

RESEARCH ARTICLE

How School Healthy Is Your State? A State-by-State Comparison of School Health Practices Related to a Healthy School Environment and Health Education

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ABSTRACT

BACKGROUND: School Health Profiles (Profiles) results help states understand how they compare to each other on specific school health policies and practices. The purpose of this study was to develop composite measures of critical Profiles results and use them to rate each state on their overall performance.

METHODS: Using data from state Profiles surveys conducted in 2010, the authors examined 12 key practices: 6 related to a healthy school environment and 6 related to health education. States were divided into quartiles based on the percentage of schools in the state that engaged in the practice, and then rank-ordered based on the sum of their quartile scores.

RESULTS: Whereas some states have low ranks or high ranks in both sets of practices, others have a relatively low rank in one set but a high rank in the other. States with the lowest overall sums tend to be in the west and midwest, whereas states with the highest sums tend to be in the east.

CONCLUSIONS: This study identifies states whose school health policies and practices should be emulated and other states whose policies and practices are in urgent need of improvement.

Keywords: school health instruction; nutrition and diet; child and adolescent health.

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In the United States, more than 55 million young people are enrolled in elementary and secondary schools.¹ Because young people attend school about 6 hours a day approximately 180 days/year, schools are in a unique position to help improve the health status of children and adolescents. School health programs and policies may be one of the most efficient ways to prevent or reduce health-risk behaviors among students, which in turn, can prevent serious health problems.²

The Centers for Disease Control and Prevention (CDC) has issued science-based guidelines documents

that identify policies and practices schools can implement to improve critical student health-risk behaviors.³⁻⁷ In addition, CDC has released tools designed to help schools implement effective health promotion and safety policies and practices identified in its guidelines.⁸⁻¹⁰

To understand the extent to which effective school health policies and practices are being implemented in schools, it is critical to monitor them. To accomplish this, CDC collaborated with state and local education and health agencies to develop and implement the School Health Profiles (Profiles) surveillance system.¹¹

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Disclaimer: The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.

Profiles is a system of surveys that collects data from school staff in representative samples of schools in states, territories, large urban school districts, and tribes. Results provide useful information not only for the nation as a whole, but also for individual jurisdictions. Specifically, education and health agencies use Profiles data to describe school health policies and practices in their jurisdictions, identify professional development needs, plan and monitor programmatic efforts, support health-related policies and legislation, seek funding, and garner support for future surveys.¹² Profiles data also are used as a primary measure of accountability for state and local education agency programs that are funded by CDC to reduce the prevalence of health-risk behaviors among students by increasing the proportion of schools that implement science-based school health policies and practices.

CDC scientists have worked closely with leading school health experts to identify key school health policies and practices recommended by CDC guidelines and implementation tools that can be monitored through surveys of school staff such as Profiles. The scope of the surveys was kept somewhat narrow to limit their length, thereby reducing respondent burden and enhancing the chances of obtaining a high response rate. Therefore, Profiles does not measure all possible aspects of school health programs, but instead, focuses on specific areas that agencies are funded by CDC to address, including health education; promotion of physical activity, healthy eating, tobacco-use prevention, and sexual health; the prevention of human immunodeficiency virus (HIV) and acquired immunodeficiency syndrome (AIDS); asthma management; and family and community involvement in school health programs.

Beginning in 1994, Profiles surveys have been conducted every even-numbered year. After each Profiles cycle, CDC creates a detailed report of results for each participating state, territory, large urban school district, and tribe. In addition, CDC publishes a compilation report for each cycle's data. These reports contain complete results from every jurisdiction that had response rates of 70% or greater and documentation that enabled their data to be weighted. For the 2010 cycle, this report contained 193 pages, including 48 tables.¹³ Each table provides the percentage of secondary schools in each jurisdiction with a particular school health policy or practice in place. Minimum, maximum, and median percentages also are provided. This information helps state, territorial, and local agencies and tribal governments understand how their jurisdiction compares with others on specific school health policies and practices.

