The Role of Schools in Preventing Childhood OBESITY

Headlines across the nation proclaim news that educators have seen with their own eyes during the past two decades: children in the United States are getting heavier and heavier. Accompanying stories in this issue of the *Standard* describe the negative consequences of this trend on the physical health and self-esteem of our nation's young people, as well as the financial burden that the obesity epidemic is placing on our medical care system. The essential cause of the increase in overweight among children and adolescents is straightforward: an excess of caloric intake compared with caloric expenditure. In other words, our young people are making unhealthy eating choices and are not getting enough physical activity.

While the U.S. Surgeon General has identified the obesity epidemic as one of the greatest health problems facing the nation today,[1] educators have had their attention elsewhere. Today's schools face intense pressure to focus on standardized tests and consequently have placed less emphasis on the broader view of a healthy mind in a healthy body. However, an increasing number of educators and school board members are realizing, as the National Association of State Boards of Education (NASBE) has written: "Health and success in school are interrelated. Schools cannot achieve their primary mission of education if students and staff are not healthy and fit physically, mentally, and socially."[2] Thanks to the efforts of these educators and policymakers, many schools are making important contributions to our nation's struggle against the obesity epidemic.

This article summarizes data on overweight among young people and the role of schools in addressing the issue, describes 10 key strategies schools can use to improve student nutrition and increase physical activity, identifies important resources that can help schools implement those strategies, and addresses challenges to change.

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Overweight among Children and Adolescents

Since 1980, the percentage of children who are overweight has more than doubled, while rates among adolescents have more than tripled[3,4] (see Figure 1). In 2002, 16 percent of 6–19-year-olds were overweight.[5] Rates of overweight were higher among Mexican American boys (25.5 percent), non-Hispanic black girls (23.2 percent),[6] and American Indian youth.[7] Non-Hispanic white adolescents from lower-income families are more likely to be overweight than their counterparts from higher-income families.[8]

In recent years, several weight-related conditions that were observed primarily among adults have been increasingly diagnosed in young people.[9,10] For example, 10 years ago type 2 diabetes was almost unknown among young people, but in some communities it now accounts for nearly 50 percent of new cases of diabetes among children or adolescents.[11] An estimated 61 percent of overweight young people have at least one additional risk factor for heart disease, such as high cholesterol or high blood pressure.[12] Childhood overweight also is associated with social and psychological problems, such as discrimination and poor self-esteem.[13,14]

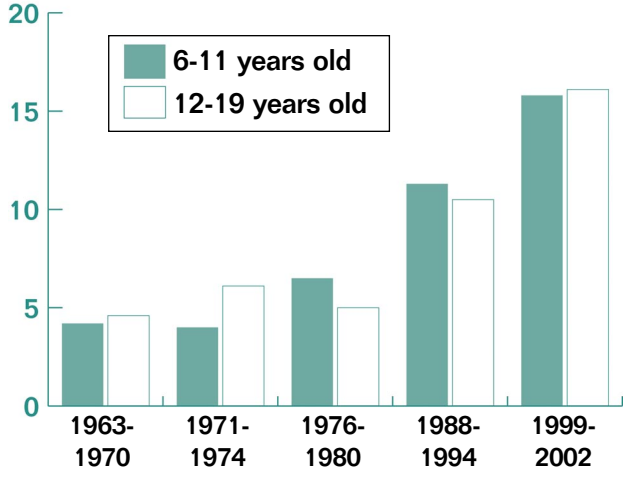
Furthermore, children and adolescents who are overweight are more likely to become overweight or obese adults.[15] Although child-onset overweight accounts for only 25 percent of adult obesity, obese adults who were overweight as children have much more severe obesity than adults who become obese in adulthood.[16] Obesity in adults is associated with increased risks of premature death, heart disease, type 2 diabetes, stroke, several types of cancer, osteoarthritis, and many other health problems.[17]

One of the most harmful consequences of the obesity epidemic is the damage it does to our economy. In 2000, the total cost of obesity (including medical costs and the value of wages lost by employees unable to work because of illness, disability, or premature death) in the United States was approximately $117 billion.[18] With the Centers for Disease Control and Prevention (CDC) estimating that more than one in three children born in 2000 will eventually suffer from diabetes,[19] the future costs of weight-related health care could be staggering.

