

National Cancer Institute

What You Need
To Know About™

Cervical Cancer

U.S. DEPARTMENT OF
HEALTH AND HUMAN SERVICES

National Institutes of Health

For more publications

This is only one of many free booklets for people with cancer.

Here's how to get other National Cancer Institute (NCI) booklets:

- Call the NCI's Cancer Information Service at **1-800-4-CANCER (1-800-422-6237)**
- Go to the NCI's Web site at **<http://www.cancer.gov/publications>**

For materials in Spanish

Here's how to get NCI materials in Spanish:

- Call the NCI's Cancer Information Service at **1-800-422-6237**
- Go to the NCI's Web site at **<http://www.cancer.gov/espanol>**

Contents

About This Booklet	1
The Cervix	2
Cancer Cells	4
Risk Factors	5
Symptoms	7
Detection and Diagnosis	8
Staging	10
Treatment	13
Second Opinion	24
Nutrition and Physical Activity	25
Follow-up Care	26
Sources of Support	27
Taking Part in Cancer Research	29
Dictionary	31
National Cancer Institute Information Resources	42
National Cancer Institute Publications	43

About This Booklet

This National Cancer Institute (NCI) booklet is about *cervical cancer*.* The disease begins on the surface of the *cervix*. If not treated, the *cancer* invades more deeply into the *cervix*. This is called *invasive cervical cancer*. Every year in the United States, about 11,000 women learn they have invasive cervical cancer. Most of these women are younger than 55.

This booklet is only about invasive cervical cancer. It's not about *precancer*, abnormal cells found only on the surface of the *cervix*, or other cervical changes. These cell changes are treated differently from invasive cervical cancer.

Instead of this booklet, women with abnormal cervical cells only on the surface may want to read the NCI booklet *Understanding Cervical Changes: A Health Guide for Women*. It tells about abnormal cells and describes treatments.

Also, the NCI offers the following materials about the *Pap test* and abnormal test results:

- *Pap Tests: Things to Know*
- *The Pap Test: Questions and Answers*

This booklet tells about diagnosis, staging, treatment, and follow-up care. Learning about medical care for invasive cervical cancer can help you take an active part in making choices about your care.

*Words in *italics* are in the Dictionary on page 31. The Dictionary explains these terms. It also shows how to pronounce them.

This booklet has lists of questions that you may want to ask your doctor. Many people find it helpful to take a list of questions to a doctor visit. To help remember what your doctor says, you can take notes or ask whether you may use a tape recorder. You may also want to have a family member or friend go with you when you talk with the doctor—to take notes, ask questions, or just listen.

For the latest information about cervical cancer, please visit our Web site at <http://www.cancer.gov/cancertopics/types/cervical>. Or, contact our Cancer Information Service. We can answer your questions about cancer. We can also send you NCI booklets and fact sheets. Call **1-800-4-CANCER (1-800-422-6237)** or instant message us through the **LiveHelp** service at <http://www.cancer.gov/help>.

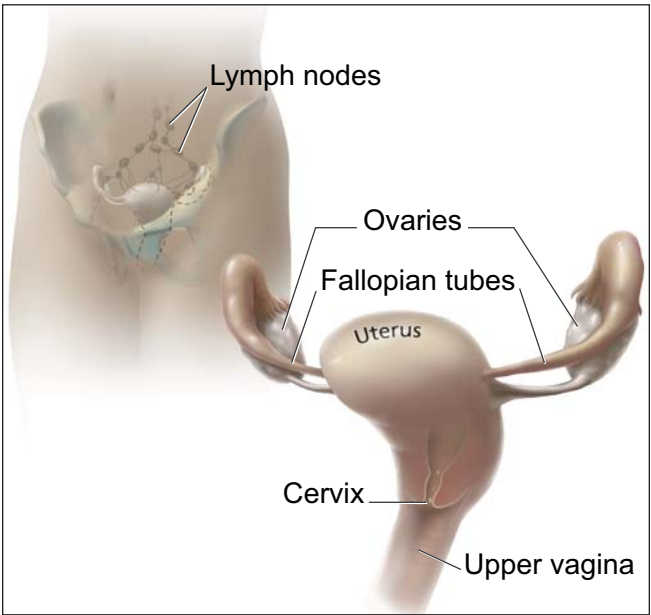
The Cervix

The cervix is part of a woman's *reproductive system*. It's in the *pelvis*. The cervix is the lower, narrow part of the *uterus* (womb).

The cervix is a passageway:

- The cervix connects the uterus to the *vagina*. During a *menstrual period*, blood flows from the uterus through the cervix into the vagina. The vagina leads to the outside of the body.

- The cervix makes *mucus*. During sex, mucus helps *sperm* move from the vagina through the cervix into the uterus.
- During pregnancy, the cervix is tightly closed to help keep the baby inside the uterus. During childbirth, the cervix opens to allow the baby to pass through the vagina.



This picture shows the cervix and nearby organs.

Cancer Cells

Cancer begins in *cells*, the building blocks that make up *tissues*. Tissues make up the *organs* of the body.

Normal cells grow and divide to form new cells as the body needs them. When normal cells grow old or get damaged, they die, and new cells take their place.

Sometimes, this process goes wrong. New cells form when the body does not need them, and old or damaged cells do not die as they should. The buildup of extra cells often forms a mass of tissue called a growth or *tumor*.

Growths on the cervix can be *benign* or *malignant*. Benign growths are not cancer. They are not as harmful as malignant growths (cancer).

- **Benign growths** (*polyps, cysts, or genital warts*):
 - are rarely a threat to life
 - don't invade the tissues around them
- **Malignant growths** (cervical cancer):
 - may sometimes be a threat to life
 - can invade nearby tissues and organs
 - can spread to other parts of the body

Cervical cancer begins in cells on the surface of the cervix. Over time, the cervical cancer can invade more deeply into the cervix and nearby tissues. The cancer cells can spread by breaking away from the original (primary) tumor. They enter blood vessels or *lymph vessels*, which branch into all the tissues of the body. The cancer cells may attach to other tissues and grow to form new tumors that may damage those tissues. The spread of cancer is called *metastasis*. See the Staging section on page 10 for information about cervical cancer that has spread.

Risk Factors

When you get a diagnosis of cancer, it's natural to wonder what may have caused the disease. Doctors cannot always explain why one woman develops cervical cancer and another does not. However, we do know that a woman with certain *risk factors* may be more likely than others to develop cervical cancer. A risk factor is something that may increase the chance of developing a disease.