The purpose of this study was to develop, for the first time, composite measures of critical Profiles results and use them to rate each state with weighted data

on their overall performance in getting schools to implement effective health policies and practices. This rating provides states with a simpler understanding of the strength of multiple components of their school health program efforts and how their efforts compare with those of other states. State agencies can use this information to promote overall program strengths and advocate for resources to address weaknesses. On the national level, such information helps guide technical assistance to particular states or regions of the country. This analysis focused on 2 of 3 traditional components of school health: healthy environment and health education. The third traditional component, health services,¹⁴ was not included. Although the Profiles surveys contain a few items related to health services, they do not cover it in sufficient depth to warrant having it as its own component. Rather, the items related to health services have been incorporated into healthy environment.

METHODS

Participants

Data for this article were obtained from state Profiles surveys conducted in 2010. Participating states selected systematic, equal-probability samples of their secondary schools or all public secondary schools within their jurisdiction. For the purposes of Profiles, secondary schools are defined as middle schools, junior high schools, and high schools with any of grades 6 through 12. In each participating school, the principal completed a principal questionnaire; the person at the school whom the principal deemed to be most knowledgeable about health education completed the lead health education teacher questionnaire.

Data are included in this article only if the state provided appropriate documentation of methods and obtained a school response rate $\geq 70\%$. In 2010, 49 states met these criteria for the principal survey and 47 states met them for the lead health education teacher survey. Across states, sample sizes of the principal surveys ranged from 67 to 694 (median 255) and sample sizes of the lead health education teacher surveys ranged from 65 to 677 (median 249). Response rates for the principal surveys ranged from 70% to 90% (median 75%) and response rates for the lead health education teacher surveys ranged from 70% to 86% (median 73%).

Instruments

Measures included in this analysis were derived from questions on both the Profiles principal questionnaire and the Profiles lead health education teacher questionnaire. The 2010 principal questionnaire contained 49 items that assessed general information about the school environment, physical education

and physical activity, tobacco-use prevention policies, nutrition-related policies and practices, health services, and family and community involvement. The lead health education teacher questionnaire contained 23 items that assessed required health education, including specific topics taught in required courses, HIV prevention, collaboration, professional development, and professional preparation. The Profiles questionnaires and the rationale for each item are available at <http://www.cdc.gov/healthyyouth/profiles/questionnaires.htm>.

For this analysis, the authors examined 6 key measures related to a healthy school environment and 6 key measures related to health education. The measures focus on critical health topics monitored by Profiles: healthy eating, physical activity, tobacco-use prevention, sexual health, and asthma management. Specific items included in this analysis were identified by CDC scientific experts based on the following 3 criteria: (1) the potential impact of the school health policy or practice on student health-related behaviors; (2) the clarity of the measure available in Profiles; and (3) the extent to which CDC's partners target the specific policy or practice as an area for improvement. The measures related to a healthy school environment included (1) percentage of schools that offer intramural sports or physical activity clubs to all students; (2) percentage of schools that do not sell less nutritious foods and beverages outside of the school food service program (these foods and beverages include chocolate candy, other kinds of candy, salty snacks that are not low in fat, cookies, crackers, cakes, pastries, or other baked goods that are not low in fat, soda pop or fruit drinks that are not 100% juice, and sports drinks); (3) percentage of schools that follow a policy that mandates a tobacco-free environment (this includes prohibiting the use of all tobacco, including cigarettes, smokeless tobacco, cigars, and pipes, by students, faculty and school staff, and visitors, in school buildings, outside on school grounds, on school buses or other vehicles used to transport students, and at off-campus, school-sponsored events during school hours and non-school hours); (4) percentage of schools that identify "safe spaces," where lesbian, gay, bisexual, transgender, or questioning youth can receive support from administrators, teachers, or other school staff; (5) percentage of schools with a full-time registered nurse who provides health services to students at school; and (6) percentage of schools that have an asthma action plan on file for all students with known asthma.

The measures related to health education included (1) percentage of schools with a written curriculum that covers all 8 National Health Education Standards;¹⁵ (2) percentage of schools that teach 13 HIV, STD, and pregnancy prevention topics in a required course in any of grades 6 through 8 (see

questionnaire for the list of topics); (3) percentage of schools that teach 17 HIV, STD, and pregnancy prevention topics in a required course in any of grades 9 through 12 (these include all of the topics for grades 6 through 8, plus 4 topics related to condoms); (4) percentage of schools that teach 12 physical activity topics in a required course (see questionnaire for the list of topics); (5) percentage of schools that teach 14 nutrition topics in a required course (see questionnaire for the list of topics); and (6) percentage of schools that teach 15 tobacco-use prevention topics in a required course (see questionnaire for the list of topics).

