

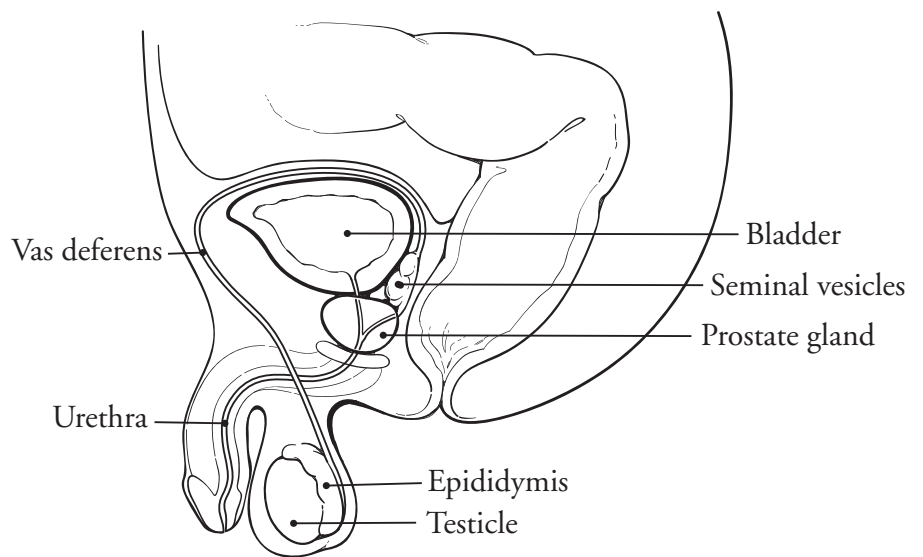
# Fertility and Cancer Treatment: Information for Men

## *Survivorship Initiative*

You will be starting cancer treatment that may affect your fertility, your ability to father a child naturally. We know this is a difficult time. Coming to terms with a cancer diagnosis and facing treatment is not easy. However, in the future, you may want to start a family. If you are already a parent, you may want to have more children. You can take steps now to improve the chance you will be able to do this.

### Natural Conception of a Child

Many structures of the body are involved in conceiving a child. Hormones from the brain stimulate the testes (testicles) to make sperm. This begins at puberty. The sperm then pass into the epididymis. This is where the sperm mature and develop motility (ability to swim). Sperm are stored in the epididymis and in part of the vas deferens. When you are sexually excited, nerves from the spinal cord stimulate muscles in the lower pelvis. These propel the sperm through the vas deferens. The sperm mix with fluids from the seminal vesicles and prostate gland. The fluid and sperm together are called semen. Then, the muscles at the opening of the bladder close. This causes the semen to be propelled out of the penis through the urethra. This is called ejaculation.



If this happens during sex with a female partner, sperm are propelled into the vagina. An individual sperm may enter the egg of a woman. This fertilizes the egg, creating an embryo. The embryo implants in the wall of the woman's uterus (womb). The cells continue to divide, becoming a fetus. This grows and develops during the nine months of pregnancy.

### Effects of Cancer and Cancer Treatment on Fertility

Some cancers affect the health of sperm even before treatment begins. The cancer can cause:

- A low sperm count.
- Abnormally shaped sperm.
- Sperm with reduced motility.

Cancer treatment can cause problems in a number of different ways. It can:

- Impair the testes' ability to produce healthy sperm.
- Harm the structures that are needed to ejaculate.
- Reduce the level of hormones that come from the brain to stimulate sperm production.

Not all cancer treatments cause problems with fertility. It depends on:

- Your age.
- Your diagnosis.
- The number and quality of sperm you produce before treatment.
- The type of surgery you have.
- The type and dose of chemotherapy you receive.
- The dose of radiation you receive and the area of the body that is irradiated.

Fertility problems may be temporary or permanent. You may regain the ability to produce healthy sperm after treatment. This may take months or even years. It is impossible to be sure how you will be affected.

