Reference Database

Skin Cancer—Australian Experience

The incidence of skin cancer is higher in Australia than in any other country, and incidence rates are still rising. In response to this problem, Australian officials adopted a variety of initiatives.

Many of these initiatives focused on public education. For example, the "SunSmart" education program, implemented from 1988 through 1990, significantly increased the use of sunscreen and hats among a test group of more than 4,000 adults. Women, particularly adolescents and young adults, developed positive attitudes about protection and behavior. Similarly, the public service announcement "Slip! Slop! Slap!" (that is, slip on a shirt, slop on sunscreen, and slap on a hat) raised awareness of skin cancer, especially among outdoor workers. Responding to the need to promote sun-safe attitudes, Australian fashion magazines have started to feature hats and use fewer models with tans.

Other educational programs have emphasized the need for regular self-examination and have encouraged physicians to routinely perform skin examinations on all patients they see.

Community changes have been important components of skin cancer prevention programs in Australia as well. These changes include building awnings and other structures to provide shade wherever possible, rescheduling sports and other outdoor community events away from midday hours to avoid peak ultraviolet light exposure periods, and reducing taxes on sunscreens.

The Australian government has promoted research on health risks associated with skin cancer. It also has encouraged organizations and communities to establish screening programs to reach individuals who are at particularly high risk for skin cancer.

Skin Cancer—Deaths

The American Cancer Society estimates that approximately 9,000 Americans die each year from skin cancer. About 7,000 of these deaths are from melanoma; the other deaths are related to other types of skin cancer.

The U.S. Centers for Disease Control and Prevention (CDC) reported that from 1973 to 1992, the death rate for melanoma increased 48 percent in U.S. men. And in 1996, the CDC reported that the rate was continuing to rise, despite how easily the disease can be prevented or treated (if detected early). One explanation for this trend is increased recreational exposure to the sun.

Skin Cancer—Definition

Skin cancer is a disease in which cancerous cells grow in the outer layers of a person's skin.

Skin cancer is the most common type of cancer in the United States. In fact, an estimated 2 in every 5 Americans who reach the age of 65 will develop skin cancer sometime in their lives.

Skin cancer is the most curable form of cancer: almost 100 percent if it is caught early. Treatment involves removing or destroying the tumor completely, while causing minimal damage to surrounding tissues.

Skin cancer also is one of the most preventable cancers. Some scientists have estimated that 90-95 percent of all cases result from overexposure to the sun and might have been avoided if the patients had practiced appropriate protective measures.

Skin Cancer—Detection

The cure rate for skin cancer could be 100 percent if all skin cancers were brought to a doctor's attention before they had a chance to spread. Therefore, people should check themselves regularly for new growths or other changes in the skin. Any new, colored growths or any changes in growths that are already present should be reported to a doctor without delay.

Doctors also should look at the skin during routine physical exams. People who have already had skin cancer should be sure to have regular exams so that the doctor can check the skin, both the treated areas and other places where cancer may develop.

Skin Cancer—Diagnosis

Most skin cancer is diagnosed and treated in the same way. When an area of skin does not look normal, the doctor may remove all or part of the growth. This is called a biopsy. To check for cancer cells, the tissue is examined under a microscope by a pathologist or a dermatologist. A biopsy is the only sure way to tell if the problem is cancer.

Doctors generally divide skin cancer into two stages: local (affecting only the skin) or metastatic (spreading beyond the skin). Because skin cancer rarely spreads, a biopsy often is the only test needed to determine the stage. In cases where the growth is very large or has been present for a long time, the doctor will carefully check the lymph nodes in the area. In addition, the patient may need to have additional tests, such as special X-rays, to find out whether the cancer has spread to other parts of the body. Knowing the stage of a skin cancer helps the doctor plan the best treatment.

Skin Cancer—Incidence

Skin cancer is the most common type of cancer in the United States, making up approximately one-half of all types of localized cancer. According to current estimates, 40–50 percent of Americans who live to age 65 will have skin cancer at least once.

The American Cancer Society estimates that in 1998 there were approximately 1 million new cases of highly curable basal cell or squamous cell skin cancers. The society also estimates that in 1998 more than 40,000 new cases of melanoma, the most serious form of skin cancer, were diagnosed. The incidence of melanoma is approximately 20 times higher among Caucasians than among African Americans.

