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## Treating Cervical Cancer

If you've been diagnosed with cervical cancer, your cancer care team will talk with you about treatment options. In choosing your treatment plan, you and your cancer care team will also take into account your age, your overall health, and your personal preferences.

### How is cervical cancer treated?

Common types of treatments for cervical cancer include:

- [Surgery for Cervical Cancer](#)
- [Radiation Therapy for Cervical Cancer](#)
- [Chemotherapy for Cervical Cancer](#)
- [Targeted Therapy for Cervical Cancer](#)
- [Immunotherapy for Cervical Cancer](#)

### Common treatment approaches

Depending on the type and stage of your cancer, you may need more than one type of treatment. For the earliest stages of cervical cancer, either surgery or radiation combined with chemo may be used. For later stages, radiation combined with chemo is usually the main treatment. Chemo (by itself) is often used to treat advanced cervical cancer.

- [Treatment Options for Cervical Cancer, by Stage](#)

### Who treats cervical cancer?

Doctors on your cancer treatment team may include:

- A gynecologist: a doctor who treats diseases of the female reproductive system
- A gynecologic oncologist: a doctor who specializes in cancers of the female reproductive system
- A radiation oncologist: a doctor who uses radiation to treat cancer
- A medical oncologist: a doctor who uses chemotherapy and other medicines to treat cancer

Many other specialists may be involved in your care as well, including nurse practitioners, nurses, psychologists, social workers, rehabilitation specialists, and other health professionals.

- [Health Professionals Associated With Cancer Care<sup>1</sup>](#)

## **Making treatment decisions**

It's important to discuss all of your treatment options, including their goals and possible side effects, with your doctors to help make the decisions that best fit your needs. It's also very important to ask questions if there's anything you're not sure about. Although the choice of treatment depends largely on the stage of the disease at the time of diagnosis, other factors that may influence your options are your age, your general health, your individual circumstances, and your preferences. Cervical cancer can affect your sex life and your ability to have children. These concerns should also be considered as you make treatment decisions. Be sure that you understand all the risks and side effects of the various treatments before making a decision.

If time permits, it is often a good idea to seek a second opinion. A second opinion can give you more information and help you feel more confident about the treatment plan you choose.

- [What Should You Ask Your Doctor About Cervical Cancer?<sup>2</sup>](#)
- [Fertility and Sexual Side Effects<sup>3</sup>](#)
- [Seeking a Second Opinion<sup>4</sup>](#)

## **Thinking about taking part in a clinical trial**

Clinical trials are carefully controlled research studies that are done to get a closer look at promising new treatments or procedures. Clinical trials are one way to get state-of-the-art cancer treatment. In some cases they may be the only way to get access to newer treatments. They are also the best way for doctors to learn better methods to treat cancer. Still, they're not right for everyone.

If you would like to learn more about clinical trials that might be right for you, start by asking your doctor if your clinic or hospital conducts clinical trials.

- [Clinical Trials](#)<sup>5</sup>

### **Considering complementary and alternative methods**

You may hear about alternative or complementary methods that your doctor hasn't mentioned to treat your cancer or relieve symptoms. These methods can include vitamins, herbs, and special diets, or other methods such as acupuncture or massage, to name a few.

Complementary methods refer to treatments that are used along with your regular medical care. Alternative treatments are used instead of a doctor's medical treatment. Although some of these methods might be helpful in relieving symptoms or helping you feel better, many have not been proven to work. Some might even be harmful.

Be sure to talk to your cancer care team about any method you are thinking about using. They can help you learn what is known (or not known) about the method, which can help you make an informed decision.

- [Complementary and Alternative Medicine](#)<sup>6</sup>

### **Help getting through cancer treatment**

Your cancer care team will be your first source of information and support, but there are other resources for help when you need it. Hospital- or clinic-based support services are an important part of your care. These might include nursing or social work services, financial aid, nutritional advice, rehab, or spiritual help.

The American Cancer Society also has programs and services – including rides to treatment, lodging, and more – to help you get through treatment. Call our National Cancer Information Center at 1-800-227-2345 and speak with one of our trained specialists.

- [Find Support Programs and Services in Your Area](#)<sup>7</sup>

### **Choosing to stop treatment or choosing no treatment at all**

For some people, when treatments have been tried and are no longer controlling the

cancer, it could be time to weigh the benefits and risks of continuing to try new treatments. Whether or not you continue treatment, there are still things you can do to help maintain or improve your quality of life.

Some people, especially if the cancer is advanced, might not want to be treated at all. There are many reasons you might decide not to get cancer treatment, but it's important to talk to your doctors and you make that decision. Remember that even if you choose not to treat the cancer, you can still get supportive care to help with pain or other symptoms.

- [If Cancer Treatments Stop Working](#)<sup>8</sup>
- [Palliative or Supportive Care](#)<sup>9</sup>

*The treatment information given here is not official policy of the American Cancer Society and is not intended as medical advice to replace the expertise and judgment of your cancer care team. It is intended to help you and your family make informed decisions, together with your doctor. Your doctor may have reasons for suggesting a treatment plan different from these general treatment options. Don't hesitate to ask him or her questions about your treatment options.*

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## Surgery for Cervical Cancer

Many women with cervical cancer will have some type of surgery. Surgery can be used to:

- Help diagnose cervical cancer
- Help determine how far the cancer has spread
- Help treat the cancer (especially for earlier-stage cancers)

Several types of 'surgery' can be used to help treat cervical cancer, although some of these destroy cervical tissue (with cold or with a laser) rather than removing it.

### Cryosurgery

A very cold metal probe is placed directly on the cervix. This kills the abnormal cells by

freezing them. This can be done in a doctor's office or clinic. After cryosurgery, you may have a lot of watery brown discharge for a few weeks.