Procedure

Self-administered questionnaires were sent to the principal and lead health education teacher at each selected school and returned to the agency conducting the survey. Participation in Profiles was confidential and voluntary. Follow-up telephone calls, emails, and written reminders were used to encourage participation.

Data Analysis

For each measure, the percentage of schools in each state that engaged in that practice was calculated. For states that use a sample-based method, results were weighted to reflect the likelihood of schools being selected and to adjust for differing patterns of non-response. For states that conduct a census, results were weighted to adjust for differing patterns of non-response.

Next, states were divided into quartiles based on the percentage of schools in the state that engaged in the practice. States in the top quartile were assigned a value of 1 for that measure and states in the lowest quartile were assigned a value of -1 for that measure. These values were then summed for each state. Three sums were calculated: 1 for the environment measures, 1 for the health education measures, and 1 for all measures combined.

RESULTS

Table 1 shows the states rank-ordered from lowest to highest based on the sum of their quartile scores for the healthy school environment measures. States with the same sum should be considered to have the same rank and are listed alphabetically within that sum. In general, states with lower sums are those that were in the lowest quartile for several practices related to healthy school environment; states with higher sums are those that were in the highest quartile for several of these practices. States with sums in the middle of the distribution are a mix of those in the middle quartiles for all practices and those in the lowest

Table 1. Rank-Order of States by Sum of Quartile Scores for Healthy School Environment Measures—49 States, School Health Profiles, 2010

State	Percentage of Schools That Offer Intramural Sports	Percentage of Schools That Do Not Sell Less Nutritious Foods and Beverages	Percentage of Schools That Prohibit All Tobacco Use at All Times in All Locations	Percentage of Schools That Identify Safe Spaces for LGBTQ Youth	Percentage of Schools With a Full-Time Registered Nurse	Percentage of Schools With Asthma Action Plan on File for All Students With Known Asthma	Sum
North Dakota	-1		-1	-1	-1	-1	-5
Idaho		-1	-1		-1	-1	-4
Nebraska	-1	-1	-1	-1			-4
Oklahoma	-1	-1	-1	-1			-4
South Dakota	-1		-1	-1		-1	-4
Kansas	-1	-1	-1				-3
Michigan		-1			-1	-1	-3
Montana		-1			-1	-1	-3
Utah		-1			-1	-1	-3
Wyoming			-1	-1		-1	-3
Alaska	1	1	-1	-1	-1	-1	-2
Louisiana	-1	-1		-1		1	-2
Missouri		-1	-1	-1	1		-2
Ohio	-1		-1				-2
Arkansas	-1	1		-1			-1
Indiana	-1						-1
Iowa	-1						-1
Kentucky			-1				-1
Minnesota		-1					-1
Oregon					-1		-1
Arizona		1				-1	0
Colorado							0
Georgia							0
Mississippi			1			-1	0
Nevada	1	-1			-1	1	0
Texas	-1		1	-1	1		0
Virginia							0
Wisconsin				1	-1		0
Alabama	-1	1	1	-1		1	1
California	1		1		-1		1
Florida	1						1
New Mexico		1					1
Tennessee		1	-1			1	1
Washington		-1	1	1	-1	1	1
Hawaii	1	1	1	1	-1	-1	2
North Carolina			1			1	2
Pennsylvania				1	1		2
Vermont	1			1	1	-1	2
Connecticut		1		1	1		3
Delaware		1	1	-1	1	1	3
Maryland	1		1			1	3
Massachusetts	1			1	1		3
New Hampshire	1			1	1		3
New York	1			1	1		3
South Carolina			1		1	1	3
West Virginia		1	1			1	3
Maine	1	1	1	1			4
New Jersey	1			1	1	1	4
Rhode Island		1		1	1	1	4

States with the same sum should be considered to have the same rank and are listed alphabetically within that sum.