## **Fertility Preservation**

You may want to collect sperm and freeze it before you begin treatment. This is called fertility preservation. It increases your chance of being able to father a child using your own sperm in the future. When this time comes, the sperm are thawed and used to fertilize the egg of your partner or a donor. Sperm are usually collected and stored at a sperm bank (also called a semen bank). We hope that the questions and answers below will help you decide if sperm banking is the right choice for you. At the end of this book, there is a list of resources where you can get more information.

## **Frequently Asked Questions before Treatment is Started**

### **How do I find a sperm bank?**

When choosing a sperm bank, it is important to find one that is licensed. These licenses are given only if the sperm bank meets strict safety criteria. We will give you a list of some New York state licensed sperm banks in the area. This card includes information to help you select a sperm bank.

- If you need a sperm bank outside the New York area, your doctor or nurse may be able to recommend one.
- If there is no sperm bank near you, a specimen can be mailed in. Contact [www.liveonkit.com](http://www.liveonkit.com). They will send you the equipment you need. However, we recommend you collect at a sperm bank if possible. You will have a better chance of having the highest number of healthy sperm. Only mail in a specimen if the nearest sperm bank is very far away.

### **How is sperm collected?**

The simplest way of collecting sperm is for you to do it yourself. This involves getting sexually excited to ejaculate. You can stimulate yourself or your partner can stimulate you. Your hands should be clean and dry. Do not use saliva or lubricants when stimulating yourself. These will destroy the sperm. You will collect the entire specimen of semen into a sterile cup.

Most men collect their sperm at a local sperm bank. You will need to make an appointment ahead of time. The staff at the sperm bank will give you everything you need and bring you to a private room for the collection. Some sperm banks will allow you to collect at home. If you collect at home, you must bring the specimen to the sperm bank within one hour. During that time, keep the specimen at body temperature. Place the cup with the specimen in a sock and hold it close to your body. You cannot freeze the specimen and store it at home.

### **How many collections do I need to make? Will collecting sperm delay my treatment?**

The number of specimens you need depends on the number and quality of your sperm. If possible, we suggest that you make three collections. This ensures you have enough healthy sperm to store. Do not have any sexual activity three to four days before the first collection. This will help you get the highest possible number of sperm in the specimen. You also should not ejaculate for at least two days, and ideally four days, between collections.

Your doctor may want you to start treatment before you can do three collections. There are new techniques that enable us to fertilize eggs even with very few sperm. If your first collection has enough healthy sperm, you may not need to collect any more. Your doctor will advise you about how long you can safely wait before you start your treatment.

### **Are there other ways to collect sperm?**

Collecting sperm by getting sexually excited to ejaculate may not be the best way for you. For example:

- It may be too embarrassing or distressing.
- It may not be allowed because of your religious or cultural beliefs or practices.
- It may not be possible because of pain from treatments you have received.

Other methods of collecting sperm exist. There are also some experimental procedures that can be used to collect sperm. These involve removing pieces of the testicle. The tissue itself may be frozen or immature sperm may be removed and frozen.

These are all done as outpatient procedures under anesthesia. If you would like to learn about any of these, ask your doctor or nurse to refer you to a reproductive urologist.

### **What does the sperm bank do with my sperm?**

The first thing the sperm bank does is analyze your sperm. They count the number of sperm in a defined volume of semen (one milliliter). This number varies from person to person. A normal count is generally above 20 million per milliliter. They also study the shape of your sperm and their motility.

If the sperm look healthy, the bank will freeze and store the sperm until you are ready to use it. Some sperm are damaged during the freezing and thawing process. However, no damage occurs while they are frozen. Sperm can be stored for as long as you want. Women have become pregnant with sperm stored for more than 20 years.

### **How much will it cost to bank my sperm?**

The charges for sperm banking include several fees. These may include:

- An initial consultation.
- Collection.
- Analysis.
- Freezing.
- Storage of the specimens.

