Fertility Options for Men Diagnosed with Cancer
Sperm Banking

Cancer Treatment and Fertility
For men, fertility means being able to produce healthy sperm cells that can fertilize an egg to try to make a woman pregnant.

It is common for men with cancer to have a temporary drop in semen quality. Semen quality includes:

- Sperm count (how many sperm are in a man's semen)
- Sperm motility (ability of sperm to swim to the egg)
- Sperm morphology (the percent of sperm with normal shapes)

The ability to make healthy sperm cells may return after cancer treatment. However, some cancer treatments can damage fertility permanently.

Chemotherapy and Fertility
Chemotherapy (chemo) may damage sperm cell production in the testicles. The damage may be temporary or permanent. This depends on the type of chemo medicines and amount given.

The medicines that most commonly cause infertility are the alkylating type of chemo medicines. These include:

- Ifosfamide
- Cyclophosphamide
- Busulfan
- Nitrogen mustard

The risk of infertility increases as the dose of chemo increases.

Surgery and Fertility
Most cancer surgeries do not damage a man's fertility. However, surgery to the pelvic area may affect fertility.

Testicular Cancer
Men with testicular cancer usually have 1 testicle removed. A man can still be fertile with only 1 testicle. If the remaining testicle is not functioning normally, it might not make enough healthy sperm. If both testicles are removed, infertility is permanent.

Prostate Cancer
Some men have both testicles removed to treat advanced prostate cancer. If both testicles are removed, infertility is permanent.

Radiation and Fertility

Radiation treatment to an area near the testicles may damage sperm production. Infertility may be temporary or permanent.

Men who have radiation to their whole body may have permanent infertility. This can happen in patients preparing for a stem cell or bone marrow transplant.

Radiation to the prostate can decrease the amount of semen a man ejaculates. He may have dry orgasms or just a few drops of semen.

Dry Orgasm

A dry orgasm is when a man has the feeling of orgasm pleasure, but no semen comes out of his penis. Dry orgasms can occur after surgery. The prostate and seminal vesicles are glands that make the liquid part of semen. Sometimes these glands are removed during surgery. Nerves involved in ejaculation of semen may be damaged.

Dry orgasms may be caused by surgery to remove:

- Lymph nodes in the abdomen
- A tumor in the sigmoid colon, which is part of the large intestine.
- The prostate or bladder

Urologists who specialize in male fertility can collect sperm cells from men who have dry orgasm. This is done with:

- Medicines
- Electrical stimulation
- Surgery to get tissue samples from the testicles

These methods do not always work. Health insurance does not always pay for them.

Retrograde Ejaculation

Retrograde ejaculation is when semen goes back into the bladder instead of out through the penis. This happens when the valve between the bladder and urinary tube fails. Surgery may damage the valve or the nerves that control the valve. Urologists who specialize in male fertility can evaluate and treat this problem.

Radiation to the Brain

Radiation to the brain can damage parts of the brain called the hypothalamus and pituitary gland. These areas of the brain control sperm production in the testicles. If they are damaged, a man may be unable to make sperm. However, medicines can sometimes help a man to produce sperm.

Sperm Banking

Before starting cancer treatment, men who may want to have a child in the future should consider banking sperm. Banking sperm involves freezing a semen sample. The sample can later be thawed and used to try to make a woman pregnant.
Most health insurance plans do not pay for sperm banking. Some sperm banks have payment plans for patients with cancer. There are also financial assistance programs that can lower the cost of banking and storage.

Bank Sperm Before You Start Cancer Treatment

Collecting semen is not painful. The sample is collected at an infertility clinic or sperm bank. To get the sample, a man must ejaculate through masturbation. The clinic tests the semen for sperm count and motility. The sample is divided into small amounts and frozen. Cancer patients should try to bank at least 2 to 3 times.

The number of samples you bank depends on:

- How much time you have before you start cancer treatment.
- Sperm quality
- The cost of storing samples

Freezing Sperm

Frozen samples may be stored a long time. The process to freeze and thaw may kill some of the sperm cells. But the actual time the sample is frozen does not cause damage. Healthy babies have been born with sperm stored over 20 years.

Costs

The cost may be different from clinic to clinic. The clinic you are referred to will discuss the financial aspects with you.

Sperm Banking for Young Boys

Most boys start making sperm at age 12 or 13. Sperm may be collected in different ways. Some cancer centers offer testicular tissue freezing. Small pieces of testicular tissue are surgically removed and frozen. Doctors transplant the tissue back into the boy's body when he is older and cancer-free. Often the tissue is able to produce mature sperm.

This method is still experimental. Testicular tissue freezing should only be considered if it is part of a research study approved by an Institutional Review Board (IRB). Removing too much tissue could decrease a boy's chances of regaining his fertility. There may be some risk of reintroducing cancer cells into the body.

Fertility After Cancer Treatment

Fertility may return at any time, even many years after treatment. Many men will recover sperm production within 4 years. The chance and timing of recovery depends on:

- Age
- Type and amount of cancer treatment
- Medical history

The testicles have many “stem cells.” These are special cells that divide and grow to produce sperm cells. If cancer treatment kills the stem cells, no more sperm will be produced.

Tests and Procedures

A semen analysis helps predict a man’s fertility. A semen sample can be analyzed for:

- Sperm count (how many sperm are in a man’s semen)
- Sperm motility (ability of sperm to swim to the egg)
- Sperm morphology (the percent of sperm with normal shapes)

Even if a man has no sperm in his semen, he may be making some in certain parts of the testicle. About half of men with no sperm in their semen have enough sperm cells in the testicle to use in fertility treatment. In this case, sperm may be collected through an outpatient surgical procedure.

Intrauterine Insemination (IUI)

Some men recover enough sperm to father a child through sexual intercourse. However, some cancer survivors have low sperm counts and low sperm motility.

Intrauterine insemination is the placement of semen into the uterus. A fertility specialist prepares a fresh semen sample or thaws a banked semen sample. The sample is washed, concentrated and then inserted into the woman’s uterus around the time of ovulation. This procedure is done in the doctor’s office.

In Vitro Fertilization (IVF)

In vitro fertilization is a process that is done in a laboratory where the sperm is placed near or into an egg to create an embryo. The fertilized egg will become an embryo. The embryo can be placed in the woman’s uterus or frozen for the future.

Fathering a Child After Cancer Treatment

Chemotherapy and radiation can affect sperm cells. It takes a sperm cell about 3 months to mature. Doctors recommend waiting at least 6 to 12 months after treatment has ended to father a child. People who have had cancer have the same birth outcomes as the general population. Your child will have no additional birth or developmental risks.

Some cancers (about 5 to 10 out of 100 of all cancers) have a strong genetic factor. This means there is an increased chance of other family members getting cancer. If you have a family history of cancer, you may want to talk with a genetic counselor.

Resources

LIVESTRONG fertility website: http://www.livestrong.org/we-can-help/fertility-services/# The American Society for Reproductive Medicine patient website: www.ReproductiveFacts.org