Written Testimony

In Support of SB922
AN ACT ALLOWING STUDENTS TO APPLY SUNSCREEN PRIOR TO ENGAGING IN OUTDOOR ACTIVITIES

Australia has one of the highest incidents of skin cancers in the world - they are also the leaders in implementing safety UV programs for their children.

Skin cancer is a public health crisis. Every year, more and more Americans are diagnosed with it. More than 2 million of us develop skin cancer each year, including the most dangerous form, melanoma. In 2009, more than 61,000 people developed melanoma, and more than 9,000 died as a result.1 These statistics continue to increase. It is why these above mentioned medical societies stand in strong support of SB922.

In addition to the proposed language which would allow students to apply sunscreen before going outdoors, which seems common sense to those in the medical community, we also ask this committee to consider making this bill even stronger by adding language that would create a working group, including the CT Dermatology and Dermatologic Surgery Society, CSMS, CT Plastic and Reconstructive Surgery Society, American Cancer Association and other organizations and individuals deemed experts or suitable by this committee to develop recommendations on how we can best protect children from harmful UV rays and inform citizens about the adverse effects of UV rays and the cost to the healthcare delivery system. We also ask this committee to look at our indoor tanning statute to further limit adolescents under age 18 from exposure to these harmful ways and finally we have to do a better job with truth in advertising and labeling of the sunblock products on the market. We can begin by looking at our Australian ally’s legislation on sunscreen labeling regulations to help create legislation to address this area of skin cancer awareness.

We have included a link on sunscreen recommendations from the American Academy of Dermatology at; https://www.aad.org/media/stats/prevention-and-care/sunscreen-faqs, that provides a wealth of information. Attached are some facts on UV rays and some material from our Australian colleagues who have been working on awareness programs for decades. We also have attached a message from the U.S. Attorney General’s office who states that despite efforts to address skin cancer risk factors, such as inadequate sun protection and intentional tanning behaviors, skin cancer rates, including rates of melanoma, have continued to increase in the US. It is obvious we need to do more to protect our citizens and control the costs associated with UV exposure that are crippling our healthcare delivery system. Thank you.
Here are some facts:

- Over the past 35 years, the rate of new melanoma cases has tripled – from 7.89 per 100,000 in 1975 to 23.57 in 2010.
- New Statistics from the Surgeon General are reporting, each year in the United States, nearly 5 million people are treated from all skin cancers combined with an annual cost estimated at 8.1 Billion.
- The melanoma death rate for white American men, the highest risk group, has increased from 2.64 to 4.10 deaths per 100,000. Since 2000, the rates of new melanoma cases for both men and women have been climbing by 1.9 percent per year, including an especially troubling increase among teenagers.
- The estimated five-year melanoma survival rate for black patients is only 65 percent, versus 91 percent for whites.
- Skin cancer represents approximately 2 to 4 percent of all cancers in Asians.
- Skin cancer represents 4 to 5 percent of all cancers in Hispanics.
- Skin cancer represents 1 to 2 percent of all cancers in blacks.

https://www.skincancer.org/skin-cancer-information/skin-cancer-facts

**MELANOMA**

- It’s estimated that the number of new melanoma cases diagnosed in 2019 will increase by 7.7 percent.
- The number of melanoma deaths is expected to decrease by 22 percent in 2019.
- An estimated 192,310 cases of melanoma will be diagnosed in the U.S. in 2019. Of those, 95,830 cases will be in situ (noninvasive), confined to the epidermis (the top layer of skin), and 96,480 cases will be invasive, penetrating the epidermis into the skin’s second layer (the dermis). Of the invasive cases, 57,220 will be men and 39,260 will be women.
- An estimated 7,230 people will die of melanoma in 2019. Of those, 4,740 will be men and 2,490 will be women.
- The vast majority of melanomas are caused by the sun. In fact, one UK study found that about 86 percent of melanomas can be attributed to exposure to ultraviolet (UV) radiation from the sun.

