



family matters

my twelve embryos

when technology troubles the heart

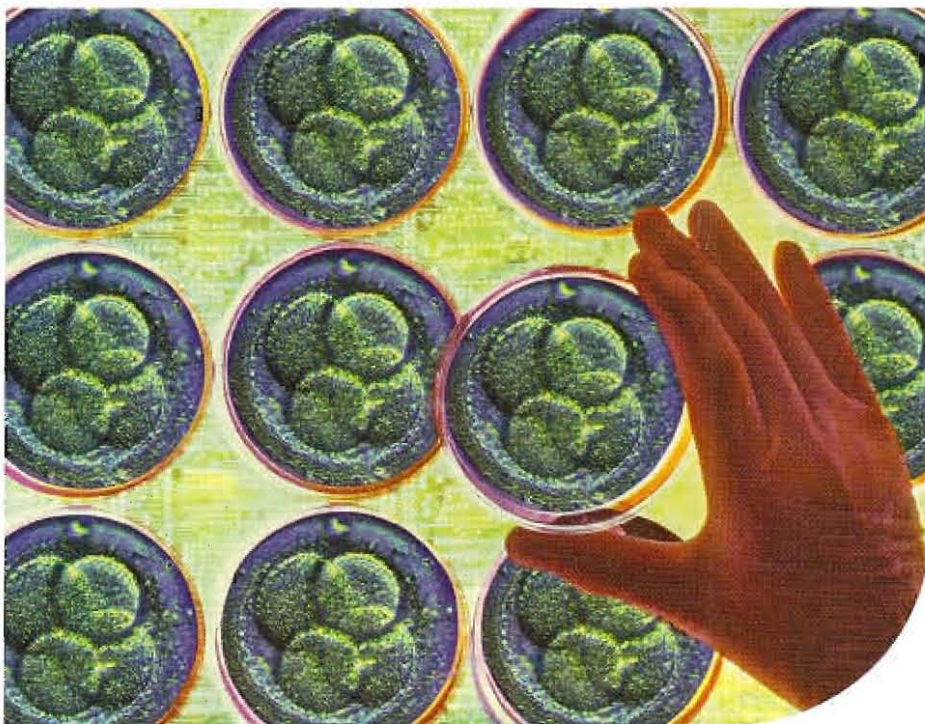
By Heather Millar

MY FOUR-YEAR-OLD DAUGHTER, ERIN, SLEEPS IN HER ROOM AS I WRITE THIS. On a shelf near her bed is her baby book. In it is a picture of her as a five-cell bit of potential. Actually, the picture shows three clumps of cells, the fruit of infertility treatments, that were transferred into my uterus together. My husband and I know that one is Erin, but not which one. We don't know what we'll say if she someday asks about the other two.

Even more ticklish, 12 more microscopic clumps of cells—technically pre-embryos but commonly called embryos—remain frozen in a San Francisco embryology lab, and we don't know what to do with them. We could try for another child. We could donate them to research. We could give them to another infertile couple. We could allow them to be destroyed. Or we could keep paying storage fees to maintain them indefinitely. We can't decide, and we are not alone in our quandary.

A 2003 survey by the Society for Assisted Reproductive Technology and the RAND research group found that almost 400,000 embryos were stored in freezers at fertility clinics in the United States alone. By now, the number may be half a million. Most people storing them said they were holding them for possible

Heather Millar is a freelance writer who lives with her husband, Peter, and their daughter, Erin, in Brooklyn, New York.



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future use. But I suspect that a lot of these people are like my husband, Peter, and me: They probably won't use them but can't stand the idea of giving them up.

So many couples are struggling with this issue that the national infertility organization Resolve sponsors support groups to help people decide what to do with their extra embryos. Many clinics have also increased storage costs to prod couples to make other arrangements. "I think everyone would be happier if there were fewer frozen embryos around," says Randy Morris, M.D., professor of reproductive endocrinology at the University of Illinois in Chicago. "Society hasn't caught up with how to deal with these things in a way that is acceptable to everybody."

Meanwhile, the context for people's confusion has grown

port for a man whose estranged wife gave birth to a baby grown from an embryo transferred into her womb without his knowledge. In Louisiana embryos have been declared "juridical persons" with rights of their own. In Israel a woman gave birth to twins grown from embryos frozen for 12 years, and some scientists theorize that if the nitrogen tanks in which embryos are stored are well maintained, children could be born from these embryos centuries after their parents and siblings have died.

Why the Surplus?

Pete and I didn't think much about what we'd do with any extra embryos when we began in vitro fertilization, or IVF, procedures while living in California in 1999. All we cared about was creating enough viable embryos for a successful pregnancy.

