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Childhood Obesity

Legislative Policy Approaches and the Evidence Base to Date

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Introduction

American children are growing fatter. Between 1980 and 2002, the number of overweight children and adolescents ages 6 to 19 tripled. With 16 percent of children and adolescents in this age group overweight (9 million children), childhood obesity remains a pressing public health concern. The trend continues. A study published in the April 5, 2006, issue of the *Journal of the American Medical Association* found that 17.1 percent of children and adolescents ages 2 to 19 were overweight.

Being overweight puts children and teenagers at greater risk for a number of serious health conditions. Type 2 diabetes; risk factors for heart disease, including high blood pressure; other health conditions including asthma and sleep apnea, and psychosocial effects such as decreased self-esteem have been associated with childhood overweight in recent studies. In one large study, 61 percent of overweight 5- to 10-year-olds already had at least one risk factor for heart disease, and 26 percent had two or more risk factors for the disease. Obese children also are more likely to become obese adults.

By adulthood, obesity-associated chronic diseases—heart disease, some cancers, stroke and diabetes—are the first, second, third and sixth leading causes of death in the United States. Obesity also is costly to states; annual obesity-attributable U.S. medical expenses were estimated at \$75 billion for 2003. Taxpayers fund about half of this through Medicare and Medicaid. The national cost of childhood obesity is estimated at approximately \$3 billion for those with Medicaid. Children covered by Medicaid are nearly six times more likely to be treated for a diagnosis of obesity than are children covered by private insurance.

Fortunately, healthy eating and a physically active lifestyle can help children achieve and maintain a healthy weight and reduce obesity-related chronic diseases. Aiming to start early to prevent the onset of chronic conditions, legislators were active in 2005 in considering childhood obesity policy options.

This report provides a resource for legislators and other policymakers by outlining the variety of legislative policy approaches under consideration to facilitate opportunities for a healthier diet and more exercise, beginning in childhood. Where available, we report evidence about these policy options.

Table 1 provides an overview of the more prevalent state legislative approaches to childhood obesity considered or enacted in 2005. Table 2 provides a summary of policy approaches and available evidence. Detailed information about each policy approach in table 1 and additional policy approaches considered in 2005 follows Table 2, along with more detailed discussion of the available scientific evidence, to date, for each policy approach.

Table 1. State Legislation on Prevalent Childhood Obesity Policy Options 2005

State	Nutrition Standards for Schools	Nutrition Education	Body Mass Index (BMI)	Physical Activity, Recess, or Physical Education	Nutrition Information on School Menu or Labeling
Alabama	Considered			Considered	
Alaska	Considered		Considered	Considered	
Arizona	Enacted			Enacted	
Arkansas	Enacted		Considered repeal	Enacted	
California	Enacted	Enacted		Enacted	Considered
Colorado	Enacted	Enacted		Enacted	Enacted
Connecticut	Vetoed	Vetoed	Considered	Vetoed	
Delaware				Enacted	
Florida					
Georgia			Considered	Considered	
Hawaii	Considered			Considered	
Idaho					
Illinois	Enacted	Enacted		Enacted	Considered
Indiana	Considered			Considered	
Iowa	Considered		Considered	Considered	
Kansas	Enacted	Enacted		Enacted	
Kentucky	Enacted			Enacted	Enacted
Louisiana	Enacted			Enacted	
Maine	Enacted	Enacted	Considered		Enacted
Maryland	Enacted			Considered	
Massachusetts	Considered	Considered		Considered	Considered
Michigan			Considered	Considered	
Minnesota		Considered			
Mississippi	Considered			Considered	
Missouri	Considered	Considered	Enacted	Enacted	
Montana	Considered			Enacted	
Nebraska	Considered			Considered	
Nevada					
New Hampshire	Considered	Considered		Considered	
New Jersey	Considered in Legislature. Implemented by Agriculture Department.		Considered		

Table 1 (continued). State Legislation on Prevalent Childhood Obesity Policy Options 2005					
State	Nutrition Standards for Schools	Nutrition Education	Body Mass Index (BMI)	Physical Activity, Recess, or Physical Education	Nutrition Information on School Menu or Labeling
New Mexico	Enacted	Considered		Enacted	
New York	Considered	Considered	Considered	Considered	Considered
North Carolina	Enacted		Considered	Considered	
North Dakota	Considered				
Ohio	Considered	Considered		Considered	
Oklahoma	Enacted	Considered		Enacted	
Oregon	Considered		Considered	Considered	
Pennsylvania	Considered	Considered		Enacted	
Rhode Island	Enacted			Enacted	
South Carolina	Enacted	Enacted	Considered	Enacted	
South Dakota					
Tennessee	Considered		Enacted	Considered	
Texas	Legislation Enacted Standards also implemented by Agriculture Department	Enacted	Considered	Enacted	
Utah	Sent to Lt. governor			Enacted	
Vermont	Considered	Considered		Considered	
Virginia	Considered	Considered		Enacted	
Washington					
West Virginia	Enacted	Enacted	Enacted	Enacted	Enacted voluntary information
Wisconsin					
Wyoming					
*California enacted childhood obesity prevention legislation and 7th and 8th grade diabetes screening, including body mass index measurement in 2003.					
Source: National Conference of State Legislatures, July 2006.					

Table 2. Summary of State Childhood Obesity Policy Options and Evidence - 2005

Policy Option	Evidence Summary
Nutrition Standards for School Foods and Beverages	<ul style="list-style-type: none"> • Long-standing evidence of the developmental and cognitive benefits of adequate nutrition. • Many studies confirm that proper nutrition enhances academic achievement, while poor nutrition impedes academic performance. • Pilot studies generally indicate that schools can make as much money selling healthy foods as they do from the sale of foods of minimal nutritional value.
Nutrition Education	<ul style="list-style-type: none"> • A USDA-contracted review of 217 studies found that a wide range of outcome measures are used to evaluate nutrition education effectiveness, but concluded that, although dietary change is complex and difficult to measure, nutrition education works and is a significant factor in improving dietary practices when behavior change is the goal and educational strategies are designed with those goals as a purpose. • Nutrition education programs of longer duration, more contact hours, and more components—such as parent involvement and changes in school meals result in more positive outcomes—concluded another study.
Measurement of Student Body Mass Index	<p>Only one research study has been conducted—of Arkansas' 2003 student BMI reporting to parents law.</p> <ul style="list-style-type: none"> • Obesity rates among the state's school children held steady at 38 percent for two school years. <p>Arkansas data for 2005 also showed that, compared to 2004:</p> <ul style="list-style-type: none"> • More parents were limiting their children's access to chips and soda. • More families were sitting down together at mealtime. • Schools were offering more healthy selections in vending machines and at school events. • Most parents and children are comfortable with the weigh-in program. 57 percent of doctors said they had at least one parent bring in their child's BMI letter from the school for discussion during the last school year.
Nutrition Content Information for School Foods	<ul style="list-style-type: none"> • In a 2003 study at six Pennsylvania high schools, students were more likely to select healthy options when schools posted nutrition information at the cafeteria counter. Results were consistent in urban, suburban and rural areas. • Nutrition labeling at worksite cafeterias shows significantly diminished sales of high-fat items or total calories per tray or both. • The number of healthy items available correlates highly with the number of healthy sales.
Physical Education or Physical Activity in Schools	<ul style="list-style-type: none"> • School-based physical education programs as a means to increase physical activity are recommended based on "strong evidence," according to the <i>Guide to Community Preventive Services</i>, a federally sponsored initiative. • Physical education classes taught in schools that enhance class length or activity levels are effective in improving both physical activity levels and physical fitness among school-age children.
Diabetes Non-invasive Screening for Schoolchildren	<ul style="list-style-type: none"> • Studies conclude that changes in lifestyle, better diet and burning calories through exercise can prevent diabetes and obesity in high risk adults. • Recognizing risk and establishing healthy lifestyle habits in childhood therefore may help to stave off diabetes and its complications such as blindness, amputations and kidney disease.
Diabetes Management at School	<ul style="list-style-type: none"> • Opponents believe that certain aspects of diabetes care, such as administration of insulin, require licensed school nurses. • Proponents point to a shortage of school nurses as the reason for training additional school personnel to respond to provide diabetic care, under nurse supervision. • Evidence does not firmly support one approach or the other.

Table 2 (continued). Summary of State Childhood Obesity Policy Options and Evidence - 2005

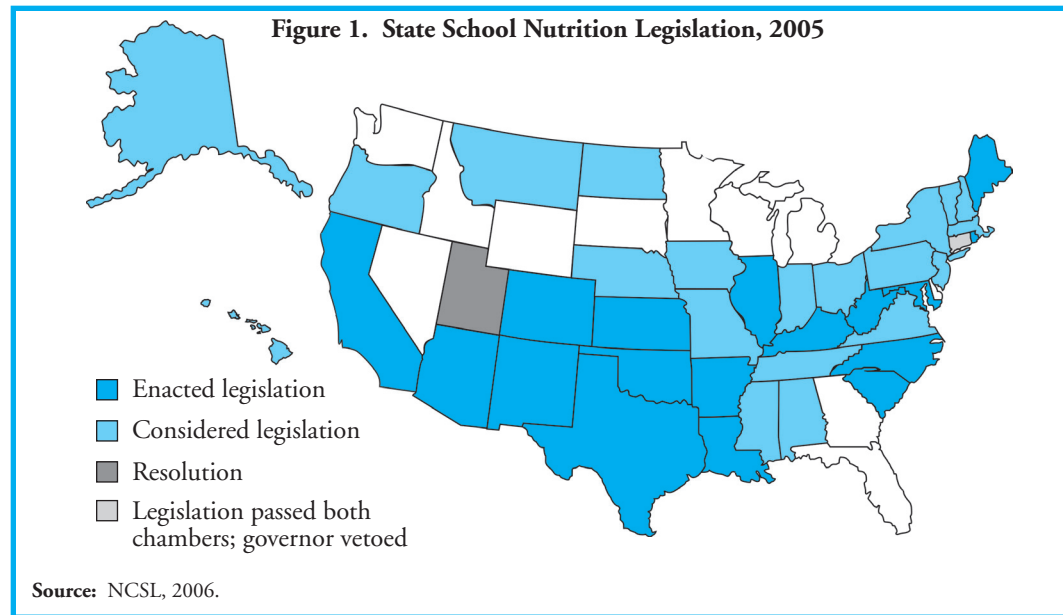
Policy Option	Evidence Summary
School Wellness Policies	<ul style="list-style-type: none"> Evidence for the efficacy of nutrition education and physical activity, both required components of school wellness policies, is well documented. Evaluation of local wellness policies required by the federal Child Nutrition and WIC Reauthorization Act of 2004 is mandatory, but policies will not be in place until the beginning of the 2006-2007 school year.
Raising Awareness	<ul style="list-style-type: none"> Mass media campaigns, when combined with other educational efforts and interventions, are recommended on the basis of strong evidence for a number of public health measures, including increasing breast and cervical cancer screening and reducing initiation of tobacco use by youth in the <i>Guide to Community Preventive Services</i>. The <i>Guide to Community Preventive Services</i> states that the evidence for mass media campaigns to promote physical activity is, at present, insufficient to determine effectiveness.
Taxes on Foods or Beverages with Minimal Nutritional Value	<ul style="list-style-type: none"> A USDA study concluded that a relatively low tax of 1 cent per pound or 1 percent of value would not significantly change consumption, but would generate \$40 to \$100 million in tax revenues. As of 2000, 19 states taxed foods such as soft drinks and candy.

