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PROFESSION

Attitudes on in vitro fertilization have evolved since 1978, when Louise Brown became the first baby born through IVF. Brown and biologist Robert G. Edwards celebrated the 30th anniversary of the breakthrough in 2008. [Photo by Chris Radburn/PA Wire]

Nobel Prize reflects IVF's acceptance as medical procedure

Nobel laureate Robert G. Edwards' innovation has resulted in more than 4 million children born since 1978.

By KEVIN B. O'REILLY, amednews staff. *Posted Oct. 18, 2010.*

Four decades ago, a majority of Americans told pollsters that the idea of creating a baby in a test tube went "against God's will." In early October, the Nobel Prize in Physiology or Medicine was awarded to one of the men who helped make in vitro fertilization a reality.

Physicians specializing in fertility medicine said the prize -- awarded to 85-year-old British biologist Robert G. Edwards -- was long overdue and reflects how far the field has come. IVF initially sparked suspicion and condemnation from religious authorities, scientists, medical ethicists and the public.

In the 32 years since, more than 4 million children worldwide have been born with the help of IVF. Doctors have seen the attitudes shift in their patients, who in decades past felt stigmatized when seeking out IVF but today often regard the technique as a first option when natural methods fail.

While acceptance of IVF is widespread, what still sparks controversy is how the fertility practice can potentially be misused.

The Nobel award comes on the heels of contentious debate about IVF practices such as high-dollar payments to egg donors and the January 2009 "octomom" case in which octuplets were born to Nadya Suleman after six embryos were transferred, and two split.

The average payment to egg donors in the U.S. is $4,217.

Meanwhile, fertility specialists must contend with the dilemma of how to handle frozen embryos and fears about the potential use of preimplantation genetic diagnosis to create "designer babies."

Public opinion toward IVF shifted quickly as the science proved successful. A month after the July 1978 birth of the first IVF-conceived baby, Louise Brown, a Gallup Poll found that a quarter of Americans opposed IVF as "not natural."

But 60% said they favored IVF because of the help it could provide to infertile couples.

More than half said they would consider using the method if they wanted to have a biological child but could not do so naturally.

"There was a concern that children might be born defective or unhealthy in some way, but when the health consequence went away, the 'playing God' thing went away for most people," said Ronald Bailey, author of the 2005 book *Liberation Biology: The Scientific and Moral Case for the Biotech Revolution*. "Most people just thought about the advantages -- would I want this available to me if I had trouble having children?"

Within a year of Louise Brown's birth, the U.S. National Advisory Ethics Advisory Board approved federal funding of IVF research.

The U.S. National Advisory Ethics Advisory Board recommended approval of federal

Bailey said the ethicists' conclusions were "a following indicator ... the scientific success is what ratifies the moral conclusions."

That positive attitude is reflected among patients seeking fertility treatment today, said Sergio Oehninger, MD, PhD, medical director of the Jones Institute for Reproductive Medicine in Norfolk, Va., the clinic that helped produce the first baby born through IVF in the United States.

"The objections these days are none," Dr. Oehninger said. "Patients come asking today for IVF. In the past,

funding of IVF research in 1979.

we'd have to get there after trying everything else in terms of diagnosis and treatment. The technology is completely accepted around the world."

Pockets of resistance

The Roman Catholic Church has long opposed the practice because it separates reproduction from sexual intercourse between husband and wife, and because it can result in embryo destruction.

Bishop Ignacio Carrasco de Paula, the Vatican's bioethics official, reacted negatively to the Nobel award.

"I find the choice of Robert Edwards completely out of order," Carrasco de Paula said. "Without Edwards, there wouldn't be freezers full of embryos waiting to be transferred in utero or, more likely, be used for research or to die, abandoned and forgotten by all."

The American Medical Association has policy saying that research should not be conducted on frozen embryos that will be implanted in the uterus. Clinics should make agreements with gamete donors in advance on how to handle frozen embryos, the AMA says.

