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School Sun Protection Policies: Measure Development and Assessments in Two Regions of the United States

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Abstract

BACKGROUND—In 2002, the US Centers for Disease Control and Prevention recommended that schools adopt policies that reduce exposure of children to ultraviolet radiation to prevent skin cancer. We report here the development of a school sun safety policy measure and baseline descriptive statistics from the assessment of written policies collected in 2005–2007 from public school districts that enrolled in a randomized trial evaluating a policy promotion program.

METHODS—Written policies were collected from 103 of 112 school districts in Colorado and Southern California prior to randomization. We developed methods for selecting policy headings/sections/topics likely to contain sun safety policies for students and for assessing the presence, strength, and intent of policies. Trained coders assessed the content of each policy document.

RESULTS—Overall, 31% of districts had a policy addressing sun safety, most commonly, protective clothing, hats, sunscreen, and education at baseline. More California districts (51.9%) had these policies than Colorado districts (7.8%, $p < .001$). Policy scores were highest in districts with fewer Caucasian students ($b = -0.02$, $p = .022$) in Colorado ($b = -0.02$, $p = .007$) but not California ($b = 0.01$, $p = .299$).

CONCLUSION—The protocol for assessing sun safety policy in board-approved written policy documents had several advantages over surveys of school officials. Sun protection policies were uncommon and limited in scope in 2005–2007. California has been more active at legislating school policy than Colorado. School district policies remain a largely untapped method for promoting the sun protection of children.

Keywords

Policy; sun safety; students; measurement

In 2002, the US Centers for Disease Control and Prevention (CDC) issued guidelines to the nation's schools for programs to prevent skin cancer. These guidelines were intended to reduce children's exposure to ultraviolet radiation from sunlight (UV), a preventable cause of skin cancer.¹⁻³ About one fourth of lifetime sun exposure occurs during childhood;⁴ and school principals report that children are often outside at school during midday.⁵

The first recommendation in the CDC guidelines was for schools to adopt policies that reduce exposure to UV. Policy development can improve health outcomes,⁶⁻¹¹ because policies can protect all children, including those who choose not or are unable to protect themselves¹² have legal force, and apply to all schools in a district.

Few studies have explored school policies on sun protection and those that have relied on principals' reports.^{5,13-16} For instance, we conducted 2 national surveys and found that few US schools had such policies either at the primary (3%) or secondary (10%) levels^{5,13} at the time the guidelines were issued. Surveys on school sun safety policies also have been conducted in 3 states, showing that few elementary schools in Hawaii and Massachusetts had sun safety policies,^{14,15} but policy recommendations were present in more than half of schools in Miami-Dade County, Florida. This paper describes the development of a school sun safety policy measure that assessed the written policy documents approved by elected school boards, the first direct measure of sun protection policy content reported in the literature. We present descriptive statistics from the baseline assessment of written policies collected in 2005-2007 from 112 public school districts that had enrolled in a randomized trial evaluating a policy promotion program. We describe the associations between sun safety policy and district characteristics.

METHODS

Participants

The data and measure described here were obtained from the baseline assessment in a randomized trial evaluating a policy promotion program, prior to randomization. Complete description of the policy promotion program and results of the main trial are reported elsewhere.¹⁷

A total of 129 public school districts out of 272 eligible districts in regions surrounding Los Angeles, California (N=61) and Denver, Colorado (N=68) were recruited in 2005-2007. Seventeen districts did not participate because they dropped out before pretesting or their administrators did not complete pretest surveys, yielding a final sample of 112 districts (56 in each state). Of these, 103 school districts provided written school board-approved policy documents (51 in Colorado and 52 in Southern California) at baseline.

The 2 states differed in geography and state-level administration of school districts. California districts had a southern location and were near beaches, in mountains, and in deserts. Colorado districts were farther north and in high altitude plains and alpine mountains. The legislature in California exercises more central control over district policy than in Colorado. California has a law (California Education Code Section 35183.5) directing school sites to allow pupils to wear sun-protective clothing, including a hat, and to use sunscreen.

