



FROM BIRTH TO DEATH AND BENCH TO CLINIC

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for Journalists, Policymakers, and Campaigns

CHAPTER 2

Assisted Reproduction

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assisted reproduction

by Adrienne Asch and Rebecca Marmor

Framing the Issue

Although it accounted for just over 1% of U.S. births in 2005, assisted reproduction has fascinated the media and public. It has received less attention from lawmakers. In contrast to virtually every other developed nation, U.S. jurisdictions have enacted only piecemeal legislation to deal with assisted reproduction.

There are two significant respects in which assisted reproductive technologies (ARTs) differ from standard medical interventions. First, for the most part, ARTs do not treat the biological problems that give rise to infertility but circumvent them—most ARTs offer ways to create children despite underlying fertility problems. Second, ARTs sometimes require the use of reproductive resources—sperm, eggs, or wombs—from third parties who are not expected to play a role in raising the resulting children. Third party assistance is sometimes required by the infertile heterosexual couples whom ARTs were developed to serve. But they have also enabled same-sex couples and single people to have children to whom they have a biological connection.

The more limited use of ARTs to help infertile couples have children with their own reproductive resources poses ethical issues. These are compounded by the more difficult and complex problems raised by the expansive uses of ARTs: to enable any prospective parents, regardless of age, sexual orientation, or marital status, to have genetically or biologically connected children.

Infertility and Two-Party Assisted Reproduction

Infertility is commonly defined as the inability to conceive after 12 months of unprotected sexual intercourse. It also refers to an inability to sustain a pregnancy, which is demonstrated by repeat miscarriages. Approximately 7.3 million women and their partners (about 12% of the reproductive-age population) is infertile. Infertility affects men and women in equal numbers.

Both men's and women's fertility is affected by workplace and environmental toxins. Two leading causes of women's infertility are delayed childbearing and blocked fallopian tubes (often due to untreated pelvic inflammatory disease). Delayed childbearing is more prevalent among white women than among Hispanic and African American women, whereas tubal impairment is more prevalent among Hispanic and African American women than

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HIGHLIGHTS

- Assisted reproductive technologies—such as fertility-enhancing drugs, in vitro fertilization, and intracytoplasmic sperm injection—can be used to circumvent fertility problems while preserving a genetic connection.
- Ethical issues arise around the creation, selection, and disposal of embryos, as well as around cost, coverage, access, and resource allocation.
- Assisted reproductive technologies can also require the use of sperm, eggs, or wombs from third parties who are not expected to play a role in raising the child.
- Ethical issues around third-party assisted reproduction are complex and involve the selection and sale of reproductive materials and services, regulation, and the rights and responsibilities of collaborators.
- In contrast to virtually every other developed nation, U.S. jurisdictions have enacted only piecemeal legislation to deal with such issues.

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white women.

When partners expecting to become parents discover that one or both of them have fertility problems, they confront a variety of options to bring a child into their lives. They may try to adopt, or they may choose from an array of medical technologies. They must decide whether they prefer the uncertainties and complexities of the adoption process or of the medical response to infertility. Medical responses run the gamut from noninvasive to highly invasive. All carry significant risks for both the mother and fetus. They may also be expensive, and many of the more invasive techniques are not covered by insurance policies. The three primary means of assisted reproduction are:

- **Medication.** Drugs such as Clomid, Serophene, and Pergonal can be used to stimulate ovulation and increase a woman's chances of conceiving. These drugs can also increase the likelihood that the woman will have multiple births, which is potentially risky for both the woman and the fetuses.
- **In vitro fertilization (IVF).** IVF, which was first offered in the United States in 1981, is perhaps the most well known method of assisted reproduction. It has resulted in the birth of more than 500,000 children between the years of 1985 and 2006. With IVF, a woman takes fertility drugs to produce more eggs. The physician then retrieves one or more eggs by laparoscopy or by passing a needle through the vaginal wall. The partner's sperm is then mixed with the eggs in a petri dish, and fertilization may take place.
- **Intracytoplasmic sperm insertion (ICSI).** ICSI is a technique in which a single sperm is injected into the egg. It can be combined with IVF technology to help men with low sperm counts contribute genetically to a child. If fertilization occurs, the embryo is allowed to develop outside the womb for a few days and is then implanted in the lining of the woman's uterus with a small plastic tube. Most centers now place two to four embryos in the womb in the hope that one will burrow into the lining and begin to develop normally.

