What is Venous Thromboembolism?*, CDC.gov.[16] Other risks of high-dose estrogen for males include a 46-times higher risk of developing breast cancer. See Christel J M de Blok et al., *Breast Cancer Risk in Transgender People Receiving Hormone Treatment*, 365 BMJ 1652 (2019).

Defenders of transition policies argue that providing these treatments is necessary to lower if not eliminate the risk that a gender dysphoric child might otherwise commit suicide. But the evidence does not support such claims. "The notion that transidentified youth are at alarmingly high risk of suicide usually stems from biased online samples that rely on self-report (D'Angelo et al., 2020; James et al., 2016; The Trevor Project, 2021), and frequently conflates suicidal thoughts and non-suicidal self-harm with serious suicide attempts and completed suicides." Stephen B. Levine et al., *Reconsidering Informed Consent for TransIdentified Children, Adolescents, and Young Adults*, Journal of Sex & Marital Therapy, 706–22 (2022).[17]

"Tragically deaths by suicide in trans people of all ages continue to be above the national average, but

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[16] *Available at* https://www.cdc.gov/ncbddd/dvt/facts.html.

[17] *Available at* https://www.tandfonline.com/doi/epdf/10.1080/0092623X.2022.2046221?needAccess=true.

there is no evidence that gender-affirmative treatments reduce this." Hilary Cass, *Independent Review of gender identity services for children and young people: Final report* (Apr. 2024), at 195 (16.22).[18] Indeed, multiple studies directly refute the transition defenders' claims. In one, a comprehensive data set from a cohort of 3,754 trans-identified adolescents in US military families over 8.5 years showed that gender pharmaceutical treatment led to increased use of metal health services and that psychiatric medications increased including suicidal ideation/attempted suicide. Elizabeth Hisle-Gorman, et al., *Mental Healthcare Utilization of Transgender Youth Before and After Affirming Treatment*, The Journal of Sexual Medicine, Volume 18, Issue 8, August 2021, at 1444–54.[19] Another comprehensive study in Sweden examined data from 324 patients over a thirty-year time period who had taken opposite sex hormones and undergone reassignment surgery. See Cecilia Dhejne, *Long-Term Follow-Up of Transsexual Persons Undergoing Sex Reassignment Surgery*, 6 PLOS ONE (2011).[20] When followed out beyond ten years, the sex-reassigned group had nineteen times the rate of completed suicides and nearly three times the rate of all-cause mortality and inpatient psychiatric care compared to the general population of Sweden. *Ibid.* More recently, a study of 315 adolescents aged twelve to twenty years who were taking high-dose hormones of the opposite sex noted "death by suicide occurred in 2 participants." Diane Chen, Ph.D. et al., *Psychosocial Functioning in*

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[18] *Available at* https://cass.independent-review.uk/wpcontent/uploads/2024/04/CassReview_Final.pdf.

[19] *Available at* https://doi.org/10.1016/j.jsxm.2021.05.014.

[20] *Available at* https://doi.org/10.1371/journal.pone.0016885.

Transgender Youth After 2 Years of Hormones, 388 NEW ENGLAND J. MED. 240 (2023).

* * *

"Gender affirming" treatments of minors are premised on two lies. One is that someone can be born in the "wrong body"; the other is that one can change one's sex. *Amici* seek merely to protect the freedom of those who would safeguard minors from such deceptions and the attendant risks that come with them.

CONCLUSION

The judgment of the court of appeals should be reversed.

Respectfully submitted,

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