bridging the gap

Research Informing Policies & Practices for Healthy Youth

School Policies and Practices to Improve Health and Prevent Obesity: National Secondary School Survey Results

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About Bridging the Gap

Bridging the Gap is a nationally recognized research program of the Robert Wood Johnson Foundation dedicated to improving the understanding of how policies and environmental factors affect diet, physical activity and obesity among youth, as well as youth tobacco use. The program identifies and tracks information at the national, state, community and school levels; measures change over time; and shares findings that will help advance effective solutions for reversing the childhood obesity epidemic and preventing young people from smoking. Bridging the Gap is a joint project of the University of Michigan's Institute for Social Research and the University of Illinois at Chicago's Institute for Health Research and Policy. For more information, visit *www.bridgingthegapresearch.org.*

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Research Informing Policies & Practices for Healthy Youth

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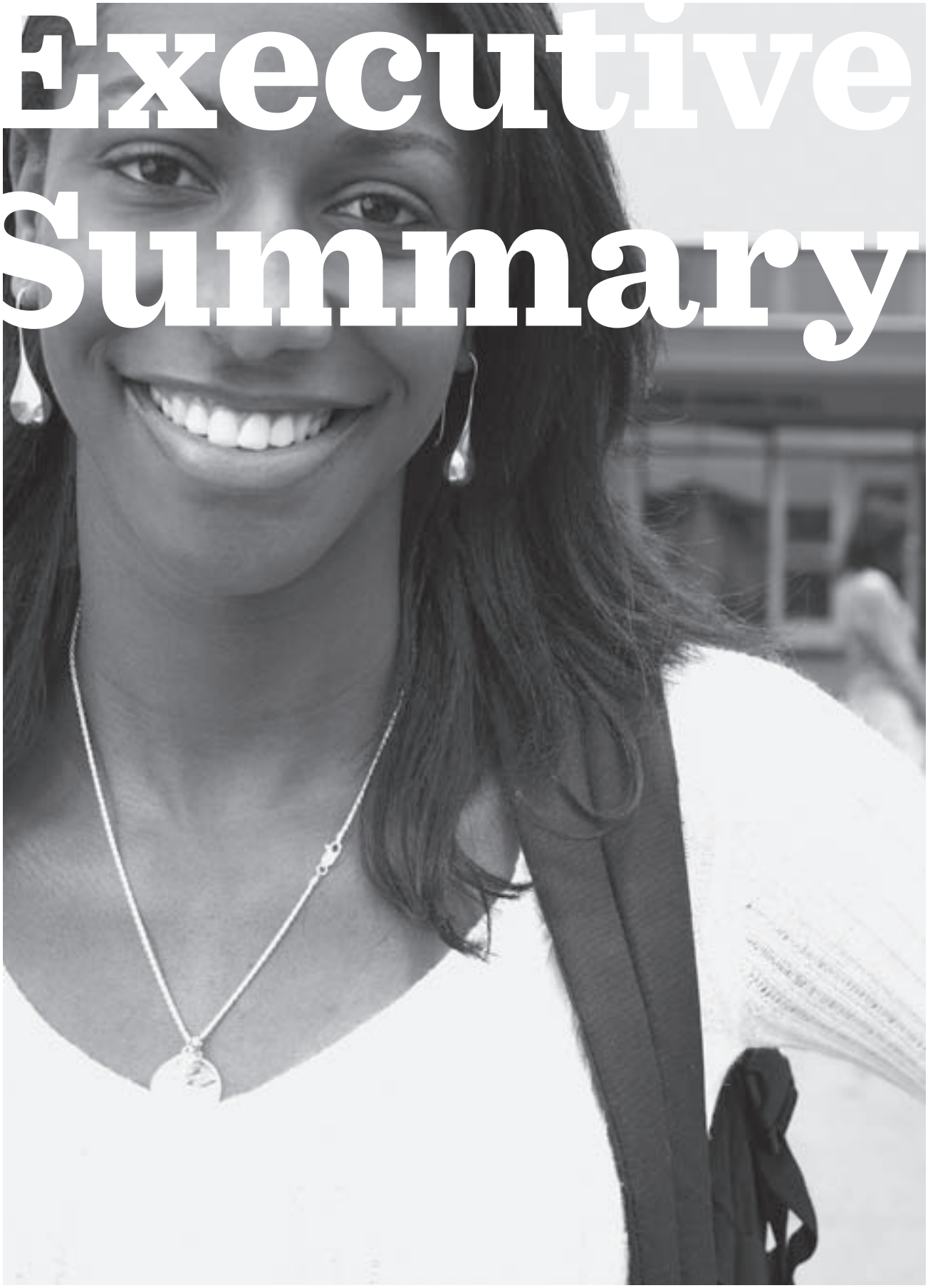
Executive Summary



Executive Summary

Background

Today, more than 23 million children and adolescents in the United States—nearly one in three young people—are either obese or overweight.[1] