

Sun Safety Educational Programs and Policies for Youth in the United States: Room for Improvement

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Abstract

Australia has the highest incidence of skin cancer in the world. Despite this, the country has implemented preventative programs through policies in education that have resulted in reductions in rates of both melanoma and non-melanoma skin cancer. Conversely, rates of skin cancer have been steadily increasing in the United States and educational programs for youth to help address the problem are lacking. This commentary aims to highlight the efforts that have already been made to combat the growing epidemic of skin cancer in our country, but also emphasize the gaps in progress and development of these programs. The purpose of this commentary is to encourage discourse about what more can be done, and to familiarize the dermatologist about the current state of sun safety education among youth in America.

Key Points

- Australia has the highest incidence of skin cancer in the world, however the implementation of successful educational programs for youth have been shown to significantly improve rates melanoma and non-melanoma skin cancer.
- Rate of skin cancer are increasing the United States but sun safety and skin cancer prevention youth programs are few.

Sun-Safety Educational Programs and Policies in the United States: Room for Improvement

Recent efforts to reduce the growing burden of skin cancer have focused on the development of coordinated school health programs and policies that encourage healthy, sun-protective behaviors at younger ages. While, there remains controversy about the age period when most of an individual's exposure occurs, some studies have shown that most exposure occurs during childhood and adolescence while others state that sun exposure of US school age children and adolescents is now like that of US adults [1,2]. Either way, children and adolescents spend a great deal of this time at school, where they are frequently outdoors, exposed to UV radiation at peak hours. Since the relative increase of time spent outdoors makes these children more vulnerable to the development of skin cancer later on in life, increased safety precautions for UV radiation exposure during childhood and adolescence should be implemented. Fortunately over 95% of skin cancers can be successfully treated if found early [3].

Australia has the highest incidence of skin cancer in the world, two to three times the rate of that in the United States (US), Canada and England [4]. To address this concern, Australia has implemented a wide variety of communal efforts to prevent skin cancer. As a result of its endeavors, Australia now serves as an exceptional model for the formulation and implementation of sun awareness educational programs. The country has launched several successful sun safety programs including Slip, Slap, Slop in 1981 and the National Sun Smart Schools Program in 1998 [5]. Over the years, the proportion of Australian primary schools participating in the Sun Smart program dramatically increased from 19% in 1998 to 60% in 2013. According to the 2013 data, more than two-thirds of early childhood education and care services across Australia voluntarily participate in the

program [6]. To foster continued efforts, Cancer Council Queensland and the Queensland Department of Health started the Sun Smart Shade Creation Initiative, which provides up to 50% matched funding to purchase portable or permanent shade structures to qualifying non-profit organizations that provide care for children 0-18 years old.

As a result, children and adolescents in Australian primary and secondary schools demonstrate significant skin cancer awareness; data from their programs provide evidence that implementation of sun safe educational programs results in improved health outcomes and long-term savings in health costs for the country as a whole [7]. Medicare data illustrates a 2% reduction in necessary skin cancer treatments in the 25 to 34-year-old age group and a 1% reduction in the 35-44 year-old age group from 2000 to 2011 [3].

Australia is the first nation in the world to show an improvement in skin cancer rates, with reductions in both melanoma and non-melanoma skin cancers in patients under the age of 45, following heightened sun-protective measures. Conversely, the incidence of skin cancer in the US is rising [3]. Statistics from the Centers for Disease Control and Prevention (CDC) reveal that rates of melanoma from the years 2003 to 2012 increased by 1.7 and 1.4 percent a year among men and women, respectively [8]. Another study indicates that melanoma rates doubled from 1982 to 2011 in the United States [9].

Guided by multiple reputable organizations and scientific literature, in 2002 the CDC published Guidelines for School Programs to Prevent Skin Cancer, a comprehensive set of recommendations for sun safety in schools. They highlighted the lack of education and policies targeted towards sun safety. Additionally, the guidelines provided resources and

suggestions for schools on how to improve sun safety practices in seven major areas: policy, environmental change, education, family involvement, professional development, health services, and evaluation [10].

