

National Cancer Institute



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What You Need  
To Know About™

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# Skin Cancer

U.S. DEPARTMENT OF  
HEALTH AND HUMAN SERVICES  
National Institutes of Health

This booklet is about skin cancer. The Cancer Information Service can help you learn more about this disease. The staff can talk with you in English or Spanish.

The number is **1-800-4-CANCER** (1-800-422-6237). The number for callers with TTY equipment is 1-800-332-8615. Your call is free.

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Este folleto es acerca del cáncer de la piel. Llame al Servicio de Información sobre el Cáncer para saber más sobre esta enfermedad. Este servicio tiene personal que habla español.

El número a llamar es el **1-800-4-CANCER** (1-800-422-6237). Personas con equipo TTY pueden llamar al 1-800-332-8615. Su llamada es gratis.

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## What You Need To Know About™ Skin Cancer

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**T**his National Cancer Institute (NCI) booklet has important information about skin *cancer*.\* Skin cancer is the most common type of cancer in this country. About one million Americans develop skin cancer each year.

You will read about causes and ways to prevent skin cancer. You will find information about symptoms, diagnosis, and treatment. You will also learn how to do a skin self-exam.

Scientists are studying skin cancer to find out more about how it develops. And they are looking for better ways to prevent and treat it.

There are many types of skin cancer. This booklet is about the two most common types, basal cell cancer and squamous cell cancer. These are sometimes called nonmelanoma skin cancer. A much less common type of skin cancer, melanoma, is not discussed in this booklet. To learn about this disease, see the NCI booklet *What You Need To Know About Melanoma*.

NCI provides information about cancer, including the publications mentioned in this booklet. You can order these materials by telephone or on the Internet. You can also read them on the Internet and print your own copy.

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\*Words that may be new to readers appear in *italics*. The “Dictionary” section explains these terms. Some words in the “Dictionary” have a “sounds-like” spelling to show how to pronounce them.

- **Telephone (1–800–4–CANCER):** Information Specialists at NCI’s Cancer Information Service can answer your questions about cancer. They also can send NCI booklets, fact sheets, and other materials.
- **Internet (<http://www.cancer.gov>):** You can use NCI’s Web site to find a wide range of up-to-date information. For example, you can find many NCI booklets and fact sheets at <http://www.cancer.gov/publications>. 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.

You can ask questions online and get help right away from Information Specialists through *LiveHelp*. (Click on “Need Help?” at <http://www.cancer.gov>. Then click on “Connect to LiveHelp.”)

## The Skin

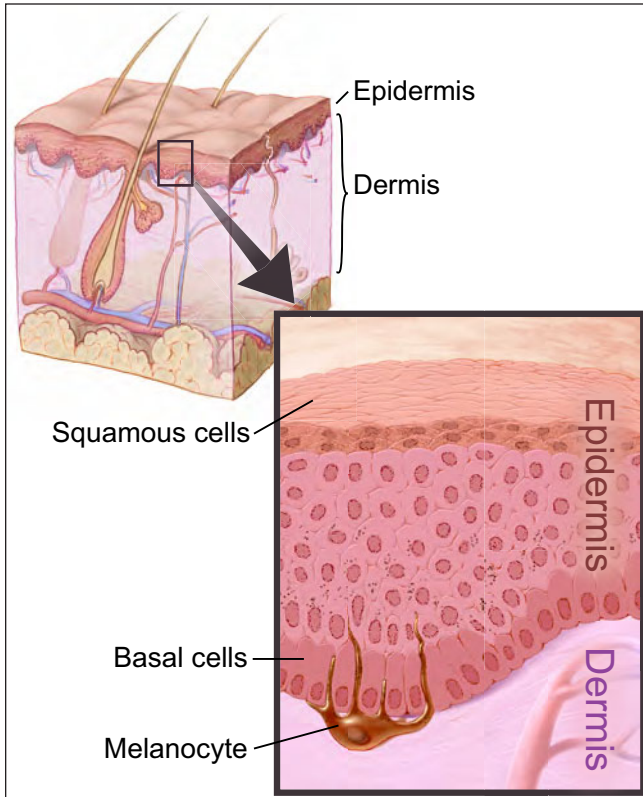
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**T**he skin is the body’s largest *organ*. It protects against heat, light, injury, and *infection*. It helps control body temperature. It stores water and fat. The skin also makes vitamin D.

The skin has two main layers:

- **Epidermis:** The epidermis is the top layer of the skin. It is mostly made of flat *cells*. These are *squamous cells*. Under the squamous cells in the deepest part of the epidermis are round cells called *basal cells*. Cells called *melanocytes* make the pigment (color) found in skin and are located in the lower part of the epidermis.

- Dermis:** The dermis is under the epidermis. It contains blood vessels, *lymph* vessels, and *glands*. Some of these glands make sweat, which helps cool the body. Other glands make *sebum*. Sebum is an oily substance that helps keep the skin from drying out. Sweat and sebum reach the surface of the skin through tiny openings called pores.



This picture shows the layers of the skin.

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## Understanding Skin Cancer

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**S**kin cancer begins in cells, the building blocks that make up the skin. Normally, skin cells grow and divide to form new cells. Every day skin cells grow old and die, and new cells take their place.

Sometimes, this orderly process goes wrong. New cells form when the skin does not need them, and old cells do not die when they should. These extra cells can form a mass of *tissue* called a growth or *tumor*.

