



Cervical Cancer Overview

The information that follows is an overview of this type of cancer. It is based on the more detailed information in our document, *Cervical Cancer*. This document and other information can be obtained by calling 1-800-227-2345 or visiting our Web site at www.cancer.org.

What is cancer?

The body is made up of trillions of living cells. Normal body cells grow, divide, and die in an orderly way. During the early years of a person's life, normal cells divide faster to allow the person to grow. After the person becomes an adult, most cells divide only to replace worn-out, damaged, or dying cells.

Cancer begins when cells in a part of the body start to grow out of control. There are many kinds of cancer, but they all start because of this out-of-control growth of abnormal cells.

Cancer cell growth is different from normal cell growth. Instead of dying, cancer cells keep on growing and form new cancer cells. These cancer cells can grow into (invade) other tissues, something that normal cells cannot do. Being able to grow out of control and invade other tissues are what makes a cell a cancer cell.

In most cases the cancer cells form a tumor. But some cancers, like leukemia, rarely form tumors. Instead, these cancer cells are in the blood and bone marrow.

When cancer cells get into the bloodstream or lymph vessels, they can travel to other parts of the body. There they begin to grow and form new tumors that replace normal tissue. This process is called *metastasis* (muh-tas-tuh-sis).

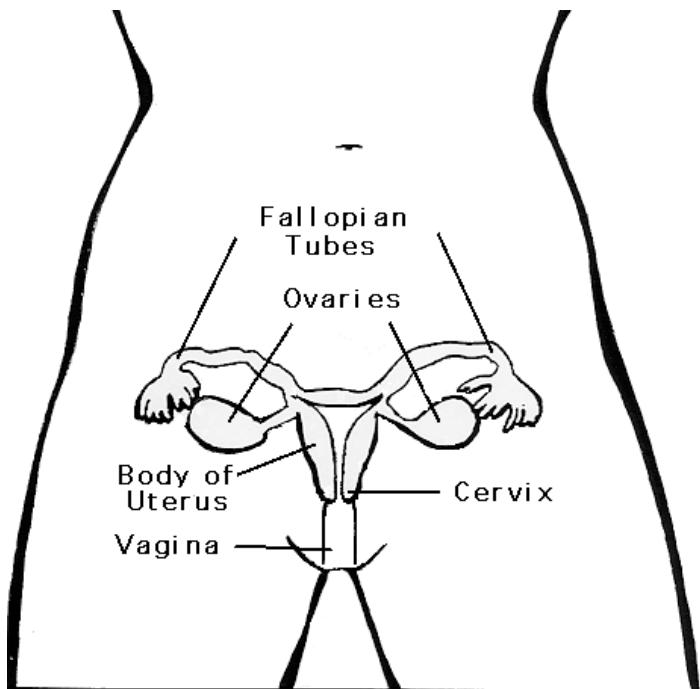
No matter where a cancer may spread, it is always named for the place where it started. For instance, breast cancer that has spread to the liver is still called breast cancer, not liver cancer. Likewise, prostate cancer that has spread to the bone is called metastatic prostate cancer, not bone cancer.

Different types of cancer can behave very differently. For example, lung cancer and breast cancer are very different diseases. They grow at different rates and respond to different treatments. That is why people with cancer need treatment that is aimed at their own kind of cancer.

Not all tumors are cancerous. Tumors that aren't cancer are called *benign* (be-nine). Benign tumors can cause problems-- they can grow very large and press on healthy organs and tissues. But they cannot grow into other tissues. Because of this, they also can't spread to other parts of the body (metastasize). These tumors are almost never life threatening.

What is cancer of the cervix?

The cervix is the lower part of the uterus (womb). The uterus has 2 parts. The upper part, called the body of the uterus, is where a baby grows. The cervix, in the lower part, connects the body of the uterus to the vagina, or birth canal.



Cancer of the cervix (also called *cervical cancer*) begins in the cells lining the cervix. These cells do not suddenly change into cancer. Instead, the normal cells of the cervix first slowly change into pre-cancer cells that can then turn into cancer. These changes may be called *dysplasia*. The change can take many years, but sometimes it happens faster. They can be found by the Pap test and treated to prevent cancer (see "Can cancer of the cervix be prevented?").

There are 2 main types of cancer of the cervix. About 8 to 9 out of 10 are *squamous cell carcinomas*. Under the microscope, this type of cancer is made up of cells that are like squamous cells that cover the surface of the cervix. Most of the rest are *adenocarcinomas*. These cancers start in the gland cells that make mucus. Less often, the cancer has features of both types and is called *adenosquamous* or *mixed carcinoma*. Other types of cancer also can develop in the cervix. These other types (such as melanoma, sarcoma, and lymphoma) happen most often in other parts of the body. If you have cervical cancer, ask your doctor to explain exactly what type of cancer you have.

Here we will cover only the more common types of cervical cancer types, not the rare ones.

How many women get cancer of the cervix?

The American Cancer Society's most recent estimates for cancer of the cervix in the United States are for 2012:

- About 12,170 new cases of invasive cervical cancer (cancer that has spread beyond the cervix)
- About 4,220 deaths from cervical cancer

Some researchers think that non-invasive cervical cancer (cancer that is only in the cervix when it is found) is about 4 times as common as the invasive type. When found and treated early, cervical cancer often can be cured.

Cervical cancer tends to occur in midlife. Most cases are found in women younger than 50. It rarely occurs in women younger than 20. But even women over 50 are still at risk of getting cervical cancer. This is why it is important for older women to keep being screened for cervical cancer.

Cervical cancer was once one of the most common causes of cancer death for American women. But since 1955 the number of deaths from cervical cancer has gone down a lot. The main reason for this change is the use of screening to find cervical cancer early. (Please see the section "*Can cancer of the cervix be prevented?*")

What are the risk factors for cancer of the cervix?

Risk factors for cervical cancer

A risk factor is anything that affects a person's chance of getting a disease. Some risk factors, such as smoking, can be controlled. Others, like a person's age or race, can't be changed. But having a risk factor, or even several, does not mean that you will get the disease. Women without any risk factors rarely get cervical cancer. On the other hand, while these risk factors increase the odds of getting cervical cancer, many women with these risks do *not* get this disease.

In looking at risk factors, it helps to focus on those that can be changed. Still, those that can't be changed also serve to remind women about the importance of getting screened for cervical cancer.

Cervical cancer risk factors include:

Human papilloma virus (HPV) infection

For cervical cancer, the most important risk factor is infection with a virus known as HPV (human papilloma virus). HPV is really a group of more than 100 related viruses that can infect cells on the surface of the skin, genitals, anus, mouth and throat. Some types of HPV cause warts, with certain types causing genital warts. The types of HPV that cause genital warts are called "low risk" types because they are rarely linked to cancer. Other types are strongly linked to certain cancers, including cancer of the cervix. . In fact, doctors believe that a woman must be infected by HPV before she develops cervical cancer. The kinds that cause cancer are called "high-risk" HPVs.

