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What Fertility Patients Should Know About Egg Freezing



Dr. Julie Lamb, director of fertility preservation at Pacific NW Fertility in Seattle, has been fielding calls from concerned patients after two unrelated incidents at fertility clinics in San Francisco and Cleveland raised concerns about egg storage. Credit Credit Ruth Fremson/The New York Times

Pam Belluck

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The failure of systems used to store frozen eggs and embryos at two fertility clinics has rattled people who count on such clinics to help them realize their hopes of having children. But [the breakdowns at clinics in Cleveland and San Francisco](#), each apparently involving the temperature or level of liquid nitrogen in one storage tank,

have damaged at least some eggs and embryos belonging to potentially hundreds of people.

At a time when egg freezing is increasing swiftly — some Silicon Valley companies now tout it as a perk for their employees — the incidents raise questions about what to look for and ask if you are considering taking that step. Here is a basic guide:

How likely are storage failures?

Several doctors with years of experience in the fertility industry say the recent incidents in San Francisco and Cleveland appear to be unusual. “I’m not aware of any other instances,” said Catherine Racowsky, the director of the IVF lab at Brigham and Women’s Hospital in Boston, who has served on several professional and government oversight committees.

Dr. Racowsky and others said that fertility clinics — there are about 450 to 500 in the United States — tend to have backup systems to handle technical failures and make sure frozen tissue stays frozen. “It’s every clinic’s nightmare,” said Dr. Julie Lamb, director of fertility preservation at Pacific NW Fertility in Seattle. She has been fielding questions this week from concerned patients, assuring them that the clinic has multiple backup storage tanks, freezers checked by staff members twice daily, and a “specialized alarm system that monitors tanks, monitors the temperature in the nitrogen level and is connected to a whole phone system with multiple layers of alarms.”

Jake Anderson, a founder of [Fertility IQ, a website that provides assessments of fertility doctors](#) and clinics, noted that both the Cleveland and San Francisco clinics are “large, reputable, subject to oversight,” and they both quickly acknowledged the failures publicly. But he said he worried about smaller, private clinics that have no affiliation with a university or hospital and whether some would be less inclined to disclose a problem. “If this happens in other places that are private, people would take this to the grave and they would never breathe a word of this,” Mr. Anderson said. “To think that only the well-run places that have boards and clinical oversight — they’re the only ones having this problem? I believe the opposite.”

How often does egg freezing lead to the birth of a baby?

It's unclear. Egg freezing has grown sharply. It's up from 475 women in 2009 to 6,207 women in 2015, according to the most recent data from the Society of Assisted Reproductive Technology. But while more than 20,000 American women have had their eggs frozen, the vast majority (an estimated 85 percent or more) have not had their eggs thawed, the first step toward creating a healthy embryo.

That means there are not enough cases to evaluate and come up with solid data on the odds of success. It also means that many clinics that freeze eggs do not have experience thawing them.

Eggs are trickier to thaw successfully than embryos, experts said. An egg is one cell, the largest cell in the body, and contains a lot of fluid and a structure called a spindle, which helps organize the chromosomes. A five-day-old embryo is the same size, but contains more than 100 cells, each of which is less vulnerable to damage.

"Egg freezing has been much harder to crack because of the size that they are, the water content, and that spindle," said Dr. Janis Fox, an assistant professor of reproductive endocrinology and infertility at Harvard and Brigham and Women's Hospital.

The technology you should ask for

A change in freezing technology in recent years has made things easier. The previous technique, slow freezing, could create ice crystals, which could damage the eggs when they were thawed, said Dr. Randi Goldman, a clinical instructor of reproductive endocrinology and infertility at Harvard and Brigham and Women's. Several years ago, clinics began using a process called vitrification, in which the temperature of the eggs in the liquid nitrogen is dropped so quickly that they are frozen "truly in a matter of a second," Dr. Goldman said. Eggs frozen by that method are less vulnerable to damage when thawed.

"You should ask if a clinic is doing vitrification, but that's table stakes," Mr. Anderson said. "If someone says they're not doing vitrification, you should run the other way."

Clinics that have experience thawing eggs have often worked with donor eggs from young women in their 20s. These eggs may be more likely to thaw without damage, and are undoubtedly more likely to produce healthy pregnancies and babies.



Amin Khabani, embryology laboratory director at Pacific NW Fertility. There are 450 to 500 fertility clinics in the United States. While more than 20,000 American women have had their eggs frozen, the vast majority have not had their eggs thawed. Credit Ruth Fremson/The New York Times

Last year, Dr. Goldman and Dr. Fox published a study based on a mathematical model that attempts [to predict a woman's chances of giving birth to a child from eggs that she has frozen](#). Their publicly available [calculator](#) factors in the woman's age (the older she is the lower her chances) and the number of eggs she has frozen (the more the better). Their study estimates an 85 percent successful thaw rate for women who were 36 and over when they froze their eggs, 95 percent for women who were under 36.

But thawing without damage does not mean a baby will ultimately be born. After thawing, an egg must be fertilized with sperm in the lab using a process called intracytoplasmic sperm injection, or ICSI.

“I think patients may be under the misimpression that we’re just going to put the eggs back in your body,” Dr. Fox said.

Far from it. An egg must be fertilized, grown into an embryo for about five days, screened for genetic abnormalities and then implanted in the womb and carried to term. The odds of success at each step are far below 100 percent.

Dr. Fox and Dr. Goldman’s calculator, for example, predicts that a 36-year-old woman who freezes 10 eggs has a 60 percent chance of at least one live birth. [A 2016 study by researchers in Spain](#), which involved 137 women whose frozen eggs were thawed, was less optimistic, predicting that women 36 and older who freeze 10 eggs have a 29.7 percent chance of giving birth.

What are some other aspects of egg freezing to be aware of?

Since younger eggs are more likely to produce successful pregnancies, women might think they should freeze their eggs in their 20s. Dr. Goldman and Dr. Fox advise against that.

“Assuming you have normal fertility and nothing unusual in your family history, there’s definitely a point where it’s too early, and we don’t know what the shelf life of these eggs are,” said Dr. Fox, who cited [a study saying “the most effective age to do it was 34](#) but the most cost-effective age to do it was 37.”

Clinics should be accredited by either the Joint Commission on Accreditation of Healthcare Organizations or the College of American Pathologists, which inspects clinics regularly, Dr. Racowsky said. She and other experts recommend clinics be affiliated with the Society of Assisted Reproductive Technology, the leading professional organization, which audits clinics and keeps success rate data.

It's hard to compare clinics because they may serve different patient populations. Many of Pacific NW Fertility's statistics are based on "younger eggs without a fertility problem," Dr. Lamb said. Brigham and Women's IVF clinic is one of the few clinics that will treat very obese women, a population known to have lower success rates with in vitro fertilization, Dr. Racowsky said.

Mr. Anderson recommends asking the clinic's fertilization rate — "if it's below 70 percent, it's a nonstarter," he said — and its "embryo conversion rate," the percentage of fertilized eggs that become embryos. "Below 40 percent you should walk out the door; 40 to 50 percent — that's a stay, they're competent." Above 50 percent, he said, is "pretty spectacular."

It is also worth asking how many embryologists a clinic has, he and others said. "There should always be at least two embryologists in the lab at all times," Dr. Racowsky said.