Studies have found a number of factors that may increase the risk of cervical cancer. For example, *infection* with HPV (*human papillomavirus*) is the main cause of cervical cancer. HPV infection and other risk factors may act together to increase the risk even more:

- **HPV infection:** HPV is a group of *viruses* that can infect the cervix. An HPV infection that doesn't go away can cause cervical cancer in some women. HPV is the cause of nearly all cervical cancers.

HPV infections are very common. These viruses are passed from person to person through sexual contact. Most adults have been infected with HPV at some time in their lives, but most infections clear up on their own.

Some types of HPV can cause changes to cells in the cervix. If these changes are found early, cervical cancer can be prevented by removing or killing the changed cells before they can become cancer cells. The NCI fact sheet *Human Papillomaviruses and Cancer: Questions and Answers* has more information.

A vaccine for females ages 9 to 26 protects against two types of HPV infection that cause cervical cancer. The NCI fact sheet *Human Papillomavirus (HPV) Vaccines: Questions and Answers* has more information.

- **Lack of regular Pap tests:** Cervical cancer is more common among women who don't have regular Pap tests. The Pap test helps doctors find abnormal cells. Removing or killing the abnormal cells usually prevents cervical cancer.
- **Smoking:** Among women who are infected with HPV, smoking cigarettes slightly increases the risk of cervical cancer.
- **Weakened immune system** (the body's natural defense system): Infection with *HIV* (the virus that causes *AIDS*) or taking drugs that suppress the immune system increases the risk of cervical cancer.
- **Sexual history:** Women who have had many sexual partners have a higher risk of developing cervical cancer. Also, a woman who has had sex with a man who has had many sexual partners may be at higher risk of developing cervical cancer. In both cases, the risk of developing cervical cancer is higher because these women have a higher risk of HPV infection.
- **Using birth control pills for a long time:** Using birth control pills for a long time (5 or more years) may slightly increase the risk of cervical cancer among women with HPV infection. However, the risk decreases quickly when women stop using birth control pills.
- **Having many children:** Studies suggest that giving birth to many children (5 or more) may slightly increase the risk of cervical cancer among women with HPV infection.

- **DES** (*diethylstilbestrol*): DES may increase the risk of a rare form of cervical cancer in daughters exposed to this drug before birth. DES was given to some pregnant women in the United States between about 1940 and 1971. (It is no longer given to pregnant women.)

Having an HPV infection or other risk factors does not mean that a woman will develop cervical cancer. Most women who have risk factors for cervical cancer never develop it.

Symptoms

Early cervical cancers usually don't cause symptoms. When the cancer grows larger, women may notice one or more of these symptoms:

- Abnormal vaginal bleeding
 - Bleeding that occurs between regular menstrual periods
 - Bleeding after sexual intercourse, douching, or a *pelvic exam*
 - Menstrual periods that last longer and are heavier than before
 - Bleeding after going through *menopause*
- Increased vaginal discharge
 - Pelvic pain
 - Pain during sex

Infections or other health problems may also cause these symptoms. Only a doctor can tell for sure. A woman with any of these symptoms should tell her doctor so that problems can be diagnosed and treated as early as possible.

Detection and Diagnosis

Doctors recommend that women help reduce their risk of cervical cancer by having regular Pap tests. A Pap test (sometimes called Pap smear or cervical smear) is a simple test used to look at cervical cells. Pap tests can find cervical cancer or abnormal cells that can lead to cervical cancer.

Finding and treating abnormal cells can prevent most cervical cancer. Also, the Pap test can help find cancer early, when treatment is more likely to be effective.

For most women, the Pap test is not painful. It's done in a doctor's office or clinic during a pelvic exam. The doctor or nurse scrapes a sample of cells from the cervix. A lab checks the cells under a microscope for cell changes. Most often, abnormal cells found by a Pap test are not cancerous. The same sample of cells may be tested for HPV infection.

If you have abnormal Pap or HPV test results, your doctor will suggest other tests to make a diagnosis:

- **Colposcopy:** The doctor uses a *colposcope* to look at the cervix. The colposcope combines a bright light with a magnifying lens to make tissue easier to see. It is not inserted into the vagina. A colposcopy is usually done in the doctor's office or clinic.
- **Biopsy:** Most women have tissue removed in the doctor's office with *local anesthesia*. A *pathologist* checks the tissue under a microscope for abnormal cells.
 - **Punch biopsy:** The doctor uses a sharp tool to pinch off small samples of cervical tissue.
 - **LEEP:** The doctor uses an electric wire loop to slice off a thin, round piece of cervical tissue.

- ***Endocervical curettage:*** The doctor uses a *curette* (a small, spoon-shaped instrument) to scrape a small sample of tissue from the cervix. Some doctors may use a thin, soft brush instead of a curette.
- ***Conization:*** The doctor removes a cone-shaped sample of tissue. A conization, or cone biopsy, lets the pathologist see if abnormal cells are in the tissue beneath the surface of the cervix. The doctor may do this test in the hospital under *general anesthesia*.

Removing tissue from the cervix may cause some bleeding or other discharge. The area usually heals quickly. Some women also feel some pain similar to menstrual cramps. Your doctor can suggest medicine that will help relieve your pain.

For more information about tests, cell changes, and treatment for these changes, you may want to read *Understanding Cervical Changes*. The NCI fact sheet *The Pap Test: Questions and Answers* tells how often women should have Pap tests and how to prepare for them.

You may want to ask the doctor these questions before having a biopsy:

- Which biopsy method do you recommend?
- How will tissue be removed?
- Will I have to go to the hospital?
- How long will it take? Will I be awake? Will it hurt?
- Are there any risks? What are the chances of infection or bleeding after the test?
- For how many days afterward should I avoid using tampons, douching, or having sex?
- Can the test affect my ability to get pregnant and have children?
- How soon will I know the results? Who will explain them to me?
- If I do have cancer, who will talk to me about the next steps? When?

Staging

If the biopsy shows that you have cancer, your doctor needs to learn the extent (stage) of the disease to help you choose the best treatment. Staging is a careful attempt to find out whether the tumor has invaded nearby tissues, whether the cancer has spread and, if so, to what parts of the body. Cervical cancer spreads most often to nearby tissues in the pelvis, *lymph nodes*, or the lungs. It may also spread to the liver or bones.

When cancer spreads from its original place to another part of the body, the new tumor has the same kind of cancer cells and the same name as the original tumor. For example, if cervical cancer spreads to the lungs, the cancer cells in the lungs are actually cervical cancer cells. The disease is metastatic cervical cancer, not lung cancer. For that reason, it's treated as cervical cancer, not lung cancer. Doctors call the new tumor "distant" or metastatic disease.