Detailed discussion follows of each policy option, the evidence base and 2005 legislation.

Policy Approach: School Nutrition Legislation

School nutrition legislation responds to concerns about childhood obesity by directly addressing the nutritional quality of school foods and beverages. Legislative approaches under the general rubric of school nutrition legislation vary, ranging from establishing standards for all foods and beverages sold on school campuses at all or selected grade levels, prohibiting the sale of specific foods or beverages in schools (e.g., as defined by fat or sugar content or USDA standards for foods of minimal nutritional value), encouraging the consumption of fruits and vegetables, limiting student access to vending machines or specifying healthier contents for the machines, calling for a broad spectrum of stakeholders to develop nutrition standards for school foods, and other approaches as detailed below.

During the 2005 legislative session, state legislatures in at least 39 states considered legislation related to the nutritional quality of school foods and beverages. Seventeen of those states enacted school nutrition legislation; one state sent a legislative resolution to the lieutenant governor; and in one state, school nutrition legislation passed both chambers of the legislature but was vetoed by the governor (see figure 1).



Texas legislators fine-tuned school nutrition requirements already in place through the state's Department of Agriculture. New Jersey planned to implement school nutrition requirements, at the direction of the acting governor, through its Department of Agriculture. A school nutrition and physical activity bill passed both chambers of the Connecticut legislature but was vetoed by the governor. (Connecticut enacted legislation in 2006.) The content of all legislation that passed both chambers of the legislature is summarized in table 2 below.

Evidence Base: School Nutrition Legislation

Nutrition and Academic Achievement

Many studies confirm that proper nutrition enhances academic achievement, while poor nutrition impedes academic performance. An initial study examining the association between children's overweight status and their academic achievement in kindergarten and first grade found significant differences in test scores by overweight status at the beginning of kindergarten and the end of grade one. Researchers concluded that, although other factors also play a role (e.g., socioeconomic status), a significant (unadjusted) association with worse academic performance can contribute to the stigma of overweight as early as the first years of elementary school.¹ Among other specific studies linking general nutritional status with academic achievement are the following:²

- Fourth graders who have the lowest amount of protein in their diet had the lowest achievement scores.
- Iron deficiency anemia led to shortened attention span, irritability, fatigue and difficulty in concentration.
- Lack of vitamins and minerals, even though too slight to produce clinical signs of malnutrition, was shown to affect intelligence and academic performance.
- Moderate under-nutrition, either inadequate or sub-optimal nutrient intake, can have long-term effects, impinging on cognitive development and school performance.³

Healthy School Meals and Competitive or A La Carte Foods Sold in Schools

Long-standing evidence about the developmental and cognitive benefits of adequate nutrition has led to a number of federal programs to help ensure that children's nutritional needs are met, including the U. S. Department of Agriculture (USDA) school meals program. The National School Lunch Program is a federally assisted meal program, also funded in part by the states, that operates in public and nonprofit private schools and residential child care institutions. It provides nutritionally balanced, low-cost or free lunches to children each school day. The program, established under the National School Lunch Act, was signed into law by President Harry Truman in 1946. USDA school meals programs also include after-school snacks, the School Breakfast Program and the Special Milk Program. Foods offered in schools through these programs must meet nutritional standards established by the USDA.

In addition to foods served through the USDA school meals program, a majority of secondary schools in the United States offer competitive foods and beverages, that is, foods and beverages that are sold separate from the school meals program regardless of nutritional value. These foods and beverages may be available a la carte in the school cafeteria, in school vending machines, or at the school store, canteen or snack bar. Although schools offer some healthy alternatives, competitive foods offered at schools currently are not required to meet USDA nutritional requirements.

A 2001 report from the Government Accountability Office, *Foods Sold in Competition with USDA School Meal Programs*,⁴ reviews the effect that competitive foods may have on the school meal programs. It concludes that children who purchase competitive foods are less likely to eat a nutritionally regulated school meal. School lunches, for example, must meet the applicable recommendations of the Dietary Guidelines for Americans, which recommend that no more than 30 percent of an individual's calories come from fat and less than 10 percent from saturated fat. Regulations also establish a standard for school lunches to provide one-third of the recommended dietary allowances of protein, Vitamin A, Vitamin C, iron, calcium and calories. Foods sold in competition with school meal programs need not meet these requirements, thus jeopardizing the nutritional effectiveness of the programs—and may contribute to the trend of unhealthy eating practices among children and subsequent health risks. Competitive food sales thus may undermine the ability of the school meal programs to contribute to children's health, well-being and academic achievement.

Children's consumption of competitive foods also is a fiscal issue for legislators, who partially support the school meal programs with state taxpayer dollars. The U.S. Department of Agriculture's Food and Nutrition Service provides federal cash reimbursements to states for each school meal served that meets federal requirements. To participate in these programs, however, states must provide a partial match to the federal reimbursements. Any child at participating schools may purchase program meals, and children from certain low-income households can receive the meals free or at a reduced price.⁵ Since children who buy competitive foods are less likely to eat a reimbursable school meal, the sale of competitive foods also may undermine the amount of federal reimbursement dollars received by states for these meals.

The USDA also provides states with donated commodities for each school lunch served. An earlier study indicates that modifying school lunch nutritional requirements to improve the diet quality and health of school children would have minimal effect on the major commodity markets and related farm programs. Considering three illustrative scenarios, researchers concluded that commodity prices, producer marketing and receipts, and farm program outlays did not

vary significantly from baseline projections. Furthermore, they projected that use of lower-fat versions of commodities could result in increased use of these items.⁶

Nutrition Standards and School Food Revenues

As states consider whether to enact school nutrition standards, concerns are raised that schools have come to rely on the revenues generated by the sale of competitive foods and beverages. Because of this concern, legislators in Arizona called for a pilot study of revenue effects before they tackled school nutrition standards. The results of this pilot study and a number of smaller studies generally indicate that schools can make as much money selling healthy foods as they do from the sale of foods of minimal nutritional value. The Arizona Department of Education's report, released in February 2005, examined the results over five months in eight schools that substituted healthier snacks such as crackers and honey-roasted peanuts for high-calorie, low-nutrient snacks and sodas. Arizona's study concluded that no revenue loss was shown in the five-month test during which sales of soft drinks and foods of minimal nutritional value were banned during the school day, and healthier foods and beverages were sold instead.⁷ A report by the advocacy group Center for Science in the Public Interest, found 14 schools and districts in eight states (California, Kentucky, Maine, Massachusetts, Minnesota, Mississippi, Montana, Pennsylvania) that were able to improve the quality of school foods and beverages without losing revenue by replacing low-nutrition choices with healthier foods and beverages.⁸ A GAO study of six school districts that recently took steps to substitute healthy competitive foods for less nutritious items arrived at no definite conclusions, stating that the effects of these changes on school food revenues were unclear because of limited data.⁹

Table 3. School Nutrition Legislation That Passed Both Chambers of Legislature, 2005

State	Legislation
Arizona	AZ HB 2544 (2005) (Enacted, Chapter 238) Establishes nutritional standards in all school districts for foods and beverages sold or served on school grounds during the normal school day, including portion sizes, minimum nutrient values and a listing of contents; and requires school food and beverages to meet the nutrition standards, including food and beverages sold in vending machines.
Arkansas	AR SB 965 (2005) (Enacted, Act 2285) Provides for statewide standards for school lunch programs.

Table 3 (continued). School Nutrition Legislation That Passed Both Chambers of Legislature, 2005	
State	Legislation
California	<p>CA SB 965 (2005) (Enacted, Chapter 237) Modifies the list of beverages that may be sold to elementary and middle school pupils and restricts the sale of beverages to high school pupils to specified beverages at specified times of day.</p> <p>CA SB 12 (2005) (Enacted, Chapter 235) Prohibits the sale of certain specified foods and beverages at all California middle, junior high and high schools commencing July 1, 2007. As of the same date, requires that elementary schools, during the school day, sell only full meals and individually sold portions of nuts, nut butters, seeds, eggs, cheese packaged for individual sale, fruit, vegetables that have not been deep-fried and legumes.</p> <p>CA SB 281 (2005) (Enacted, Chapter 236) Establishes the Fresh Start Pilot Program to encourage public schools to provide fruits and vegetables that have not been deep-fried to pupils in grades 1 through 12 in order to promote consumption of such foods by school-age children.</p>
Colorado	<p>CO SB 81 (2005) (Enacted, Chapter 60) Recognizes overweight among children and youth as a major public health threat and encourages school district boards of education to adopt policies to improve children's nutrition by offering healthful foods at school, providing culturally sensitive nutrition education, establishing local school wellness policies in accord with the federal "Child Nutrition and WIC Reauthorization Act of 2004," and ensuring student access to fresh produce (especially Colorado-grown) and student access to daily physical activity.</p>
Connecticut	<p>CT SB 1309 (2005) (Vetoed) Would have required a daily minimum period of physical activity for students. Would have established committees to monitor and implement nutrition and physical activity policies, to limit the types of beverages available to students, to require the Department of Education to develop and make available to school districts a list of healthy snacks that may be consumed by students, to increase the number of children participating in the school breakfast program, and to encourage the use of Connecticut-grown products in school meals.</p>
Illinois	<p>IL SB 162 (2005) (Enacted, Public Act 94-199) Among other provisions for school wellness policies, includes nutrition guidelines for food sold on school campuses during the school day. Provides that the Board of Education shall distribute the model wellness policies to all school districts.</p>
Kansas	<p>KS SB 154 (2005) (Enacted, Chapter 96) Requires the state board of education (in consultation with other state agencies, private foundations, and other private entities) to develop nutrition guidelines for all foods and beverages available to students in public schools during the school day. Encourages attention to reducing childhood obesity through physical activity, healthful foods, and wellness education when developing the guidelines. Directs local school boards to consider the guidelines when establishing school district wellness policies.</p>
Kentucky	<p>KY SB 172 (2005) (Enacted, Act 84) Requires K-5 school councils or principals to develop and implement a wellness policy that includes vigorous physical activity each day; permits 30 minutes per day or 150 minutes per week of physical activity to be part of the instructional day; requires annual assessment of physical activity and reporting to the legislature. Limits access to retail fast foods in school cafeterias to no more than one day per week. Prohibits serving deep-fried foods in schools, beginning with the 2006-2007 school year. Requires each school to publish a school menu that specifies nutritional information.</p>