HPV is passed from one person to another by skin-to-skin contact such as can occur during vaginal, anal, or oral sex. But sex isn't the only way to spread HPV from one person to person. All that is needed is for there to be skin-to-skin contact with a part of the body infected with HPV

Many women may have HPV, but very few of these women will ever get cervical cancer. In most cases the body fights off the virus, and the infection goes away without any treatment. But in some women, the infection lasts and can cause certain cancers, including cervical cancer.

HPV infection is mainly found in young women and is less common in women over 30. We don't know why this is so. Condoms (rubbers) may help protect against HPV when they are used right. But HPV can still be passed from one person to another by skin-to-skin contact with an HPV-infected area of the body that is not covered by a condom. Still, it is important to use condoms because they also can help protect against AIDS and other sexual diseases.

Women who start having sex at a young age are more likely to get and stay infected with HPV. Having many sex partners also makes it more likely that someone will get and stay infected with HPV. But even women who have only had one sex partner can become infected with HPV. This is more likely if her partner has had many other sex partners or if her partner is not circumcised.

The Pap test can find cell changes that point to HPV infection. Other tests look for the infections themselves by finding genes (DNA) from HPV in the cells. For some women, the HPV test is used along with the Pap test as a part of screening. While there is no cure for HPV, the abnormal cell growth they cause can be treated. Vaccines have been made that will prevent infection with some types of HPV. Please see the section "*Can cancer of the cervix be prevented?*" to learn more about the HPV vaccines.

Even though HPV is an important risk factor for cervical cancer, most women with this infection do **not** get cervical cancer. Doctors believe other factors must come into play for this cancer to start. Not all of these factors are known, but some are listed below.

Other risk factors

Smoking: Women who smoke are about twice as likely to get cervical cancer as those who don't. Smoking puts many chemicals that cause cancer into the lungs. These harmful substances are carried in the bloodstream throughout the body to other organs. Tobacco by-products have been found in the cervical mucus of women who smoke. Smoking also makes the immune system less able to fight HPV infections.

Weakened immune system: HIV (*human immunodeficiency virus*) is the virus that causes AIDS -- it is not the same as HPV. Women infected with HIV are more likely to get cancer of the cervix. Having HIV seems to make a woman's immune system less able to fight both HPV and early cancers. Another group of women at risk of cervical cancer are women getting drugs to suppress their immune response. This would include those being treated for an autoimmune disease or those who have had an organ transplant.

Chlamydia infection: This is a common kind of bacteria that can infect women's sex organs. It is spread during sex. A woman may not know that she is infected unless she is tested for chlamydia when she gets her pelvic exam. Some studies suggest that women who have a past or current infection are at greater risk for cancer of the cervix. Long-term infection can cause other serious problems, too.

Diet: Women with diets low in fruits and vegetables may be at increased risk for cervical cancer. Also overweight women are more likely to develop adenocarcinoma of the cervix.

Birth control pills: Long-term use of birth control pills increases the risk of cervical cancer. Research suggests that the risk goes up the longer a woman takes "the pill," but the risk goes back down again after she stops. You should talk to your doctor about the pros and cons of birth control pills in your case.

Intrauterine devices: A recent study found that women who had ever used an intrauterine device (IUD) had a lower risk of cervical cancer. The effect on risk was seen even in women who had an IUD for less than a year, and the protective effect remained after the IUDs were removed. But IUDs do have some risks. A woman thinking of using an IUD should first discuss the pros and cons with her doctor.

Having many pregnancies: Women who have had 3 or more full-term pregnancies have an increased risk of this cancer. No one really knows why this is true.

Young age at the time of first full-term pregnancy: Women who were younger than 17 years when they had their first full-term pregnancy are almost 2 times more likely to get cervical cancer later in life than women who waited to get pregnant until they were 25 years or older.

Low income: Poor women are at greater risk for cancer of the cervix. This may be because they cannot afford good health care, such as regular Pap tests.

DES (diethylstilbestrol): DES is a hormone drug that was used between 1940 and 1971 for some women who were in danger of miscarriages. The daughters of women who took this drug while they were pregnant with them have a slightly higher risk of cancer of the vagina and cervix.

Family history: Cervical cancer may run in some families. If your mother or sister had cervical cancer, your chances of getting the disease are 2 to 3 times higher than if no one in the family had it. This could be because these women are less able to fight off HPV than other women.

Can cancer of the cervix be prevented?

Most cervical cancer can be prevented. There are 2 ways to prevent this disease. The first way is to find and treat pre-cancers before they become cancer, and the second is to prevent the pre-cancers.

Finding and treating pre-cancers before they become cancer

A well-proven way to prevent cancer of the cervix is to have testing (screening) to find pre-cancers before they can turn into cancer. The Pap test (Pap smear) and the HPV test are the tests used for this. If a pre-cancer is found and treated, it can stop cervical cancer before it really starts. Most cervical cancers are found in women who have not had Pap tests when they should.

The American Cancer Society recommends the following:

- All women should begin cervical cancer testing (screening) at age 21. For women aged 21 to 29, testing should be with a Pap test every 3 years. HPV testing should not be used for screening in this age group (although it may be used as a part of follow-up for an abnormal Pap test).
- Beginning at age 30, the preferred way to screen is with a Pap test combined with an HPV test every 5 years. This should keep on being done until age 65.
- Another option for women 30 to 65 is to get tested every 3 years with just the Pap test.
- Women who are at high risk of cervical cancer (for instance, because of a weak immune system from HIV infection, organ transplant, or long term steroid use or because they were exposed to DES in utero) may need to be screened more often. They should follow the recommendations of their healthcare team.
- Women over 65 years of age who have had regular screening in the past 10 years should stop cervical cancer screening as long as they haven't had any serious pre-

cancers found in the last 20 years. Women who have had certain pre-cancers should keep on being tested for at least 20 years after the pre-cancer was found.

- Women who have had a hysterectomy (removal of the uterus and cervix) should stop screening (such as Pap tests and HPV tests) unless the surgery was done as a treatment for cervical cancer or pre-cancer. Women who have had a hysterectomy that left behind the cervix should continue to follow the guidelines above.
- Women of any age should NOT be screened every year by any screening method.
- Women who have been vaccinated against HPV should still follow these guidelines.

Some women believe that they can stop cervical cancer screening once they have stopped having children. This is not correct. They should continue to follow American Cancer Society guidelines.

Although screening every year should not be done, women who have abnormal screening results may need to have a follow-up Pap test done in 6 months or a year.

The American Cancer Society guidelines for finding cervical cancer early do not apply to women who have been diagnosed with cervical cancer. These women should have follow-up testing as recommended by their healthcare team.

Pelvic exam *versus* Pap test

Many people confuse pelvic exams with Pap tests, perhaps because they are often done at the same time. The pelvic exam is part of a woman's regular health care. During this exam, the doctor looks at and feels the reproductive organs. Some women think that they do not need pelvic exams once they have stopped having children. This is not true.

The pelvic exam may help find diseases of the female organs. But it won't find cancer of the cervix at an early stage. To do that, the Pap test is needed. The Pap test is often done just before the pelvic exam. The doctor will remove cells from the cervix by gently brushing or scraping. The cells are sent to a lab to be looked at under a microscope.

