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## The Important Role of Schools in the Prevention of Skin Cancer

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**Sun exposure in childhood** is an important risk factor for the future development of skin cancer. The risk of developing melanoma is strongly related to a history of sunburns (an indicator of intense UV radiation exposure) during childhood and adolescence.<sup>1</sup> However, skin cancer risk can be greatly reduced if children and adolescents are protected from UV radiation, suggesting the importance of protecting young people from the sun beginning at an early age.<sup>1</sup> Given the amount of time children spend in school settings, schools can play an important role in protecting children and adolescents from UV exposure and the future development of skin cancer.<sup>1,2</sup> Skin cancer prevention can be addressed in schools through policy and environmental changes and educational programs.<sup>2</sup> School-based efforts to change children's knowledge, attitudes, and behaviors regarding sun protection can play a vital role in saving lives, improving quality of life, and reducing avoidable costs from the treatment of skin cancers.

Acknowledging the critical role of schools, key strategies outlined in the Surgeon General's Call to Action to Prevent Skin Cancer<sup>2</sup> include increasing the availability of sun protection in educational settings and supporting the inclusion of sun protection in school policies, construction of school facilities, and school curricula. The Guide to Community Preventive Services (The Community Guide)<sup>3</sup> specifically recommends interventions to prevent skin cancer in primary and middle schools as well as child care centers, based on strong evidence of their effectiveness in increasing sun-protective behaviors and decreasing UV exposure, sunburn incidence, and formation of new moles. Recommended interventions to promote sun-protective behaviors include educational interventions, supportive behavioral interventions, and environmental and policy changes.<sup>3</sup> Educational and behavioral interventions include teaching children about sun safety and the effects of UV radiation.

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Environmental and policy changes include increasing the availability of sun protection (eg, sunscreen, sun-protective clothing), increasing the availability of shade, and implementing sun-protection policies (eg, clothing guidelines, restrictions on outdoor activities during peak sunlight hours).<sup>3</sup>

Despite these recommendations and evidence of their effectiveness in preventing skin cancer, findings of the Centers for Disease Control and Prevention<sup>4,5</sup> reveal that the use of these policies and practices in schools throughout the United States remains low. The Centers for Disease Control and Prevention's School Health Policies and Practices Study (SHPPS)<sup>6</sup> is a national survey periodically conducted to assess school health policies and practices. The SHPPS collected data on policies and practices related to sun safety at the state and district levels in 2012, and on sun safety–related information at the school level in 2014.<sup>6</sup> The SHPPS data from 2012<sup>4</sup> indicate that most states and school districts do not have policies in place to support skin cancer prevention, and most school districts neither recommend nor require sun-safety strategies for their students. At the state level, only 31% of states developed, revised, or assisted in developing model policies, policy guidance, or other materials; 32% of states distributed or provided such materials to district or school staff; 25% of states (and only 18% of school districts) provided funding for professional development or offered professional development on how to implement school wide policies and programs during the 2 years before the study; and 42% of states provided technical assistance to district or school staff during the 12 months before the study.<sup>4</sup>

Moreover, very few schools required and only 25% to 44% of schools recommended certain sun-safety strategies in schools,<sup>4</sup> such as allowing students to apply sunscreen while at school, encouraging students to wear hats or visors when in the sun during the school day, encouraging students to wear protective clothing (eg, long sleeve shirts or long pants) when in the sun during the school day, encouraging students to wear sun-glasses when in the sun during the school day, and scheduling outdoor activities to avoid times when the sun is at peak intensity during the school day.