LGBTQ, Lesbian, Gay, Bisexual, Transgender, or Questioning.

quartile for some practices and the highest quartile for other practices, so that the scores cancel each other out. For the healthy school environment measures,

those with lower sums tend to be in the western and midwestern regions of the country, whereas those with higher sums tend to be in the east.

Table 2. Rank-Order of States by Sum of Quartile Scores for School Health Education Measures—47 States, School Health Profiles, 2010

State	Percentage of Schools With a Written Curriculum That Covers All 8 National Health Education Standards	Percentage of Schools That Teach 13 HIV, STD, and Pregnancy Prevention Topics in Grades 6, 7, or 8	Percentage of Schools That Teach 17 HIV, STD, and Pregnancy Prevention Topics in Grades 9, 10, 11, or 12	Percentage of Schools That Teach 12 Physical Activity Topics in a Required Course	Percentage of Schools That Teach 14 Nutrition Topics in a Required Course	Percentage of Schools That Teach 15 Tobacco-Use Prevention Topics in a Required Course	Sum
Arizona	-1	-1	-1	-1	-1	-1	-6
Alaska		-1	-1	-1	-1	-1	-5
Minnesota	-1			-1	-1	-1	-4
Massachusetts				-1	-1	-1	-3
South Dakota	-1		-1			-1	-3
Georgia		-1	-1				-2
Indiana	-1	-1	-1		1		-2
Maine		1		-1	-1	-1	-2
Nebraska	-1		-1				-2
North Dakota	-1	-1	-1		1		-2
Oregon	1			-1	-1	-1	-2
Utah		-1	-1				-2
Washington	-1					-1	-2
Wyoming		-1	-1				-2
Connecticut	1		1	-1	-1	-1	-1
Iowa				-1			-1
Kansas	1	-1		-1			-1
Michigan	1	-1			-1		-1
Montana		-1	-1		1		-1
New Hampshire	-1		1	-1			-1
North Carolina			-1				-1
Oklahoma	1	1		-1	-1	-1	-1
Pennsylvania	-1						-1
Vermont		1	1	-1	-1	-1	-1
Idaho		-1			1		0
Louisiana		-1				1	0
Maryland	-1		1				0
Ohio							0
Rhode Island	1				-1		0
Tennessee							0
California	1	1	1		-1	-1	1
South Carolina				1			1
Texas			-1	1		1	1
Alabama		1		1			2
Hawaii		1	1				2
Wisconsin	1	1					2
Delaware			1	1		1	3
Florida	1	1		1			3
Kentucky	-1		1	1	1	1	3
Mississippi				1	1	1	3
Nevada	1		1			1	3
Virginia				1	1	1	3
West Virginia	-1	1		1	1	1	3
Arkansas		1		1	1	1	4
Missouri	1			1	1	1	4
New Jersey	1	1	1		1	1	5
New York		1	1	1	1	1	5

States with the same sum should be considered to have the same rank and are listed alphabetically within that sum.

Table 2 shows the rank-order of the states from lowest to highest based on the sum of their quartile scores for the school health education measures. As in

Table 1, states with the same sum should be considered to have the same rank and are listed alphabetically within that sum. For the school health education

Table 3. Rank-Order of States by Overall Sum of Quartile Scores for Healthy School Environment and School Health Education Measures—47 States, School Health Profiles, 2010

State	Overall Sum
Alaska	-7
North Dakota	-7
South Dakota	-7
Arizona	-6
Nebraska	-6
Minnesota	-5
Oklahoma	-5
Utah	-5
Wyoming	-5
Idaho	-4
Kansas	-4
Michigan	-4
Montana	-4
Indiana	-3
Oregon	-3
Georgia	-2
Iowa	-2
Louisiana	-2
Ohio	-2
Washington	-1
Massachusetts	0
North Carolina	1
Pennsylvania	1
Tennessee	1
Texas	1
Vermont	1
California	2
Connecticut	2
Kentucky	2
Maine	2
Missouri	2
New Hampshire	2
Wisconsin	2
Alabama	3
Arkansas	3
Maryland	3
Mississippi	3
Nevada	3
Virginia	3
Florida	4
Hawaii	4
Rhode Island	4
South Carolina	4
Delaware	6
West Virginia	6
New York	8
New Jersey	9

States with the same sum should be considered to have the same rank and are listed alphabetically within that sum.

measures, the states with the lowest and highest sums did not appear to cluster in any particular regions of the country. Table 3, which shows the states rank-ordered based on their overall sum, reveals a more similar regional pattern to Table 1. That is, states with the lowest sums tend to be in the west and midwest, whereas states with the highest sums are all in the east, with the exception of Hawaii.

