

Article

Sex Categories in Healthcare Contexts —A Consequentialist Analysis¹

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Abstract: We offer a consequentialist-based rejection of a recent argument claiming that patients should no longer be required to specify a sex category (i.e., mark “male” or “female”) on healthcare forms. The targeted argument—based on claims that non-binary and transgender patients experience negative consequences when asked to choose a sex category—fails because (1) no data are provided to support this claim; (2) the broader consequences of removing this information have not been considered; and (3) eliminating the sex category question is unlikely to solve the problems identified.

Keywords: sex category; sex binary; non-binary; transgender; healthcare; consequentialism

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Introduction

In a recent article² Lauren Freeman and Saray Ayala López (hereinafter, the Authors) argue that non-binary and trans patients³ often receive inappropriate healthcare because healthcare providers (HCPs) focus on patients’ uncommon sex/gender status rather than on their presenting health issues. They recommend in general that providers focus on the anatomical loci of patients’ complaints and in particular that the section of the healthcare record requiring patients to specify a sex (i.e., mark “male” or “female”) be deleted from

¹ We would like to express our appreciation to two anonymous reviewers whose suggestions improved this article in many ways. Any remaining errors or confusion are, of course, our own.

² Freeman, L., and Ayala López, S. (2018). Sex categorization in medical contexts: A cautionary tale. *Kennedy Institute of Ethics Journal* 28(3): 243–80.

³ “Non-binary” refers to individuals who identify as something other than “merely” male or female; “trans” refers to people whose preferred gender identity does not align with their biological sex.

medical forms.⁴ In response, we argue that their argument fails by (1) neglecting to provide any supporting data; (2) ignoring the broader consequences of omitting this information; and (3) being unlikely to solve the problems they identify. But before turning to our critique, we briefly review some of the history and contexts that may seem to support their suggestion.

A Brief History of “Sex” vs. ‘Gender’

At least since Simone de Beauvoir’s work in the 1940s, feminist philosophy has been interested in understanding and problematizing women’s typical experience of embodiment to demonstrate, elucidate, and challenge women’s oppression. One of Beauvoir’s main contributions to feminist philosophy is encapsulated in her famous claim that “one is not born, but rather becomes, woman.”⁵ As Judith Butler explained, Beauvoir makes “a distinction between the natural body [i.e., sex] and the body as an historical construct or signifier [i.e., gender].”⁶ From a political standpoint, the theory of social construction of gender was instrumental to denouncing naturalized gender roles that were presumed to justify women’s second-class status.

The field of feminist philosophy underwent a major upheaval in 1990 with the publication of Butler’s *Gender Trouble*, where she argued that not only gender, but also sex, was a social construct: “If the immutable character of sex is contested, perhaps this construct called ‘sex’ is as culturally constructed as gender.”⁷ While the theory of the social construction of sex has been endorsed by some (though by no means all) scholars in feminist philosophy and gender studies, scholars in biology and medicine have almost unanimously continued to conceive of the human sex binary as a natural fact independent of social structure or organization.⁸

Four Caveats

Before proceeding with our positive argument, we must consider four caveats.

1. Theories of Sex

First, while most biologists conceive of human sex as binary, one notable exception is biologist, Anne Fausto-Sterling, who has argued that at least five sexes exist:

Medical investigators have recognized the concepts of the intersexual body which comes in three forms: true hermaphrodites . . . who possess one testis and one ovary . . . ; male pseudohermaphrodites . . . , who have testes and some aspects of the female genitalia but no ovaries; and the female pseudohermaphrodites, who

⁴ Although the Authors claim “we are not proposing an abolitionist project,” their focus throughout the article is to replace questions about the male–female binary with questions about “relevant sex-related properties of the patient in relation to the history of those properties and the bodies in which they exist” (Ibid., p. 244).

⁵ Beauvoir, S. (2011). *The Second Sex*. New York, NY: Vintage Books, p. 283.

⁶ Butler, J. (2015). *Gender Trouble*. New York, NY: Routledge, p. 9.

⁷ Although Butler was not the first to take this stance (e.g., Foucault made a similar claim in *The History of Sexuality* in 1976), she was responsible for popularizing the social construction of sex within feminist philosophy and gender studies.

⁸ While the Authors do not take an explicit stance on the ontological status of sex, this abbreviated discussion of the evolution of philosophical ideas explains why one might question the traditional use of sex categorization in the medical context.

have ovaries and some aspects of the male genitalia but lack testes. Each of those categories is in itself complex; the percentage of male and female characteristics, for instance, can vary enormously among members of the same subgroup.⁹

Her point is that these variations successfully refute the human sex binary.

Conversely, biologists' more common interpretation is that the *statistically uncommon* presence of a mismatch between chromosomes and phenotype or a phenotype that is neither male nor female (0.018% of the U.S. population) are anomalous variations from a dichotomous norm.¹⁰ Just as biologists do not claim that XX humans and XY humans are different types of humans, but are two variations of one human species, they consider intersex humans as demonstrating very uncommon human variations. The basis of this typical approach is that recognizing the full range of human characteristics (e.g., upright posture, a comparatively larger prefrontal cortex, capacity for rational analysis, etc.) includes recognizing that variations occur. Some variations present health-related difficulties for which medical treatment or amelioration is available. For example, the average U.S. female is 5'4" tall and has straight legs, but the average U.S. female with achondroplasia (congenital dwarfism) is 4' tall with a normally sized trunk and abnormally short, bowed legs. Yet the female dwarf is not designated a different species of female or of human; rather, she is considered a female human with genetic and phenotypic anomalies, some of which (bowed legs) are amenable to therapeutic interventions that can improve functioning.