Ethical Issues with Two-Party Assisted Reproduction

Although the use of IVF by heterosexual couples has gained wide acceptance, it nonetheless raises

LACK OF OVERSIGHT

The American Society for Reproductive Medicine (ASRM) has created guidelines for practitioners about how many embryos to implant in any in vitro fertilization cycle and about treating people whose medical conditions may complicate the typical course of IVF (such as those who are HIV-positive). However, the ASRM lacks the ability to enforce these guidelines. Without governmental oversight, clinicians may practice medicine in accordance with their own beliefs. Variability in the beliefs of different practitioners permits most patients turned down by one clinic to find another where practitioners will feel comfortable treating them.

Nevertheless, the lack of regulation and practitioner variability means that individual decisions about eligibility for ARTs may be arbitrary, biased, and inconsistent, shielding practitioner prejudices, subjecting prospective parents to great uncertainty, and avoiding public discussion of difficult policy issues in reproductive policy.

vexing questions concerning embryo creation, selection, and disposition; cost, coverage and access; and resource allocation.

Embryo creation, selection, and disposition.

Not only do the expense and lack of insurance coverage deter many infertile couples from pursuing treatment, these financial disincentives encourage the practices of implanting multiple embryos at one time and creating more embryos than the couple will ever need. Patients reduce their costs by fertilizing many eggs at once and implanting several embryos in the hopes that at least one will be carried to term. Multiple implantation increases the chance of multiple births; in 2005, 11.2% of ART cycles resulted in multiple-fetus pregnancies. IVF practice raises questions about how many embryos should be created and stored for future use, what to do when couples disagree on the disposition of unused embryos, and when or whether it is appropriate to use preimplantation genetic diagnosis (PGD) as a means of selecting characteristics of the embryos to implant. These concerns are heightened in a country vexed by the moral status of embryos (see box, "Lack of Oversight").

Cost, coverage, and access. The 422 infertility clinics in the United States operate without any regulation of cost, access, or scope and quality of treatments. The average cost of an IVF cycle in the United States is \$12,400. However, it can often take multiple cycles for a couple to achieve pregnancy and birth. The specific laws concerning coverage of infertility treatment vary widely from state to state. Currently, 15 states have laws that require insurers

to cover some form of infertility diagnosis and treatment. These cost concerns affect access. Poorer women and those without health insurance are less likely to go to a doctor for fertility assistance. This trend demands that our society confront the question: should we mandate that insurance companies provide coverage for infertility treatment? Mandatory coverage could suggest that conceiving a biologically connected child is preferable to adoption—there is no standard coverage for the expenses incurred in typical adoptions. If coverage is not mandatory, however, the disparity in access to infertility treatments will likely persist. Infertility treatment is seen by many as a luxury, not a medical necessity. Several theorists, however, argue that procreation and parenting are of such central importance to an individual's identity and life goals that medical insurance should pay for infertility treatment.

Resource allocation. Because the creation of genetically related children for infertile couples has been viewed as a medical issue, the laws, policies, and practices bearing on ARTs have developed separately from the state and national child welfare systems. In a country concerned about ever-increasing health care costs, unregulated infertility medicine results in expensive treatments for difficult pregnancies with multiple fetuses—treatments that might have been avoided by more conservative implantation practices and by efforts to alleviate the conditions that give rise to infertility in the first place.

Third-Party Assisted Reproduction

ARTs are increasingly sought by those who cannot reproduce using only their own genetic and biological capacities. Heterosexual and same-sex couples and single women and men who seek to have biologically connected children frequently turn to clinics and agencies for “donors” who provide sperm, eggs, or gestational services, usually for a fee.