The sperm bank may also require you to have blood tests for certain infectious diseases. There could be additional charges for these tests. Each bank charges different amounts for their services, so the total cost of sperm banking depends on the bank. The cost in the New York area is generally about \$1,000 to \$2,500. This fee includes storage for between one to five years. Many insurance companies do not cover sperm banking. Call your insurance company to find out if you have coverage. Explain that your doctor has suggested sperm banking because of a diagnosis of cancer. Having a letter of “medical necessity” from your doctor can also help. Ask your doctor to provide this letter. Give this letter to your insurance company with the bill from the sperm bank.

If you cannot afford these costs, you may be able to get financial assistance. The organization Fertile Hope has a program, Sharing Hope, to help with these costs. To find out if you are eligible and to see what is covered, look on their web site [www.fertilehope.org](http://www.fertilehope.org).

## Frequently Asked Questions after Treatment is Completed

### How long must I wait after treatment to try to father a child?

The length of time you should wait depends on your diagnosis and the treatment you received. In general, we suggest waiting at least 12 months after treatment before trying to have a child. However, with some chemotherapy agents you may not need to wait this long. Please check with your doctor to find out how long he or she recommends that you wait.

Waiting ensures that:

- You have recovered from treatment and are in good health.
- Your testes have recovered from the effects of treatment. This makes it more likely you will be able to make enough healthy sperm to conceive a child naturally.
- Any sperm that have been damaged by your treatment are broken down and removed from the body.

### If I collected sperm before treatment, should I use that sperm or first try to have a child naturally?

After waiting the length of time that your doctor suggested, make an appointment with the sperm bank. This is so you can have a fresh sample of sperm analyzed. The results will help predict the chances of you being able to father a child naturally. If there are enough healthy sperm, try for three to six months to get your partner pregnant. The amount of time to try depends to some extent on how old your partner is. Many men will be successful and never have to use their frozen sperm. However, if your partner does not get pregnant after three to six months, you may want to use your frozen sperm.

### How is my sperm used to conceive a child when I am ready?

The sperm bank will keep your sperm until you are ready to use it. At that time, it will be sent to the fertility specialist working with you and your partner. Your doctor will suggest a technique to fertilize your partner's or a donor's eggs. This is based on the number of healthy sperm you have, your partner's age, and her fertility status.

- Intra-uterine insemination (IUI or artificial insemination): Your doctor inserts your sperm through a very thin soft catheter into the woman's uterus. This is done around the time she ovulates (releases a mature egg). Most patients will not have enough healthy sperm for this technique. However, this may be an option for you if:
  - You were able to collect multiple vials of sperm.
  - Most of the sperm are healthy with good motility.
  - Your partner is young with no fertility problems.
- In vitro fertilization (IVF): This technique is used for most patients who have banked their sperm. Your partner will need to take hormone injections for a number of weeks. These stimulate the ovaries to mature extra eggs. When these have matured, they are removed. This is done using a very thin needle passed through the vagina. During the procedure, your partner will be asleep. The eggs are then fertilized with your sperm in a laboratory. There are two main methods:
  - The eggs are mixed with millions of sperm and they enter the eggs on their own.
  - A single sperm is injected into the egg (Intracytoplasmic sperm injection, or ICSI).

The fertilized eggs are kept in the laboratory for three to five days. If they start to divide and form healthy embryos, one or two of these are placed in the woman's uterus.

The effectiveness of these techniques depends on a number of factors:

- The number and quality of your sperm
- The age of your partner
- The technique used

- The experience of the fertility team. For information on the experience of different fertility centers go to the Society for Assisted Reproductive Technologies at [www.SART.org](http://www.SART.org). Click on “IVF Success Rate Reports.”

### **Will a child born using frozen sperm be healthy?**

Being a cancer survivor and using frozen sperm does not increase the risk of your child having birth defects. It also does not mean that your child will develop cancer. However, some cancers are hereditary, or passed down from parents to children. Ask your doctor or nurse if you have a hereditary cancer. If you do, ask to meet with a genetics counselor to learn more about these risks.

### **What should I do with my frozen sperm if I decide not to use it?**

Once you have decided you will not be using your sperm, contact the sperm bank. They will have you sign papers so they can stop storing the sperm and discard it.