2. Healthcare as a Practice

Second, healthcare is not merely a theoretical discipline; it is also a practical discipline—that is, it is a *practice the purpose of which is to intervene* in the lives of willing patients to eliminate or ameliorate conditions that interfere with normal/optimal functioning. Here we follow philosopher Alasdair MacIntyre's definition of a practice. Specifically:¹¹

Any coherent and complex form of socially established cooperative human activity [medicine] through which goods internal to that form of activity [prevent, eliminate, or alleviate disordered functioning and/or pain and suffering] are realized in the course of trying to achieve those standards of excellence which are appropriate to, and partially definitive of, that form of activity [prevent, minimize, alleviate, or eliminate disease, disability, pain, or suffering], with the result that human powers to achieve excellence and human conceptions of the ends and good involved [physical and psychological health and well-being], are systematically extended.

Focusing on “goods internal to that form of activity,” we note that the *raison d'être* of healthcare interventions is restoration or better approximation of normal human functioning for patients desiring such interventions. According to the Code of Ethics of the American Medical Association:

The practice of medicine, and its embodiment in the clinical encounter between a patient and a physician, is fundamentally a moral activity that arises from the

⁹ Fausto-Sterling, A. (1993). The five sexes: Why male and female are not enough. *The Sciences* March/April: 21.

¹⁰ Sax, L. (2002). How common is intersex? A response to Anne Fausto-Sterling. *Journal of Sex Research* 39(3): 174–178.

¹¹ MacIntyre, A. (1981). *After Virtue*. Notre Dame, IN: University of Notre Dame Press, p. 15.

imperative to care for patients and to alleviate suffering. The relationship ... gives rise to physicians' ethical responsibility to place patients' welfare above the physician's own self-interest or obligations to others, to use sound medical judgment on patients' behalf, and to advocate for their patients' welfare.

*A patient-physician relationship exists when a physician serves a patient's medical needs.*¹²

As a result, HCPs' starting point is necessarily a statistical norm—the conception of the normally functioning human—which they are trying to restore to (or at least approximate in) individual patients as a means to care for patients and alleviate their suffering, be that suffering physical or psychological. These socially useful goals would make no sense in the absence of a norm at which to aim.

Some such instances of normal human functioning are sex-dependent; that is, not only can males and females suffer from different conditions; they can also respond differently to treatments for the same disorder (more below). Thus, while Fausto-Sterling's five sexes may be theoretically defensible, the human sex binary is necessarily the starting point for medical *practice*.

3. Definitions

Like most multicellular organism, human beings are anisogamous, meaning that male and female members of the species are differentiated from each other by the size of the gametes they produce—small and motile in the case of males; large and sessile in the case of females.¹³ For most people, gamete type is predictably associated with chromosomal, hormonal, and anatomical differences (i.e., primary and secondary sex characteristics). While we recognize that some people with disorders of sex development deviate from this norm because of ambiguous genitalia or due to a misalignment between their sex organs and their chromosomes, these individuals do not produce a third or intermediary type of gamete that would warrant their classification as members of a third or additional sex. Put differently, “anisogamy gives rise to a true sex binary at the species level: even if a given individual may fail to produce viable gametes, there are only two gamete types with no meaningful intermediate forms.”¹⁴ Given the utility of the human sex binary for medical research and patient care, we have chosen this approach. We recognize that defining sex binarily—that is, patients are either male or female—is not universally accepted. However, 99.98% of the population are unambiguously male or female whose chromosomal pattern and phenotype are in agreement.

We will understand “gender” to indicate a person's psychosocial identity—male, female, non-binary, transgender, etc. Gender may often—though need not—be evidenced by a person's dress, hairstyle, name, behavior, etc. A person's gender and sex may or may not correspond. This understanding of gender is also not universally accepted (e.g., some scholars question the very existence of gender identities and/or gender as a concept distinct from sex). However, because some patients declare a gender identity

¹² American Medical Association. Code of Medical Ethics Opinion 1.1.1. [link to this article](#). Emphasis added.

¹³ Lehtonen, J., and Parker, G.A. (2014). Gamete competition, gamete limitation, and the evolution of the two sexes. *Molecular Human Reproduction* 20(12): 1161–68.

¹⁴ Del Giudice, M. (2022). Measuring sex differences and similarities. In *Gender and Sexuality Development: Contemporary Theory and Research*, edited by D. VanderLaan and W. Wong. Cham: Springer, pp. 1–38.

(one which, in some cases, may be misaligned with their sex), we have also deemed the concept useful for the *practice* of healthcare.

As noted above, we appreciate that other definitions have been offered, and that not all readers will embrace our definitions. But as we are discussing the *practice* of healthcare professions, we follow their statistically driven, practically useful, concepts of what constitutes their norms, or starting points. In the case at hand, those starting points are the human sex binary and normal human functioning which HCPs are trying—at the patient’s request—to restore or best approximate.

4. Psychological Pain Experienced by Transgender and Non-Binary Patients

Under no circumstances should we be understood as being ignorant of, disregarding, minimizing, or failing to appreciate the genuine distress faced by trans and non-binary patients in an often-unsympathetic society.¹⁵ We appreciate that these experiences can be both psychologically and physically painful, often seriously so, and that all professionals—including HCPs—should take care to avoid them.

We turn now to our arguments against the Authors’ position *per se*.

Against the Argument

The Authors do not take an explicit stance on the ontological status of sex. After giving examples of inappropriate healthcare encounters suffered by non-binary and trans patients, the Authors recommend (1) that HCPs narrow their attention to the anatomical location(s) of patients’ particular immediate complaints, an approach that is more likely to succeed if (2) generally, HCPs’ assumptions about binary sex are not encouraged/supported, and (3) specifically, if medical records do not require patients to specify a sex (i.e., mark “male” or “female” when completing forms), but instead direct HCPs’ focus to the relevant sex-related properties or structures of their (the patients’) bodies (the Authors do not specify which sex properties or structures ought to be identified).¹⁶

The Authors’ Basic Consequentialist Argument

P1 If X harms patients, X should be eliminated.