On average, participating districts had 8,121 students in grades K-12, 481 credentialed faculty, and 30 full-time administrators. The students were 49% female, and 52% Caucasian and 41% received free/reduced lunch. District staff was 74% female and 83% Caucasian. Districts spent on average \$9,138 per capita annually.

Instruments

The development of the policy measure required creating 2 protocols, the first for locating relevant sections of school district policy that were likely to contain content related to sun safety (policy selection protocol) and the second for assigning codes describing the written content of the policy directives (policy coding protocol).

Policy selection protocol—Due to the length of the full set of school policies, we developed a protocol for the selection of those policies that pertained to sun safety and that might reflect changes in response to the sun safety policy intervention. Three research staff each reviewed 1 separate school district written policy in its entirety and selected specific policy headings/section topics that addressed topics related to sun protection. The headings/section topics selected from the 3 policy documents were compared for consistency and a common set of comprehensive policy headings/section topics across all 3 districts was chosen that would capture all potential sun safety policies in any location in the total school district policy document. This comprehensive list of school district policy headings was then applied to all written policy documents to collect text for application of the coding process. To be selected, a policy had to have potential for a direct connection to sun exposure, the reduction of sun exposure, or the enactment of preventive action. For example, policies related to clothing were selected of if they had the potential for reducing UV exposure. The comprehensive list of policy headings selected from each district (Table 1) and was used to select written policy sections from every district policy document in the study. Policies selected from this process were coded using the coding protocol described below.

Formal school board policy documents for each district were identified by first searching the school district website but then by contacting school district staff if policy documents were not posted online or did not appear up-to-date. A written copy of the policy document was either downloaded from the website or obtained by contacting the district office.

Policy coding protocol—The policy coding protocol was developed based on the literature about environmental and behavioral contributors to sun protection and on existing and desired school district and school-level policies and practices recommended by the CDC.¹⁸ The instrument was designed to capture sun safe environmental and behavioral practices across the entire spectrum of school district policies (Table 1). The policy coding protocol is in Appendix A.

Three pre-defined numerical codes were assigned to the policies. The presence or absence of each policy content was coded (0=not addressed in policy; 1=addressed). In addition, the strength of implementation of the policy was coded, differentiating between policies that required (2), allowed (including recommended or encouraged) (1), or not allowed/not specified (0) that action stated in the policy. For sunscreen only, the strength categories were expanded to include required (3), allowed (2), allowed with a physician's prescription (1), and not allowed/not specified (0). For policies on clothing, hats, and outdoor shade, the intent of the policy for sun protection was coded (0=indirect/no sun protection intent; 1=direct sun protection intent) because policies could be enacted in the content arena for reasons other than sun protection but have the side-effect of increasing sun safety (eg, requiring students to wear clothing that covered midriff for concerns over public decency

which has the benefit of protecting more skin from UV). Details about the content categories and the strength coding appear below.

The coding protocol yielded 2 types of scores. First, composite scores were created for content and strength, adjusted for sun protection intent (where appropriate). Second, individual content and strength scores were available for each content category.

Policy Coding Procedure

Research assistants were trained by study investigators to use the policy coding system. Inter-coder reliability was monitored throughout training and an inter-rater reliability of at least 0.70 for each code was achieved before permitting research assistants to code the policies. Each policy was reviewed and coded by a single trained research assistant. Final inter-coder reliability was calculated for all policies assessed by more than one research assistant.

Data Analysis

Descriptive statistics (counts, percentages, and means) were calculated for each policy component and total policy score (summing codes across components for policy content and for policy strength [when intent was direct]). Also, inter-coder reliability was assessed using the GWET AC1 statistic, an extension of Cohen's Kappa statistic to multiple raters. Differences in policy counts and means between Colorado and California were examined using a chi-square statistic and the F-test. The association of policy scores with school district characteristics (ie, number of students, percent of students are female, Caucasian, and receiving free/reduced cost lunch, number of certified staff, percent of staff who are female and Caucasian, number of full-time equivalent positions in administration, pupil services, and teaching, and per capita spending) was tested first by calculating Spearman Rank correlations and then using stepwise regression with forward selection. An alpha criterion of $p < .05$ (two-tailed) was used in all statistical tests. Analyses were performed with in SAS 9.2 (Cary, NC).