According to the 2014 school-level data (Table),<sup>5</sup> almost half (48%) of schools allow students time to apply sunscreen at school, and 66% teach about sun safety or skin cancer prevention as part of required instruction. Other sun-safety practices are generally uncommon in US schools, representing missed opportunities for prevention. Previous research has found the most common reasons for not having a policy are lack of awareness of school leadership and organizational barriers at the school district.<sup>7</sup> Many school principals have indicated their willingness to develop skin cancer prevention policies but were unaware of skin cancer as a health problem or the role they could play in prevention.<sup>7</sup>

Some schools have practices that may create barriers to sun safety for students. For example, some schools prohibit students from wearing hats or visors (8%) or sunglasses (7%) when in the sun during the school day (Table). In addition, school policies about over-the-counter drugs that prohibit the use of sun-screen or require application by a school nurse may also limit students' ability to use sun protection.<sup>2</sup> Previous research found that nearly half of schools required a physician prescription before staff could apply sunscreen to students.<sup>7</sup> It is important to identify and address these barriers to skin cancer prevention in schools, as

these policies may create barriers to ensuring adequate sun protection during outdoor school activities.

Effective strategies can improve sun protection behaviors among children and adolescents, but without widespread comprehensive implementation, these strategies may have little effect on sun protection behaviors.<sup>2</sup> A few states have passed legislation requiring that schools allow students to use sun protection while at school. For example, California, Oregon, and Texas have passed state laws allowing students to carry and apply sunscreen while on school property, and allowing for the use of sun-protective clothing.<sup>8</sup> In addition, a few states have passed legislation to support sun-safety education and skin cancer prevention awareness. For example, laws in Arizona and New York mandate instruction on skin cancer prevention as part of the health education curriculum.<sup>2</sup> Parents can also play an important role in skin cancer prevention in schools. As influential members of school communities, parents and parent organizations may be able to influence school policies on children's use of sunscreen, hats, and clothing; adequate availability of shade in outdoor activity areas; and on the inclusion of skin cancer prevention in school curricula.<sup>2</sup> Health professionals in the community, including dermatologists, can also play an important role in supporting effective school policies and programs by educating school boards and policymakers. For example, The University of Texas MD Anderson Cancer Center played an important role in educating the Texas legislature about the importance of sun-safety practices prior to passage of legislation permitting public school students to carry and apply sunscreen while on school property.<sup>9</sup>

In conclusion, given the substantial amount of time children and adolescents spend in school settings, addressing skin cancer prevention in this setting is crucial. Skin cancer prevention in schools can take several forms: supportive policies that allow or even encourage students to use sun protection; environmental changes that encourage shade provision and use; and educational programs to teach children about UV and its effects on human health. Together, these efforts could be vital in preventing skin cancer among children and adolescents and reducing the future burden of skin cancer in the United States.

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**Table**US Schools With Specific Practices Related to Sun Safety, by School Level, 2014<sup>a</sup>

Characteristic	School Level			
	Total	Elementary	Middle	High
Outdoor activities almost always or always scheduled to avoid times when the sun was at peak intensity <sup>b</sup>	15.0	14.7	18.2	11.8
Parents asked to ensure students apply sunscreen before school	16.4	20.9	16.9	4.2
Teachers allow time for students to apply sunscreen at school	47.6	49.5	51.6	37.5
Teachers remind students to apply sunscreen before going outside at school	28.2	27.2	30.3	28.2
Sunscreen made available for students to use	13.3	11.9	12.9	17.2
Students encouraged to wear protective clothing (eg, long sleeve shirts or long pants) when in the sun during the school day	30.4	33.4	30.8	22.2
Students encouraged to wear hats or visors when in the sun during the school day	33.1	35.0	37.3	22.4
Students prohibited from wearing hats or visors when in the sun during the school day	7.5	7.5	7.8	7.2
Students encouraged to wear sunglasses when in the sun during the school day	20.7	22.7	17.5	19.8
Students prohibited from wearing sunglasses when in the sun during the school day	6.6	7.5	7.8	2.9
Weather-related safety (eg, avoiding heat stroke, hypothermia, and sunburn while physically active) taught in at least 1 required physical education class or course	65.2	62.2	74.8	61.5
Sun safety or skin cancer prevention taught as part of required instruction	66.0	63.4	59.4	77.1
Skin cancer screening offered to faculty and staff <sup>c</sup>	3.1	3.3	2.0	4.3

<sup>a</sup>All data are reported as percentages; data source: Centers for Disease Control and Prevention.<sup>5</sup>

<sup>b</sup>During the 12 months before the study.

<sup>c</sup>Regardless of what is covered through their health insurance.