When Geoffrey Sher, MD, opened his IVF clinic in Nevada in 1982, he was greeted with protests from the local Catholic archdiocese and had "major problems with the community" objecting to his practice.

Dr. Sher, whose practice has helped produce more than 16,000 babies using IVF, said fears about the health and welfare of children born through IVF have proved false.

"These children are able to capitalize on the most valuable thing in this world, and that's being born wanted," Dr. Sher said "They are not born by accident."

Most of the concerns about IVF today are not about the children conceived using the technique, but how the practice might be carried out. For example, several states this year considered legislation to ban payments to women who donate ova for use in IVF.

The national average payment to egg donors is $4,217, according to a survey published in the May 2007 *Fertility and Sterility*.

The American Society for Reproductive Medicine says payments of more than $10,000 are inappropriate. But highly educated, and therefore highly prized, egg donors sometimes have been paid much more.

In light of the "octomom" case, states have considered measures to put guidelines on the maximum number of embryos to transfer, but none has passed a law.

The biggest fear is how growing knowledge of genetics may be used in IVF, said Marcy Darnovsky, PhD, associate executive director of the Center for Genetics and Society in Oakland, Calif.

In December 2008, a California IVF clinic briefly advertised that its patients could select their child's hair or eye color before retracting the service due to negative publicity.

"It's a huge question, whether we're going to use these reproductive and genetic technologies to try to improve our children and produce superior human beings," Darnovsky said. "That is kind of a fusion bomb of the biological sciences."

That kind of worry is an echo of earlier concerns about IVF that were shown to be unfounded, Bailey said.

"Parents are not typically going to pick genes that are deleterious for their children," he said. "They're going to make it so the children have longer, better, happier lives. What's wrong with that?"

The print version of this content appeared in the **Oct. 25** issue of *American Medical News*.

ADDITIONAL INFORMATION:

IVF's history of innovation -- and controversy

July 1965: British biologist Robert G. Edwards works with American physicians Howard W. Jones Jr., MD, and Georgeanna Seegar Jones, MD, to successfully fertilize human eggs in vitro.

1969: A Harris poll finds a majority of Americans believe that in vitro fertilization goes "against God's will."

November 1977: Edwards' partner, Dr. Patrick Steptoe, laparoscopically removes an egg from Lesley Brown's ovaries, which he then fertilizes outside the womb and implants in her uterus.

July 1978: Louise Brown, the world's first "test-tube baby," is born in England.

March 1979: The National Ethics Advisory Board recommends approving federal funding of IVF research, lifting a de facto ban in place since 1975.

December 1981: Elizabeth Jordan Carr is the first IVF-conceived baby born in the U.S.

March 1987: The Roman Catholic Church, in an official Vatican statement, says IVF is immoral because it strays from natural intercourse between a husband and wife and endangers embryos.

January 2009: Nadya Suleman gives birth to octuplets after her physician transfers six embryos -- far exceeding clinical guidelines -- and two split in the womb.

November 2009: The American Society for Reproductive Medicine tightens guidelines on the number of embryos to transfer, saying physicians should deviate from them only in rare circumstances.

October: The Nobel Prize in Physiology or Medicine is awarded to Edwards.

Sources: Previous *American Medical News* coverage, news accounts, PBS

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"The Nobel Prize in Physiology or Medicine 2010," official website of the Nobel Prize, Oct. 4 (**nobelprize.org/nobel_prizes/medicine/laureates/2010**)

"Guidelines on number of embryos transferred," American Society for Reproductive Medicine Practice Committee, *Fertility and Sterility*, November 2009 (**www.ncbi.nlm.nih.gov/pubmed/19836732**)

"Financial compensation of oocyte donors," American Society for Reproductive Medicine Ethics Committee, *Fertility and Sterility*, August 2007 (**www.ncbi.nlm.nih.gov/pubmed/17448470**)

"What is happening to the price of eggs?" *Fertility and Sterility*, May 2007 (**www.ncbi.nlm.nih.gov/pubmed/17433318**)

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