## Laser surgery

A focused laser beam, directed through the vagina, is used to vaporize (burn off) abnormal cells or to remove a small piece of tissue for study. This can be done in a doctor's office or clinic and is done under local anesthesia (numbing medicine).

## Conization

A cone-shaped piece of tissue is removed from the cervix. This is done using a surgical or laser knife (cold knife cone biopsy) or using a thin wire heated by electricity (the loop electrosurgical, LEEP or LEETZ procedure). (See [How are cervical cancers and pre-cancers diagnosed?](#)<sup>1</sup> for more information.) After the procedure, the removed tissue is examined with a microscope. If the margins (outer edges) of the tissue contain cancer (or pre-cancer) cells (called positive margins), some cancer (or pre-cancer) may have been left behind, so further treatment is needed.

## Simple (total) hysterectomy

This surgery removes the uterus (both the body of the uterus and the cervix) but not the structures next to the uterus (parametria and uterosacral ligaments). The vagina and pelvic lymph nodes are not removed. The ovaries and fallopian tubes are usually left in place unless there is another reason to remove them.

There are different ways to do a hysterectomy:

- **Abdominal hysterectomy:** The uterus is removed through a surgical incision in the front of the abdomen.
- **Vaginal hysterectomy:** The uterus is removed through the vagina.
- **Laparoscopic hysterectomy:** The uterus is removed using laparoscopy (sometimes called 'keyhole surgery'). A thin tube with a tiny video camera at the end (the laparoscope) is inserted into one or more very small surgical incisions to see inside of the abdomen and pelvis. Small instruments can be controlled through the tube, so the surgeon makes cuts and removes tissue through the tubes without making a large cut in the abdomen.
- **Laparoscopic-assisted vaginal hysterectomy:** The uterus, ovaries, and fallopian tubes are removed through a vaginal incision using the laparoscope, which makes

it easier for the doctor.

- **Robotic-assisted surgery:** In this approach, the laparoscopy is done with special tools attached to robotic arms that are controlled by the doctor to help perform precise surgery.

General or epidural (regional) anesthesia is used for all of these operations.

For a laparoscopic or vaginal hysterectomy, the hospital stay is usually 1 to 2 days, followed by a 2- to 3-week recovery period. A hospital stay of 3 to 5 days is common for an abdominal hysterectomy, and complete recovery takes about 4 to 6 weeks.

**Possible side effects:** Any type of hysterectomy results in infertility (inability to have children). Complications are unusual but could include excessive bleeding, wound infection, or damage to the urinary or intestinal systems.

Hysterectomy does not change a woman's ability to feel sexual pleasure. A woman does not need a uterus or cervix to reach orgasm. The area around the clitoris and the lining of the vagina remain as sensitive as before a hysterectomy. More information about managing the sexual side effects of cervical cancer treatment can be found in [Sex and the Woman with Cancer](#).<sup>2</sup>

## Radical hysterectomy

For this operation, the surgeon removes the uterus along with the tissues next to the uterus (the parametria and the uterosacral ligaments) and the upper part (about 1 inch) of the vagina next to the cervix. The ovaries and fallopian tubes are not removed unless there is some other medical reason to do so. More tissue is removed in a radical hysterectomy than in a simple one, so the hospital stay can be longer.

This surgery is usually done through a large abdominal incision (also known as open surgery). Often, some pelvic lymph nodes are removed as well. (This procedure, known as **lymph node dissection**, is discussed later in this section.)

A radical hysterectomy can also be done using laparoscopy (keyhole surgery). (See the 'Simple hysterectomy' section for a description of laparoscopy.)

- **Laparoscopic-assisted radical vaginal hysterectomy** is a surgical approach that combines a radical vaginal hysterectomy with a laparoscopic pelvic lymph node dissection.
- The laparoscope can also make it easier to perform a radical hysterectomy through

the abdomen. When lymph nodes are removed in this abdominal procedure, this is called **laparoscopically assisted radical hysterectomy with lymphadenectomy**.

- **Robot-assisted laparoscopic surgery** is also sometimes used for radical hysterectomies. In this approach, the surgeon sits at a control panel to precisely move robotic arms that hold surgical tools.

Laparoscopic surgery can result in less pain, less blood loss during the operation, and a shorter hospital stay compared to open surgery. However, recent research has found that women with early stage cervical cancer who have open surgery tend to have a lower chance of the cancer coming back ([recurring](#)<sup>3</sup>), as well as a better chance of living longer, than women who have laparoscopic surgery. Laparoscopic surgery may still be an option for a small specific group of women with early stage cancer, but you should discuss your options carefully with your doctor.

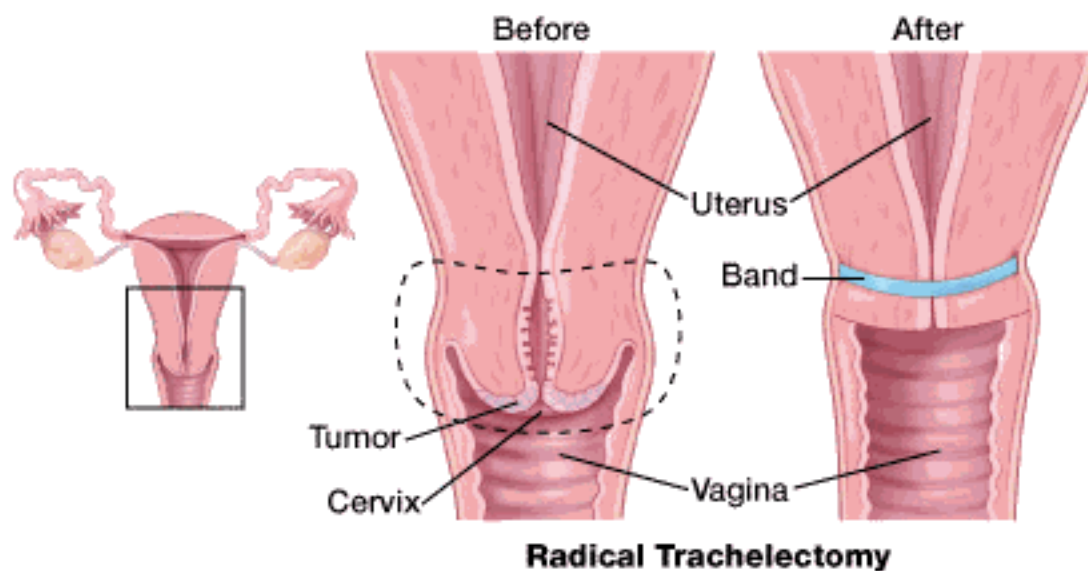
**Possible side effects:** Because the uterus is removed, this surgery results in infertility. Because some of the nerves to the bladder are removed, some women have problems emptying their bladder after this operation and may need a catheter for a time. Complications are unusual but could include excessive bleeding, wound infection, or damage to the urinary and intestinal systems.

