Skin Cancer: Basal and Squamous Cell Overview

This overview is based on the more detailed information in our document *Skin Cancer: Basal and Squamous Cell*. You can get this document and other information by calling us at 1-800-227-2345 or you can read it on our website at www.cancer.org.

What is cancer?

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

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

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

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

Sometimes cancer cells spread to other parts of the body. There they begin to grow and form new tumors. This process is called *metastasis*.

No matter where a cancer spreads, it is named (and treated) based on the place where it started. For instance, breast cancer that has spread to the liver is still breast cancer, not liver cancer. Likewise, prostate cancer that has spread to the bones is still prostate cancer, not bone cancer.

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

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

What are basal and squamous cell skin cancers?

To understand basal and squamous cell skin cancers, it helps to know a little about the skin.

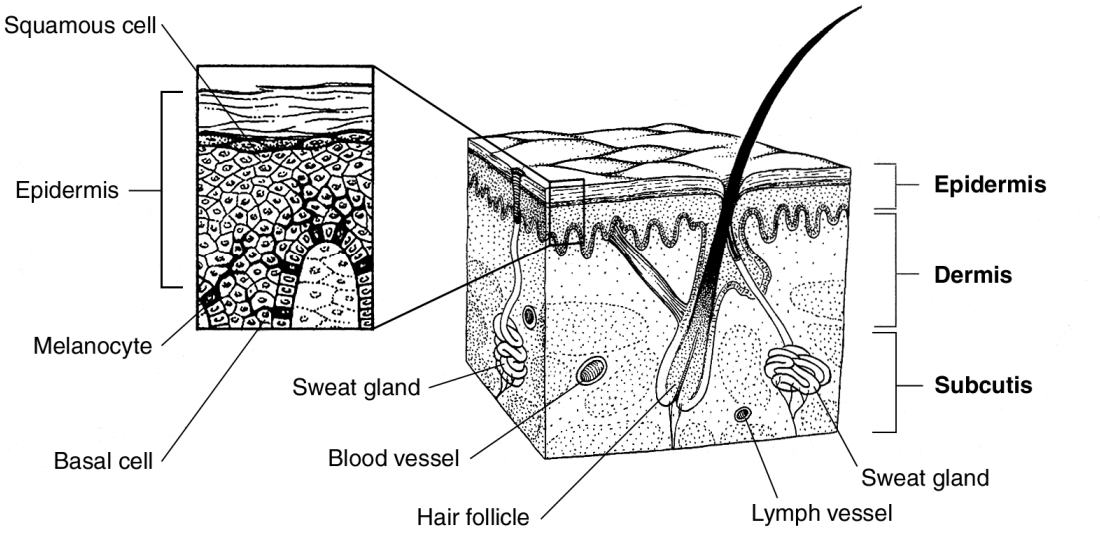
Normal skin

The skin is the largest organ in your body. It does many things, such as:

- Covering and protecting the organs inside the body
- Keeping out germs
- Keeping in water and other fluids
- Helping control body temperature
- Protecting the rest of the body from ultraviolet (UV) rays
- Helping the body make vitamin D

The skin has 3 layers. From the outside in, they are:

- **Epidermis:** This top layer of the skin is very thin. The flat cells at the top of this layer are called *squamous cells*, and below this are cells called *basal cells*. These are the cells that can become squamous cell or basal cell skin cancers. The epidermis also contains cells called *melanocytes*, which make the brown pigment melanin. These are the cells that can become melanoma.
- **Dermis:** This middle layer of the skin is much thicker than the epidermis. It contains hair shafts, sweat glands, blood vessels, and nerves.
- **Subcutis:** This deepest layer of the skin contains proteins and fat, which help keep in body heat and act as a shock absorber to help protect the body's organs from injury.



Types of skin cancer

There are many types of skin cancer, but by far the 2 most common types are basal cell carcinoma and squamous cell carcinoma. *Carcinoma* is a medical word for a cancer that starts in a lining layer of cells (like the skin or the lining cells of the digestive system).

Basal cell cancer

About 8 out of 10 skin cancers are basal cell carcinomas (BCCs). This is not only the most common type of skin cancer, but the most common type of cancer in humans. BCC begins in the lowest layer of the epidermis, the basal cell layer.

BCC usually begins on skin exposed to the sun, such as the head and neck. It was once found mostly in middle-aged or older people. But now it is also being seen in younger people. This may be because people are spending more time out in the sun.

BCC tends to grow slowly. It is very rare for BCC to spread to other parts of the body. But if it is not treated, it can grow into nearby areas and spread into the bone or other tissues under the skin.

After treatment, BCC can come back (recur) in the same place on the skin. New basal cell cancers can also start in other places on the skin. As many as half of the people who have one BCC will get a new skin cancer within 5 years.

Squamous cell cancer

Squamous cell cancer (SCC) starts in the squamous cells in the upper part of the epidermis. It accounts for about 2 out of 10 skin cancers. It most often starts on skin that has been exposed to the sun, like the face, ears, neck, lips, and backs of the hands. It can also start in scars or chronic skin sores elsewhere. Less often, it forms in the skin of the genital area.

SCC is more likely than BCC to spread into fatty tissues just beneath the skin. It is also more likely to spread to nearby lymph nodes (the bean-shaped collections of immune system cells) or to distant parts of the body, but this is not common.

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 shrink or even go away on their own over time without any treatment. But some keep on growing, and a few may even spread to other parts of the body. Many cancer experts think of them as a type of squamous cell skin cancer and treat them as such.

Melanomas

Cancers that start from the pigment-making cells of the skin (the melanocytes) are called *melanomas*. Melanocytes can also form growths called *moles* that are not cancer. Melanoma and moles are discussed our document *Melanoma Skin Cancer*.