Growths or tumors can be *benign* or *malignant*:

- **Benign growths** are not cancer:
  - Benign growths are rarely life-threatening.
  - Generally, benign growths can be removed. They usually do not grow back.
  - Cells from benign growths do not invade the tissues around them.
  - Cells from benign growths do not spread to other parts of the body.
- **Malignant growths** are cancer:
  - Malignant growths are generally more serious than benign growths. They may be life-threatening. However, the two most common types of skin cancer cause only about one out of every thousand deaths from cancer.
  - Malignant growths often can be removed. But sometimes they grow back.
  - Cells from malignant growths can invade and damage nearby tissues and organs.
  - Cells from some malignant growths can spread to other parts of the body. The spread of cancer is called *metastasis*.



## Types of Skin Cancer

Skin cancers are named for the type of cells that become *cancerous*.

The two most common types of skin cancer are *basal cell cancer* and *squamous cell cancer*. These cancers usually form on the head, face, neck, hands, and arms. These areas are exposed to the sun. But skin cancer can occur anywhere.

- **Basal cell skin cancer** grows slowly. It usually occurs on areas of the skin that have been in the sun. It is most common on the face. Basal cell cancer rarely spreads to other parts of the body.
- **Squamous cell skin cancer** also occurs on parts of the skin that have been in the sun. But it also may be in places that are not in the sun. Squamous cell cancer sometimes spreads to *lymph nodes* and organs inside the body.

If skin cancer spreads from its original place to another part of the body, the new growth has the same kind of abnormal cells and the same name as the original growth. It is still called skin cancer.

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## Risk Factors

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**D**octors cannot explain why one person develops skin cancer and another does not. However, we do know that skin cancer is not contagious. You cannot “catch” it from another person.

Research has shown that people with certain *risk factors* are more likely than others to develop skin cancer. A risk factor is something that may increase the chance of developing a disease.

Studies have found the following risk factors for skin cancer:

- **Ultraviolet (UV) radiation:** UV radiation comes from the sun, sunlamps, tanning beds, or tanning booths. A person's risk of skin cancer is related to lifetime exposure to UV radiation. Most skin cancer appears after age 50, but the sun damages the skin from an early age.

UV radiation affects everyone. People who have fair skin that freckles or burns easily are at greater risk. These people often also have red or blond hair and light-colored eyes. But even people who tan can get skin cancer.

People who live in areas that get high levels of UV radiation have a higher risk of skin cancer. In the United States, areas in the south (such as Texas and Florida) get more UV radiation than areas in the north (such as Minnesota). Also, people who live in the mountains get high levels of UV radiation.

UV radiation is present even in cold weather or on a cloudy day.

- **Scars or burns** on the skin
- **Infection** with certain *human papillomaviruses*
- **Exposure to arsenic** at work
- **Chronic skin inflammation or skin ulcers**
- **Diseases that make the skin sensitive to the sun**, such as *xeroderma pigmentosum*, *albinism*, and *basal cell nevus syndrome*
- **Radiation therapy**
- **Medical conditions or drugs that suppress the immune system**
- **Personal history of one or more skin cancers**
- **Family history of skin cancer**

**Actinic keratosis:** Actinic keratosis is a type of flat, scaly growth on the skin. It is most often found on areas exposed to the sun, especially the face and the backs of the hands. The growths may appear as rough red or brown patches on the skin. They may also appear as cracking or peeling of the lower lip that does not heal.

Without treatment, a small number of these scaly growths may turn into squamous cell cancer.

- **Bowen's disease:** Bowen's disease is a type of scaly or thickened patch on the skin. It may turn into squamous cell skin cancer.

If you think you may be at risk for skin cancer, you should discuss this concern with your doctor. Your doctor may be able to suggest ways to reduce your risk and can plan a schedule for checkups.

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## Prevention

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**T**he best way to prevent skin cancer is to protect yourself from the sun. Also, protect children from an early age. Doctors suggest that people of all ages limit their time in the sun and avoid other sources of UV radiation:

- It is best to stay out of the midday sun (from mid-morning to late afternoon) whenever you can. You also should protect yourself from UV radiation reflected by sand, water, snow, and ice. UV radiation can go through light clothing, windshields, windows, and clouds.
- Wear long sleeves and long pants of tightly woven fabrics, a hat with a wide brim, and sunglasses that absorb UV.

- Use *sunscreen* lotions. Sunscreen may help prevent skin cancer, especially broad-spectrum sunscreen (to filter *UVB* and *UVA* rays) with a *sun protection factor* (SPF) of at least 15. But you still need to avoid the sun and wear clothing to protect your skin.
- Stay away from sunlamps and tanning booths.

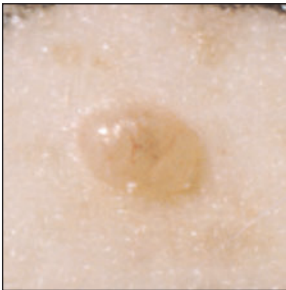
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## Symptoms

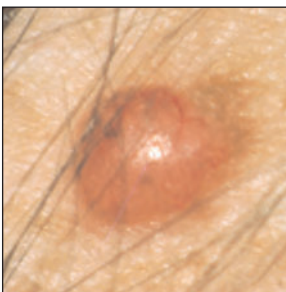
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**M**ost basal cell and squamous cell skin cancers can be cured if found and treated early.

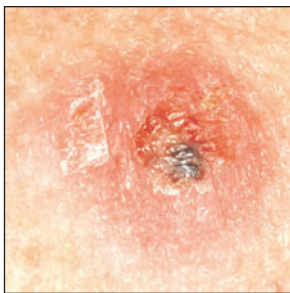
A change on the skin is the most common sign of skin cancer. This may be a new growth, a sore that doesn't heal, or a change in an old growth. Not all skin cancers look the same. Skin changes to watch for:



- Small, smooth, shiny, pale, or waxy lump



- Firm, red lump



- Sore or lump that bleeds or develops a crust or a scab



- Flat red spot that is rough, dry, or scaly and may become itchy or tender



- Red or brown patch that is rough and scaly

Sometimes skin cancer is painful, but usually it is not.

