



## Infertility & Reproductive Technology

- I. **What is Infertility**
  - a. Glossary of Terms
  - b. Fertility Facts
  - c. Female and Male Reproduction
  - d. Dispelling the Myths
  
- II. **Reproductive Problems**
  - a. Hormonal Issues
  - b. Sperm and Egg
  - c. Anatomical and Infectious problems
  
- III. **Reproductive Technology – Can we? Should we?**
  - a. Ovulation-inducing drugs
  - b. Donor eggs and sperm
  - c. In vitro fertilization
  - d. Surrogacy
  - e. Embryo Research
  - f. Embryo Adoption
  
- IV. **Infertility and the Bible**
  
- V. **Coping**
  
- VI. **Resources**



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**Christian Medical & Dental Associations** serves as a voice and ministry for Christian healthcare professionals. Its vision is to “transform doctors to transform the world.” Founded in 1931, CMDA currently serves more than 16,000 members and coordinates a network of Christian healthcare professionals for personal and professional growth; sponsors student ministries in medical and dental schools; conducts overseas healthcare projects for underserved populations; addresses policies on healthcare, medical ethics and bioethical and human rights issues; distributes educational and inspirational resources; provides missionary doctors with continuing education resources; and conducts international academic exchange programs.

# 1. What is Infertility?

## Glossary of Terms



**Ectopic Pregnancy:** A potentially life-threatening situation in which pregnancy takes place outside of the uterus, usually in the fallopian tube. Also known as tubal pregnancy.

**Embryo:** A human life at its earliest form. An embryo is formed when egg and sperm unite, followed within 24 hours by the alignment of their DNA.

**Embryo Adoption/Donation:** The release of one's "leftover" cryopreserved embryos for adoption by another (usually infertile) couple. Or from the other side, the process of receiving for thaw and transfer the frozen embryos from another couple. This process often involves a home study and legal agreements.

**Fertilization:** The process in which the sperm penetrates the egg, resulting in a human embryo when the chromosomes align and activate.

**Follicle:** Fluid-filled sac in the ovary that contains the egg to be released at ovulation.

**Preimplantation Genetic Diagnosis:** Done as part of in vitro fertilization, this is a procedure whereby an embryo can be tested for genetic or chromosomal abnormalities before transfer to the uterus. Embryos found to be carriers of genetic disorders are discarded, and only embryos deemed healthy are transferred. More recently, this procedure has been used increasingly for sex selection, which implies that even healthy embryos of the undesired sex are discarded. For those who consider the human embryo to have the full rights of personhood, this procedure is deemed unethical.

**Infertility:** The inability to conceive after one year of unprotected intercourse for patients 35 years old or younger.

**Secondary Infertility:** The inability to conceive or carry to term after having had one or more children. Affects three million women in the U.S.

**Sterility:** An irreversible condition that prevents conception.

**Surrogate:** A woman who becomes pregnant usually by artificial insemination (traditional surrogacy) or surgical transfer of an embryo (gestational surrogacy) for the purpose of carrying the baby to term for another woman.

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## Fertility Facts<sup>1</sup>

- For normal fertile couples trying to conceive, the chance of succeeding in any given month is about 20 percent.
- About 57 percent of couples will conceive within three months.
- About 75 percent of couples will conceive within six months.
- About 90 percent of couples will conceive within one year.
- Infertility affects men and women almost equally.
- In both sexes, fertility declines with age, but age-related fertility problems are far more likely in women.
- In men, fertility declines after age 50.
- In women, fertility starts to decline significantly at around age 35.
- Among women age 15 to 24, 4 percent have difficulty conceiving.
- Among women age 24 to 34, 13 percent have difficulty conceiving.
- By age 40, 34 percent of women have difficulty conceiving.
- By age 45, 87 percent of women are infertile.
- In the United States, about 1 in 5 women (20 percent) have their first child after age 35. A woman age 35 has one half the chance of having a successful pregnancy compared with a woman age 25.



# The Reproductive Systems

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## Female Reproduction<sup>2</sup>

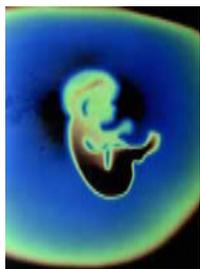
Every baby girl is born with an average of 400,000 immature eggs stored in her ovaries. When her menstrual cycle, or period, starts at around age 13, she loses about one of these eggs every month when she ovulates. Each cycle begins with the release of gonadotropin releasing hormone (GnRH), follicle-stimulating hormone (FSH) and luteinizing hormone (LH). This prepares the ovaries to release an egg and signal the uterus lining, or endometrium, to thicken in preparation for a pregnancy. Then, in the middle of the cycle, another surge of hormones allows the egg to be released. This is called **ovulation**. The egg now begins its journey through the fallopian tube toward the uterus. If the egg meets with a sperm from a man during sexual intercourse, conception takes place and a new life has begun. This generally occurs as the sperm travels down the fallopian tube. The fertilized egg—or embryo—travels down the fallopian tube as it divides over and over into multiple cells. After a few days, the embryo makes it to the uterus and attaches to the thickened lining of the uterus. This is called **implantation**. Hormone production of human chorionic gonadotropin (hCG) allows the uterine lining to continue thickening to support the embryo, and the embryo develops a placenta for nourishment, which comes from the mother's body. The baby develops over the next nine months until the pregnancy ends with **birth**.

If the egg is not fertilized, hormone production is stopped, signaling the endometrium to shed the lining needed to preserve a baby. This is called **menstruation**, and continues until a woman goes through menopause, generally at age 51.

## Male Reproduction<sup>3</sup>

Baby boys, unlike girls, are born with two testes. Each testis, or testicle, has the ability to make and store sperm on a continual basis. Beginning at puberty, a new stock of sperm is made about every 72 days, in response to a surge of the hormones testosterone, gonadotropin-releasing hormone (GnRH), luteinizing hormone (LH) and follicle-stimulating hormone (FSH). The epididymis aids in the development of the sperm and helps it to travel through the vas deferens and the ejaculatory duct. As it travels this path, the sperm combines with secretions from the epididymis, vas deferens, seminal vesicles and the prostate to make semen. When the man has an orgasm during sexual intercourse, the semen travels through the urethra, out the penis and into the woman's vagina. This is called ejaculation. The sperm must make their way through the cervix and into the fallopian tube. If an egg is traveling through the fallopian tube during this time, the sperm can enter the egg, resulting in fertilization, or pregnancy.

### *When should I talk to my doctor about infertility?*



- If you're over 35 and have been unsuccessful at conceiving after six months
- If you're under 35 and have been unsuccessful at conceiving after one year
- If you or your partner have ever had a sexually transmitted disease
- If you or your partner have structural problems or disease to the reproductive organs
- If you or your partner have had significant exposure to radiation or chemotherapy
- If your cycles are extremely irregulars

# Dispelling the Myths of Infertility

From *The Infertility Companion* by Sandra L. Glahn, ThM, and William R. Cutrer, MD<sup>4</sup>



***Myth: Infertility is the same thing as sterility, and it's rather rare.***

Fact: Sterility is the complete inability to reproduce; infertility is “subfertility,” or impaired fertility. A sterile person cannot reproduce; about 70 percent of those who seek treatment for infertility will eventually go on to have a baby.<sup>5</sup> The World Health Organization (WHO) estimates that infertility affects more than 80 million people worldwide.<sup>6</sup> The American Society for Reproductive Medicine (ASRM) estimates that infertility affects 6.1 million American women and their partners,<sup>7</sup> which adds up to about 12.9 percent of married couples of reproductive age.<sup>8</sup>

***Myth: Women are having babies well into their 40s, so it's probably safe to delay childbearing.***

Fact: Fertility rates are definitely age related. Studies suggest that, on average, female fertility declines slightly starting at age 27, but drops off in a clinically meaningful amount around age 35 and then dramatically at age 40. Thanks to vigorous exercise, a woman who is 35 may have the cardiovascular system of a woman in her 20s, yet her ovarian function is still that of a 35-year-old.