Your doctor will do a pelvic exam, feel for swollen lymph nodes, and may remove additional tissue. To learn the extent of disease, the doctor may order some of the following tests:

- **Chest x-rays:** X-rays often can show whether cancer has spread to the lungs.
- **CT scan:** An x-ray machine linked to a computer takes a series of detailed pictures of your organs. A tumor in the liver, lungs, or elsewhere in the body can show up on the CT scan. You may receive *contrast material by injection* in your arm or hand, by mouth, or by *enema*. The contrast material makes abnormal areas easier to see.
- **MRI:** A powerful magnet linked to a computer is used to make detailed pictures of your pelvis and *abdomen*. The doctor can view these pictures on a monitor and can print them on film. An MRI can show whether cancer has spread. Sometimes contrast material makes abnormal areas show up more clearly on the picture.
- **PET scan:** You receive an injection of a small amount of *radioactive* sugar. A machine makes computerized pictures of the sugar being used by cells in your body. Cancer cells use sugar faster than normal cells, and areas with cancer look brighter on the pictures.



The stage is based on where cancer is found. These are the stages of invasive cervical cancer:

- **Stage I:** The tumor has invaded the cervix beneath the top layer of cells. Cancer cells are found only in the cervix.
- **Stage II:** The tumor extends to the upper part of the vagina. It may extend beyond the cervix into nearby tissues toward the *pelvic wall* (the lining of the part of the body between the hips). The tumor does not invade the lower third of the vagina or the pelvic wall.
- **Stage III:** The tumor extends to the lower part of the vagina. It may also have invaded the pelvic wall. If the tumor blocks the flow of urine, one or both kidneys may not be working well.

- **Stage IV:** The tumor invades the *bladder* or *rectum*. Or the cancer has spread to other parts of the body.
- **Recurrent cancer:** The cancer was treated, but has returned after a period of time during which it could not be detected. The cancer may show up again in the cervix or in other parts of the body.

Treatment

Women with cervical cancer have many treatment options. The options are *surgery*, *radiation therapy*, *chemotherapy*, or a combination of methods.

The choice of treatment depends mainly on the size of the tumor and whether the cancer has spread. The treatment choice may also depend on whether you would like to become pregnant someday.

Your doctor can describe your treatment choices, the expected results of each, and the possible *side effects*. You and your doctor can work together to develop a treatment plan that meets your medical and personal needs.

Your doctor may refer you to a specialist, or you may ask for a referral. You may want to see a *gynecologic oncologist*, a *surgeon* who specializes in treating female cancers. Other specialists who treat cervical cancer include *gynecologists*, *medical oncologists*, and *radiation oncologists*. Your health care team may also include an *oncology nurse* and a *registered dietitian*.

Before treatment starts, ask your health care team about possible side effects and how treatment may change your normal activities. Because cancer treatments often damage healthy cells and tissues, side effects are common. Side effects may not be the same for each person, and they may change from one treatment session to the next.

At any stage of the disease, *supportive care* is available to relieve the side effects of treatment, to control pain and other symptoms, and to help you cope with the feelings that a diagnosis of cancer can bring. You can get information about coping on NCI's Web site at **<http://www.cancer.gov/cancertopics/coping>** and from NCI's Cancer Information Service at **1-800-4-CANCER** or **LiveHelp** (**<http://www.cancer.gov/help>**).

You may want to talk to your doctor about taking part in a *clinical trial*, a research study of new treatment methods. See the section on Taking Part in Cancer Research on page 29.

You may want to ask the doctor these questions before treatment begins:

- What is the stage of my disease? Has the cancer spread? If so, where?
- May I have a copy of the report from the pathologist?
- What are my treatment choices? Which do you recommend for me? Will I have more than one kind of treatment?
- What are the expected benefits of each kind of treatment?
- What are the risks and possible side effects of each treatment? What can we do to control the side effects?
- What can I do to prepare for treatment?
- Will I have to stay in the hospital? If so, for how long?
- What is the treatment likely to cost? Will my insurance cover the cost?
- How will treatment affect my normal activities?
- What can I do to take care of myself during treatment?
- What is my chance of a full recovery?
- How often will I need checkups after treatment?
- Would a clinical trial (research study) be right for me?

Surgery

Surgery is an option for women with Stage I or II cervical cancer. The surgeon removes tissue that may contain cancer cells:

- **Radical trachelectomy:** The surgeon removes the cervix, part of the vagina, and the lymph nodes in the pelvis. This option is for a small number of women with small tumors who want to try to get pregnant later on.
- **Total hysterectomy:** The surgeon removes the cervix and uterus.
- **Radical hysterectomy:** The surgeon removes the cervix, some tissue around the cervix, the uterus, and part of the vagina.

With either total or radical hysterectomy, the surgeon may remove other tissues:

- **Fallopian tubes and ovaries:** The surgeon may remove both fallopian tubes and ovaries. This surgery is called a *salpingo-oophorectomy*.
- **Lymph nodes:** The surgeon may remove the lymph nodes near the tumor to see if they contain cancer. If cancer cells have reached the lymph nodes, it means the disease may have spread to other parts of the body.

The time it takes to heal after surgery is different for each woman. You may have pain or discomfort for the first few days. Medicine can help control your pain. Before surgery, you should discuss the plan for pain relief with your doctor or nurse. After surgery, your doctor can adjust the plan if you need more pain control.

After a radical trachelectomy, some women have bladder problems for a few days. The hospital stay usually is about 2 to 5 days.

After a hysterectomy, the length of the hospital stay may vary from several days to a week. It is common to feel tired or weak for a while. You may have problems with nausea and vomiting, and you may have bladder and bowel problems. The doctor may restrict your diet to liquids at first, with a gradual return to solid food. Most women return to their normal activities within 4 to 8 weeks after surgery.

After a hysterectomy, women no longer have menstrual periods. They cannot become pregnant.

When the ovaries are removed, menopause occurs at once. Hot flashes and other symptoms of menopause caused by surgery may be more severe than those caused by natural menopause. You may wish to discuss this with your doctor before surgery. Some drugs have been shown to help with these symptoms, and they may be more effective if started before surgery.

For some women, a hysterectomy can affect sexual intimacy. You may have feelings of loss that make intimacy difficult. Sharing these feelings with your partner may be helpful. Sometimes couples talk with a counselor to help them express their concerns.