### **If I did not collect sperm before treatment and my sperm count is low, can I still get someone pregnant?**

Even with no sperm in a semen sample, some patients still make sperm. You may be able to get someone pregnant. If you are not ready to father a child, always use birth control when having intercourse.

If you do want to have a child, certain procedures may help. Sperm can be taken directly from the testicle. This is done as an outpatient procedure under anesthesia. If there are enough healthy sperm, they can be used to fertilize your partner's eggs. If you would like to learn about this procedure, ask your doctor or nurse to refer you to a reproductive urologist.

### **If I did not collect sperm before treatment and now have retrograde ejaculation, can I still have a biologic child?**

Some men do not see any ejaculation after sexual stimulation. This can occur if the nerves and muscles that control ejaculation are damaged or removed. The semen passes into the bladder instead of out through the urethra. This is called retrograde ejaculation.

With retrograde ejaculation, you can still collect sperm by:

- Taking medicine that tightens the muscles at the opening of the bladder. This allows the semen to pass forward out of the urethra instead of into the bladder. You only need to take this medicine for the period of time that you want to collect your sperm. This medicine can increase your blood pressure, so ask your doctor if it is safe for you. If you are interested in trying this, your doctor can refer you to a reproductive urologist.
- Collecting a sample of urine after you stimulate yourself. The sperm bank can remove the sperm from the urine. However, the urine is very acidic and can damage the sperm. To prevent this, you need to take a medicine to neutralize the acid in the urine. The sperm bank or your doctor will give you instructions on how to take this medicine.

### **If I did not collect sperm before treatment and now have erectile dysfunction (impotence), can I still have a biologic child?**

Erectile dysfunction is difficulty getting or maintaining an erection. This can develop for many reasons. Examples include:

- Increasing age.
- Diabetes.
- Side effects of certain medicines.
- Surgery or radiation therapy for treatment of some types of cancer.

For men with this problem, the penis may not become firm enough to enter the vagina. As a result, the sperm cannot fertilize the woman's eggs. Several treatments can help. These include medications and injections. If you are interested in trying these, your doctor can refer you to a urologist who specializes in erectile dysfunction.

## **If I did not collect sperm before treatment and now don't make enough hormones to stimulate my body to produce sperm, can I still have a biologic child?**

Your body makes hormones that work together to stimulate the testes to make sperm. After some cancer treatments, your body may not make enough of these hormones. As a result, you may not make enough sperm to father a child naturally. Reproductive urologists or endocrinologists can prescribe medicine to replace these hormones. If you are interested in seeing a reproductive urologist or endocrinologist, ask your doctor for a referral.

## **If I am not able to have a child using my own sperm, how can I become a parent?**

Despite the new techniques, you still may not have enough healthy sperm to have a biologic child. Or, having a biologic child may not be important to you. Either way, you can still become a parent.

One option is to use donor sperm to fertilize your partner's or a donor's eggs. Sperm can be donated from someone you know, such as a friend or relative. You can also get sperm from a sperm bank that collects from men willing to be donors. The cost of donor sperm is generally \$3,000 to \$5,000.

You can also choose to adopt a child. Adoption laws vary from state to state. You can work with:

- State agencies.
- Private non-profit organizations.
- Private lawyers.

Usually a certified social worker will help you with the process. Many agencies will require that you have completed treatment and have been well for at least five years. The cost of adoption varies widely, from \$2,500 to \$35,000.

## **Additional Resources on Fertility and Cancer**

Here are web sites with additional information you may find helpful:

- FertileHOPE: [www.fertilehope.org](http://www.fertilehope.org)  
888-994-HOPE (toll free) or 212- 242-6798
- MyOncofertility: [www.myoncofertility.org](http://www.myoncofertility.org)  
1-866-708-FERT (3378)
- Lance Armstrong Foundation: [www.livestrong.org](http://www.livestrong.org).  
Search "male fertility."  
866-673-7205