How important is cervical cancer screening?

In countries where women cannot get routine cervical cancer screening tests, death from cervical cancer is much more common. In fact, cervical cancer is the major cause of cancer deaths in women in many of these countries. These cancers are usually found at a late stage rather than as pre-cancers or early cancers.

Not all American women have cervical cancer screening. Older women, those without health insurance, and women who are recent immigrants are less likely to have regular cervical cancer screening.

But there are ways to help all women in this country get the testing they need. A program called the National Breast and Cervical Cancer Early Detection Program (NBCCEDP) offers free or low cost testing to women without health insurance. Each state's Department of Health has information on this program.

How is a Pap test done?

The doctor uses a metal or plastic instrument (a speculum) to open the vagina. Then a sample of mucus and cells is lightly scraped from the cervix. This sample is sent to the lab to be looked at under a microscope. If anything unusual is found your doctor will let you know. Because the system for reporting Pap test results is complex, ask your doctor to explain your results in a way that is clear to you. If your test shows something not normal, your doctor will want to do other tests to find out what is going on. Be sure to ask your doctor to explain exactly what your results mean and when to schedule your next Pap test.

Here are some things you can do to make your Pap test more accurate:

- Try to have the test when you will not be having your period.
- Do not douche for 2 days before the test.
- Do not have sex for 2 days before the test.
- Do not douche or use tampons, birth control foams, jellies, or other vaginal creams or medicines for 2 days before the test.

Even though the Pap test is the best way to prevent cervical cancer or to find it early, it is not perfect. Because even good labs can miss some cell changes, you should have the test as often as the ACS guidelines above recommend. Women who are no longer having children still need to have pelvic exams and Pap tests.

There are several ways to treat women with abnormal Pap test results. These methods include cryosurgery (use of a metal probe to freeze and kill the abnormal cells) and laser surgery. If you have an abnormal Pap test, ask your doctor to explain what that means in your case and what treatment options you have.

The HPV DNA test

As noted above, infection with HPV is the most important risk factor for cancer of the cervix. Doctors can now test for the types of HPV that are most likely to cause this cancer. They do this by looking at the DNA of cervical cells. Samples of cells are taken in much the same way as for the Pap test. This test is used in 2 ways:

- The HPV DNA test can be used along with the Pap test to screen for cervical cancer in women 30 years of age and older. It does NOT replace the Pap test. It is not used for women under 30 because it's not as useful then. Younger women who are having sex are much more likely than older women to have HPV, most of which will go away by itself.
- It can also be used in women with slightly abnormal Pap test results to see if more testing or treatment might be needed.

To learn more, see the ACS document, *What Women Should Know About Cervix Cancer and the Human Papilloma Virus*.

Follow-up tests

If you have an abnormal result on a Pap test, other tests will need to be done to find out if a cancer or a pre-cancer is really there and to decide what treatment (if any) is needed. These tests are discussed in the section, "How is cervical cancer found."

Things to do to prevent pre-cancers

Try to avoid HPV

Since HPV is the main cause of cervical cancer and pre-cancer, avoiding exposure to HPV could help you prevent this disease.

Doing certain things can **increase** your chance of getting an HPV infection, for example:

- Having sex at an early age
- Having many sex partners
- Having a partner who has had many sex partners
- Having sex with men who are not circumcised

Here are some things that **lower** the risk of HPV:

Delay sex: Waiting to have sex until you are older can help you avoid HPV. It also helps to limit how many people you have sex with and to avoid having sex with someone who has had many other sex partners. Remember that someone can have HPV for years yet have no symptoms. HPV does not always cause warts or any other symptoms. Someone can have the virus and pass it on without knowing it.

Male circumcision: Men who have had the foreskin of the penis removed (are circumcised) have a lower chance of becoming and staying infected with HPV. They also have a lower chance of passing HPV along to their partner. The reasons for this are unclear.

Use condoms: Condoms can help protect against HPV. Condoms cannot protect completely against HPV, but they also protect against HIV and some other sexual diseases.

Don't smoke: Not smoking is another important way to reduce the risk of cervical pre-cancer and cancer.

Get the HPV vaccine: There are now vaccines (Gardasil® and Cervarix®) that can protect people against certain types of HPV. These vaccines are only used to prevent--not treat-- an HPV infection. Cervarix was approved in 2009 for use in the United States by the FDA, while Gardasil has been approved for use in this country since 2006. Both vaccines are approved to prevent cervical cancer and pre-cancer and protect against infection by the HPV types that are most often linked to cervical cancer. Gardasil is also approved to prevent anal, vaginal, and vulvar cancers and pre-cancers and to prevent anal

and genital warts. Cervarix also provides some protection against infection and pre-cancers of the cervix by some other high-risk HPV types. It has also been shown to prevent anal infection with certain HPV types. Cervarix is approved for use in girls and young women ages 10 to 25 years, while Gardasil is approved for use in both sexes aged 9 to 26 years old.

These vaccines are given as a series of 3 shots over 6 months. Side effects of the vaccine are mild. The most common side effect is short-term redness, swelling, and soreness at the place where the shot was given. Rarely, a young woman will faint shortly after the vaccine injection. These vaccines should be given with caution to anyone with severe allergies.

To work best, the HPV vaccine should be given before a person starts having sex. The American Cancer Society) recommends that the vaccine be given to females aged 11 to 12 (and as early as age 9 years if the doctor recommends it). The Society also recommends that "catch-up" vaccinations should be given to females up to age 18 who have not yet had the vaccine. Women age 19 to 26 should talk to their doctors about whether the vaccine is right for them. It is important to know that the vaccine doesn't protect against all cancer-causing types of HPV, so cervical cancer screening is still needed.

Both types of the vaccine cost a lot -- at least \$375 for the full series, not counting the doctor's fee or the cost of giving the shots. While it should be covered by most health plans, you may want to check your coverage before getting the vaccine.

For more details about the vaccine and HPV, please see our document, *Human Papilloma Virus (HPV), Cancer, and HPV Vaccines -- Frequently Asked Questions*.

How is cancer of the cervix found?

Signs and symptoms of cervical cancer

Early cervical pre-cancers or cancers often have no signs or symptoms. That's why it's important for women to have regular screening with a Pap test (which may be combined with a test for HPV). Symptoms often do not start until the cancer is further along and has spread to nearby areas. You should report any of the following to your doctor right away:

- Abnormal vaginal bleeding, such as bleeding after sex, bleeding after menopause, bleeding and spotting between periods, or having periods that are longer or heavier than usual. Bleeding after douching or after a pelvic exam may also occur.
- An unusual discharge from the vagina (not your normal period)
- Pain during sex

Of course, these symptoms do not mean that you have cancer. They can also be caused by something else. But you must check with a doctor to find out.

It is best to not wait for symptoms to appear. Get regular cervical cancer screening.