You may want to ask the doctor these questions before having surgery:

- Do you recommend surgery for me? If so, which kind? Will my ovaries be removed? Do I need to have lymph nodes removed?
- What is the goal of surgery?
- What are the risks of surgery?
- How will I feel after surgery? If I have pain, how will it be controlled?
- How long will I have to be in the hospital?
- Will I have any lasting side effects? If I don't have a hysterectomy, will I be able to get pregnant and have children? If I get pregnant later on, is there a bigger chance that I could have a miscarriage?
- When will I be able to resume normal activities?
- How will the surgery affect my sex life?

Radiation Therapy

Radiation therapy (also called radiotherapy) is an option for women with any stage of cervical cancer. Women with early stage cervical cancer may choose radiation therapy instead of surgery. It also may be used after surgery to destroy any cancer cells that remain in the area. Women with cancer that extends beyond the cervix may have radiation therapy and chemotherapy.

Radiation therapy uses high-energy rays to kill cancer cells. It affects cells only in the treated area.

Doctors use two types of radiation therapy to treat cervical cancer. Some women receive both types:

- ***External radiation therapy:*** A large machine directs radiation at your pelvis or other tissues where the cancer has spread. The treatment usually is given in a hospital or clinic. You may receive external radiation 5 days a week for several weeks. Each treatment takes only a few minutes.
- ***Internal radiation therapy:*** A thin tube is placed inside the vagina. A radioactive substance is loaded into the tube. You may need to stay in the hospital while the radioactive source is in place (up to 3 days). Or the treatment session may last a few minutes, and you can go home afterward. Once the radioactive substance is removed, no radioactivity is left in your body. Internal radiation may be repeated two or more times over several weeks.

Side effects depend mainly on how much radiation is given and which part of your body is treated. Radiation to the abdomen and pelvis may cause nausea, vomiting, diarrhea, or urinary problems. You may lose hair in your genital area. Also, your skin in the treated area may become red, dry, and tender.

You may have dryness, itching, or burning in your vagina. Your doctor may advise you to wait to have sex until a few weeks after radiation treatment ends.

You are likely to become tired during radiation therapy, especially in the later weeks of treatment. Resting is important, but doctors usually advise patients to try to stay as active as they can.

Although the side effects of radiation therapy can be upsetting, they can usually be treated or controlled. Talk with your doctor or nurse about ways to relieve discomfort.

It may also help to know that most side effects go away when treatment ends. However, you may wish to discuss with your doctor the possible long-term effects of radiation therapy. For example, the radiation may make the vagina narrower. A narrow vagina can make sex or follow-up exams difficult. There are ways to prevent this problem. If it does occur, however, your health care team can tell you about ways to expand the vagina.

Another long-term effect is that radiation aimed at the pelvic area can harm the ovaries. Menstrual periods usually stop, and women may have hot flashes and vaginal dryness. Menstrual periods are more likely to return for younger women. Women who may want to get pregnant after radiation therapy should ask their health care team about ways to preserve their eggs before treatment starts.

You may find it helpful to read the NCI booklet *Radiation Therapy and You*.

You may want to ask the doctor these questions before having radiation therapy:

- What is the goal of this treatment?
- How will the radiation be given?
- Will I need to stay in the hospital? If so, for how long?
- When will the treatments begin? How often will I have them? When will they end?
- How will I feel during treatment? Are there side effects?
- How will we know if the radiation therapy is working?
- Will I be able to continue my normal activities during treatment?
- How will radiation therapy affect my sex life?
- Are there lasting side effects?
- Will I be able to get pregnant and have children after my treatment is over?

Chemotherapy

For the treatment of cervical cancer, chemotherapy is usually combined with radiation therapy. For cancer that has spread to distant organs, chemotherapy alone may be used.

Chemotherapy uses drugs to kill cancer cells. The drugs for cervical cancer are usually given through a vein (*intravenous*). You may receive chemotherapy in a clinic, at the doctor's office, or at home. Some women need to stay in the hospital during treatment.

The side effects depend mainly on which drugs are given and how much. Chemotherapy kills fast-growing cancer cells, but the drugs can also harm normal cells that divide rapidly:

- **Blood cells:** When chemotherapy lowers the levels of healthy blood cells, you're more likely to get infections, bruise or bleed easily, and feel very weak and tired. Your health care team will check for low levels of blood cells. If your levels are low, your health care team may stop the chemotherapy for a while or reduce the dose of drug. There are also medicines that can help your body make new blood cells.
- **Cells in hair roots:** Chemotherapy may cause hair loss. If you lose your hair, it will grow back, but it may change in color and texture.
- **Cells that line the *digestive tract*:** Chemotherapy can cause a poor appetite, nausea and vomiting, diarrhea, or mouth and lip sores. Your health care team can give you medicines and suggest other ways to help with these problems.

Other side effects include skin rash, tingling or numbness in your hands and feet, hearing problems, loss of balance, joint pain, or swollen legs and feet. Your health care team can suggest ways to control many of these problems. Most go away when treatment ends.

You may wish to read the NCI booklet *Chemotherapy and You*.

You may want to ask the doctor these questions before having chemotherapy:

- Why do I need this treatment?
- Which drug or drugs will I have?
- How do the drugs work?
- What are the expected benefits of the treatment?
- What are the risks and possible side effects of treatment? What can we do about them?
- When will treatment start? When will it end?
- How will treatment affect my normal activities?

Second Opinion

Before starting treatment, you might want a second opinion about your diagnosis and treatment plan. Some people worry that the doctor will be offended if they ask for a second opinion. Usually the opposite is true. Most doctors welcome a second opinion. And many health insurance companies will pay for a second opinion if you or your doctor requests it.

If you get a second opinion, the doctor may agree with your first doctor's diagnosis and treatment plan. Or the second doctor may suggest another approach. Either way, you have more information and perhaps a greater sense of control. You can feel more confident about the decisions you make, knowing that you've looked at your options.

It may take some time and effort to gather your medical records and see another doctor. In most cases, it's not a problem to take several weeks to get a second opinion. The delay in starting treatment usually will not make treatment less effective. To make sure, you should discuss this delay with your doctor.

There are many ways to find a doctor for a second opinion. You can ask your doctor, a local or state medical society, a nearby hospital, or a medical school for names of specialists. NCI's Cancer Information Service at 1-800-4-CANCER can tell you about nearby treatment centers. Other sources can be found in NCI's fact sheet *How To Find a Doctor or Treatment Facility If You Have Cancer*.