Less common types of skin cancer

There are also some other types of skin cancers that are not melanomas or keratinocyte cancers. These are not very common and account for less than 1% of all skin cancers. They include:

- Merkel cell carcinoma
- Kaposi sarcoma
- Lymphoma of the skin
- Skin adnexal tumors (tumors that start in hair follicles or skin glands)
- Sarcomas (soft tissue cancers)

Pre-cancerous and pre-invasive skin conditions

These conditions may develop into skin cancer over time, or they may be very early stages of skin cancer.

Actinic keratosis

Actinic keratosis is also known as *solar keratosis*. It is a pre-cancer caused by too much time in the sun. It appears as a small, rough or scaly spot that may be pink-red or flesh-colored. It is most often seen on the face, ears, back of the hands, and arms of middle-aged or older people with fair skin. People who have them often get more than one.

Actinic keratoses are slow growing and do not usually cause any problems, although some might be itchy or sore. But they may turn into squamous cell cancers. This does not happen very often, but it can be hard sometimes for doctors to tell these apart from true skin cancers, so doctors often advise treating them. If they are not treated, your doctor should check them regularly to see if they have changes that could mean cancer.

Squamous cell carcinoma in situ (Bowen disease)

Squamous cell carcinoma *in situ* is also called Bowen disease. *In situ* means that the cancer is only in the epidermis where it began. This is the earliest form of squamous cell skin cancer. Bowen disease looks like scaly, reddish patches that may be crusted. Like actinic keratosis, it often doesn't cause any symptoms, although it might be itchy or sore.

The major risk factor for Bowen disease is too much sun exposure. Bowen disease in the anal and genital skin is often linked to the virus that causes genital warts (human papilloma virus or HPV).

Bowen disease can sometimes become invasive squamous cell skin cancer, so doctors usually recommend treating it.

Skin tumors that are not cancer

Most skin tumors are benign (not cancer). These rarely, if ever, turn into cancers. These tumors include:

- Most types of moles (see our document *Melanoma Skin Cancer* for information on moles)
- Seborrheic keratoses – tan, brown, or black raised spots with a waxy texture or rough surface
- Hemangiomas – benign blood vessel growths often called strawberry spots or port wine stains
- Lipomas – soft tumors made up of fat cells
- Warts – rough-surfaced growths caused by a virus

How many people get basal and squamous cell skin cancer?

Cancer of the skin (including melanoma and basal and squamous cell skin cancers) is the most common of all cancers. The exact number of basal and squamous cell cancers is not known for certain, so the numbers given here are estimates.

About 3.5 million basal and squamous cell skin cancers are found each year (in about 2.2 million Americans, because some people have more than one). About 8 out of 10 of these are basal cell cancers. Squamous cell cancer is less common.

People rarely die of these cancers. It is thought that about 2,000 people die of non-melanoma skin cancer each year in the United States; this rate has been dropping in recent years. Most people who die are older and may not have seen a doctor until the cancer had already grown quite large. Other people more likely to die of skin cancer are those with immune systems that are not working well (such as people who have had organ transplants).

What are the risk factors for basal and squamous cell skin cancers?

A risk factor is anything that affects a person's chance of getting a disease such as cancer. Different cancers have different risk factors. Some risk factors, like smoking, can be changed. Others, like a person's age or family history, can't be changed.

But having a risk factor, or even several, does not mean that you will get the disease. And some people who get the disease may have had few or no known risk factors. Even if a person with basal or squamous cell skin cancer has a risk factor, it is often very hard to know what part that risk factor may have played in getting the cancer.

Risk factors for basal and squamous cell skin cancer

Ultraviolet (UV) light

Ultraviolet (UV) light is thought to be the major risk factor for most skin cancers. Sunlight is the main source of UV rays. Tanning beds are another source of UV rays. People who get a lot of exposure to UV light are at greater risk for skin cancer.

There are different types of UV rays, but they can all damage skin and cause skin cancer. There are no safe UV rays.

The amount of UV exposure depends on the strength of the light, how long the skin is exposed, and whether the skin was covered with clothing or sunscreen. Many studies show that being exposed to a lot of sun when you are young is an added risk factor.

People who live in places with year-round, bright sunlight have a higher risk. For example, the risk of skin cancer is twice as high in Arizona compared to Minnesota. Spending a lot of time outdoors without covering your skin and using sunscreen increases your risk.

Light-colored skin

The risk of skin cancer is much higher for whites than for African Americans or Hispanics. This is because the skin pigment melanin helps protect against UV rays. People with darker skin have more melanin. People with fair (light-colored) skin that freckles or burns easily are at extra high risk.

Older age

The risk of basal and squamous cell skin cancers goes up as people get older. Older people have been exposed to the sun for a longer time. Still, these cancers are now being seen in younger people too, most likely because they are spending more time in the sun without protecting their skin.

Male gender

Men are about twice as likely as women to have basal cell cancers and about 3 times as likely to have squamous cell cancers of the skin. This could be because they tend to spend more time in the sun.

Chemicals

Exposure to large amounts of arsenic increases the risk of skin cancer. Arsenic is a heavy metal used to make some pesticides and other products. It is also a natural part of well water in some areas.

Workers exposed to coal tar, paraffin, and certain types of oil may have an increased risk, too.

Radiation

People who have had radiation treatment have a higher risk of getting skin cancer in the area that was treated. This can be a concern in children who have had cancer treatment.

Having had a skin cancer

Anyone who has had a basal or squamous cell cancer has a much higher chance of having another one.

Certain long-term or severe skin problems

Scars from bad burns, areas of skin over bad bone infections, and skin damaged by certain skin diseases are more likely to develop skin cancer, but this risk is fairly small.

Psoriasis treatment

Some patients with psoriasis (a long-lasting inflammatory skin disease) are treated with psoralens and ultraviolet light treatments (PUVA). This can increase their risk of getting squamous cell skin cancer, and maybe other skin cancers, too.

Certain diseases

Xeroderma pigmentosum (XP): This very rare disease makes the skin less able to repair sun damage. This disease tends to run in families. People with this disease get many skin cancers, often starting in childhood.