Checking your skin for new growths or other changes is a good idea. A guide for checking your skin is on page 25. Keep in mind that changes are not a sure sign of skin cancer. Still, you should report any changes to your health care provider right away. You may need to see a *dermatologist*, a doctor who has special training in the diagnosis and treatment of skin problems.

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## Diagnosis

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**I**f you have a change on the skin, the doctor must find out whether it is due to cancer or to some other cause. Your doctor removes all or part of the area that does not look normal. The sample goes to a lab. A *pathologist* checks the sample under a microscope. This is a *biopsy*. A biopsy is the only sure way to diagnose skin cancer.



You may have the biopsy in the doctor's office or as an outpatient in a clinic or hospital. Where it is done depends on the size and place of the abnormal area on your skin. You probably will have *local anesthesia*.

There are four common types of skin biopsies:

1. **Punch biopsy:** The doctor uses a sharp, hollow tool to remove a circle of tissue from the abnormal area.
2. **Incisional biopsy:** The doctor uses a *scalpel* to remove part of the growth.
3. **Excisional biopsy:** The doctor uses a scalpel to remove the entire growth and some tissue around it.
4. **Shave biopsy:** The doctor uses a thin, sharp blade to shave off the abnormal growth.

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

- Which type of biopsy do you recommend for me?
- How will the biopsy be done?
- 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 biopsy?
- What will my scar look like?
- How soon will I know the results? Who will explain them to me?

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## Staging

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If the biopsy shows that you have cancer, your doctor needs to know the extent (*stage*) of the disease. In very few cases, the doctor may check your lymph nodes to stage the cancer.

The stage is based on:

- The size of the growth
- How deeply it has grown beneath the top layer of skin
- Whether it has spread to nearby lymph nodes or to other parts of the body

These are the stages of skin cancer:

- **Stage 0:** The cancer involves only the top layer of skin. It is *carcinoma in situ*.
- **Stage I:** The growth is 2 centimeters wide (three-quarters of an inch) or smaller.
- **Stage II:** The growth is larger than 2 centimeters wide (three-quarters of an inch).
- **Stage III:** The cancer has spread below the skin to *cartilage*, muscle, bone, or to nearby lymph nodes. It has not spread to other places in the body.
- **Stage IV:** The cancer has spread to other places in the body.



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## Treatment

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**S**ometimes all of the cancer is removed during the biopsy. In such cases, no more treatment is needed. If you do need more treatment, your doctor will describe your options.

Treatment for skin cancer depends on the type and stage of the disease, the size and place of the growth, and your general health and medical history. In most cases, the aim of treatment is to remove or destroy the cancer completely.

It often helps to make a list of questions before an appointment. To help remember what the doctor says, you may take notes or ask whether you may use a tape recorder. You may also want to have a family member or friend with you when you talk to the doctor—to take part in the discussion, to take notes, or just to listen.

Your doctor may refer you to a specialist, or you may ask for a referral. Specialists who treat skin cancer include *dermatologists*, *surgeons*, and *radiation oncologists*.

### Getting a Second Opinion

Before you have treatment, you might want a second opinion about the diagnosis and treatment plan. Many insurance companies cover a second opinion if you or your doctor requests it. It may take some time and effort to gather medical records and arrange to see another doctor. Usually it is not a problem to take several weeks to get a second opinion. In most cases, the delay will not make treatment less effective. To make sure, you should discuss this delay with your doctor. Sometimes people with skin cancer need treatment right away.

There are a number of ways to find a doctor for a second opinion:

- Your doctor may refer you to one or more specialists. At cancer centers, several specialists often work together as a team.
- NCI's Cancer Information Service, at **1-800-4-CANCER**, can tell you about nearby treatment centers. Information Specialists also can provide online assistance through *LiveHelp* at **<http://www.cancer.gov>**.
- A local or state medical society, a nearby hospital, or a medical school can usually provide the names of specialists.
- The American Board of Medical Specialties (ABMS) has a list of doctors who have had training and passed exams in their specialty. You can find this list in the *Official ABMS Directory of Board Certified Medical Specialists*. This Directory is in most public libraries. Also, ABMS offers this information at **<http://www.abms.org>**. (Click on "Who's Certified.")
- NCI provides a helpful fact sheet called "How To Find a Doctor or Treatment Facility If You Have Cancer."

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

- What is the stage of the disease?
- What are my treatment choices? Which do you recommend for me? Why?
- 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 my side effects?
- Will the treatment affect my appearance? If so, can a *reconstructive surgeon* or *plastic surgeon* help?
- Will treatment affect my normal activities? If so, for how long?
- What is the treatment likely to cost? Does my insurance cover this treatment?
- How often should I have checkups?
- Would a *clinical trial* (research study) be appropriate for me?

## Treatment Methods

Your doctor can describe your treatment choices and what to expect. You and your doctor can work together to develop a treatment plan that meets your needs.

*Surgery* is the usual treatment for people with skin cancer. In some cases, the doctor may suggest *topical chemotherapy*, *photodynamic therapy*, or *radiation therapy*.

Because skin cancer treatment may damage healthy cells and tissues, unwanted side effects sometimes occur. Side effects depend mainly on the type and extent of the treatment. Side effects may not be the same for each person.

