

AMERICAN SOCIETY FOR REPRODUCTIVE MEDICINE

Formerly The American Fertility Society

THIRD PARTY REPRODUCTION

(Donor Eggs, Donor Sperm, Donor Embryos, & Surrogacy)

A Guide for Patients



PATIENT INFORMATION SERIES

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A glossary of italicized words is located at the end of this booklet.

INTRODUCTION

The phrase “third party reproduction” refers to the use of eggs, sperm, embryos, or a uterus that are donated by a third person (donor) to enable an infertile person or couple (recipient) to become parents. Donors may be known or anonymous.

Third party reproduction is a complex social, ethical, and legal issue. Because there has been limited experience with this process, except in the field of sperm donation, there are areas of uncertainty about the effect it will have on the various participants. Couples or individuals contemplating the use of third party reproduction should be fully aware of the legal situation existing in their jurisdiction. Consulting an attorney familiar with issues surrounding third party reproduction is strongly encouraged.

Surrogacy, in which a woman (*surrogate*) contributes her eggs and/or carries a pregnancy for an infertile person or couple, is particularly problematic. Surrogacy arrangements have the potential for exploitation of the couples and surrogates by professionals acting as brokers. There is concern that professionals who attempt to serve both the couple and the surrogate or who receive finder’s fees for arranging surrogate relationships may have a conflict of interest or may exploit the parties. The American Society for Reproductive Medicine recognizes that there is a place for surrogacy in reproductive medicine, but acknowledges that the very nature of the procedure will always remain controversial.

This booklet will discuss options for third party reproduction including *donor eggs*, *donor sperm*, *donor embryos*, and surrogacy.

DONOR EGGS

Donor eggs offer the possibility of childbearing to women whose ovaries are absent, or whose ovaries do not reliably produce eggs that can be fertilized. The first pregnancy achieved with the use of donor egg was reported in 1984. By using *in vitro fertilization (IVF)* techniques, eggs are obtained from the ovaries of another woman (donor), fertilized by sperm from the recipient's partner, and the resulting embryos are placed into the recipient's uterus. If pregnancy is achieved, the resulting child will be genetically related to the recipient's partner but not to the recipient. Generally, there is no need for an amended birth certificate as there is with adoption.

When are Donor Eggs Recommended?

Donor eggs may be recommended to women who have a uterus but whose ovaries do not produce usable eggs, due to *premature ovarian failure* for example. Women who have had their ovaries removed as treatment for cancer, *endometriosis*, or pelvic infection; or whose ovaries were damaged by chemotherapy or radiation therapy for cancer; or who were born without functioning ovaries; or who have poorly functioning ovaries may be candidates for donor eggs. Ovarian function can be assessed by measuring the *follicle stimulating hormone (FSH)* level on the third day of the menstrual cycle. FSH is elevated in women who have experienced premature ovarian failure, natural menopause, or whose ovaries have been removed, and is also frequently elevated when ovarian function and egg quality are declining. An elevated FSH level may indicate that a woman is a candidate for donor eggs. Donor eggs may also be recommended to a woman who has a serious genetic disease that she may pass on to a child if her own eggs are used.

Evaluation of the Recipient Couple

Prior to considering the use of donor eggs, the physician will take a detailed medical history from both partners of the recipient couple. The male will need a *semen analysis*. In addition to a thorough physical exam, the female will usually have an assessment of ovarian function if she is not menopausal or has not had her ovaries removed. If she has spontaneous menstrual periods, special medications may be needed to suppress her ovarian function (see *Preparation of Female Recipient* below).

Laboratory tests for *human immunodeficiency virus (HIV)*, *hepatitis B and C*, and other *sexually transmitted diseases (STDs)* are recommended for both the female and male (recipient couple). If the female is over 40 years of age, the physician may recommend a thorough evaluation including car-

diovascular screening and high-risk obstetrical consultation before proceeding. Evaluation of the recipient female's uterus may involve a *hysteroscopy* or a *hysterosalpingogram (HSG)*.

Donor Recruitment

There are three ways of obtaining donated eggs:

- **Known Donor.** The recipient may know the egg donor. She may be a close relative or friend who is willing to donate her eggs.
- **Anonymous Donor.** The recipient may not know the egg donor, and the donor's identity may remain unknown. This option is usually arranged through established egg donation programs.
- **IVF Programs.** Women in IVF programs may agree to donate their excess eggs to other infertile patients.

Screening Egg Donors

All egg donors, both known and anonymous, should be screened according to the standards recommended by the American Society for Reproductive Medicine. The donor should be younger than 34 years of age (except in special circumstances) and preferably with proven fertility. This is because younger women respond more favorably to the hormone medications used during the procedure and their eggs result in higher pregnancy rates. Natural pregnancies in women over the age of 34 carry an increased risk of the child having a chromosomal abnormality such as *Down Syndrome*. Therefore, if the donor is over 34 years old, prenatal diagnosis may be suggested to the recipient couple if pregnancy is established.