P2 Asking patients to specify their sex on healthcare forms harms patients by stigmatizing trans and non-binary patients and causing them anxiety, embarrassment, and/or misunderstandings with their HCPs.

C: Therefore, asking patients to specify their sex on medical forms should be eliminated.

This argument, while valid, is unsound. It is unsound because P1 is (and P2 may be) false. Why is this so?

¹⁵ The Authors cite a European study in which “more than 25% [of patients surveyed] reported that they had been refused treatment because a practitioner did not approve of gender reassignment.” *Op. cit.*, note 2, p. 261. In one particular case, a transgender man reported that his primary care physician failed to notify him after a breast biopsy that he had an aggressive form of breast cancer because “I have a problem with your transgender status.” *Op. cit.*, note 2, p. 262.

¹⁶ Freeman & Ayala López, *op. cit.*, note 2.

An Expanded Examination of Consequences

As English philosopher Jeremy Bentham noted in 1780, a *thorough* consequentialist analysis requires consideration of seven characteristics that modify the primary moral consequences (i.e., pleasures and pains), and that are used to determine an action's or policy's rightness or wrongness:¹⁷ intensity, duration, certainty, propinquity, fecundity, purity, and extent.¹⁸

Before beginning our analysis, we note, first, that the Authors provide no scientific evidence documenting any distress suffered by trans patients' encounters with the healthcare system *that are a direct (or even a correlative) result of being asked to indicate sex on the medical intake form*. Second, the Authors provide no data that indicate how many (most? all? a few?) trans and non-binary patients actually do experience distress of any kind *as the result of having to specify a sex*. Thus, they give no evidence of *intensity, duration, certainty, or extent* of document-driven distress. We now consider each of Bentham's criteria specifically.

1. **Intensity (magnitude of pain):** While the Authors describe some truly horrifying treatment of trans and non-binary patients, they relate *none* of these examples to patients' responses on the intake form. Nor do they give any sense of the magnitude (if any) of patients' pain. In healthcare environs patients who complain of pain are routinely asked to rate their pain on a scale of 1–10, with pains ranging from minimal (1) to unbearable (10). But the Authors make no mention of patients' magnitude of distress. Further, as intensity of pain typically varies greatly between individuals, we see no reason to assume that all trans or non-binary patients' pain is, on all occasions, a 10. The more likely scenario is that pain levels run the gamut—including some patients' experiencing no pain at all.
2. **Duration (length of time a sensation persists):** As with intensity, duration varies between patients. Some patients quickly recover from embarrassment, while others suffer for long uninterrupted periods or at recurring intervals. But, again, no data are provided regarding how long psychological distress persists, or if it recurs at a later time or in downstream encounters with HCPs. Since these details are missing, we cannot determine if durable distress exists and, if it does, if it is the product of the intake information or of some other aspect of the healthcare encounter.
3. **Certainty (probability of occurrence):** Many—perhaps most—patients feel some discomfort when seeking healthcare. They are often embarrassed about having to remove clothing, about the possibility of a diagnosis of a serious illness, about the cost of care, etc. These worries would naturally apply to trans and non-binary patients as well. But here again, no data are given that indicate how many patients (most? all? a few?) actually experience distress as a *direct or sole* result of having to specify a sex.

¹⁷ For Bentham, right actions maximize pleasure or minimize pain; wrong actions fail to do so or, worse, do the opposite. In what follows, we will use the broader contemporary language of burdens and benefits.

¹⁸ Bentham, J. (1970). *An Introduction to the Principles of Morals and Legislation*. London: The Athlone Press, pp. 38–41.

4. **Propinquity (nearness in time):** See 3, immediately above. Moreover, no data are provided on the presence/absence of post-traumatic distress *at all, or specifically related to the specification of sex.*
5. **Fecundity (likelihood of producing further similar effects; here, distress):** Negative encounters with professionals are often recalled if one is considering interacting again with members of the same profession. We assume—again without evidence—that this might occur in the topic at hand. But lack of data makes estimation impossible.
6. **Purity of consequences (pleasurable outcomes are not “contaminated” by painful effects, nor vice versa):** In any environment where benefits are accompanied by burdens, a consequentialist argument must consider both before making moral (and, derivatively, policy) recommendations. The healthcare environment rarely provides benefits that are free of burdens, harms, or pains. For example, surgically correcting painful or disabling conditions is accompanied by pain—immediately post-operatively and ongoing during rehabilitation and recovery. Patients consent to this burden because they think the benefits—relief from chronic pain, correction of disabling conditions, the ability to return to work, etc.—are worth the burdens. Further, strong (especially narcotic) analgesics control pain, but at the cost of weakness, dizziness, decreased coordination, constipation, and potential addiction. Yet—as the opioid crisis shows—patients willingly suffer the burdens that accompany these drugs because of the benefit of controlling pain. Similarly, the trans man with symptoms of pelvic inflammatory disease will presumably consent to a pelvic exam to establish this diagnosis—an exam his HCP may not consider without knowing his sex. While he may worry about the HCP’s reaction to the disparity between his sex and his gender, he will likely consent to some psychological discomfort because the benefits of accurate, timely diagnosis and treatment will outweigh the harms of anxiety or embarrassment. Whether trans patients would find specifying a sex sufficiently painful that they would choose to forgo diagnostic procedures is unclear; however, in cases of severe pain and suffering, rejections seem unlikely. Thus, because healthcare interventions are rarely pure (in Bentham’s sense), and because patients typically choose to undergo burdens to achieve anticipated, likely benefits, P1 is false.¹⁹

Further, good reasons support asking patients about issues that cause them unease. For example, patients are typically asked on every visit to list (or to confirm a previous list of) all the medications they are currently taking. According to the American Association of Consultant Pharmacists, “individuals 65 to 69 years old take nearly 14 prescriptions per year; individuals aged 80 to 84 take an average of 18 prescriptions per year.”²⁰ Moreover, a typical 45-year-old takes four prescription

¹⁹ In theory one could deny this conclusion by arguing that patients cannot *in principle* autonomously choose to accept harms; but as autonomous consent to (or refusal of) care is a foundational principle of moral healthcare negotiation, the probability that this claim will succeed asymptotically approaches zero.