Table 3 (continued). School Nutrition Legislation That Passed Both Chambers of Legislature, 2005

State	Legislation
Louisiana	LA SB 146 (2005) (Enacted, Act 331) Limits students' access to certain foods and beverages at school. Encourages daily physical activity at school to develop lifelong enjoyment of physical activity.
Maine	ME LD 796, SP 263 (2005) (Enacted, Chapter 435) Implements recommendations of Maine's Commission to Study Public Health concerning schools, children and nutrition. Requires the Bureau of Health to establish nutritional standards for healthy foods and beverages that may be sold on school grounds outside of the school meals program.
Maryland	MD SB 473 (2005) (Enacted, Chapter 312) Requires all vending machines in public schools, by August 1, 2006, to have and use a timing device to automatically prohibit or allow access in accordance with nutrition policies established by local county boards of education. Requires health education instruction by each county board of education to include the importance of physical activity.
New Mexico	NM HB 61 (2005) (Enacted, Chapter 115) Concerns school meal nutrition rules governing foods and beverages sold outside of school meal programs; relates to nutrition standards, portion sizes and times when students may access these items.
North Carolina	NC HB 855 (2005) (Enacted, Session Law 2005-457) Directs the Board of Education to establish statewide nutrition standards for school meals, a la carte foods and beverages, the After School Snack Program and child nutrition programs of local school districts.
Oklahoma	OK SB 265 (2005) (Enacted, Chapter 45) Prohibits student access to foods with minimal nutritional value in elementary schools and in middle and junior high schools (except for diet sodas). Requires high schools to offer certain healthy beverage and snack options. Requires each public school to establish a Healthy and Fit School Advisory Committee of at least 6 members, composed of teachers, administrators, parents of students, health care professionals and business community representatives to study and make recommendations to the school principal regarding health education; physical education and physical activity; and nutrition and health services.
Rhode Island	RI HB 5563 (2005) (Enacted, Public Law Chapter 74); and RI SB 565 (2005) (Enacted, Public Law Chapter 79) Both bills require school districts that receive state education aid to include in their strategic plans strategies to decrease obesity and to improve health and wellness of students and employees through nutrition, physical activity, health education, and physical education. Bills also require school committees to establish school health and wellness subcommittees to decrease obesity and promote health and physical education in the schools. Both were effective August 1, 2005.
South Carolina	SC HB 3499 (2005) (Enacted, Act 102) Establishes physical education and nutritional standards in elementary schools. Specifies the amount of time that elementary students must have to eat lunch. Requires a weekly nutrition component as part of the health curriculum. Phases in requirements for the amount of physical education instruction that students in kindergarten through grade five must receive each week and teacher-student ratios for physical education. Implements a coordinated school health program. All are contingent on the appropriation of funding.

Table 3. School Nutrition Legislation That Passed Both Chambers of Legislature, 2005

State	Legislation
Texas	TX SB 42 (2005) (Enacted, Chapter 784 §3, 4) Relates to health education, physical activity, and food products in public primary and secondary schools. Requires school health curriculum for grades K-12 to include an emphasis on the importance of proper nutrition and exercise. Prohibits rules that prevent parents or grandparents from providing any food product of the parent's or grandparent's choice for birthday celebrations or school-designated functions. Provides for adoption of rules for evaluation of nutritional services program compliance with Texas Department of Agriculture guidelines relating to foods of minimal nutritional value.
Utah	UT HJR 11 (2005) (passed Legislature, sent to lieutenant governor) Encourages schools to adopt nutrition and physical activity policies.
West Virginia	WV HB 2816 (2005) (Enacted, Act 121) Encourages healthy beverages in schools and adds requirements for health education. Establishes physical activity requirements in public schools using body mass index as an indicator of progress. Includes requirements for student participation in physical education classes to the level of student ability for at least 30 minutes three days a week for kindergarten through grade five; one full period each school day for one semester for grades six through eight; and one full course credit of physical education required for graduation for grades nine through 12. Creates a Healthy Lifestyles Office in the Department of Health and Human Resources with a special revenue account. Establishes a voluntary private sector partnership program to encourage healthy lifestyles.

Note on regulatory action: In Texas, a Public School Nutrition Policy became effective August 1, 2004, under the auspices of the state's agriculture commissioner, who was authorized by the governor to administer the state's National School Lunch Program, School Breakfast Program, and After School Snack Program. New Jersey followed the same route, implementing comprehensive school nutrition standards through its Department of Agriculture under the governor's direction in 2005, effective for the 2007-2008 school year.

Source: National Conference of State Legislatures, July 2006.

Additional Childhood Obesity Policy Legislation for 2005

Other states, as detailed below, have considered or enacted additional policy approaches to address childhood obesity such as body mass index measurement and reporting the information confidentially to parents, providing information on the nutrition content of school foods, nutrition education or wellness initiatives in schools, and providing opportunities for physical activity during the school day.

Every effort has been made to provide a complete list of bills below, but it may not be comprehensive; however, it provides an overview of other policy approaches considered during the 2005 legislative session. Bill numbers are included, allowing for retrieval of the full bills for further information. Proposed legislation has not become law, unless otherwise noted.

Policy Approach: Body Mass Index (BMI) Legislation

In 2003, Arkansas enacted a comprehensive law designed to reduce childhood overweight and obesity, which included a first-of-its-kind legislative requirement for schools to measure individual students' body mass index (BMI) and report the information to parents as a health status indicator (Act 1220). The requirement was initially controversial and legislation to repeal it was introduced in 2005, but did not pass. A number of other states have since adopted BMI

screening for students, both legislatively and by administrative direction from state departments of health. California enacted legislation in 2003 (AB 766, Cal. Ed. Code §49452.6) establishing a pilot program requiring noninvasive screening of seventh grade (female) and eighth grade (male) students for type 2 diabetes risk, including measurement of body mass index as one of four diabetes risk factors. California's pilot screening program was renewed by the Legislature for a three-year period in 2005.

In 2005, 15 other states considered student body mass index (BMI) legislation, and three of those states, Missouri, Tennessee and West Virginia, enacted student BMI measurement legislation. Illinois has enacted BMI screening requirements as part of screening students for diabetes risk. Missouri's and West Virginia's BMI legislation was part of more comprehensive bills designed to address other factors that contribute to childhood overweight. At least 12 other states considered, but did not enact, BMI legislation in 2005, including Alaska, Connecticut, Georgia, Iowa, Maine, Michigan, New Jersey, New York, North Carolina, Oregon, South Carolina and Texas.

State health departments in at least two additional states—Florida and Pennsylvania—have directed schools to use body mass index to track student growth and development as part of regularly scheduled health screenings. The following states currently have some type of student BMI reporting requirements (some are aggregate BMI data reporting requirements, rather than requirements for individual BMI reports to parents): Arkansas, California, Florida, Illinois, Missouri, Pennsylvania, Tennessee and West Virginia. The Arkansas, California, Illinois, Missouri, Tennessee and West Virginia requirements were enacted legislatively.¹⁰ In Pennsylvania, the state health department requires school nurses to compute body mass index for students in grades kindergarten through four during annual growth screenings; the requirement will extend to grades K-8 for the 2006-2007 school year and to grades K-12 in 2007-2008 and beyond. In Florida, BMI screenings are mandated by the Florida Department of Health, which is required by state law to track the physical development of school children.

Evidence Base: Body Mass Index (BMI) Legislation

The Center for Health and Health Care in Schools reports that, "a wide body of research since the mid-1990s" shows that body mass index for both children and adults now is an accepted measure of the causes of and possible treatments for a broad range of disorders, including not only diabetes and heart disease but also seemingly less related conditions such as asthma.¹¹ Because student BMI tracking and reporting are such recent innovations in policy, only one research study has been conducted to study the effect of the practice in Arkansas. This evaluation of Arkansas' childhood obesity law for the 2003-2004 and 2004-2005 school years was released in January 2006 by the University of Arkansas for Medical Sciences College of Public Health. During the two school years studied, obesity rates among the state's school children held steady; 38 percent of public school students in Arkansas were overweight or at risk for being overweight. Interpreting this study finding, Arkansas' chief health officer, Dr. Joe Thompson, said, "The BMI levels staying steady is a victory for the state. We're in an epidemic where kids were getting heavier and heavier the last four decades. In other words, before you can turn an aircraft carrier around, you have to stop it." Evaluation data for 2005 also showed that, compared to 2004, more parents were limiting their children's access to chips and soda, and more families were sitting down together at mealtime. Schools also were offering more healthy selections in vending machines and at school events. Most parents and children are comfortable with the weigh-in program—71 percent of parents and 61 percent of adolescents—according to a survey. It appears

too that parents are reacting appropriately—across the state 57 percent of doctors said they had at least one parent bring in their child’s BMI letter from the school for discussion during the last school year.¹² Evaluators sought to gauge the effects of all provisions of the state’s 2003 law on obesity, including those that require public schools to report children’s BMI information to parents and to set nutrition and physical activity standards for schools.¹³

Table 4. States with Student BMI Reporting Requirements as of 2005

State	Legislation and Administrative Requirements
Arkansas	Act 1220 (2003) requires individual annual body mass index screenings for all public school students, with results reported to parents. The student BMI reports are sent confidentially to parents by letter via U.S. mail.
Florida	Body mass index screening for individual students devolves from Florida Statute 381.0056(5), which requires school health services programs administered jointly by the Department of Health and the Department of Education to administer growth and development screening for students as outlined in Rule 64F-6.003 (2004). Although BMI measurement is not explicitly mandated for student growth and development screenings, the Florida Department of Health and its county-level school health programs traditionally have used the clinical growth charts for boys and girls from the Centers for Disease Control and Prevention. The CDC’s clinical growth charts now use BMI growth curves instead of the outdated weight-for-height percentile growth curves. Calculation of BMI is encouraged for all students in first, third, sixth, and, optionally, ninth grades.
Missouri	MO HB 568T (2005) (Enacted, citation not available) Establishes the Model School Wellness Program funded by Child Nutrition and WIC Reauthorization federal grant money, administered by the Department of Elementary and Secondary Education, to create pilot programs in school districts encouraging students to avoid tobacco use, balance their diets, get regular exercise, and become familiar with chronic conditions resulting from being overweight. Provides for school districts receiving grants to establish programs that address academic success and encourage links between school and home. Requires an evaluation after the 2005-2006 school year that will include changes in body mass index and measurement of changing behaviors related to nutrition, physical activity and tobacco use.
Pennsylvania	The state Health Department is requiring school nurses to compute students’ body-mass index—or height-to-weight ratio—during annual growth screenings, starting this year with children in kindergarten through fourth grade. The requirement will extend to grades K-8 in 2006-2007 and to grades K-12 in 2007-2008 and beyond. Pennsylvania statutes authorize the Department of Health to establish methods for annually screening each student for vision, hearing, height and weight, tuberculosis and such other tests as an Advisory Health Board deems advisable (Pennsylvania Public School Code of 1949, Article XV, Section 1402.) Administrative regulations, 28 Pa. Code §23.7, provide for height and weight measurement by a nurse or teacher to determine the pattern of growth for each child.
Tennessee	TN HB 445 (2005) (Enacted, Public Chapter 194) Requires reporting student BMI to parents as part of a confidential health report card. The legislation calls for providing parents with basic information about what BMI means and what they can do with this information. Schools where aggregate BMI data suggest high rates of overweight are encouraged to expand existing—or implement new—school-based nutrition and physical activity programs.