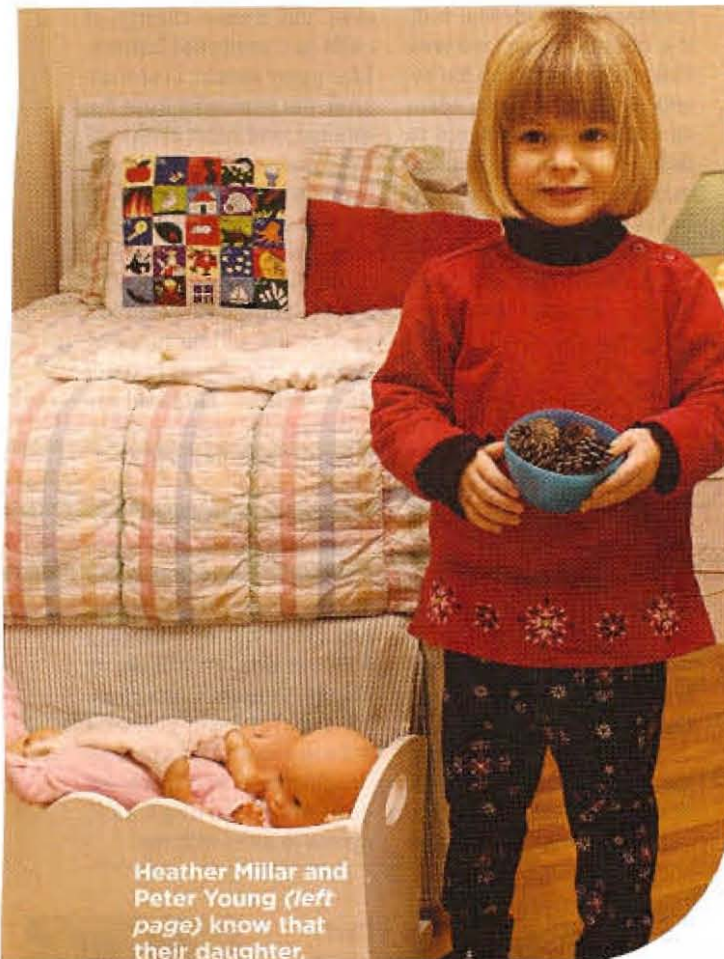
During IVF a woman injects herself with ovulation drugs for 8 to 14 days so the

Our first two IVF cycles failed. The third gave us our daughter, Erin.

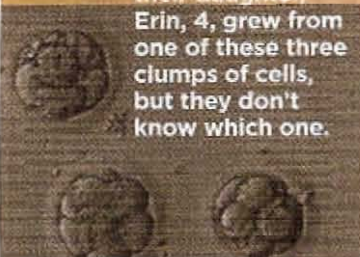


increasingly strange. In Rhode Island a divorced man won custody of a frozen embryo and placed ads seeking a woman to carry it. In Boston a fertility clinic ended up paying child sup-

one or two eggs that ripen in her ovarian follicles each day keep developing. (Normally, they disintegrate except on the one day in her cycle when her hormones naturally spike.) The result can be 20 or more eggs by ovulation time. If they're successfully retrieved and fertilized in a petri dish, this may produce 12 or more good-quality embryos. When IVF techniques



Heather Millar and Peter Young (left page) know that their daughter, Erin, 4, grew from one of these three clumps of cells, but they don't know which one.



were less refined, multiple embryos were transferred into a woman's uterus to increase the odds that at least one would take. This led to a rash of multiple births. Now only two or three are usually transferred.

After the embryos are created, they're sorted into grades, according to how quickly and cleanly the cells are dividing. Following our first, unsuccessful IVF cycle, we froze six viable embryos and donated 12 inferior ones to stem-cell research. We didn't agonize much about

this decision, in part because we were told they had little chance of developing. We also believe in stem-cell research and thought that if our embryos were destroyed, at least it would be for a good cause. We did our second cycle with the three good embryos that survived thawing. (Some do not.) We did our third with "fresh" ones that gave us Erin and the 12 high-grade embryos now in deep freeze at Pacific Fertility Center in San Francisco.

The two and a half years after Erin's birth were a blur: We moved back to New York City. Pete started a new job, then changed jobs. I returned to work half-time. We weathered teething, walking, potty training. Then in 2003 a letter came from PFC

Photos, Lisa Pines.

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asking that we inform the clinic how we wanted to proceed with the storage of our embryos. We had received a similar letter in 2002 and had let a year slip by without replying. What *did* we want to do with them?