Nutrition and Physical Activity

It's important for you to take care of yourself by eating well and staying as active as you can.

You need the right amount of calories to maintain a good weight. You also need enough protein to keep up your strength. Eating well may help you feel better and have more energy.

However, you may not feel like eating during or soon after treatment. You may be uncomfortable or tired. You may find that foods don't taste as good as they used to. In addition, the side effects of treatment (such as poor appetite, nausea, vomiting, or mouth sores) can make it hard to eat well. Your doctor, a registered dietitian, or another health care provider can suggest ways to cope with these problems. Also, the

NCI booklet *Eating Hints for Cancer Patients* has many useful ideas and recipes.

Research shows that people with cancer feel better when they stay active. Walking, yoga, swimming, and other activities can keep you strong and increase your energy. Exercise may reduce nausea and pain and make treatment easier to handle. It also can help relieve stress. Whatever physical activity you choose, be sure to talk to your doctor before you start. Also, if your activity causes you pain or other problems, be sure to let your doctor or nurse know about it.

Follow-up Care

You'll need regular checkups after treatment for cervical cancer. Checkups help ensure that any changes in your health are noted and treated if needed. If you have any health problems between checkups, you should contact your doctor.

Your doctor will check for the return of cancer. Even when the cancer seems to have been completely removed or destroyed, the disease sometimes returns because undetected cancer cells remained somewhere in the body after treatment. Checkups may include a physical exam, Pap tests, and chest x-rays.

The NCI has publications to help answer questions about follow-up care and other concerns. You may find it helpful to read the NCI booklet *Facing Forward: Life After Cancer Treatment*. You may also want to read the NCI fact sheet *Follow-up Care After Cancer Treatment: Questions and Answers*.

You may want to ask your doctor these questions after you have finished treatment:

- How often will I need checkups?
- How often will I need a Pap test?
- What other follow-up tests do you suggest for me?
- Between checkups, what health problems or symptoms should I tell you about?

Sources of Support

Learning you have cervical cancer can change your life and the lives of those close to you. These changes can be hard to handle. It's normal for you, your family, and your friends to have many different and sometimes confusing feelings.

Concerns about treatments and managing side effects, hospital stays, and medical bills are common. You may also worry about caring for your family, keeping your job, or continuing daily activities.

Here's where you can go for support:

- Doctors, nurses, and other members of your health care team can answer questions about treatment, working, or other activities.
- Social workers, counselors, or members of the clergy can be helpful if you want to talk about your feelings or concerns. Often, social workers can suggest resources for financial aid, transportation, home care, or emotional support.

- Support groups also can help. In these groups, patients or their family members meet with other patients or their families to share what they have learned about coping with the disease and the effects of treatment. Groups may offer support in person, over the telephone, or on the Internet. You may want to talk with a member of your health care team about finding a support group.
- Information specialists at **1-800-4-CANCER** and at **LiveHelp** (<http://www.cancer.gov/help>) can help you locate programs, services, and publications. They can send you a list of organizations that offer services to people with cancer.
- Your doctor or a sex counselor may be helpful if you and your partner are concerned about the effects of cervical cancer on your sexual relationship. You and your partner may find it helps to discuss your concerns.

For tips on coping, you may want to read the NCI booklet *Taking Time: Support for People With Cancer*.

Taking Part in Cancer Research

Doctors all over the country are conducting many types of clinical trials (research studies in which people volunteer to take part). They are studying new ways to treat cervical cancer. Some are also studying therapies that may improve the quality of life for women during or after cancer treatment.

Clinical trials are designed to answer important questions and to find out whether new approaches are safe and effective. Research already has led to advances in the prevention, diagnosis, and treatment of cervical cancer. Doctors continue to search for new and better ways to treat cervical cancer. They are testing new treatments, including new drugs, combinations, and schedules. Some trials are combining chemotherapy, surgery, and radiation therapy.

Doctors also are studying surgery to remove *sentinel lymph nodes*. A sentinel lymph node is the first lymph node to which the cancer is likely to spread. Today, surgeons often have to remove many lymph nodes and check each of them for cancer. But if the research shows that it's possible to identify the sentinel lymph node (the lymph node most likely to have cancer), doctors may be able to avoid more surgery to remove other lymph nodes.

Even if the people in a trial don't benefit directly, they may still make an important contribution by helping doctors learn more about cervical cancer and how to control it. Although clinical trials may pose some risks, researchers do all they can to protect their patients.



If you are interested in taking part in a clinical trial, talk with your doctor. You may want to read the NCI booklet *Taking Part in Cancer Treatment Research Studies*. It describes how treatment studies are carried out and explains their possible benefits and risks.

NCI's Web site includes a section on clinical trials at <http://www.cancer.gov/clinicaltrials>. It has general information about clinical trials as well as detailed information about specific ongoing studies of cervical cancer. NCI's Information Specialists at **1-800-4-CANCER** or at **LiveHelp** at <http://www.cancer.gov/help> can answer questions and provide information about clinical trials.

Dictionary

Definitions of thousands of terms are on the NCI Web site in the NCI Dictionary of Cancer Terms. You can access it at <http://www.cancer.gov/dictionary>.

Abdomen (AB-doh-men): The area of the body that contains the pancreas, stomach, intestines, liver, gallbladder, and other organs.

AIDS: Acquired immunodeficiency syndrome (uh-KWY-erd IH-myoo-noh-dih-FIH-shun-see SIN-drome). A disease caused by human immunodeficiency virus (HIV). People with AIDS are at an increased risk for developing certain cancers and for infections that usually occur only in individuals with a weak immune system.

Benign (beh-NINE): Not cancerous. Benign tumors may grow larger but do not spread to other parts of the body.

Biopsy (BY-op-see): The removal of cells or tissues for examination by a pathologist. The pathologist may study the tissue under a microscope or perform other tests on the cells or tissue. There are many different types of biopsy procedures. The most common types include: (1) incisional biopsy, in which only a sample of tissue is removed; (2) excisional biopsy, in which an entire lump or suspicious area is removed; and (3) needle biopsy, in which a sample of tissue or fluid is removed with a needle. When a wide needle is used, the procedure is called a core biopsy. When a thin needle is used, the procedure is called a fine-needle aspiration biopsy.

Bladder (BLA-der): The organ that stores urine.

Cancer (KAN-ser): A term for diseases in which abnormal cells divide without control. Cancer cells can invade nearby tissues and can spread to other parts of the body through the blood and lymph systems.