Sunlight produces two kinds of ultraviolet rays that can damage the skin and lead to skin cancer: ultraviolet A, which can penetrate the skin, and ultraviolet B, which does not penetrate the skin but is still harmful and is the primary cause of sunburn. Although wearing protective clothing and avoiding intense sunlight are the best strategies for minimizing the risk of skin cancer, sunscreens that provide balanced UVA and UVB protection may reduce long term skin damage and aid in lowering the risk of skin cancer.

4 http://www.ewg.org/2013sunscreen/skin---cancer---on---the---rise/
5 http

Taken from https://wiki.cancer.org.au/policy/UV/Overview
Ultraviolet (UV) radiation is both the major cause of skin cancer and the best natural source of vitamin D. Australia has one of the world’s highest skin cancer rates, with 1,857 people dying in 2008 from melanoma and non-melanoma skin cancer (NMSC) combined – more than the national road toll\(^1\). The cost to the health system is enormous – NMSC alone incurs the second highest health expenditure of any cancer type in Australia, costing over $367 million annually\(^2\). Yet most skin cancers are preventable through appropriate protection from UV radiation.

Skin cancer includes cutaneous melanoma and NMSC, namely basal cell carcinoma (BCC) and squamous cell carcinoma (SCC). From as early as the 1950s and ’60s, concern over high skin cancer rates led to limited community education campaigns in Victoria and Queensland. These campaigns aimed to raise public awareness about skin cancer and to increase health professionals’ early detection of skin cancer.

Since the 1980s, more extensive public health programs aimed at preventing excessive exposure to UV radiation have been implemented across Australia by non-government cancer organisations and government health services. The ‘Slip! Slop! Slap!’ and SunSmart slogans, developed in 1980 and 1987 by Cancer Council Victoria, have been the themes of many campaigns and are well recognised by Australians in relation to sun protection.

**Today the key sun protection messages have expanded to ensure a focus on individual and environmental strategies, including slip on sun-protective clothing, slop on sunscreen with a rating of SPF30 or higher, slap on a hat, seek shade and slide on sunglasses.** The focus of these skin cancer prevention programs has been on reducing the potential harm of skin cancer by decreasing exposure to UV radiation and increasing early detection and effective treatment. In more recent years Cancer Council has also taken a leadership role in promoting a balance between the benefits and harms of UV radiation exposure, in the context of the links between UV exposure and vitamin D.

Despite the challenges of evaluating programs aimed at changing sun protection behavior, evidence of the effectiveness and cost-efficiency of programs in Australia and overseas is accumulating. **It is estimated that the maintenance of the SunSmart program at $0.24 per capita per annum will yield a $2.32 saving in return for every dollar spent on the program\(^4\).** Research is increasingly linking public health programs that encourage behavior change to reductions in incidence and mortality.

**Investment in skin cancer prevention over three decades has produced a body of evidence, collected largely by Cancer Councils, showing the effectiveness of such health promotion programs. Research shows that such programs have led to increased awareness of skin cancer prevention and improved sun protective behaviours. Skin cancer rates would be expected to decline as a result.**\(^5\)\(^6\)\(^7\)\(^8\)\(^9\)

**References**

Sun exposure

The major cause of melanoma and NMSC is UV radiation exposure\[1\]. Childhood and adolescent sun exposure is thought to be important in determining the lifetime potential for skin cancer. Adult exposure appears to contribute to the extent to which this potential is realised. The exact exposure needed to develop various skin cancers is not entirely clear. It is likely that both episodic and cumulative exposures are important; episodic exposures have been shown to more strongly determine the risk of melanoma. Based on a review of recalled sun exposure by period of life in studies of melanoma, the relative risk of melanoma with a history of childhood sunburn has been estimated to be 1.8, while for sunburn in adulthood it is 1.5\[2\].

In adult life, recreational (intermittent) sun exposure appears to be the strongest determinant of melanoma risk, followed by total lifetime sun exposure and occupational exposure. Fair skin, which tends to burn easily and rarely tans, is also an important risk factor for skin cancer\[1\].