Tests for cervical cancer

Medical history and physical exam

The doctor will ask you about your health, your risk factors, and about the health of your family members. A complete physical exam will be done with special attention to your lymph nodes to look for any signs that cancer has spread. The doctor will do a pelvic exam and may do a Pap test if you haven't already had one.

The Pap test is a screening test, not a diagnostic test. An abnormal Pap test result often means that other tests will need to be done to find out if a cancer or a pre-cancer is really there.

Colposcopy

If you have certain symptoms that suggest cancer or if your Pap test shows abnormal cells, you will need to have a test called *colposcopy*. The doctor will use a colposcope to look at the cervix. The colposcope is an instrument that stays outside the body. It has magnifying lenses (like binoculars). It lets the doctor see the surface of the cervix closely and clearly.

Colposcopy itself is not painful, has no side effects, and can be done safely even if you are pregnant. Like the Pap test, it is rarely done during your period. If something not normal is seen on the cervix, a biopsy will be done. For a biopsy, a small piece of tissue is removed from the place that looks abnormal. The sample is sent to be looked at under a microscope. A biopsy is the only way to tell for certain whether something is a pre-cancer, a true cancer, or neither. Although the colposcopy procedure is not painful, cervical biopsy can cause discomfort, cramping, or even pain in some women.

Several different types of biopsies are used to diagnose cervical pre-cancers and cancers. Ask your doctor to explain what kind of biopsy you will have and what the results mean.

If a biopsy shows that cancer is present, your doctor may order certain tests to see how far the cancer has spread. Many of the tests described below are not needed for every patient. Which tests are done is based on the results of the physical exam and biopsy.

Cystoscopy, proctoscopy, and exam under anesthesia

These are most often done in women who have large tumors. They are not needed if the cancer is caught early.

In cystoscopy a thin tube with a lens and a light is put into the bladder through the urethra. This lets the doctor check to see if cancer is growing into these areas. Biopsy samples can also be removed. Cystoscopy can be done under a local anesthetic (the area is numbed with drugs), but some patients may need general anesthesia (drugs that put you in a deep sleep). Your doctor will let you know what to expect before and after the tests.

For proctoscopy a thin, lighted tube is used to check for spread of cervical cancer into your rectum.

Your doctor may also do a pelvic exam while you are under anesthesia to find out whether the cancer has spread beyond the cervix.

Methods used to get pictures of the inside of the body (imaging studies)

If your doctor finds that you have cervical cancer, imaging studies may be used to create pictures of the inside of your body. They can show whether the cancer has spread beyond the cervix.

Chest x-ray: A plain x-ray of your chest will be done to see if your cancer has spread to your lungs. This is not likely unless your cancer is very advanced. If the results are normal, you most likely don't have cancer in your lungs.

CT scan (computed tomography): The CT scan is a special kind of x-ray. Instead of taking just one picture, a CT scanner takes many pictures as it moves around you. A computer then combines these pictures into an image of a slice of your body (think of a loaf of sliced bread).

CT scans can help tell if your cancer has spread to other places in the body. CT scans are also sometimes used to guide a biopsy needle into a place where the cancer might have spread. A biopsy (tiny sample or thin core of tissue) is removed and looked at under a microscope.

Before the first set of CT pictures is taken you may be asked to drink some liquid that helps outline structures in your body. You might also have an IV line through which you may be given a different kind of contrast dye.

The IV contrast can cause your body to feel flushed (a feeling of warmth with some redness of the skin). A few people are allergic to the dye and can get hives. Rarely, more serious reactions, like trouble breathing and low blood pressure, can happen. Be sure to tell your doctor if you have ever had a reaction to contrast dye used for x-rays. It is also important to let your doctor know about any other allergies.

CT scans take longer than regular x-rays and you will need to lie still on a table while they are being done. Also, you might feel a bit confined by the ring-like equipment you're in when the pictures are being taken.

MRI scans (magnetic resonance imaging): MRI scans use radio waves and strong magnets instead of x-rays to take pictures. MRI images are very useful in looking at pelvic tumors. They are also helpful in finding cancer that has spread to the brain or spinal cord.

An MRI scans take longer than CT scans -- often up to an hour. Also, you have to be placed inside a narrow, tube-like machine, which can upset some people. Special, "open" MRI machines may be an option for some patients; the downside of these is that the images may not be as good. The machine makes a thumping noise that you may find annoying. Some places will give you headphones with music to block this out.

PET scan (positron emission tomography): PET scans use glucose (a form of sugar) that contains a radioactive atom. Cancer cells in the body absorb large amounts of the treated sugar and a special camera can spot the cells. Some machines combine a CT scan and a PET scan to even better pinpoint the tumor. This test can help show whether the cancer has spread to lymph nodes. PET scans can also be useful when your doctor thinks the cancer has spread but doesn't know where.

How is cancer of the cervix staged?

The process of finding out how far the cancer has spread is called *staging*. Information from exams and tests is used to figure out the size of the tumor, how deeply the tumor has grown into tissues in and around the cervix, and the spread to lymph nodes or distant organs (metastasis). Staging is very important because the treatment and the outlook for your recovery depend on the stage of the cancer.

The stage of a cancer does not change over time, even if the cancer keeps growing. A cancer that comes back or spreads is still referred to by the stage it was given when it was first found. But information about the current extent of the cancer is added.

A staging system is a way for members of the cancer care team to sum up the extent of a cancer's spread. The 2 systems used for staging most types of cervical cancer, are the FIGO (International Federation of Gynecology and Obstetrics) system and the AJCC (American Joint Committee on Cancer) TNM staging system. They are very much alike. They both group cervical cancer on the basis of 3 factors: the extent of the tumor (T), whether the cancer has spread to lymph nodes (N) and whether it has spread to distant sites (M).

In the AJCC system, stages are labeled using Roman numerals 0 through IV (0-4). As a rule, the lower the number, the less the cancer has spread. A higher number, such as stage IV (4), means a more advanced cancer. All stages (except for stage 0) are further divided into smaller groups labeled with letters and numbers.

This system is based on clinical results (exams and tests) rather than surgical results. If surgery is done, it may show that the cancer has spread more than the doctors thought at first. The new information may change the treatment plan, but it does not change the patient's stage.

Survival rates for cancer of the cervix

Some people with cancer may want to know the survival rates for their type of cancer. Others may not find the numbers helpful, or may even not want to know them. If you do not want to know them, stop reading here and skip to the next section.

The 5-year survival rate refers to the percent of patients who live at least 5 years after their cancer is found. Many of these patients live much longer than 5 years. Also, these rates look at deaths from any cause. People with cancer may die from things other than cancer, and these rates don't take that into account. In order to get 5-year survival rates,

doctors have to look at people who were treated at least 5 years ago. Better treatments since then may mean a better outlook for people now found to have cervical cancer.

The numbers below come from the National Cancer Data Base, and are based on people diagnosed between 2000 and 2002.

Stage	5-Year Survival Rate
0	93%
IA	93%
IB	80%
IIA	63%
IIB	58%
IIIA	35%
IIIB	32%
IVA	16%
IVB	15%

These numbers provide an overall picture, but keep in mind that every person's situation is unique and the statistics can't predict exactly what will happen in your case. Talk with your cancer care team if you have questions about your own chances of a cure, or how long you might survive your cancer. They know your situation best.

