



# Skin Cancer

**SANFORD**  
CANCER CENTER



# General Information About Skin Cancer

## Key Points

- Skin cancer is a disease in which malignant (cancer) cells form in the tissues of the skin.
- There are different types of cancer that start in the skin.
- The risk of skin cancer is increased by sun exposure.
- Non-melanoma skin cancer and actinic keratosis often appear as a change in the skin.
- Tests or procedures that examine the skin are used to detect (find) and diagnose nonmelanoma skin cancer and actinic keratosis.
- Certain factors affect prognosis (chance of recovery) and treatment options.

## Skin Cancer Is a Disease in Which Malignant (Cancer) Cells Form in the Tissues of the Skin

The skin is the body's largest organ. It protects against heat, sunlight, injury, and infection. Skin also helps control body temperature and stores water, fat, and vitamin D. The skin has several layers, but the two main layers are the epidermis (upper or outer layer) and the dermis (lower or inner layer). Skin cancer begins in the epidermis, which is made up of three kinds of cells:

- **Squamous cells:** Thin, flat cells that form the top layer of the epidermis.
- **Basal cells:** Round cells under the squamous cells.

- **Melanocytes:** Cells that make melanin and are found in the lower part of the epidermis. Melanin is the pigment that gives skin its natural color. When skin is exposed to the sun, melanocytes make more pigment and cause the skin to darken.

Skin cancer can occur anywhere on the body, but it is most common in skin that is often exposed to sunlight, such as the face, neck, hands, and arms.

## There Are Different Types Of Cancer That Start In The Skin

- The most common types are basal cell carcinoma and squamous cell carcinoma, which are nonmelanoma skin cancers. Nonmelanoma skin cancers **rarely** spread to other parts of the body.
- Melanoma is a much rarer type of skin cancer. It is more likely to invade nearby tissues and spread to other parts of the body.
- Actinic keratosis is a precancerous skin condition that can become squamous cell carcinoma.

## Risk Factors

Anything that increases your chance of getting a disease is called a risk factor. Having a risk factor does not mean that you will get cancer; not having risk factors does not mean that you will not get cancer. Talk with your doctor if you think you may be at risk.

Risk factors for **basal cell carcinoma** and **squamous cell carcinoma** include the following:

- Being exposed to natural sunlight or artificial sunlight (such as from tanning beds) over long periods of time.

- Having a fair complexion, which includes the following:
  - Fair skin that freckles and burns easily, does not tan, or tans poorly.
  - Blue or green or other light-colored eyes.
  - Red or blond hair.
- Having actinic keratosis (a rough, scaly area on the skin caused by sun damage).
- Past treatment with radiation.
- Having a weakened immune system.
- Having certain changes in the genes that are linked to skin cancer.
- Being exposed to arsenic.

Risk factors for **actinic keratosis** include the following:

- Being exposed to natural sunlight or artificial sunlight (such as from tanning beds) over long periods of time.
- Having a fair complexion, which includes the following:
  - Fair skin that freckles and burns easily, does not tan, or tans poorly.
  - Blue or green or other light-colored eyes.
  - Red or blond hair.

Although having a fair complexion is a risk factor for skin cancer and actinic keratosis, people of all skin colors can get skin cancer and actinic keratosis.

# What is Merkel Cell Carcinoma?

Merkel cell carcinoma is a very rare disease in which malignant (cancer) cells form in the skin.

Sun exposure and having a weak immune system can affect the risk of Merkel cell carcinoma.

Merkel cell carcinoma usually appears as a single painless lump on sun-exposed skin.

## Nonmelanoma Skin Cancer and Actinic Keratosis Often Appear as a Change in the Skin

Not all changes in the skin are a sign of nonmelanoma skin cancer or actinic keratosis. Check with your doctor if you notice any changes in your skin.

Signs of **nonmelanoma skin cancer** include the following:

- A sore that does not heal.
- Areas of the skin that are:
  - Raised, smooth, shiny, and look pearly.
  - Firm and look like a scar, and may be white, yellow, or waxy.
  - Raised, and red or reddish-brown.
  - Scaly, bleeding or crusty.