***Myth: Infertility is mostly a woman's problem.***

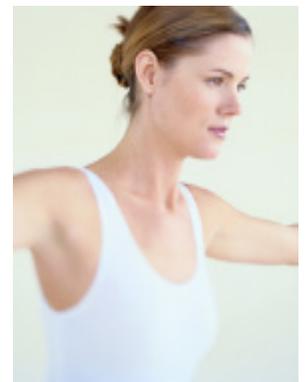
Fact: A survey conducted by the British Broadcasting Corporation (BBC) found that more than two-thirds of people interviewed thought infertility was associated with a woman's fallopian tubes. A similar number of the 1,300 men and women interviewed did not realize that half of all infertility cases are caused by male problems.<sup>10</sup> Abnormal sperm function is the major cause in one-third to one-half of all cases of male infertility, and the underlying problems are correctable about half the time. Male infertility is often easier to detect but more difficult to correct than female infertility.

***Myth: At least infertile couples are “having fun trying.”***

Fact: In a study of more than 2,000 Christian women, “lengthy infertility treatment” was listed as one of the four key causes of sexual aversion. (The other three were childhood sex abuse, rape, and painful labor and delivery.)<sup>9</sup> Most couples report a decrease in the frequency of sexual relations after a diagnosis of infertility. What was once a source of emotional intimacy often becomes “love by the calendar,” and infertile couples say they feel a loss of privacy, sometimes even envisioning a doctor in the room during sexual intimacy. Both male and female infertility patients report a decrease in their level of sexual satisfaction, with the women also reporting that they feel less comfortable with their sexuality. More than one infertility counselor has told us, “I've never seen a couple going through fertility treatments who felt they had a great sex life.”

***Myth: Infertility is caused by the need to relax. (“Just relax.”)***

Fact: Looking at the above statistics about the causes of infertility, we can see that about 80 to 85 percent of the time, doctors find a diagnosable medical cause, for which no amount of relaxation will help. And in cases of unexplained infertility, often the problem is due to subtle or rare problems that are impossible to discover through a routine workup. Chronic stress and fatigue do alter hormones, but most fertility drugs can compensate in cases where hormones fall outside of normal ranges.



**Myth: A woman must have an orgasm to conceive.**

Fact: Approximately one in ten married women has never experienced an orgasm, and millions of these women have conceived. Additionally, many people believe that when a woman achieves climax—especially after the man does—fertility may be slightly increased due to enhanced sperm movement created by a small suction effect that’s thought to pull sperm into the women’s uterus. There’s a certain logic behind this theory. Yet while studies have shown that such a “vacuum effect” exists, whether it actually brings about a higher pregnancy rate is as of yet unproven.

**Myth: Adoption cures infertility. (“Just adopt and you’ll get pregnant.”)**

Fact: Of those adoptive families who have experienced infertility, approximately half have endured medical treatment for an average of three years prior to adopting. It has been estimated that between 5 and 14 percent of couples who quit treatment and pursue adoption eventually go on to conceive. That’s about the same percentage as for couples who quit treatment, choose not to adopt, and subsequently conceive. The “just adopt” advice is a variation on the “just relax” theme. The flawed idea behind it is that if couples stop thinking about getting pregnant, it will happen.



**Myth: You can always adopt. (“If you adopt, the pain will go away.”)**

Fact: Adoption is a wonderful solution for many couples, but it does not erase all the pain of infertility. For some infertile couples, the greatest loss is the inability to participate in the wonder of creating a child together—a key loss not solved by adoption. The suggestion that all the pain of infertility can be magically wiped away by adoption is clearly a simplistic answer to a complicated scenario.



**Myth: Most infertile couples seek high-tech medical treatment.**

Fact: Only about ten percent of infertile couples seek assisted reproductive technologies (ARTs). In fact, fewer than half of infertile American women even seek treatment, let alone high-tech treatment. The number of Christian couples pursuing high-tech treatment is probably much lower, because many Christians hesitate to seek even the simplest forms of infertility diagnosis and treatment out of concern that doing so might demonstrate a lack of faith.

**Myth: Doctors take huge risks with embryos in high-tech programs, making these options unethical.**

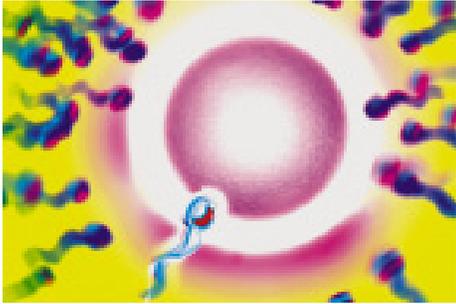
Fact: When looking at ART cycles, we find that the statistics do little to help us to assess the actual risk taken with human life. So the above statement may be partially true, depending on whether the patients take a proactive role in managing their treatment. Patients can take a proactive role in managing their treatment by insisting that all attempts are made to minimize the risk to the embryo. It is possible to use ARTs without compromising a high view of life. For example, couples can limit the number of potential embryos (that is, the number of eggs exposed to sperm) to the number they are willing to carry to term in that cycle, thus avoiding the ethical minefield of pregnancy reduction. (For more on “A Moral Minefield”, see Chapter 13 of *The Infertility Companion*.)

## 2. Reproductive Problems

The problem of infertility has been magnified in modern times because of several social factors, such as voluntary delayed child-bearing, the use of contraceptives, multiple sexual partners and the consequent transmission of diseases which may impair female fertility. Following are some common infertility diagnoses.

### Hormonal Issues<sup>11</sup>

#### Polycystic Ovarian Syndrome (PCOS)



PCOS, the most common endocrine problem in women of reproductive age, affects ovulation and other systems of the body. Women with PCOS either don't ovulate at all or

ovulate irregularly, may have acne, facial hair, and may be overweight. This is due to an excess amount of the male hormone androgen. Fertility can often be restored in those with PCOS, by using oral medications such as Clomiphene citrate. However, while a substantial amount of PCOS patients will ovulate, only 40 percent will conceive.<sup>12</sup> For the remaining patients, injectable medications or surgery are often helpful. More recently, the significant role of being overweight and insulin resistance has been studied, and we now know that dietary changes, exercise and insulin sensitizing drugs can significantly improve the chances for pregnancy in women with this condition.

**Prolactin Overload:** Prolactin is a hormone produced by the pituitary gland that stimulates production of milk in breastfeeding women. But sometimes a woman attempting conception will have an increase in prolactin levels, which blocks ovulation. Rarely, this can be produced by a tiny tumor on the pituitary gland. Symptoms include milky or bloody secretions from the nipple. Oral medication can often normalize the hormone levels.<sup>13</sup> Elevated prolactin levels are also found in 1 to 5 percent of infertile males. There are often no symptoms in men, and high levels can result in low sperm production, low sex drive and impotence.<sup>14</sup>

**Pituitary Production:** In men, the pituitary gland stimulates the testicle to produce sperm. In men who abuse anabolic steroids, usually for athletic reasons, the pituitary gland ceases to stimulate the testicle, and complete absence of sperm can result. This effect is usually temporary, and will resolve after discontinuation of the steroids.

### Sperm & Egg

**Anovulation** (the absence of ovulation): Anovulation, best indicated by an irregular period, can result from a hormonal imbalance, poor dieting habits, stress or excessive exercise. This problem is usually easily corrected through medication, stress management and improved eating habits.