Basal cell nevus syndrome (Gorlin syndrome): This rare condition is present at birth and often runs in families. It causes some people to start having many basal cell cancers as children or teens. Exposure to UV rays can increase the number of tumors these people get.

Weakened immune system

People with weak immune systems are more likely to develop some types of skin cancer. For instance, people who have had an organ transplant often take medicines to weaken the immune system so that the body will not reject the organ. And people infected with HIV, the virus that causes AIDS, often have weakened immune systems. These people are more likely to develop skin cancer. Skin cancers in people with weak immune systems tend to grow faster and are more likely to be fatal.

HPV infection

A small number of skin cancers seem to be linked to infection with human papilloma virus (HPV), which can cause warts. The warts that people most often get on their hands and feet are not linked to any form of cancer. But some types of HPV can cause changes in the skin cells in the genital and anal areas and around the fingernails. They seem to be linked to skin cancers in these areas.

Smoking

Smoking is a risk factor for squamous cell skin cancer, but it is not a known risk for basal cell cancer.

Can basal and squamous cell skin cancer be prevented?

Not all basal and squamous cell skin cancers can be prevented. But there are things you can do that could help reduce your risk of skin cancer.

Limit ultraviolet (UV) exposure

The best way to lower the risk of skin cancer is to limit your exposure to UV rays. Practice sun safety when you are outdoors. Simply staying in the shade is one of the best ways to limit your UV exposure. If you are going to be in the sun, “Slip! Slop! Slap! … and Wrap” is a catch phrase that can help remind you of some of the key steps you can take to protect yourself and those you love from UV rays:

- Slip on a shirt
- Slop on sunscreen
- Slap on a hat
- Wrap on sunglasses to protect the eyes and sensitive skin around them

Stay in the shade

Look for shade, especially in the middle of the day, between the hours of 10 am and 4 pm, when the sun’s rays are strongest. If you are not sure about how strong the sun is, use the shadow test: if your shadow is shorter than you are, the sun’s rays are the strongest, and you need to protect yourself. Keep in mind that sunlight (and UV rays) can come through light clouds, reflect off water, sand, concrete, and snow, and can reach below the water’s surface, so protect your skin whenever you are outdoors.

Protect your skin with clothing

Some clothes give more protection from UV rays than others. Long-sleeved shirts and long pants or skirts are the best. Dark colors protect better than light colors. A tightly woven fabric protects better than loosely woven clothing. If you can see light through a fabric, UV rays can get through, too. Dry fabric is usually more protective than wet fabric.

Some clothing is made with built-in UV protection. There are also newer products that can increase the UV protection factor (UPF) value of clothes you already own. Used like laundry detergents, they add a layer of UV protection to your clothes without changing the color or how the cloth feels. This can be useful, but it's not exactly clear how much it adds to protecting you from UV rays, so it is still important to follow the other steps listed here.

Wear a hat

A hat with at least a 2- to 3-inch brim all around is best because it protects areas often exposed to the sun, such as the neck, ears, eyes, forehead, nose, and scalp. A shade cap (which looks like a baseball cap with about 7 inches of fabric draping down the sides and back) also is good. These are often sold in sports and outdoor supply stores.

A baseball cap can protect the front and top of the head, but not the neck or the ears. Straw hats are not as good as ones that are made of tightly woven fabric.

Use sunscreen

Use sunscreen and lip balm. Broad spectrum products (which protect against different types of UV rays) with a sun protection factor (SPF) of 30 or more are recommended.

Always follow the label directions when applying sunscreen. Be sure to use enough (a palmful) and put it on again at least every 2 hours and after swimming or sweating. Use sunscreen even on hazy or days with light or broken cloud cover because UV rays still come through.

Sunscreens are a filter – they do not block all UV rays. Don't make the mistake of thinking that because you're using sunscreen, you can stay out in the sun longer. Sunscreen should not be used to gain extra time in the sun, because you will still end up with damage to your skin.

Wear sunglasses

Wrap-around sunglasses that absorb at least 99% of the UV rays help protect your eyes and the skin around your eyes.

Avoid tanning beds and sunlamps

Many people believe the UV rays of tanning beds are harmless. This is not true. These also give off UV light and can increase the risk of skin cancer. Most skin doctors and health groups advise against using tanning beds and sun lamps.

If you want a tan, one option is a sunless tanning lotion. These can make you look tan without the danger. You do not have to go out in the sun for these to work. The color

tends to wear off after a few days. Most sunless tanning lotions don't protect very much from UV rays. If you use one, you should still take other measures mentioned above to protect your skin.

Some tanning salons offer a spray-on tan. A concern here is that the spray should not be inhaled or sprayed in or on the mouth, eyes, or nose. People who choose to get a spray tan should make sure to protect these areas.

Protect children from the sun

Be especially careful about sun protection for children. Children tend to spend more time outdoors, and they burn more easily. It's important to cover your children as fully as is reasonable. Teach them to protect themselves from the sun as they get older.

Babies younger than 6 months should be kept out of direct sunlight and protected from the sun using clothing and hats. Sunscreen may be used on small areas of exposed skin only if enough clothing and shade are not available.

A word about sun exposure and vitamin D

Doctors are learning that vitamin D has many health benefits. It may even help to lower the risk for some cancers. Vitamin D is made by your skin when you are in the sun. How much vitamin D your body makes depends on many things, such as how old you are, how dark your skin is, and how brightly the sun shines where you live. At this time, doctors aren't sure what the best level of vitamin D in the body is. When you can, it's better to get vitamin D from your diet or vitamins rather than from sun, because they do not increase the risk for skin cancer.

To find out more about how to protect yourself and your family from UV rays, see our document *Skin Cancer: Prevention and Early Detection*.