Signs of **actinic keratosis** include the following:

- A rough, red, pink, or brown, raised, scaly patch on the skin that may be flat or raised.
- Cracking or peeling of the lower lip that is not helped by lip balm or petroleum jelly.

## Tests or Procedures Used to Detect (Find) and Diagnose Nonmelanoma Skin Cancer and Actinic Keratosis

The following procedures may be used:

### Skin Exam

A doctor or nurse checks the skin for bumps or spots that look abnormal in color, size, shape, or texture.

### Skin Biopsy

All or part of the abnormal-looking growth is cut from the skin and viewed under a microscope by a pathologist to check for signs of cancer. There are four main types of skin biopsies:

- **Shave biopsy:** A sterile razor blade is used to “shave-off” the abnormal-looking growth.
- **Punch biopsy:** A special instrument called a punch or a trephine is used to remove a circle of tissue from the abnormal-looking growth.
- **Incisional biopsy:** A scalpel is used to remove part of a growth.
- **Excisional biopsy:** A scalpel is used to remove the entire growth.

## Certain Factors Affect Prognosis (Chance of Recovery) and Treatment Options

The prognosis (chance of recovery) depends mostly on the stage of the cancer and the type of treatment used to remove the cancer.

Treatment options depend on the following:

- The stage of the cancer (whether it has spread deeper into the skin or to other places in the body).
- The type of cancer.
- The size of the tumor and what part of the body it affects.
- Your general health.

# Stages of Skin Cancer

## Key points

- There are three ways that cancer spreads in the body.
- Cancer may spread from where it began to other parts of the body.
- Staging of nonmelanoma skin cancer depends on whether the tumor has certain “high-risk” features and if the tumor is on the eyelid.
- Non-melanoma skin cancer stages range from Stage 0 (Carcinoma in Situ) to Stage IV.
- Treatment is based on the type of nonmelanoma skin cancer or other skin condition diagnosed:
  - Basal cell carcinoma
  - Squamous cell carcinoma
  - Actinic keratosis

The process used to find out if cancer has spread within the skin or to other parts of the body is called staging. The information gathered from the staging process determines the stage of the disease. Not all skin cancers need a staging work-up.

The following tests and procedures may be used in the staging process:

## CT Cscan (CAT Scan)

Computed tomography, a procedure that makes a series of detailed pictures of areas inside the body, taken from different angles. The pictures are made by a computer linked to an x-ray machine. A dye may be injected into a vein or swallowed to help the organs or tissues show up more clearly.



## **MRI (Magnetic Resonance Imaging)**

A procedure that uses a magnet, radio waves, and a computer to make a series of detailed pictures of areas inside the body. This procedure is also called nuclear magnetic resonance imaging (NMRI).

## **Lymph Node Biopsy**

For squamous cell carcinoma, the lymph nodes may be removed and checked to see if cancer has spread to them.

## **There Are Three Ways That Cancer Spreads in the Body**

Cancer can spread through tissue, the lymph system, and the blood:

### **Tissue**

The cancer spreads from where it began by growing into nearby areas.

### **Lymph System**

The cancer spreads from where it began by getting into the lymph system. The cancer travels through the lymph vessels to other parts of the body.

### **Blood**

The cancer spreads from where it began by getting into the blood. The cancer travels through the blood vessels to other parts of the body.

## **Cancer May Spread From Where It Began to Other Parts of the Body**

When cancer spreads to another part of the body, it is called metastasis. Cancer cells break away from where they began (the primary tumor) and travel through the lymph system or blood.

### **Lymph System**

The cancer gets into the lymph system, travels through the lymph vessels, and forms a tumor (metastatic tumor) in another part of the body.

### **Blood**

The cancer gets into the blood, travels through the blood vessels, and forms a tumor (metastatic tumor) in another part of the body.