Skin Cancer—Prevention (Personal Actions)

The best defense against skin cancer is protection from the sun and ultraviolet light.

The National Cancer Institute recommends that whenever possible, people should avoid exposure to the midday sun (from 10 a.m. to 2 p.m. standard time, or from 11 a.m. to 3 p.m. daylight saving time). People should remember that protective clothing, such as sun hats and long sleeves, can block out the sun's harmful rays. Also, lotions that contain sunscreen with an SPF of 15 or higher can protect the skin.

The American Cancer Society notes that there is a link between severe sunburns in childhood and significantly increased risk of developing melanoma later in life. Therefore, children especially should be protected from the sun. In fact, programs promoting behavioral change have begun in U.S. schools and at beaches and pools. Some programs try to reach children with simple messages. For example, the "shadow rule" ("Short shadow! Seek shade!") teaches children that when their shadows are shorter than they are, it is time to seek shade and use sunscreen and hats. Other awareness programs are directed at parents and caregivers.

Additional prevention tips from the American Academy of Dermatologists include:

- When in the sun, wear a wide-brimmed hat that shades the face, neck, and ears; sunglasses that block UVA and UVB rays; and protective clothing (long-sleeved shirts, long pants). Dark, tightly woven clothes filter out the sun best.
- Practice protection from the sun even when it is cloudy. As much as 80 percent of the sun's rays can penetrate light clouds, mist, and fog.
- Be especially careful near reflective surfaces such as sand, concrete, water, or snow. These surfaces can reflect up to 85 percent of the sun's rays.
- Use a sunscreen with a higher SPF than usually used if visiting an area with high altitudes or a tropical climate; sunlight in these areas is particularly intense.
- Keep infants younger than 6 months out of direct sunlight. After 6 months of age, begin using a sunscreen made especially for an infant's sensitive skin. Be sure infants wear hats when they are in the sun.

Skin Cancer—Prevention (Societal Actions)

Many organizations, including the National Cancer Institute, the American Cancer Society, and the American Academy of Dermatologists (AAD) distribute educational programs that alert the public to risk factors associated with skin cancer and ways to detect and prevent the disease. For example, in 1998 the Centers for Disease Control and Prevention (CDC) launched "Choose Your Cover," the federal government's first national sun protection initiative. The five-year program will use media announcements to influence the public's perceptions about sun protection and suntanning. The initiative's ultimate goal is to increase people's willingness and tendency to practice sun-safe behaviors.

Many organizations also produce materials that encourage health care professionals to regularly examine their patients' skin for signs of cancer and improve their ability to detect it at an early stage. Currently, only an estimated 14–25 percent of melanoma is discovered by a physician prior to the patient noticing something wrong.

Some organizations offer free skin examinations by dermatologists. One program sponsored by AAD provided free screening to almost 750,000 Americans between 1985 and 1994. These programs have shown some success. For example, of 195,660 people screened from 1992 to 1993, at least 261 cases of melanoma were confirmed in 257 individuals. Based on comments from these people, an estimated 36 percent of those with confirmed cases would not have seen a physician if the screening had not been available.

To promote public awareness of the hazards of ultraviolet light, the United States Weather Service, the Environmental Protection Agency, and the CDC publicize the UV index in television and newspaper weather reports in more than 50 major cities across the nation. This index rates predicted UV intensity on a scale of 1 to 10+ and suggests appropriate protective measures.

Skin Cancer—Prognosis (Likely Outcomes)

Skin cancer has a better prognosis, or likely outcome, than most other types of cancer. Although skin cancer is the most common type of cancer in this country, it accounts for less than 1 percent of all cancer deaths.

When diagnosed at a stage at which it is still localized, the five-year relative survival rate for all types of skin cancer is 94 percent. Seventy-four percent of all skin cancers are diagnosed at this stage. For skin cancers that are not localized, five-year relative survival rates drop significantly (to 49 percent if the cancer has spread regionally and 6 percent if the cancer has spread to distant sites).

Skin Cancer—Public Awareness

A study released in 1996 by the U.S. Centers for Disease Control and Prevention and the American Academy of Dermatology indicates that 42 percent of the adults surveyed had no knowledge of melanoma, the deadliest form of skin cancer. The level of awareness was lowest among people ages 18 to 24 years.