In relation to NMSC, there is evidence that childhood and recreational (that is intermittent and non-occupational) sun exposure is important in determining the risk of basal cell carcinoma (BCC), while cumulative sun exposure such as occupational exposure, is the main determinant for squamous cell carcinoma (SCC)\[1\]. Using actinic keratoses as a surrogate for NMSC, studies have shown the impact of childhood exposure on increasing the risk of NMSC\[3\]; sunscreen use has been shown to reduce the risk in adults\[4\][5].

The burden of NMSC depends on geographical location. In Australia, both BCC and SCC rates are around three times higher in latitudes closer to the equator\[6\][7], where UV radiation is higher.

Solariums- Indoor Tanning Beds

In 2009, the International Agency for Research on Cancer (IARC) added UV emitting tanning beds to its highest cancer risk category, labelling them as "carcinogenic to humans" after deeming them to be more dangerous than previously suggested\[8\]. A systematic review of published studies revealed that first exposure to a solarium before the age of 35 years increases the risk of cutaneous melanoma by 75%\[9\]. For all users, the risk of squamous cell carcinoma is estimated to be more than double compared with non-users\[9\].

The Australian/New Zealand standard for the solarium industry (AS/NZS 2635:2008) was revised in January 2009. The standard covers the operation of solariums and provides best practice industry guidelines, such as excluding individuals with skin type I (pale white skin that always burns, never tans) and those under 18 years of age. It also recommends that individuals with skin type II (people with white skin who burn easily, tan minimally) should not use a tanning unit.

There is no evidence supporting the view that exposure to UV radiation through solariums is ‘safe’ or that tanning in this way protects against skin cancer. The Australian/New Zealand standard for the solarium industry prohibits any claims of health benefits and ensures warning signs listing the risks must be exhibited.

See the Cancer Council position statement on Solariums for more information

INDOOR TANNING- Solariums and Suntanning beds

- Ultraviolet (UV) radiation is a proven human carcinogen.¹⁸

- The International Agency for Research on Cancer, an affiliate of the World Health Organization, includes ultraviolet (UV) tanning devices in its Group 1, a list of agents that are cancer-causing to humans. Group 1 also includes agents such as plutonium, cigarettes and solar UV radiation.¹⁹

- Ultraviolet (UV) tanning devices were reclassified by the FDA from Class I (low risk), to Class II (moderate to high risk) devices as of September 2, 2014.²⁰

- Between (2008 and 2019) the number of new invasive melanoma cases diagnosed annually increased by 54 percent.²,³⁷

- Brazil and Australia have banned indoor tanning altogether. Austria, Belgium, Finland, France, Germany, Iceland, Italy, Norway, Portugal, Spain and the United Kingdom have banned indoor tanning for people younger than age 18.²²

- The cost of direct medical care for skin cancer cases attributable to indoor tanning is $343.1 million annually in the U.S.²³

- More than 419,000 cases of skin cancer in the U.S. each year are linked to indoor tanning, including about 245,000 basal cell carcinomas, 168,000 squamous cell carcinomas and 6,200 melanomas.²⁴

- More people develop skin cancer because of indoor tanning than develop lung cancer because of smoking.²⁴

- Those who have ever tanned indoors have a 67 percent increased risk of developing squamous cell carcinoma and a 29 percent increased risk of developing basal cell carcinoma.²⁴

- Any history of indoor tanning increases the risk of developing basal cell carcinoma before age 40 by 69 percent.²⁵

- Women who have ever tanned indoors are six times more likely to be diagnosed with melanoma in their 20s than those who have never tanned indoors. At all ages, the more women tan indoors, the higher their risk of developing melanoma.²⁶

- One study observing 63 women diagnosed with melanoma before age 30 found that 61 of them (97 percent) had used tanning beds.²⁶

- Individuals who have used tanning beds 10 or more times in their lives have a 34 percent increased risk of developing melanoma compared with those who have never used tanning beds.²⁷

- People who first use a tanning bed before age 35 increase their risk for melanoma by 75 percent.²⁸

- Indoor tanning among U.S. high school students decreased by 53 percent between 2009 and 2015.²⁹

https://www.skincancer.org/skin-cancer-information/skin-cancer-facts#pediatrics
Impact of climate change

The ozone layer acts as a barrier to UV radiation; its depletion over the 20th century has resulted in higher radiation levels reaching the earth’s surface. International measures to protect the ozone layer are showing signs of impact, but improvements have not yet returned ozone to pre-1970s levels[10][11].