RESULTS

Inter-coder Reliability on Policy Coding Protocol

Trained research assistants were able to apply the policy coding protocol with high reliability (Table 1). All estimates were above 0.75 (content mean=0.95; strength mean=0.95; intent mean=0.85).

Sun Safety Policy Scores

Overall, 31 public school districts (31%) had a policy that addressed at least 1 component of sun protection for students (Table 2). Examining the policy scores revealed that on average, districts only addressed 1 policy component (ie, the mean total policy content score was just under 1.0). Further, when policy addressed sun protection, most only recommended or allowed a sun protective action, rather than requiring it, because the mean total policy strength score was close to 1.0 (Table 2). UV protective clothing and hats were the most commonly addressed form of sun protection in the school policies, followed by sunscreen and education of students on sun safety (Table 2). The other components were addressed by fewer than 4 districts, with resource allocation not being addressed by any district. For intent of the policy, sun protection was the reason given in all cases where policies on UV protective clothing, hats, and shade occurred, the only three components for which intent was coded.

More California districts (51.9%) had a policy that addressed at least one of the sun protection components than Colorado districts (7.8%, $\chi^2(1, N=103)=23.8$, $p<.001$). In addition, policy scores for California school districts were higher (policy content $M=1.50$; policy strength $M=1.79$) than Colorado districts (policy content $M=0.29$, $F(1,101)=15.92$, $p<.001$; policy strength $M=0.35$, $F(1, 101)=14.39$, $p<.001$).

Correlation Between Policy Score and District Characteristics

Several characteristics of school districts were associated with the total policy score. Table 3 displays correlations with total strength score only because correlations with content were nearly identical. The univariate correlations showed that policy scores were higher in districts with more students, fewer Caucasian students, and more female and fewer Caucasian staff. Stepwise regression revealed that percentages of Caucasian students and of female staff were the principal predictors of policy score, with score being higher in districts with fewer Caucasian students ($b=-0.02$, $p=.022$; 1% decrease in Caucasian students is associated with a 0.02 unit decrease in baseline total policy strength score) and more female staff ($b=0.05$, $p=.036$; 1% increase in female staff is associated with a 0.05 unit increase in baseline total policy strength score). These associations with policy strength were eliminated when controlling for state (California vs. Colorado; $p=0.952$ and $p=.153$, respectively). However, when we tested the 2-way interactions of state with these 2 predictors, the negative association of percentage of Caucasian students with policy strength occurred in Colorado ($b=-0.02$, $p=.007$) but not in California ($b=0.01$, $p=.299$; overall interaction $b=0.03$, $p=.024$). The interaction of state with percent female staff was non-significant ($b=-0.01$, $p=.498$).

DISCUSSION

Policy Measurement Protocol

The protocol for assessing sun safety policy developed in this project was effective for measuring the content in school district board-approved written policy documents on sun protection. Research assistants were able to reliably assign codes to all of the policy components recommended by the CDC in its guidelines on skin cancer prevention by schools.¹⁸

The assessment of written board-approved policies had several advantages over measures that relied on reports from school district personnel in surveys or in-depth interviews to document sun safety school policies.^{5,13-16,19} Surveys may capture some of these school-level policies; however, some policies may not be reported, due to lack of awareness or social desirability concerns or mismatch between wording of survey items and a policy.²⁰ Time since the policy was approved also could be a factor and awareness can vary by the person or position reporting the policy.²¹ Communication about new policies may be more recent and easily accessible in memory compared to older policies. It is possible, too, that school officials confuse less formal standard operating procedures as a policy, leading to over-estimates of school district policies. Written policies passed by elected school boards are more likely to influence school district actions than informal operating procedures because they carry the force of law. On the other hand, school personnel may ignore a policy if it is not accompanied by clear guidelines for implementation by school personnel. Finally, analysis of written policies allows one to assess the quality of the policy, such as whether it reflects all of the components of CDC guidelines for reducing skin cancer. Quality can be harder to judge in surveys of school administrators.²²

Still, the policy coding measure developed here may have some disadvantages. School district policy documents can be extensive and require substantial time to identify sections

where sun protection may be addressed.²² A method for selecting a subset of policy headers likely to contain sun safety policy content was developed and uniformly applied across districts. Whereas the headers selected seemed to be over-inclusive of potential policies that related to sun safety, the selection method was not empirically verified by either coding the entire policy document (impractical because some documents were over 1000 pages) or coding a randomly-selected set of headings.