Avoid harmful chemicals

Certain chemicals, such as arsenic, can increase a person's risk of skin cancer. People can be exposed to arsenic from well water in some areas, pesticides and herbicides, some medicines, and in some imported herbal remedies. Certain jobs, such as mining and smelting, can also expose workers to arsenic.

Check your skin regularly

Checking your skin regularly may help you spot any new growths or abnormal areas and show them to your doctor before they even have a chance to turn into skin cancer. To learn more, see the section "How are basal and squamous cell skin cancers found?"

How are basal and squamous cell skin cancers found?

Basal and squamous skin cancers can often be found early, when they are likely to be easier to treat.

As part of a routine check-up, your doctor should look at your skin carefully. This is even more important for people who are at high risk of skin cancer, such as those with lowered immunity. Ask your doctor how often you should have your skin examined.

Skin self-exam

Many doctors advise that you also check your own skin once a month. This is best done in front of a full-length mirror. A hand-held mirror can be used for places that are hard to see. You should know the pattern of moles, freckles, and other marks on your skin so that you'll notice any changes.

Friends and family members can also help you with these exams, especially for those hard-to-see areas, such as your scalp and back. For more details about skin self-exam, see our document *Skin Cancer: Prevention and Early Detection* and the booklet *Why You Should Know About Melanoma*.

Most skin cancers are brought to a doctor's notice because of signs or symptoms a person is having. Be sure to show your doctor any area that concerns you and ask your doctor to look at areas that may be hard for you to see.

Signs and symptoms of basal and squamous cell skin cancer

Skin cancers often don't cause symptoms until they become quite large. Then they can itch, bleed, or even hurt. But they can often be seen or felt long before they reach this point.

Basal cell cancers usually start on places exposed to the sun, especially the head and neck, but they can occur anywhere on the body. They often show up as flat, firm, pale areas or as small, raised, pink or red, shiny, pearly bumps that may bleed after minor injury (even after shaving). You might see one or more abnormal blood vessels, a lower area in the center, or blue, brown, or black areas. Large ones may have oozing or crusted spots.

Squamous cell cancers may show up as growing lumps, often with a rough, scaly, or crusted surface. They may also look like flat, reddish patches that grow slowly. They tend to appear on sun-exposed places of the body such as the face, ear, neck, lip, and back of

the hands. Less often, they form in the skin of the genital area. They can also develop in scars or skin sores elsewhere.

Both of these types of skin cancer may develop as a flat area showing only slight changes from normal skin.

Spots on the skin that are new or changing in size, shape, or color should be seen by a doctor promptly. Any sore, lump, blemish, marking, or change in the way an area of the skin looks or feels may be a sign of skin cancer or a warning that cancer might occur.

Some key warning signs are:

- A new growth
- A spot or bump that’s getting bigger
- A sore that doesn’t heal within a couple of months

Again, be sure to show your doctor any areas that concern you and ask your doctor to look at areas that may be hard for you to see.

If you or your doctor finds something that doesn’t look normal, your doctor will do exams and tests to find out if it is cancer or something else. If it is skin cancer, more tests may be done to find out if it has spread to other places.

History and physical exam

Your doctor will ask you when the mark on your skin first appeared, whether it has changed in size or the way it looks, and if it has caused any symptoms (pain, itching, bleeding, etc.). You may also be asked about past exposures to causes of skin cancer (including sunburns and the use of tanning beds) and if you or anyone in your family has had skin cancer.

During the exam, the doctor will note the size, shape, color, and texture of the area in question, and whether there is bleeding or scaling. He or she may check the rest of your body for spots and moles that could be related to cancer. The doctor may also check nearby lymph nodes (bean-shaped collections of immune system cells) to feel if they are larger or firmer than usual. This could mean the cancer has spread to the nodes.

If you see your regular doctor, you may be referred to a doctor called a *dermatologist*. This doctor has special training in skin diseases and will look at the area more closely. He or she may use a special magnifying lens (a dermatoscope) to see spots on the skin. Pictures of the spot may be taken.

Skin biopsy

If the doctor thinks that an area might be skin cancer, a sample of skin will be taken to be looked at under a microscope. This is called a *skin biopsy*. There are different ways to do a biopsy. The choice depends on the most likely type of skin cancer, where it is on the body, the size of the area, and other factors. Any biopsy is likely to leave at least a small scar. Different biopsy methods leave different scars. Ask your doctor ahead of time about the type of biopsy you will have and what kind of scar it will leave.

No matter which type of biopsy is done, it should remove as much of the area in question as can be done so that a precise diagnosis can be made. If the biopsy removes the whole tumor, it is often enough to cure the skin cancer without further treatment.

Skin biopsies are done using numbing medicine, which is put into the area with a very small needle.

Types of skin biopsies

Shave biopsy: To do this biopsy, the doctor numbs the skin and then "shaves" off the top layers of the skin with a surgical blade.

Punch biopsy: This method is used to remove a deeper sample of skin. After skin is numbed, the doctor uses a tool that looks like a tiny round cookie cutter to cut through all layers of the skin to remove the tissue sample. The edges of the biopsy site are often stitched together.

Incisional and excisional biopsies: These types of biopsies are used if the doctor needs to look at deeper layers of the skin. The skin is numbed, and a scalpel is used to cut through the full thickness of the skin. A wedge of skin is removed and the edges are sewn back together. An *incisional biopsy* removes only part of the tumor. If the whole tumor is removed, it is called an *excisional biopsy*.

All skin biopsy samples are sent to a lab, where they are looked at under a microscope by a pathologist (a doctor trained in looking at tissue samples to diagnose disease).

Lymph node biopsy

In rare cases when basal or squamous cell skin cancer spreads, it can go first to nearby lymph nodes, which are small, bean-sized collections of immune cells. If the doctor feels the lymph nodes are too large or too firm, a lymph node biopsy may be needed. This is done to find out whether the cancer has spread from the skin to nearby lymph nodes.

There are 2 ways to do a lymph node biopsy.