The survey also found that awareness of melanoma is related to income. Of people with annual incomes of less than $20,000, 60 percent reported that they did not recognize the term "melanoma." Only 31 percent of people with annual incomes of $75,000 or more reported no knowledge of the disease.

Skin Cancer—Risk Factors

The most important risk factors for developing skin cancer are excessive exposure to ultraviolet (UV) light, fair complexion, occupational exposure to radium or certain chemicals (for example, arsenic compounds), and family history.

Although anyone can get skin cancer, the risk is greatest for people who have fair skin that freckles easily—often those people with red or blond hair and blue or light-colored eyes.

UV radiation from the sun is the main cause of skin cancer. In particular, childhood sunburns are linked to an increased later risk of melanoma. Some experts estimate that one blistering sunburn will double a person's chance of developing skin cancer.

Artificial sources of UV radiation, such as sun lamps and tanning booths, also can cause skin cancer. Contrary to some people's beliefs, suntan is not a protective measure against skin cancer. In fact, tanning is evidence of the same damage occurring in skin cells that causes sunburn. Tanning also is associated with irreversible skin damage (such as early aging).

The chance of developing skin cancer is related to lifetime exposure to UV radiation. People who live in areas that get high levels of UV radiation from the sun are more likely to get skin cancer than people who live in other areas. In the United States, skin cancer is more common in Texas than it is in Minnesota, where the sun is not as strong. Worldwide, the highest rates of skin cancer are found in South Africa and Australia, areas that receive high amounts of UV radiation.

Elevation (or altitude) also affects UV exposure. Generally, UV exposure is greater at higher elevations (for example, in the mountains) than at lower elevations. Skiing carries a particular risk of significant UV exposure because of the high elevation and the great exposure to sunlight, both direct and reflected from the snow.

Because the chance of developing skin cancer is related to lifetime exposure to UV radiation, protection should start in childhood to prevent skin cancer later in life. Most skin cancers appear after age 50, but the sun's damaging effects begin at an early age.

Even though most skin cancers are cured, the disease can recur in the same place. Also, people who have been treated for skin cancer have a higher-than-average risk of developing a new cancer elsewhere on the skin. That is why it is so important for them to continue to examine themselves regularly, to visit their doctor for regular check-ups, and to follow the doctor's instructions on how to reduce the risk of developing skin cancer again.

Skin Cancer—Self-Examination

People can improve their chances of finding skin cancer promptly by regularly performing a simple skin self-exam. The best time to do this is after a shower or bath. The best way to examine one's skin is in a well-lighted room using a full-length mirror and a hand-held mirror. Begin by learning where normal birthmarks, moles, and blemishes are and what they usually look like. People also should check for anything new: a change in the size, texture, or color of a mole, or a sore that has not healed.

It is important to check all areas, including the back, scalp, between the buttocks, and genital area.

Skin Cancer—Symptoms

The most common warning sign of skin cancer is a change on the skin, especially a new growth or a sore that doesn't heal. Skin cancers don't all look the same. For example, the cancer may start as a small, smooth, shiny, pale, or waxy lump. Or it can appear as a firm, red lump. Sometimes, the lump bleeds or develops a crust. Skin cancer can also start as a flat, red spot that is rough, dry, or scaly.

Both basal and squamous cell cancers are found mainly on areas of the skin that are exposed to the sun: the head, face, neck, hands, and arms. However, skin cancer can occur anywhere.

Actinic keratosis, which appears as rough, red or brown, scaly patches on the skin, is known as a precancerous condition because it sometimes develops into squamous cell cancer. Like skin cancer, it usually appears on sun-exposed areas, but can be found elsewhere.

Changes in the skin are not sure signs of cancer; however, it is important to see a doctor if any symptom lasts longer than 2 weeks. People should not wait for an area to hurt—skin cancers seldom cause pain.

Skin Cancer—Treatment

A doctor's main goal in treating skin cancer is to remove or destroy the cancer completely with as small a scar as possible. To plan the best treatment for each patient, the doctor considers the location and size of the cancer, the risk of scarring, and the person's age, general health, and medical history.

