

Just Because We Can Create Genetically Modified Babies Doesn't Mean We Should

Two remarkable things took place last month in the world of biotechnology: A Chinese doctor [claimed](#) to have created two genetically modified human embryos who were successfully nurtured to birth, and the worldwide scientific community [roundly rejected this experiment](#) as a violation of ethics.

In turn, the [Chinese government condemned the doctor](#) and called for an immediate investigation.

At issue is a developing biotechnology known as CRISPR-Cas9 that allows scientists to genetically edit cells. The technique holds potential to treat a variety of genetic disorders such as cystic fibrosis and sickle cell disease, as well as even more complex conditions such as cancers and heart disease. Indeed, the doctor says he genetically modified the two children in question (back in their embryonic stage) to make them resistant to HIV.

As promising as that sounds, the deployment of gene-editing to human embryos is rife with ethical questions: concerns about experimentation on minors, human embryo destruction, the creation of life in a lab, “designer babies,” the boundary between therapy and “enhancement,” and interventions in the genome that will be passed on to future generations.

In other words, genetically modified human embryos raise new versions of old bioethical problems, as well as some new ones.

First, countless embryonic human beings were killed in the process that led to the live birth of these two genetically modified children. Like all so-called “assisted reproductive

technologies," many more embryos are created than are implanted and subsequently delivered. The remaining embryonic human beings are either frozen in perpetuity or destroyed. This research poses an immediate threat to the right to life of the unborn.

Regardless on where you stand on the abortion debate in terms of unplanned pregnancies, the intentional creation—and destruction—of human beings should worry all of us. Such callous disregard for human dignity does not bode well for the future of scientific integrity.

We should also care about the dignity of life in its very origins. There is a great danger in creating children in the laboratory, a process that treats human subjects as if objects of technological mastery. That will have profound moral and cultural implications as the science progresses: Societies can come to view human life—all life, modified or not—as something that can easily be toyed with and discarded.

We forget the fact that children should be begotten, not made, at our peril. And we should be wary of practices that separate the life-giving act from the love-making act. Indeed, these new technologies are misnamed. They don't "assist"—they replace fertility and procreation with reproduction in a sterile lab. Human beings are to be welcomed as gifts, not manufactured as products.

The technologies behind the manufacture of babies raises new questions, too. The CRISPR-Cas9 procedure, and others like it, allow scientists to take further steps down the road of creating designer babies. This would allow parents—or other authorities—to dictate the characteristics of future people.

There's also the specter of a kind of "brave new world" genetic arms race. Imagine John Edwards's "Two Americas," but between the genetic haves and the genetic have-nots. An America where the wealthy (and morally unscrupulous) design

super-babies, while everyone else remains “unenhanced.”

As the philosopher Leon Kass has explained, “As bad as it might be to destroy a creature made in God’s image, it might be very much worse to be creating them after images of one’s own.”

While the children this time were modified to prevent HIV, no one knows what may be the next genetic modification. And it isn’t hard to fathom how these new technologies could be deployed in the hands of racist, eugenicist, or genocidal governments of the future.

Of course, we have no idea what the consequences—both physical and social—will be to these genetic interventions. Scientists simply do not know whether knocking out any particular gene will have other, unintended health consequences down the road. The genetic code is complicated and interconnected, and even a small, well-intentioned modification could have large ramifications.

Furthermore, genetically modifying human embryos will modify their germ line (sperm and ova), entailing that those modifications will transfer to future generations. So, for these Chinese babies, not only has their genome been modified, but their entire lineage could be affected. Right now, it all amounts to an experiment.

Technologies such as CRISPR will impact all of us eventually, not just the scientific community. So even as they denounce the Chinese experiment, the claims from scientists that they can “self-regulate” fall flat.

Whether and how to use various biotechnologies needs to be carefully considered with serious ethical reflection from all of us. And yet the dean of Harvard Medical School said that “It is time to move forward from [debates about] ethical permissibility to outline the path to clinical translation ... in order to bring this technology forward.”

As the most recent developments demonstrate, China is especially aggressive in its willingness to ignore bioethical standards. Despite its face-saving condemnation of the CRISPR babies, Beijing is already suspected of using CRISPR and other technologies to explore the possibility of producing so-called “super soldiers” with increased muscle mass, expanded cardiovascular capacity, and even improved vision at night. This, in turn, is likely to tempt some in the West to lower their own bioethical standards in the name of national security. That would be a mistake.

Just because we can do something doesn't mean we should. To avoid the trap of falling into a technocracy, humans must govern technology, not the reverse. At the same time, we must avoid the trap of becoming Luddites. New biotechnologies hold the potential to cure and prevent disease, to promote human flourishing—but only if the deployment of technology is governed by morality.

The experiments in China with genetically modified babies is just the beginning of what could go wrong.

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