

# What You Should Know About Cancer and Fertility

**C**ancer brings many life-changing challenges, and for some women, infertility is one. For female cancer survivors who want to have children, there are several options that can help to make this possible. Cancer survivors have a right to information and answers so that they can make decisions that will increase the likelihood that they will be able to realize their hopes for motherhood.

## How Cancer Treatment Affects Fertility

Not all cancer treatments compromise fertility, but some do. The effect of treatment on fertility—the ability to become pregnant or to carry a baby full term—depends on the type, stage, grade, and treatment of the cancer. In general, the higher the treatment dose and the longer the duration of treatment, the greater the chances of infertility.

**Chemotherapy.**—Chemotherapy agents destroy rapidly dividing cells (like cancer cells), but such cells also include some of the eggs stored in the ovaries. Drugs that pose the highest risk are the alkylating agents, such as busulfan, chlorambucil, cyclophosphamide, ifosfamide, melphalan, nitrosoureas, and procarbazine. Drugs with a lower risk include 5-fluorouracil, bleomycin, dactinomycin, and vincristine. Most experts advise women not to become pregnant within the first 6 months after receiving chemotherapy because of the possibility that the drugs may have injured their maturing eggs. Recent research suggests that any genetic damage to a woman's eggs is repaired after about 6 months.

**Radiation Therapy.**—Radiation therapy used to destroy cancer cells can also damage eggs and reproductive cells around the target area. The ovaries can be affected during radiation treatment for several kinds of cancer, including cervical cancer, rectal cancer, central nervous system cancers,

and lymphomas. Reproductive organs are also affected by total-body radiation therapy given prior to bone marrow transplantation. Several factors will affect the degree and reversibility of damage to the ovaries, including age, the radiation dosage, and the intensity of the radiation field.

**Surgery.**—Surgery that removes some or all of the reproductive organs—including the ovaries, uterus, or cervix—can cause infertility. In some cases, however, the surgeon will be able to perform a more conservative surgical procedure to help preserve fertility.

## Options That Can Preserve Fertility

Because it is difficult to predict whether a particular cancer treatment will cause infertility, many women decide to take advantage of advanced reproductive methods before starting treatment.

A few options are available, and many experimental approaches are currently being studied.

**Embryo Freezing.**—This is a proven method for preserving fertility. First, you undergo hormonal stimulation to help your eggs to mature. The eggs are then collected during an outpatient surgical procedure and fertilized with sperm from your partner or another donor to create embryos.

We Can Now  
Freeze Eggs!



*The effect of treatment on fertility... depends on the type, stage, grade, and treatment of the cancer.*

The embryos are frozen for future use. Because it may be necessary to use high doses of hormones, this procedure may not be an option for women with certain hormone-sensitive cancers, such as some breast cancers.

**Fertility-sparing Surgery.**—These procedures can be used to treat women with ovarian cancer classified as borderline, low malignant potential, germ cell tumors, or ovarian sex stroma cell tumors. If only one ovary is affected by the cancer, the surgeon will try to remove only that ovary and leave the healthy one and the uterus in place. Certain patients with cervical cancer might be able to avoid a hysterectomy altogether and just have the cervix, or a portion of the cervix, removed. In a very select group of patients, endometrial cancer can be treated with hormonal therapy rather than surgery.

**Experimental Methods.**—There are several experimental methods for preserving fertility, including:

- **Egg freezing**—An option for women who don't currently have a partner and who don't want to use donor sperm. Hormonal stimulation is used to mature the eggs, which are then frozen for a future date.
- **Ovarian tissue freezing**—May be a good option if you must start cancer treatment immediately and cannot wait for your eggs to mature, or if you cannot have the hormonal stimulation needed for embryo or egg freezing. Tissue from the ovaries is removed through a small incision, cut into smaller pieces, and frozen so that it can be replaced later.
- **Ovarian shielding and ovarian transposition**—Involves moving the ovaries away from the target zone of radiation treatment, usually during a minor outpatient procedure.
- **Gonadotropin-releasing hormone analog treatment**—Medication is administered during chemotherapy to cause temporary menopause. Some researchers believe that this

causes the ovaries to go into a kind of hibernation, which could minimize ovarian damage from cancer treatments.

### Other Options for Parenthood

**Surrogacy.**—This option involves using another woman's uterus to carry a child. If you cannot use your own eggs, donor eggs or embryos can be used. Many agencies specialize in helping to locate surrogates and donors. Surrogacy laws vary from state to state, and the process can be complicated and expensive.

**Adoption.**—Another good option for anyone who wants to become a parent is adoption. The process can be lengthy and difficult, so it is a good idea to work with one of the many agencies that have experience working with cancer survivors.

### Questions to Ask Your Health Care Provider

The more you know about the effect of a planned treatment on fertility before it starts, the better you'll be able to plan. Here are some questions you might want to ask:

- What effect will this treatment have on my reproductive system over the short term? Over the long term?
- Will I lose some or all of my eggs as a result of this treatment?
- Will this treatment damage my ovaries so that I go into menopause?
- Is there anything that can be done to prevent infertility before I start this treatment?
- Will any of the fertility-preserving options make this treatment less effective?
- If I become infertile as a result of this treatment, is it likely to be temporary, or permanent?
- If I become infertile as a result of this treatment, what options for becoming a mother are open to me?
- Once treatment is over, how will we know whether I am fertile or not?
- How long should I wait to try to become pregnant after this treatment is over?
- Can you refer me to a fertility specialist who has experience working with cancer survivors?

### Resources

- American Cancer Society – <http://www.cancer.org>
- National Cancer Institute – <http://www.cancer.gov>
- Fertile Hope – <http://www.fertilehope.org>
- American Society of Clinical Oncology: People Living with Cancer – <http://www.plwc.org>
- RESOLVE: The National Infertility Association – <http://www.resolve.org>
- American Fertility Organization – <http://www.theafa.org>

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