²⁰ ASCP. (2004). *Seniors at risk: Designing the system to protect America’s most vulnerable citizens from medication-related problems.* [link to this article](#). See also Charlesworth, C., Smit, E., Lee, D., Alramadhan, F., and Odden, M. (2015). Polypharmacy among adults aged 65 years and older in the United States: 1988–2010. *Journals of Gerontology Series A: Biomedical Sciences and Medical Sciences* 70(8): 989–95.

medications every day.²¹ But these are averages, meaning some persons take more—and the more drugs a patient takes, the more likely s/he is to experience untoward medication interactions. Senior patients often worry that HCPs will look at the long lists of medications and assume they are “drug-seeking” or hypochondriacal. Yet HCPs need to know, truthfully, all drugs their patients are taking if they are to effectively evaluate and treat their immediate concerns. Consider the senior who is seeing multiple HCPs (which she may be reluctant to admit for fear of offending/alienating her primary care provider), each of whom has prescribed an antihypertensive (which, for the same reason, she is reluctant to list). Being overdosed quite likely explains the patient’s present complaints of dizziness and imbalance; but the HCP is less likely to make this diagnosis—or make it in a timely fashion—without full knowledge of medication usage, regardless of the senior’s reluctance—and psychological distress at having—to disclose this information.

The same concerns about consequential purity apply to questions asking patients about their use of illegal drugs, tobacco products, or alcohol, as well as queries about any previous or current treatment for psychiatric conditions, behavioral health issues, or sexually transmitted diseases. While patients appropriately fear that divulging this information can have negative repercussions—arrest for illegal drug use, denial of (new) insurance coverage for any use of tobacco products or excessive use of alcohol, or due to preexisting conditions—HCPs need this information to make accurate diagnoses and to design *current appropriate* therapeutic interventions. For example, preoperative patients who are frequent users of narcotic analgesics, marijuana, psilocybin, or alcohol are at risk of post-operative withdrawal if the HCPs are unaware of this usage. Similarly, patients who fail to admit to taking psychoactive drugs can face severe—even life-threatening—withdrawal if these drugs are stopped abruptly. The same concerns apply, *ceteris paribus*, to questions concerning previous or current treatment for sexually transmitted diseases. A pregnant woman with a history of gonorrhea must be tested to avoid risking her baby being born blind—a test her HCP is unlikely to order without good reason, namely, that the woman may still have an active infection. So, consideration of the purity of outcomes renders P1 false.

Or consider the post-operative trans man who has recently lost feeling and function in his hands and arms.²² X-ray reveals a tumor in his cervical spine. The tumor is biopsied and reveals a cancerous mass of *uterine tissue*. HCPs assume, not unreasonably, that some error has occurred: x-rays were mixed up; tissue samples were mislabeled; the radiologist misread the x-ray; the radiologist read the wrong x-ray; the pathologist misread the tissue sample; the pathologist read the wrong tissue sample. Note that because the patient has undergone gender-conformation surgery his innate sex would not be immediately obvious. For example, the x-ray technician would not have experienced cognitive confusion at observing—and wondering why the *man* he is studying has—breasts. Note, also, that asking the patient to check off body parts relevant to his symptoms likely would not have helped HCPs, as he would likely have checked “arms” and “hands.”

²¹ AARP. (2005). *Prescription drug use among midlife and older Americans*. [link to this article](#).

²² Surgical interventions to make one’s physical appearance comport with one’s choice of gender vary. In this case, the trans man had a double mastectomy, a hysterectomy, bilateral oophorectomy, vaginal closure, and construction of a penis.

In sum, an extended burden–benefit analysis reveals the *impurity* of the suggestion that interventions or policies that harm patients should be—in *virtue of those harms alone*—eliminated. That is, impurity of outcomes makes P1 false.

7. **Extent of consequences (number of persons affected):** The suggested elision of the sex question might be defensible if trans and non-binary patients *alone* would be affected. This is not the case. Eliminating the sex question on medical forms will affect *all* patients, often in noxious ways.

Research

The US National Institutes of Health (NIH) policies now *require* applicants to report their plans for a *balance of male and female cells and animals* in preclinical studies *in all future applications*.²³ Justifications for the NIH policy changes include (1) earlier clinical research that demonstrated sex-based differences in therapeutic effects of drugs; (2) clinical research that demonstrates sex-based differences in medication dosing; (3) sex-based differences in rates of adverse drug reactions; (4) sex-based differences in reactions to biological stressors; and (5) possible explanation of irreproducibility of results.²⁴ Using multiple sclerosis as an exemplar, Clayton and Collins delineate the disparate role of X and Y chromosomes in both the frequency and severity of this disease.²⁵

Perhaps, as the Authors suggest, HCPs can talk about body parts or organs without talking about sex *per se*; but doing so raises another serious concern: *What happens to research specifically on women’s (or men’s or trans persons’) health?* Consider the growing concern about cancer in transgender men and women who have a long-term history of using gender-affirming hormones. Prioritizing this aspect of transgender health will require well-designed studies that “include, at a minimum, a large sample size and long follow-up, *accurate ascertainment of natal sex and gender identity*, and detailed data on treatment.”²⁶ If the consequences of an organ-based approach to minimize psychological discomfort to trans and non-binary patients are that research into sex-based health issues is incomplete or that data sets are inaccurate, the negative consequences of this approach are exponentially greater than on the current approach. The Authors themselves note that inclusion of females into medical research required a federal mandate that forbade exclusion of research subjects based on sex alone.²⁷ It would then seem unwise to recommend an approach that would undercut the progress that has been made, especially given evolving NIH policies/procedures to the contrary.²⁸

²³ Clayton, J., and Collins, F. (2014). Policy: NIH to balance sex in cell and animal studies. *Nature*. 509: 282–83. [link to this article](#). Emphasis added.