Some states have low or high ranks in both sets of measures. For example, South Dakota has a low rank in both, and New Jersey has a high rank in both. Other states have a relatively low rank in one set of measures but a high rank in the other, placing them in the middle of the rankings for the overall sum. For example, Massachusetts is near the top of the rankings for the healthy school environment measures but near the bottom of the rankings for the school health education measures. As a result, that state appears in the middle of the rankings for the overall sum.

DISCUSSION

This analysis is the first to use School Health Profiles data to rank-order states based on the extent to which relevant practices are in place in their secondary schools. Results revealed some notable differences among states. For example, New Jersey and West Virginia had consistently high rankings—both states ranked in the top 5 for all 3 analyses. Conversely, South Dakota was one of the lowest 5 states for all 3 rankings. Such differences in rankings are likely the result of a multitude of factors, such as the availability of resources for school health in these states and states' priorities for particular school health policies and practices.

This approach is useful at both the state and national levels. At the state level, the results of this study provide an overall comparison of states. Whereas previous reports of Profiles data¹³ have allowed states to compare themselves to others on specific school health policies and practices, this analysis allows for a more general comparison that will allow some states to promote the strengths of their school health programs and others to advocate for resources to address weaknesses. On the national level, the results of this study can help guide technical assistance to particular states or regions of the country, most notably the western and midwestern regions of the country.

Advocates for school health in lower ranked states can point to the results in the higher ranked states as evidence that their own states can make substantial improvements in promoting the implementation of effective school health policies and practices. School health professionals in lower ranked states would benefit from studying the state-level policies and programs that higher ranked states have implemented to achieve their positive results.

Limitations

This study is subject to several limitations. First, the rankings are completely dependent on the practices the authors chose to include in the analysis. Although these practices were chosen because they represent key aspects of school health education and healthy

school environment, the results might have varied substantially had different practices been included. Second, the range of percentages of schools engaging in each practice varies widely by practice. As a result, the difference between the lowest quartile and the highest quartile is more notable for some practices than for others; yet, all practices were counted the same in this analysis. For example, the percentage of schools with a full-time registered nurse ranges from 4.9% to 99.4%, and the percentage of schools teaching 12 physical activity topics in a required course ranges from 39.0% to 75.2%.¹³ Clearly, the difference between the lowest and highest quartiles is more meaningful for the former measure than for the latter measure; yet, both practices were included equally in the sum. Third, whereas the use of quartiles provides an objective way of dividing states, if a state's percentage just misses the cutoff for a quartile, it is not necessarily meaningful that the state was not included in that highest or lowest quartile. Of course, this works in both directions—sometimes a state will just miss being in the highest quartile, but that same state might also just miss being in the lowest quartile for another measure. Finally, because the data they collected could not be weighted to be representative of all secondary schools in their state, 1 state (Illinois) could not be included in any of the analyses, and 2 additional states (Colorado and New Mexico) could not be included in the school health education or overall analyses.

Conclusions

This study has demonstrated the value of summarizing Profiles data to allow states to be ranked according to the extent to which they have key school health policies and practices in place. Because Profiles is an ongoing surveillance system, the analyses reported here can be repeated in future cycles. Such analyses will help determine if lower ranked states are able to improve their ranking by improving the guidance they provide to secondary schools in their jurisdictions.

IMPLICATIONS FOR SCHOOL HEALTH

The relatively high percentage of schools implementing effective health policies and practices in certain states highlights the progress that can be made in states ranked low on the School Health Profiles composite measures. This study identifies states whose school health policies and programs should be emulated and other states whose policies and programs are in urgent need of improvement.

Human Subjects Approval Statement

As a surveillance system, School Health Profiles has been determined to be exempt from review by an institutional review Board. Some individual states and school districts, however, have chosen to submit their Profiles surveys for review; approval has been granted in all of these cases.

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