- In *fine needle aspiration* (FNA), a thin, hollow needle is used to remove very small pieces of tissue from a lymph node. This does not leave a scar.

- If the doctor suspects there is cancer in a lymph node that the FNA did not find, a *surgical lymph node biopsy* may be done. For this, the doctor removes the whole lymph node, leaving a small scar.

Staging for basal and squamous cell skin cancers

The stage of a cancer sums up how far it has spread.

Because basal cell skin cancer is almost always cured before it spreads to other organs, it is seldom staged unless the cancer is very large.

Squamous cell cancers have a higher (but still small) risk of spreading. Staging is sometimes done, especially for people who have a high risk of spread. This includes people who have had organ transplants and those with HIV, the virus that causes AIDS.

The tests and exams described in the section “How are basal and squamous cell skin cancers found?” are the main ones used to help figure out the stage of the cancer. In rare cases, tests like x-rays, CT scans, or MRI scans may be used as well.

Stages are labeled using the number 0 and the Roman numerals I through IV (1-4). As a rule, the lower the number, the less the cancer has spread. A higher number, such as stage IV (4), means a more advanced cancer.

After looking at your test results, the doctor will tell you the stage of your cancer. Be sure to ask your doctor to explain your stage in a way you understand. This will help you decide on the best treatment for you.

How are basal and squamous skin cancers treated?

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

The treatment information in this document is not official policy of the Society and is not intended as medical advice to replace the expertise and judgment of your cancer care team. It is intended to help you and your family make informed decisions, together with your doctor.

Your doctor may have reasons for suggesting a treatment plan different from these general treatment options. Don’t hesitate to ask him or her questions about your treatment options.

About treatment

If you have basal or squamous cell skin cancer, your doctor will discuss your treatment options with you. You may have different types of doctors on your treatment team. Many basal and squamous cell cancers (as well as pre-cancers) are treated by dermatologists – doctors who are experts in treating skin diseases. If the cancer is more advanced, you may be treated by another type of doctor, such as a surgical oncologist, medical oncologist, or radiation oncologist.

Based on the stage of the cancer and other factors, your treatment options may include:

- Surgery
- Other forms of local treatment
- Radiation treatment
- Chemotherapy
- Targeted therapy

Most basal cell and squamous cell carcinomas can be cured with fairly minor surgery or other types of local treatments.

It's important to discuss all of your treatment options as well as their side effects with your doctors to help you decide which one best fits your needs. If there is anything you don't understand, ask to have it explained. (See the section "What are some questions I can ask my doctor about basal and squamous cell skin cancer?" for some questions to ask.)

The next few sections describe the main types of treatment used for actinic keratosis, Bowen disease, squamous cell carcinoma, and basal cell carcinoma.

Other skin cancers, such as melanoma, lymphoma of the skin, Merkel cell carcinoma, Kaposi sarcoma, and other sarcomas are treated differently and are discussed in separate documents.

Surgery for basal and squamous cell skin cancers

There are many different kinds of surgery for basal cell and squamous cell cancers. The type of treatment that's best for you depends on how large the cancer is, where it is on the body, and sometimes on other factors such as the exact type of skin cancer it is. Often basal cell and squamous cell cancers can be cured by minor surgery. For skin cancers with a high risk of spreading, surgery might be followed by other treatments like radiation or chemo.

Excision

This is like an excisional biopsy, described in the section “How are basal and squamous cell cancers found?” The skin is first numbed and then the tumor is cut out, along with some normal skin around it. The remaining skin is carefully stitched back together. This will leave a small scar.

Curettage and electrodesiccation

In this treatment the cancer is removed by scraping it with a long, thin tool called a curette. The area is then treated with an electric needle to destroy any remaining cancer cells. The process is often done more than once. This treatment will leave a small scar.

Mohs surgery

In this surgery, the doctor removes a very thin layer of skin and then checks the sample under a microscope. If cancer cells are seen, more layers of skin will be removed and looked at until the samples do not show cancer cells. This process is slow, often taking several hours, but it means that normal skin next to the tumor can be saved and the skin will look better after surgery.

Lymph node surgery

If lymph nodes near the cancer are growing larger, it could be a sign that the cancer has spread to these nodes. In that case, the nodes will be biopsied (see “How are basal and squamous cell skin cancers found?”), or many nodes might be removed in a more thorough operation called a *lymph node dissection*. The removed nodes will be looked at under a microscope to see if they contain cancer cells. This operation is more involved than surgery on the skin. You would most likely have general anesthesia (where you are given drugs to put you into a deep sleep).

A possible long-term side effect is *lymphedema*. Lymph nodes in the groin or under the arm normally help drain fluid from the limbs. If they are removed, fluid may build up, leading to limb swelling. Elastic stockings or compression sleeves can help some people with this problem. For more details, see our document *Understanding Lymphedema (for Cancers Other Than Breast Cancer).*

Skin grafting and reconstructive surgery

If a large skin cancer has been removed, it may not be possible to stretch the nearby skin enough to stitch the edges of the wound together. In these cases, skin grafts taken from other parts of the body or other methods can help the wound heal and replace tissue. These can also help the treated skin look as normal as possible.

Other forms of local treatment for basal and squamous cell skin cancers

Other methods can be used to treat basal and squamous cell skin cancers that have not spread to lymph nodes or other parts of the body. Some of these treatments are described as types of “surgery” since they destroy tissue. But these methods don’t involve cutting into the skin.

Cryosurgery

In this treatment, very cold liquid nitrogen is used to freeze and kill cancer cells. After the dead area of skin thaws it may swell, blister, and crust over. The wound may take a month or 2 to heal and will leave a scar. The treated area may have less color after treatment.

This treatment is used most often for pre-cancers and for small basal cell and squamous cell cancers.

Photodynamic therapy (PDT)

This treatment involves putting a special kind of drug right on the skin cancer. It collects in the cancer cells over the course of many hours or days and makes them sensitive to certain types of light. A special light source is then focused on the cancer. It “turns on” the drug so it kills the cells.