The donor must be screened for genetic diseases, hepatitis B and C, HIV, syphilis, and Rh incompatibility. Some form of psychological evaluation is also recommended.

One concern with the use of donor eggs is the risk of HIV transmission. The available testing is very accurate but it may not pick up a recently acquired infection (less than six months). The risk of this occurring is extremely low, and the current practice is to use fresh eggs. Eggs unfortunately cannot be frozen because the freezing process damages them. People concerned about HIV risk can consider having the donated eggs fertilized with sperm and the resulting embryos frozen for future use. After six months the donor can be re-tested and if she is still negative for HIV, the embryos can be thawed and transferred to the recipient's uterus. The drawback of this approach is that pregnancy rates with frozen embryos are lower than pregnancy rates with fresh eggs or fresh embryos.

Donor egg programs vary in their philosophy regarding how much information is provided about the donor. Some programs have an "open" program where the recipient couple and the donor may have contact. Most

programs are “closed” and only anonymous written information about the egg donor is available to the recipient.

Known Donors

Known egg donors should undergo the same screening process as anonymous donors. Screening of the donor’s partner for HIV may also be recommended. There are drawbacks to using a known donor. It is important to make sure that the donor, and her partner if applicable, are completely comfortable with the situation prior to proceeding. Over time the recipient’s relationship with the donor as well as the donor’s comfort with her decision may change. This could create social and legal problems. Furthermore, it may be more difficult to keep the donation private if the recipient wants to do so but the donor does not. Legal and psychological counseling can be very helpful in considering and discussing the life-long implications of using a known donor.

Donor Preparation for Egg Retrieval

A woman’s ovaries usually release only one egg per cycle in a process known as *ovulation*. In order to retrieve multiple eggs from the donor’s ovaries, the donor will be given hormonal medications to induce her ovaries to produce several mature eggs. This technique is known as *controlled superovulation* and is performed because pregnancy is more likely to result if more than one egg is fertilized and transferred to the recipient’s uterus. Sometimes several fertilized eggs at one time may be transferred to the recipient in hopes that one will attach to the uterine lining. While this increases the risk for a multiple pregnancy, it also increases the chance that at least one egg will attach and pregnancy will be established. The number of fertilized eggs to be transferred should be determined by each individual program based on the results that program has with establishing pregnancy complicated by multiple gestation.

A combination of hormonal medications is given to the donor for about two to three weeks prior to the egg retrieval. As the eggs mature, their development will be monitored by *ultrasound* and blood hormone levels. When the eggs are mature, ovulation is triggered by an injection of *human chorionic gonadotropin (hCG)*. For more information on the drugs used for ovulation induction, consult the ASRM patient information booklet titled *Ovulation Drugs*.

Procedure

Approximately 36 hours after the hCG injection, the eggs will be retrieved from the donor, usually by *transvaginal ultrasound aspiration* (Figure 1). The eggs are graded for maturity and prepared for *fertilization* in

the laboratory. The recipient's male partner produces a sperm sample by masturbating (or donor sperm may be used). The sperm is processed and added to the eggs to allow fertilization to occur. For further details on egg retrieval and IVF, please refer to the ASRM patient information booklet titled *IVF and GIFT: A Guide to Assisted Reproductive Technologies*.

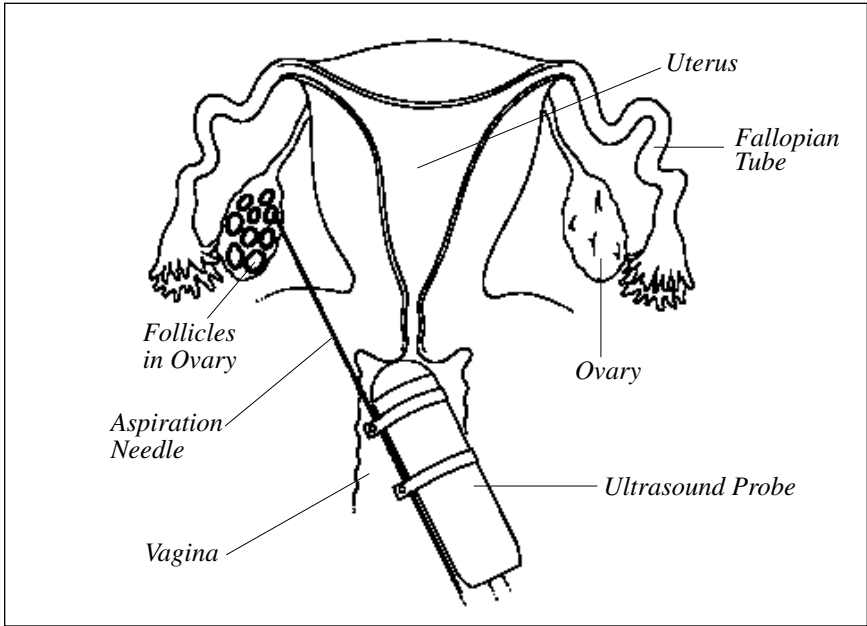


Figure 1. Egg retrieval is usually performed through the vagina with an ultrasound-guided needle.