#### Sperm Abnormalities

60 percent of all infertility cases involve some kind of male factor. Causes of male factor infertility include:<sup>15</sup>

- **Varicoceles**—dilated veins in the scrotum, (similar to varicose veins) in which blood does not drain properly, resulting in a collection of blood in the scrotum and a negative impact on sperm production. Can be corrected with minor outpatient surgery.
- **Seminal Fluid Abnormalities**—sometimes seminal fluid can become too thick to effectively move through the female reproductive tract. Doctors normally separate the sperm from the fluid and insert it directly into the uterus with a catheter. This is called intrauterine insemination (IUI).
- **Ductal System Abnormalities**—sperm can sometimes be blocked in the epididymis or the vas deferens, and can be genetic or caused by a reaction to infection. Many times a doctor can repair the blockage, but if not, IVF can be used to achieve conception.
- **Immunologic Infertility**—when an antibody to the body's own sperm is developed, usually due to testicular trauma, infection or surgery. The antibodies cause a decreased chance of the sperm penetrating through the cervical mucus and fusing with the egg. The most common treatment is intrauterine insemination. Some centers perform specific enzyme washes to cleave most of the antibodies from the sperm prior to insemination.

- **Testicular Failure**—Due to hormonal issues, genetic predisposition or varicoceles, testicular failure occurs when the seminiferous epithelium, the sperm producing part of the testicle, fails to make an adequate number of sperm. Sometimes the testicle lacks the cells that split into sperm (called “Sertoli Cell-Only Syndrome”), or the sperm may be unable to develop all the way (called “maturation arrest”), or the sperm may not produce in adequate numbers (called hypospermatogenesis”). All of these conditions can still result in pregnancy when the sperm is harvested and used with assisted reproductive technology.
- **Drugs**—The following drugs have been associated with having a negative effect on male fertility: Ketoconazole (an anti-fungal); Sulfasalazine (for inflammatory bowel disease); Spironolactone (an anti-hypertensive); Calcium Channel Blockers (anti-hypertensives); Allopurinol, Colchicine (for gout); Nitrofurantoin, Erythromycin, Gentamycin (antibiotics); Methotrexate (cancer, psoriasis, arthritis); Cimetidine (for ulcers or reflux); Chlorpromazine, Haloperidol, Thioridazine (antipsychotics); Amitriptyline, Imipramine, Fluoxetine (Prozac), Paroxetine (Paxil), Sertraline (Zoloft) (antidepressants); and Guanethidine, Prazosin, Phenoxybenzamine, Phentolamine, Reserpine, Thiazides (anti-hypertensives). While you should inform your physician if these medications are being used, it is often not necessary to discontinue them. This decision will be made by your doctor.



### **Anatomical & Infectious Problems**

**Blocked Uterine Tube:** If a workup results in no hormonal imbalances and proper eating and exercise habits, there may be a blockage in the fallopian tube. This condition can be detected with a hysterosalpingogram (HSG), in which dye is injected through the cervix into the uterus, while x-rays are taken.

**Endometriosis:** When endometrial tissue is found in abnormal places, such as the ovary, pelvic organs or intestines, the diagnosis is endometriosis. The tissue can't slough off as in normal menses—it builds up and causes inflammation, which results in adhesions or scar tissue. Symptoms include painful menses and pain in a specific spot during intercourse, while lifting heavy objects or while exercising. This pain is often cyclic and typically is worst just prior to menses. The origin of the disease is unknown, but endometriosis patients are more likely to suffer from fibromyalgia, rheumatoid arthritis, lupus and allergies. Endometriosis is an inheritable condition, affecting about 5.5 million North American women, 30 percent of whom suffer from infertility. Endometriosis can sometimes be controlled by medication, depending on the severity and goals of the patient, but other times requires surgery to remove the abnormal tissue.

**Cryptorchidism:** One cause of testicular failure is cryptorchidism, which is when a baby boy's testes do not fully descend into the scrotum. If this condition is corrected by surgery within the first year, fertility will usually be restored. Otherwise, the affected testicle will stop producing sperm. This condition is also associated with a higher testicular malignancy rate.

**Sexually Transmitted Diseases (STDs):** In both men and women, sexually transmitted diseases can have a severe effect on fertility, including pelvic inflammatory disease in women and epididymitis in men. STDs are transmitted by oral, anal or vaginal sex, can be bacterial, viral or parasitic, and can have serious consequences, such as cancer, sterility and even death. Some common STDs and their effect on fertility include:<sup>16</sup>

- **Chlamydia:** The most common bacterial STD, chlamydia affects about three million men and women in the U.S. each year. It takes about three weeks for symptoms to show and may have no symptoms at all. Chlamydia can be contracted from the mouth, genitals, urinary tract or rectum. It can affect a baby's eyes if a female patient gives birth while infected. Chlamydia is the most common cause of Pelvic Inflammatory Disease (PID), which is a major cause of infertility, ectopic pregnancy and chronic pelvic pain. Can be treated with antibiotics.
- **Gonorrhea:** Often accompanied by chlamydia, gonorrhea is a bacterial infection with many of the same symptoms and treatment. There are about 350,000 new cases of gonorrhea each year.
- **Syphilis:** Affecting over 30,000 Americans each year, syphilis is also a bacterial STD that starts by

producing painless red sores (chancres) around the genital area. If not treated in this stage, other symptoms may occur one week to three months later, including a rash all over the body, genital warts and flu-like symptoms. Finally, third stage syphilis can have an effect on the heart, blood vessels and nervous system, causing brain damage, paralysis and sometimes death. Syphilis has no known effect on fertility in men or women. The rate of syphilis is increasing recently, especially among male homosexuals.



- **Trichomonas Vaginitis:** One of the most common parasitic STDs, trichomonas vaginitis—also known as “trich”—affects about 20 percent of women and is very contagious. Men have a 70 percent chance of contracting this STD after one sexual encounter with an infected partner. Although “trich” can be treated with antibiotics and has no known effect on fertility, it produces a genital rash and soreness, and pain when urinating or having sex.
- **Genital Herpes:** The most common viral STD, genital herpes affects about 600,000 new patients a year. About 45 million Americans have contracted this virus, representing about 1 of 4 adolescent and adult females and 1 of 5 adolescent and adult males. Symptoms include a painful blister in the genital area, headache and fever. Although herpes has no effect on fertility, a pregnant woman with virus must inform her doctor of any outbreaks due to the potentially life-threatening effect on the baby during delivery.
- **Human Papilloma Virus (HPV):**<sup>17</sup> There are more than six million new cases of HPV per year, eventually affecting 75 percent of sexually active men and women. Although usually asymptomatic, HPV is related to an abnormal pap smear and can lead to a pre-cancerous condition known as dysplasia. Unlike genital herpes virus, many types of HPV are eventually cleared by the body’s immune system. If not cleared and properly treated, however, dysplasia can lead to cervical cancer. HPV also causes genital warts and is not protected through the use of condoms. Although there is a new vaccine which can protect against infection and with certain types of the HPV virus, it is far from completely effective and therefore does not change the recommendations for abstinence until marriage and annual pap smears for sexually active females.
- **Hepatitis B Virus (HBV):** Hepatitis B is a virus that affects about 60,000 Americans yearly and can be deadly if left untreated. HBV is transmitted sexually or by contact with infected blood, semen or vaginal fluids. Sometimes HBV has no symptoms, but when symptoms do occur, they include jaundice, abdominal pain, nausea and vomiting. Chronic HBV infection can sometimes be cured, but if not, over time it can lead to liver damage, liver cancer and death.

### 3. Reproductive Technology: Can we? Should we?

Medical treatment for infertility first became available over 100 years ago with the introduction of AIH (artificial insemination using semen from the husband) and AID (artificial insemination using semen from a donor), but these practices did not become popular or widely available until the 1960s.