PDT can cause redness and swelling on the skin where it is used. Another possible side effect is that it can make a person’s skin very sensitive to sunlight for a while, so patients may need to be careful to avoid sunlight so they don’t get bad burns.

PDT is used mainly to treat actinic keratoses. To find out more about this treatment, see our document *Photodynamic Therapy*.

Topical chemotherapy

Chemotherapy (“chemo”) is the use of drugs to kill cancer cells. *Topical* chemo means that a drug is put right on the skin (usually in a cream or ointment) rather than being given by mouth or put into a vein. Depending on the drug, it may be used once or twice a day for anywhere from a few days to a few months.

When put on the skin, the drug reaches cancer cells near the skin surface. But it does not reach cancer cells that have grown deep into the skin or spread to other organs. For this reason, this kind of treatment is most often used only for very early skin cancers or for pre-cancers like actinic keratosis.

This treatment can cause the treated skin to be red and tender for up to a few weeks, which can be quite bothersome for some people.

Immune response modifiers

Certain drugs can boost the body's immune system response to the cancer, causing the cancer to shrink or go away.

Creams like imiquimod (Zyclara) can be applied to actinic keratoses and some very early basal cell cancers. They are most often applied at least a few times a week for several weeks, although schedules can vary. Like other topical gels, they can cause severe skin reactions in some people. They can also cause flu-like symptoms.

Interferon is a man-made version of an immune system protein. It can be injected right into the tumor to boost the body's immune response to fight it. Interferon may be used when surgery is not possible, but it may not work as well as other treatments.

Laser surgery

This newer treatment uses a beam of laser light to kill cancer cells. It's sometimes used for actinic keratosis and very early basal and squamous cell cancers. It's not yet known whether laser surgery works as well as standard methods of treatment, and it is not widely used.

Chemical peeling

In this approach, the doctor applies a small amount of trichloracetic acid (TCA) or a chemical like it to the skin tumor, killing the tumor cells over the course of several days. This approach is sometimes used to treat actinic keratosis.

Radiation therapy for basal and squamous cell skin cancers

Radiation therapy is treatment with high-energy rays (such as x-rays) to kill cancer cells or shrink tumors. The radiation is focused from outside the body onto the skin tumor.

When radiation is used to treat cancers on the skin, it is often done with *electron beam radiation*. This type of treatment uses electrons, which do not go deeper than the skin. This helps limit the side effects in other parts of the body.

Radiation may be used as the main (primary) treatment instead of surgery if the tumor is very large, or if it is in an area that makes surgery hard to do. It might also be used for people who, because of poor health, cannot have surgery. In some cases, radiation can be used after surgery as additional (adjuvant) therapy to kill small groups of cancer cells that may not be seen during surgery. This lowers the risk of cancer coming back after surgery.

Radiation may also be used to treat skin cancer that has spread to lymph nodes or other organs.

The treatment is much like getting an x-ray but is stronger. Each treatment is painless and lasts only a few minutes, although the setup time – getting you into place for treatment – takes longer.

Side effects of radiation can include skin irritation, redness, dryness, and hair loss in the area being treated. With longer treatment, these side effects may get worse. After many years, new skin cancers may start in areas that had been treated with radiation. Because of this, radiation is not usually done to treat skin cancer in young people or in others who are at higher risk for new skin cancers.

To learn more about radiation treatment, please see our document *Understanding Radiation Therapy: A Guide for Patients and Families.*

Systemic chemotherapy for basal and squamous cell skin cancers

Systemic chemotherapy (chemo) uses drugs that are injected into a vein or given by mouth. These drugs travel through the bloodstream to all parts of the body. Unlike chemo that is put on the skin, systemic chemo can attack cancers that have spread to lymph nodes and other organs. They can often slow the spread of these cancers and help relieve symptoms. In some cases, they may shrink tumors enough so that other treatments such as surgery or radiation can be used.

Chemo drugs attack cells that divide fast. This is why they work against cancer cells. But other cells in the body divide fast, too. These cells are also likely to be affected by chemo, which can lead to side effects.

The side effects of chemo depend on the type and dose of drugs given and the length of time they are taken. These side effects may include:

- Hair loss
- Mouth sores
- Loss of appetite
- Nausea and vomiting
- Diarrhea or constipation
- Higher chance of infection (from too few white blood cells)
- Easy bruising or bleeding (from too few blood platelets)

- Feeling very tired all the time, called *fatigue* (from too few red blood cells)

These side effects are usually short-term and go away once treatment is finished. Some drugs may have side effects that are not listed above.

Be sure to talk with your doctor or nurse about any side effects you have because there are often ways to help. For instance, drugs can be given to help prevent or reduce nausea and vomiting. To learn more about chemo, see our document *A Guide to Chemotherapy*.

Targeted therapy for basal and squamous cell skin cancers

Doctors have found some of the gene changes that make skin cancer cells different from normal cells, and they have begun to create drugs that attack these changes. These targeted drugs work differently from standard chemotherapy (chemo) drugs. They may work sometimes when chemo drugs don't. And they may have less severe side effects.

An example of a targeted drug is vismodegib (Erivedge), which can be used to treat some advanced or recurrent basal cell skin cancers. It is very rare for basal cell cancers to reach an advanced stage, but when they do, these cancers can be hard to treat. Vismodegib has been shown to help shrink some tumors, although it's not yet clear if it helps people live longer.

Side effects can include muscle spasms, joint pain, hair loss, fatigue, problems with taste, poor appetite and weight loss, nausea and vomiting, diarrhea, and constipation. Vismodegib can also cause women to stop having their periods for a time. This drug should not be taken by women who are pregnant or could become pregnant.