Preparation of the Female Recipient

While the donor is going through the egg stimulation process, the recipient will have her menstrual cycle synchronized with the donor's cycle. This is done by giving the recipient hormones. The recipient's uterus must be ready to receive the embryos within a few days after the eggs are retrieved from the donor and fertilized in the laboratory. If the cycles are not synchronized, the embryos will not implant in the recipient's uterus.

If the recipient is menstruating naturally, she may be given a hormonal medication to temporarily suppress her menstrual cycle. When the donor begins taking the hormonal medication to stimulate her ovaries to produce several eggs, the recipient will be given the hormone *estradiol* to make the lining of her uterus (*endometrium*) grow thicker in preparation to receive the embryo. Estradiol may be given as pills, a patch, or injection. During this time the recipient may be monitored using ultrasound and blood tests.

When the donor is given the hCG injection necessary to cause her ovaries to release the eggs, the recipient will be given the hormone *progesterone* in addition to the estradiol. Progesterone causes specific changes to occur in the endometrium so that the embryo will be able to implant. Progesterone may be given as pills, vaginal suppository, or by injection.

Two to three days after the donor's eggs are fertilized in the laboratory, the resulting embryos are ready to be transferred to the recipient's uterus. The *embryo transfer* is usually performed in an office setting. The recipient lies down, and the doctor passes a thin catheter containing the embryos through her vagina and cervix and deposits them into her uterus (Figure 3).

The recipient continues to take the estradiol and progesterone until a pregnancy test is performed, usually two weeks after the embryo transfer. If the pregnancy test is positive, the estradiol and progesterone are continued to support the early pregnancy. Blood levels of estradiol and progesterone may be monitored during this time. Extra embryos not transferred may be frozen. If pregnancy is not achieved, these frozen embryos can be thawed and transferred later in additional attempts to achieve pregnancy.

Pregnancy Rate

The success rate of donor egg depends on many factors. In the latest statistics (1993) compiled by the Society for Assisted Reproductive Technology, an affiliate society of the American Society for Reproductive Medicine, the overall live delivery rate for donor egg programs was 30.2 percent live births per transfer. However, rates may vary considerably from program to program.

Cost

The cost of donor egg IVF varies among programs. In general, the cost will be lower if a known donor is used and often approximates the cost of traditional IVF. Known donors often only wish to be compensated for their expenses. The cost of anonymous donor egg IVF is usually higher because the donor must be compensated for her expenses, time, risk, and inconvenience associated with the procedure. These costs are unlikely to be covered by insurance programs because a large part of the treatment is to the donor.

DONOR SPERM

Many couples experiencing male factor infertility may choose to undergo *donor insemination (DI)* in order to achieve pregnancy. During DI, the physician or nurse places sperm from a male other than the female's partner into the female's reproductive tract near the time of ovulation. In

recent years, DI has become one of the most effective methods for couples with severe male factor infertility to experience pregnancy and childbirth.

When Is Donor Insemination Needed?

Donor insemination may be indicated if there are significantly abnormal semen characteristics and if the female appears to be fertile after a series of tests. Causes for male infertility may include irreversible *azoospermia*, a previous *vasectomy*, previous radiation or chemotherapy treatment, inability to ejaculate normally, or another irreversible male fertility factor. For more information on male factor infertility, consult the ASRM patient information booklet titled *Male Infertility and Vasectomy Reversal*.

Additional conditions that may require DI for pregnancy are when the male or female partner or both are carriers of a known hereditary or genetic disorder or abnormalities involving the *chromosomes*. It may also be used if the female is *Rh sensitized* and the male is Rh positive. Additionally, single women who desire pregnancy may request donor insemination.

The Evaluation

In order to decide whether to undergo donor insemination, couples need to know the cause(s) of infertility and the chances of pregnancy without DI. The physician will take a detailed medical history from both partners. The male will need a complete examination, including a semen analysis.

The female examination requires a pelvic exam and may include tests for STDs and other diseases. An *ovulation detection kit*, *basal body temperature (BBT) chart*, and in some cases, a *cervical mucus* examination may be needed to determine the time of ovulation. In addition, the physician may recommend a hysterosalpingogram, hysteroscopy, or *laparoscopy* to check for obstruction of the *fallopian tubes* and to further examine the pelvic organs. An *endometrial biopsy* may be needed to determine whether or not adequate hormone production and endometrial development are taking place.