Cell: The individual unit that makes up the tissues of the body. All living things are made up of one or more cells.

Cervical cancer (SER-vih-kul KAN-ser): Cancer that forms in tissues of the cervix (the organ connecting the uterus and vagina). It is usually a slow-growing cancer that may not have symptoms but can be found with regular Pap tests (a procedure in which cells are scraped from the cervix and looked at under a microscope).

Cervix (SER-viks): The lower, narrow end of the uterus that forms a canal between the uterus and vagina.

Chemotherapy (KEE-moh-THAYR-uh-pee): Treatment with drugs that kill cancer cells.

Clinical trial: A type of research study that tests how well new medical approaches work in people. These studies test new methods of screening, prevention, diagnosis, or treatment of a disease. Also called a clinical study.

Colposcope (KOL-puh-SKOPE): A lighted magnifying instrument used to examine the vagina and cervix.

Colposcopy (kol-POSS-koh-pee): Examination of the vagina and cervix using a lighted magnifying instrument called a colposcope.

Conization (ko-nih-ZAY-shun): Surgery to remove a cone-shaped piece of tissue from the cervix and cervical canal. Conization may be used to diagnose or treat a cervical condition. Also called cone biopsy.

Contrast material: A dye or other substance that helps to show abnormal areas inside the body. It is given by injection into a vein, by enema, or by mouth. Contrast material may be used with x-rays, CT scans, MRI, or other imaging tests.

CT scan: Computed tomography scan (kum-PYOO-ted tuh-MAH-gruh-fee skan). A series of detailed pictures of areas inside the body taken from different angles; the pictures are created by a computer linked to an x-ray machine. Also called computerized tomography and computerized axial tomography (CAT) scan.

Curette (kyoo-RET): A spoon-shaped instrument with a sharp edge.

Cyst (sist): A sac or capsule in the body. It may be filled with fluid or other material.

Diethylstilbestrol (dye-EH-thul-stil-BES-trol): DES. A synthetic form of the hormone estrogen that was prescribed to pregnant women between about 1940 and 1971 because it was thought to prevent miscarriages. DES may increase the risk of uterine, ovarian, or breast cancer in women who took it. DES also has been linked to an increased risk of clear cell carcinoma of the vagina or cervix in daughters exposed to DES before birth.

Digestive tract (dy-JES-tiv): The organs through which food and liquids pass when they are swallowed, digested, and eliminated. These organs are the mouth, esophagus, stomach, small and large intestines, and rectum.

Endocervical curettage (en-do-SER-vih-kul kyoo-reh-TAHZH): A procedure in which the mucous membrane of the cervical canal is scraped using a spoon-shaped instrument called a curette.

Enema: The injection of a liquid through the anus into the large bowel.

External radiation therapy (RAY-dee-AY-shun THAYR-uh-pee): A type of radiation therapy that uses a machine to aim high-energy rays at the cancer from outside of the body. Also called external beam radiation therapy.

Fallopian tube (fuh-LOH-pee-in): A slender tube through which eggs pass from an ovary to the uterus. In the female reproductive tract, there is one ovary and one fallopian tube on each side of the uterus.

General anesthesia (A-nes-THEE-zhuh): Drugs that cause loss of feeling or awareness and put the person to sleep.

Genital wart: A raised growth on the surface of the genitals caused by human papillomavirus (HPV) infection. The HPV in genital warts is very contagious and can be spread by skin-to-skin contact, usually during oral, anal, or genital sex with an infected partner. Also called condyloma.

Gynecologic oncologist (GY-neh-kuh-LAH-jik on-KAH-loh-jist): A doctor who specializes in treating cancers of the female reproductive organs.

Gynecologist (GY-neh-KAH-loh-jist): A doctor who specializes in treating diseases of the female reproductive organs.

HIV: Human immunodeficiency virus (HYOO-mun ih-MYOO-noh-dih-FIH-shun-see VY-rus). The cause of acquired immunodeficiency syndrome (AIDS).

Human papillomavirus (HYOO-mun PA-pih-LOH-muh-VY-rus): HPV. A member of a family of viruses that can cause abnormal tissue growth (for example, genital warts) and other changes to cells. Infection with certain types of HPV increases the risk of developing cervical cancer.

Immune system (ih-MYOON SIS-tem): The complex group of organs and cells that defends the body against infections and other diseases.

Infection: Invasion and multiplication of germs in the body. Infections can occur in any part of the body, and can spread throughout the body. The germs may be bacteria, viruses, yeast, or fungi. They can cause a

fever and other problems, depending on where the infection occurs. When the body's natural defense system is strong, it can often fight the germs and prevent infection. Some cancer treatments can weaken the natural defense system.

Injection: Use of a syringe and needle to push fluids or drugs into the body; often called a “shot.”

Internal radiation therapy (in-TER-nul RAY-dee-AY-shun THAYR-uh-pee): A type of radiation therapy in which radioactive material sealed in needles, seeds, wires, or catheters is placed directly into or near a tumor. Also called brachytherapy, radiation brachytherapy, and implant radiation therapy.

Intravenous (IN-truh-VEE-nus): IV. Into or within a vein. Intravenous usually refers to a way of giving a drug or other substance through a needle or tube inserted into a vein.

Invasive cervical cancer (in-VAY-siv SER-vih-kul KAN-ser): Cancer that has spread from the surface of the cervix to tissue deeper in the cervix or to other parts of the body.

LEEP: Loop electrosurgical excision procedure (ee-LEK-troh-SER-jih-kul ek-SIH-zhun). A technique that uses electric current passed through a thin wire loop to remove abnormal tissue. Also called loop excision.

Local anesthesia (A-nes-THEE-zhuh): Drugs that cause a temporary loss of feeling in one part of the body. The patient remains awake but has no feeling in the part of the body treated with the anesthetic.

Lymph node (limf node): A rounded mass of lymphatic tissue that is surrounded by a capsule of connective tissue. Lymph nodes filter lymph (lymphatic fluid), and they store lymphocytes (white blood cells). They are located along lymphatic vessels. Also called a lymph gland.

Lymph vessel (limf): A thin tube that carries lymph (lymphatic fluid) and white blood cells through the lymphatic system. Also called lymphatic vessel.

Malignant (muh-LIG-nunt): Cancerous. Malignant tumors can invade and destroy nearby tissue and spread to other parts of the body.

Medical oncologist (MEH-dih-kul on-KAH-loh-jist): A doctor who specializes in diagnosing and treating cancer using chemotherapy, hormonal therapy, and biological therapy. A medical oncologist often is the main health care provider for someone who has cancer. A medical oncologist also gives supportive care and may coordinate treatment given by other specialists.