Radical hysterectomy does not change a woman's ability to feel sexual pleasure. Although the vagina is shortened, the area around the clitoris and the lining of the vagina is as sensitive as before. A woman does not need a uterus or cervix to reach orgasm. When cancer has caused pain or bleeding with intercourse, the hysterectomy may actually improve a woman's sex life by stopping these symptoms. More information about managing the sexual side effects of cervical cancer treatment can be found in [Sex and the Woman with Cancer](#)<sup>4</sup>.

## Trachelectomy

Another procedure, known as a **radical trachelectomy**, allows women to be treated without losing their ability to have children. The operation is done either through the vagina or the abdomen, and is sometimes done using laparoscopy (keyhole surgery).

This procedure removes the cervix and the upper part of the vagina but not the body of the uterus. The surgeon then places a "purse-string" stitch to act as an artificial opening of the cervix inside the uterine cavity.



The nearby lymph nodes are also removed using laparoscopy which may require another incision (cut). The operation is done either through the vagina or the abdomen.

After trachelectomy, some women are able to carry a pregnancy to term and deliver a healthy baby by cesarean section, although women who have had this surgery may have a higher risk of miscarriage.

## Pelvic exenteration

This is a more extensive operation that may be used to treat recurrent cervical cancer. In this surgery, all of the same organs and tissues are removed as in a radical hysterectomy with pelvic lymph node dissection. (Lymph node dissection is discussed in the next section.) In addition, the bladder, vagina, rectum, and part of the colon may also be removed, depending on where the cancer has spread.

If your bladder is removed, you will need a new way to store and eliminate urine. This usually means using a short segment of intestine to function as a new bladder. The new bladder may be connected to the abdominal wall so that urine is drained periodically when the patient places a catheter into a urostomy (a small opening). Or urine may drain continuously into a small plastic bag attached to the front of the abdomen. For more information, see [Urostomy: A Guide](#)<sup>5</sup>.

If the rectum and part of the colon are removed, a new way to eliminate solid waste must be created. This is done by attaching the remaining intestine to the abdominal wall so that fecal material can pass through a colostomy (a small opening) into a small plastic bag worn on the front of the abdomen (more information about colostomies can



be found in [Colostomy: A Guide](#)<sup>6</sup>). In some cases, it may be possible to remove the cancerous part of the colon (next to the cervix) and reconnect the colon ends so that no bags or external appliances are needed.

If the vagina is removed, a new vagina can be surgically created out of skin, intestinal tissue, or muscle and skin (myocutaneous) grafts.

### **Sexual impact of pelvic exenteration**

Recovery from total pelvic exenteration takes a long time. Most women don't begin to feel like themselves again for about 6 months after surgery. Some say it takes a year or two to adjust completely.

Nevertheless, these women can lead happy and productive lives. With practice and determination, they can also have sexual desire, pleasure, and orgasms.

More information about managing the sexual side effects of cervical cancer treatment can be found in [Sex and the Woman with Cancer](#)<sup>7</sup>.

### **Pelvic lymph node dissection**

Cancer that starts in the cervix can spread to lymph nodes (pea-sized collections of immune system tissue) in the pelvis. To check for lymph node spread, the surgeon might remove some of these lymph nodes. This procedure is known as a **lymph node dissection** or **lymph node sampling**. It is done at the same time as a hysterectomy or trachelectomy.

Removing lymph nodes can lead to fluid drainage problems in the leg. This can cause severe swelling in the leg, a condition called *lymphedema*. More information can be found in our section on [Lymphedema](#)<sup>8</sup>.

### **Para-aortic lymph node sampling**

If cancer is found in any pelvic lymph nodes during surgery, some of the lymph nodes along the aorta (the large artery in the abdomen) may be removed as well. This is called **para-aortic lymph node sampling**. Any tissue removed at surgery will be tested to see if the cancer has spread further than expected. If so, radiation therapy with or without chemotherapy may be recommended.

If surgery is not done, another way to check for lymph node spread is with an [imaging test](#)<sup>9</sup> (like MRI or PET/CT). Lymph nodes that are bigger than usual and/or light up on

PET scan are more likely to have cancer, so they might need to be biopsied.