Twelve percent of IVF cycles in 2005 used “donor” eggs, most often for women in their forties who discovered that they could not achieve pregnancy using their own eggs. Although the development of ICSI has reduced the number of heterosexual couples requesting sperm donation, IVF is still sought by those who cannot produce sperm at all, as well as by lesbian couples and single women seeking a child genetically connected to at least

RESOURCES

Web sites

- www.asrm.org – The American Society for Reproductive Medicine. Includes topic index, news, publications, FAQs, and a section for the media.
- www.womenshealth.gov – The U.S. Department of Health and Human Services' source for women's health information. Includes an infertility FAQs and helpful links.
- www.cdc.gov/reproductivehealth – The Centers for Disease Control and Prevention's reproductive health gateway page. Includes data and statistics, publications and products, a glossary, and related links.

Recent news

- Amelia Gentleman, “India Nurtures Business of Surrogate Motherhood,” *New York Times*, March 10, 2008.
- Michael Winerip, “My Sister, My Surrogate,” *New York Times*, December 23, 2007.
- Sharon Guynup, “Scientists Try to Build a Better Womb for IVF,” *Boston Globe*, October 22, 2007.
- Kevin Slack, “Her Embryos or His?” *Los Angeles Times*, May 30, 2007.
- Rob Stein, “Women Hedge Bets Banking Their Eggs,” *Washington Post*, May 13, 2007.
- Osagie K. Obasogie, “Wal-Martization of Embryos,” *Boston Globe*, February 1, 2007.

Further reading

- Susan Markens, *Surrogate Motherhood and the Politics of Reproduction*, University of California Press, 2007.
- The Centers for Disease Control and Prevention, *ART Success Rates: National Summary and Fertility Clinic Reports*, 2005. This and previous reports available at www.cdc.gov/ART.
- President's Council on Bioethics, *Reproduction and Responsibility: The Regulation of New Technologies*, March 2004. Report available at www.bioethics.gov.
- The Ethics Committee of the American Society for Reproductive Medicine, “Human Immunodeficiency Virus and Infertility Treatment,” *Fertility and Sterility*, February 2002.
- Anne T. Fidler and Judith Bernstein, “Infertility: From a Personal to a Public Health Problem,” *Public Health Reports*, November-December 1999.



See legislation appendix.

one rearing parent. If about 52,000 infants were born through IVF cycles in 2005, it is possible that some 6,200 children were born through “donor” eggs; numbers of births through donor insemination are not reported in data on ARTs, but it, too, is

QUESTIONS RAISED BY THIRD-PARTY ASSISTED REPRODUCTION

■ Regulation

- How should law and policy recognize and weigh the significance of genes and gestation, as well as post-birth rearing, in establishing parental rights and duties?
- How should law and policy protect collaborators from exploitation?
- On what basis, if any, should individual states or the nation restrict who may benefit from third-party reproduction?
- Should individual practitioners remain free to deny services to would-be parents based on marital status, sexual orientation, age, or assessed child-rearing ability?
- Should clinics operate on a medical or a social service model?
- Is a single man or woman or a same-sex couple entitled to the same insurance benefits even when the need for third-party assistance arises from social and not medical reasons?

■ Selection and sale of gamete

- Should the United States adopt the approach of countries that permit only true donation of reproductive services?
- If the nation is going to leave reproduction to the market, should it make any attempt to regulate how much can be paid for participation in the creation of life?
- Once people purchase gamete and gestation from others, how much trait selectivity is permissible?
- Should the heterosexual couple seeking an egg donor try to find one whose appearance, interests, and background resemble the infertile partner who will become the gestational and rearing mother, or is it acceptable to purchase eggs from someone with very different characteristics?