Before treatment starts, your doctor will tell you about possible side effects and suggest ways to help you manage them.

Many skin cancers can be removed quickly and easily. Even so, you may need *supportive care* to control pain and other symptoms, to relieve the side effects of treatment, and to ease emotional concerns. Information about such care is available on NCI's Web site at <http://www.cancer.gov/cancertopics/coping>, and from Information Specialists at **1-800-4-CANCER** or *LiveHelp*.

You may want to talk to your doctor about taking part in a clinical trial, a research study of new ways to treat cancer or prevent it from coming back. The section on "The Promise of Cancer Research" on page 24 has more information about clinical trials.

## **Surgery**

Surgery to treat skin cancer may be done in one of several ways. The method your doctor uses depends on the size and place of the growth and other factors.

Your doctor can further describe these types of surgery:

- ***Excisional skin surgery*** is a common treatment to remove skin cancer. After numbing the area, the surgeon removes the growth with a scalpel. The surgeon also removes a border of skin around the growth. This skin is the *margin*. The margin is examined under a microscope to be certain that all the cancer cells have been removed. The size of the margin depends on the size of the growth.

- **Mohs surgery** (also called Mohs micrographic surgery) is often used for skin cancer. The area of the growth is numbed. A specially trained surgeon shaves away thin layers of the growth. Each layer is immediately examined under a microscope. The surgeon continues to shave away tissue until no cancer cells can be seen under the microscope. In this way, the surgeon can remove all the cancer and only a small bit of healthy tissue.
- **Electrodesiccation and curettage** is often used to remove small basal cell skin cancers. The doctor numbs the area to be treated. The cancer is removed with a sharp tool shaped like a spoon. This tool is a curette. An electric current is sent into the treated area to control bleeding and kill any cancer cells that may be left. Electrodesiccation and curettage is usually a fast and simple procedure.
- **Cryosurgery** is often used for people who are not able to have other types of surgery. It uses extreme cold to treat early stage or very thin skin cancer. Liquid nitrogen creates the cold. The doctor applies liquid nitrogen directly to the skin growth. This treatment may cause swelling. It also may damage nerves, which can cause a loss of feeling in the damaged area. The NCI fact sheet “Cryosurgery in Cancer Treatment: Questions and Answers” has more information.
- **Laser surgery** uses a narrow beam of light to remove or destroy cancer cells. It is most often used for growths that are on the outer layer of skin only. The NCI fact sheet “Lasers in Cancer Treatment: Questions and Answers” has more information.
- **Grafts** are sometimes needed to close an opening in the skin left by surgery. The surgeon first numbs and then removes a patch of healthy skin from another part of the body, such as the upper thigh. The patch

is then used to cover the area where skin cancer was removed. If you have a skin graft, you may have to take special care of the area until it heals.

The time it takes to heal after surgery is different for each person. You may be uncomfortable for the first few days. However, medicine can usually control the 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 relief.

Surgery nearly always leaves some type of scar. The size and color of the scar depend on the size of the cancer, the type of surgery, and how your skin heals.

For any type of surgery, including skin grafts or *reconstructive surgery*, it is important to follow your doctor's advice on bathing, shaving, exercise, or other activities.

You may want to ask your doctor these questions about surgery:

- What kind of surgery will I have?
- Will I need a skin graft?
- What will the scar look like? Can anything be done to help reduce the scar? Will I need *plastic surgery* or reconstructive surgery?
- How will I feel after the operation?
- If I have pain, how will it be controlled?
- Will I have to stay in the hospital?
- Am I likely to have infection, swelling, or bleeding, or to get a scab where the cancer was removed?

## Topical Chemotherapy

Chemotherapy uses anticancer drugs to kill skin cancer cells. When a drug is put directly on the skin, the treatment is topical chemotherapy. It is most often used when the skin cancer is too large for surgery. It is also used when the doctor keeps finding new cancers.

Most often, the drug comes in a cream or lotion. It is usually applied to the skin one or two times a day for several weeks. A drug called *fluorouracil* (5-FU) is used to treat basal cell and squamous cell cancers that are in the top layer of the skin only. A drug called *imiquimod* also is used to treat basal cell cancer only in the top layer of skin.

This drug may cause your skin to turn red or swell. It also may itch, hurt, ooze, or develop a rash. It may be sore or sensitive to the sun. These skin changes usually go away after treatment is over. Topical chemotherapy usually does not leave a scar. If healthy skin becomes too red or raw when the skin cancer is treated, your doctor may stop treatment.

You may want to ask your doctor these questions about topical chemotherapy:

- Do I need to take special care when I put chemotherapy on my skin? What do I need to do? Will I be sensitive to the sun?
- When will treatment start? When will it end?

## Photodynamic Therapy

Photodynamic therapy (PDT) uses a chemical along with a special light source, such as a laser light, to kill cancer cells. The chemical is a *photosensitizing agent*. A cream is applied to the skin or the chemical is injected. It stays in cancer cells longer than in normal cells. Several hours or days later, the special light is focused on the growth. The chemical becomes active and destroys nearby cancer cells.

PDT is used to treat cancer on or very near the surface of the skin.

The side effects of PDT are usually not serious. PDT may cause burning or stinging pain. It also may cause burns, swelling, or redness. It may scar healthy tissue near the growth. If you have PDT, you will need to avoid direct sunlight and bright indoor light for at least 6 weeks after treatment.

The NCI fact sheet “Photodynamic Therapy for Cancer: Questions and Answers” has more information.

You may want to ask your doctor these questions about PDT:

- Will I need to stay in the hospital while the chemical is in my body?
- Will I need to have the treatment more than once?