Menopause (MEH-nuh-PAWZ): The time of life when a woman's menstrual periods stop. A woman is in menopause when she hasn't had a period for 12 months in a row. Also called change of life.

Menstrual period (MEN-stroo-al PEER-ee-od): The periodic discharge of blood and tissue from the uterus. From puberty until menopause, menstruation occurs about every 28 days, but does not occur during pregnancy.

Metastasis (meh-TAS-tuh-sis): The spread of cancer from one part of the body to another. A tumor formed by cells that have spread is called a "metastatic tumor" or a "metastasis." The metastatic tumor contains cells that are like those in the original (primary) tumor. The plural form of metastasis is metastases (meh-TAS-tuh-seez).

MRI: Magnetic resonance imaging (mag-NEH-tik REH-zuh-nunts IH-muh-jing). A procedure in which radio waves and a powerful magnet linked to a computer are used to create detailed pictures of areas inside the body. These pictures can show the difference between normal and diseased tissue. MRI makes better images of organs and soft tissue than other scanning

techniques, such as computed tomography (CT) or x-ray. MRI is especially useful for imaging the brain, the spine, the soft tissue of joints, and the inside of bones. Also called nuclear magnetic resonance imaging (NMRI).

Mucus (MYOO-kus): A thick, slippery fluid produced by the membranes that line certain organs of the body, including the nose, mouth, throat, and vagina.

Oncology nurse (on-KAH-loh-jee): A nurse who specializes in treating and caring for people who have cancer.

Organ: A part of the body that performs a specific function. For example, the heart is an organ.

Ovary (OH-vuh-ree): One of a pair of female reproductive glands in which the ova, or eggs, are formed. The ovaries are located in the pelvis, one on each side of the uterus.

Pap test: A procedure in which cells are scraped from the cervix for examination under a microscope. It is used to detect cancer and changes that may lead to cancer. A Pap test can also show noncancerous conditions, such as infection or inflammation. Also called a Pap smear.

Pathologist (puh-THAH-loh-jist): A doctor who identifies diseases by studying cells and tissues under a microscope.

Pelvic exam: A physical examination in which the health care professional will feel for lumps or changes in the shape of the vagina, cervix, uterus, fallopian tubes, ovaries, and rectum. The health care professional will also use a speculum to open the vagina to look at the cervix and take samples for a Pap test. Also called an internal examination.

Pelvic wall: The muscles and ligaments that line the part of the body between the hips.

Pelvis: The lower part of the abdomen, located between the hip bones.

PET scan: Positron emission tomography (PAH-zih-tron ee-MIH-shun toh-MAH-gruh-fee) scan. A procedure in which a small amount of radioactive glucose (sugar) is injected into a vein, and a scanner is used to make detailed, computerized pictures of areas inside the body where the glucose is used. Because cancer cells often use more glucose than normal cells, the pictures can be used to find cancer cells in the body.

Polyp (PAH-lip): A growth that protrudes from a mucous membrane.

Precancer (PRE-KAN-ser): A term used to describe a condition that may (or is likely to) become cancer. Also called premalignant.

Punch biopsy (BY-op-see): Removal of a small disk-shaped sample of tissue using a sharp, hollow device. The tissue is then examined under a microscope.

Radiation oncologist (RAY-dee-AY-shun on-KAH-loh-jist): A doctor who specializes in using radiation to treat cancer.

Radiation therapy (RAY-dee-AY-shun THAYR-uh-pee): The use of high-energy radiation from x-rays, gamma rays, neutrons, protons, and other sources to kill cancer cells and shrink tumors. Radiation may come from a machine outside the body (external beam radiation therapy), or it may come from radioactive material placed in the body near cancer cells (internal radiation therapy). Systemic radiation therapy uses a radioactive substance, such as a radiolabeled monoclonal antibody, that circulates throughout the body. Also called radiotherapy and irradiation.

Radical hysterectomy (RA-dih-kul HIS-teh-REK-toh-mee): Surgery to remove the uterus, cervix, and part of the vagina. The ovaries, fallopian tubes, and nearby lymph nodes may also be removed.

Radical trachelectomy (RA-dih-kul TRAY-kee-LEK-toh-mee): Surgery to remove the cervix (the end of the uterus that forms a canal between the uterus and the vagina), the upper part of the vagina, and certain pelvic lymph nodes.

Radioactive (RAY-dee-oh-AK-tiv): Giving off radiation.

Rectum: The last several inches of the large intestine. The rectum ends at the anus.

Recurrent cancer (ree-KER-ent KAN-ser): Cancer that has recurred (come back), usually after a period of time during which the cancer could not be detected. The cancer may come back to the same place as the original (primary) tumor or to another place in the body. Also called recurrence.

Registered dietitian (dy-eh-TIH-shun): A health professional with special training in the use of diet and nutrition to keep the body healthy. A registered dietitian may help the medical team improve the nutritional health of a patient.

Reproductive system (REE-pruh-DUK-tiv): The organs involved in producing offspring. In women, this system includes the ovaries, the fallopian tubes, the uterus (womb), the cervix, and the vagina (birth canal). In men, it includes the prostate, the testes, and the penis.

Risk factor: Something that may increase the chance of developing a disease. Some examples of risk factors for cancer include age, a family history of certain cancers, use of tobacco products, certain eating habits, obesity, lack of exercise, exposure to radiation or other cancer-causing agents, and certain genetic changes.

Salpingo-oophorectomy (sal-PIN-goh-oh-oh-foh-REK-toh-mee): Surgical removal of the fallopian tubes and ovaries.

Sentinel lymph node: The first lymph node to which cancer is likely to spread from the primary tumor. When cancer spreads, the cancer cells may appear first in the sentinel node before spreading to other lymph nodes.

Side effect: A problem that occurs when treatment affects healthy tissues or organs. Some common side effects of cancer treatment are fatigue, pain, nausea, vomiting, decreased blood cell counts, hair loss, and mouth sores.

Sperm: The male reproductive cell, formed in the testicle. A sperm unites with an egg to form an embryo.

Supportive care: Care given to improve the quality of life of patients who have a serious or life-threatening disease. The goal of supportive care is to prevent or treat as early as possible the symptoms of a disease, side effects caused by treatment of a disease, and psychological, social, and spiritual problems related to a disease or its treatment. Also called palliative care, comfort care, and symptom management.