A better understanding of reproductive physiology, combined with advances in medical technology, has led to the development of several methods of assisted reproductive technology. Most of these methods involve the union of sperm and egg outside of the womb (*in vitro*). The birth of Louise Brown in England in 1978, the first in vitro fertilization (IVF) baby, heralded a new era in the treatment of infertility. Subsequent advances have enhanced the techniques so that certain assisted reproductive technologies have about a 35 percent success rate per cycle in the US. Assisted reproduction quickly became a growth industry; and there are currently over 400 centers performing over 100,000 IVF cycles in the U.S. each year. The number of infants born as a result of ART procedures rose from 1,875 in 1987 to 49,458 in 2004; and the total number of ART clinics in the U.S. rose from 30 in 1985 to over 420 in 2004.<sup>18</sup>

Paradoxically, the advent of ART has in some instances increased the anguish of infertile couples. Because these technologies are now available (to those who can afford them), couples must make choices about whether to undergo such assistance, how many cycles to attempt, etc. Such additional choices can cause them greater turmoil — socially, financially and morally.

*Just because certain technology is available does not automatically mean that it is morally justified or that it should be used.*

## Ovulation-inducing drugs

About 40 percent of patients with infertility have problems ovulating, which means the follicles need help maturing (see “follicle” in glossary of terms). If the male has healthy sperm but the female has irregular periods and is not ovulating, the first course of treatment involves a series of hormones (such as the popular Clomiphene citrate). These hormones stimulate the ovaries to produce an egg for fertilization. Clomiphene citrate is a relatively inexpensive fertility drug that does not require a prescription from a fertility specialist; and for many women, Clomiphene citrate has successfully resulted in pregnancy.<sup>18</sup>

If oral medication is unsuccessful in triggering ovulation, the doctor may begin with injectable ovulation-inducing medications. A normal ovulation cycle involves a specific formula of follicle-stimulating and luteinizing hormones (FSH and LH), a recipe that pharmaceutical companies have purified and synthesized into injectable form.<sup>19</sup> “The Injectables,” as they’re sometimes called, can be partnered with intrauterine insemination (IUI) or as part of a larger plan involving in vitro fertilization (IVF). With this method, called “controlled ovarian hyperstimulation,” doctors can directly stimulate the ovary as if the pituitary gland didn’t exist.<sup>20</sup> When the follicles reach a certain size, the patient receives a shot of human chorionic gonadotropin (hCG) and ovulation usually occurs within two days.<sup>21</sup> Con: Powerful and expensive, with possible overproduction of eggs and increased chance for multiple pregnancies, including triplets and above. Ultrasound monitoring and a close watch on blood hormone levels highly suggested.

*“Troubles are often the tools by which God fashions us for better things.” — Henry Ward Beecher*

## Donor Eggs<sup>22</sup>

“Donor egg IVF” is defined as the procedure by which eggs from a female donor are mixed with sperm to create an embryo, which is then transferred to the uterus of the woman who will carry it to term (the gestational carrier). Women who use donor eggs may have ovarian failure, absence of ovaries due to congenital abnormalities, cancer, endometriosis, or use them to avoid transmitting genetic disease. About 10 percent of assisted reproductive technology procedures performed in 2004 involved donated eggs or embryos. There are many issues to consider with the process of using a donor egg, including cost, screening, success vs. failure rate, choosing a candidate, ethical concerns and more.

**Cost.** Some donors receive as much as \$50,000 for one cycle of eggs, although the American Society for Reproductive Medicine (ASRM) recommends that egg donors charge under \$5,000. In addition, some clinics require that the recipient buy an insurance policy for the egg donor, which can cost hundreds of dollars per cycle. This is all before the cycle actually begins. For the procedure to work, the donor must undergo the in vitro fertilization (IVF) process of ovulation stimulation and egg harvest, which entails a rigorous regimen of shots and medical procedures. Estimated total cost for a donor egg IVF cycle approaches \$20,000, but costs of \$30,000 per cycle are common in metropolitan areas (not usually covered by insurance).

**Screening.** Given the detailed process, many clinics either do not have a donor program or overuse donors, allowing them to donate for up to ten cycles (most clinics recommend no more than two successful cycles per egg donor). Some couples use family members or friends, while others may go through a “broker,” internet contacts or advertisements. Screening of donors through clinics involves psychological testing, personal history of mental illness, learning disabilities, substance abuse and criminal record.

**Success vs. Failure.** About 60 to 70 percent of the eggs will fertilize. Generally, two embryos are transferred. The current success rate for donor eye IVF cycles is 50 percent nationally. This high success rate is primarily due to the high quality and young age of the donor eggs. If fertilization of the eggs is unsuccessful, or the embryos do not implant, the couple is still responsible for payment.

## In vitro fertilization

In vitro fertilization (IVF) is the three-step process of surgically removing eggs from a woman, mixing the eggs with a sperm in a culture dish in the laboratory and later transferring the embryo(s) to the uterus. IVF is used in less than 5 percent of infertile couples, and is usually the chosen method when the woman has blocked, severely damaged or absent fallopian tubes.<sup>23</sup>

### How does IVF work?



**1) Ovulation induction.** Typically, the ovaries are first “turned off” so that they can be stimulated in a more controlled manner. This is usually done through medication, such as birth control pills and GnRH analogs. When ultrasound shows that no follicles are maturing, the patient starts receiving a series of hormone injections, usually for about 10 days, until the follicles are a certain size. At that time, a shot of HCG is given, which usually triggers ovulation within 36 hours.<sup>25</sup>

**2) Egg retrieval.** Just prior to ovulation, doctors use ultrasound and needle aspiration to retrieve the eggs directly from the follicles. An ultrasound probe with a needle guide is inserted into the vagina. The doctor can then see the procedure on the ultrasound screen. He suctions the fluid, which “flushes” the mature egg out of the follicle. Once in the lab, the fluid is examined for eggs, which are then separated into a sterile environment. The next step is fertilizing the eggs with the husband’s sperm. About two out of three eggs will fertilize. At this point, the fertilized eggs are at the zygote stage (one cell), and they have all the genetic makeup they need to develop into a human being. An embryologist then “grades” the embryos from A to D or 1 to 4. Grade A (or 1) embryos are perfect, while grade D (or 4) embryos have retarded development and/or other abnormalities. B and C (or 2 and 3) embryos fall in the middle.<sup>25</sup>

**3) Embryo transfer.** By the second and third days, the embryos have two to four divisions and are ready to be transferred into the woman’s uterus. The relatively painless procedure often begins with medications to keep the uterus from contracting, and then a tiny catheter transfers the embryos into a precise location in the uterine cavity. Bed rest of more than 20 minutes after the procedure has not been proven to result in a higher pregnancy rate.<sup>26</sup>

Sometimes, doctors will perform blastocyst transfer. This is when the embryos are left in the lab up to six days to mature to the blastocyst stage, then transferred into the uterus. The embryologist will select the embryos that appear to be the most normal for transfer, with the remainder usually frozen, but often discarded. The blastocyst includes a second cluster of cells that will develop into the amniotic sac and placenta. Currently only 30 to 40 percent of embryos survive in the lab to the blastocyst stage, but they have a higher rate of success once transferred.<sup>27</sup>

Because many fertilizations take place in the fallopian tube, it is possible that a process occurs here that facilitates implantation. Therefore, procedures have been developed that use a woman’s healthy fallopian tubes to assist in reproduction. The result is Gamete Intrafallopian Transfer (GIFT) and Zygote Intrafallopian Transfer (ZIFT) and Tubal Embryo Transfer (TET). With GIFT, ovulation is induced and eggs are retrieved. At this point, the sperm and egg (gametes) are injected into the fallopian tube, giving them the chance to fertilize naturally. Hormone injections assist in the process and pregnancy is confirmed by a test. ZIFT and TET are the same procedure as IVF, except the zygotes/embryos are transferred into the fallopian tube instead of the uterus. Success rates for GIFT, ZIFT and TET are currently no higher than IVF, which has caused them to almost become a historical footnote in Assisted Reproduction. Only about 1 percent of ART cycles in the U.S. were GIFT, ZIFT and TET in 2007.