## Radiation Therapy

Radiation therapy (also called radiotherapy) uses high-energy rays to kill cancer cells. The rays come from a large machine outside the body. They affect cells only in the treated area. This treatment is given at a hospital or clinic in one dose or many doses over several weeks.

Radiation is not a common treatment for skin cancer. But it may be used for skin cancer in areas where surgery could be difficult or leave a bad scar. You may have this treatment if you have a growth on your eyelid, ear, or nose. It also may be used if the cancer comes back after surgery to remove it.

Side effects depend mainly on the dose of radiation and the part of your body that is treated. During treatment your skin in the treated area may become red, dry, and tender. Your doctor can suggest ways to relieve the side effects of radiation therapy. Also, the NCI booklet *Radiation Therapy and You: A Guide to Self-Help During Cancer Treatment* offers more information.

You may want to ask your doctor these questions about radiation therapy:

- How will I feel after the radiation?
- Am I likely to have infection, swelling, blistering, or bleeding, or to get a scar on the treated area?
- How should I take care of the treated area?

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## Follow-up Care

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**F**ollow-up care after treatment for skin cancer is important. Your doctor will monitor your recovery and check for new skin cancer. New skin cancers are more common than having a treated skin cancer spread. Regular checkups help ensure that any changes in your health are noted and treated if needed. Between scheduled visits, you should check your skin regularly. You will find a guide for checking your skin on page 25. You should contact the doctor if you notice anything unusual. It also is important to follow your doctor's advice about how to reduce your risk of developing skin cancer again.

*Facing Forward Series: Life After Cancer Treatment* is an NCI booklet for people who have completed their treatment. It answers questions about follow-up care and other concerns. It has tips for making the best use of medical visits. It also suggests ways to talk with the doctor about creating a plan of action for your recovery and future health.

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## Sources of Support

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**S**kin cancer has a better *prognosis*, or outcome, than most other types of cancer. Still, learning you have any type of cancer can be upsetting. You may worry about treatments, managing side effects, and medical bills. Doctors, nurses, and other members of the health care team can answer your questions. Meeting with a social worker, counselor, or member of the clergy can be helpful if you want to talk about your feelings or concerns. Often, a social worker can suggest resources for financial aid, transportation, 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 cancer and the effects of treatment. Groups may offer support in person, over the telephone, or online. 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>) can help you locate programs, services, and publications. Also, you may want to see the NCI fact sheet “National Organizations That Offer Services to People With Cancer and Their Families.”

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## The Promise of Cancer Research

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**D**octors are conducting clinical trials (research studies in which people volunteer to take part).

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, such as photodynamic therapy, and researchers continue to search for better ways to prevent and treat skin cancer.

For basal cell cancer, researchers are studying gene changes that may be risk factors for the disease. They also are comparing *biological therapy* with surgery to treat basal cell cancer.

People who join clinical trials may be among the first to benefit if a new approach is effective. And even if participants do not benefit directly, they still make an important contribution by helping doctors learn more about the disease and how to control it in other

patients. Although clinical trials may pose some risks, researchers do all they can to protect their patients.

If you are interested in being part of a clinical trial, talk with your doctor. You may want to read the NCI booklet *Taking Part in Clinical Trials: What Cancer Patients Need To Know*. NCI also offers an easy-to-read brochure called *If You Have Cancer...What You Should Know About Clinical Trials*. These NCI publications describe how clinical trials are carried out and explain their possible benefits and risks.

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

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## How To Do a Skin Self-Exam

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**Y**our doctor or nurse may suggest that you do a regular skin self-exam to check for skin cancer, including *melanoma*.

The best time to do this exam is after a shower or bath. You should check your skin in a room with plenty of light. You should use a full-length mirror and a hand-held mirror. It's best to begin by learning where your birthmarks, moles, and other marks are and their usual look and feel.

Check for anything new:

- New mole (that looks different from your other moles)
- New red or darker color flaky patch that may be a little raised

- New flesh-colored firm bump
- Change in the size, shape, color, or feel of a mole
- Sore that does not heal

Check yourself from head to toe. Don't forget to check your back, scalp, genital area, and between your buttocks.

- Look at your face, neck, ears, and scalp. You may want to use a comb or a blow dryer to move your hair so that you can see better. You also may want to have a relative or friend check through your hair. It may be hard to check your scalp by yourself.
- Look at the front and back of your body in the mirror. Then, raise your arms and look at your left and right sides.
- Bend your elbows. Look carefully at your fingernails, palms, forearms (including the undersides), and upper arms.
- Examine the back, front, and sides of your legs. Also look around your genital area and between your buttocks.
- Sit and closely examine your feet, including your toenails, your soles, and the spaces between your toes.

By checking your skin regularly, you will learn what is normal for you. It may be helpful to record the dates of your skin exams and to write notes about the way your skin looks. If your doctor has taken photos of your skin, you can compare your skin to the photos to help check for changes. If you find anything unusual, see your doctor.

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## Dictionary

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***Actinic keratosis*** (ak-TIN-ik ker-a-TOE-sis): A precancerous condition of thick, scaly patches of skin. Also called solar or senile keratosis.

***Albinism*** (AL-bye-niz-em): The condition of not having any pigment (white hair, pink or blue eyes, and pale skin).

***Basal cell*** (BAY-sal): A small, round cell found in the lower part (or base) of the epidermis, the outer layer of the skin.

***Basal cell cancer*** (BAY-sal sel CAN-ser): Cancer of the basal cells, the small, round cells found in the lower part (or base) of the epidermis, the outer layer of the skin.