■ Rights and duties of collaborators

- Should the young people who will be the preponderant gamete donors—most of whom have not yet started their own families—be required to undergo psychological screening or counseling?
- Should the United States adopt Sweden's requirement that only people willing to be found will be accepted as collaborators, or should it take France's position that all collaboration be anonymous?
- Should the states take no position on parental secrecy or donor anonymity, but require practitioners to keep records so that children can trace genetic and gestational parents?
- Does telling about genetic origins foster the conviction that biology is as—or more—important to the child's identity than the social reality of day-to-day life with his rearing parents?

probably responsible for several thousands of children annually.

The last, least used, but perhaps most controversial form of third-party reproduction is known as surrogate, or contract, motherhood. It is typically employed by heterosexual couples in which the woman can produce her own eggs but cannot carry a pregnancy to term. The partners contract with a woman to carry the fetus formed from their gametes. Some heterosexual couples, single men, or gay male couples achieve parenthood using the services of a woman who provides both genes and gestation and then surrenders the baby upon birth to those who intend to raise the child. Only 571 surrogacy contracts were reported in 2001, accounting at that time for less than 1% of known ARTs. But the recruiting and hiring of women who will gestate children for pay and then turn them over to others has occasioned intense legal and ethical controversy. Few states now accept surrogate motherhood or gestational carrier arrangements. Many states ban them outright; others refuse to enforce contracts if disputes arise among the parties. In contrast, for several decades all 50 states have had laws ensuring that sperm donors who follow prescribed procedures remain anonymous and free of

parental rights and duties. Those laws have been readily adapted to cover egg donation.

In an effort to avoid confusing state regulations in the United States and the high cost of surrogacy, couples are seeking aid overseas; the president of PlanetHospital, a “medical tourism” agency in California, expects to send at least 100 couples to India this year for surrogacy, up from 25 in 2007. In contrast to the estimated \$50,000 spent in the United States, surrogacy in India can typically be done for \$10,000–\$12,000.

Policy Questions

The variety of options available to prospective parents now enables as many as five people to play some sort of role in the conception, birth, and raising of a child. A sperm and egg donor can each supply gamete that can be fused and then implanted in a surrogate, who will carry the fetus. Upon birth, one or two more individuals can take custody of the baby and raise her. Law and policy have still not grappled adequately with the relationships, roles, and responsibilities in these collaborative arrangements that create children with several peo-

ple who could claim some parental involvement in their births. The number of people that can now be involved biologically and socially in the creation of a child raises difficult issues about which sorts of reproductive collaboration will be permitted, who can participate in third-party reproduction as a provider or recipient, how the market in reproductive services should be regulated, and what rights and duties should be recognized for collaborators with respect to the children that result.

For example, a number of difficult questions are raised by the marketing of reproductive material and services and the selectivity it permits. Although the United States prohibits sale of kidneys or bone marrow, it has taken no position on markets in sperm, eggs, or wombs, thus tolerating a flourishing market in genetic material and reproductive services. Sperm, eggs, and gestational services command different prices from one another; their cost also varies based on the traits of the indi-

viduals who offer them. For example, an egg from a Harvard-educated, five-foot-nine pianist might very well cost more than an egg from someone without a college education or without musical or athletic ability.

Legislators and policymakers confront a plethora of difficult questions about the creation of children and families through ARTs (see box, “Questions Raised by Third-Party Assisted Reproduction”). Perhaps the use of reproductive technologies is best left to the choice of individuals and the vagaries of the market. But if so, that is a decision that should be arrived at by vigorous public debate, not by thoughtless default.

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Assisted reproduction techniques with donated embryos are suggested in couples where both the man and the woman have gametes (eggs and sperm) of very poor quality, which cannot be fertilized for various reasons. These embryos are created from donated sperm and donated eggs. The techniques are proposed for couples where both partners face infertility. Assisted reproductive technology (ART) is a general term referring to methods used to achieve pregnancy by artificial or partially artificial means. It is reproductive technology used in infertility treatment, which is the only application routinely used today of reproductive technology. However, there is yet no strict definition of the term. The following Assisted Reproduction techniques don't necessarily involve IVF. Gamete intrafallopian transfer (GIFT).