## Hyperlinks

1. [www.cancer.org/cancer/cervical-cancer/detection-diagnosis-staging/how-diagnosed.html](http://www.cancer.org/cancer/cervical-cancer/detection-diagnosis-staging/how-diagnosed.html)
2. [www.cancer.org/treatment/treatments-and-side-effects/physical-side-effects/fertility-and-sexual-side-effects/sexuality-for-women-with-cancer.html](http://www.cancer.org/treatment/treatments-and-side-effects/physical-side-effects/fertility-and-sexual-side-effects/sexuality-for-women-with-cancer.html)
3. [www.cancer.org/treatment/survivorship-during-and-after-treatment/understanding-recurrence.html](http://www.cancer.org/treatment/survivorship-during-and-after-treatment/understanding-recurrence.html)
4. [www.cancer.org/treatment/treatments-and-side-effects/physical-side-effects/fertility-and-sexual-side-effects/sexuality-for-women-with-cancer.html](http://www.cancer.org/treatment/treatments-and-side-effects/physical-side-effects/fertility-and-sexual-side-effects/sexuality-for-women-with-cancer.html)
5. [www.cancer.org/treatment/treatments-and-side-effects/physical-side-effects/ostomies/urostomy.html](http://www.cancer.org/treatment/treatments-and-side-effects/physical-side-effects/ostomies/urostomy.html)
6. [www.cancer.org/treatment/treatments-and-side-effects/physical-side-effects/ostomies/colostomy.html](http://www.cancer.org/treatment/treatments-and-side-effects/physical-side-effects/ostomies/colostomy.html)
7. [www.cancer.org/treatment/treatments-and-side-effects/physical-side-effects/fertility-and-sexual-side-effects/sexuality-for-women-with-cancer.html](http://www.cancer.org/treatment/treatments-and-side-effects/physical-side-effects/fertility-and-sexual-side-effects/sexuality-for-women-with-cancer.html)
8. [www.cancer.org/treatment/treatments-and-side-effects/physical-side-effects/lymphedema.html](http://www.cancer.org/treatment/treatments-and-side-effects/physical-side-effects/lymphedema.html)
9. [www.cancer.org/treatment/understanding-your-diagnosis/tests/imaging-radiology-tests-for-cancer.html](http://www.cancer.org/treatment/understanding-your-diagnosis/tests/imaging-radiology-tests-for-cancer.html)

## References

See all references for Cervical Cancer ([www.cancer.org/cancer/cervical-cancer/references.html](http://www.cancer.org/cancer/cervical-cancer/references.html))

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# Radiation Therapy for Cervical Cancer

Radiation therapy uses high energy x-rays or radioactive particles to kill cancer cells. Radiation therapy may be used for cervical cancer:

- **As a part of the main treatment.** For some stages of cervical cancer, the preferred treatment is radiation alone or surgery followed by radiation. For other stages, radiation and chemo given together (called **concurrent chemoradiation**) is the preferred treatment. The chemo helps the radiation work better.
- **To treat cervical cancer that has spread or that has come back after treatment.** Radiation therapy may be used to treat cancers that have spread to other organs and tissues.

The two types of radiation therapy most often used to treat cervical cancer include:

- External beam radiation
- Brachytherapy

## External beam radiation

One way to give radiation is to aim x-rays at the cancer from outside the body. This is called **external beam radiation therapy (EBRT)**. Treatment is much like getting a regular x-ray, but the radiation dose is stronger.

Each radiation treatment lasts only a few minutes, but getting you into place for treatment usually takes longer. The procedure itself is painless.

When radiation is used as the main treatment for cervical cancer, EBRT is usually combined with <sup>1</sup>[chemotherapy](#) (called **concurrent chemoradiation**). Often, a low dose of the chemo drug called cisplatin, but other chemo drugs can be used as well. The radiation treatments are given 5 days a week for a total 6 to 7 weeks. The chemotherapy is given at scheduled times during the radiation. The schedule is determined by which drug is used.

EBRT can also be used by itself to treat areas of cancer spread or as the main treatment of cervical cancer in patients who can't tolerate chemoradiation.

## Possible side effects of EBRT

<sup>2</sup>[Side effects](#)<sup>3</sup> of external beam radiation therapy for cervical cancer can include:

- Fatigue (tiredness)
- Upset stomach

- Diarrhea or loose stools (if radiation is given to the pelvis or abdomen)
- Nausea and vomiting
- Skin changes

Skin changes: As the radiation passes through the skin to the cancer, it can damage the skin cells. This can cause irritation ranging from mild, short-term redness to peeling. The skin may release fluid, which can lead to infection, so the area exposed to radiation must be carefully cleaned and protected.

- **Radiation cystitis:** Radiation to the pelvis can irritate the bladder (radiation cystitis), causing discomfort and an urge to urinate often.
- **Vaginal pain:** Radiation can make the vulva and vagina more sensitive and sore, and sometimes causes a discharge.
- **Menstrual changes:** Pelvic radiation can affect the ovaries, leading to menstrual changes and even early menopause
- **Low blood counts:** For example, anemia (low levels of red blood cells) can make you feel tired. Leukopenia (low levels of white blood cells increases the risks of serious infection.

When chemotherapy is given with radiation, the blood counts tend to be lower and fatigue and nausea tend to be worse. These side effects typically improve in the weeks after treatment is stopped.

Other, longer-term side effects are also possible with EBRT. These are described below.

## Brachytherapy

Brachytherapy, or internal radiation therapy, puts a source of radiation in or near the cancer. This type of radiation only travels a short distance. The type of brachytherapy used most often to treat cervical cancer is known as **intracavitary brachytherapy**. The radiation source is placed in a device in the vagina (and sometimes in the cervix). This is often used in addition to EBRT as a part of the main treatment for cervical cancer.

There are two types of brachytherapy:

- **Low-dose rate (LDR) brachytherapy** is completed over a few days. During this time, the patient stays in bed in a private room in the hospital with instruments holding the radioactive material in place. While the radiation therapy is being given,

the hospital staff will care for you, but also take precautions to lessen their own radiation exposure.

- **High-dose rate (HDR) brachytherapy** is done as an outpatient over several treatments (often at least a week apart). For each high-dose treatment, the radioactive material is inserted for a few minutes and then removed. The advantage of HDR treatment is that you do not have to stay in the hospital or stay still for long periods of time.

To treat cervical cancer in women who have had a hysterectomy, the radioactive material is placed in a tube in the vagina.