The metastatic tumor is the same type of cancer as the primary tumor. For example, if skin cancer spreads to the lung, the cancer cells in the lung are actually skin cancer cells. The disease is metastatic skin cancer, not lung cancer.

## **Treatment Is Based on the Type of Nonmelanoma Skin Cancer or Other Skin Condition Diagnosed**

### **Basal Cell Carcinoma**

Basal cell carcinoma is the most common type of skin cancer. It usually occurs on areas of the skin that have been in the sun, most often the nose. Often this cancer appears as a raised bump that looks smooth and pearly. Another type looks like a scar and is flat and firm and may be white, yellow, or waxy. Basal cell carcinoma may spread to tissues around the cancer, but it usually does not spread to other parts of the body.

### **Squamous Cell Carcinoma**

Squamous cell carcinoma occurs on areas of the skin that have been in the sun, such as the ears, lower lip, and the back of the hands. Squamous cell carcinoma may also appear on areas of the skin that have been burned or exposed to chemicals or radiation. Often this cancer appears as a firm red bump. The tumor may feel scaly, bleed, or form a crust. Squamous cell tumors may spread to nearby lymph nodes. Squamous cell carcinoma that has not spread can usually be cured.

### **Actinic Keratosis**

Actinic keratosis is a precancerous skin condition that can become squamous cell carcinoma. It usually occurs in areas that have been exposed to the sun, such as the face, the back of the hands, and the lower lip. It looks like rough, red, pink, or brown scaly patches on the skin that may be flat or raised, or the lower lip cracks and peels and is not helped by lip balm or petroleum jelly.

# Treatment Option Overview

## Key Points

- There are different types of treatment for patients with nonmelanoma skin cancer and actinic keratosis.
- Six types of standard treatment are used:
  - Surgery
  - Radiation therapy
  - Chemotherapy
  - Photodynamic therapy
  - Biologic therapy
  - Targeted therapy
- New types of treatment are being tested in clinical trials.
- Treatment for skin cancer may cause side effects.
- You may want to think about taking part in a clinical trial.
- You can enter clinical trials before, during, or after starting their cancer treatment.
- Follow-up tests may be needed.

## There Are Different Types of Treatment for People With Nonmelanoma Skin Cancer and Actinic Keratosis

Different types of treatment are available for people with nonmelanoma skin cancer and actinic keratosis. Some treatments are standard (the currently used treatment), and some are being tested in clinical trials.

## Six Types of Standard Treatments Are Used

### Surgery

One or more of the following surgical procedures may be used to treat nonmelanoma skin cancer or actinic keratosis:

**Mohs micrographic surgery:** The tumor is cut from the skin in thin layers. During surgery, the edges of the tumor and each layer of tumor removed are viewed through a microscope to check for cancer cells. Layers continue to be removed until no more cancer cells are seen. This type of surgery removes as little normal tissue as possible and is often used to remove skin cancer on the face.

**Simple excision:** The tumor is cut from the skin along with some of the normal skin around it.

**Shave excision:** The abnormal area is shaved off the surface of the skin with a small blade.

**Electrodesiccation and curettage:** The tumor is cut from the skin with a curette (a sharp, spoon-shaped tool). A needle-shaped electrode is then used to treat the area with an electric current that stops the bleeding and destroys cancer cells that remain around the edge of the wound. The process may be repeated one to three times during the surgery to remove all of the cancer.

**Cryosurgery:** A treatment that uses an instrument to freeze and destroy abnormal tissue, such as carcinoma in situ. This type of treatment is also called cryotherapy.

**Laser surgery:** A surgical procedure that uses a laser beam (a narrow beam of intense light) as a knife to make bloodless cuts in tissue or to remove a surface lesion such as a tumor.

**Dermabrasion:** Removal of the top layer of skin using a rotating wheel or small particles to rub away skin cells.

## Radiation Therapy

Radiation therapy is a cancer treatment that uses high-energy x-rays or other types of radiation to kill cancer cells or keep them from growing. There are two types of radiation therapy:

- **External radiation therapy** uses a machine outside the body to send radiation toward the cancer.
- **Internal radiation therapy** uses a radioactive substance sealed in needles, seeds, wires, or catheters that are placed directly into or near the cancer.