It was Erin's birth that started us think-

sure. We don't want to dictate anyone else's reproductive choices, but we are stymied by our own.

Before we can decide what to do, we must answer for ourselves the mind-boggling question of when life begins—a question even the U.S. Supreme Court declined to rule on in its 1973 *Roe v. Wade* decision legal-

implants in the uterine wall. If it doesn't, it can't survive. Other scientists think life begins at about 14 days, when an embryo's cells begin to differentiate and form a human being. The Talmud holds that until its 40th day of development, an embryo is *maya b'alma*, or "mere water." Common law historically put the dividing line

ever, our frozen clumps of cells are potential babies. Like many people, I can't unhook the emotional from the rational, and most clinics offer couples little help in deciding what they believe and what to do. "People come to this process with so many different beliefs," says Carolyn Givens, M.D., our reproductive endocrinologist at PFC. "We try to respect their wishes." That's an understandable position. Alas, it doesn't help us decide.



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ing more seriously about the fate of those embryos. Before we had her, we were ardently pro-choice, in full agreement that a baby isn't a baby until it can survive outside the womb. Now we're not so

izing abortion. Catholics, many evangelical Christians and a large segment of the American public believe life begins at fertilization. Some doctors and ethicists believe it begins at about the fourth day, when the pre-embryo

at "quickening," usually 16 to 18 weeks, when the fetus first moves inside the uterus.

Intellectually, I now favor the theories that life begins at implantation or cell differentiation. Emotionally, how-

Frozen Forever?

While visiting my mother in California, I decide to pay a visit to PFC. Perhaps seeing our embryos and talking with our doctors will clarify things. Joseph Conaghan, Ph.D., the embryologist who helped create our daughter and who has a son conceived through IVF, agrees to meet with me.

Before embryos are frozen, all the water must be drawn out of them so it won't expand as it freezes, bursting and destroying the cells. This is done by immersing the embryos in a series of solutions of sucrose and a nontoxic antifreeze. They are then loaded into plastic straws that look like fancy coffee stirrers with stoppers and slowly cooled in a small freezer to -38°C. The thin straws are then loaded into larger straws that snap into a metal cane, and the whole kit is lowered into a tank of liquid nitrogen that looks like a heavy-lidded washing machine tub.

Two of these tanks stand in a corner of the PFC lab, which Dr. Conaghan and I enter garbed in sterile blue bunny suits, shower caps and shoe covers. Wearing thick leather mitts, he grasps two large handles to remove the top from a tank where embryos belonging to 900 couples, including Pete and me, are kept. As soon as the lid is cracked, cold fog boils out. "They're stored at minus 196 degrees Celsius," Dr. Conaghan says, using forceps to pull a cane of embryos out of a grid of cubbyholes. He holds the cane at an angle, keeping it submerged. It takes only about a minute for a frozen embryo to thaw. "At temperatures less than minus 150 degrees Celsius, metabolism is completely suspended," he says. "They're not really dead; they're not really alive. And because there's no biological activity, their viability is probably indefinite. One embryologist recently estimated that they might survive for two thousand years. I suspect it might be longer."

As I stare into the tank, trying to grasp the concept of such immortality in limbo

for our embryos, I'm surprised that strong emotions don't assail me. *Right*, I think. *Just frozen little clumps of cells*. But by the time Dr. Conaghan puts the lid back on the tank, I'm thinking again of that picture of three clumps of cells in Erin's baby book and wondering if it's time to try for another child.

On another afternoon I take Erin with me to PFC to talk to Dr. Givens about possibly using the embryos myself. We take turns chasing Erin, who is determined to turn on the TV in the center's "sperm collection" room, which certainly is not stocked with kiddie videos.

The process sounds fairly straightforward. "You'd be given hormones to stimulate ovulation so we could time the transfer to the right time in your cycle," says Dr. Givens. "We'd thaw the embryos, then transfer the best ones that survive." Because I got pregnant with these embryos last time, she says, chances are better that there are some good embryos among these 12.

No Easy Answers

"You think I'm crazy even to consider getting pregnant again, don't you?" I ask Peter one morning as he showers. "Yes, I do," he answers, rinsing shampoo out of his hair. He reminds me of the many physical ills I endured during a tough pregnancy that sent me to the ER seven times. He reminds me that Erin will start full-day preschool soon, freeing me to focus on my work again. He reminds me that we're not millionaires. If we have another child, we won't be able to afford to send Erin to private school. "Look," he says, poking his head out from behind the shower curtain. "Those aren't babies in that nitrogen tank."

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No? So what are they then? And what are we going to do with them?