The Insemination Procedure

Inseminations are scheduled to occur close to the time of ovulation. The time of ovulation is often estimated with the use of ovulation detection kits and/or BBT charts. Inseminations are usually performed once or twice each month depending on the regularity of the woman's menstrual cycle. The procedure is relatively simple and only takes a few minutes to perform. The woman lies on an examining table and the physician inserts a speculum into her vagina to visualize her cervix. For *intracervical insemination (ICI)*, the physician or nurse injects the semen sample into the cervical opening through a plastic syringe (Figure 2). A plastic-covered sponge or cap may be placed into the vagina before the speculum is removed. This keeps the sperm near the cervix and can be taken out four to six hours after the insemination.

Another method, *intrauterine insemination (IUI)*, involves inserting specially prepared (“washed”) sperm directly into the uterine cavity. This method may be used for several reasons, including poor sperm/cervical mucus interaction. IUI allows the sperm to bypass the cervix so that an increased number can reach the uterine cavity and subsequently the fallopian tubes, where fertilization usually occurs. When *cryopreserved* (frozen) donor sperm is used, the number of live sperm deposited into the uterus is often less than would be present with sexual intercourse. IUI may result in higher pregnancy potential because it can compensate for this situation. If the woman has irregular ovulation, the physician may prescribe drugs to induce ovulation. IUI may be performed in conjunction with these medications to increase the chances of successful fertilization.

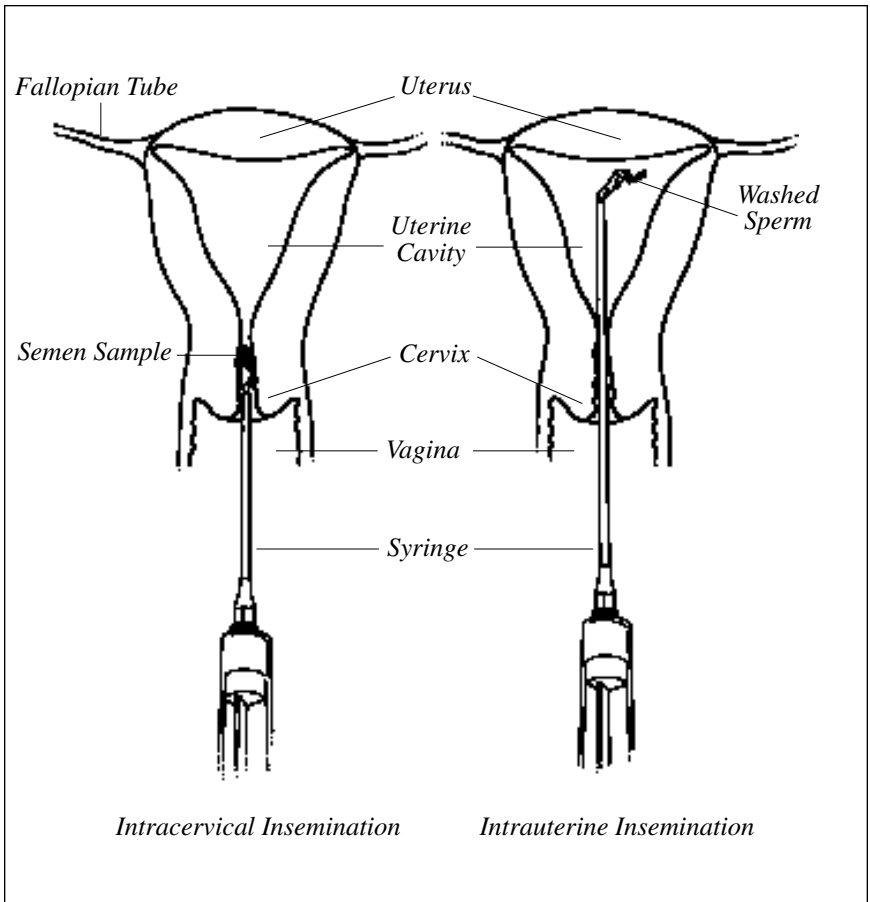


Figure 2. Two types of insemination.

The Use of Frozen Semen

Until the emergence of HIV, fresh semen was often used for donor insemination. However, it is now essential that all sperm be frozen and stored until adequately screened, since it may take three or more months for HIV to show up on a donor's blood test. The American Society for Reproductive Medicine (ASRM) recommends that all sperm be frozen for at least six months prior to insemination. The donor is screened for HIV infection at the time of semen donation. The donor is then tested again six months later so that infection undiagnosed at the first screening can be found on the second test. There are no known cases of HIV obtained from properly screened and quarantined sperm.