### IVF Facts<sup>28</sup>

- Previously, fewer than 5 percent of infertile couples in treatment actually used IVF. IVF is usually the treatment of choice for a woman with blocked, severely damaged or absent fallopian tubes. Currently, however, the use of IVF is greatly increasing, at least partly due to the high success rates achieved, but possibly also due to impatience, reduced surgical expertise and financial factors.
- According to the latest statistics, the success rate for IVF is 27.6 percent deliveries per cycle using fresh, nondonor eggs/embryos. This success rate is significantly higher than the 20 percent chance that a healthy, reproductively normal couple has of achieving a pregnancy that results in a live born baby in any given month.
- Of the 82 percent of pregnancies as a result of IVF that result in a live birth, about 67 percent are singletons and 33 percent are twins, triplets or more.
- IVF has reduced the number of tubal surgeries by 50 percent.

# The Ethics of Assisted Reproductive Technology

## 1. In Vitro Fertilization

One of the most significant specific moral concerns of Christians in regard to reproductive technology and in vitro fertilization is the multitude of fertilized eggs that do not develop to maturity. The conception of Louise Brown in England in 1978 came after greater than 500 unsuccessful fertilizations. Even with the better ART techniques available today, far more fertilized eggs die after unsuccessful attempts at implantation than actually develop into a live-born baby. Equally disturbing is the number of early embryos that remain frozen and unused after a couple has had successful IVF. Although their moral status is a subject of debate, most Christians consider life to begin at the time of fertilization. Therefore, embryo donation, rather than destruction through thawing and discarding or use in research, is considered by most to be the appropriate answer to this dilemma.<sup>29</sup> CMDA helped to create, and is partnered with, the National Embryo Donation Center. See the section below on embryo donation/adoption, and also [www.embryodonation.org](http://www.embryodonation.org) for more information.

## 2. Third Party Reproduction

Christian Medical & Dental Associations has determined that “third party” reproduction is not consistent with God’s design for the family. The process of using donor eggs, donor sperm or a surrogate to carry the baby is referred to as third party reproduction, and is opposed by most religions, including many Jewish, Islamic, Protestant and Catholic authorities. A statement from the Vatican states that third party reproduction “violates the rights of the child. It deprives him of his filial relationship with his parental origins and can hinder the maturity of his personal identity. Consequently, fertilization of a married woman with the sperm of a donor different from her husband and fertilization with the husband’s sperm of an ovum not coming from his wife are morally illicit.”<sup>31</sup> Most doctors recommend psychological counseling of a couple that goes through the process of third party reproduction due to the many issues involved, such as:<sup>31</sup>

- Resolving any anxiety between the donor and the couple, if the donor is known;
- The extent of a relationship between the donor and the child;
- If no relationship will exist between the donor and the child, terms of confidentiality must be discussed;
- What long-term psychological consequences will affect the child when he or she becomes aware of the donor? With this technology, it is possible for a child to have as many as five parents: genetic mother, gestational mother, rearing mother, genetic father and rearing father;
- Working through all legal requirements of the arrangement, which varies by state.

## Surrogacy

There are two kinds of surrogacy. **Traditional surrogacy** is the process in which the husband’s sperm is used to fertilize a donor’s egg and the resulting embryo into the donor’s uterus. This is generally used when a woman has no viable eggs and cannot sustain a pregnancy. Thus, traditional surrogacy is more difficult because the surrogate has both a genetic and a gestational attachment to the child she must give up. In addition, the strain on the infertile couple can be unbearable, as the infertile wife must watch another woman bear her husband’s child.



**Gestational surrogacy**, on the other hand, is the process in which a woman undergoes in vitro fertilization, but serves only as a “host” for a couple’s child. In this instance, the surrogate is not genetically related to the child and is a “gestational carrier” for the child that she will give birth to. The embryo can result from the married couple’s sperm and egg fertilized in vitro, an embryo fertilized by donated sperm or egg, or an adopted embryo from another couple. Although the first case of surrogacy was documented in the late 1970s, the idea has been around for centuries, arguably beginning with Abraham and Hagar. Generations later, the process of surrogacy remains complicated and ethically cloudy. The high costs (\$35,000 to \$50,000), problematic family structure (especially when the aunt serves as traditional surrogate) and detailed legal processes (background checks, matching process, medical tests) sometimes have disastrous results. For example, the media recently reported of a case where a couple walked away from their surrogate because she conceived twins, and they only wanted one baby.<sup>33</sup>

### 3. Embryo Adoption



Before the ethical dilemmas brought on by reproductive technology, fertility clinics generally kept a low profile in society. They are exempt from federal funding and consequently have not been subject to much regulation by the government. The Bush administration, however, instituted the President's Council of Bioethics and has since pressured Congress to pass laws that protect embryos in medical research. Additional attention from the Food and Drug Administration perhaps prompted a 2003 survey by the Society for Assisted Reproductive Technology of all 430 fertility clinics in the U.S. Of the 340 clinics that responded, surveyors reported a "conservative" count of 396,526 frozen embryos. It is estimated that this number is closer to 500,000 currently. Of the original number, about

350,000 have been kept reserved for ongoing attempts to have a baby, 11,000 may be set aside for research and over 9,000 of the embryos may be available to other couples for adoption.<sup>33</sup> However, experience tells us clearly that closer to one-half of the embryos now in cryopreservation will never be used by their genetic parents in hopes of having another child.

The *Washington Post* reported the following:

"The unexpectedly high number — by far the largest population of frozen human embryos in the world — is the byproduct of a booming fertility industry whose success depends on creating many embryos but using only the best. Although most of the embryos are being held for possible use by the couples who wanted them, a large proportion will never be needed, experts said. That reality, and the sheer scope of the phenomenon, has reignited a debate among scientists, theologians and parents about the moral standing of those microscopic entities. The question is philosophical, but the implications are practical. With clinics concerned about accidental meltdowns and insurance, and storage fees for parents reaching \$1,500 a year, many people are wondering what should be done with the nation's prodigious stores of nascent human life."<sup>35</sup>

**How are embryos frozen?** The Essex Fertility Clinic in the United Kingdom gives the following explanation: "Freezing involves putting embryos through a series of cryoprotectant solutions, which penetrate the embryos and protect them from the inside as well as the outside, during the freezing process. During this strenuous procedure, the embryos are cooled slowly over two hours to  $-140^{\circ}\text{C}$  in a special controlled-rate freezing machine before they can be put into our storage dewers, which are filled with liquid nitrogen at  $-196^{\circ}\text{C}$ . At this temperature the embryos have no biological activity and can be stored for an unlimited length of time. During thawing the embryos are rapidly warmed in a  $30^{\circ}\text{C}$  water bath and put through a special series of thawing solutions. This carefully removes all the cryoprotectant solution from the embryos before they can be cultured in the incubators. It is obvious from this simplified description of the freeze-thaw process that the embryos have to endure a lot which also explains why the pregnancy rates with frozen embryos are generally lower than with fresh ones."<sup>36</sup>

**What is embryo adoption?**<sup>36</sup> Embryo adoption is the process in which an infertile couple adopts (a) cryopreserved embryo(s) from the genetic parents who do not wish to transfer it (them), and the adoptive mother carries her adopted child to term. This revolution in adoption is an ethically sound alternative to the destructive research option many couples choose for their surplus of embryos, and in 2002 the government funded a public awareness campaign to inform the public about this option (see [www.embryooption.com](http://www.embryooption.com)).<sup>37</sup> Couples can either go through a national medical program such as the National Embryo Donation Center, an adoption agency such as the *Snowflakes* program of Nightlight Christian Adoptions or they can network to find their own. Both anonymous and open donation/adoption arrangements can be made, but open donation/adoption seems to be preferable for the child.