***Basal cell nevus syndrome***: An inherited condition that causes unusual facial features and disorders of the skin, bone, nervous system, eyes, and endocrine glands. People with this syndrome have an increased chance of developing basal cell carcinoma. Also called Gorlin syndrome and nevoid basal cell carcinoma syndrome.

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

***Biological therapy*** (by-oh-LAH-jih-kul THER-ah-pee): Treatment to stimulate or restore the ability of the immune system to fight infections and other diseases. Also used to lessen certain side effects that may be caused by some cancer treatments. Also called immunotherapy, biotherapy, or biological response modifier (BRM) therapy.

**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. When only a sample of tissue is removed, the procedure is called an incisional biopsy. When an entire lump or suspicious area is removed, the procedure is called an excisional biopsy. When a sample of tissue or fluid is removed with a needle, the procedure is called a needle biopsy, core biopsy, or fine-needle aspiration.

**Bowen's disease** (BOH-enz): A skin disease marked by scaly or thickened patches on the skin and often caused by prolonged exposure to arsenic. The patches often occur on sun-exposed areas of the skin and in older, white men. These patches may become malignant (cancerous). Also called precancerous dermatosis or precancerous dermatitis.

**Cancer:** A term for diseases in which abnormal cells divide without control. Cancer cells can invade nearby tissues and can spread through the bloodstream and lymphatic system to other parts of the body. There are several main types of cancer. Carcinoma is cancer that begins in the skin or in tissues that line or cover internal organs. Sarcoma is cancer that begins in bone, cartilage, fat, muscle, blood vessels, or other connective or supportive tissue. Leukemia is cancer that starts in blood-forming tissue such as the bone marrow, and causes large numbers of abnormal blood cells to be produced and enter the bloodstream. Lymphoma and multiple myeloma are cancers that begin in the cells of the immune system.

**Cancerous:** Tissue made up of abnormal cells that divide without control.

**Carcinoma in situ** (KAR-si-NO-ma in SYE-too): Cancer that involves only cells in the tissue in which it began and that has not spread.



**Cartilage** (KAR-tih-lij): A tough, flexible tissue that lines joints and gives structure to the nose, ears, larynx, and other parts of the body.

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

**Chronic** (KRAHN-ik): A disease or condition that persists or progresses over a long period of time.

**Clinical trial**: A type of research study that uses volunteers to test new methods of screening, prevention, diagnosis, or treatment of a disease. Also called a clinical study.

**Cryosurgery** (KRY-o-SER-juh-ree): A procedure performed with an instrument that freezes and destroys abnormal tissues.

**Curettage** (kyoo-reh-TAHZH): Removal of tissue with a curette, a sharp, spoon-shaped instrument.

**Dermatologist** (der-ma-TAH-lo-jist): A doctor who has special training in the diagnosis and treatment of skin problems.

**Dermis** (DER-mis): The lower or inner layer of the two main layers of tissue that make up the skin.

**Electrodesiccation** (e-LEK-tro-des-ih-KAY-shun): The drying of tissue by a high-frequency electric current applied with a needle-shaped electrode.

**Epidermis** (ep-i-DER-mis): The upper or outer layer of the two main layers of tissue that make up the skin.

**Excisional biopsy** (ek-SI-zhun-al BY-op-see): A surgical procedure in which an entire lump or suspicious area is removed for diagnosis. The tissue is then examined under a microscope.

**Excisional skin surgery** (ek-SI-zhun-al skin SER-juh-ree): A surgical technique used to treat skin cancer. The doctor removes the entire tumor and a margin of tissue with a scalpel.

**Fluorouracil** (floor-o-YOOR-a-sil): A drug that is used as a treatment for cancer. It belongs to the family of drugs called antimetabolites. Also called 5-FU.

**Gland:** An organ that makes one or more substances, such as hormones, digestive juices, sweat, tears, saliva, or milk. Endocrine glands release the substances directly into the bloodstream. Exocrine glands release the substances into a duct or opening to the inside or outside of the body.

**Graft:** Healthy skin, bone, or other tissue taken from one part of the body and used to replace diseased or injured tissue removed from another part of the body.

**Human papillomavirus** (pap-ih-LO-ma-VYE-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 may increase the risk of developing some types of cancer.

**Imiquimod:** A substance that improves the body's natural response to infection and disease. It is used to treat early basal cell skin cancer and other conditions. It is being studied as a topical agent (something used on the surface of the body) for the prevention of some types of cancer. It belongs to the family of drugs called biological response modifiers.

**Immune system** (im-YOON): The complex group of organs and cells that defends the body against infections and other diseases.

**Incisional biopsy** (in-SIH-zhun-al BY-op-see): A surgical procedure in which a portion of a lump or suspicious area is removed for diagnosis. The tissue is then examined under a microscope.

**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.

***Inflammation*** (in-fla-MAY-shun): Redness, swelling, pain, and/or a feeling of heat in an area of the body. This is a protective reaction to injury, disease, or irritation of the tissues.

***Laser surgery***: A surgical procedure that uses the cutting power of a laser beam to make bloodless cuts in tissue or to remove a surface lesion such as a tumor.

***Local anesthesia*** (an-es-THÉE-zha): 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*** (limf): The clear fluid that travels through the lymphatic system and carries cells that help fight infections and other diseases. Also called lymphatic fluid.

***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.

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

***Margin***: The edge or border of the tissue removed in cancer surgery. The margin is described as negative or clean when the pathologist finds no cancer cells at the edge of the tissue, suggesting that all of the cancer has been removed. The margin is described as positive or involved when the pathologist finds cancer cells at the

edge of the tissue, suggesting that all of the cancer has not been removed.