Table 4 (continued). States with Student BMI Reporting Requirements as of 2005

State	Legislation
West Virginia	<p>WV HB 2816 (2005) (Enacted, Act 121)</p> <p>Among other provisions, the law establishes physical activity requirements in public schools using aggregate body mass index as an indicator of progress. It includes body mass index measurement in kindergarten screening procedures. For students in grades four through eight and students enrolled in high school physical education, it includes body mass index measurement in required fitness testing procedures. It protects student confidentiality and directs that all body mass index data shall be reported in aggregate to the governor, the State Board of Education, the Healthy Lifestyles Coalition, and the Legislative Oversight Commission on Health and Human Resource Accountability.</p>

Source: National Conference of State Legislatures, July 2006.

Policy Approach: Diabetes Screening and Management

Legislation to require noninvasive screening, risk analysis or testing of school children for diabetes was enacted in 2003 in California and Illinois. California's noninvasive diabetes screening was legislatively enacted as a pilot program that is set to expire January 1, 2008. The noninvasive diabetes screening for female students in grade seven and male students in grade eight includes body mass index as one of four risk factors and requires:

- Measuring the height and weight of the pupil to calculate the pupil's body mass index.
- Examining the pupil's neck for acanthosis nigricans, a dark pigmentation that may indicate a high insulin level.
- Documenting the pupil's ethnicity, based on existing school records. Ethnicities that have the highest risk of developing type 2 diabetes mellitus include Latino, African-American, Asian, American Indian, and Pacific Islander.
- Considering whether the pupil's existing health records indicate a family history of type 2 diabetes mellitus.¹⁴ (Cal Ed Code §49452.6, 2005)

California enacted legislation to encourage additional diabetes awareness raising in 2005. Hawaii's Legislature passed and transmitted to the governor legislation permitting medication administration by, and liability protections for, school personnel responding to diabetic students. Connecticut, Massachusetts, Missouri, New Jersey and Pennsylvania considered, and Texas enacted, legislation in 2005 to facilitate the prevention, diagnosis or treatment of type 2 diabetes in school children. Illinois passed legislation for programs to reduce racial and ethnic disparities in diabetes. Legislation for 2005, both proposed and enacted, is summarized in table 5 below.

Evidence Base: Diabetes Screening and Management

Diabetes Screening for School Children

For adults, it is well established that higher-than-normal BMI and weight gain are major individual risk factors for diabetes. For the population as a whole, studies show that changes in BMI foreshadow changes in diabetes prevalence.¹⁵ Diabetes also is more prevalent among people age 20 and older in certain racial and ethnic groups such as American Indians/Alaska

Natives (17.9 percent), non-Hispanic blacks (14.8 percent) and Hispanic/Latino Americans (13.7 percent); while among Non-Hispanic whites the population prevalence of diabetes is 8 percent.¹⁶ Researchers believe that some African Americans, Hispanic/Latino Americans, American Indians, Asian Americans, and Pacific Islander Americans inherited a “thrifty gene” that better enabled their ancestors to store food energy when food was plentiful, so that they could survive during times when food was scarce. Today, because “feast or famine” situations are rare for most people in the United States, this once helpful gene may put these groups at a higher risk for type 2 diabetes.

When diabetes is unrecognized and uncontrolled for 15 or 20 years or more, it can lead to complications that include kidney failure, blindness, and damage to nerves and blood vessels that may require limb amputations. Those who develop the disease in childhood or early adolescence may face such consequences when they reach age 35 or 40 instead of age 60 or 65. Early recognition of diabetes risk is advantageous because obesity and diabetes usually are preventable. As additional studies have demonstrated, changes in lifestyle, better diet and burning calories through exercise can prevent diabetes and obesity in selected groups of adults at high risk.¹⁷ Recognizing risk and establishing healthy lifestyle habits in childhood therefore may help to stave off diabetes and its complications.

Diabetes Care and Management for School Children

State legislatures that have proposed or enacted bills providing for diabetes care and/or management for students primarily seek to ensure that students receive adequate diabetes care while at school and that school personnel can respond to diabetic students in an emergency. According to the American Diabetes Association, 14 states— California, Connecticut, Hawaii, Kentucky, Montana, Oregon, Massachusetts, North Carolina, South Carolina, Tennessee, Texas, Washington, Wisconsin and Virginia— have passed some type of school diabetes care legislation.¹⁸ Some who oppose such legislation believe that certain aspects of diabetes care, such as administration of insulin, require licensed school nurses. Others point to a shortage of school nurses as the reason for training additional school personnel to respond to provide diabetic care under nurse supervision. Evidence does not firmly support one approach or the other. The U.S. Department of Health and Human Service’s *Guide to Community Preventive Services* task force on the topic of “educating school personnel about diabetes” (it is unclear if this topic includes diabetes care for students) states that there is “insufficient evidence to determine effectiveness.”¹⁹ The *Guide* explains that “insufficient evidence” should *not* be interpreted as ineffective, but rather as requiring additional research in order to strengthen the evidence.

Table 5 contains an overview of 2005 proposed and enacted legislation on student diabetes care, management and risk screening.

Table 5. Diabetes Care Legislation Proposed and Enacted in 2005	
State	Legislation
California	CA S.C.R. 4 (2005) (Enacted, Resolution Chapter No. 32) Encourages a variety of government, community, school, and workplace activities in support of obesity and diabetes awareness and prevention.
Connecticut	CT SB 1174 (2005) (Proposed) Among other provisions related to school nutrition, would have required a diabetes screening test for students whose body mass index was above a percentile determined by the state's Commissioner of Health.
Hawaii	HI HB 1550 (2005) (Enacted, Hawaii Revised Statutes §302A-1164) Authorizes the Department of Education to permit its employees and agents to administer glucagons to diabetic students in an emergency. Establishes that the Department of Education and its personnel are not liable for any injury from the emergency administration of glucagons to students.
Illinois	IL HB 615 (2005) (Enacted, Public Act 94-447) Creates the Reduction of Racial and Ethnic Health Disparities Act, including continuing programs to reduce racial and ethnic disparities in diabetes.
Massachusetts	MA SB 108 (2005-2006) (Proposed) Would have established diabetes screening for school-age children.
Missouri	MO HB 81 (2005) (Proposed) Would have established a coordinated health program board to prevent student obesity, cardiovascular disease and type 2 diabetes.
New Jersey	NJ SB 1306 (2004-2005) (Proposed) Would have required training in diabetes care for specified school employees and use of medical management plans in school for students with diabetes.
Pennsylvania	PA HB 256 (2005) (Carried over to 2006) Would institute a school diabetes risk assessment screening by a school nurse, medical technician or teacher by examining risk factors that include obesity, family history and symptoms of insulin resistance. PA HB 2344 (2005) (Carried over to 2006) Would require that school children be tested for diabetes prior to admission.
Texas	TX HB 984 (2005) (Enacted, Chapter 1022) Concerns care of elementary and secondary school students with diabetes. Provides for unlicensed diabetes care assistants as school employees when they complete required training and for individualized health plans for diabetic students upon agreement of parent or guardian.

Source: National Conference of State Legislatures, July 2006.

Policy Approach: Nutrition Content Information for School Foods

Providing nutrition content information for foods on school menus or all foods and beverages served in schools to enable students and parents to make healthy choices was considered in 2005 in California, Illinois, Massachusetts and New York and was enacted as part of broader obesity initiatives in Colorado, Maine and West Virginia. Legislation is summarized below. This listing does not include legislation to require nutrition labeling or menu information for food and drink items in all chain restaurants or retail food establishments, which also has been considered in some states.

Evidence Base: Nutrition Content Information for School Foods

The Institute of Medicine of the National Academies of Science has studied the role that schools can play in preventing childhood obesity. Among its conclusions is the observation that, “New policies are needed to ensure that foods available at schools are consistent with current nutritional guidelines and to support students in making healthy food choices.”²⁰ Making nutrition content information available for school foods by posting this information on school menus or providing nutrition labeling on a la carte foods is one factor that can help students and parents make healthy choices in foods sold and served at school.

A study conducted at six Pennsylvania high schools in the fall of 2003 found that students were more likely to select healthy options when schools posted nutrition information at the cafeteria counter. Results were consistent in urban, suburban and rural areas of the state and across varying socioeconomic groups.²¹ Nutrition labeling also has been studied in the context of worksite cafeterias and, generally, interventions using food labeling have shown significantly diminished sales of high-fat items or total calories per tray or both.²² Nutrition labeling appears to be one of the better intervention strategies at the worksite. In addition, the number of healthy items available correlates highly with the number of healthy sales. A number of states have enacted legislation that encourages or requires schools to provide nutrition content information by labeling school foods or providing this information on school menus sent home to parents and/or at the point of purchase, a strategy that is consistent with the results in worksite cafeterias.

Just as positive nutrition information can help encourage consumption of healthy foods, two recent studies suggest that advertising foods of minimal nutritional value to children has helped to fuel childhood obesity by encouraging over-consumption of those foods. A Kaiser Family Foundation study found that the number of ads kids see on TV has doubled from 20,000 in the 1970s to 40,000 today, most for candy, processed cereal and fast food. At the same time, the study notes, 15.3 per cent of American children between the ages of 6 and 11 were listed as overweight in 2000—more than triple the rate 30 years ago.