Patients may wish to inquire about the standards and practices employed by the sperm bank used by their doctors to insure that the ASRM guidelines for donor semen testing are being followed. The ASRM *Guidelines for Gamete Donation: 1993* may be purchased by sending \$5 to:

American Society for Reproductive Medicine
1209 Montgomery Highway
Birmingham, Alabama 35216-2809

Screening Anonymous Donors

In most cases, anonymous donors provide semen to sperm banks for DI. Patients should make sure that the sperm bank follows screening standards and procedures recommended by the ASRM. Sperm banks should obtain a thorough medical history of the donor and his family. Donors should be less than 40 years old and preferably have established fertility. Furthermore, they should be required to undergo testing or genetic screening for common diseases, Rh factor, hepatitis B and C, HIV, and other sexually transmitted diseases. It is also recommended that less than 10 pregnancies per donor be produced to decrease the chance of offspring intermarriage.

If donor sperm recipients wish to match certain characteristics of their male partner with the donor, sperm banks can often provide information regarding physical traits. Some also provide detailed information on personal habits, education, hobbies, talents, etc. However, there is no guarantee that these traits will be passed on to the offspring. In the case of a woman with no male partner, her characteristics are often matched to the donor's traits.

In order to prevent future medical and legal problems, it is important to make sure that the sperm bank obtains appropriate informed consent from the donor, keeps a permanent confidential record of the donor's health and screening information, and that the identity and confidentiality of an anonymous sperm donor and the recipient(s) are maintained.

Known Donors

Sometimes couples may wish to use a known donor or a relative of the husband so that the baby will be related to both parents. However, there are many issues involved in using a known donor. Over time, the relationship with the donor as well as the donor's psychological make-up may change. This could create social and legal problems. Furthermore, if the insemination is kept secret, couples may become dependent upon the discretion of the donor. Even when using a known donor, it is still very important to follow the ASRM's guidelines and to have semen frozen and both the donor and the recipient initially checked for sexually transmitted diseases and the donor checked again six months later. In many states, unless the insemination is done under the supervision of a physician, there may be a question of legal paternity. Consulting an attorney prior to using a known donor may be helpful.

Success Rates

The success rates of donor insemination depend upon several factors. First of all, the female's age is important. Women over 35 have a significantly decreased chance of a successful pregnancy. The predictability of ovulation is another factor. The more regular the woman's menstrual cycle, the greater the chance of pregnancy. Success is more likely if the female partner has had a previous pregnancy. The presence of endometriosis or a history of pelvic infection or tubal disease decreases the success rate. Generally, when the inseminations are performed monthly, the overall chance of pregnancy using frozen sperm is about eight to 15 percent each cycle. It is also important that both partners understand that there is approximately a two to four percent chance of birth defects in all children born, including donor insemination babies. The risk of birth defects in children conceived through donor insemination is no higher or lower than the natural abnormality rate.

Other Options

Recent advances in assisted reproductive technologies have allowed couples with male factor infertility, whose only previous option was donor insemination, to pursue fertility using the male partner's own sperm. With a procedure called *sperm aspiration*, the physician may be able to retrieve sperm from the male's testes or the tubes leading from the testes. Even though only a small number of sperm may be retrieved, techniques such as *intracytoplasmic sperm injection (ICSI)* can be used to inject the sperm directly into the egg to facilitate fertilization.

DONOR EMBRYOS

Embryo donation involves donor eggs that have been fertilized with sperm by the donor's partner or with donor sperm. Embryos may be donated by a woman undergoing IVF who becomes pregnant and no longer needs her fertilized eggs which were not used. These embryos are then transferred to the recipient's uterus (Figure 3). The resulting child will not be genetically related to the recipient or her partner. The success rate for donor embryos which have been previously cryopreserved is lower than when fresh embryos are used. The donor's permission for release of donor embryos to a recipient must be documented prior to embryo transfer. Donor embryos may be recommended under the same circumstances as when donor eggs are used. Laws concerning donor embryos vary from state to state.