Donating them to stem-cell research is no longer an easy option. In 2001 the Bush administration issued regulations requiring any research project supported by federal funding to work only with stem-cell "lines" already in existence. And even if we could find a lab to take our embryos, it troubles me now—as it didn't before having Erin drove home that these clumps of cells really are potential babies—that only a small percentage of donated embryos become viable stem-cell lines. Most don't. I still believe in stem-cell research, just as I still believe in a woman's right to choose. But maybe now what I'm saying is that I believe in them for other people. Not for our family. Not for our pre-embryos.

That still leaves donating them to an infertile couple.

In 2002 the U.S. Department of Health and Human Services allotted \$1 million to helping promote awareness of this option. When Pete and I later receive a package of educational materials from Resolve, we are enthusiastic. Giving away our embryos is better than feeling we have killed our potential children.

But then the questions begin: What if we want to know where these children are later? And what would we say about them to Erin? Medical and legal experts raise other questions: Does a child born from a donated embryo have the right to know his biological family? If the genetic parents are rich, does the child have a right to inherit? If a couple has a baby grown from our embryo and the baby develops leukemia, would we let Erin donate bone marrow to save her sibling? What if the baby is born with a birth defect and we accidentally left something off

our medical history? Are we responsible?

To try to avert such legal problems, IVF clinics urge donor and recipient couples to draft a contract specifying each couple's rights and responsibilities. There's no guarantee these contracts will hold up in court, though, because the issues raised by embryo donation are so new. There is legal disagreement, for example, on whether the adoption of an embryo is the adoption of a person. "The majority view is that an embryo is neither a person nor property but something in between," says John Mayoue, a family law specialist with Warner, Mayoue, Bates & Nolen, P.C., in Atlanta. For now they're considered "a category that deserves special respect," although what "special respect" means isn't clear. A couple cannot be paid for donating, however. It's illegal to sell human embryos.

Our enthusiasm somewhat dampened, Pete and I still decide to broach the

idea with Maureen, his 23-year-old daughter from his first marriage. She is horrified. "You're kidding, right?" she says. "I mean, I'm so happy that Erin is here. But I'm not sure how I'd feel about having unknown siblings out there. And how would Erin feel?"

She's right. Like donating embryos to research, giving them to another couple may be the right choice for some people (see below), but it does not feel like the right one for us. So Pete and I are back to square one. I still like the idea of giving Erin a younger sibling. But every time I feel tugged in that direction, I stop and do a reality check: Can we really afford to live in New York City, send Erin to private school and shoulder the additional costs of more IVF treatments and another child?

I contact Dr. Givens. "Our embryo-storage fees are paid through 2005, right?" I ask her. She says they are.

Maybe we'll think about it some more. **FC**

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Embryo Donation: A Gift That Keeps on Giving



When Susan Lindeman of Richmond, Virginia, learned she was pregnant, she immediately called her husband, Bruce. With tears in her eyes, she told him that seven years of trying to conceive were finally over. Then she called Glenda Lyons of Eau Claire, Wisconsin, the biological mother of the embryos growing inside her. "It was very

emotional, definitely joy," says Glenda. "It was like my own sister had finally achieved her dream."

Glenda and Susan met on the Internet. When Glenda and Scott Lyons, whose son Matthew is six, couldn't conceive a second child, they tried in vitro fertilization. Glenda gave birth to twins Samantha and Mitchell in April 2002. Believing that their 14 extra embryos were alive and had souls, the Lyons looked for a family to take them. Susan saw a note Glenda posted on an infertility Web site, and after weeks of e-mail exchanges, the Lyons donated the embryos to the Lindemans.

Glenda and Susan didn't expect to become close, but during Susan's pregnancy their friendship grew. "Glenda was such a support," says Susan. "She'd e-mail just to say she was pulling for us." When Susan gave birth to her son and daughter Jack and Chase in July 2003, she sent Glenda photos. They stayed in touch, and in August 2004 the families met in Wisconsin. Says Susan, "All I could do was cry and say thank you."

"People ask me, 'How do you feel about this?'" says Glenda. "But I didn't give birth to these children. I don't feel like they're mine. They feel like my niece and nephew. It's like the way I explain things to Matthew: 'You know how we donate blood? Well, Mommy and Daddy donated some cells to Bruce and Susan to help create Jack and Chase. That's why we look alike.'" Adds Glenda, "We refer to them as real special family."

The Lindemans also had embryos left over. Again using the Internet, they found a California couple to take them. This couple had two girls in August 2004 and may now donate *their* extra embryos to a relative.

Glenda and Susan couldn't be happier. "This is a real-life version of *Pay It Forward*," says Susan. "There was never any question that we would help another couple start a family if we could. It was the right thing to do."