To treat a woman who still has a uterus, the radioactive material can be placed in a small metal tube (called a **tandem**) that goes in the uterus, along with small round metal holders (**ovoids**) placed near the cervix. This is sometimes called tandem and ovoid treatment. Another option is called tandem and ring. For this, a round holder (like a disc) is placed close to the uterus. The choice of which one to use depends on what type of brachytherapy is planned.

### **Possible short-term side effects of brachytherapy**

Since the radiation only travels a short distance with brachytherapy, the main effects of the radiation are on the cervix and the walls of the vagina. The most common side effect is irritation of the vagina. It may become red and sore, and there may be a discharge. The vulva may become irritated as well.

Brachytherapy can also cause many of the same side effects as EBRT, such as fatigue, diarrhea, nausea, irritation of the bladder, and low blood counts. Often brachytherapy is given right after external beam radiation (before the side effects can go away), so it can be hard to know which type of treatment is causing the side effect.

### **Long-term side effects of radiation therapy**

**Vaginal stenosis:** Both EBRT and brachytherapy can cause scar tissue to form in the vagina. The scar tissue can make the vagina narrower (called vaginal stenosis), less able to stretch, or even shorter, which can make vaginal sex painful.

A woman can help prevent this problem by stretching the walls of her vagina several times a week, either by having sex or by using a vaginal dilator (a plastic or rubber tube used to stretch out the vagina). For more information, see *Sex and Women With Cancer*.

**Vaginal dryness:** Vaginal dryness and painful sex can be long-term side effects from radiation (both brachytherapy and EBRT). Estrogens used locally may help with vaginal dryness and changes to the vaginal lining, especially if radiation to the pelvis damaged the ovaries, causing early menopause. These hormones are typically applied into the vagina and absorbed into the genital area, rather than taken by mouth. They come in gel, cream, ring, and tablet forms. For more information, see *Sex and Women With Cancer*.

**Weakened bones:** Radiation to the pelvis can weaken the bones, leading to fractures. Hip fractures are the most common, and might occur 2 to 4 years after radiation. Bone density tests are recommended to monitor the risk of fracture.

**Swelling of the leg(s):** If pelvic lymph nodes are treated with radiation, it can lead to fluid drainage problems in the leg. This can cause severe swelling in the leg, a condition called lymphedema. More information about lymphedema can be found in our section on Lymphedema

If you are having side effects from radiation treatment, discuss them with your cancer care team.

*It is important to know that smoking increases the side effects from radiation and can make treatment less effective. If you smoke, you should stop.*

For more information, see <sup>4</sup>[Radiation Therapy](#)<sup>5</sup>.

## Hyperlinks

1. [www.cancer.org/treatment/treatments-and-side-effects/physical-side-effects.html](http://www.cancer.org/treatment/treatments-and-side-effects/physical-side-effects.html)
2. [www.cancer.org/treatment/treatments-and-side-effects/treatment-types/radiation.html](http://www.cancer.org/treatment/treatments-and-side-effects/treatment-types/radiation.html)

## References

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# Chemotherapy for Cervical Cancer

Chemotherapy (chemo) uses anti-cancer drugs that are injected into a vein or given by mouth. These drugs enter the bloodstream and can reach all areas of the body, making this treatment useful for killing cancer cells in most parts of the body. Chemo is often given in cycles, with each period of treatment followed by a recovery period. There are a few situations in which chemo may be recommended for cervical cancer.

## As a part of the main treatment for cervical cancer

For some stages of cervical cancer, the preferred treatment is radiation and chemo given together (called concurrent chemoradiation). The chemo helps the radiation work better. Options for concurrent chemoradiation include:

- Cisplatin given weekly during radiation. This drug is given into a vein (IV) about 4 hours before the radiation appointment.
- Cisplatin plus 5-fluorouracil (5-FU) given every 4 weeks during radiation.

Sometimes chemo is also given (without radiation) before and/or after chemoradiation.

## To treat cervical cancer that has spread or come back after treatment

Chemo may be used to treat cancers that have spread to other organs and tissues. It can also be helpful when cancer comes back after treatment with chemoradiation.

The chemo drugs most often used to treat advanced cervical cancer include:

- Cisplatin
- Carboplatin
- Paclitaxel (Taxol<sup>®</sup>),
- Topotecan
- Gemcitabine (Gemzar<sup>®</sup>)

Combinations of these drugs are often used.

Some other drugs can be used as well, such as docetaxel (Taxotere<sup>®</sup>), ifosfamide (Ifex<sup>®</sup>), 5-fluorouracil (5-FU), irinotecan (Camptosar<sup>®</sup>), and mitomycin.

The targeted drug bevacizumab (Avastin<sup>®</sup>) may be added to chemo. This is discussed in the section about [targeted therapy](#).

## Side effects of chemotherapy for cervical cancer

Chemo drugs kill cancer cells but also damage some normal cells, which can lead to certain side effects. Side effects depend on the type and dose of the drugs and the length of time you are treated. Common [side effects](#)<sup>1</sup> of chemotherapy can include:

- Nausea and vomiting
- Loss of appetite
- Loss of hair
- Mouth sores
- Fatigue (tiredness)

Because chemotherapy can damage the blood-producing cells of the bone marrow, the [blood cell counts might become low](#)<sup>2</sup>. This can result in:

- An increased chance of infection (from a shortage of white blood cells)
- Bleeding or bruising after minor cuts or injuries (because of a shortage of blood platelets)
- Shortness of breath (due to low red blood cell counts)

When chemo is given with radiation, the side effects are often more severe. The nausea, fatigue, and problems with low blood counts are often worse. Diarrhea can also be worse if chemo is given at the same time as radiation.

Your health care team will watch for side effects and can give you medicines to help prevent them or treat them to help you feel better. For example, you can be given drugs to help prevent or reduce nausea and vomiting.