The Role of Schools

The physical activity and eating behaviors that affect weight are influenced by many sectors of society, including families, community organizations, health care providers, faith-based institutions, businesses, government agencies, the media, and schools. The involvement of all of these sectors will be needed to reverse the epidemic.

FIGURE 1. Percentage of U.S. Children and Adolescents Who Were Overweight, * 1963-2002**



* ≥95th percentile for BMI (Body Mass Index) by age and sex based on 2000 CDC BMI-for-age growth charts.
** Data from 1963–70 are from 1963–65 only for children (ages 6–11 years) and from 1966–70 only for adolescents (ages 12–17 years).
Source: National Center for Health Statistics.

Schools cannot solve the obesity epidemic on their own, but it is unlikely to be halted without strong school-based policies and programs. Schools play an especially important role because:

- Over 95 percent of young people are enrolled in schools.[20]
- Promotion of physical activity and healthy eating have long been a fundamental component of the American educational experience, so schools are not being asked to assume new responsibilities.
- Research has shown that well-designed, well-implemented school programs can effectively promote physical activity, healthy eating, and reductions in television viewing time.[21-24]
- Emerging research documents the connections between physical activity, good nutrition, physical education and nutrition programs, and academic performance.[25-31]

What Can Schools Do to Make a Difference?

Most important, schools can help students adopt and maintain healthy eating and physical activity behaviors. CDC has published guidelines that identify school policies and practices most likely to be effective in promoting lifelong physical activity and healthy eating.[32,33] The guidelines, which are based on comprehensive reviews of the research literature and extensive input from academic experts and school health practitioners, contain many different recommendations that can be summarized as 10 key strategies.

1. Address physical activity and nutrition through a Coordinated School Health Program (CSHP) approach.

A CSHP integrates efforts of the eight components of the school community that can strongly influence student health: (1) health education; (2) physical education; (3) health services; (4) nutrition services; (5) counseling, psychological, and social services; (6) healthy school environment; (7) health promotion for staff; and (8) family and community involvement.[34,35] CSHPs focus on improving the quality of each of these components and expanding collaboration among the people working on them. A CSHP is a systematic approach to promoting student health that emphasizes needs assessment; planning based on data, sound science, and analysis of gaps and redundancies in school health programming; and evaluation.

This model has been embraced by education agencies in most states, including 23 state education agencies that are currently funded by CDC to establish state-level infrastructure to implement statewide CSHPs. More information about this model and state activities to promote physical activity and healthy eating through CSHPs is available at the website of CDC's Division of Adolescent and School Health: www.cdc.gov/HealthyYouth.

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2. Designate a school health coordinator and maintain an active school health council.

A school health coordinator is responsible for managing and coordinating all school health policies, programs, activities, and resources. The school health council (SHC) is composed of representatives from different segments of the school and community, including parents, teachers, students, school administrators, health care providers, social service professionals, and religious and civic leaders.[36] The SHC provides guidance to the school health coordinator and school administrators on school health activities and rallies support for school health programs. A SHC can help institutionalize health promotion as part of the fundamental mission of the school or school district.

The NASBE state-level school health policy tracking service (www.nasbe.org/HealthySchools) reports that 27 states have policies supporting SHCs. For example, Florida, Mississippi, North Carolina, and Texas require that school districts form health councils. Maine, without a legislative mandate, supports a school health coordinator and SHCs in all 54 of its school administrative units.[37] SHCs have helped strengthen school physical education and health education curricula and have assisted in bringing about profound changes in school environments, such as the adoption of nutrition standards, establishment of walking programs for staff and students, and the opening of school facilities for after-school physical activity programs.[38-40]

The American Cancer Society, in cooperation with the Iowa Department of Public Health and other partners, has published a guide on establishing SHCs.[41] Guides to the development of SHCs are also available from agencies in North Carolina[42] and Wisconsin[43] and a school health coalition in Missouri.[44]