Reviewing other evidence, the Kaiser report concludes that most large national studies and several longitudinal studies indicate that children who spend more time with media are more likely to be overweight, and that experimental interventions clearly indicate that children’s body weight can be reduced by reducing the time they spend with media. Media time does not displace physical activity time, Kaiser reports, so the most likely link between media viewing and childhood overweight is the increased exposure to food advertising, which significantly influences children’s food choices and parents’ food purchases.²³ Meanwhile, an American Psychological Association report found that young children are uniquely vulnerable to commercial persuasion and that children age 8 and younger generally do not grasp the intent of advertisers to sell. However, older children and adults were able to recognize and know that advertising can exaggerate.²⁴

Table 6. Nutrition Content Information Legislation Proposed and Enacted in 2005	
State	Legislation
California	CA AB 569 (2005) (Carried over to 2006) Would require school districts that contract with commercial food vendors for school foods to provide nutritional content for all foods sold. Would require commercial food vendors to display a standard label with nutritional information on prepackaged and prepared items in accord with the federal Nutrition Labeling and Education Act of 1990.
Colorado	CO SB 81 (2005) (Enacted, Chapter 60) Includes requirements for student and parent access to information on nutritional content of school foods through the school website, on school menus sent home with students, or by posting the information in a visible place at each school.
Illinois	IL HB 250 (2005) (Proposed) Would have strongly encouraged school boards to complete nutritional analysis of menu plans as part of the State review process, provide meals under a nutrient-based menu plan, or use software that calculates the nutritional content of foods to publish the school lunch menu with nutrition content.
Kentucky	KY SB 172 (2005) (Enacted, Act 84) Among other school nutrition and physical activity provisions, requires each school to publish a school menu that specifies nutritional information and requires each school to limit access to retail fast foods in the cafeteria to no more than one day each week. Prohibits serving deep-fried foods in schools, beginning with the 2006-2007 school year.
Maine	ME LD 796, SP 263 (2005) (Enacted, Chapter 435) Implements recommendations of Maine's Commission to Study Public Health concerning schools, children and nutrition. Requires that, after August 1, 2008, food service programs must post caloric information for prepackaged a la carte food items at the point of decision.
Massachusetts	MA HB 1019 (2005) (Carried over to 2006) Would have required that public schools serving breakfast or lunch list the amount of carbohydrates contained in all foods served to diabetic children, teachers and faculty.
New York	NY AB 8094 (2005) (Carried over to 2006) Would permit only products containing 100 percent milk to use the term milk on labels and advertisements.
West Virginia	WV HB 2816 (2005) (Enacted, Act 121) As part of a comprehensive bill creating a Healthy Lifestyles Office in the Department of Education and the Arts, establishes a voluntary menu labeling program.

Source: National Conference of State Legislatures, July 2006.

Policy Approach: Nutrition Education

Many states have school health education requirements, but in recent years legislators have considered or enacted bills specifically requiring nutrition education aimed at preventing childhood obesity as a component of school health curriculum. California, Indiana, Louisiana, New Hampshire and Vermont currently have laws requiring some form of nutrition education. States that considered or enacted legislation in 2005 include California, Colorado, Connecticut, Hawaii, Illinois, Kansas, Maine, Massachusetts, Minnesota, Missouri, New Hampshire, New Mexico, New York, Ohio, Oklahoma, Pennsylvania, South Carolina, Tennessee, Texas, Vermont, Virginia and West Virginia (see table 7).

Evidence Base: Nutrition Education

Nutrition education is a policy that has wide support as part of an integrated approach to preventing childhood obesity. Endorsing nutrition education, physical activity and behavioral research as obesity prevention strategies, the Grocery Manufacturers Association said in 2003, “Ultimately, the food people eat and whether they choose to be active are matters of personal choice. However, we can help ensure they have the tools to make informed choices.”

A USDA-contracted review of 217 studies found that a wide range of outcome measures are used to evaluate nutrition education effectiveness, but concluded that, although dietary change is complex and difficult to measure, nutrition education works and is a significant factor in improving dietary practices when behavior change is the goal and educational strategies are designed with those goals as a purpose.²⁵ Nutrition education programs of longer duration, more contact hours, and more components—such as parent involvement and changes in school meals result in more positive outcomes—concluded another study.²⁶

Additional research supports the efficacy of parental nutrition education. A researcher from the Economic Research Service of the U.S. Department of Agriculture found that greater parental nutrition knowledge is associated with a lower prevalence of overweight children.²⁷ Another widely publicized study, reported in the April 2004 *British Medical Journal*, concluded that a targeted school-based nutrition education program produced a modest reduction in the number of carbonated drinks consumed by students.²⁸

Despite their recognized effectiveness, school nutrition education programs vary widely in their approach, content and implementation. In March 2000, the National Center for Education Statistics (NCES) compiled a report on nutrition instruction in elementary schools and the adequacy of the resources teachers have available to teach nutrition. Findings included:

- About half of elementary school teachers (52 percent) have had formal training to teach about nutrition.
- Eighty-eight percent of elementary school teachers reported that they taught lessons about nutrition.
- The mean number of hours spent on nutrition education was 13, well below the minimum of 50 hours thought to be necessary to affect behavior.

Similar conclusions were reached in a GAO study of USDA programs that incorporate a nutrition education component, including the School Lunch Program. The programs face chal-

lenges affecting their ability to fully incorporate educational efforts, the study concluded, such as “limited resources and systems for providing nutrition education and competing programs requirements that took time away or resources away from nutrition education.”²⁹

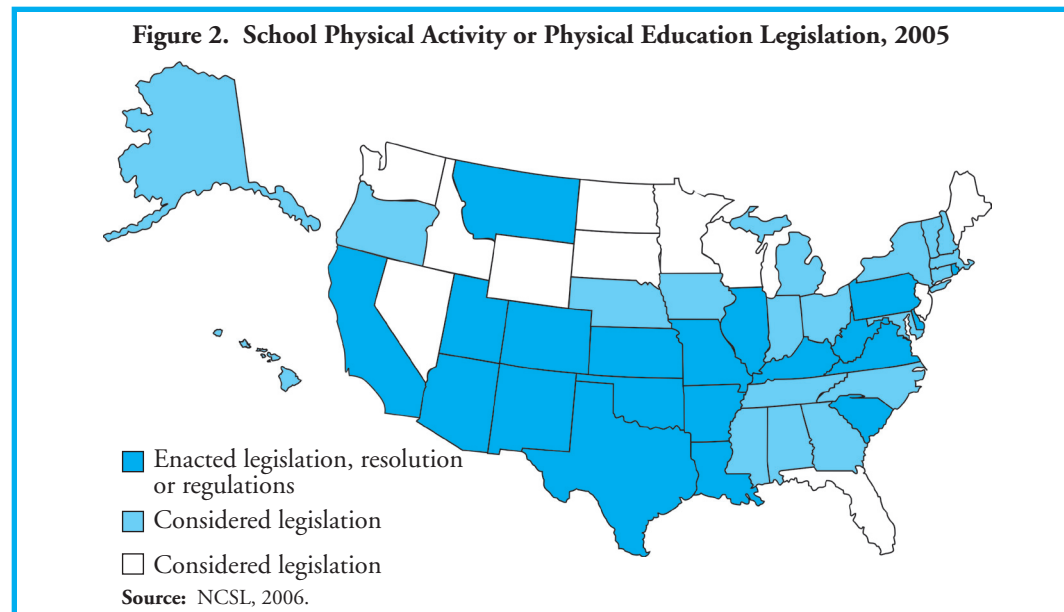
Table 7. Nutrition Education Legislation Proposed and Enacted in 2005	
State	Legislation
California	CA AB 689 (2005) (Enacted, Chapter 645) Notes that existing law requires the state’s Department of Education to incorporate nutrition education curriculum content into the health curriculum framework, with a focus on pupils’ eating behaviors. Requires the adoption of content standards for the health curriculum on or before March 1, 2008, contingent upon funding.
Colorado	CO SB 81 (2005) (Enacted, Chapter 60) Encourages the inclusion of goals for nutrition education in local wellness policies to be adopted by each school district participating in accord with the federal Child Nutrition and WIC Reauthorization Act of 2004.
Connecticut	CT SB 1174 (2005) (Proposed) Would have required each local and regional board of education to establish a School Wellness Committee to monitor and implement school nutrition and physical activity policies pursuant to the federal Child Nutrition and WIC Reauthorization Act of 2004, including recommendations for a nutrition education curriculum.
Hawaii	HI HB 377 and HI SB 493 (2005, carried over to 2006) (Proposed) Both bills would require the state’s Department of Education to encourage schools to provide culturally appropriate nutrition education and farm-to-table education programs.
Illinois	IL HB 210 (2005) (Enacted, Public Act 094-124) Directs the Illinois Early Learning Council, which coordinates existing programs and services for children from birth to age 5, to expand upon existing early childhood programs and services, including those related to nutrition, nutrition education, and physical activity, in coordination with the Interagency Nutrition Council. IL SB 1680 (2005) (Enacted, Public Act 094-0433) Requires the Department of Human Services, in cooperation with the Department of Public Health, to develop materials and resources on nutritional health for new TANF, Food Stamp, and early intervention program enrollees. Requires the Department of Public Health to develop a video presentation on nutritional health. IL HB 1539 (2005) (Proposed) Would have included, as part of the design of the Comprehensive Health Education Program, learning experiences to aid students in making wise personal decisions in matters of nutrition. Would have required the State Board of Education to develop and make available, through Internet website resources, instructional materials and guidelines concerning nutrition and wellness to all schools.
Kansas	KS SB 154 (2005) (Enacted, Chapter 96) Requires wellness education with the goal of preventing and reducing childhood obesity.
Maine	ME LD 796, SP 263 (2005) (Enacted, Chapter 435) Requires schools to provide nutrition education for students, teachers, staff and through the coordinated school health program, and a parent nutrition education outreach component, as part of a more comprehensive measure.