How is cancer of the cervix treated?

This information represents the views of the doctors and nurses serving on the American Cancer Society's Cancer Information Database Editorial Board. These views are based on their interpretation of studies published in medical journals, as well as their own professional experience.

The treatment information in this document is not official policy of the 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.

About treatment

The treatment options for cervical cancer depend mostly on the stage of the cancer. After your cancer is staged, the doctor will tell you what choices you have. If there is anything

you don't understand, ask for it to be explained. Factors other than the stage of the cancer that might have an impact on your treatment decision include your age, your overall health, and your own preferences.

It is often a good idea to get a second opinion. A second opinion can give you more information and help you feel better about the treatment plan you choose. In fact, some health plans require you to get a second opinion.

If a cure isn't likely, the goal may be to remove or destroy as much of the cancer as possible. This is to keep it from growing or spreading for as long as possible. Sometimes treatment is aimed at relieving symptoms. This is called *palliative treatment*.

Surgery for pre-cancers and cancers of the cervix

There are several kinds of surgery for cervical cancer. Some involve taking out the uterus (called a *hysterectomy*), others do not. This list covers the most common types of surgery for cancer of the cervix.

Cryosurgery

A metal probe cooled with liquid nitrogen is put in the vagina and on the cervix. This kills the abnormal cells by freezing them. Cryosurgery is used to treat pre-cancers of the cervix (stage 0), but it is not used for invasive cancer.

Laser surgery

A laser beam is used to burn off cells or to remove a small piece of tissue for study. Laser surgery is only used as a treatment for pre-cancers of the cervix (stage 0). It is not used for invasive cancer.

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 (sometimes called LEEP or LEETZ procedure). This approach can be used to find or to treat early stage (0 or I) cancer. It is seldom used as the only treatment except for women with early cancer who might want to have children. After the biopsy, the tissue removed (the cone) is checked under the microscope. If the outer edges (margins) of the cone contain cancer or pre-cancer cells, more treatment will be needed to make sure that all of the cancer is removed.

Hysterectomy

In a hysterectomy, the uterus and cervix are removed. The ovaries and fallopian tubes or pelvic lymph nodes may be taken out during the same operation, but this isn't a part of every hysterectomy.

There are different types of hysterectomies which differ in terms of how much tissue is removed.

For a **simple hysterectomy**, only the cervix and uterus are removed. This is sometimes also called a *total hysterectomy*. The vagina and the tissue next to the uterus are left intact. Sometimes the ovaries and fallopian tubes are removed at the same time. The uterus can be taken out through either a cut (incision) in the front of the belly (abdomen) or through the vagina. Laparoscopy can be used with either of these methods. A laparoscope is a long, thin tube with a small camera on the end. It is put into the belly through small cuts in the skin to let the surgeon see inside and use small tools to remove organs. Because the cuts are small the patient may recover faster.

Hysterectomy is used to treat some very early stage I cervical cancers. It is also used for some stage 0 cancers if cancer cells were found at the edges of the cone biopsy. General or epidural (regional) anesthesia is used for this operation. The time it takes to recover and the length of hospital stay vary depending on how the surgery was done.

Radical hysterectomy: For this operation the surgeon removes more than just the uterus. The tissues next to the uterus and the upper part of the vagina next to the cervix are removed. Sometimes the ovaries and fallopian tubes are removed at the same time. This type of hysterectomy is most often done through a cut (incision) in the front of the belly (abdomen) and less often through the vagina. This surgery, along with a pelvic lymph node dissection (see below), are the usual treatment for stages I and, less often, some stage II cervical cancers, especially in young women. Laparoscopy can also be used to do a radical hysterectomy through the abdomen. Lymph nodes are removed as well.

Side effects of hysterectomy

After these surgeries, a woman cannot become pregnant, but she can still feel pleasure in sex. A woman does not need a cervix or uterus to reach orgasm. If the cancer has caused pain or bleeding, though, the operation could actually improve a woman's sex life by stopping these symptoms. If the ovaries are removed along with the uterus, the woman will go through menopause (change of life) if she hasn't already done so. This can lead to problems like hot flashes, night sweats, vaginal dryness, and mood changes.

In a radical hysterectomy, some of the nerves to the bladder are removed, and so afterward many women have problems emptying their bladder.

Trachelectomy

A procedure called a *radical trachelectomy* allows certain young women with early stage cervical cancer to be treated without losing their ability to have children. This method involves taking out the cervix and the upper part of the vagina but leaving the body of the uterus behind. The doctor puts in a "purse-string" stitch to act as an opening of the cervix inside the uterus. The nearby lymph nodes are also removed. The operation is done either through the vagina or the belly (abdomen).

After this surgery, some women are able to carry a pregnancy to term and deliver a healthy baby by C-section. In one study, the pregnancy rate after 5 years was more than

50%, but the risk of miscarriage is higher than in normal, healthy women. The risk of the cancer coming back after this approach is low.

Pelvic exenteration

In this operation, besides taking out all the organs and tissues as in a radical hysterectomy, the bladder, vagina, rectum, and part of the colon may also be removed. What is taken out depends on where the cancer is. The goal is to remove all of the cancer. This operation is most often used when the cancer has come back after earlier treatment and has spread in the pelvis.

If the bladder is removed, a new way to store and pass urine is needed. A short piece of the intestine might be used to make a new bladder. Urine can be drained through a small opening on the belly called a *urostomy*. Either a small tube (called a catheter) is placed into the opening or the urine might drain into a small plastic bag that covers the opening and is worn on the front of the stomach.

If the rectum and part of the colon are removed, a new way to pass solid waste (stool) is needed. This is done with a *colostomy*, an opening on the belly (abdomen) through which the stool can pass. Or the surgeon might be able to reconnect the colon so that no bags outside of the body are needed.

If the vagina is removed, a new one can be made out of skin or other tissue.

It can take a long time, 6 months or even more, to recover from this surgery. Some say it takes a year or 2 to really adjust. But women who have had this surgery can lead happy and productive lives. With practice and patience, they can also have sexual desire, pleasure, and orgasm.

Ask your doctor to explain the details of the surgery he or she recommends. You'll want to know how long you will be in the hospital, how long it could take you to recover, how the surgery will change the way your body works, and what side effects you can expect to have.

Pelvic lymph node dissection

Sometimes some lymph nodes from the pelvis are removed to see if they contain cancer cells. This is known as a *lymph node dissection* or *lymph node sampling*. It can be done during a hysterectomy or trachelectomy. Taking out lymph nodes can lead to fluid drainage problems in the leg. This can cause severe swelling in the leg (*lymphedema*).

Radiation therapy for cancer of the cervix

Radiation therapy is treatment with high-energy rays (like x-rays) to kill cancer cells or shrink tumors. The radiation may come from outside the body (external beam radiation) or from radioactive materials placed near or even directly in the tumor (internal radiation or brachytherapy). For cervical cancer, the external type of radiation is often given along with low doses of chemo.