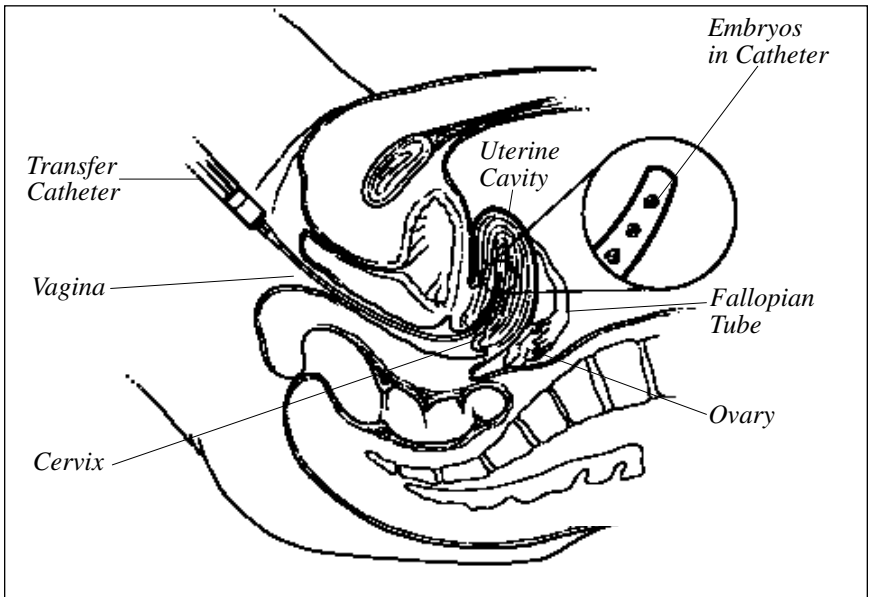


Figure 3. Embryo transfer is performed through the cervix.

SURROGACY

A surrogate is a woman who carries a pregnancy for another woman. The first surrogate pregnancy occurred in the United States in 1985. There are two different kinds of surrogates. Gestational carrier refers to a woman who carries a pregnancy created by the egg and sperm of two other individuals. This process involves IVF. In this case, the gestational carrier is not genetically related to the child.

The second kind of surrogate is referred to as a traditional surrogate. This process does not involve IVF. In traditional surrogacy, the surrogate is inseminated with sperm from the male partner of an infertile couple. The child that results is genetically related to the surrogate and the male partner, but not the female partner. The female partner or couple must legally adopt the child after birth.

When is Surrogacy Considered?

A gestational carrier may be considered by a woman who has functioning ovaries but no uterus. For example, a woman may have had a hysterectomy or may have been born without a uterus. A gestational carrier may also be considered by a woman whose uterus is malformed or who is otherwise incapable of carrying a pregnancy. If pregnancy would be life-threatening to a woman due to severe medical problems, then a gestational carrier is an option.

Traditional surrogacy may be considered by a woman who has no ovaries or whose ovaries cannot produce usable eggs due to declining ovarian function or premature ovarian failure. Traditional surrogacy may also be considered by a woman who has a genetic disease that may be transmitted to her child or who has a medical problem that precludes pregnancy.

Evaluation

The evaluation of the infertile couple for gestational surrogacy includes a complete medical history from both partners. In addition to a complete physical exam, some assessment of how well the female partner's ovaries function may be recommended. The male partner's semen quality should also be analyzed. Infectious disease testing is recommended for the couple and the gestational carrier. The evaluation for traditional surrogacy involves thorough testing of the surrogate and the male partner.

Surrogate Sources

Surrogates can be either known or anonymous. Known surrogates include relatives or friends who volunteer to carry the pregnancy or are paid in some way for the service. Anonymous surrogates can be arranged privately or through surrogate programs. Organization of Parents Through Surrogacy (OPTS) is a national noncommercial support group and resource for persons interested in surrogacy. See the Resources section at the end of this booklet for information on how to contact OPTS.

Screening Surrogates

Surrogacy guidelines are not as well established as they are for donor sperm and donor eggs. The ideal surrogate is relatively young, has previ-

ously carried a pregnancy without complications, and does not have any habits, such as smoking, alcohol or illicit drug use, risky sexual behavior, or medical disorders such as diabetes or Rh sensitization, that could jeopardize the health of the fetus. A complete medical history and physical exam should be performed as well as screening for infectious diseases. An evaluation of the surrogate's uterus may also be recommended, and psychological evaluation is strongly recommended.

Surrogacy programs vary in the amount of information given about the surrogate. Some programs offer the couple the opportunity to select and interact with the surrogate, while other programs maintain the confidentiality of the surrogate.

Procedure

As with donor egg programs, the procedure for a gestational carrier involves IVF. As noted in the section on donor eggs, the gestational carrier may be given hormones to prepare her uterus for embryo transfer. The embryos from the infertile couple will then be transferred to the carrier's uterus. For traditional surrogacy, the surrogate is inseminated with the male partner's sperm via ICI or IUI near the time of ovulation. IVF is not necessary for traditional surrogacy. The success rates for gestational or traditional surrogacy can vary depending on male and female fertility factors.

Cost

The cost of gestational carriers or traditional surrogacy varies depending on whether the surrogate is known or anonymous and whether she is paid for carrying the pregnancy. These costs are usually not covered by medical insurance. Legal and program fees further add to the cost.