Table 7 (continued). Nutrition Education Legislation Proposed and Enacted in 2005	
State	Legislation
Minnesota	MN SB 2267, MN HB 1323 (2005) (Proposed) Both are omnibus bills that would have provided for kindergarten through grade 12 education and early childhood and family education, including nutrition education.
Missouri	MO HB 82 (2005) (Proposed) Would have established the Missouri Commission on the Prevention and Management of Obesity and allowed the state's Department of Health and Senior Services to provide technical assistance to schools to create healthy school nutrition environments, including classroom nutrition education, supported in the dining room and with positive messages throughout the school to help students develop healthy eating and physical activity habits.
New Mexico	NM HB 721, SB 525 (2005) (Proposed) Both bills would have created a Nutrition Council and would have required nutrition and health courses in public schools.
New Hampshire	NH SB 277 (2005) (Proposed) Would have required the state Board of Education to prepare and distribute a nutrition education curriculum to be integrated into regular instruction for grades one through 12.
New York	NY SB 8696, AB 6900 (2005) (Carried over to 2006) Both bills would require instruction on nutrition for students.
Ohio	OH HB 173 (2005) (Proposed) Would have established a School Physical Fitness and Wellness Advisory Council and included among its duties the development of guidelines for best practices on nutrition education, physical activity for students and school-business partnerships to promote student wellness.
Oklahoma	OK SB 346 (2005) (Proposed) Would have directed the state Department of Education to disseminate information and strongly encourage school districts to provide physical education and nutrition instruction.
Pennsylvania	PA HB 191 (2005) (Proposed) Would have established a child health and nutrition advisory committee to address wellness policies and practices related to physical education, physical activity, and nutrition and health education in schools.
South Carolina	SC HB 3499 (2005) (Enacted, Act 102) Among other provisions of a comprehensive bill that establishes physical education and nutritional standards in elementary schools, requires a weekly nutrition component as part of the health curriculum; all contingent upon appropriation of funding.
Texas	TX SB 42 (2005) (Enacted, Chapter 784 §1) Requires school health curriculum for grades K-12 to include an emphasis on the importance of proper nutrition and exercise.
Vermont	VT HB 456 (2005) (Proposed) Would have directed the commissioner of education to award small grants to schools that use Vermont products in food services and provide nutrition education to students.
Virginia	VA SB 747 (2005) (Proposed) Would have required school division superintendents to complete instruction about the causes and consequences of overweight and obesity.
West Virginia	WV HB 2816 (2005) (Enacted, Act 121) Among other provisions, requires health education to include the importance of healthy eating and physical activity to maintaining healthy weight.

Source: National Conference of State Legislatures, July 2006.

Policy Approach: Physical Activity or Physical Education in Schools

Forty-eight states require physical education in schools, but the scope of the requirement varies. In 2005, at least 39 states considered legislation related to physical activity or physical education in schools and at least 20 of those states enacted legislation or passed resolutions including Arizona, Arkansas, California, Colorado, Delaware, Illinois, Kansas, Kentucky, Louisiana, Missouri, Montana, New Mexico, Oklahoma, Pennsylvania, Rhode Island, South Carolina, Texas, Utah, Virginia and West Virginia.



States have focused on refining or increasing physical education requirements or encouraging positive physical activity programs for students during and after the school day. Both the cost of physical education programs and an emphasis on academics have sometimes been considered barriers to increasing physical education in schools. Recognition is growing that physical activity during the school day may increase student achievement. Legislation that passed both chambers of the legislature in 2005 is summarized in table 8.

Evidence Base: Physical Activity or Physical Education in Schools

Sedentary lifestyles are a major contributing factor for obesity. Physical activity or physical education programs at school provide children with a tremendous opportunity to exercise more and learn to enjoy physical activity as part of a healthy lifestyle.³⁰ School-based physical education programs as a means to increase physical activity are recommended based on “strong evidence,” according to the *Guide to Community Preventive Services*, a federally sponsored initiative to document the effectiveness of various population-based interventions. For each health topic selected, an independent Task Force on Community Preventive Services systematically reviews published scientific studies, weighs the evidence, and determines the effectiveness of each intervention strategy by assigning it to one of three categories:

- “Strongly Recommended,”
- “Recommended,” or
- “Insufficient Evidence.” Note, however, that insufficient evidence should not be interpreted as ineffective but, rather, as requiring additional research in order to strengthen the evidence.

A systematic review of published studies, conducted on behalf of the Task Force on Community Preventive Services by a team of experts, found that physical education (PE) classes taught in schools that enhanced class length or activity levels are effective in improving both physical activity levels and physical fitness among school-age children. On the basis of strong evidence of effectiveness, the task force recommended implementing programs that increase the length of, or activity levels in, school-based PE classes.³¹ The guide suggests that this can be accomplished by modifying school curricula and policies to increase the amount of time students spend in moderate to vigorous activity while in physical education class or by increasing the cumulative amount of time spent in PE class.

Table 8. Physical Education and Physical Activity Legislation That Passed both Chambers of the Legislature in 2005

State	Legislation
Arizona	AZ HB 2111 (2005) (Enacted, Chapter 67) Establishes a mandatory physical education implementation task force charged with developing an implementation plan that will result in a uniform physical education program in kindergarten through grade eight.
Arkansas	AR SB 2 (2005) (Enacted, Act 660) Provides for physical education course credit for participation in high school sports.
California	CA AB 689 (2005) (Enacted, Chapter 645) Requires the development of health education content standards that incorporate nutrition and physical activity concepts including lifelong enjoyment of physical activities and sequential physical education curriculum, pending funding.
Colorado	CO SB 81 (2005) (Enacted, Chapter 60) Recognizes overweight among children and youth as a major public health threat and encourages school district boards of education to adopt policies to improve children's nutrition by offering healthful foods at school, providing culturally sensitive nutrition education, establishing local school wellness policies in accord with the federal "Child Nutrition and WIC Reauthorization Act of 2004," ensuring student access to fresh produce (especially Colorado-grown), and student access to daily physical activity.
Connecticut	CT SB 1309 (2005) (Vetoed) As part of a more comprehensive bill, would have required a daily minimum period of physical activity for students. Would have established committees to monitor and implement nutrition and physical activity policies.
Delaware	DE HCR 37 (2005) (Passed) Resolution establishes a Physical Activity and Education Task Force to study how other states are implementing and funding physical education and physical activity programs in their schools and to report and make recommendations to improve or create high-quality physical education and physical activity programs in Delaware schools, including models for public-private partnerships. A final task force report to the governor and legislature was required by March 1, 2006.
Illinois	IL HB 1540 (2005) (Enacted, Public Act 094-189) Requires physical education to provide students with an appropriate amount of daily physical activity and to include a developmentally planned and sequential curriculum that fosters development of movement skills, health-related fitness, offers opportunities for students to learn how to work cooperatively and encourages healthy habits and attitudes for a healthy lifestyle. Requires physical education as part of the regular school curriculum and not as an extracurricular activity.

Table 8 (continued). Physical Education and Physical Activity Legislation That Passed both Chambers of the Legislature in 2005

State	Legislation
Kentucky	KY SB 172 (2005) (Enacted, Act 84) Requires K-5 school councils or principals to develop and implement a wellness policy that includes vigorous physical activity each day; permits 30 minutes per day or 150 minutes per week of physical activity to be considered part of the instructional day; and requires annual assessment of pupil physical activity and reporting to the legislature.
Louisiana	LA SB 146 (2005) (Enacted, Act 331) Limits students' access to certain foods and beverages at school. Encourages daily physical activity at school to develop lifelong enjoyment of physical activity.
Missouri	MO HCR 25 (2005) (Enacted) Resolution supports school policies to increase physical education requirements for kindergarten through grade 12 to ensure daily physical education for kindergarten through grade eight and increase high school physical education requirements to a minimum of two credits. Directs distribution of a copy of the resolution to the director of the Missouri Department of Elementary and Secondary Education and to every school district in Missouri.
Montana	MT HJR 17 (2005) (Enacted) Resolution encourages local schools to provide greater opportunities for student participation in physical activities and sports programs in order to respond to children and adolescents who are overweight or at risk of becoming overweight, including 18 percent of Montana high school students.
New Mexico	NM SJM 2 (2005) (Passed) Requests the departments of health and public education to make collaborative recommendations to increase physical activity and improve the eating habits of youth.
Oklahoma	SB 312 (2005) (Enacted, Chapter 29) Beginning with the 2006-2007 school year, requires public elementary schools, as a condition of accreditation, to provide physical education or exercise programs for students in full day kindergarten and grade one through five for a minimum average of 60 minutes weekly. SB 265 (2005) (Enacted, Chapter 45) Requires public school principals to give consideration to recommendations of each school's Healthy and Fit School Advisory Committee regarding physical education and physical activity. Requires the State Board of Education to adopt rules for monitoring compliance with this section for school accreditation purposes.
Pennsylvania	HR 57 (2005) (Enacted) Resolution observing May 1-7, 2005 as National Physical Education and Sports Week in Pennsylvania.
Rhode Island	S 565 (2005) (Enacted, Public Law Chapter 79) Requires school committees to establish school health and wellness subcommittees to promote health and physical education in the schools.
South Carolina	SC HB 3499 (Enacted, Act 102) Establishes physical education and nutritional standards in elementary schools. Phases in weekly requirements for the amount of physical education instruction that students in kindergarten through grade five must receive. Implements a coordinated school health program; all contingent upon appropriation of funding.
Texas	TX SB 42 (2005) (Chapter 784 §1) Encourages school districts to promote physical activity for children through classroom curricula for health and physical education. Allows the state Board of Education, by rule, to require students in kindergarten to grade nine to participate in up to 30 minutes of daily physical activity as part of a school district's physical education curriculum, through structured activity or during a school's daily recess. Provides for consultation with educators, parents and medical professionals to develop physical activity requirements.

Table 8 (continued). Physical Education and Physical Activity Legislation That Passed both Chambers of the Legislature in 2005

State	Legislation
Virginia	SB 1130 (2005) (Enacted, Act 350) Requires physical education to be taught in the elementary grades of every public school including activities such as, but not limited to, cardiovascular, muscle building or stretching exercises, as appropriate.
West Virginia	WV HB 2816 (2005) (Enacted, Act 121) Among other provisions, establishes physical activity requirements in public schools using body mass index as an indicator of progress. For students in grades four through eight and students enrolled in high school physical education, includes body mass index measurement in required fitness testing procedures.

Source: National Conference of State Legislatures, July 2006.

Policy Approach: School Wellness Policies

The federal Child Nutrition and WIC Reauthorization Act of 2004 (Public Law 108 - 265) requires each local school district participating in the National School Lunch and/or Breakfast Program to establish a local wellness policy by the beginning of the 2006-2007 school year. School districts must involve a broad group of stakeholders in developing wellness policies and set goals for nutrition education, physical activity, campus food provision, and other school-based activities designed to promote student wellness. A plan for measuring policy implementation must be included. Statewide legislation for wellness policies was considered or enacted in 2005 independently or in response to the federal requirement in California, Colorado, Illinois, Ohio, Pennsylvania, Rhode Island and Tennessee, as shown in table 9. Additional information about federal wellness policy requirements is available on the U.S. Department of Agriculture website at: <http://www.fns.usda.gov/tn/Healthy/wellnesspolicy.html>.