The number of schools or school districts with SHCs is likely to increase further: the Child Nutrition and WIC Reauthorization Act of 2004 requires all school districts that participate in federally funded school meal programs to establish wellness committees by 2006 to develop nutrition and physical activity policies.[45]

3. Assess the school's health policies and programs and develop a plan for improvement.

SHCs can use CDC's *School Health Index: A Self-Assessment and Planning Guide (SHI)* to identify strengths and weaknesses of current health policies and practices.[46] The SHI features an eight-module checklist, with each module corresponding to one of the CSHP components, and a planning-for-improvement process to help school teams prioritize possible changes. The tool focuses on school activities related to physical activity, nutrition, tobacco use, and injury prevention.

Schools in at least 46 states have reported use of the SHI, with several states, including Michigan, Missouri, and Montana, reporting use by dozens of schools. Completion of the SHI can lead to positive changes in the school health environment: for example, schools have hired a physical education teacher for the first time, added healthier food choices, and organized aerobics classes for teachers. Some state and local health departments have offered mini-grants to help schools implement changes proposed as a result of completing the SHI.

4. Strengthen the school's nutrition and physical activity policies.

The adoption of policies at the school, school district, state, or federal level is critical to the effective implementation of the nine other strategies listed in this article. Equally important are ongoing efforts to implement policies and disseminate information about the policies to the school community.

States are responding to the obesity epidemic by adopting new school policies through legislative, state board of education, or state agency action. For example, a 2003 Arkansas law requires that elementary schools stop selling food or soft drinks in vending machines to students.[47] A Connecticut law passed in 2004 requires school boards to offer K–5 students a period of physical exercise each day.[48] The North Carolina State Board of Education required in 2003 that school districts establish school health advisory councils and include recess as part of the school day, and it encouraged minimum times for physical education classes.[49] In Texas, the state department of agriculture issued a policy in 2004

that sets nutrition standards for foods and beverages available on school campuses, regulates portion sizes, and targets the elimination of frying as a method of on-site food preparation.[50]

NASBE's *Fit Healthy and Ready to Learn: A School Health Policy Guide*[51] features background information on how to influence the educational policy-making process; sample policies to support implementation of CDC school health guidelines; and data to help make the case for these policies. Both NASBE (www.nasbe.org) and the National School Boards Association (www.nsba.org) provide technical assistance on developing and implementing school health policies.

5. Implement a high-quality health promotion program for school staff.

Staff health promotion programs are a sound strategy for improving staff morale, attendance, and overall performance.[52] They also can make important contributions to student health by giving staff the skills and motivation they need to become powerful role models for good health. Staff health promotion services can include health screenings and free or low-cost physical activity and healthy-eating programs.

The Directors of Health Promotion and Education (www.dhpe.org), the professional association for health education staff in state health departments, is currently developing a guidebook for creating comprehensive school employee health and wellness programs. The guidebook will describe model programs, such as the one in Rock Hill, South Carolina, where the school district created an institute for new teachers that includes workshops on physical activity and healthy eating.

6. Implement a high-quality course of study in health education.

State-of-the-art health education features a sequential curriculum consistent with state and/or national health education standards[53] and adequate amounts of instructional time. To address obesity, health education curricula should emphasize the importance of implementing strategies to increase healthy eating and physical activity[54,55] and reduce television viewing.[56,57] Curricula are more likely to be effective in improving student health behaviors when they teach skills needed to adopt healthy behaviors, provide ample opportunities to practice those skills, and focus on helping students overcome barriers to adopting behaviors. Curricula that transmit a great deal of factual information without incorporating these characteristics are less likely to influence student health behaviors.[58,59]

Some states have made substantial efforts to improve the quality of health education programs. For example, Michigan has developed The Michigan Model for Comprehensive School Health Education©, grades K–12, which includes modules on physical activity and nutrition (www.emc.cmich. edu/mm). West Virginia has developed standards and objectives for health education content with a major focus on adolescent risk behaviors; these standards and objectives can be used to design curricula and provide a basis for assessing student achievement and progress (wvde.state.wv.us/csos).

