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## Clinics Hold More Embryos Than Had Been Thought

By NICHOLAS WADE

Fertility clinics in the United States have accumulated some 400,000 frozen human embryos, about twice the number estimated, since 1986 when the in vitro fertilization procedure began, the first official inventory has found.

The calculation is likely to influence the debate over human embryonic stem cells, which are derived from surplus embryos.

The survey, published today, was conducted by the clinics' association, the Society for Assisted Reproductive Technology. There are two reasons for the large number of stored embryos, experts say. Because of the expense and inconvenience of extracting an egg for in vitro fertilization, couples prefer to extract a large number of eggs at once so that others will be on hand if the first implantation fails. In about 25 percent of cases, surplus embryos remain and are stored in freezers, said Dr. David Hoffman, a past president of the society and a co-author of the survey, the results of which were reported yesterday in The Washington Post.

Both the couples and the clinics are reluctant to destroy these frozen embryos, and as a result, according to the clinics that responded to the survey, 396,526 embryos have now accumulated in their freezers. Dr. Hoffman said that as many as 20,000 might be held by clinics that did not respond.

The survey compared the number of frozen embryos in the United States with those of Britain, at 52,000, and Australia, with 71,000.

In Britain, where fertility clinics are closely regulated by a government agency, the Human Fertility and Embryology Authority, couples may have their surplus embryos preserved for five years, with a single five-year extension if they request it. The reason for the limit, said Ann Furedi, a spokeswoman for the authority, was to ensure that children were born into families of reasonably normal childbearing ages. Despite this limit, the embryo stockpile in Britain continues to grow because more people are trying in vitro fertilization, Ms. Furedi said.

The stockpile in the United States may be growing even faster because there is no limit on storage time for embryos. Further expansion "seems likely given that few to none are being destroyed and more are being created all the time," said a co-author of the survey, Dr. Gail L. Zellman of RAND, a research group in Santa Monica, Calif.

Couples undergoing infertility treatment donate oocytes and sperm that are mixed to create fertilized eggs, which then develop in the laboratory into preimplantation embryos. The parents are asked to choose among several options for any surplus embryos. The survey found that 87 percent of the stored embryos were being held for possible future use by parents, 3 percent were earmarked for research and 2 percent for destruction.

It is unclear how many parents may be designating the embryos for future use simply in preference to the other options, such as research or destruction, rather than because they actually intend to have the embryos implanted.

"What we are seeing is that there is reluctance by parents to do anything other than hold them," Dr. Zellman said.

If some or many of the surplus embryos are eventually destroyed, ethicists say, there is an ethical cost to be set against the benefit of in vitro fertility treatments. About 100,000 children have now been born in the United States through these procedures.

The embryos at issue are at very early stages of development ranging from the zygote, the single cell of the fertilized egg, to the blastocyst, a sphere of cells several days old that has not yet implanted in the womb.

Dr. Alta Charo, an ethicist at the University of Wisconsin, said that clinics could favor either the woman's interest or the embryo's interest. It is in the woman's interest to create multiple embryos in a single procedure. It is in the embryo's interest to retrieve one egg at a time, and to fertilize and implant until a pregnancy results, thus creating no surplus embryos.

The fertility clinics were at one time accused of being unethical for creating surplus embryos. "But that argument dropped away because it wasn't persuasive to enough people," Dr. Charo said.

But Dr. John Haas, president of the National Catholic Bioethics Center in Boston, said that the excess embryos made in vitro fertilization "an inappropriate means of overcoming human infertility" and that the Vatican pronouncement of 1987 entitled "Donum Vitae" had judged in vitro fertilization "to be beneath the dignity of the human person."

Dr. Haas praised a German law that required all embryos created in vitro to be implanted. "We don't think any good can ultimately be accomplished at the expense of a human life," he said, referring to that of the surplus embryos.

Human embryonic stem cells, a subject of intense research interest as a possible way of repairing diseased tissues, are derived from the surplus blastocysts generated in fertility clinics.

Some scientists would prefer to generate embryos of known pedigree for research purposes, rather than rely on those of infertile couples. But the creation of embryos for research purposes, though allowed in Britain, has not been sanctioned in the United States and is vigorously opposed by opponents of abortion.