PSYCHOLOGICAL ISSUES

Most experts recommend that infertile persons seek professional counseling prior to proceeding with third party reproduction because of the many psychological issues surrounding these processes. Psychological screening and evaluation are also recommended for all donors and surrogates. Consulting a mental health professional who is familiar with issues in third party reproduction can be extremely beneficial.

It is important that all parties are comfortable with the procedure as an alternative means of having a family. If the donor or surrogate is known to the couple, then it is important to resolve any potential ambivalent feelings that either the couple, donor, or surrogate may have. The issue of confidentiality should be addressed, and the extent of the relationship after birth between the child and the donor or surrogate must be determined prior to starting treatment.

The resolution of the ethical, moral, and legal issues relating to third party reproduction has lagged behind the technical capabilities in reproductive medicine. Reproductive technologies make it possible for a child to have five parents: genetic mother, gestational mother, rearing mother, genetic father, and rearing father. Because of the relative newness of third party reproduction, the long-range psychological consequences to a child resulting from third party reproduction are not yet known.

LEGAL ISSUES

Clearly, there are a number of legal issues concerning third party reproduction. It is essential that all parties consent in writing to any procedure. The consent must clarify the commitment of the donor or surrogate to relinquish all rights and responsibilities of raising the child, and state that the infertile woman is the legal mother.

The laws in the United States are not uniform among states, and many do not address the issues involved in third party reproduction. It is essential to consult an attorney knowledgeable in this area to learn the laws in the individual states.

SUMMARY

The options available through third party reproduction offer many people a possibility for parenthood that was previously nonexistent. These options also present important psychological, ethical, moral, and legal issues that need to be carefully considered. Anyone contemplating third party reproduction should explore all the options, obtain as much information as possible, and seek guidance from both counselors and physicians in choosing the best path to parenthood.

RESOURCES

**ORGANIZATION FOR PARENTS
THROUGH SURROGACY (OPTS)**
(A national surrogacy support group)
National Headquarters
P.O. Box 213
Wheeling, IL 60090
(847) 394-4116
Website: <http://www.opts.com>
Email: opts@starnetinc.com

RESOLVE
(A national infertility support group)
1310 Broadway
Somerville, MA 02144-1731
(617) 623-1156
Website: <http://www.resolve.org>
Email: resolveinc@aol.com

GLOSSARY

Controlled superovulation. The administration of hormone medications (ovulation drugs) that stimulate the ovaries to produce multiple eggs: also called enhanced follicular recruitment or controlled ovarian hyperstimulation.

Cryopreserved. Freezing at a very low temperature, such as in liquid nitrogen (-196°C), to keep embryos viable so as to store them for future transfer into a uterus or to keep sperm viable for future insemination or assisted reproductive technology procedures. At present, eggs cannot be cryopreserved.

Donor eggs. Eggs taken from the ovaries of a fertile woman and donated to an infertile woman to be used in an assisted reproductive technology procedure.

Donor embryos. Embryos produced from the sperm and egg of one couple and donated to an infertile woman or couple.

Down syndrome. A genetic disorder caused by the presence of an extra chromosome 21 and characterized by mental retardation, abnormal facial features, and medical problems such as heart defects.

Eggs. The female sex cells (ovum) produced by the female's ovaries, which, when fertilized by a male's sperm, produce embryos, the earliest form of human life.

Embryo. The earliest stage of human development arising after the union of the sperm and egg (fertilization).

Embryo transfer. Placement of an embryo into the uterus through the vagina and cervix or, in the case of zygote intrafallopian transfer (ZIFT) or tubal embryo transfer (TET), into the fallopian tube.

Endometrial biopsy. Removal of a small piece of tissue from the endometrium (lining of the uterus) for microscopic examination. The results may indicate whether or not the endometrium is at the appropriate stage for successful implantation of a fertilized egg (embryo) and/or if it is inflamed or diseased.

Endometriosis. A condition where endometrial-like tissue (the tissue that lines the uterus) implants outside of the uterine cavity in abnormal locations such as the ovaries, fallopian tubes, and abdominal cavity. Endometriosis can grow with hormonal stimulation and cause pain, inflammation, and scar tissue. It may also be associated with pelvic pain and infertility.

Endometrium. The lining of the uterus that is shed each month with the menstrual period. As the monthly cycle progresses, the endometrium thickens and thus provides a nourishing site for the implantation of a fertilized egg.

Estradiol. The predominant estrogen (hormone) produced by the follicular cells of the ovary.

Fertilization. The fusion of sperm and egg.

Follicle stimulating hormone (FSH). In women, FSH is the pituitary hormone responsible for stimulating follicular cells in the ovary to grow, stim-

ulating egg development and the production of the female hormone estrogen. In the male, FSH is the pituitary hormone which travels through the bloodstream to the testes and helps stimulate them to manufacture sperm. FSH can also be given as a medication. The brand name is Metrodin®.