The Council of Chief State School Officers' Health Education Assessment Project is working to develop standards-based health education assessment resources that support K–12 teachers in their efforts to provide effective health education.[60] In 2005, CDC plans to release the *Health Education Curriculum Analysis Tool* to help educators strengthen existing health education curricula, develop new curricula, or select commercial curricula that best meet the health education needs of students.

7. Implement a high-quality course of study in physical education.

Education policymakers are beginning to understand that physical education is as much an academic discipline as anything else taught in school—a discipline that gives students some of the most critical skills they need to be productive citizens of the 21st century. Like other academic courses of study, physical education should be based upon rigorous national standards that define what students should know and be able to do as a result of participation.[61] A high-quality physical education program:

- Emphasizes knowledge and skills for a lifetime of physical activity;
- Meets the needs of all students;
- Keeps students active for most of physical education class time;
- Teaches self-management as well as movement skills; and
- Is an enjoyable experience for students.

Quality physical education requires adequate time (per week, at least 150 minutes for elementary schools and 225 minutes for secondary schools), adequately prepared teachers

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with opportunities for professional development, adequate facilities, and reasonable class sizes.

Some states have made substantial efforts to improve the quality of physical education programs. For example, Michigan has developed the *Exemplary Physical Education Curriculum*[62] and promoted its use throughout the state, while South Carolina developed a system for assessing student proficiency in physical education and added an item to state-issued "report cards" on school performance that identifies the percentage of a school's students who are proficient in physical education.[63]

The National Association for Sport and Physical Education offers state-of-the-art guidance for physical education teachers through its professional development activities and publications (www.aahperd.org/naspe). In 2005, CDC plans to release the *Physical Education Curriculum Analysis Tool* to help educators assess how well physical education curricula reflect the national physical education standards.

8. Increase opportunities for students to engage in physical activity.

The school setting offers multiple opportunities for students to enjoy physical activity outside of physical education class, including recess periods for unstructured play in elementary schools, after-school programs, intramural sports programs, and physical activity clubs. These opportunities are particularly important because they are accessible to all students, including those who are not athletically gifted and those with special health care needs.

In addition, many teachers are now offering students opportunities for physical activity in the classroom as part of planned lessons that teach mathematics, language arts, and other academic concepts through movement.[64] Another promising approach is helping communities overcome obstacles to walking to school: more than two-thirds of students who live a mile or less away do not walk to school.[65] The International Walk to School Day (www.iwalktoschool.org) has helped promote walking to school, while communities have established "safe routes to school" programs to overcome safety barriers to walking.[66]

Many resources have been developed in recent years to help schools offer these physical activity opportunities for students, including:

- An activities guide for recess by the American Association for the Child's Right to Play (www.ipausa.org/recess.htm);
- Guides to integrate physical activity into other school subjects: "Brain Breaks" by the Michigan Department of Education (www.emc.cmich. edu/BrainBreaks), and "Take 10!" by the International Life Science Institute (www.take10.net);
- An after-school physical activity website with fun activity ideas, by the California Department of Education (www.afterschoolpa.com);
- Kids Walk-to-School, a guide from CDC to help communities promote walking to school (www.cdc.gov/nccdphp/dnpa/kidswalk); and
- Colorful materials and contests developed by *VERB*, CDC's physical activity marketing campaign for 9–13-year-olds (www.cdc.gov/verb).

9. Implement a quality school meals program.

Since 1996, when major changes were made in the federal school meal programs, on average the levels of fat and saturated fat in school meals have been reduced while the meals continue to meet federal standards for key nutrients.[67] Schools can support a high-quality meal program by providing students enough time and a safe, clean, and pleasant area in which to eat.

Managing a school food service program requires a diverse skill set, and thus it is important that food service personnel receive appropriate training and have opportunities for professional development. Most states and districts, however, have minimal or no educational requirements for school food service managers, and only a handful of states require the managers to be certified.[68]

Resources and assistance to improve school meal programs are available from:

- U.S. Department of Agriculture's (USDA's) Team Nutrition, which provides grants to states and offers an extensive set of technical assistance materials (www.fns.usda.gov/tn), including "Changing The Scene," a comprehensive guide to improving the school nutrition environment;[69]

- The School Nutrition Association (www.asfsa.org), the professional association for school food service managers, whose resources include "Keys to Excellence," a self-assessment tool for school nutrition programs;[70] and

- The National Food Service Management Institute, which provides training opportunities and distributes resource materials (www.nfsmi.org).