With embryo donation, there is both genetic and medical screening of the donors and recipients and the donor family releases all rights to those embryos. There are several embryo donation and adoption facilities in the U.S., but by far the two with the most experience and credibility are the National Embryo Donation Center in Knoxville, Tennessee ([www.embryodonation.org](http://www.embryodonation.org)) and the Snowflakes Program at Nightlight Christian Adoptions in Fullerton, California ([www.nightlight.org](http://www.nightlight.org)). The NEDC was initiated by the Christian Medical Association to give infertile couples an ethical alternative to donating their embryos to destructive research.

The first reported birth of an adopted embryo occurred in the mid 1980s in Europe, but this option did not really become prominent until recently. To date, at least a few hundred babies have been born as a result of embryo adoption.

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## **Some common questions from Christian fertility patients<sup>38</sup>**

### ***Is it okay to produce a semen sample?***

Although some Christians believe that producing a semen sample by masturbation is morally wrong, most believe that when this is performed with a good goal of having a child in mind or helping discover a diagnosis does no harm unless the husband is lustful in the process. Unfortunately, most fertility clinics have “collection rooms” with pornographic materials for the men to use while collecting their specimens. This practice is to be condemned.

### ***Is it okay to use fertility drugs?***

Since fertility drugs are designed to improve the normal ovarian process of producing an egg, most Catholics, Protestants and Jews approve of fertility medications.

### ***Is IVF okay if we respect life at the one-cell stage?***

The Catholic Church condemns IVF as morally unacceptable. However, protestant denominations do not share this belief, if one commits to giving every embryo the best possible chance to live. This can happen by having the doctor create only the number of embryos the couple is willing to carry to term, and then having all of the fertilized eggs implanted, regardless of “quality.” If some of the embryos do not survive the normal process of cell division, we assume this would have happened in the fallopian tubes under normal circumstances. More clinics today are limiting the number of eggs to be fertilized, which limits the number of embryos to be transferred. Nevertheless, the success rates continue to rise and this policy avoids the ethically unacceptable procedure of “multifetal pregnancy reduction.” Multifetal pregnancy reduction is where the uterus has more live embryos than it can support, so one or more of the fetuses is aborted to make room for the others.

### ***Is cryopreservation, or freezing embryos, acceptable?***

While cryopreservation is an ethically murky area, those considering it who are committed to protection of early life should take certain precautions. Freezing embryos can save money and avoid having to do another IVF cycle, but one quarter of all frozen embryos die in the freezing/thawing process.

Cryopreservation of embryos is certainly a better option than discarding them, but it would be better to avoid getting into this situation. If freezing is chosen, the couple should remain fully committed to implanting those embryos at a later date, regardless of whether they are blessed with a child from an earlier attempt. Until thaw survival and conception rates improve, couples should consider avoiding this situation by allowing sperm to fertilize fewer eggs, even though the financial cost may be higher as a result. If a clinic quotes a very high thaw success rate, they may only be freezing the higher quality embryos, allowing the “lesser” quality embryos to be discarded. Clinics with higher ethical standards may have lower success rates for this reason.

### ***Is it okay to do “compassionate transfer”?***

“Compassionate transfer” is what some doctors call the process of implanting “extra” embryos at a time in the patient’s cycle when pregnancy is highly unlikely. The procedure was developed to soothe the consciences of those who do not want to carry the embryos to term or destroy them outright. The physician thaws and transfers the four- or six-cell embryos without all the necessary hormones and at a time when the uterus is unreceptive to pregnancy. The procedure has a near-zero success rate, even though this number is higher than the embryo’s chance of living if thawed and left in a dish. This option is not ethical.

### ***Is it okay to donate embryos for research?***

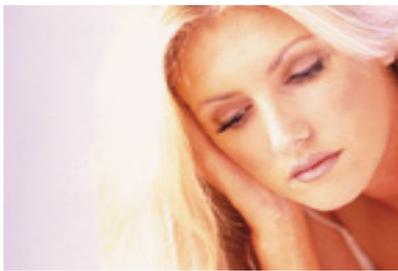
The blastocyst has received considerable media attention in the debate about stem cell research for possible cures of diseases such as diabetes, Parkinson’s and spinal cord injuries. While such an act may seem altruistic, there are ethical implications to be considered. During the in vitro fertilization process, the early embryo, or blastocyst, can grow up to about 100 to 200 cells. There is a hollow shape with an inner and outer cell mass. These inner cells, or embryonic stem cells, represent the embryonic pole, and to harvest them the embryo and supportive cells must be destroyed. Therefore, donating cryopreserved embryos for stem cell research means the thawing of an embryo to kill it. (For more on stem cell research, see Standards 4 Life: Stem Cell Re-

search.) While this may seem to some like a noble act, it fails the ethical mandate to protect early human life.

### ***Is preimplantation genetic diagnosis (PGD) ethical?***

PGD may appear to be standard prenatal testing, but there are two key differences: 1) testing for problems occurs after fertilization in the IVF lab. Embryos can be tested for over 100 genetic conditions and sex selection may be performed to prevent gender-linked disorders. 2) All embryos diagnosed as “defective” are destroyed. Developed in the 1990s, PGD has resulted in at least 1,000 births of preselected embryos and costs between \$1,500 and \$3,000, excluding the cost of IVF. It is estimated that in the future, about 20 percent of IVF cycles will include PGD. PGD done with the intent of eliminating unwanted early life is not supported by Christian Medical & Dental Associations.

## **4. Infertility and the Bible**



Infertility has been a source of great sadness, and even anguish, for some married couples since Old Testament times. Many infertile Christians today ask questions like, “Is God punishing me? Is it God’s will for everyone to multiply? Should I claim the promises of the Old Testament?” Well-intentioned advice from friends or family sometimes implies that infertile couples have unconfessed sin in their lives or that their prayer lives are insufficient. But nothing could be further from the truth.

***Be fruitful and multiply.*** This commandment by God to Adam and Eve and also to Noah was appropriate in the context of God’s new creation of the world, but in the New Testament, the focus is shifted from a physical multiplication to a spiritual multiplication. Paul in 1 Corinthians 7:7-8 says, “I wish that all men were [single] as I am. But each man has his own gift from God; one has this gift, another has that. Now to the unmarried and the widows I say: It is good for them to stay unmarried, as I am.” Paul not only recommended a life without children, but a life without marriage so that one could devote all his time to accomplishing Christ’s command that we spread the gospel message.<sup>40</sup>

***Context, context, context.*** Many couples read the Old Testament stories of Hannah, Sarah and others and claim the promises of fertility that these women enjoyed after their struggles. This is one good example of when context must be considered. God’s plan for Hannah was a son named Samuel who would later become king; His plan for Sarah included a nation of children. Likewise, His plan for you is unique to only you. Instead of claiming promises meant for someone else, claim the promise that God will bless those who are obedient to Him.<sup>41</sup>

***Infertility: a curse?*** The Old Testament contains a variety of stories where God punishes a society or a person with infertility. One such instance is when David’s wife Michal ridicules him for dancing before the Lord and as a result “had no children to the day of her death” (2 Samuel 6:23). Although God would have been justified in cursing Michal, the text does not say she *could* not, only that she *did* not have children. Perhaps the reason she did not have children was because she and her husband were not intimate from that day forward.