Gestational carrier. A woman who carries an embryo to delivery. The embryo is derived from the egg and sperm of persons not related to the carrier; therefore the carrier has no genetic relationship with the resulting child.

Hepatitis B and C. Viruses that may be sexually transmitted, or transmitted by contact with blood and other bodily fluids, that can cause infection of the liver leading to jaundice and liver failure.

Human chorionic gonadotropin (hCG). A hormone that increases early in pregnancy. This hormone is produced by the placenta; its detection is the basis of most pregnancy tests. It can also be used as an LH substitute to trigger ovulation in conjunction with clomiphene or gonadotropin therapy.

Human immunodeficiency virus (HIV). A retrovirus that causes acquired immune deficiency syndrome (AIDS), a disease that destroys the body's ability to protect itself from infection and disease. It is transmitted by the exchange of bodily fluids or blood transfusions.

Hysterosalpingogram (HSG). An x-ray procedure in which a special media (a dye-like solution) is injected through the cervix into the uterine cavity to illustrate the inner shape of the uterus and degree of openness (patency) of the fallopian tubes.

Hysteroscopy. The insertion of a long, thin, lighted telescope-like instrument, called a hysteroscope, through the cervix and into the uterus to examine the inside of the uterus. Hysteroscopy can be used to both diagnose and surgically treat uterine conditions.

In vitro fertilization (IVF). A method of assisted reproduction that involves combining an egg with sperm in a laboratory dish. If the egg fertilizes and begins cell division, the resulting embryo is transferred into the woman's uterus where it will hopefully implant in the uterine lining and further develop. IVF may be performed in conjunction with medications that stimulate the ovaries to produce multiple eggs in order to increase the chances of successful fertilization and implantation. IVF bypasses the fallopian tubes and is often the treatment choice for women who have badly damaged or absent tubes.

Ovulation. The release of a mature egg from its developing follicle in the outer layer of the ovary. This usually occurs approximately 14 days preceding the next menstrual period (the 14th day of a 28-day cycle).

Ovulation induction. The administration of hormone medications (ovulation drugs) that stimulate the ovaries to ovulate.

Progesterone. A female hormone secreted by the corpus luteum after ovu-

lation during the second half of the menstrual cycle (luteal phase). It prepares the lining of the uterus (endometrium) for implantation of a fertilized egg and also allows for complete shedding of the endometrium at the time of menstruation. In the event of pregnancy, the progesterone level remains stable beginning a week or so after conception.

Semen analysis. The microscopic examination of semen to determine the number of sperm (sperm count), their shapes (morphology), and their ability to move (motility).

Sperm. The male reproductive cells that fertilize a woman's egg. The sperm head carries genetic material (chromosomes), the midpiece produces energy for movement, and the long, thin tail wiggles to propel the sperm.

Surrogacy. In traditional surrogacy, a woman is inseminated with the sperm of a man who is not her partner in order to conceive and carry a child to be reared by the biologic (genetic) father and his partner. In this procedure the surrogate is genetically related to the child. The biologic father and his partner may have to adopt the child after its birth. Another type of surrogate is a gestational carrier, a woman who is implanted with the fertilized egg (embryo) of another couple in order to carry the pregnancy. The surrogate is not genetically related to the child in this case.

Surrogate. A traditional surrogate is a woman who is inseminated with the sperm of a man who is not her partner in order to conceive and carry a child to be reared by the biological (genetic) father and his partner. In this procedure the surrogate is genetically related to the child. The biologic father and his partner must usually adopt the child after its birth. Another type of surrogate is a gestational carrier. This process involves implanting another couple's fertilized egg (embryo) into the surrogate's uterus. In this procedure the surrogate does not provide the egg and is therefore not biologically (genetically) related to the child.

Traditional surrogate. See surrogate.

Transvaginal ultrasound aspiration. An ultrasound-guided technique for egg retrieval. A long, thin needle is passed through the vagina into the ovarian follicle, and suction is applied to retrieve the egg. Also known as ultrasound-guided egg aspiration and transvaginal egg retrieval.

Ultrasound. A picture of internal organs produced by high frequency sound waves viewed as an image on a video screen; used to monitor growth of ovarian follicles or a fetus and to retrieve eggs. Ultrasound can be performed either abdominally or vaginally.

Uterus (womb). In women, the hollow, muscular organ in the pelvis where an embryo implants and grows during pregnancy. The lining of the uterus (endometrium) produces the monthly menstrual blood flow when there is no pregnancy.

Booklets available for purchase through the American Society for Reproductive Medicine:

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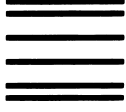
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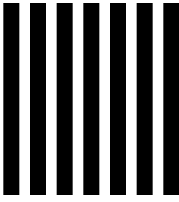
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