For external beam radiation, x-rays are given in a procedure that is much like having a diagnostic x-ray. For cervical cancer, treatments are often given 5 days a week for 6 or 7 weeks.

For internal radiation treatment, most often the radioactive substance is put in a cylinder or tube in the vagina. Sometimes radioactive material may be placed in thin needles that are put right into the tumor. (This is not often used in the treatment of cervical cancer.) There are 2 ways of giving this treatment: low-dose rate and high-dose rate. Low-dose rate treatment is finished in just a few days. During that time, the patient stays in the hospital. High-dose rate treatment is done as an outpatient over several treatments. For each treatment, the radioactive material is put in for a few minutes and then taken out.

Radiation can be used after surgery for early stage cervical cancer. It is also the main treatment for later stage (stage II and higher) cancers. When it is the main treatment, it is often given with low doses of chemotherapy to help it work better.

Side effects of radiation

Side effects from radiation treatment are most common after the external beam type. These include:

- Tiredness
- Upset stomach
- Loose bowels
- Nausea
- Vomiting
- Skin changes (looks and feels like sunburn)
- Dryness or scar tissue in the vagina causing sex to be painful
- Early change of life (menopause)
- Problems with urination
- Weak bones leading to fractures
- Low red blood cell counts (anemia)
- Low white blood cell counts
- Swelling in the leg (called lymphedema)

Be sure to talk with your doctor or nurse about any side effects you might have. Often there are medicines or other methods that will help. *Because smoking increases the side effects from radiation, if you smoke, you should stop.*

Chemotherapy for cancer of the cervix

Chemotherapy ("chemo") is the use of drugs to kill cancer cells. Usually the drugs are given into a vein or by mouth. Once the drugs enter the bloodstream, they spread throughout the body. Sometimes several drugs are given at one time.

Chemo can cause side effects. These side effects will depend on the type of drugs given, the amount taken, and how long treatment lasts. Side effects could include these:

- Upset stomach (nausea) and vomiting
- Loss of appetite
- Short-term hair loss
- Mouth sores
- Increased chance of infection (from a shortage of white blood cells)
- Bleeding or bruising after minor cuts or injuries (from a shortage of blood platelets)
- Shortness of breath (from low red blood cell counts)
- Tiredness
- Early change of life (menopause)
- Loss of ability to become pregnant (infertility)

Most of the side effects (except for menopause and infertility) stop when treatment is over. If you have problems with side effects, talk with your doctor or nurse, as there are often ways to help. For instance, drugs given with chemo can reduce or even prevent nausea and vomiting. Giving chemo at the same time as radiation can improve the patient's outlook, but it may make side effects worse. Your health care team will watch for side effects and can give you medicines to help you feel better.

Chemoradiation

For some stages of cervical cancer, chemotherapy is given to help the radiation work better. When chemotherapy and radiation therapy are given together, it is called *concurrent chemoradiation*. Giving chemo with radiation can improve the patient's chance for survival, but giving them together also tends to have worse side effects. The nausea and fatigue are often worse. Diarrhea can also be a problem if chemo is given at the same time as radiation. Problems with low blood counts can also be worse. Your health care team will watch for side effects and can give you medicines to help you feel better.

Clinical trials for cancer of the cervix

You may have had to make a lot of decisions since you've been told you have cancer. One of the most important decisions you will make is deciding which treatment is best

for you. You may have heard about clinical trials being done for your type of cancer. Or maybe someone on your health care team has mentioned a clinical trial to you.

Clinical trials are carefully controlled research studies that are done with patients who volunteer for them. They are done to get a closer look at promising new treatments or procedures.

If you would like to take part in a clinical trial, you should start by asking your doctor if your clinic or hospital conducts clinical trials. You can also call our clinical trials matching service for a list of clinical trials that meet your medical needs. You can reach this service at 1-800-303-5691 or on our Web site at www.cancer.org/clinicaltrials. You can also get a list of current clinical trials by calling the National Cancer Institute's Cancer Information Service toll-free at 1-800-4-CANCER (1-800-422-6237) or by visiting the NCI clinical trials Web site at www.cancer.gov/clinicaltrials.

There are requirements you must meet to take part in any clinical trial. If you do qualify for a clinical trial, it is up to you whether or not to enter (enroll in) it.

Clinical trials are one way to get state-of-the art cancer treatment. They are the only way for doctors to learn better methods to treat cancer. Still, they are not right for everyone.

You can get a lot more information on clinical trials, in our document called *Clinical Trials: What You Need to Know*. You can read it on our Web site or call our toll-free number and have it sent to you.

Complementary and alternative therapies for cervical cancer

When you have cancer you are likely to hear about ways to treat your cancer or relieve symptoms that your doctor hasn't mentioned. Everyone from friends and family to Internet groups and Web sites offer ideas for what might help you. These methods can include vitamins, herbs, and special diets, or other methods such as acupuncture or massage, to name a few.

What are complementary and alternative therapies?

It can be confusing because not everyone uses these terms the same way, and they are used to refer to many different methods. We use *complementary* to refer to treatments that are used *along with* your regular medical care. *Alternative* treatments are used *instead of* a doctor's medical treatment.

Complementary methods: Most complementary treatment methods are not offered as cures for cancer. Mainly, they are used to help you feel better. Some examples of methods that are used along with regular treatment are meditation to reduce stress, acupuncture to help relieve pain, or peppermint tea to relieve nausea. Some complementary methods are known to help, while others have not been tested. Some have been proven not to be helpful, and a few are even harmful.

Alternative treatments: Alternative treatments may be offered as cancer cures. These treatments have not been proven safe and effective in clinical trials. Some of these

methods may be harmful, or have life-threatening side effects. But the biggest danger in most cases is that you may lose the chance to be helped by standard medical treatment. Delays or interruptions in your medical treatments may give the cancer more time to grow and make it less likely that treatment will help.

Finding out more

It is easy to see why people with cancer think about alternative methods. You want to do all you can to fight the cancer, and the idea of a treatment with few or no side effects sounds great. Sometimes medical treatments like chemotherapy can be hard to take, or they may no longer be working. But the truth is that most of these alternative methods have not been tested and proven to work in treating cancer.

As you think about your options, here are 3 important steps you can take:

- Look for "red flags" that suggest fraud. Does the method promise to cure all or most cancers? Are you told not to have regular medical treatments? Is the treatment a "secret" that requires you to visit certain providers or travel to another country?
- Talk to your doctor or nurse about any method you are thinking of using.
- Contact us at 1-800-227-2345 to learn more about complementary and alternative methods in general and to find out about the specific methods you are looking at.

The choice is yours

Decisions about how to treat or manage your cancer are always yours to make. If you want to use a non-standard treatment, learn all you can about the method and talk to your doctor about it. With good information and the support of your health care team, you may be able to safely use the methods that can help you while avoiding those that could be harmful.