Clinical trials for basal and squamous cell skin cancers

You may have had to make a lot of decisions since you've been told you have skin cancer. One of the most important decisions you will make is deciding which treatment is best for you. You may have heard about clinical trials being done for your type of skin cancer. Or maybe someone on your health care team has mentioned a clinical trial to you.

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

Clinical trials are one way to get state-of-the art cancer treatment. Sometimes they may be the only way to get some newer treatments. They are also the only way for doctors to learn better ways to treat cancer. Still, they are not right for everyone.

If you would like to learn more about clinical trials that might be right for you, start by asking your doctor if your clinic or hospital conducts clinical trials. You can also call our clinical trials matching service for a list of clinical trials that meet your medical needs. You can reach this service at 1-800-303-5691 or on our website at

www.cancer.org/clinicaltrials. You can also get a list of current clinical trials by calling the National Cancer Institute's Cancer Information Service at 1-800-4-CANCER (1-800-422-6237) or by visiting the NCI clinical trials website at www.cancer.gov/clinicaltrials.

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

You can get a lot more information on clinical trials in our document *Clinical Trials: What You Need to Know*. You can read it on our website or call us (1-800-227-2435) to have it sent to you.

Complementary and alternative therapies for basal and squamous cell skin cancers

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

What are complementary and alternative therapies?

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

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

Alternative treatments: Alternative treatments may be offered as cancer cures. These treatments have not been proven safe and effective in clinical trials. Some of these methods may be harmful, or have life-threatening side effects. But the biggest danger in most cases is that you may lose the chance to be helped by standard medical treatment. Delays or interruptions in your medical treatments may give the cancer more time to grow and make it less likely that treatment will help.

Finding out more

It is easy to see why people with cancer think about alternative methods. You want to do all you can to fight the cancer, and the idea of a treatment with few or no side effects

sounds great. Sometimes medical treatments like chemotherapy can be hard to take, or they may no longer be working. But the truth is that most alternative methods have not been tested and proven to work in treating cancer.

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

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

The choice is yours

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

What are some questions I can ask my doctor about basal and squamous cell skin cancer?

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

- Would you please write down the exact kind of cancer I have?
- Can you explain the different types of skin cancer?
- Has the cancer spread beneath my skin? Has it spread to lymph nodes or to other organs?
- Do I need any other tests before we can decide on treatment?

- Do I need to see other doctors?
- How much experience do you have treating this type of cancer?
- What are my treatment options? What do you recommend? Why?
- What will treatment be like? Where will it be done? How long will it take?
- Will I be OK if the cancer is just removed with no follow-up treatment?
- What risks or side effects should I expect with my treatment?
- Will I have a scar after treatment?
- What are the chances that the skin cancer will come back? What would we do if that happens?
- How quickly do we need to decide on treatment?
- What should I do to be ready for treatment?
- What are my chances of developing another skin cancer?
- Should I take special care to avoid sun exposure? How should I do that?
- What type of follow-up will I need after treatment?
- Are my family members at risk for skin cancer? What should I tell them to do?

Along with these sample questions, be sure to write down some of your own. For instance, you might want to know more about recovery times so you can plan your work or activity schedule. Or you may want to ask about second opinions or about clinical trials. For more about communicating with your health care team, see our document *Talking With Your Doctor*.

Moving on after treatment for basal and squamous skin cell cancer

For most people with basal or squamous cell skin cancers, treatment will remove or destroy the cancer. Completing treatment can be both stressful and exciting. You may be relieved to finish treatment, but find it hard not to worry about cancer growing or coming back. (When cancer comes back after treatment, it is called a *recurrence*.) This is a very common concern in people who have had cancer.

It may take a while before your fears lessen. But it may help to know that many cancer survivors have learned to live with this uncertainty and are leading full lives. Our

document *Living With Uncertainty: The Fear of Cancer Recurrence* gives more details on this.

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

Follow-up care

If you have finished treatment, your doctor will likely suggest that you check your skin once a month. Family members and friends can also be asked to watch for new skin changes in areas that are hard for you to see.

If skin cancer does come back, it will most likely happen in the first 5 years after treatment. A person who has had skin cancer is at higher risk for getting another one in a different place, so close follow-up is important. It's also very important to protect yourself from getting too much sun, which can raise your risk of new skin cancers.

You should have follow-up exams as advised by your doctor. Your plan for follow-up visits will depend on the type of cancer you had and on other factors.

- For basal cell cancers, visits are often needed about every 6 to 12 months.
- For squamous cell cancers, visits are usually more frequent – often every 3 to 6 months for the first few years, followed by longer times between visits.

During your visits, your doctor will ask about symptoms and do a physical exam to look for signs of the cancer coming back or a new skin cancer. For higher risk cancers, such as those that had reached the lymph nodes, the doctor may also do tests like CT scans.

If skin cancer does recur, treatment options depend on the size and location of the cancer, what treatments you've had before, and your overall health.

Follow-up is also needed to check for possible side effects of certain treatments. This is the time for you to ask your health care team any questions and to discuss any concerns you might have.

Seeing a new doctor

At some point after your cancer is found and treated, you may find yourself in the office of a new doctor. It's important that you be able to give your new doctor the details of your diagnosis and treatment. Gathering these details during and soon after treatment may be easier than trying to get them at some point in the future. Make sure you have this information handy, and always keep copies for yourself:

- A copy of your pathology report from any biopsy or surgery
- If you had surgery, a copy of your operative report
- If you stayed in the hospital, a copy of the discharge summary that the doctor wrote when you were sent home
- If you had radiation treatment, a summary of the type and dose of radiation and when and where it was given
- If you had chemo or other drug treatments, a list of your drugs, drug doses, and when you took them

It's also important to keep your health insurance. Tests and doctor visits cost a lot, and even though no one wants to think of their cancer coming back, this could happen.

Lifestyle changes after basal and squamous cell skin caner

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

Make healthier choices

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

You can start by working on those things that worry you most. Get help with those that are harder for you. For instance, if you are thinking about quitting smoking and need help, call the American Cancer Society at 1-800-227-2345.

