

VIEWPOINT

Genome Editing, Ethics, and Politics

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Abstract

For the better part of a dozen years and over 3 US presidential terms, heated debates about the ethics of cloning and embryonic stem cell research helped to define the American political landscape. Current lack of public controversy about regulation of human genome editing does not signal that ethical issues about engineering human embryos have been settled. Rather, while genome editing raises old ethical questions about the value of human life, eugenics, and the weight of unintended consequences, it also came into being in a political landscape that vastly differs from the early aughts when bioethics was last a major topic of political controversy.

Not Controversial?

For the better part of a dozen years and over 3 US presidential terms, heated debates about the ethics of cloning and embryonic stem cell research helped to define the American political landscape.¹ Yet now, despite the fact that new developments like gene editing are barreling ahead and challenges to traditional conceptions of human reproduction are still developing, ethical issues of biotechnology have largely disappeared from the public space. In June 2019, a congressional committee decided not to override a ban on modifications of embryos that prohibits the US Food and Drug Administration (FDA) from approving clinical trials involving heritable changes and the so-called 3-parent embryo resulting from mitochondrial replacement.² The vote took place with the usual back-and-forth among elite policy ethicists with minimal notice in the media and no comment at all in any of the 2-dozen presidential campaigns.²

This lack of public controversy about government regulation of gene editing does not signal that ethical issues about engineering human embryos have been settled. Rather, while genome editing raises old ethical questions about the value of human life, eugenics, and the weight of unintended consequences, it also came into being in a political landscape that vastly differs from the early aughts, when bioethics was last a major topic of political controversy. Understanding the altered biopolitics of our time is an essential step toward effective [governance of genome editing](#).

Shifting Biopolitics

More than other fields of inquiry, biology and biomedicine are often intuitively felt to have high-stakes cultural and political implications, and for good reason. There is a long history of biology being used to forward illiberal and sometimes violent political agendas, from the 19th-century eugenics movement, to the [forced sterilization](#) of Americans in the early 20th century, to exterminationist Nazi ideology. And this history played a big role in the American conservative bioethics movement.

The chair of President George W. Bush's President's Council on Bioethics, Leon Kass, was deeply influenced by the German-born Jewish philosopher, Hans Jonas.³ Jonas' experience as a refugee from Nazi Germany led him from his early training in existential philosophy to a lifelong interest in ethics. The major innovation of Jonas' bioethical thought was to show how human dignity was rooted in organic processes of life—that is, in biology. In an essay on genetic engineering first published in 1984, he described cloning and recombinant DNA technology as trespasses into a sacred realm.⁴ Jonas' ethics were nevertheless secular ethics that drew on the idea of the sacred as a kind of last-ditch wall between human dignity and the unchecked progress of biotechnology. This philosophical tradition informed Kass' opposition to embryonic stem cell research and his role in convincing President Bush in 2001 to bar federal funding for research involving any new stem cell lines.⁵

Another key factor in the controversy over stem cell research was that it united widespread social anxiety about cloning and chimeras (persons composed of more than one genotype) and the controversial political issue of human embryo destruction. The immediate implications of President Bush's stem cell policy were ambiguous: it limited the number of stem cell lines on which research could be conducted (implicitly limiting funding on new lines), which led to anxiety among scientists about which and how many cell lines qualified and to subsequent regulatory confusion.¹

But perhaps even more significant was the subsequent creation of the President's Council on Bioethics in November of 2001,⁶ which differed substantially from President Clinton's National Bioethics Advisory Commission (1996-2001) in both its charter, which emphasized public reflection on ethical issues rather than policy recommendations, and its fraught relationship with biologists. Under Kass, the President's Council on Bioethics was not tasked with finding consensus among ethicists and scientists but rather asked "to develop a deep and comprehensive understanding of the issues that it considers" and "to articulate fully the complex and often competing moral positions on any given issue."⁶ As critics at the time were quick to point out, however, this commitment to "competing moral positions" over consensus became at the very least an effective tool wielded against both the independence of scientific research and the constitutional protection of women's autonomy over their own bodies.¹ The embryonic stem cell controversy is a

historical lesson in how bioethics becomes inseparable from biopolitics, or the governance of science and technology.