Surgeon: A doctor who removes or repairs a part of the body by operating on the patient.

Surgery (SER-juh-ree): A procedure to remove or repair a part of the body or to find out whether disease is present. An operation.

Tissue (TISH-oo): A group or layer of cells that work together to perform a specific function.

Total hysterectomy (HIS-teh-REK-toh-mee): Surgery to remove the entire uterus, including the cervix. Sometimes, not all of the cervix is removed. Also called complete hysterectomy.

Tumor (TOO-mer): An abnormal mass of tissue that results when cells divide more than they should or do not die when they should. Tumors may be benign (not cancerous) or malignant (cancerous). Also called neoplasm.

Uterus (YOO-ter-us): The small, hollow, pear-shaped organ in a woman's pelvis. This is the organ in which a baby grows. Also called the womb.

Vagina (vuh-JY-nuh): The muscular canal extending from the uterus to the exterior of the body. Also called birth canal.

Virus (VY-rus): A microorganism that can infect cells and cause disease.

X-ray: A type of high-energy radiation. In low doses, x-rays are used to diagnose diseases by making pictures of the inside of the body. In high doses, x-rays are used to treat cancer.

National Cancer Institute Information Resources

You may want more information for yourself, your family, and your doctor. The following NCI services are available to help you.

Telephone

NCI's Cancer Information Service (CIS) provides accurate, up-to-date information about cancer to patients and their families, health professionals, and the general public. Information specialists translate the latest scientific information into plain language, and they will respond in English or Spanish, as well as through TRS providers for the hearing or speech impaired. Calls to the CIS are confidential and free.

Telephone: **1-800-4-CANCER** (1-800-422-6237)

Internet

NCI's Web site provides information from numerous NCI sources. It offers current information about cancer prevention, screening, diagnosis, treatment, genetics, supportive care, and ongoing clinical trials. It has information about NCI's research programs, funding opportunities, and cancer statistics.

Web site: **<http://www.cancer.gov>**

Spanish Web site: **<http://www.cancer.gov/espanol>**

If you're unable to find what you need on the Web site, contact NCI staff. Use the online contact form at **<http://www.cancer.gov/contact>** or send an email to **cancergovstaff@mail.nih.gov**.

Also, information specialists provide live, online assistance through **LiveHelp** at **<http://www.cancer.gov/help>**.

National Cancer Institute Publications

NCI provides publications about cancer, including the booklets and fact sheets mentioned in this booklet. Many are available in both English and Spanish.

You may order these publications by telephone, on the Internet, or by mail. You may also read them online and print your own copy.

- **By telephone:** People in the United States and its territories may order these and other NCI publications by calling the NCI's Cancer Information Service at **1-800-4-CANCER**.
- **On the Internet:** Many NCI publications may be viewed, downloaded, and ordered from **<http://www.cancer.gov/publications>** on the Internet. People in the United States and its territories may use this Web site to order printed copies. This Web site also explains how people outside the United States can mail or fax their requests for NCI booklets.
- **By mail:** NCI publications may be ordered by writing to the address below:
Publications Ordering Service
National Cancer Institute
P.O. Box 24128
Baltimore, MD 21227

Cervical Changes and Pap Tests

- *Understanding Cervical Changes: A Health Guide for Women*
- *Pap Tests: Things to Know*
- *Pap Tests: A Healthy Habit for You*
- *The Pap Test: Questions and Answers*

HPV

- *Human Papillomaviruses and Cancer: Questions and Answers*
- *Human Papillomavirus (HPV) Vaccines: Questions and Answers*

Clinical Trials

- *Taking Part in Cancer Treatment Research Studies*

Finding a Doctor, Support Groups, or Other Organizations

- *How To Find a Doctor or Treatment Facility If You Have Cancer* (also in Spanish)
- *Cancer Support Groups: Questions and Answers*
- *National Organizations That Offer Services to People With Cancer and Their Families* (also in Spanish)

Cancer Treatment and Supportive Care

- *Radiation Therapy and You* (also in Spanish)
- *Understanding Radiation Therapy: What To Know About External Beam Radiation Therapy* (also in Spanish)
- *Understanding Radiation Therapy: What To Know About Brachytherapy (A Type of Internal Radiation Therapy)* (also in Spanish)
- *Chemotherapy and You* (also in Spanish)
- *Eating Hints for Cancer Patients* (also in Spanish)
- *Pain Control* (also in Spanish)

Coping With Cancer

- *Taking Time: Support for People with Cancer*
- *Managing Radiation Therapy Side Effects: What Women Can Do About Changes in Sexuality and Fertility Side Effects* (also in Spanish)

Life After Cancer Treatment

- *Facing Forward: Life After Cancer Treatment* (also in Spanish)
- *Follow-up Care After Cancer Treatment: Questions and Answers*
- *Facing Forward: Ways You Can Make a Difference in Cancer*

Advanced or Recurrent Cancer

- *Coping With Advanced Cancer*
- *When Cancer Returns*

Complementary Medicine

- *Thinking about Complementary & Alternative Medicine: A guide for people with cancer*
- *Complementary and Alternative Medicine in Cancer Treatment: Questions and Answers* (also in Spanish)

Caregivers

- *When Someone You Love Is Being Treated for Cancer: Support for Caregivers*
- *When Someone You Love Has Advanced Cancer: Support for Caregivers*
- *Facing Forward: When Someone You Love Has Completed Cancer Treatment*
- *Caring for the Caregiver: Support for Cancer Caregivers*

The National Cancer Institute

The National Cancer Institute (NCI), part of the National Institutes of Health, is the Federal Government's principal agency for cancer research and training. NCI conducts and supports basic and clinical research to find better ways to prevent, diagnose, and treat cancer. The Institute also supports education and training for cancer research and treatment programs. In addition, NCI is responsible for communicating its research findings to the medical community and the public.

Copyright permission

You must have permission to use or reproduce the artwork in this booklet for other purposes. The artwork was created by private sector illustrators, designers, and/or photographers, and they retain the copyrights to artwork they develop under contract to NCI. In many cases, artists will grant you permission, but they may require a credit line and/or usage fees. To inquire about permission to reproduce NCI artwork, please write to:

Office of Communications and Education
National Cancer Institute
6116 Executive Boulevard, Room 3066
MSC 8323
Rockville, MD 20892-8323

You do not need our permission to reproduce or translate NCI written text. The written text of this NCI booklet is in the public domain, and it is not subject to copyright restrictions. However, we would appreciate a credit line and a copy of your translation of this NCI booklet.