Evidence Base: School Wellness Policies

Evidence for the efficacy of nutrition education and physical activity, both required components of school wellness policies, is well documented, as discussed under those sections of this document. An evaluation component for measuring policy implementation is included as a required element of local wellness policies. Since the policies will not be in place until the beginning of the 2006-2007 school year, however, there is not yet a research base regarding the specific policies developed for this effort. Much also will depend on how well the policies are implemented.

Table 9. State Legislation on School Wellness Policies Proposed and Enacted in 2005

State	Legislation
California	CA SB 567 (2005) (Vetoed) Requires local school districts that participate in federal school lunch programs to establish and implement a local school wellness policy, including a plan for measuring and ensuring compliance of each school with the wellness policy.
Colorado	CO SB 81 (2005) (Enacted, Chapter 60) Among other provisions of a comprehensive children's nutrition bill, encourages local school wellness policies in accord with the federal "Child Nutrition and WIC Reauthorization Act of 2004."

Table 9 (continued). State Legislation on School Wellness Policies Proposed and Enacted in 2005	
State	Legislation
Illinois	IL HB 733, SB 162 (2005) (Enacted, Public Act 94-199) Both bills require the state Board of Education to establish a state goal that all school districts have a wellness policy that is consistent with recommendations of the Centers for Disease Control and Prevention. Requires the Department of Public Health and the state Board of Education to form an interagency working group to publish model wellness policies. Creates the School Wellness Policy Task Force to identify barriers to implementing wellness policies and recommend how to reduce those barriers.
Ohio	OH HB 173 (2005) (Proposed) Would have established a statewide School Physical Fitness and Wellness Advisory Council with members from schools, industry, parents, teachers, medical association, school boards and physical education associations.
Pennsylvania	PA HB 191 (2005) (Proposed) Would have established a child health and nutrition advisory committee to address wellness policies and practices related to physical education, physical activity, and nutrition and health education in schools.
Rhode Island	RI HB 5563 (2005) (Enacted, Public Law Chapter 74); and RI SB 565 (2005) (Enacted, Public Law Chapter 79) Both bills require school districts that receive state education aid to include in their strategic plans strategies to decrease obesity and to improve health and wellness of students and employees through nutrition, physical activity, health education, and physical education. The bills also require school committees to establish school health and wellness subcommittees to decrease obesity and promote health and physical education in the schools. Both were effective August 1, 2005.
Tennessee	TN HB 2055 and SB 2038 (2005-2006)(Enacted, Public Chapter No. 886) Enacts the Child Nutrition and Wellness Act of 2006 to educate the public about child nutrition and wellness and to advocate for initiatives to improve the nutrition and wellness of children. Subject to the appropriation of funds, creates an advisory council to advise the state's health commissioner and to advocate for child wellness programs and initiatives, to develop nutrition and physical activity standards, to gather data and to develop a long-term child nutrition and wellness strategy in schools and communities. Creates an office of child nutrition and wellness in the health department to assist in identifying programs, priorities and funding and to conduct public education, subject to the appropriation of funding.

Source: National Conference of State Legislatures, July 2006.

Policy Approach: Task Forces, Commissions or Studies

States with legislative proposals to create childhood obesity task forces, commissions or studies in 2005 included Kansas, New Mexico, North Carolina, Virginia and West Virginia, as described in table 10. Tennessee, by resolution, created a joint legislative committee on school health and child nutrition.

Evidence Base: Task Forces, Commissions or Studies

State legislatures have been the moving force behind a variety of state studies, commissions and task forces to encourage healthy lifestyles and prevent obesity and chronic disease. Because of differing approaches, goals, task force composition and program implementation, these types of activities do not lend themselves to a uniform assessment of results and conclusions about effectiveness. A sampling of task forces, commissions and studies implemented or proposed in 2005 is shown in table 10. A number of states completed task force activity prior to 2005.

Table 10. State Legislation for Obesity Task Forces, Commissions or Studies - 2005	
State	Legislation
Kansas	KS HB 2208 (2005) (Proposed) Would have established a task force on the prevention and treatment of obesity.
New Mexico	NM SJM 2 (2005) (Passed) Requests the departments of Health and Public Education to study and make recommendations on ways to increase the physical activity and improve the eating habits of youth.
North Carolina	NC SB 637 (2005) (Proposed) Would have appropriated funds to the Board of Governors of the University of North Carolina to fund the obesity research and prevention initiative.
Tennessee	TN SJR 38 (2005) (Enacted) Resolution creates a special legislative joint committee to study full and expanded implementation of the Coordinated School Health Improvement Act of 1999 and compliance with the reauthorized federal Child Nutrition Act in Tennessee.
Virginia	VA HJR 589 (2004-2005) (Proposed) Would have established a joint subcommittee to study the relationship between obesity and the school lunch program.
West Virginia	WV HCR 28 (2005) (Proposed) Would have requested the Joint Committee on Government and Finance to direct the Legislative Oversight Commission on Health and Human Resources Accountability to continue to study the obesity epidemic in West Virginia by continuing to monitor ongoing state activities to curtail obesity.

Source: National Conference of State Legislatures, July 2006.

Policy Approach: Raising Awareness

Efforts to raise public awareness of childhood obesity and its effects and to respond to the problem with wellness, nutrition and physical activity initiatives include the 2005 bills shown in table 11.

Evidence Base: Raising Awareness

Public education to raise awareness and encourage healthy lifestyles and behaviors is a continuing strategy to encourage people to act on public health information. Policymakers frequently turn to media-based public education campaigns to address public health issues of all kinds, including childhood obesity. A recent Kaiser Family Foundation forum designed to help assess the effectiveness of some exemplary public education efforts featured the authors of three major studies evaluating campaigns on childhood obesity, smoking, and youth STD and HIV prevention.³² The childhood obesity effort, the 2002-2006 VERB mass media and events campaign of the Centers for Disease Prevention and Control aimed at promoting daily physical activity for children age 9 to 13, was found to be effective in achieving its goal. Physical activity messages reached the campaign's target audience, and there was a definite association between the message and behavioral change in the form of increased physical activity.

Mass media campaigns, when combined with other educational efforts and interventions, are recommended on the basis of strong evidence for a number of public health measures, including increasing breast and cervical cancer screening and reducing initiation of tobacco use by youth in the *Guide to Community Preventive Services*, a federally sponsored initiative documenting the

effectiveness of various population-based interventions. At present, however, the *Guide* states that the evidence for mass media campaigns to promote physical activity is insufficient to determine effectiveness.³³ This does not mean that such efforts should be regarded as ineffective but, rather, that additional research is needed in order to strengthen the evidence.

Table 11. State Legislation to Raise Awareness for Obesity Prevention Proposed or Enacted in 2005

State	Legislation
California	CA SCR 4, 2005 (Enacted, Resolution Chapter 32) A legislative resolution encourages leadership for increased physical activity and improved nutrition and wellness in all branches and levels of government; local action by communities; initiatives by schools and workplaces; increased recreation and physical activity that is accessible for all Californians; expanded healthy food options in restaurants, markets and homes; and increased emphasis on health education and prevention of obesity and diabetes.
Delaware	DE HB 220, (2005) (Enacted, Chapter 151) Establishes a Delaware State Income Tax deduction to be credited to the Delaware Juvenile Diabetes Fund through the Delaware Juvenile Diabetes Foundation.
Illinois	IL HB 1541 (2005) (Enacted, Public Act 94-190) Creates a school health recognition program to publicly identify schools that have implemented programs to increase physical activity and healthy nutritional choices for their students. Allows recognized schools to share best practices throughout the state. IL HB 1581(2005) (Enacted, Public Act 94-107) Creates a Diabetes Research Checkoff Fund from income tax checkoff and requires the Department of Human Services to make grants from the fund for diabetes research, including a certain percentage of grants for juvenile diabetes research.
Maryland	MD HJ5 and MD SJ1 (2005) Recognizes obesity as an increasing health concern and cause of rising medical costs in Maryland and would declare November as Obesity Awareness Month.
Pennsylvania	HR 57 (2005) (Passed) Resolution observing May 1-7, 2005, as National Physical Education and Sports Week in Pennsylvania.

Source: National Conference of State Legislatures, July 2006.

Policy Approach: Taxes on Foods and Beverages with Minimal Nutritional Value

A few states—including, in 2005, Nebraska and Texas—considered taxing foods and beverages with minimal nutritional value and directing the revenues to school facilities or childhood obesity prevention. Bill summaries are included in table 12.

Evidence Base: Taxes on Foods and Beverages with Minimal Nutritional Value

Levying a tax on foods or beverages of minimal nutritional value such as snacks that are high in sugar or fat has been proposed by some public health advocates as a means to address obesity by discouraging consumption of these foods. Some have proposed using the tax revenues generated to fund public information programs to encourage healthy eating and active lifestyles. Research on the effect of food taxes is not extensive. One U.S. Department of Agriculture study concluded that a relatively low tax of 1 cent per pound and 1 percent of value would not significantly change consumption, but would generate \$40 million to \$100 million in tax

revenues.³⁴ A more recent effort to survey taxes on foods or beverages that are not nutritious concluded that, as of 2000, 19 states taxed foods such as soft drinks and candy. Industry objections and the difficulty of administering such taxes, e.g., determining which foods were taxable items, caused a few states to repeal such taxes in the 1990s. The evidence base for such efforts was rated “thin” by the author of this study.³⁵

Table 12. Food and Beverage Taxes Proposed in 2005	
State	Legislation
Nebraska	NE LB 628 (2005) (Proposed) Would have imposed a sales tax on snack foods to create a fund for school facilities.
Texas	TX HB 3283 (2005) (Proposed) Would have imposed a state sales tax on items listed as a “sweet” or “snack” in the release of the National Nutrient Database for Standard Reference by the U. S. Department of Agriculture and used revenues to fund childhood obesity prevention programs.

Source: National Conference of State Legislatures, July 2006.