The way the radiation therapy is given depends on the type of cancer being treated. External radiation therapy is used to treat skin cancer.

## Chemotherapy

Chemotherapy is a cancer treatment that uses drugs to stop the growth of cancer cells, either by killing the cells or by stopping them from dividing.

- **Systemic chemotherapy:** when chemotherapy is taken by mouth or injected into a vein or muscle, the drugs enter the bloodstream and can reach cancer cells throughout the body.
- **Regional chemotherapy:** when chemotherapy is placed directly into the cerebrospinal fluid, an organ, or a body cavity such as the abdomen, the drugs mainly affect cancer cells in those areas.
- **Topical chemotherapy:** chemotherapy for nonmelanoma skin cancer and actinic keratosis is usually topical (applied to the skin in a cream or lotion). The way the chemotherapy is given depends on the condition being treated.

Retinoids (drugs related to vitamin A) are sometimes used to prevent new squamous cell carcinomas of the skin from forming.

## **Photodynamic Therapy**

Photodynamic therapy (PDT) uses a drug and a certain type of light for some pre-cancers. A drug that is not active until it is exposed to light is given. The drug collects more in abnormal cells than in normal cells. Photodynamic therapy causes little damage to healthy tissue.

## **Biologic Therapy**

Biologic therapy is a treatment that uses your immune system to fight cancer. Substances made by the body or made in a laboratory are used to boost, direct, or restore the body's natural defenses against cancer. This type of cancer treatment is also called biotherapy or immunotherapy.

## **Targeted Therapy**

Targeted therapy is a type of treatment that uses drugs or other substances to attack cancer cells. Targeted therapies usually cause less harm to normal cells than chemotherapy or radiation therapy do.

# Clinical Trials

Clinical trials are done to find out if new cancer treatments are safe and effective or better than the standard treatment.

People who take part in a clinical trial may receive:

- The standard drugs alone or
- The standard drugs plus the new treatment being studied

Taking part in a clinical trial helps improve the way cancer will be treated in the future. Even when clinical trials do not lead to effective new treatments, they often answer important questions and help move research forward.

Some clinical trials only include people who have not yet received treatment. Other trials test treatments for those whose cancer has not gotten better. There are also clinical trials that test new ways to stop cancer from coming back or reduce the side effects of cancer treatment.

Many of today's standard treatments for cancer are based on earlier clinical trials.

**Ask if there is a clinical trial right for you.**



# Follow-Up Tests May Be Needed

Some of the tests that were done to diagnose the cancer or to find out the stage of the cancer may be repeated. Some tests will be repeated in order to see how well the treatment is working. Decisions about whether to continue, change, or stop treatment may be based on the results of these tests.

Some of the tests will continue to be done from time to time after treatment has ended. The results of these tests can show if your condition has changed or if the cancer has recurred (come back). These tests are sometimes called follow-up tests or check-ups.

Basal cell carcinoma and squamous cell carcinoma may recur (come back), if this happens, it is usually within 5 years. Talk to your doctor about how often you should have your skin checked for signs of cancer.

## To Learn More About Skin Cancer

### **American Cancer Society**

<https://www.cancer.org/>

### **National Cancer Institute**

<https://www.cancer.gov/>

### **National Comprehensive Cancer Network Guidelines for Patients**

<https://www.nccn.org/patients/guidelines/cancers.aspx>

### **MedlinePlus**

<https://medlineplus.gov/>

### **American Academy of Dermatology**

<https://www.aad.org/public>

# Common Questions

If I had a biopsy, what does the pathology report say?

What is the stage of my cancer?

What are my goals for treatment?

What are my treatment choices?

What kind of support services are available for me about finances, emotions, spiritual questions, etc.?

My Health Care Team	Contact Information
Dermatologist:	
Nurse:	
Primary Care Doctor:	
Other:	
Other:	