²⁴ *Ibid.*, p. 282.

²⁵ *Ibid.*, pp. 282–83. For full details of previous research, see Clayton & Collins’ complete bibliography.

²⁶ Braun, H., Nash, R., Tangpricha, V., Brockman, J., Ward, K., and Goodman, M. (2017). Cancer in transgender people: Evidence and methodological considerations. *Epidemiologic Reviews* 39(1): 93–107. Emphasis added. Researchers are careful to note the difference between statistical and identifiable persons. That is, the fact that a *group* demonstrates a particular property does not guarantee that *any particular member of that group* will have the property in question. Nonetheless, group properties can and should lead HCPs to investigate sex-linked symptoms further.

²⁷ Freeman & Ayala López, *op. cit.*, note 2, p. 247.

²⁸ In addition to general negative consequences, this approach would also seem to violate the principle of justice—specifically of equal treatment. A possible alternative would be to petition the NIH to add a requirement that trans and other non-binary persons be incorporated explicitly into research as well.

In sum, knowing a subject's sex is relevant both to sound research and, derivatively, to sound clinical practice.

Prophylaxis

Good preventive care recommends annual prostate exams, as well as annual pelvic exams, triennial pap smears, and biannual mammograms. Since many prophylactic reminders are computer-generated, trans men and trans women who do not specify a sex will not receive these reminders. Thus, they are at risk for undiagnosed prostate, cervical, ovarian, or breast cancers. The Authors consider this possibility and argue that HCPs should "focus on the properties that are relevant for prostate cancer instead," specifically, on "whether the patient has a prostate".²⁹ But how are HCPs (or data entry staff) to know if the patient has a prostate if they don't know the patient's sex? Perhaps the Authors hope that a focus on the relevant sex properties (here, a prostate) will solve the issue. But as noted earlier, if a patient sees an HCP for reasons unrelated to the prostate, healthcare records will fail to contain all the necessary information for the purposes of future prevention, diagnosis, and disease management.

Further, eliminating the sex question means that *no male* will get the computer-generated reminder. Since 75.33 million males of 40 years of age or older currently reside in the U.S.,³⁰ and since an estimated 248,530 men are diagnosed with prostate cancer each year,³¹ and since an estimated 1.3 million adults (approximately 0.50%) in the U.S. identify as transgender,³² and 515,200 are trans women, we conclude that eliminating the sex question put approximately 22.9% of the U.S. population at risk for prostate cancer to spare 0.16% of the U.S. population from embarrassment, anxiety, and/or misunderstandings with their HCPs. From a consequentialist perspective, a comparison of both the number of persons at risk and the disparate intensity, duration, and extent of potential harms make eliminating the sex question morally unacceptable. Again, P1 is false.

The same argument applies, *ceteris paribus*, to ensuring that trans men receive mammograms and pelvic exams: in the U.S. 149,090 million females (roughly 45%) are 15 years of age and older.³³ Of these, 480,000 are trans men. In 2021 an estimated 330,840 (roughly 22%) were diagnosed with breast cancer.³⁴ If cancer is diagnosed early (i.e., before it becomes invasive), the 5-year cure rate is 99%.³⁵ But early diagnosis of breast cancer depends on early breast exams and mammograms. Again, HCPs are more likely to examine breasts if they know the patient's sex. Deleting the sex question puts 45% of the U.S. population at risk of cancer to spare 0.15% of the population from stigma, anxiety, and/or misunderstandings with their HCPs. And even if these negative psychological effects frequently and intensely occur in non-binary and trans patients, can they really outweigh the anxiety and distress of battling cancer? From a consequentialist

²⁹ Freeman & Ayala López, *op. cit.*, note 2, pp. 253–254.

³⁰ Statista. (2020). *Resident population of the United States by sex and age as of July 1, 2020*. [link to this article](#).

³¹ American Society of Clinical Oncology. (2021). *Prostate cancer: Statistics*. [link to this article](#).

³² Herman, J.L., Flores, A.R., and O'Neill, K.K. (2022). *How many adults identify as transgender in the United States?* [link to this article](#).

³³ Statista, *op. cit.*, note 30.

³⁴ Cancer.Net. (2021). *Breast cancer: Statistics*. [link to this article](#).

³⁵ *Ibid.*

perspective, a comparison of both the number of persons at risk and the disparate intensity, duration, fecundity, and extent of potential harms make eliminating the sex question morally unacceptable. So P1 is false.

In sum, a *complete* consequentialist analysis that specifies *the number of persons at risk (extent)*—as well as the disparate nature and extent of potential harms (*intensity, duration, fecundity, and purity, again*)—shows eliminating the sex question to be morally unacceptable.³⁶

Diagnosis and Treatment

As Dr. Alyson McGregor, co-founder of the Sex and Gender Women's Health Collaborative, has argued, "women are not just men with boobs and tubes."³⁷ Put differently, males and females do not merely differ from each other in virtue of their genitals and hormones, but also in anatomical and physiological differences that go beyond immediately observable sex-related properties. Consider, for example, that acute coronary syndrome has a different disease presentation in females and males. Or that aspirin therapy works to lower the risk of myocardial infarction in male but not female patients.³⁸ Even if HCPs could accurately compile a complete inventory of their patients' body parts (some of which may be the result of surgical construction), they would still miss a crucial piece of information: the patient's sex.