Another disadvantage is that some school districts, and particularly principals, teachers and staff at the school level, may prefer to develop and use operating procedures over formal board approved school district written policy. School-level administrators may consider formal policies too restrictive, reducing the ability of schools to quickly respond to emerging issues, and may view the policies as requiring unavailable financial resources, or as needed only to address legal issues, and therefore not critical for implementation or enforcement. School-level practices can be adopted as long as they are not in conflict with district level policy. If district level policy is absent, or if it is stated in very general terms, then school-level practices and policy are important to measure. Direct assessment at the school level may be difficult because practices and policies may be comprised of a diverse set of documents appearing in various locations or unwritten and thus open to various interpretations and changes over time. Despite these potential problems, assessments of district- and school-level policies and procedures could provide more complete insight into the amount and type of sun protection actions that take place at schools.

As with any new measure, it is instructive to consider how to improve it. There is additional information that might be recorded. For instance, additional codes could be added to measure the nature of instruction of teachers (self-directed or supervisor presentation) and amount of resources allocated. Of course, there is a tension between obtaining more information and preserving coding accuracy that needs to be balanced. Some categories may be less frequently codified in policy such as the allocation of resources or specification of who is responsible for the policy than other components such as personal protection behaviors (eg, sunscreen, protective clothing and hats).

State of School District Sun Safety Policies

The assessment of policies from 2 US states suggests that formal board-approved written sun safety policies were uncommon and limited in scope in 2005-2007, within 5 years of the issuance of CDC's recommendations to the nation's schools for skin cancer prevention programs. Only 1 in 3 public school districts had any policy on sun protection and those that did, usually addressed only 1 component of student sun protection. Similarly, CDC's nationwide policy survey, School Health Policies and Programs Study (SHPPS), in 2006 found that 38% of school districts had policies scheduling outdoor activities outside of peak UV intensity and 36%, on establishing procedures that encouraged sunscreen use by students.²³ Thus, it appears that sun safety policies are in a much more nascent state than other health-related policies in US schools and are in need of improvement.

The inclusion of school districts in 2 regions with different characteristics increases the generalizability of these conclusions. However, there were differences between the 2 states, with more California districts having policies. This may reflect the influence of state statutes in California requiring school districts to adjust their policies to permit the use of sun protective clothing, hats, and sunscreen at school (California Education Code Section 35183.5). Even with those laws, the California districts addressed less than 2 policy components on average and nearly half of the California districts had no policy on student sun protection. A legitimate question and potential criticism is whether policies collected as much as 5 years ago are out of date. This is probably not the case, at least nationwide or in areas with climates that are colder and/or have fewer sunny days. There may be local efforts

that have elevated the adoption of policy, such as in California where the California School Boards Association drafted a model comprehensive sun safety policy in 2006 and advised their member school districts to adopt it. No similar advocacy occurred in Colorado.

Differences in racial composition of the districts also may affect motivation to adopt these policies, perhaps most especially in states with more local control over district policies as in Colorado. Whereas non-Hispanic whites are the ethnic group at the highest risk for UV-induced skin damage, school districts in Colorado that had lower percentages of non-Hispanic whites were most likely to address sun protection in their board-approved policies. Although the SHPPS data that found schools with more white students actually had higher number of health policies, schools with a lower percentage of white students had more family and community involvement in policy development.²⁴ Perhaps multi-ethnic districts in Colorado were more responsive to outside pressure from legislation and citizen activists in the absence of state mandates. Alternatively, these districts are aware of national health recommendations in general including sun safety recommendations.