Additional NCSL Resources

Other related NCSL resources on legislative and policy options to address obesity are available on the web at these locations:

Overview of childhood obesity policy options considered in 2003-2004:
<http://www.ncsl.org/programs/health/childhoodobesity.htm>

Overview of nutrition, physical activity and obesity:
<http://www.ncsl.org/programs/health/phyactobesity.htm>

50-state overview of physical education requirements:
<http://www.ncsl.org/programs/health/perequisite.htm>

Information on access to healthy foods in communities:
<http://www.ncsl.org/programs/health/publichealth/foodaccess/index.htm>

Overview of healthy community design:
<http://www.ncsl.org/programs/enviro/healthyCommunity/index.htm>

Notes

1. A. Datar, R. Sturm, and J.L. Magnabosco, "Childhood Obesity and Academic Achievement: Evidence from a Population Based Sample of Kindergarteners and First Graders, *Obesity Research* 12 no.1 (January 2004): 58-68.
2. Action for Healthy Kids, "The Role of Sound Nutrition and Physical Activity in Academic Achievement," Fact Sheet (2004). Accessed online at www.actionforhealthykids.org. Citing: American School Food Service Association, "Impact of Hunger and Malnutrition on Student Achievement," *School Board Food Service Research Review* (Spring 1989): 17-21; L. Parker, *The Relationship between Nutrition and Learning: A School Employee's Guide to Information and Action* (Washington, D.C.: National Education Association, 1989); S. Schoenthaler, "Abstracts of Early Papers on the Effects of Vitamin-Mineral Supplementation on IQ and Behavior," *Personality and Individual Differences* 12, no. 4 (1991): 343; Center on Hunger, Poverty and Nutrition Policy, "Statement on the Link between Nutrition and Cognitive Development in Children" (Medford, Mass: Tufts University School of Nutrition, 1995).
3. K.B. Troccoli, *Eat to Learn, Learn to Eat: The Link Between Nutrition and Learning in Children* (Washington, D.C.: National Health/Education Consortium, 1993). A summary appears in ERIC Clearinghouse on Elementary and Early Childhood Education, "Children's nutrition and learning," *ERIC Digest*, Urbana, Ill., ED369579, June 1994.
4. U.S. Department of Agriculture, *National School Lunch Program: Foods Sold in Competition with USDA School Meal Programs. A Report to Congress, 2001* (Washington, D.C.: USDA, January 12, 2001). Accessed online at http://www.fns.usda.gov/cnd/lunch/competitivefoods/report_congress.htm.
5. U. S. Government Accountability Office, *School Meal Programs: Revenue and Expense Information from Selected States*, GAO-03-569 (Washington, D.C.: USDA, May 2003).
6. Steven Lutz, Jay Hirschman, and David Smallwood, "National School Lunch and School Breakfast Program Reforms: Policy Development and Economic Impacts," Chapter 18 in *School Lunch Reforms • AIB-750 U.S. Department of Agriculture/Economic Research Service • 371* (Washington, D.C.: USDA, n.d.).
7. Anne Ryman, "Schools Get by Without Junk Food. No Revenue Loss Shown in 5-month Test of Ban," *Arizona Republic* (February 1, 2005), accessed online at <http://www.azcentral.com/news/articles/0201junk01.html>.
8. Center for Science in the Public Interest, *Schools and School Districts That Have Improved School Foods and Beverages and Not Lost Revenues* (Washington, D.C.: CSPI, 2005), accessed online at http://cspinet.org/new/pdf/school_vending_machine_case_studies.pdf.
9. U.S. Government Accountability Office, *Competitive Foods Are Widely Available and Generate Substantial Revenues for Schools*, GAO-05-563 (Washington, D.C.: U.S. GAO, August 2005).
10. Arkansas – Individual BMI screening - Act 1220 of 2003; California - Individual BMI screening as part of diabetes screening pilot program Cal Ed Code § 49452.6, (2005); Illinois - Individual BMI screening - Public Act 93-0530 (2004); Missouri - Aggregate BMI data - MO HB 568 enacted in 2005, as part of a more comprehensive bill; Tennessee - Individual BMI screening - TN HB445 enacted in 2005, now Public Chapter 194; West Virginia - Aggregate BMI data - WV HB 2816 enacted in 2005, Act No. 121; Florida - Individual BMI screening - Florida Statute 381.0056(5) requires school health services programs administered jointly by the Department of Health and the Department of Education to administer growth and development screening for students as outlined in Rule 64F-6.003 (2004); Pennsylvania, 28 Pa. Code §23.7.
11. Virginia Robinson, Julia Lear, and Nancy Eichner, *The Role of School Health Professionals in Preventing Childhood Overweight* (Washington, D.C.: The Center for Health and Health Care in Schools, April 2006).
12. Associated Press, "Obesity Report Cards Put Brakes on Bad Habits: Benefits Seen Two Years after Arkansas Schools Began Weighing Students," June 6, 2006.
13. J. Thompson, J. Shaw, P. Card-Higginson, and R. Kahn, "Overweight Among K-12 Students - Arkansas, 2003-04 and 2004-05 School Years," *Morbidity and Mortality Weekly Report* 55, no.1 (January 2006): 5-8; Nell Smith, "Targeting pupils' fat hasn't yielded weight loss yet," *Arkansas Democrat Gazette*, January 20, 2006, accessed online at: <http://www.nwanews.com/adg/News/143118/>.

14. California Education Code §49452.6, (2005), Title 2. Elementary and Secondary Education, Division 4, Instruction and Services, Part 27. Pupils, Chapter 9. Pupil and Personnel Health, Article 4. Physical Examination.

15. F.X. Pi-Sunyer, "Medical hazards of obesity," *Annals of Internal Medicine* 119 (1993): 655; G.A. Colditz, W.C. Willett, A. Rotnitzky, et al., "Weight gain as a risk factor for clinical diabetes in women," *Annals of Internal Medicine* 122 (1995): 481; R.L. Hanson, K.M.V. Narayan, D.R. McCance, et al., "Rate of weight gain, weight fluctuation, and incidence of NIDDM," *Diabetes* 43 (1995): 261.

16. Deane Morrison, "Defeating Diabetes," University of Minnesota newsletter, Summer 2006, 1-2, citing Centers for Disease Control statistics for 2005.

17. K.F. Eriksson and F. Lindgarde, "Prevention of type 2 diabetes mellitus by diet and physical exercise: The 6-year Malmo feasibility study," *Diabetologia* 34 (1991): 891-6; J. Tuomilehto, J. Lindstrom, J.G. Eriksson, et al., "Prevention of type 2 diabetes mellitus by changes in lifestyle among subjects with impaired glucose tolerance," *New England Journal of Medicine* 344 (2001):1343-50.

18. American Diabetes Association, "School Legislative Action," Web page accessed online, June 16, 2006, at <http://www.diabetes.org/advocacy-and-legalresources/state-legislation/schooldiscrimination.jsp>.

19. Centers for Disease Control and Prevention, *Guide to Community Preventive Services - Systematic Reviews and Evidence Based Recommendations: Task Force Findings June 2006 Focus on Laws/Policies*. Unpublished flyer. (Washington, D.C.: CDC, June 2006).

20. Institute of Medicine, *Fact Sheet: Schools Can Play a Role in Preventing Childhood Obesity*. In: *Preventing Childhood Obesity: Health in the Balance* (Washington, D.C.: IOM, 2005).

21. Martha Conklin, David Cranage, and Carolyn Lambert, "Nutrition information at point of selection affects food chosen by high school students," *Journal of Child Nutrition & Management* 1 (Spring 2005), School Nutrition Association, accessed June 19, 2006, at <http://docs.schoolnutrition.org/newsroom/jcnm/05spring/conklin/index.asp>.

22. Sarah Quesen, "Do Nutrition Labels Promote Healthy Food Choices? A Retrospective Study of the West Virginia University Health Sciences Center Cafeteria," Unpublished Monograph (2005) accessed June 19, 2006, at http://www.stat.wvu.edu/~squesen/sq/2005_HSCstudy.pdf, citing: S. Levin, "Pilot study of a cafeteria program relying primarily on symbols to promote health choices," *Journal of Nutrition Education* 28 (1996): 282-285; M.F. Schmitz and J.E. Fielding, "Point-of-choice nutrition labeling: evaluation in a worksite cafeteria," *Journal of Nutrition Education* 18 (1986): S65-68; and R. Milich, J. Anderson, and M. Mills, "Effects of visual presentation of caloric values on food buying by normal and obese persons," *Perceptual and Motor Skills* 42 (1976):155-162.

23. Kaiser Family Foundation, *Issue Brief: The Role of the Media in Childhood Obesity* (Menlo Park, Calif.: Kaiser Family Foundation, February 2004).

24. D. Kunkel et al., *Report of the APA Task Force on Advertising and Children; Section: Psychological Issues in the Increasing Commercialization of Childhood* (American Psychological Association, February 20, 2004). [Place of publication not ascertainable.]

25. Isobel Contento, "The effectiveness of nutrition education and implications for nutrition education policy, programs, and research: A review of research," *Journal of Nutrition Education* 27, no. 6, (December 1995). Summary accessed June 20, 2006, at: http://www.findarticles.com/p/articles/mi_m0EUB/is_3_11/ai_53885194.

26. Leslie Lytle, "Nutrition Education for School-aged Children." *Journal of Nutrition Education* 27, no. 6 (December 1995).

27. Jayachandran Variyam, "Overweight children: Is parental nutrition knowledge a factor?" *Food Review* 24, no.2 (May-August 2001): 18-22.

28. *British Medical Journal* article reported in Yahoo News, April 22, 2004, "Cutting Soda in Schools Lowers Obesity."

29. U. S. Government Accountability Office, *Nutrition Education: USDA Provides Services through Multiple Programs, but Stronger Linkages among Efforts Are Needed*, GAO-04-528 (Washington, D.C.: U.S. GAO, April 2004).

30. U.S. Department of Health and Human Services, *Promoting Better Health for Young People Through Physical Activity and Sports: A Report to the President from the Secretary of Health and Human Services and the Secretary of Education* (Washington, D.C.: U.S. Department of Health and Human

Services and U.S. Department of Education, 2000).

31. U.S. Department of Health and Human Services, Guide to Community Preventive Services, *Enhanced Physical Education Classes in Schools Are Recommended to Increase Physical Activity Among Young People*. Fact Sheet and Recommendations, updated November 15, 2005.

32. Kaiser Family Foundation, "Assessing the Effectiveness of Public Education Campaigns," web page accessed June 22, 2006, at <http://www.kff.org/entmedia/entmedia042706pkg.cfm>.

33. E.B. Kahn, et al., "The Effectiveness of Interventions to Increase Physical Activity," *American Journal of Preventive Medicine* 22, no.4 (May 2002): 73-107.

34. "Taxing Snack Foods: What to Expect for Diet and Tax Revenues," *Current Issues in Economics of Food Markets*, Economic Research Service, U.S. Department of Agriculture. [Date not ascertainable.]

35. M. Mello, D. Studdert, and T. Brennan, "Obesity: The new frontier of public health," *New England Journal of Medicine* 354 no. 24 (June 15, 2006).

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