



# About Basal and Squamous Cell Skin Cancer

## Overview

If you have been diagnosed with basal or squamous cell skin cancer or are worried about it, you likely have a lot of questions. Learning some basics is a good place to start.

- [What Are Basal and Squamous Cell Skin Cancers?](#)

## Research and Statistics

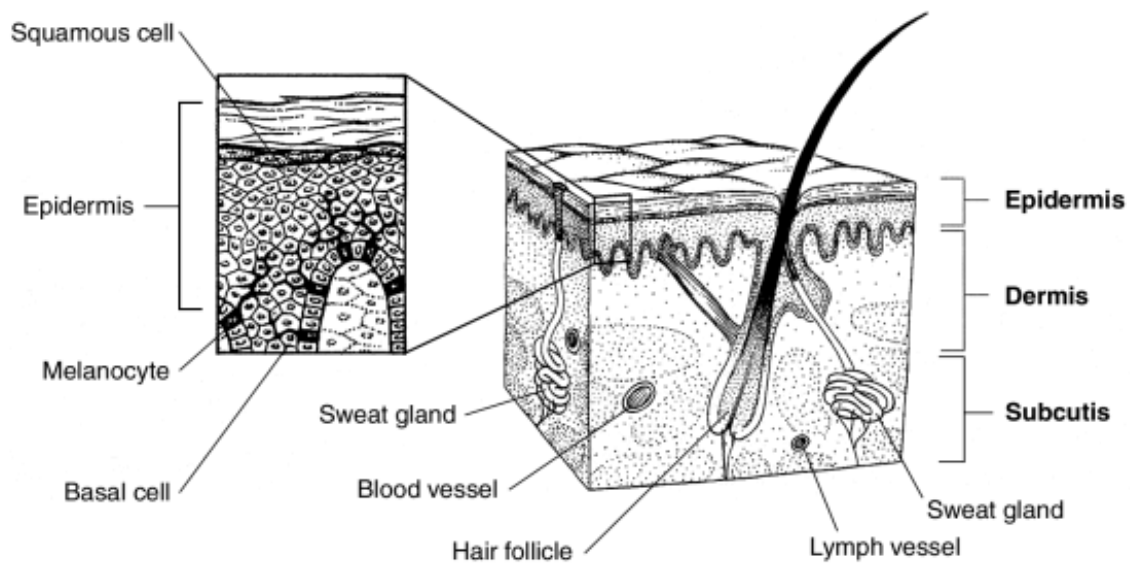
See the latest estimates for new cases of basal and squamous cell skin cancer and deaths in the US and what research is currently being done.

- [Key Statistics for Basal and Squamous Cell Skin Cancers](#)
- [What's New in Basal and Squamous Cell Skin Cancer Research?](#)

# What Are Basal and Squamous Cell Skin Cancers?

Cancer starts when cells in the body begin to grow out of control. Cells in nearly any part of the body can become cancer cells. To learn more about how cancers start and spread, see [What Is Cancer?](#)

Skin cancer begins when cells in the skin start to grow uncontrollably.



## Types of skin cells

There are 3 main types of cells in the top layer of the skin (called the *epidermis*):

- **Squamous cells:** These are flat cells in the outer part of the epidermis that are constantly shed as new ones form.
- **Basal cells:** These cells are in the lower part of the epidermis, called the *basal cell layer*. These cells constantly divide to form new cells to replace the squamous cells that wear off the skin's surface. As these cells move up in the epidermis, they get flatter, eventually becoming squamous cells.
- **Melanocytes:** These cells make the brown pigment called *melanin*, which gives the skin its tan or brown color. Melanin acts as the body's natural sunscreen, protecting the deeper layers of the skin from some of the harmful effects of the sun. For most people, when skin is exposed to the sun, melanocytes make more of the pigment, causing the skin to tan or darken.

The epidermis is separated from the deeper layers of skin by the basement membrane. When a skin cancer becomes more advanced, it generally grows through this barrier and into the deeper layers.