The results also may indicate that women are more receptive to addressing health issue in organizational contexts. The possible increased presence of sun safety policies at districts with a larger percentage of female staff is similar to a finding that worksites with more female than male managers used an occupational sun protection program more than worksites with a lower ratio.²⁵ Women may have a greater interest in health, as evidenced by greater health information seeking for self and others compared to men.^{26,27}

The association of school district size with the presence of policies, although less influential than racial composition, is also consistent with past research indicating that larger school districts are more likely to adopt health policies than smaller districts.²⁴ Larger organizations may be more innovative than smaller ones because they have more resources to make change (although per capita spending or number of administrators and staff did not predict the presence of policies). Larger districts may have more communication links with outside information sources that make them aware of emerging issues such as sun safety.

IMPLICATIONS FOR SCHOOL HEALTH

School district policies remain a largely untapped method for promoting the sun protection of children. Larger districts and districts with more ethnic minority students may be more likely to have such policies. Multi-ethnic and large districts may have more contacts with outside groups which help them learn about new policy initiatives. The findings also suggest that having a low proportion of at-risk children or fewer administrators who themselves have sun sensitive skin types does not make districts resistant to sun safety policy. Still, in the absence of a sustained national effort to promote sun protection except for the issuance of national guidelines by CDC, most school districts are unlikely to have such a policy. Of course, once policies are written they must be implemented to protect children. To assess whether the presence of school district sun safety policy has the intended result of reducing children's exposure to UV, further study should explore the factors associated with effective implementation and enforcement of a district's policy in its individual schools.

Human Subjects' Approval Statement

The procedures in this project were approved by the Western Institutional Review Board and the Institutional Review Boards at the University of Southern California and Claremont Graduate University.

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Appendix A

School Sun Protection Policy Coding Protocol

INSTRUCTIONS

Each district's policy will be coded using every category. Separate codes will be assigned for each of three dimensions: content area, strength of language (require, recommend), and intent (sun policy, or policy indirectly affecting sun safety)

CONTENT CATEGORIES	CONTENT	STRENGTH	INTENT	DATE ADOPTED
1. Sunscreen Use	0 Does not address 1 Addresses	0 Not allowed or specified 1 Allow Rx 2 Allowed 3 Required	N/A	

	0 Does not address		0 Not allowed or specified			0 Indirect		Date Adopted
<i>For items 2-10 use this key</i>	1 Addresses		1 Allowed 2 Required			1 Direct		
2. UV Protective Clothing	0	1	0	1	2	0	1	
3. Hats	0	1	0	1	2	0	1	
4. Education Students	0	1	0	1	2	N/A	N/A	
5. Education Teachers	0	1	0	1	2	N/A	N/A	
6. Outdoor Shade	0	1	0	1	2	0	1	
7. Scheduling	0	1	0	1	2	N/A	N/A	
8. Parent Outreach	0	1	0	1	2	N/A	N/A	
9. Resource Allocation	0	1	0	1	2	N/A	N/A	
10. Accountability	0	1	0	1	2	N/A	N/A	
Total Dimension Score								N/A
Possible	10		21			3		N/A
TOTAL DISTRICT SCORE:								

CODING INSTRUCTIONS

Each district policy receives a score for each of the content areas, for the strength dimension, and for the intent dimension.

Content

For each policy content area, assign a 0 if the policy does not address the content area being coded. Assign 1 point if the policy addresses the content area.

Strength

For each policy content area except sunscreen, assign a 0 for the strength code if no language is present about whether a policy is recommended or required. Assign a 1 if the language is “recommended” or “encouraged.” Assign 2 points only if the language is stated as “required”. For sunscreen, assign a 0 if sunscreen is not allowed or is not specified, a 1 if sunscreen is allowed with a prescription/permission for over the counter medications, a 2 if sunscreen is allowed for everyone, and a 3 if sunscreen is required for everyone.

Intent

For the policy content areas in which intent is coded (UV Protective Clothing, Hats, and Outdoor Shade), assign 1 point if the policy directly addresses sun safety in its intent or a 0 if it indirectly affects sun safety, but was not written with the intention to promote sun safe behaviors and environments.

Date Adopted

For all categories that receive a score of non-zero, input the date of adoption of the policy section/number containing sun-safety content. If the policy section/number containing sun-safety content has been amended since the date of adoption, input the most recent date of amendment in this section.