10. Ensure that students have appealing, healthy choices in foods and beverages offered outside of the school meals program.

Most schools offer foods and beverages to students through a variety of channels outside of the federally regulated school meal program: vending machines, school stores, concession stands, after-school programs, fundraising campaigns, class parties, and à la carte items in the cafeteria.

Federal regulations on these foods and beverages are limited: foods defined as having "minimal nutritional value"—carbonated beverages, chewing gum, water ices, and sugary candies—cannot be available in the cafeteria during meal time. These foods, however, can be offered anywhere else on campus, including right outside the cafeteria doors, at any time. In addition, there are no restrictions on many high-fat or high-sugar products, such as chocolate bars, potato chips, doughnuts, and fruit drinks.[71,72] States, school districts, and schools, however, can establish their own regulations, and many are doing so.

A new publication, "Making It Happen: School Nutrition Success Stories,"[73] showcases how 32 schools and school districts across the country improved the nutritional quality of foods and beverages offered on campus. Published by the USDA, the U.S. Department of Health and Human Services, and the U.S. Department of Education, this document identifies six strategies that schools are using to improve their nutrition environments: (1) making more healthful foods and beverages available, (2) influencing food and beverage contracts so that they promote more healthful choices, (3) establishing nutrition standards that determine which foods can and cannot be offered on campus, (4) adopting marketing techniques to promote healthful choices, (5) limiting the hours in which students can access non-meal foods and beverages at school, and (6) using fundraising activities and student reward programs that support student health.

A key lesson learned from the "Making it Happen" success stories is that students will buy healthful foods and beverages—and schools can make money from selling healthful options. Of the 17 schools and school districts in "Making It Happen" that reported revenue information, 12 reported an increase, four maintained revenue, and one experienced a slight decrease.

Implementing Change

Most schools and school districts face similar challenges to improving physical activity and nutrition policies and programs, most notably: 1) intense pressures to raise standardized test scores accompanied by the conventional wisdom that this can best be achieved by a narrowing of the school's focus and curriculum; and 2) limited budgets that make it difficult to find resources to implement program improvements and lead to pressures to sell high-fat or high-sugar foods and beverages to raise money for basic school functions.

Often it takes the leadership of a respected local person to initiate change. The identity of this champion varies from community to community: it might be a superintendent, school board member, school administrator, parent, student, teacher, health professional, or food service director. Local champions interest others in physical activity and nutrition issues, and then they

establish a broad-based team to address them. Together, they assess local needs and plan, implement, and evaluate improvements to school policies and programs.

A key resource that has emerged in recent years to support this work is Action for Healthy Kids (AFHK) (www.actionforhealthykids.org), a national nongovernmental organization that has organized teams in every state to develop and implement state action plans for improving school policies and programs in nutrition and physical activity. AFHK offers a variety of helpful tools, including fact sheets, slide presentations, and an online searchable resource database.

Conclusion

The obesity epidemic is one of the greatest public health, social, and economic challenges of the 21st century. Without a strong contribution from schools, we are not likely to reverse the epidemic. Improving and intensifying efforts to promote physical activity and healthy eating is entirely consistent with the fundamental mission of schools: educating young people to become healthy, productive citizens who can make meaningful contributions to society. Fortunately, we have learned a great deal in recent years about what schools can do to effectively promote physical activity and healthy eating, and we have a wealth of new resources available to help schools get it done. But knowledge and resources alone are insufficient—meaningful change requires leadership. The articles in this issue demonstrate that many insightful board members, educators, and legislators have stepped up to meet the challenge. Through their exemplary leadership, states and communities are demonstrating that obstacles can be overcome, effective strategies can be implemented, and schools can play a strong role in improving the lives of young people through physical activity and healthy eating.

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