Can I lower my risk of cancer coming back or getting new skin cancers?

Most people want to know if there are lifestyle changes they can make to reduce their risk of cancer coming back.

People who have had skin cancer are at higher risk for getting another skin cancer. Because of this, it's important to avoid too much sun (see the section "Can basal and squamous cell skin cancers be prevented?") and to examine your skin every month for signs of possible new skin cancers. Seeing your doctor regularly for skin exams is also

important. Skin cancers that are found early are often much easier to treat than those found at a later stage.

Healthy behaviors such as not smoking, eating well, being active, and keeping a healthy weight may also help, but no one knows for sure. But we do know that these types of changes can have good effects on your health.

What's new in basal and squamous skin cancer research?

Research about basal and squamous cell skin cancers is going on in many medical centers throughout the world.

Basic skin cancer research

Scientists have made a lot of progress in recent years in learning how UV light harms normal skin cells and causes them to become cancer. Researchers are working to use this new knowledge to find ways to prevent and treat skin cancers.

Public education

Most skin cancers can be prevented. People need to know about how to protect themselves and how to make sure any skin cancer is found early. The American Academy of Dermatology (AAD) sponsors free skin cancer screenings around the country every year. Many local ACS offices work with the AAD to help with these screenings. Watch for information in your area, or call the AAD. Their phone number and web address are listed in the "How can I learn more about basal and squamous cell cancer?" section.

Preventing genital skin cancers

Squamous cell cancers that start around the genitals account for almost half of the deaths from this type of skin cancer. Many of these cancers may be linked to infection with certain types of human papilloma virus (HPV), which can be spread through sexual contact. Having fewer sex partners and using safer sex methods (such as using condoms) might help lower the risk of some of these cancers.

Vaccines can help protect against infection from some types of HPV. The main purpose of these vaccines is to reduce the risk of cervical cancer, but they may also lower a person's risk of other cancers that might be linked to HPV.

Prevention using medicines

This is an area of active research. Using drugs to prevent cancers from forming is called *chemoprevention*. This is likely to be more useful for people at high risk of skin cancers than for people at average risk. High risk includes people with certain genetic syndromes, those who have had a skin cancer before, or those who have had organ transplants.

Treatment

Local treatments

Local treatments are aimed just at the skin cancer cells and a small amount of normal tissue around them. Local treatments work well for most basal and squamous cell skin cancers. Still, even small cancers can be hard to treat if they're in certain areas. Newer forms of non-surgical treatment (like creams, light therapy, and laser surgery) may help reduce scarring and other possible side effects of treatment. Studies are now going on to find the best way to use these treatments and to try to make them work better.

Treating advanced disease

Most basal and squamous cell skin cancers are found and treated at a fairly early stage, but some may spread to other parts of the body. These cancers can often be hard to treat with current treatments such as radiation and chemo.

Many 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 such as erlotinib (Tarceva), gefitinib (Iressa), and cetuximab (Erbitux) that target this protein are now being tested in clinical trials. A drug known as dasatinib (Sprycel), which targets different cell proteins is also being studied for advanced skin cancers.

It's very rare for basal cell cancers to reach an advanced stage, but these cancers can be hard to treat. Vismodegib (Erivedge) is a new drug that may help some people (see "Targeted therapy for basal and squamous cell skin cancers"). Other targeted drugs are now being studied as well.

How can I learn more about basal and squamous cell skin cancer?

From your American Cancer Society

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

Skin cancer causes and prevention

A Parent's Guide to Skin Protection (also in Spanish)

Skin Cancer: Prevention and Early Detection

Sun Basics: Skin Protection Made Simple (information for children aged 8 to 14)

Ultraviolet (UV) Radiation

Living with cancer

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

Talking With Friends and Relatives About Your Cancer (also in Spanish)

Coping With Cancer in Everyday Life (also in Spanish)

Caring for the Patient With Cancer at Home: A Guide for Patients and Families (also in Spanish)

Distress in People With Cancer

Anxiety, Fear, and Depression

Living With Uncertainty: The Fear of Cancer Recurrence

When Your Cancer Comes Back: Cancer Recurrence

Understanding cancer treatments

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

A Guide to Chemotherapy (also in Spanish)

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

Photodynamic Therapy

Clinical Trials: What You Need to Know

Cancer treatment side effects

Nausea and Vomiting

Anemia in People With Cancer

Fatigue in People With Cancer

Understanding Lymphedema (for Cancers Other Than Breast Cancer)

Work, insurance, and finances

In Treatment: Financial Guidance for Cancer Survivors and Their Families (also in Spanish)

Health Insurance and Financial Assistance for the Cancer Patient (also in Spanish)

Working During Cancer Treatment

Returning to Work After Cancer Treatment

National organizations and websites*

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

American Academy of Dermatology (AAD)
Toll-free number: 1-888-462-3376 (1-888-462-DERM)
Website: www.aad.org
Spot Skin Cancer website: 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

Environmental Protection Agency (EPA)
Website: www.epa.gov/sunwise/

> Has free sun safety information and a UV Index app that you can check using your zip code

National Cancer Institute
Toll-free number: 1-800-422-6237 (1-800-4-CANCER)
TYY: 1-800-332-8615
Website: www.cancer.gov

Offers accurate, up-to-date information about cancer to patients, their families, and the general public

Skin Cancer Foundation
Toll-free number: 1-800-754-6490 (1-800-SKIN-490)
Website: www.skincancer.org

Has pictures and descriptions of skin cancers, information and educational materials, and newsletters

American Society of Dermatologic Surgery (ASDS)
Website: www.asds.net

Has a Skin Cancer Self-Exam Kit and Journal, which can be printed from the website, “Skin Cancer Takes Friends” – a state-by-state guide to free skin cancer screenings (usually conducted May thru July), and a Dermatologic Surgeon Locator, you can search by zip code

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

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

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