Numerous diseases are sex-linked; specifically, males are at greater risk for bladder stones, varicoceles, testicular cancer, Peyronie's disease, and erectile dysfunction.³⁹ On the other hand, females have their own extensive set of gynecological issues: menstrual disorders, uterine disorders (fibroids, endometriosis, cancer), vaginitis, urinary tract dysfunction, polycystic ovaries, ovarian cancer, osteoporosis, and complications of pregnancy.⁴⁰ Thus the trans man who presents with abdominal pain and cramping, secondary to endometriosis, will be spared needless testing for—for example, appendicitis—if his HCP knows he is female.⁴¹ Or consider the case of Cameron Whitley, a trans man who almost died waiting for a kidney transplant, because his medical records had no record of his biological sex. Had doctors known that he was biologically female, his kidney function indicators (which are sex-dependent) would have been read as indicating

³⁶ But cf. Taurek, J. (1977). Should the numbers count? *Philosophy and Public Affairs* 6(4): 293–316.

³⁷ Roussy, K. (2016, June 6). Women's period seen as barrier to medical research. *CBC News*. [link to this article](#).

³⁸ American Medical Women's Association. (2020). *Health is affected by both sex and gender*. [link to this article](#).

³⁹ Torricelli, F. C., Mazzucchi, E., Danilovic, A., Coelho, R. F., and Srougi, M. (2013). Surgical management of bladder stones: Literature review. *Revista do Colegio Brasileiro de Cirurgioes* 40(3): 227–233. Alsaikhan, B., Alrabeeah, K., Delouya, G., and Zini, A. (2016). Epidemiology of varicocele. *Asian Journal of Andrology* 18(2): 179. Cheng, L., Albers, P., Berney, D. M., Feldman, D. R., Daugaard, G., Gilligan, T., and Looijenga, L. H. (2018). Testicular cancer. *Nature Reviews Disease Primers* 4(1): 1–24. Kadioglu, A., Tefekli, A., Erol, B., Oktar, T., Tunc, M., and Tellaloglu, S. (2002). A retrospective review of 307 men with Peyronie's disease. *The Journal of Urology* 168(3): 1075–79.

⁴⁰ National Institutes of Health. (2021). *Women's health*. [link to this article](#). See also Novelle, M., and Diéguez, C. (2019). Updating gender differences in the control of homeostatic and hedonic food intake: Implications for binge eating disorder. *Molecular and Cellular Endocrinology* 497:110508.

⁴¹ He may also have his pregnancy expeditiously diagnosed, thereby avoiding fetal death. Stroumsa, D., Roberts E. F. S., Kinnear, B., and Harris, L. H. (2019). The power and limits of classification—a 32-year-old-man with abdominal pain. *New England Journal of Medicine* 380(20): 1885–89.

imminent kidney failure, thus allowing him to jump to the front of the kidney-recipient list.⁴² In short, the HCP who knows the patient's sex is much more likely to arrive more quickly at the correct diagnosis—and thus initiate the correct treatment—thereby lessening the duration and physical, psychological, and economic costs of symptoms and disorders.

We further note that different sexes can respond differently to the same stimuli (e.g., pain), exhibit different symptoms/responses to the same diagnosis (e.g., myocardial infarction), or require different treatment for similar medical problems (e.g., insomnia). Ongoing research demonstrates that “sex is a critical factor in modulating the experience of pain, with a growing body of research demonstrating that males and females experience pain differently and respond differently to specific classes of analgesic medications.”⁴³ Moreover, brain development differs in boys and girls undergoing protracted trauma.⁴⁴ Where girls experience depression, boys demonstrate poor impulse control and aggression—conditions that dictate different therapeutic interventions to alleviate or eradicate these challenges.⁴⁵ Further, when controlling for the nature of traumatic events, females are more likely both to exhibit signs of post-traumatic stress disorder (duration, purity) and to experience a greater degree of stress/distress (intensity).⁴⁶ Recently, dramatic different sex-based responses to infection with COVID-19 have been observed.⁴⁷ Interestingly, even when demonstrable outcomes are similar, the physiological mechanisms by which those outcomes are attained may differ between sexes.⁴⁸

Prescribing

Finally, consider the prescription of medications. Recent studies show that females and males metabolize drugs differently.⁴⁹ For example, psychotropic drugs are typically metabolized in the liver.⁵⁰ Males' livers break down these drugs more quickly than do females' livers, making females more likely still to have, for example, the soporific

⁴² Gorvett, C. (2020). Why transgender people are ignored by modern medicine. *BBC Future*. [link to this article](#).

⁴³ Paller, C., Campbell, C., Edwards, R., and Dobs, A. (2009). Sex-based differences in pain perception and treatment. *Pain Medicine* 10(2): 289–99.

⁴⁴ We are not suggesting that the difference in trauma response between boys and girls is exclusively the result of brain “hardwiring.” Given the well-demonstrated interaction among genes, brain, and environment, it is possible that sex-based differences in children's reaction to trauma is partly a product of how our society treats and socializes boys and girls differently. For a more thorough exploration of the subject see Fine, C. (2011). *Delusions of Gender*. New York, NY: W. W. Norton & Company.

⁴⁵ The NCCD Center for Girls and Young Women. (2020). *Understanding trauma through a gender lens*. [link to this article](#).

⁴⁶ Tolin, D., and Foa, E. (2006). Sex differences in trauma and posttraumatic stress disorder: A quantitative review of 25 years of research. *Psychological Bulletin* 132(6): 959–92.

⁴⁷ Rabin, R. (2020, April 27). Can estrogen and other sex hormones help men survive covid-19? *The New York Times*. [link to this article](#). Also see Rabin, R. (2020, March 2). Why the coronavirus seems to hit men harder than women. *The New York Times*. [link to this article](#).