**Menstrual changes:** For younger women who have not had their uterus removed as a part of treatment, changes in menstrual periods are a common side effect of chemo. But even if your periods stop while you are on chemo, you might still be able to get pregnant. Getting pregnant while receiving chemo is not safe, as it could lead to birth defects and interfere with treatment. This is why it's important that women who are premenopausal before treatment and are sexually active discuss with their doctor the options for birth control. Patients who have finished treatment (like chemo) can often go on to have children, but it's important to talk to your doctor about when it is safe to do so.



Premature menopause (not having any more menstrual periods) and infertility (not being able to become pregnant) may occur and may be permanent. Some chemo drugs are more likely to cause this than others. The older a woman is when she gets chemo, the more likely it is that she will become infertile or go through menopause as a result. If this happens, there is an increased risk of bone loss and osteoporosis. Medicines can treat or help prevent problems with bone loss.

**Neuropathy:** Some drugs used to treat cervical cancer, including paclitaxel and cisplatin, can [damage nerves](#)<sup>3</sup> outside of the brain and spinal cord. The injury can sometimes lead to symptoms like numbness, pain, burning or tingling sensations, sensitivity to cold or heat, or weakness, mainly in the hands and feet. This called peripheral neuropathy. In most cases this gets better or even goes away once treatment is stopped, but it might last a long time in some women.

**Increased risk of leukemia:** Very rarely, certain chemo drugs can permanently damage the bone marrow, leading to blood cancers like [myelodysplastic syndromes](#)<sup>4</sup> or even [acute myeloid leukemia](#)<sup>5</sup>. If this is going to happen, it is usually within 10 years after treatment. In most women, the benefits of chemo in treating the cancer are likely to far exceed the risk of this serious but [rare complication](#)<sup>6</sup>.

Other side effects are also possible. Some of these are more common with certain chemo drugs. Your cancer care team will tell you about the possible side effects of the specific drugs you are getting.

Many side effects are short-term and go away after treatment is finished, but some can last a long time or even be permanent. It's important to tell your health care team if you have any side effects, as there are often ways to lessen them. For example, you can be given drugs to help prevent or reduce nausea and vomiting.

For more information, please see the [Chemotherapy](#)<sup>7</sup> section of our website.

## Hyperlinks

1. [www.cancer.org/treatment/treatments-and-side-effects/physical-side-effects.html](http://www.cancer.org/treatment/treatments-and-side-effects/physical-side-effects.html)
2. [www.cancer.org/treatment/treatments-and-side-effects/physical-side-effects/low-blood-counts.html](http://www.cancer.org/treatment/treatments-and-side-effects/physical-side-effects/low-blood-counts.html)
3. [www.cancer.org/treatment/treatments-and-side-effects/physical-side-effects/peripheral-neuropathy.html](http://www.cancer.org/treatment/treatments-and-side-effects/physical-side-effects/peripheral-neuropathy.html)
4. [www.cancer.org/cancer/myelodysplastic-syndrome.html](http://www.cancer.org/cancer/myelodysplastic-syndrome.html)
5. [www.cancer.org/cancer/acute-myeloid-leukemia.html](http://www.cancer.org/cancer/acute-myeloid-leukemia.html)
6. [www.cancer.org/treatment/treatments-and-side-effects/physical-side-effects/rare-complication.html](http://www.cancer.org/treatment/treatments-and-side-effects/physical-side-effects/rare-complication.html)

[effects/second-cancers-in-adults.html](#)

7. [www.cancer.org/treatment/treatments-and-side-effects/treatment-types/chemotherapy.html](http://www.cancer.org/treatment/treatments-and-side-effects/treatment-types/chemotherapy.html)

## References

See all references for Cervical Cancer ([www.cancer.org/cancer/cervical-cancer/references.html](http://www.cancer.org/cancer/cervical-cancer/references.html))

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# Targeted Therapy for Cervical Cancer

As researchers have learned more about the changes in cancer cells, they have been able to develop newer drugs that specifically target these changes. These targeted drugs work differently from standard chemotherapy (chemo) drugs and often have different side effects.

For example, for tumors to grow, they must form new blood vessels to keep them nourished. This process is called **angiogenesis**. Some targeted drugs block this new blood vessel growth and are called **angiogenesis inhibitors**.

**Bevacizumab (Avastin<sup>®</sup>)** is an angiogenesis inhibitor that can be used to treat advanced cervical cancer. It is a monoclonal antibody (a man-made version of a specific immune system protein) that targets vascular endothelial growth factor (VEGF), a protein that helps new blood vessels to form.

This drug is often used with chemo for a time. Then, if the cancer responds, the chemo may be stopped and the bevacizumab given by itself until the cancer starts growing again.

## Possible side effects of targeted therapy

The possible side effects of this drug are different from those of chemotherapy drugs. Some of the more common side effects can include:

- High blood pressure
- Feeling tired
- Loss of appetite

Less common but more serious side effects can include:

- Problems with bleeding
- Blood clots
- Wound healing

A rare but serious side effect is the formation of an abnormal connection (called a fistula) between the vagina and part of the colon or intestine.

[Targeted Cancer Therapy](#)<sup>1</sup> has more information about the different kinds of drugs considered targeted therapy.

## Hyperlinks

1. [www.cancer.org/treatment/treatments-and-side-effects/treatment-types/targeted-therapy.html](http://www.cancer.org/treatment/treatments-and-side-effects/treatment-types/targeted-therapy.html)

## References

See all references for Cervical Cancer ([www.cancer.org/cancer/cervical-cancer/references.html](http://www.cancer.org/cancer/cervical-cancer/references.html))

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# Immunotherapy for Cervical Cancer

Immunotherapy is the use of medicines to stimulate a person's own immune system to recognize and destroy cancer cells more effectively. Immunotherapy can be used to treat cervical cancer that has spread or come back (recurred).