## Types of skin cancer

## Basal cell carcinoma

This is the most common type of skin cancer. About 8 out of 10 skin cancers are basal cell carcinomas (also called *basal cell cancers*). When seen under a microscope, the cells in these cancers look like cells in the lowest layer of the epidermis, called the *basal cell layer*.

These cancers usually develop on sun-exposed areas, especially the head and neck. These cancers tend to grow slowly. It's very rare for a basal cell cancer to spread to other parts of the body. But if a basal cell cancer is left untreated, it can grow into nearby areas and invade the bone or other tissues beneath the skin.

If not removed completely, basal cell carcinoma can recur (come back) in the same place on the skin. People who have had basal cell skin cancers are also more likely to get new ones in other places.

## Squamous cell carcinoma

About 2 out of 10 skin cancers are squamous cell carcinomas (also called *squamous cell cancers*). The cells in these cancers look like abnormal versions of the squamous cells seen in the outer layers of the skin.

These cancers commonly appear on sun-exposed areas of the body such as the face, ears, neck, lips, and backs of the hands. They can also develop in scars or chronic skin sores elsewhere. They sometimes start in actinic keratoses (described below). Less often, they form in the skin of the genital area.

Squamous cell cancers are more likely to grow into deeper layers of skin and spread to other parts of the body than basal cell cancers, although this is still uncommon.

**Keratoacanthomas** are dome-shaped tumors that are found on sun-exposed skin. They may start out growing quickly, but their growth usually slows down. Many keratoacanthomas shrink or even go away on their own over time without any treatment. But some continue to grow, and a few may even spread to other parts of the body. Their growth is often hard to predict, so many skin cancer experts consider them a type of squamous cell skin cancer and treat them as such.

## Melanoma

These cancers develop from melanocytes, the pigment-making cells of the skin. Melanocytes can also form benign (non-cancerous) growths called *moles*. Melanomas

are much less common than basal and squamous cell cancers, but they are more likely to grow and spread if left untreated. Melanoma and moles are discussed in [Melanoma Skin Cancer](#).

## Less common types of skin cancer

Other types of skin cancer are much less common and are treated differently. These include:

- [Merkel cell carcinoma](#)
- [Kaposi sarcoma](#)
- [Cutaneous \(skin\) lymphoma](#)
- **Skin adnexal tumors** (tumors that start in hair follicles or skin glands)
- Various types of [sarcomas](#)

Together, these types account for less than 1% of all skin cancers.

## Pre-cancerous and pre-invasive skin conditions

These conditions may develop into skin cancer or may be very early stages of skin cancer.

### Actinic keratosis (solar keratosis)

Actinic keratosis (AK), also known as *solar keratosis*, is a pre-cancerous skin condition caused by too much exposure to the sun. AKs are usually small (less than 1/4 inch across), rough or scaly spots that may be pink-red or flesh-colored. Usually they start on the face, ears, backs of the hands, and arms of middle-aged or older people with fair skin, although they can occur on other sun-exposed areas. People who have them usually develop more than one.

AKs tend to grow slowly and usually do not cause any symptoms (although some might be itchy or sore). They sometimes go away on their own, but they may come back.

Some AKs may turn into squamous cell skin cancers. Most AKs do not become cancer, but it can be hard sometimes to tell them apart from true skin cancers, so doctors often recommend [treating](#) them. If they are not treated, you and your doctor should check them regularly for changes that might be signs of skin cancer.

### Squamous cell carcinoma in situ (Bowen disease)

Squamous cell carcinoma in situ, also called Bowen disease, is the earliest form of squamous cell skin cancer. “In situ” means that the cells of these cancers are still only in the epidermis (the upper layer of the skin) and have not invaded into deeper layers.

Bowen disease appears as reddish patches. Compared with AKs, Bowen disease patches tend to be larger (sometimes over ½ inch across), redder, scaly, and sometimes crusted. Like AK, Bowen disease usually doesn’t cause symptoms, although it might be itchy or sore.