Treatment for skin cancer usually involves some type of surgery. In some cases, doctors suggest radiation therapy or chemotherapy. Sometimes, a combination of these methods is used. Many skin cancers can be cut from the skin quickly and easily. In fact, the cancer is sometimes completely removed at the time of the biopsy, and no further treatment is needed.

Doctors commonly use a type of surgery called curettage. After a local anesthetic numbs the area, the cancer is scooped out with a curette, an instrument with a sharp, spoon-shaped end. The area is also treated by electrodesiccation. An electric current from a special machine may be used to control bleeding and kill any cancer cells remaining around the edge of the wound. Most patients develop a flat, white scar.

Skin Cancer—Types

There are several types of skin cancer. The most common types are basal cell cancer and squamous cell cancer. These types of skin cancer are called nonmelanoma skin cancer.

Melanoma is a type of skin cancer that is less common than basal cell or squamous cell cancer, but is more serious.

Basal Cell Cancer

Basal cell carcinoma accounts for more than 90 percent of all skin cancers in the United States. It is a slow-growing cancer that seldom spreads to other parts of the body.

Basal cell cancer usually occurs on areas of a person's skin that have been exposed to the sun. Often, it appears as a small, raised bump that has a smooth, pearly appearance. However, it can also look like a scar and seem firm to the touch.

Squamous Cell Cancer

Squamous cell cancer usually occurs on parts of a person's body that have been exposed to the sun. Often, it appears on the top of the nose, forehead, lower lip, and back of the hands. It also may appear on skin that has been severely sunburned, been exposed to carcinogenic chemicals, or had X-ray therapy.

Squamous cell cancer often appears as a firm, red bump; sometimes it may feel scaly or bleed or develop a crust. Squamous cell cancer rarely spreads, but it does so more often than basal cell cancer. Squamous cell cancer may spread to nearby lymph nodes.

Melanoma

Melanoma is the most serious cancer of the skin. In some parts of the world, especially among Western countries, the number of people who develop melanoma is increasing faster than the number for any other cancer. In the United States, the incidence of melanoma has more than doubled in the past 20 years. One explanation for this trend is increased recreational exposure to the sun.

Melanoma begins in certain cells in the skin called melanocytes. Melanocytes are spread throughout the lower part of the epidermis. They produce melanin, the pigment that gives our skin its natural color. When skin is exposed to the sun, melanocytes produce more pigment, causing the skin to tan, or darken.

Melanoma occurs when melanocytes become malignant. Most melanocytes are in the skin; when melanoma starts in the skin, the disease is called cutaneous melanoma. Melanoma may also occur in the eye and is called ocular melanoma or intraocular melanoma. Rarely, melanoma may arise in the meninges, digestive tract, lymph nodes, or other areas where melanocytes are found.

Melanoma can occur on any skin surface. In men, it is often found on the trunk (the area from the shoulders to the hips) or the head and neck. In women, it often develops on the lower legs. Melanoma is rare in African-American people and others with dark skin. When it does develop in dark-skinned people, it tends to occur under the fingernails or toenails or on the palms or soles. The chance of developing melanoma increases with age, but this disease affects people of all age groups. Melanoma is one of the most common cancers in young adults.

When melanoma spreads, cancer cells are found in the lymph nodes. If the cancer has reached the lymph nodes, it may mean that cancer cells have spread to other parts of the body, such as the liver, lungs, or brain. In such cases, the disease is called metastatic melanoma.

More than 90 percent of melanomas that arise in the skin can be recognized with the naked eye. Very often, the tumor first grows horizontally beneath the skin surface, but does not grow vertically, down into underlying tissues. This period of horizontal growth offers patients lead time for detecting the cancer early. Melanoma that has not yet spread vertically is completely curable.

Analyzing the Results of a Public Policy Discussion

Answer the following questions related to the public policy discussion you just completed.

1. What revisions, if any, would you make to the statute in the light of the reasons you heard?

2. What other suggestions can you make about reducing the incidence and impact of skin cancer in the United States?

3. How does this activity illustrate that

   - good choices can reduce a person's chance of developing cancer?

   - values sometimes conflict in debates about laws related to personal and public health?

   - it is possible for people to hold different positions on a controversial topic and still participate in a reasoned discussion about it?

4. How has research about cancer helped improve personal and public health in the United States? Answer specifically, using examples drawn from all five of the activities in this module.