To encourage execution of the guidelines above, the CDC made funds available to states within the Coordinated School Health Program to conduct pilot skin cancer prevention activities. The Colorado, Michigan, and North Carolina Departments of Education were awarded these funds from 2003 through 2007. Since funding began, each state has made advances toward decreasing skin cancer rates by addressing sun safety as a key health issue for students. For example, school staff members have been trained on sun safety procedures and are encouraged to actively integrate the information into their lesson plans. Additionally, the mini-grant funding has led to the development of positive sun safety policies such as planting shade trees and constructing shade structures [11-13].

In 2003, an independent non-profit organization, the Community Preventive Services Task Force (Task Force) also recommended that primary schools implement educational and policy strategies to encourage behaviors that reduce sun exposure [14]. Arizona, New York, and Kentucky are among the few states in the US that have passed legislation to support sun safety education programs. For example, Project Students are Sun Safe (SASS) is a skin cancer prevention in-class education activity in Arizona. After participation in Project SASS, participants exhibited negative attitudes toward tanning and a greater understanding of the adverse effects of UV radiation on the skin [4].

While Arizona, New York, and Kentucky have passed laws promoting or requiring skin cancer education in schools, efforts may not be so strong in other parts of the country, perhaps due to improper funding or incentives [15]. For example, a study in California and Colorado reported poor development of school sun safety policies in public school districts between 2005 and 2007 [16,17]. Buller and colleagues [16] implemented a program that provided policy information, tools, and technical assistance through printed materials, websites, meetings, and presentations to help remedy the findings of the aforementioned study. In 2008, the CDC Division of Cancer Prevention and Control developed the Partnership Tool Kit: Program Version, which helps programs navigate the process of developing and sustaining a partnership with cancer prevention efforts [18].

According to the US National Center of Educational Statistics' report entitled Condition of Education 2016, over 50 million students attended public primary and secondary schools during the fall of 2014 [19]. Preventative medicine dictates that, in general, changing knowledge and beliefs in youth is more easily achieved than changing behavior in adulthood. Hence, elementary and secondary schools in the United States have the means to educate a large number of young students about sun-protective behaviors and promote meaningful, lasting change. The Surgeon General's Call to Action to Prevent Skin Cancer specifically emphasized using successful international models (like those in Australia) to increase sun safety awareness in United States schools [15]. Following this, the CDC released a "skin cancer prevention progress report" in 2015 and 2016 but the data in the reports are actually from prior to the Call to Action [20,21]. Therefore, not much can be gathered about school and government responses.

Even though the US has taken some steps at the federal, state, local and private levels to implement more effective sun safety school programs aimed at children and adolescents, results of these programs are lacking and much more remains to be done. An updated search by the Task Force found limited published evidence on the use of such strategies for improving sun-protection for students [22]. In future directions, more information is needed to identify the most effective message and outline the most practical and effective policies. Reliable data indicating that these efforts have been successful in reducing rates of skin cancer is also needed [1,4].

With Australia's successful sun safety educational programs as an excellent example, it is clear that it is necessary to strengthen our own preventative programs here in the United States to improve the health of Americans by decreasing skin cancer risk through educational programs.

Compliance with Ethical Standards

Author Contributions

Ariel Eber had full access to all of the data in the study and takes responsibility for the integrity of the data and the accuracy of the data analysis. Study concept and Design: Eber, Ishteiwy, Perper, Cervantes, Verne, Tsatalis, Shah, Magno and Nouri. Acquisition, analysis and interpretation of data: Eber, Ishteiwy, and Shah. Drafting of the manuscript: Eber, Ishteiwy, and Shah. Critical revision of the manuscript for important intellectual content: Eber, Ishteiwy, Perper, Cervantes, Verne, Tsatalis, Magno, Shah and Nouri. Statistical analysis: N/A. Obtained funding: N/A. Administrative, technical or material support: N/A. Study supervision: Nouri.

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