Cervical cancer and pregnancy

A small number of cervical cancers are found in pregnant women. Most doctors think that if the cancer is very early, then it is safe to carry the pregnancy to term. Several weeks after the baby is born, treatment -- most likely a hysterectomy -- is recommended.

If the cancer is at a later stage, then the woman and her doctor must decide whether to continue the pregnancy. If they decide to continue the pregnancy, the baby should be delivered by C-section as soon as it is able to survive outside the womb and then treatment started right away.

Financial help and cervical cancer

In 2000, the Breast and Cervical Cancer Treatment Act was signed into law. This act provides funds to treat breast and cervical cancer for some low-income women. States

must adopt the program in order to get matching federal funds. For more information, you can contact the CDC at 1-888-842-6355 or on the Internet at www.cdc.gov/cancer.

What are some questions I can ask my doctor about cervical cancer?

As you cope with cancer and cancer treatment, we encourage you to have honest, open talks with your doctor. Feel free to ask any question that's on your mind, no matter how small it might seem. Here are some questions you might want to ask. Be sure to add your own questions as you think of them. Nurses, social workers, and other members of the treatment team may also be able to answer many of your questions.

- Would you please write down the type of cancer I have?
- Has my cancer spread beyond the cervix?
- What is the stage of my cancer and what does that mean in my case?
- What treatment choices do I have?
- What do you suggest and why?
- What risks or side effects are there to the treatment you suggest?
- Will I be able to have children after treatment?
- What are my treatment options if I want to have children in the future?
- Will I lose my hair? If so, what can I do about it?
- What are the chances of the cancer coming back after treatment?
- What should I do to get ready for treatment?
- Should I follow a special diet?
- Based on what you've learned about my cancer, what are my chances of survival?
- What do I tell my children, husband, parents, and other family members?

Add your own questions below:

Moving on after treatment for cervical cancer

For some women with cervical cancer, treatment may remove or destroy the cancer. It can feel good to be done with treatment, but it can also be stressful. You may find that you now worry about the cancer coming back. This is a very common concern among those who have had cancer. (When cancer comes back, it is called a recurrence.)

It may take a while before your recovery begins to feel real and your fears are somewhat relieved. You can learn more about what to look for and how to learn to live with the chance of cancer coming back in *Living With Uncertainty: The Fear of Cancer Recurrence*.

For other women, the cancer may never go away completely. These women may get regular treatments with chemotherapy, radiation, or other treatments to try to help keep the cancer in check. Learning to live with cancer that does not go away can be hard and very stressful. It has its own type of uncertainty. Our document, *When Cancer Doesn't Go Away*, talks more about this.

Follow-up care

After your treatment is over, it is very important to keep all follow-up appointments. During these visits, your doctors will ask about symptoms, do physical exams, and order blood tests or imaging studies such as CT scans or x-rays. You will need to keep getting Pap tests no matter how you were treated. Follow-up is needed to check for cancer recurrence or spread, as well as possible side effects of certain treatments. These exams also give your doctor a way to watch you for signs of a new cancer, like those caused by HPV or those that can result from cancer treatment.

Almost any cancer treatment can have side effects. Some may last for a few weeks or months, but others can be permanent. Please tell your cancer care team about any symptoms or side effects that bother you so they can help you manage them. Use this time to ask your health care team questions and discuss any concerns you might have.

It is also important to keep your health insurance. While you hope your cancer won't come back, it could happen. If it does, you don't want to have to worry about paying for treatment. Should your cancer come back, our document *When Your Cancer Comes Back: Cancer Recurrence* helps you manage and cope with this phase of your treatment.

Seeing a new doctor

At some point after your cancer is found and treated, you may find yourself in the office of a new doctor. It is important that you be able to give your new doctor the exact details of your diagnosis and treatment. Make sure you have this information handy and always keep copies for yourself:

- A copy of your pathology report from any biopsy or surgery
- If you had surgery, a copy of your operative report
- If you were in the hospital, a copy of the discharge summary that the doctor wrote when you were sent home from the hospital
- If you had radiation treatment, a summary of the treatment
- If you had chemo or targeted therapies, a list of your drugs, drug doses, and when you took them

- Copies of your x-rays and other imaging studies (these can often be put on a DVD)

The doctor may want copies of this information for his records, but always keep copies for yourself.

Lifestyle changes after cervical cancer

You can't change the fact that you have had cancer. What you can change is how you live the rest of your life – making choices to help you stay healthy and feel as well as you can. This can be a time to look at your life in new ways. Maybe you are thinking about how to improve your health over the long term. Some people even start during cancer treatment.

Make healthier choices

For many people, finding out they have cancer helps them focus on their health in ways they may not have thought much about in the past. Are there things you could do that might make you healthier? Maybe you could try to eat better or get more exercise. Maybe you could cut down on the alcohol, or give up tobacco. Even things like keeping your stress level under control may help. Now is a good time to think about making changes that can have positive effects for the rest of your life. You will feel better and you will also be healthier.

You can start by working on those things that worry you most. Get help with those that are harder for you. For instance, if you are thinking about quitting smoking and need help, call the American Cancer Society for information and support.

Eating better

Eating right can be hard for anyone, but it can get even tougher during and after cancer treatment. Treatment may change your sense of taste. Nausea can be a problem. You may not feel like eating and lose weight when you don't want to. Or you may have gained weight that you can't seem to lose. All of these things can be very trying.

If treatment caused weight changes or eating or taste problems, do the best you can and keep in mind that these problems usually get better over time. You may find it helps to eat small portions every 2 to 3 hours until you feel better. You may also want to ask your cancer team about seeing a dietitian, an expert in nutrition who can give you ideas on how to deal with these treatment side effects.

One of the best things you can do after treatment is to put healthy eating habits into place. You may be surprised at the long-term benefits of some simple changes. Getting to and staying at a healthy weight, eating a healthy diet, and limiting your alcohol intake may lower your risk for a number of types of cancer, as well as having many other health benefits.

Rest, fatigue, and exercise

Feeling tired (fatigue) is a very common problem during and after cancer treatment. This is not a normal type of tiredness but a "bone-weary" exhaustion that doesn't get better with rest. For some people, fatigue lasts a long time after treatment and can keep them from staying active. But exercise can actually help reduce fatigue and the sense of depression that sometimes comes with feeling so tired.

If you are very tired, though, you will need to balance activity with rest. It is OK to rest when you need to. To learn more about fatigue, please see our documents, *Fatigue in People With Cancer* and *Anemia in People With Cancer*.

If you were very ill or weren't able to do much during treatment, it is normal that your fitness, staying power, and muscle strength declined. You need to find an exercise plan that fits your own needs. Talk with your health care team before starting. Get their input on your exercise plans. Then try to get an exercise buddy so that you're not doing it alone.

Exercise can improve your physical and emotional health.

- It improves your cardiovascular (heart and circulation) fitness.
- It makes your muscles stronger.
- It reduces fatigue.
- It lowers anxiety and depression.
- It can make you feel generally happier.
- It helps you feel better about yourself.

Long term, we know that getting regular physical activity plays a role in helping to lower the risk of some cancers, as well as having other health benefits.