SCORING

A total score will be created for each district. Scores will be calculated by summing each dimension across categories and then summing the final dimension total scores. Higher scores indicate a more comprehensive policy in support of sun safe school environments. District scores will describe within-district and between-district change.

CATEGORY NOTES**Sunscreen Use**

Policy statements explicitly related to the use of sunscreen will receive a code of “Addressed.” This includes sunscreen use during general school activities (lunch, recess), during specific classes and activities (sports and PE classes) and during school sponsored events occurring outside of the school (field trips).

UV Protective Clothing

This would include specific policy statements regarding sun-shielding clothing including long sleeve shirts, long pants, and other clothing that provides coverage of the skin in a way that blocks UV radiation. Sunglasses are also included in this category. If sunglasses are allowed in general or specifically outdoors, they should be coded as “Addressed” under Content and as appropriate under Strength. For intent, assign one point if the policy directly addresses usage of sunglasses, in general or outdoors, for sun safety; assign a zero if usage of sunglasses indirectly affects sun safety or was not intended to promote sun safe behaviors. This content area does not include hats which are covered in content area 3. Clothing policy will typically be coded as “Addressed” if it makes an explicit reference to the sun protection properties of the clothing. However, more general statements about clothing that result in prohibitions to the wearing of sun protective clothing should be coded as “Not Addressed” under Content and then coded as appropriate under Strength. For intent, assign one point if the policy directly addresses sun safety in its intent; assign a zero if a policy indirectly affects sun safety, but was not written with the intention to promote sun safe behaviors and environments.

Specifically: If a policy says that it bans usage of sunglasses either in general, outdoors, or specifically indoors, then code this as Not Addressed, Not Allowed, and Indirect as we cannot assume the policy's intended meaning for them.

Hats

This content area includes any references to usage of hats or visors outdoors. Policy statements that describe the use of hats for sun safety will be coded as “Addressed.” Policy statements that ban the wearing of hats (a) indoors; (b) outdoors; or (c) in general (without specific reference to indoors or outdoors) will be coded as “Not addressed.” In addition, other policy statements that facilitate wearing of hats in general or specifically during outdoor school activities (lunch, recess), during outdoor classes and activities (sports and PE classes), and during outdoor school sponsored events occurring outside of the school will receive a code of “Addressed” under Content and as appropriate under Strength. For intent, assign one point if the policy directly addresses sun safety in its intent; assign a zero if a policy indirectly affects sun safety, but was not written with the intention to promote sun safe behaviors and environments.

Specifically: If a policy says that it bans hats, either in general or specifically indoors, and then does *not* explicitly permit them outdoors (in other words, is “silent” about hats outdoors), then code this as Not Addressed, Not Allowed, and Indirect as we cannot assume the policy's intended meaning for them.

Education Students

Policy statements that explicitly mention lessons or educational objectives related to UV and solar radiation exposure, skin cancer, or the health risks of sun exposure will be coded as “Addressed”. This education could occur in classes such as health, biology, and earth science/geography. This education could also be part of physical education classes or educational information delivered to intramural and athletic teams.

Education Teachers

Policy statements describing in-service staff training and continuing education delivered to teachers regarding sun safety and the protection of teachers or their students from UV radiation will be coded as “Addressed.” This can include teacher training provided to enhance skills and knowledge on sun safety that can be shared in the classroom.

Outdoor Shade

Policy statements describing anything that provides outdoor shade will be coded as “Addressed.” It could be related to things such as physical structure like buildings or awnings or natural structures like trees. For intent, assign one point if the policy directly addresses sun safety in its intent; assign a zero if a policy indirectly affects sun safety, but was not written with the intention to promote sun safe behaviors and environments.

Scheduling

Policy statements related to the scheduling of outdoor activities at times that will minimize sun exposure will receive a rating of “Addressed”. Typically this will mean scheduling events that limit outdoor activity between the hours of 10am and 4pm. Policies related to heat and extreme heat with no related sun exposure mention are not sufficient to be considered Addressed.