⁴⁸ Jain, A., Huang, G., and Woolley, C. (2019). Latent sex differences in molecular signaling that underlies excitatory synaptic potentiation in the hippocampus. *The Journal of Neuroscience*, 39(9): 1552–65.

⁴⁹ Smith, P., Weinberger, A., Zhang, J., Emme, E., Mazure, C., and McKee, S. (2016). Sex differences in smoking cessation pharmacotherapy comparative efficacy: a network meta-analysis. *Nicotine & Tobacco Research* 19(3): 273–81.

⁵⁰ Jacobsen, R. (2014, July 1). Psychotropic drugs affect men and women differently. *Scientific American Mind*. [link to this article](#).

See also Clayton & Collins, *op. cit.*, note 23, p. 282.

Ambien in their systems the next morning, slowing their responses and putting them at greater risk of accidents while driving to work, and lowering their ability to focus on their jobs when they do arrive. In addition, females are 50–75% more likely to experience side effects. Research has demonstrated that efficacy, longevity of desired effects, and occurrence of undesired side effects are experienced differently between sexes for prescription analgesics, antidepressants, sleep aids, anti-anxiety medications, antipsychotics, and anticonvulsants—drugs prescribed for depression, stress, and a variety of seizure disorders that seem to affect males and females differently. In short, HCPs are more likely initially to prescribe the correct drug, the correct dosage, or the correct physiological or psychological intervention (purity) if they know a patient's sex.

Examples could be multiplied, but the point is clear: *biology matters*. In sum, an extended benefit–burden analysis reveals the substantial number of patients (including trans and non-binary patients themselves) who would be *significantly* harmed or put at risk of *serious harm (intensity, duration, fecundity, purity, and extent)* were the sex question eliminated. Thus, P1 is false.

This brings us to our final main objection: omitting the sex question will not eliminate non-binary and trans patients' stigma, anxiety, embarrassment, or misunderstandings by HCPs.

Why Deleting the Sex Question Will Not Prevent Negative Psychological Consequences for Trans and Non-Binary Patients

Another salient objection to eliminating the sex question is that doing so will not prevent negative psychological consequences for trans and non-binary patients. First, some unease is inevitable in any patient–professional encounter, as discomfort is a normal response to being asked personal questions or “getting naked” in front of a stranger—HCPs included. Further, eventually a patient's sex will be established—that is, when the HCP performs a thorough physical exam, a necessary step for providing a full range of appropriate diagnostic and therapeutic interventions.

The Complete History and Physical Examination

New patients are invariably subjected to a thorough review of their health histories (including menstrual history for women—and apparent women). The trans woman will give nontraditional answers to questions about her menstrual history—specifically, that she doesn't have one. Or imagine the surprise of the HCP who prepares to do a pelvic exam on a trans woman, only to discover a penis and testes. While one hopes these HCPs do not gasp in surprise, they will surely have some reaction and will surely suggest a prostate exam and palpation for testicular masses rather than a pelvic exam and a pap smear. This exchange is likely to be at least somewhat awkward and uncomfortable for both parties, though how likely it is to actually embarrass or increase anxiety in the patient is uncertain.

The point here is that some psychological discomfort—on the part of both patients and HCPs—is likely to accompany a complete medical intake interaction with trans and non-binary patients. But, as noted above, given the nature of history-taking and the physical exam, some discomfort is intrinsic to initial face-to-face healthcare encounters

per se. Thus, it will not be avoided by eliminating the sex question on medical forms.⁵¹ So, because some psychological discomfort is unavoidable, but is outweighed by the immediate and future benefits to present and on-going healthcare, P1 is again falsified.

Patient Ignorance

Many—perhaps most—patients are largely ignorant about human anatomy and physiology—including their own. Consider that trans man who presents with symptoms of pelvic inflammatory disease. If asked on a medical intake form to specify the organ involved, he is as likely to write “stomach” or “belly” or “gut” as he is to write “uterus.” Also recall the case discussed earlier about the trans man with uterine cancer in his cervical spine. Even if he correctly stated “spine at level C4”, his HCP would still have been misdirected regarding the upstream cause of his symptoms.⁵²

Trust

Because patients’ failure to disclose any disparity between their sexes and their genders will surely be discovered, their failure of full disclosure damages an important condition for appropriate healthcare: trust.⁵³ While patients need to be able to trust their HCPs to deliver appropriate care in a timely and professional manner, HCPs need to be able to trust their patients to give them all relevant information that will enable them to provide such care.⁵⁴ Patients who conceal important anatomical or physiological facts raise questions in the minds of their HCPs about what else they may be concealing. Of course, the trust relationship is not *carte blanche*, and patients (trans, non-binary, or binary) need not divulge all details of their intimate lives; but all patients do need to appreciate the importance of disclosing central facts about their anatomy and physiology as a means to maximizing the possibility of correct—hence, useful—healthcare. When HCPs have to challenge patients on omissions or on incorrect/incomplete information provided (as is quite likely to arise during a complete physical exam), discomfort will ensue; but any discomfort is quantitatively outweighed by the positive consequences associated with the whole truth. So, again, P1 is false.

⁵¹ A critic might charge that trans and non-binary patients’ distress will be worse because its basis is a bias. This bias charge may be true but, if so, eliminating the sex question won’t eliminate the personal biases of particular HCPs (recall the patient in note 22, above). Further, it is worth noting that binary patients may also face biases in the healthcare environment for (among other things) their race, obesity, excessive alcohol use, previous noncompliance, etc. Yet binary patients are invariably weighed and are expected to give correct answers to questions about their health-related behaviors that may be embarrassing to them.