Recently there has been an increased awareness of the interactions between ozone depletion and climate change, with global warming also thought to slow the recovery of the ozone layer[10]. It is estimated that the increase in ambient temperature due to climate change will influence people’s behavior and the time they spend outdoors. Therefore, skin cancer incidence is likely to continue to rise, particularly in temperate climates. Previous research has shown that people are more likely to be sunburnt in warmer weather[12][13].

Link between UV and cancer

Sunscreens: the evidence

There has been some debate about the role of sunscreens in skin cancer prevention and the potential association of sunscreen use with melanoma risk. Follow-up on a randomised trial published in 2010 concluded that melanoma may be preventable in adults by regular use of sunscreen[14]. A review found mounting evidence that sunscreen can prevent SCC, but no evidence that it can prevent BCC[15]. A summary of the evidence published in 2007 also found no conclusive evidence that broad spectrum sunscreens prevented BCC[16].

It has also been suggested that people may use sunscreen in order to stay longer in the sun (by reducing the risk of burning), thus increasing their risk of cutaneous melanoma[17][18]. However, Gallagher et al. caution that retrospective case–control studies of melanoma and sunscreen use should be interpreted with great care, because of subject recall problems and the inevitable confounding of sunscreen use with reduced exposure[15].

Daily sunscreen use has been shown to be both effective and cost-efficient in preventing squamous cell carcinomas and solar keratoses[19][20]. An Australian study estimated that there were 14,200 fewer cases of squamous cell carcinoma diagnosed in 2008 due to sunscreen use[21]. The same study also found about 14% of people (or 1,729 cases) who would otherwise have developed melanoma in 2008 had their cancers prevented through regular sunscreen use[21]. While more evidence is needed to show that modern sunscreens prevent melanoma, their use, along with other sun protection strategies, is encouraged as a means of combating the year-on-year rise in melanoma incidence[22].

Nanotechnology has been used in sunscreens for many years. All sunscreens in Australia are tightly regulated through the Therapeutic Goods Administration (TGA). In early 2009, the TGA reviewed the scientific literature in relation to the use of nanoparticulate zinc oxide and titanium dioxide in sunscreens, concluding that:

- The potential for titanium dioxide and zinc oxide nanoparticles in sunscreens to cause adverse effects depends primarily upon the ability of the nanoparticles to reach viable skin cells; and
- The current weight of evidence suggests that titanium dioxide and zinc oxide nanoparticles do not reach viable skin cells; rather, they remain on the surface of the skin and in the outer layer of the skin composed of non-viable cells.

Drawing on the best available evidence, our current assessment is that nanoparticles used in sunscreens do not pose a risk. However, Cancer Council Australia continues to monitor research and welcomes any new data that sheds more light on the topic.
The Surgeon General’s Call to Action to Prevent Skin Cancer

The Skin Cancer Foundation's Official Statement:
The Skin Cancer Foundation enthusiastically applauds the office of the US Surgeon General for taking this major step in skin cancer prevention. The Foundation is especially heartened by the objectives to reach young people with information about the dangers of indoor tanning and the efforts to promote skin cancer prevention education in schools. If we can increase awareness of the dangers of indoor tanning and convince people to change their sun protective behaviors, we will go a long way to save lives and decrease incidence of the world’s most common cancer.