**Melanocyte** (mel-AN-o-site): A cell in the skin and eyes that produces and contains the pigment called melanin.

**Melanoma** (mel-uh-NOH-ma): A form of skin cancer that arises in melanocytes, the cells that produce pigment. Melanoma usually begins in a mole.

**Metastasis** (meh-TAS-ta-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-ta-seez).

**Mohs surgery:** A surgical technique used to treat skin cancer. Individual layers of cancerous tissue are removed and examined under a microscope one at a time until all cancerous tissue has been removed. Also called Mohs micrographic surgery.

**Nonmelanoma skin cancer:** Skin cancer that arises in basal cells or squamous cells but not in melanocytes (pigment-producing cells of the skin).

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

**Pathologist** (pa-THOL-o-jist): A doctor who identifies diseases by studying cells and tissues under a microscope.

**Photodynamic therapy** (foe-toe-dye-NAM-ik): Treatment with drugs that become active when exposed to light. These drugs kill cancer cells.

**Photosensitizing agent** (foe-toe-SEN-sih-tye-zing): A drug used in photodynamic therapy. When absorbed by cancer cells and exposed to light, the drug becomes active and kills the cancer cells.

**Plastic surgeon:** A surgeon who specializes in reducing scarring or disfigurement that may occur as a result of accidents, birth defects, or treatment for diseases.

**Plastic surgery:** An operation that restores or improves the appearance of body structures.

**Prognosis** (prog-NO-sis): The likely outcome or course of a disease; the chance of recovery or recurrence.

**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-KOL-o-jist): A doctor who specializes in using radiation to treat cancer.

**Radiation therapy** (ray-dee-AY-shun THER-ah-pee): The use of high-energy radiation from x-rays, gamma rays, neutrons, 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, implant radiation, or brachytherapy). Systemic radiation therapy uses a radioactive substance, such as a radiolabeled monoclonal antibody, that circulates throughout the body. Also called radiotherapy.

**Reconstructive surgeon:** A doctor who can surgically reshape or rebuild (reconstruct) a part of the body, such as a woman's breast after surgery for breast cancer.

**Reconstructive surgery:** Surgery that is done to reshape or rebuild (reconstruct) a part of the body changed by previous surgery.

**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, exposure to radiation or other cancer-causing agents, and certain genetic changes.

**Scalpel** (SKAL-pul): A small, thin knife used for surgery.

**Sebum** (SEE-bum): An oily substance produced by certain glands in the skin.

**Shave biopsy** (BY-op-see): A procedure in which a skin abnormality and a thin layer of surrounding skin are removed with a small blade for examination under a microscope. Stitches are not needed with this procedure.

**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.

**Squamous cell** (SKWAY-mus): Flat cell that looks like a fish scale under a microscope. These cells cover inside and outside surfaces of the body. They are found in the tissues that form the surface of the skin, the lining of the hollow organs of the body (such as the bladder, kidney, and uterus), and the passages of the respiratory and digestive tracts.

**Squamous cell cancer** (SKWAY-mus sel CAN-ser): Cancer that begins in squamous cells, which are thin, flat cells that look like fish scales. Squamous cells are found in the tissue that forms the surface of the skin, the lining of the hollow organs of the body, and the passages of the respiratory and digestive tracts.

**Stage:** The extent of a cancer within the body. If the cancer has spread, the stage describes how far it has spread from the original site to other parts of the body.

**Sun protection factor:** SPF. A scale for rating the level of sunburn protection in sunscreen products. The higher the SPF, the more sunburn protection it provides. Sunscreens with an SPF value of 2 through 11 provide minimal protection against sunburns. Sunscreens with an SPF of 12 through 29 provide moderate protection,

which is adequate for most people. Those with an SPF of 30 or higher provide high protection against sunburn.

**Sunscreen:** A substance that helps protect the skin from the sun's harmful rays. Sunscreens reflect, absorb, and scatter both ultraviolet A and B radiation to provide protection against both types of radiation. Using lotions, creams, or gels that contain sunscreens can help protect the skin from premature aging and damage that may lead to skin cancer.

**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 the disease, side effects caused by treatment of the disease, and psychological, social, and spiritual problems related to the 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. Also known as an operation.

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

**Topical chemotherapy** (kee-mo-THER-ah-pee): Treatment with anticancer drugs in a lotion or cream applied to the skin.

**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).

**Ulcer** (UHL-ser): A break on the skin or on the surface of an organ. An ulcer forms when the surface cells die and are cast off. Ulcers may be associated with cancer and other diseases.

**Ultraviolet radiation** (ul-tra-VYE-o-let ray-dee-AY-shun): UV radiation. Invisible rays that are part of the energy that comes from the sun. UV radiation also comes from sun lamps and tanning beds. UV radiation can damage the skin and cause melanoma and other types of skin cancer. UV radiation that reaches the Earth's surface is made up to two types of rays, called UVA and UVB rays. UVB rays are more likely than UVA rays to cause sunburn, but UVA rays pass deeper into the skin. Scientists have long thought that UVB radiation can cause melanoma and other types of skin cancer. They now think that UVA radiation also may add to skin damage that can lead to skin cancer and cause premature aging. For this reason, skin specialists recommend that people use sunscreens that reflect, absorb, or scatter both types of UV radiation.

**UVA radiation:** A type of ultraviolet (UV) radiation. UV rays are invisible rays that are part of the energy that comes from the sun. UVA radiation also comes from sun lamps and tanning beds. Scientists think that UVA radiation may cause skin damage that can lead to skin cancer and premature aging. For this reason, skin specialists recommend that people use sunscreens that reflect, absorb, or scatter ultraviolet radiation.

