

The Trump Administration Would Be Correct to Treat Biological Sex as Fixed at Birth

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18 December 2018

Philadelphia Inquirer

We are physicians and other professionals in health care who support providing respect and optimal medical care to all Americans, including those who trans-identify. For this reason, we write to correct scientific errors that some commentators have offered in response to the Trump administration's efforts to define sex as being set as male or female at or before birth.

The Institute of Medicine defines sex as a biological trait that defines living things as male and female based on the complement of sex chromosomes and the presence of reproductive organs. Every person's sex is established by sex chromosomes at conception, manifests itself in utero, and is revealed at birth. Sex is therefore an innate and immutable trait across a person's lifespan. Nothing can change a person's sex: not socialization, drugs, hormones, or surgery.

Although the process of sex development is complex, this process results in the birth of a distinctly male or female infant over 99.98 percent of the time. As evolutionary biologist Colin Wright of Pennsylvania State University recently wrote, "The claim that classifying people's sex upon anatomy and genetics 'has no basis in science' has itself no basis in reality, as any method exhibiting a predictive accuracy of over 99.98 percent would place it among the most precise methods in all the life sciences."

While there are congenital disorders of sex development that cause sex ambiguity and/or a mismatch between sex chromosomes and appearance, these so-called intersex conditions occur in less than 0.02 percent of births. A true spectrum is understood to be a continuous distribution, meaning one in which no specific outcome is dramatically more likely than the others. Clearly, the existence of exceedingly rare congenital disorders of sex development does not constitute a multitude of human sexes existing on a spectrum. Such a claim amounts to ideological activism, not science.

Sex chromosomes impart innate differences between men and women in literally every cell of our bodies. There are over 6,500 shared genes that are

expressed differently in human males and females. These differences impact our brains and organ systems; propensity for developing certain diseases; responses to drugs, toxins, and pain; cognitive and emotional processes, behavior, and more.

It is critical for health professionals who want to provide the best care for our transgender patients to recognize that, despite their new names and preferred pronouns, they remain the biological males or females they were born. If we fail to acknowledge this reality, it could have tragic consequences. For example, certain medications are likely to prolong parts of the heart rhythm specifically in women, increasing their risk of death from an event called torsades de pointes.

The Institute of Medicine recognized the importance of sex to the field of medicine nearly two decades ago. There are obvious sex-specific diseases that affect reproductive organs found only in one sex and not the other. There are also X-linked disorders that may be mild in females while serious in males, and other X-linked disorders that are manifest only in females. In addition, even diseases that affect both sexes often have different frequencies, presentations, and treatment responses in males and females.

In short, many disorders, toxins, and medications affect men and women based upon their objective biology, and not based upon their identity. As a result, different preventative, diagnostic, and treatment approaches may be required for the sexes. This means that for optimal health outcomes, physicians should evaluate, diagnose, and treat trans-identified patients in accordance with their objective biologic sex.

As argued in an online petition addressed to top officials in the Departments of Justice, Education, and Health and Human Services, upholding the scientific definition of sex is not only important from a medical standpoint, but also from a legal standpoint to protect rights to equal treatment. For these reasons, we urge our government officials to uphold the original scientific meaning and legal intent of the term sex in federal law and policy.

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