In the other few cases of individual infertility in the Old Testament, the reasons were spelled out under the law of Moses. They were: 1) an aunt and nephew who slept together (Leviticus 20:20); 2) a man who married his brother’s wife while the brother was still alive (Leviticus 20:21); and 3) a female who committed adultery (Numbers 5:20). The good news is that we now live under a New Covenant of grace and forgiveness through Jesus Christ.<sup>42</sup>

*“For this reason Christ is the mediator of a new covenant, that those who are called may receive the promised eternal inheritance—now that he has died as a ransom to set them free from the sins committed under the first covenant” (Hebrews 9:15).*

## So what morals are we to learn from the biblical stories of infertility?

### 1) God answers prayer.

1 Samuel 1 tells the story of Hannah and Peninnah, the two wives of Elkanah. Peninnah was blessed with children, but the Lord had “closed the womb” of Hannah. Peninnah tortured Hannah because she did not have any children, and this made Hannah depressed and unable to eat, two of many same symptoms of infertile women today. It also bothered Elkanah, who loved Hannah more than Peninnah. He demonstrated the frustration of many infertile husbands when he cried, “Am I not enough?” (1 Samuel 1:8). So Hannah cried to the Lord in 1 Samuel 1:11:

*“O Lord Almighty, if you will only look upon your servant’s misery and remember me, and not forget your servant but give her a son, then I will give him to the Lord for all the days of his life, and no razor will ever be used on his head.”*

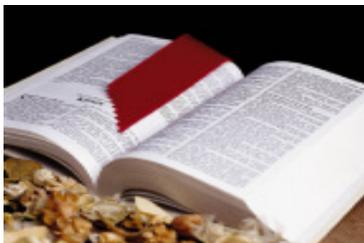
The Lord heard Hannah’s prayer and she became pregnant with one of the great prophets of the Old Testament, Samuel. Hannah trusted God through her pain and He rewarded her for her obedience.<sup>43</sup>

### 2) Don’t give up on God.

In Genesis, the Lord promised Abraham that he would be the father of many nations, and that he would give him a son through his wife Sarah, saying that “kings of peoples will come from her” (Genesis 17:16). But years passed and Sarah remained barren. She became impatient with God, so Sarah came up with the idea to use their maidservant Hagar to gain a family. She gave Hagar to her husband and Hagar became pregnant (Genesis 16:2-4). At this point, the two women despised each other and the Lord told Hagar to name her son Ishmael, who would be “a wild donkey of a man; his hand will be against everyone and everyone’s hand against him, and he will live in hostility toward all his brothers” (Genesis 16:12).



But finally, when Sarah was a very old woman, God planted a seed in her that would, in fact, result in a nation of people—the nation of Israel. She gave birth to Isaac when she was 90 years old, and the nations of the two half-brothers have fought ever since. Sarah’s impatience and unwillingness to wait on the Lord resulted in a child of conflict.



### 3) God’s will is more important than having a child.

Contrary to the belief that infertility is a punishment from God, many “infertile” women in the Bible went on to give birth to some of the most important figures in biblical history. Perhaps this means that the reason for these births was not for the “infertile” woman’s satisfaction of having a child, but to fulfill the bigger picture. Samson’s mother, for example, was barren for many years before an angel of the Lord appeared to her, saying,

*“You are sterile and childless, but you are going to conceive and have a son...No razor may be used on his head, because the boy is to be a Nazirite, set apart to God from birth, and he will begin the deliverance of Israel from the hands of the Philistines” (Judges 13:3-5).*

The woman, named only “wife of Manoah,” ran to her husband with the good news that she would give birth to a son. But she managed to leave out the most important part, that their son would deliver Israel out of 40 years of conflict with the Philistines. When Manoah asked the angel of the Lord to send more information about what their son would do in life, the angel said,

*“Let the woman pay attention to all that I said. She should not eat anything that comes from the vine nor drink wine or strong drink, nor eat any unclean thing; let her observe all that I commanded” (Judges 13:13 NASB).*

The woman in this story was so focused on having a baby that she forgot the most important message: that God had a plan for her son. When someone is unnamed, as “Manoah’s wife” is, it generally means that she has brought dishonor to herself, that she has failed in some way.<sup>44</sup> Samson’s mother teaches us all that it’s not

about us, it's all about God. Even when the answer is "no," as it was even to Jesus in the Garden of Gethsemane when He asked for His suffering to pass (Matthew 26:39), obedience is tantamount.

### God's plan for me may not include children.



Scripture defines a family as being composed of one woman and one man joined in exclusive commitment, and it calls children resulting from that union a gift from God. In *The Infertility Companion*, Sandra Glahn and William Cutrer write:<sup>45</sup>

"Much of life is cause and effect, so it's easy to let the mentality that we've earned a child creep into our view of God and Christian life. We think that if we do certain things—right things—*voilà!* God will bless us with wealth, children, and whatever else we might want. So we establish a mentality of entitlement. We think, 'If I go to church, read my Bible, pray—*bingo!* God is honor-bound to bless me with a child.' When the nursery stays empty, we wonder why we failed to get our prize when we have put our dollar of obedience into the machines. We think that either the machine is broken or we are.

"Job's friends had just such a cause-and-effect view of life, and it got them into trouble. They assumed Job was suffering because he must have done something awful. Later God told them that they had not spoken rightly about him, as Job had. Ultimately justice prevails, but not always in this life. Those who have eternal life in knowing Jesus Christ (John 3:16) have the promise that God will never leave us (Hebrews 13:5). And God's presence is the greatest thing in all of life, because it is the only thing that brings true, lasting soul satisfaction. We have no promise that he will give us any temporal benefits. And even if God does answer the prayer for children, those bless-

ings will never satisfy us at the deepest levels of our souls. Only intimacy with the Father through the Son satisfies the soul's deepest longings."

### What does the Bible say about adoption?

We have all heard the story of Moses being put in a basket and being picked up by the Pharaoh's daughter in Exodus. Could this be the first recorded case of adoption in history? As the story goes, Pharaoh sent out a decree at that time that all Hebrew baby boys were to be "thrown into the Nile" (Exodus 1:22), because they were beginning to outnumber the Egyptians. Moses' mother managed to hide him for three months, but when she could no longer hide her baby boy, she covered a basket with tar and pitch and gently put her baby into the basket. The Pharaoh's daughter was bathing with her maids by the bank of the Nile and spotted the basket. When she saw the baby, she decided it must be one of the Hebrew babies and she felt sorry for him (Exodus 2:5-6).

Seeing this take place, Moses' sister went to Pharaoh's daughter and offered to take the baby to be nursed. She agreed and so Moses' mother was able to care for him until he was older. At that time, he went to the house of Pharaoh, where he was raised (Exodus 2:7-11). This instance of adoption in the Bible is significant because it refutes the claim by some that if God gifts you with a child, you should not give that child up. Moses' mother loved him enough to let him go and trusted God to take care of her son.<sup>46</sup>

Hadassah, also known as Esther, was adopted as well. Esther 2:7 says, "Mordecai had a cousin named Hadassah, whom he had brought up because she had neither father nor mother. This girl, who was also known as Esther, was lovely in form and features, and Mordecai had taken her as his own daughter when her father and mother died."

And finally, another adoption that takes place in the Bible is the adoption of the church by Christ. Everyone who believes in Christ is adopted by God into His kingdom.<sup>47</sup> Romans 8:15, 22-23 says:

"For you did not receive a spirit that makes you a slave again to fear, but you received the Spirit of sonship. And by him we cry, 'Abba, Father'... We know that the whole creation has been groaning as in the pains of childbirth right up to the present time. Not only so, but we ourselves, who have the firstfruits of the Spirit, groan inwardly as we wait eagerly for our adoption as sons, the redemption of our bodies."

## 5. Coping

The arduous diagnosis of infertility involves a variety of emotions and issues, from dealing with other people's insensitivity, to keeping the marriage relationship healthy; from enduring the stressful medical procedures, to contemplating the ethical issues involved with human embryos. When should infertile couples stop the roller coaster of emotions and consider life without biological children? That's the difficult question a lot of couples face, the answer to which cannot be measured by whether another IVF cycle might work, or whether the funds have run dry. Perhaps the best way to answer that question is by asking if it's more painful to continue with treatment than it is to stop.

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*"When one door closes another door opens; but we so often look so long and so regretfully upon the closed door, that we do not see the ones which open for us." -- Helen Keller*

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### I can not have biological children. What now?