## Immune checkpoint inhibitors

An important part of the immune system is its ability to keep itself from attacking the body's normal cells. To do this, it uses “checkpoints” – molecules on immune cells that need to be turned on (or off) to start an immune response. Cancer cells sometimes use these checkpoints to avoid being attacked by the immune system. But newer drugs that target these checkpoints hold a lot of promise as cancer treatments.

**Pembrolizumab (Keytruda)** targets PD-1, a protein on immune system cells called *T cells* that normally helps keep these cells from attacking other cells in the body. By blocking PD-1, these drugs boost the immune response against cancer cells. This can shrink some tumors or slow their growth.

Pembrolizumab can be used in women with certain types of cervical cancer whose cancer starts growing again after chemotherapy or that has spread.

This immunotherapy drug is given as an intravenous (IV) infusion every 3 weeks.

### Possible side effects

Side effects of these drugs can include fatigue, fever, nausea, headache, skin rash, loss of appetite, constipation, joint/muscle pain, and diarrhea.

Other, more serious side effects occur less often. These drugs work by basically removing the brakes on the body's immune system. Sometimes the immune system starts attacking other parts of the body, which can cause serious or even life-threatening problems in the lungs, intestines, liver, hormone-making glands, kidneys, or other organs.

It's very important to report any new side effects to your health care team right away. If you do have a serious side effects, treatment may need to be stopped and you may be given high doses of corticosteroids to suppress your immune system.

### More information about immunotherapy

To learn more about how drugs that work on the immune system are used to treat cancer, see [Cancer Immunotherapy](#)<sup>1</sup>.

To learn about some of the side effects listed here and how to manage them, see [Managing Cancer-related Side Effects](#)<sup>2</sup>.

## Hyperlinks

1. [www.cancer.org/treatment/treatments-and-side-effects/treatment-types/immunotherapy.html](http://www.cancer.org/treatment/treatments-and-side-effects/treatment-types/immunotherapy.html)
2. [www.cancer.org/treatment/treatments-and-side-effects/physical-side-effects.html](http://www.cancer.org/treatment/treatments-and-side-effects/physical-side-effects.html)

## References

See all references for Cervical Cancer ([www.cancer.org/cancer/cervical-cancer/references.html](http://www.cancer.org/cancer/cervical-cancer/references.html))

Last Medical Review: June 19, 2018 Last Revised: June 19, 2018

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# Treatment Options for Cervical Cancer, by Stage

The stage of a cervical cancer is the most important factor in choosing treatment. But other factors can also affect your treatment options, including the exact location of the cancer within the cervix, the type of cancer (squamous cell or adenocarcinoma), your age and overall health, and whether you want to have children.

## Stage 0 (carcinoma in situ)

Although the AJCC staging system classifies carcinoma in situ (CIS) as the earliest form of cervical cancer, doctors often think of it as a pre-cancer. That is because the cancer cells in CIS are only in the surface layer of the cervix; they have not grown into deeper layers of cells.

All cases of CIS can be cured with the right treatment. However, pre-cancerous changes can sometimes recur (come back) in the cervix or vagina, so it's very important for your doctor to watch you closely after treatment. This includes follow-up with regular Pap tests and in some instances with colposcopy.

- For information about work-up and treatment of abnormal Pap test results and cervical pre-cancers other than CIS, see [Cervical Cancer Prevention and Early Detection](#)<sup>1</sup>.

#### **Treatment options for squamous cell carcinoma in situ include:**

- Cryosurgery
- Laser surgery
- Loop electrosurgical excision procedure (LEEP/LEETZ)
- Cold knife conization
- Simple hysterectomy (as the first treatment or if the cancer returns after other treatments)

#### **Treatment options for adenocarcinoma in situ include:**

- Hysterectomy
- Cone biopsy (a possible option for women who wish to have children). The cone specimen must have no cancer cells at the edges, and the woman must be closely watched after treatment. Once the woman has finished having children, a hysterectomy is recommended.

### **Stage IA1**

Treatment for this stage depends on whether or not you want to continue to be able to have children (maintain fertility) and whether or not the cancer has grown into blood or lymph vessels (called lymphovascular invasion).

#### **Treatment options for women who want to maintain fertility:**

A **cone biopsy** is the preferred procedure for women who want to have children after the cancer is treated.

- If the edges of the cone don't contain cancer cells (called negative margins), the woman can be watched closely without further treatment as long as the cancer doesn't come back.

If the edges of the cone biopsy have cancer cells (called positive margins), then cancer

may have been left behind. This can be treated with a repeat cone biopsy or a radical trachelectomy (removal of the cervix and upper vagina). A radical trachelectomy is preferred if the cancer has grown into blood or lymph vessels.

**Treatment options for women who don't want to maintain fertility:**

- A simple (total) hysterectomy may be an option if the cancer shows no lymphovascular invasion.
- If the cancer has grown into blood or lymph vessels, you might need a radical hysterectomy along with removal of the pelvic lymph nodes.

**Stage IA2**

Treatment for this stage depends in part on whether or not you want to continue to be able to have children (maintain fertility).

**Treatment options for women who want to maintain fertility:**

- Cone biopsy with removal of pelvic lymph nodes (pelvic lymph node dissection)
- Radical trachelectomy with pelvic lymph node dissection

**Treatment options for women who don't want to maintain fertility:**

- External beam radiation therapy (EBRT) to the pelvis plus brachytherapy
- Radical hysterectomy with removal of pelvic lymph nodes and sampling of the para-aortic lymph nodes

If none of the lymph nodes are found to have cancer, radiation may still be discussed as an option if the tumor is large, if the tumor has grown into blood or lymph vessels, or if the tumor is invading the surrounding connective tissue that supports organs such as the uterus, bladder, vagina (the stroma).