Like most other skin cancers (and AKs), these patches most often appear in sun-exposed areas. Bowen disease can also occur in the skin of the anal and genital areas (where it is known as *erythroplasia of Queyrat* or *Bowenoid papulosis*). This is often related to sexually transmitted infection with human papilloma viruses (HPVs), the viruses that can also cause genital warts.

Bowen disease can sometimes progress to an invasive squamous cell skin cancer, so doctors usually recommend treating it. People who have these are also at higher risk for other skin cancers, so close follow-up with a doctor is important.

## Benign skin tumors

Most skin tumors are benign (not cancerous) and rarely if ever turn into cancers. There are many kinds of benign skin tumors, including:

- Most types of **moles** (see [Melanoma Skin Cancer](#) for more about moles)
- **Seborrheic keratoses**: tan, brown, or black raised spots with a waxy texture or occasionally a slightly rough and crumbly surface when they are on the legs (also known as *stucco keratosis*)
- **Hemangiomas**: benign blood vessel growths, often called *strawberry spots*
- **Lipomas**: soft tumors made up of fat cells
- **Warts**: rough-surfaced growths caused by some types of human papilloma virus (HPV)
- [References](#)

[See all references for Basal and Squamous Cell Skin Cancer](#)

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# Key Statistics for Basal and Squamous Cell Skin Cancers

Cancers of the skin (most of which are basal and squamous cell skin cancers) are by far the most common of all types of cancer. According to one estimate, about 5.4 million basal and squamous cell skin cancers are diagnosed each year (occurring in about 3.3 million Americans, as some people have more than one). About 8 out of 10 of these are basal cell cancers. Squamous cell cancers occur less often.

The number of these cancers has been increasing for many years. This is probably from a combination of better skin cancer detection, people getting more sun exposure, and people living longer.

Death from these cancers is uncommon. It's thought that about 2,000 people in the US die each year from these cancers, and that this rate has been dropping in recent years. Most people who die from these cancers are elderly and may not have seen a doctor until the cancer had already grown quite large. Other people more likely to die of these cancers are those whose immune system is suppressed, such as those who have had organ transplants.

The exact number of people who develop or die from basal and squamous cell skin cancers each year is not known for sure. Statistics of most other cancers are known because they are reported to and tracked by cancer registries, but basal and squamous cell skin cancers are not.

- [References](#)

[See all references for Basal and Squamous Cell Skin Cancer](#)

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## What's New in Basal and Squamous Cell

# Skin Cancer Research?

Research into the causes, prevention, and treatment of basal and squamous cell skin cancer is going on in many medical centers throughout the world.

## Basic skin cancer research

Scientists have made a great deal of progress in recent years in learning how ultraviolet (UV) light damages the DNA inside normal skin cells, and how this might cause them to become cancer cells. Researchers are working to apply this new information to strategies for preventing and treating skin cancers.

## Public education

Most skin cancers can be prevented. The best way to lower the number of skin cancers and the pain and loss of life from this disease is to educate the public about [skin cancer risk factors, prevention, and detection](#). It's important for health care professionals and skin cancer survivors to remind others about the dangers of too much [UV exposure](#) (both from the sun and from man-made sources such as tanning beds) and about how easily they can protect their skin from UV rays.

Skin cancer can often be [found early](#), when it is most likely to be cured. Monthly skin self-exams and awareness of the [warning signs of skin cancer](#) may be helpful in finding most skin cancer when they are at an early, curable stage.

The American Academy of Dermatology (AAD) sponsors annual free skin cancer screenings throughout the country. Many local American Cancer Society offices work closely with AAD to provide volunteers for registration, coordination, and education efforts related to these free screenings. Look for information in your area about these screenings or call the [American Academy of Dermatology](#) for more information.

