Today's vote in the UK House of Lords means that variations of embryonic genetic modification may soon be used in fertility clinics without any required follow-up of resulting children, despite extensive scientific, ethical, and legal objections heard from around the world. The UK is now the only country in the world to allow human germline modification, genetic changes that will be passed on to future generations.

The Center for Genetics and Society (CGS) joins many others who believe that this is a historic mistake. Human germline modification has long been considered the most objectionable of possible biotechnological developments. Rather than cure anyone, these techniques will turn children into biological experiments and sell wildly exaggerated hope to women already in a challenging position. They will also require the procurement of numerous eggs from healthy young women.

The techniques will combine nuclear DNA of an intended mother with mitochondrial DNA of an anonymous egg provider in an attempt to prevent the maternal transmission of a rare form of mitochondrial disease for a small number of women. Unfortunately, mounting evidence suggests that these biologically extreme processes could introduce the very diseases they are designed to prevent, or cause entirely new developmental problems.

The techniques in question are relatively crude and will not in and of themselves create so-called "designer babies," as that term is typically understood. However they will result in children with DNA from three different people in every cell of their bodies, which will impact a large range of traits in unknowable ways, and introduce genetic changes that will be passed down to future generations through the female line.

"We hope that, at the very least, UK authorities will follow through on the outstanding recommended safety and efficacy studies prior to any use in humans. They must also ensure that any women considering using these techniques are provided full and objective information about the alternatives available to them for forming healthy families, and about the risks to which they are subjecting their future children," said CGS Executive Director Marcy Darnovsky, PhD.

This bill enacts an exception to the UK's law against inheritable genetic modification, which is also prohibited by more than 40 other countries and several international human rights treaties. Despite the gravity of the legal precedent now set by the UK, observers have noted a number of irregularities in the consultations and political process that led up to the vote, from under-representing public and scientific critiques, to using terminology that minimizes the severity and novelty of the manipulations.

“Unlike experimental gene therapies where risks are taken on by consenting individuals, these techniques turn children into our biological experiments and forever alter the human germline in unknowable ways. There is no precedent for this,” Darnovsky said. “We call on those who have supported moving forward with these techniques to make it clear that other kinds of inheritable genetic changes remain off limits.”

CGS has a regularly updated resource page that documents the scientific and policy developments surrounding these germline modification technologies.