If the cancer has spread to the tissues next to the uterus (called the parametria) or to any lymph nodes, or if the tissue removed has positive margins, radiation (EBRT) with chemotherapy is usually recommended. The doctor may also advise brachytherapy after the combined chemo and radiation are done.

**Stages IB and IIA**

The main treatment options are surgery, radiation, or radiation given with chemo (concurrent chemoradiation).

### **Stages IB1 and IIA1**

#### **Treatment options for women who want to maintain fertility:**

- Radical trachelectomy with pelvic lymph node dissection

#### **Treatment options for women who don't want to maintain fertility:**

- Radical hysterectomy with removal of lymph nodes in the pelvis and some lymph nodes from the para-aortic area
- If none of the lymph nodes are found to have cancer, radiation may still be discussed as an option if the tumor is large, if the tumor has grown into blood or lymph vessels, or if the tumor is invading the surrounding connective tissue that supports organs such as the uterus, bladder, vagina (the stroma).
- If the cancer has spread to the tissues next to the uterus (called the parametria) or to any lymph nodes, or if the tissue removed has positive margins, radiation (EBRT) with chemotherapy is usually recommended. The doctor may also advise brachytherapy after the combined chemo and radiation are done.
- Radiation using both brachytherapy and external beam radiation therapy may be an option if a woman is not healthy enough for surgery or if she decides they do not want surgery
- Chemotherapy (chemo) may be given with the radiation (concurrent chemoradiation).

### **Stages IB2 and IIA2**

#### **Treatment options:**

- Chemoradiation: This is usually the standard treatment. The chemo may be cisplatin or cisplatin plus fluorouracil. The radiation therapy includes both external beam radiation and brachytherapy.
- Radical hysterectomy with pelvic lymph node dissection and para-aortic lymph node sampling: If cancer cells are found in the removed lymph nodes, or in the edges of the tissue removed (positive margins), surgery may be followed by



radiation therapy, which is often given with chemo (concurrent chemoradiation).

Some doctors recommend radiation given with chemotherapy first followed by a hysterectomy.

## Stages IIB, III, and IVA

### Treatment options:

Chemoradiation: The chemo may be cisplatin or cisplatin plus fluorouracil. The radiation therapy includes both external beam radiation and brachytherapy.

### Stage IVB

At this stage, the cancer has spread out of the pelvis to other areas of the body. Stage IVB cervical cancer is not usually considered curable. Treatment options include radiation therapy and/or chemo to try to slow the growth of the cancer or help relieve symptoms. Most standard chemo regimens include a platinum drug (cisplatin or carboplatin) along with another drug such as paclitaxel (Taxol), gemcitabine (Gemzar), or topotecan. The targeted drug bevacizumab (Avastin) may be added to chemo or immunotherapy alone with pembrolizumab (Keytruda®) may also be an option.

[Clinical trials](#)<sup>2</sup> are testing other combinations of chemo drugs, as well as some other experimental treatments.

### Recurrent cervical cancer

Cancer that comes back after treatment is called recurrent cancer. Cancer can come back locally (in or near where it first started, such as the cervix, uterus or nearby the pelvic organs), or it can come back in distant areas (such as the lungs or bone).

If the cancer has recurred in the pelvis only, extensive surgery (such as pelvic exenteration) may be an option for some patients, and offers the best chance for possibly curing the cancer (although it can have major side effects). Radiation therapy (sometimes along with chemo) might be another option. If not, chemo, immunotherapy, or targeted therapy may be used to slow the growth of the cancer or help relieve symptoms, but they aren't expected to cure the cancer.

No matter which type of treatment your doctor recommends, it's important to understand the goal of treatment (to try to cure the cancer, control its growth, or relieve symptoms),

as well as its possible side effects and limitations. For example, sometimes chemo can improve your quality of life, and other times it might diminish it. You need to discuss this with your doctor.

New treatments that may benefit patients with distant recurrence of cervical cancer are being evaluated in clinical trials. [Clinical Trials](#)<sup>3</sup> may help if you are thinking about participating in a clinical trial.

### **Cervical cancer in pregnancy**

A small number of cervical cancers are found in pregnant women. Most of these (70%) are stage I cancers. The treatment plan during pregnancy is determined by:

- Tumor size
- If nearby lymph nodes have cancer
- How far along the pregnancy is
- The specific type of cervical cancer

If the cancer is at a very early stage, such as carcinoma in situ (Stage 0) or stage IA, most doctors believe it is safe to continue the pregnancy to term and have treatment several weeks after birth. Surgery options after birth for early-stage cancers include a hysterectomy, radical trachelectomy, or a cone biopsy.

If the cancer is stage IB or higher, then you and your doctor must decide whether to continue the pregnancy. If not, treatment would be radical hysterectomy and/or radiation. Sometimes chemotherapy can be given during the pregnancy (in the second or third trimester) to shrink the tumor.

If you decide to continue the pregnancy, the baby should be delivered by cesarean section as soon as it is able to survive outside the womb. More advanced cancers typically need to be treated immediately.

*The treatment information given here is not official policy of the American Cancer Society and is not intended as medical advice to replace the expertise and judgment of your cancer care team. It is intended to help you and your family make informed decisions, together with your doctor. Your doctor may have reasons for suggesting a treatment plan different from these general treatment options. Don't hesitate to ask him or her questions about your treatment options.*

### **Hyperlinks**

1. [www.cancer.org/cancer/cervical-cancer/prevention-and-early-detection.html](http://www.cancer.org/cancer/cervical-cancer/prevention-and-early-detection.html)
2. [www.cancer.org/treatment/treatments-and-side-effects/clinical-trials.html](http://www.cancer.org/treatment/treatments-and-side-effects/clinical-trials.html)
3. [www.cancer.org/treatment/treatments-and-side-effects/clinical-trials.html](http://www.cancer.org/treatment/treatments-and-side-effects/clinical-trials.html)

## References

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## Written by

The American Cancer Society medical and editorial content team  
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