Yet as recently as the 1960s, a conservative attitude toward biotechnology did not neatly align with a left-right political spectrum. For Jonas' philosophy has also been an inspiration to environmentalists because of the way he describes human obligation to the natural world, a position more readily embraced by today's liberals and even leftists.⁷ Nevertheless, just as the second President Bush ushered in a new neoliberal era in American politics, his Bioethics Council helped solidify a new alignment between the Republican Party and conservative bioethics.

The success of the Republican assault on [abortion rights](#) notwithstanding, this alignment has largely disappeared under President Trump. Not only is there no bioethics commission under Trump, but the ethics of biotechnology has all but disappeared from the national political conversation. A notable exception is the Trump administration's decision in June 2019 to restrict research on tissues derived from aborted fetuses, a move that will bring a halt to studies of diseases ranging from cancer, to dementia, to HIV.⁸ But even this development, tied to the notion that scientific uses of these tissues somehow encourage abortion, was not unexpected and is rooted in debates about fetal tissue research that date to the 1970s.¹

Biopolitics of Genome Editing

Gene editing, a topic more remote from the long-standing abortion debate than stem cell research, does not attract the political attention abortion does, and certainly the attention it has garnered is nothing to rival that of cloning and stem cell controversies. Eugenics, too, is probably less an immediate worry than it was for the generation of Hans Jonas. Contributing to this relative lack of attention is the fact that the Republican Party itself underwent a massive internal revolution, beginning with the rise of the Tea Party movement in 2009 and reaching its climax with the nomination of Donald Trump for president in 2016. In addition to shifting the party's agenda further to the right on many issues and dropping what remained of Goldwater-style libertarian social philosophy, this realignment also brought about the dethroning of a whole generation of conservative intellectuals. In other words, there seems to be little controversy over genome editing in part because the right, with the significant exception of abortion, has lost interest in the conservative intellectual tradition that informed conservative bioethics. Critically, the elite individuals at conservative policy organizations who identified the most with Jonas' bioethical concerns, adrift without a party and considering themselves "never-Trumpers," have largely moved on to economic issues.⁹

In some ways, the ethical implications of biotechnology have actually changed less than the political world in which these questions are playing out. It seems unlikely that the congressional decision to uphold barring the FDA from approving clinical trials involving

embryo modifications would have been different with more public attention, especially following the use of CRISPR in the notorious experiments conducted in China in 2018 that resulted in several live births.¹⁰ While CRISPR is certainly a powerful new tool for genome editing, the ethical questions it raises are primarily ones to which bioethicists have long been attuned.

Governance

Genome editing research on human subjects is already subject to a robust regulatory framework, including FDA regulations, that governs all clinical research in the United States. In 2017, the US National Academies of Sciences, Engineering, and Medicine made formal recommendations for ethical human genome editing,¹¹ and in November of 2018 the Second International Summit on Human Genome Editing convened to address the “science, application, ethics, and governance of human genome editing.”¹¹ Developments such as these suggest that the governance of genome editing is likely to be undertaken by national and international scientific bodies in collaboration with regulatory agencies and not, as in the recent past, by the legislative or executive branch. Meanwhile, concerns about slippage between clinical applications and enhancements, which might constitute eugenics, could be addressed in the short-term by scientific communities building consensus on research priorities for life-threatening and life-altering diseases. If genome editing becomes commercially available—think not only of direct-to-consumer genetic testing but also of self-administered brain stimulation devices—regulatory solutions applicable to do-it-yourself medicine would have to be applied.¹² Although there are serious risks associated with genome editing, both to humans and to the environment, there is nevertheless cause for hope that these risks will be addressed or mitigated by scientific bodies themselves. For the moment, at least, these risks are unlikely to generate the level of political engagement that marked the stem cell and cloning controversies of the early 2000s.

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