Executive Summary
(Republished from SurgeonGeneral.gov)

The Surgeon General’s Call to Action to Prevent Skin Cancer calls on partners in prevention from various sectors across the nation to address skin cancer as a major public health problem. Federal, state, tribal, local, and territorial governments; members of the business, health care, and education sectors; community, nonprofit, and faith-based organizations; and individuals and families are all essential partners in this effort. The goal of this document is to increase awareness of skin cancer and to call for actions to reduce its risk. The Call to Action presents the following five strategic goals to support skin cancer prevention in the United States: increase opportunities for sun protection in outdoor settings; provide individuals with the information they need to make informed, healthy choices about ultraviolet (UV) radiation exposure; promote policies that advance the national goal of preventing skin cancer; reduce harms from indoor tanning; and strengthen research, surveillance, monitoring, and evaluation related to skin cancer prevention.

Skin Cancer as a Major Public Health Problem

Skin cancer is the most commonly diagnosed cancer in the United States, and most cases are preventable.1–3 Skin cancer greatly affects quality of life, and it can be disfiguring or even deadly.1,4–6 Medical treatment for skin cancer creates substantial health care costs for individuals, families, and the nation. The number of Americans who have had skin cancer at some point in the last three decades is estimated to be higher than the number for all other cancers combined,7 and skin cancer incidence rates have continued to increase in recent years.1,8

Each year in the United States, nearly 5 million people are treated for all skin cancers combined, with an annual cost estimated at $8.1 billion.9 Melanoma is responsible for the most deaths of all skin cancers, with nearly 9,000 people dying from it each year.10 It is also one of the most common types of cancer among U.S. adolescents and young adults.11 Annually, about $3.3 billion of skin cancer treatment costs are attributable to melanoma.9

Despite efforts to address skin cancer risk factors, such as inadequate sun protection and intentional tanning behaviors, skin cancer rates, including rates of melanoma, have continued to increase in the United States and worldwide.1,12–16 With adequate support and a unified approach, comprehensive, communitywide efforts to prevent skin cancer can work. Although such success will require a sustained commitment and coordination
across diverse partners and sectors, significant reductions in illness, deaths, and health care costs related to skin cancer can be achieved.

Although genetic factors, such as being fair-skinned or having a family history of skin cancer, contribute to a person’s risk, the most common types of skin cancer are also strongly associated with exposure to UV radiation. As many as 90% of melanomas are estimated to be caused by UV exposure. UV exposure is also the most preventable cause of skin cancer. The Call to Action focuses on reducing UV exposure, with an emphasis on addressing excessive, avoidable, or unnecessary UV exposures (such as prolonged sun exposure without adequate sun protection) and intentional exposure for the purpose of skin tanning (whether indoors using an artificial UV device or outdoors while sunbathing).

UV radiation is a type of electromagnetic radiation emitted by the sun and from some man-made lights, with wavelengths longer than X-rays but shorter than visible light. UV exposure stimulates melanocytes to produce melanin, often resulting in a tan or sunburn, both of which indicate overexposure and damage to the skin, skin cells, and DNA within those skin cells. This damage can lead to cancer. The degree to which UV exposure increases a person’s risk of skin cancer depends on many factors, such as individual skin type, the amount and types of sun protection used, whether exposure is constant or intermittent, and the age at which the exposure occurs. By reducing intentional UV exposure and increasing sun protection, many skin cancer cases can be prevented.

For most people in the United States, the sun is the most common source of exposure to UV radiation. UV radiation from indoor tanning devices is a less common but more easily avoidable source of UV radiation exposure than from the sun. Indoor tanning devices, such as tanning beds, tanning booths, and sun lamps, expose users to intense UV radiation as a way to tan the skin for cosmetic reasons. Although reducing UV overexposure from the sun can be challenging for some people, UV exposure from indoor tanning is completely avoidable.

In 2009, the World Health Organization (WHO) classified indoor tanning devices as Class I human carcinogens on the basis of strong evidence linking indoor tanning to increased risk of skin cancer. A 2014 meta-analysis estimated that more than 400,000 cases of skin cancer may be related to indoor tanning in the United States each year: 245,000 basal cell carcinomas, 168,000 squamous cell carcinomas, and 6,000 melanomas. Initiating indoor tanning at younger ages appears to be more strongly related to lifetime skin cancer risk, possibly because of the accumulation of exposure over time from more years of tanning.