⁵² It is important to note that some trans and non-binary people experience dysphoria when exposed to the names of body parts associated with their biological sex (e.g., “penis,” “breasts,” “vagina,” or “uterus”), so substituting the sex question with a body-part approach does not guarantee that dysphoria will be eliminated.

⁵³ We are indebted to Ginger Hanks Harwood for discussions surrounding the issue of trust.

⁵⁴ Though, as one of our reviewers noted, HCPs who believe their patients always tell the truth, the whole truth, and nothing but the truth are probably too naïve and will sometimes—perhaps often—be disappointed.

Patient “Confessions”

Imagine a trans man who requests a pelvic exam or a prescription for oral contraceptives, or a trans woman who requests a prostate exam. The conscientious HCP will understandably ask the patient about his sex. After all, prescribing oral contraceptives for a man would typically be medically inappropriate, and a prostate exam on a woman would be impossible. Patients making seemingly anomalous requests might experience discomfort or anxiety while doing so, but as the initiators of the conversations, they have presumably (sufficiently even if not completely) managed that discomfort. Put simply, requests to HCPs for seemingly odd, sex-related interventions will, in virtue of the content of the request, expose the disparity between sex and gender, and thus, will not be thwarted by eliminating the sex question on healthcare forms. Such cases suggest that the truth P2 is at least sometimes questionable.

A Final Objection

The Authors point out that their proposal to restrict the use of categorizing patients by sex is analogous to recent recommendations against the use of race as a proxy in medicine. The problem with this alleged analogy is that race and sex are not analogous: *sex, unlike race, is biologically and medically significant*. While we are not denying that there are genetic differences between human populations, the use of racial categories in clinical practice and research has proven to be ineffective or counterproductive. The case against using race as a proxy in healthcare has been well established by mainstream scientific research.⁵⁵ In contrast, sex has a genetic basis that underpins a host of differences between males and females—“from reproductive organs . . . to every cell and organ system.”⁵⁶ Given the overwhelming medical evidence that sex is relevant for accurate diagnosis and appropriate treatment, and that the call for limiting the use of sex categories stems not from genetic or medical research but from trans cultural practices,⁵⁷ it is clear that sex and race are not analogous, and therefore should not be treated identically in healthcare contexts. While we understand and appreciate that diverse cultures can develop different meanings to suit their needs, these meanings do not necessarily translate into biological-based practices.

Education as a Possible Alternative

Given the growing mainstream presence (in institutions, public discourse, and popular culture) of non-binary and trans people, many HCPs (like the rest of us) incompletely understand or appreciate the particular culturally based needs and preferences of these patients/persons. We are all feeling our way when interacting with these populations and, when we first began studying this issue, we intuitively felt that the solution lay in education. In fact, the Authors note that additional education is needed—in professional schools and continuing education programs—about the psychological and physical issues

⁵⁵ For an overview of the problems associated with race-based medicine, see Roberts, D. (2011). What's wrong with race-based medicine: Genes, drugs, and health disparities. *Minnesota Journal of Law, Science and Technology* 12(1): 1–22. Also see UCLA Health. (2022). *Testing kidney function with race-free values offers a better health picture*. [link to this article](#).

⁵⁶ Sex and Gender Health Education Summit. (2018). *Program Proceedings*, p. 20. [link to this article](#).

⁵⁷ Freeman & Ayala López, *op. cit.*, note 2, p. 263.

that can interfere with/inform the care of these patients. They argue that, as HCPs find their way, they need all the help they can get—including, in general, eliminating anything that perpetuates a binary metaphysics and, in particular, eliminating the sex question from healthcare forms.

Our concerns are, first, that continuing education is often left to the discretion of individual practitioners, so is unlikely to reach all (or perhaps even the majority of) current practitioners in a timely fashion. Second, formal education of professionals occurs over time and, given the inertia of institutions, changes in the curricula of HCPs formal education would likely evolve slowly. As a result, one might reasonably expect attitudinal changes to take at least a generation.

We continue to maintain that biological facts matter. One can transform one's gender. One can transform one's appearance. One can transform one's behavior and mannerisms. One cannot transform one's sex. As we have herein demonstrated, a rich and fully developed consequentialist argument requires retention of the sex question on healthcare forms.

A Possible Compromise

Because omitting the sex question is neither morally justifiable (as a thorough consequentialist analysis has shown) nor likely to prevent non-binary and trans patients' stigma, anxiety, embarrassments, or misunderstandings with their HCPs, we suggest the following:

1. Move the sex question later in the questionnaire to reduce its prominence.

Rationale: Patients may be less distressed if not quickly confronted with the issue.

2. Add the option of "intersex" to the standard sex question. Specifically:

Sex: Female Male Intersex

Rationale: Acknowledges a third, nontraditional revision to age-old dichotomy

3. Add a new question after the traditional sex question. Specifically:

Gender identity: Female Male Other (please specify)

Rationale: Acknowledges distinctions between biological and sociocultural categories.⁵⁸

Conclusion

Biology is not physics. As such, not all conclusions to biological arguments are *necessarily* true. But sociocultural objections to the biology-based sex binary do not render that binary useless. As we have shown, the practical uses of this binary in the *practice* of medicine have had—and continue to have—practical utility. We have further shown that the negative consequences of removing the sex question from healthcare forms—which will not solve the problems the Authors identify—are extensive, intense, enduring, certain, and will affect millions of people. These significant harms outweigh the

⁵⁸ A possible worry is that including this option will confuse many (binary) patients, not because they are transphobic, but because they don't follow the philosophical literature and, thus, think they have already answered this question when they specified either "female" or "male" (i.e., option 1).

uncertain benefits to many fewer trans and non-binary patients. Finally, we have shown that correctly identifying a patient's sex is relevant to appropriate and therapeutically successful healthcare—for trans and non-binary patients as well as binary patients. For these reasons, we reject the suggestion to remove the sex question from healthcare forms as both immoral and impractical.