How about your emotional health after cervical cancer

When treatment ends, you may find yourself having many different emotions. This happens to a lot of people. You may have been going through so much during treatment that you could only focus on getting through each day. Now it may feel like a lot of other issues are catching up with you.

You may find yourself thinking about death and dying. Or maybe you're more aware of the effect the cancer has on your family, friends, and career. You may take a new look at your relationship with those around you. Unexpected issues may also cause concern. For instance, as you feel better and have fewer doctor visits, you will see your health care team less often and have more time on your hands. These changes can make some people anxious.

Almost everyone who has been through cancer can benefit from getting some type of support. You need people you can turn to for strength and comfort. Support can come in many forms: family, friends, cancer support groups, church or spiritual groups, online

support groups, or one-on-one counselors. What's best for you depends on your situation and personality.

The cancer journey can feel very lonely. You don't need to deal with everything on your own. And your friends and family may feel shut out if you do not include them. Let them in, and let in anyone else who you feel may help. If you aren't sure who can help, call your American Cancer Society at 1-800-227-2345 and we can put you in touch with a group or resource that may work for you.

If treatment for cervical cancer stops working

When a person has had many different treatments and the cancer has not been cured, over time the cancer tends to resist all treatment. At this time you may have to weigh the possible benefits of a new treatment against the downsides, like treatment side effects and clinic visits.

This is likely to be the hardest time in your battle with cancer -- when you have tried everything within reason and it's just not working anymore. Your doctor may offer you new treatment, but you will need to talk about whether the treatment is likely to improve your health or change your outlook for survival.

No matter what you decide to do, it is important for you to feel as good as possible. Make sure you are asking for and getting treatment for pain, nausea, or any other problems you may have. This type of treatment is called "palliative" treatment. It helps relieve symptoms but is not meant to cure the cancer.

At some point you may want to think about hospice care. Most of the time it is given at home. Your cancer may be causing symptoms or problems that need to be treated.

Hospice focuses on your comfort. You should know that having hospice care doesn't mean you can't have treatment for the problems caused by your cancer or other health issues. It just means that the purpose of your care is to help you live life as fully as possible and to feel as well as you can. You can learn more about this in our document, *Hospice Care*.

Staying hopeful is important, too. Your hope for a cure may not be as bright, but there is still hope for good times with family and friends -- times that are filled with joy and meaning. Pausing at this time in your cancer treatment gives you a chance to focus on the most important things in your life. Now is the time to do some things you've always wanted to do and to stop doing the things you no longer want to do. Though the cancer may be beyond your control, there are still choices you can make.

What's new in cervical cancer research?

Research is going on to find new ways to prevent and treat cancer of the cervix.

Sentinel lymph node biopsy

During surgery for cervical cancer, lymph nodes in the pelvis may be removed to check for cancer spread. Instead of taking out many lymph nodes, a technique called sentinel lymph node biopsy can be used to target just the few lymph nodes most likely to contain cancer. A blue dye containing a radioactive tracer is injected into the cancer and allowed to drain into lymph nodes. Then, during surgery, the lymph nodes that contain radiation and the blue dye can be spotted and removed. These are the lymph nodes most likely to contain cancer if it had spread. If these lymph nodes don't contain cancer, the other lymph nodes don't need to be removed. Taking out fewer lymph nodes may lower the risk of later problems.

HPV vaccines

There are vaccines to help prevent cervical cancer. These vaccines produce immunity to certain types of HPV so that women who are exposed to these viruses will not get infections. Vaccines are also being developed to prevent some of the other HPV types that cause cancer.

Vaccines are being studied for women who already have HPV infections. These vaccines could help their immune systems destroy the virus and cure the infection before it becomes cancer. Still other vaccines are meant to help women who already have advanced cervical cancer that has come back (recurred) or spread.

Targeted therapy

As scientists have learned more about the gene changes in cells that cause cancer, they have been able to develop newer drugs that are aimed right at these changes. These targeted drugs work in a different way from standard chemo drugs. They often have less severe side effects. These drugs may be used alone or along with chemo.

Hyperthermia

Hyperthermia is a treatment that raises the temperature around the tumor. Some research suggests that adding hyperthermia to radiation may help keep the cancer from coming back and help patients live longer.

Drug treatment of pre-cancers

Standard treatment of cervical pre-cancer includes cryotherapy, laser treatment, and conization. Recent studies to see if medicines can be used instead have had some promising results. More studies are needed before this can become a standard treatment.

Other clinical trials: Many clinical trials are taking place to test new chemo drugs, new ways of giving radiation treatment, and new ways to combine treatments.

More information about cervical cancer

From your American Cancer Society

The following information may also be helpful to you. These materials may be ordered from our toll-free number, 1-800-227-2345.

Cervical Cancer Detailed Guide (also in Spanish)

After Diagnosis: A Guide for Patients and Families (also in Spanish)

Home Care for the Person with Cancer: a Guide for Patients and Families (also in Spanish)

Human Papilloma Virus (HPV), Cancer, and HPV Vaccines: Frequently Asked Questions (also in Spanish)

Understanding Chemotherapy: A Guide for Patients and Families (also in Spanish)

Understanding Radiation Therapy: A Guide for Patients and Families (also in Spanish)

Sexuality for the Woman With Cancer (also in Spanish)

Books

The following books are available from the American Cancer Society. Call us at 1-800-227-2345 to ask about costs or to place your order.

Cancer in the Family: Helping Children Cope with a Parent's Illness

American Cancer Society Complete Guide to Family Caregiving

Crossing Divides: a Couple's Story of Cancer, Hope, and Hiking in the Montana Continental Divide

What Helped Get Me Through: Cancer Patients Share Wisdom and Hope

National organizations and Web sites*

Along with the American Cancer Society, other sources of information and support include:

Foundation for Women's Cancer (formerly Gynecologic Cancer Foundation)

Toll-free number: 1-800-444-4441

Telephone number: 1-312-578-1439

Web site: www.foundationforwomenscancer.org/

National Cancer Institute

Toll-free number: 1-800-4-CANCER (1-800-422-6237)

Web site: www.cancer.gov

National Cervical Cancer Coalition

Toll-free number: 1-800-685-5531

Telephone: 818-909-3849

Web site: www.nccc-online.org

National Coalition for Cancer Survivorship

Toll-free number: 1-877-NCCS-YES (1-877-622-7937) (For publications and Cancer Survivor Toolbox orders)

Toll-free number: 1-888-650-9127

Web site: www.canceradvocacy.org

Centers for Disease Control and Prevention (CDC)

DES Update

Toll-free number: 1-888-232-6789

Web site: www.cdc.gov/des

* *Inclusion on this list does not imply endorsement by the American Cancer Society.*

No matter who you are, we can help. Contact us anytime, day or night, for information and support. Call us at 1-800-227-2345 or visit www.cancer.org.

Last Medical Review: 2/8/2012

Last Revised: 2/8/2012

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For additional assistance please contact your American Cancer Society
1 · 800 · ACS-2345 or www.cancer.org