Parent Outreach

The focus of this category is on school requests for parent provision of sunscreen resources, such as sunscreen and sun protective clothing for their child. Such requests will warrant the coding of “Addressed” for this category. This area may also include communications to parents providing information about sun safety and skin cancer risk.

Resource Allocation

Policy statements describing school-provided sun protection resources, such as sunscreen or UV-protective clothing will be coded as “Addressed.”

Accountability

A policy will be coded as “Addressed” if it describes *both* by *whom* and *when* the school district sun protection policies will be reviewed. Statements regarding the general review of district policies can be coded as “Addressed” as long as it is clear that this review includes the policies related to sun protection.

Specifically: A particular named person or position or the phrase “Superintendent or designee” shall be considered as meeting the criteria for the *whom*. Anything that suggests time, including “regular,” “consistent,” “periodic,” and “frequently” shall be considered as meeting the *when* criteria; saying that someone “shall recommend” is not sufficient.

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Table 1

Inter-coder Reliabilities for Sun Protection Policy Content, Strength, and Intent Assessments (N=103 school districts).

	GWET AC1 Inter-coder Reliability		
Policy Component	Content¹	Strength²	Intent³
Sunscreen Use	1.00	1.00	N/A
UV Protective Clothing	0.77	0.83	0.77
Hats	0.77	0.83	0.77
Education of Students	1.00	0.86	N/A
Education of Teachers	1.00	1.00	N/A
Outdoor Shade	1.00	1.00	1.00
Scheduling of Outdoor Activities	1.00	1.00	N/A
Parent Outreach	1.00	1.00	N/A
Resource Allocation	1.00	1.00	N/A
Accountability	1.00	1.00	N/A

¹Not address=0, Addressed=1.

²Not allowed=0, Recommended/ encouraged=1, Required=2.

³Indirect=0, Direct=1.

Table 2

Mean (Standard Deviation) Sun Protection Policy Scores (N=103 school districts)

Policy Component	Number of Districts with Policy	Means (standard deviation)		
		Content ¹	Strength ²	Intent ³
Sunscreen Use	16	0.16 (0.36)	0.29 (0.69)	N/A
UV Protective Clothing	27	0.26 (0.44)	0.26 (0.44)	0.26 (0.44)
Hats	28	0.27 (0.45)	0.27 (0.45)	0.27 (0.45)
Education of Students	13	0.13 (0.33)	0.14 (0.37)	N/A
Education of Teachers	3	0.03 (0.17)	0.04 (0.24)	N/A
Outdoor Shade	2	0.02 (0.14)	0.03 (0.22)	0.02 (0.14)
Scheduling of Outdoor Activities	1	0.01 (0.10)	0.02 (0.20)	N/A
Parent Outreach	2	0.02 (0.14)	0.02 (0.14)	N/A
Resource Allocation	0	0.00 (0.00)	0.00 (0.00)	N/A
Accountability	1	0.01 (0.10)	0.01 (0.10)	N/A
Total Policy Score ⁴	31	0.90 (1.64)	1.08 (2.04)	0.55 (0.92)

¹Not address=0, Addressed=1.²Not allowed=0, Recommended/ encouraged=1, Required=2.³Indirect=0, Direct=1.⁴Sum of content and strength across policy components when intent is coded as directly address.

Table 3

Univariate Spearman Rank Correlations between School District Characteristics and Total Sun Protection Policy Strength Score (N=103 school districts)

District Characteristics	Total Policy Strength Score ^I
Number of Students	0.21 *
Percent of Students Who Are Female	-0.06
Percent of Students Who Are Caucasian	-0.35 *
Percent of Student Receiving Free/Reduced Cost Lunch	-0.05
Number of Certified Staff	0.17
Percent of Staff Who Are Female	0.22 *
Percent of Staff Who Are Caucasian	-0.38 *
Number of Full-Time-Equivalent Positions in Administration	0.14
Number of Full-Time-Equivalent Positions in Pupil Services	0.10
Number of Full-Time-Equivalent Positions in Teaching	0.17
Per Capita Spending	-0.04

^I Sum of strength across policy components when intent is coded as directly address.

* p<.05 (two-tailed)