The relationship between outdoor UV exposure, vitamin D, and human health is complex. The amount of outdoor sun exposure needed for meaningful vitamin D production depends on many factors, including time of day, time of year, latitude, altitude, weather conditions, a person’s skin type, amount of skin exposed to the sun, other individual circumstances, and reflective surfaces, such as snow, water, and sand. Adequate vitamin D can be obtained safely through food and dietary supplements without the risks associated with overexposure to UV radiation. Although all UV exposures can affect skin cancer risk, entirely avoiding UV rays from the sun is neither realistic nor advisable for most Americans. Spending time outdoors is associated with positive health benefits, such as increased levels of physical activity and improved mental health.
How Can I Protect My Children from the Sun?

Your children’s skin needs protection from the sun’s harmful ultraviolet (UV) rays whenever they’re outdoors. Just a few serious sunburns can increase your child’s risk of skin cancer later in life. Kids don’t have to be at the pool, beach, or on vacation to get too much sun. Their skin needs protection from the sun’s harmful ultraviolet (UV) rays whenever they’re outdoors.

- **Seek shade.** UV rays are strongest and most harmful during midday, so it’s best to plan indoor activities then. If this is not possible, seek shade under a tree, an umbrella, or a pop-up tent. Use these options to prevent sunburn, not to seek relief after it’s happened.

- **Cover up.** When possible, long-sleeved shirts and long pants and skirts can provide protection from UV rays. Clothes made from tightly woven fabric offer the best protection. A wet T-shirt offers much less UV protection than a dry one, and darker colors may offer more protection than lighter colors. Some clothing certified under international standards comes with information on its ultraviolet protection factor.

- **Get a hat.** Hats that shade the face, scalp, ears, and neck are easy to use and give great protection. Baseball caps are popular among kids, but they don’t protect their ears and neck. If your child chooses a cap, be sure to protect exposed areas with sunscreen.

- **Wear sunglasses.** They protect your child’s eyes from UV rays, which can lead to cataracts later in life. Look for sunglasses that wrap around and block as close to 100% of both UVA and UVB rays as possible.

- **Apply sunscreen.** Use sunscreen with at least SPF 15 and UVA and UVB (broad spectrum) protection every time your child goes outside. For the best protection, apply sunscreen generously 30 minutes before going outdoors. Don’t forget to protect ears, noses, lips, and the tops of feet.

  Take sunscreen with you to reapply during the day, especially after your child swims or exercises. This applies to waterproof and water-resistant products as well.
Follow the directions on the package for using a sunscreen product on babies less than 6 months old. All products do not have the same ingredients; if your or your child’s skin reacts badly to one product, try another one or call a doctor. Your baby’s best defense against sunburn is avoiding the sun or staying in the shade.

Keep in mind, sunscreen is not meant to allow kids to spend more time in the sun than they would otherwise. Try combining sunscreen with other options to prevent UV damage.

Too Much Sun Hurts

Turning pink? Unprotected skin can be damaged by the sun’s UV rays in as little as 15 minutes. Yet it can take up to 12 hours for skin to show the full effect of sun exposure. So, if your child’s skin looks “a little pink” today, it may be burned tomorrow morning. To prevent further burning, get your child out of the sun.

Tan? There’s no other way to say it—tanning your skin is damaging skin. Any change in the color of your child’s skin after time outside—whether sunburn or suntan—indicates damage from UV rays.

Cool and cloudy? Children still need protection. UV rays, not the temperature, do the damage. Clouds do not block UV rays, they filter them—and sometimes only slightly.

Oops! Kids often get sunburned when they are outdoors unprotected for longer than expected. Remember to plan ahead, and keep sun protection handy—in your car, bag, or child’s backpack.

https://www.cdc.gov/cancer/skin/basic_info/children.htm
References