Along with recommending staying in the shade, the American Cancer Society uses a slogan popularized in Australia as part of its skin cancer prevention message in the United States. "Slip! Slop! Slap!®... and Wrap" is a catchy way to remember when going outdoors to slip on a shirt, slop on sunscreen, slap on a hat, and wrap on sunglasses to protect your eyes and the sensitive skin around them.

## Preventing genital skin cancers

Squamous cell cancers that start in the genital region account for almost half of the deaths from this type of skin cancer. Many of these cancers are related to infection with certain types of [human papilloma virus \(HPV\)](#), which can be spread through sexual contact. Limiting sexual partners and using safer sex practices such as wearing condoms may therefore help lower the risk of some of these cancers.

In recent years, vaccines have become available to help protect against infection from some types of HPV. The main intent of the vaccines has been to reduce the risk of cervical cancer, but they may also lower the risk of other cancers related to HPV, including some squamous cell skin cancers.

## Chemoprevention

Chemoprevention is the use of drugs to reduce cancer risk. This is likely to be more useful for people at high risk of skin cancers, such as those with certain congenital conditions (basal cell nevus syndrome, xeroderma pigmentosum, etc.), a history of skin cancer, or those who have received organ transplants, rather than for people at average risk of skin cancer.

Some of the most widely studied drugs so far are the retinoids, which are drugs related to vitamin A. They have shown some promise in reducing the risk of squamous cell cancers, but they can have side effects, including possibly causing birth defects. For this reason they are not widely used at this time, except in some people at very high risk. Further studies of retinoids are under way.

Other drugs are being looked at to reduce the risk of basal cell skin cancers in people at high risk. Targeted drugs called *hedgehog pathway inhibitors* may help some people with basal cell nevus syndrome. For example, the drug vismodegib (Erivedge) has been shown to lower the number of new basal cell cancers and shrink existing tumors in people with this syndrome. The drug does have some side effects, including taste loss and muscle cramps, which can make it hard for some people to take every day. Further research on this and similar drugs is under way.

## Diagnosis

Some newer approaches to diagnosing skin cancer don't require the removal of a skin sample. Examples of such "optical biopsies" include reflectance confocal microscopy (RCM) and optical coherence tomography (OCT). These techniques are now available in some centers and will likely become more common in the coming years.



# Treatment

## Local treatments

Current local treatments such as surgery and radiation therapy work well for most basal and squamous cell skin cancers. Still, even some small cancers can be hard to treat if they're in certain areas. Newer forms of non-surgical treatment such as new topical drugs, photodynamic therapy, and laser surgery may help reduce scarring and other possible side effects of treatment. The best way to use these treatments is now being studied.

## Treating advanced disease

Most basal and squamous cell skin cancers are found and treated at an early stage, when they are likely to be cured, but some can spread to other parts of the body. These cancers can often be hard to treat with current therapies such as [radiation](#) and [chemotherapy](#).

**Squamous cell cancers:** Several studies are testing newer targeted drugs for advanced squamous cell cancers. Cells from these cancers often have too much of a protein called *EGFR* on their surfaces, which may help them grow. Drugs that target this protein, such as cetuximab (Erbix), are now being tested in clinical trials.

**Basal cell cancers:** It's very rare for basal cell cancers to reach an advanced stage, but when they do, these cancers can be hard to treat. Vismodegib and sonidegib, drugs that target the hedgehog signaling pathway in cells, may help some people (see [Targeted Therapy for Basal and Squamous Cell Skin Cancers](#)). Other drugs that target this pathway are now being studied as well.

- [Additional Resources](#)
- [References](#)

**American Academy of Dermatology (AAD)** Toll-free number: 1-888-462-3376 (1-888-462-DERM) Website: [www.aad.org](http://www.aad.org) Spot Skin Cancer website: [www.aad.org/spot-skin-cancer](http://www.aad.org/spot-skin-cancer)

- For information on skin cancer, a skin cancer risk assessment, a locator for free skin cancer screenings, and a dermatologist locator

[See all references for Basal and Squamous Cell Skin Cancer](#)

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