**UVB radiation:** A type of ultraviolet (UV) radiation. UV rays are invisible rays that are part of the energy that comes from the sun. UVB radiation causes sunburn, and scientists have long thought that it can cause melanoma and other types of skin cancer. Skin specialists recommend that people use sunscreens that reflect, absorb, or scatter ultraviolet radiation.

**Xeroderma pigmentosum** (ZEER-oh-der-ma pig-men-TOH-sum): A genetic condition characterized by an inability to repair skin damage from the sun and other sources of ultraviolet radiation.



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## National Cancer Institute Information Resources

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**Y**ou may want more information for yourself, your family, and your doctor. The following National Cancer Institute (NCI) services are available to help you.

### Telephone

The NCI's Cancer Information Service (CIS) provides accurate, up-to-date information on cancer to patients and their families, health professionals, and the general public. Information Specialists translate the latest scientific information into understandable language and respond in English, Spanish, or on TTY equipment. Calls to the CIS are free.

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

TTY: 1-800-332-8615

### Internet

The NCI's Web site (<http://www.cancer.gov>) provides information from numerous NCI sources. It offers current information on cancer prevention, screening, diagnosis, treatment, genetics, supportive care, and ongoing clinical trials. It has information about NCI's research programs and funding opportunities, cancer statistics, and the Institute itself. Information Specialists provide live, online assistance through *LiveHelp*. (Click on "Need Help?" Then click on "Connect to LiveHelp.")

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## National Cancer Institute Publications

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**N**ational Cancer Institute (NCI) publications can be ordered by writing to the address below:

Publications Ordering Service  
 National Cancer Institute  
 Suite 3035A  
 6116 Executive Boulevard, MSC 8322  
 Bethesda, MD 20892–8322

Many NCI publications can be viewed, downloaded, and ordered from <http://www.cancer.gov/publications> on the Internet. In addition, 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**.

### **Booklets About Skin Changes and Skin Cancer**

- *What You Need To Know About™ Skin Cancer*
- *What You Need To Know About™ Melanoma*
- *What You Need To Know About™ Moles and Dysplastic Nevi*

### **Booklets and Fact Sheets About Cancer Treatment and Support**

- *Radiation Therapy and You: A Guide to Self-Help During Cancer Treatment* (also available in Spanish: *La radioterapia y usted: una guía de autoayuda durante el tratamiento del cáncer*)
- *Biological Therapy: Treatments That Use Your Immune System to Fight Cancer*
- *Eating Hints for Cancer Patients: Before, During & After Treatment* (also available in Spanish: *Consejos de alimentación para pacientes con cáncer: antes, durante y después del tratamiento*)

- *Understanding Cancer Pain* (also available in Spanish: *El dolor relacionado con el cáncer*)
- *Pain Control: A Guide for People with Cancer and Their Families* (also available in Spanish: *Control del dolor: guía para las personas con cáncer y sus familias*)
- *Get Relief from Cancer Pain*
- “Complementary and Alternative Medicine in Cancer Treatment: Questions and Answers” (also available in Spanish: “La medicina complementaria y alternativa en el tratamiento del cáncer: preguntas y respuestas”)
- “Biological Therapies for Cancer: Questions and Answers” (also available in Spanish: “Terapias biológicas: el uso del sistema inmune para tratar el cáncer”)
- “How To Find a Doctor or Treatment Facility If You Have Cancer” (also available in Spanish: “Cómo encontrar a un doctor o un establecimiento de tratamiento si usted tiene cáncer”)
- “Understanding Prognosis and Cancer Statistics” (also available in Spanish: “La interpretación de los pronósticos y las estadísticas del cáncer”)
- “National Organizations That Offer Services to People With Cancer and Their Families” (also available in Spanish: “Organizaciones nacionales que brindan servicios a las personas con cáncer y a sus familias”)
- “How To Find Resources in Your Own Community If You Have Cancer” (also available in Spanish: “Cómo encontrar recursos en su comunidad si usted tiene cáncer”)
- “Cryosurgery in Cancer Treatment: Questions and Answers”

- “Photodynamic Therapy for Cancer: Questions and Answers”
- “Lasers in Cancer Treatment: Questions and Answers”

### **Booklets About Living With Cancer**

- *Advanced Cancer: Living Each Day*
- *Facing Forward Series: Life After Cancer Treatment* (also available in Spanish: *Siga adelante: la vida después del tratamiento del cáncer*)
- *Facing Forward Series: Ways You Can Make a Difference in Cancer*
- *Taking Time: Support for People with Cancer and the People Who Care About Them*
- *When Cancer Recurs: Meeting the Challenge*

### **Booklets About Clinical Trials**

- *Taking Part in Clinical Trials: What Cancer Patients Need To Know* (also available in Spanish: *La participación en los estudios clínicos: lo que los pacientes de cáncer deben saber*)
- *If You Have Cancer...What You Should Know About Clinical Trials* (also available in Spanish: *Si tiene cáncer...lo que debería saber sobre estudios clínicos*)
- *Taking Part in Clinical Trials: Cancer Prevention Studies: What Participants Need To Know* (also available in Spanish: *La participación en los estudios clínicos: estudios para la prevención del cáncer*)

The National Cancer Institute (NCI) is part of the National Institutes of Health. NCI conducts and supports basic and clinical research in the search for better ways to prevent, diagnose, and treat cancer. NCI also supports the training of scientists and is responsible for communicating its research findings to the medical community and the public.

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