**Adoption.**<sup>48</sup> Couples who have just endured the trauma and stress of infertility are many times shocked when they learn of the stress that is part of the adoption process. Most adoptions take about two years, and there are often a lot of unexpected twists and turns. Agencies and therapists advise that all medical treatments are finished before an adoption takes place.

There are two kinds of adoption, *agency* and *independent* adoption. Agency adoption is when the birth parents transfer all their rights to the adoption agency. The agency guides the adoptive parents through the process, provides counseling for the birth parents and gives valuable advice and support to both parties. An independent adoption is when the birth parents personally choose and give consent directly to the adoptive parents. Four states prohibit independent, or private, adoptions: Connecticut, Delaware, Massachusetts and Minnesota. However, the adoptive and birth parents identify each other without intervention by an agency and then arrange parental rights to be relinquished through an agency.

*The spouse timeline.* The decision to adopt is usually not an easy one for infertile couples who have been faced with the reality that they will never have their own biological children. A grieving process should be expected, and each spouse handles the grief in different ways and at different times. Coming to the decision to adopt is comparable to a dating couple thinking about becoming engaged, in that many times a waiting period is needed so that both people are fully ready to commit. The most important thing to remember during this waiting period is that trying to force the issue will only make things worse.

#### *Myths of adoption.*

**Myth:** Most adoptions take over five years before actually getting a child.

**Fact:** The average wait is less than two years.

**Myth:** Many adoptive parents face the agony of having the birth parent(s) change their mind after placement.

**Fact:** This is an agonizing experience, but only happens in 1 to 2 percent of all adoptions.

**Myth:** Adoptive parents do not love their children as much as they would their own flesh and blood.

**Fact:** Just as a wife loves her husband as much as she loves a family member, adoptive parents who also have biological children report that their love for all their children is equally strong.

*Tips for adoptive parents.*

- It's usually not necessary to tell everyone where your child came from, but when talking about it, always refer to the adoption in the past tense, as though referring to how he or she joined your family. Your child *was* adopted, not *is* adopted.
- Avoid saying the birth parents (as they should be referred) "gave up" the child, which rarely happens except in cases of abuse or neglect. Instead, refer to the process as an "adoption plan" that occurred as a result of the selfless love the birth parents have for the child.
- If the adoption took place within the United States, refer to it as a domestic adoption. If the adopted child came from another country, refer to the adoption as an "international" adoption. This was formerly called a "foreign" adoption, but many in the adoption community saw this as sometimes having a negative connotation.
- Do not refer to a child who has joined a family through adoption as an "adopted child." This puts unnecessary stress on the whole family and gives the child a label.



Although adoption will not cure the scars of infertility, it satisfies the need to nurture and gives families a chance to raise a new generation with their values and Christian beliefs.

**Famous People Who Are Birth Parents in An Adoption**  
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Albert Einstein  
Hank Williams  
Joni Mitchel  
Clark Gable  
Andy Kaufman  
Tug McGraw

**Famous People Who are Adoptive Parents**  
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Louisa May Alcott  
Aristotle  
Josephine Baker  
Erma Brownback  
Andy Griffith  
Bob Hope  
Ronald Reagan

**Famous People Who Were Adopted**  
.....

Dave Thomas  
Edgar Allen Poe  
Faith Hill  
Bill Clinton  
Art Linkletter  
Newt Gingrich  
Jesse Jackson  
Scott Hamilton  
Steve Jobs  
Nancy Reagan

source: <http://celebrities.adoption.com/>



**Child-free living.** Imagine a life with no children. While this thought may sadden most Christians, it by no means implies failure. George Washington did not have any children, but he is the father of our country. Dr. Seuss was not a father either, yet he gave joy to generations of children all over the world. Many couples who were never able to conceive find a new level of satisfaction in their marriage, in their church and family relationships, and by having “spiritual” children. It doesn’t make them “anti-adoption,” unusual or less happy. It simply means that the decision to remain child-free—which probably was never an easy decision—was the best decision for them.

As Joy E Dekok writes in November 1997’s *Decision* magazine, “Infertility has taught and tested me. It has brought tears of anguish and of acceptance...And still I don’t know why. But I do know that God is all that His Word says He is, and I trust Him. In that trust I find a special blessing - peace. I can say with the psalmist, ‘The Lord is my strength and my shield; My heart trusted in Him, and I am helped; therefore, my heart greatly rejoices, and with my song I will praise Him’... Sometimes our house is empty. Other times it is full. When we decided to let go of our dream and let God fill our home, we were obedient. We obeyed God and He has blessed us!”<sup>50</sup>

As for the need that many child-free couples feel to leave a “legacy,” this can certainly still be accomplished without genetic offspring. The opportunities for a Christian couple to serve the Lord through their partnership in marriage are limitless. This is validated through Isaiah 56:3-5:

“And let not any eunuch [surgically sterilized male] complain, ‘I am only a dry tree.’ For this is what the Lord says: ‘To the eunuchs who keep my Sabbaths, who choose what pleases me and hold fast to my covenant—to them I will give within my temple and its walls a memorial and a name better than sons and daughters; I will give them an everlasting name that will not be cut off.’”

God’s promises to those child-free couples who choose Him over the world will actually be *better* than children. This is coming from the God who made children to be as precious as they are, imagine what could be better than that in His eyes! How exactly can you leave a spiritual legacy?

- Spend much-needed time with children in your community who have been abused, unloved or ignored
- Become foster parents
- Invest in the youth group at church by hosting Bible studies, attending events or just being there to listen
- Take short-term mission trips and minister to the needy all over the world
- Volunteer at your local crisis pregnancy center, domestic abuse shelter or food bank
- Volunteer with a local agency like the Boys & Girls Club and mentor a child



### Is God good? Will I trust Him?

As Paul, himself child-free, writes in 2 Corinthians 4:17-18, “For our light and momentary troubles are achieving for us an eternal glory that far outweighs them all. So we fix our eyes not on what is seen, but on what is unseen. For what is seen is temporary, but what is unseen is eternal.”

“Knowing that God is sovereign doesn’t mean we must have dry eyes and respond with passivity to prove we have faith,” Sandra Glahn and Dr. William Cutrer write in *The Infertility Companion*.<sup>51</sup> “It means we rest in the assurance that he’s in control, despite our pain. We know he is able to open and close the human womb. Infertility comes as no surprise to him, and he has to allow this suffering to happen for it to touch anyone. Therein lies the tension, though. God is all-loving, yet he allows this pain; God is all-powerful, yet he doesn’t take away the hurt. So we ask, ‘Is God good?’ and ‘Will I trust him?’ These are the most important questions we can ask and answer on the infertility journey.”

## 6. Resources

American Society for Reproductive Medicine: [www.asrm.org](http://www.asrm.org)  
National Embryo Donation Center: [www.embryodonation.org](http://www.embryodonation.org)  
Resolve: The National Infertility Association: <http://www.resolve.org/>  
The National Women's Health Information Center: <http://www.4woman.gov/>  
Adoption.com: <http://www.adoption.com/>  
Adoptive Families: <http://www.adoptivefamilies.com/>  
IVF Connections: <http://www.ivfconnections.com/>  
Infertility and Cancer: <http://www.fertilehope.org>  
Bethany Christian Adoption Services: [www.bethany.org](http://www.bethany.org)  
Endometriosis Association: <http://www.endometriosisassn.org/>  
Polycystic Ovarian Syndrome Association: <http://www.pcosupport.org/>  
Center for Loss In Multiple Births (CLIMB): <http://www.climb-support.org>

### Recommended Books

*The Infertility Companion*, by Sandra Glahn, ThM and William Cutrer, MD.  
*When Empty Arms Become a Heavy Burden*, by Sandra Glahn and William Cutrer, MD.  
*Basic Questions on Reproductive Technology*, by multiple authors.

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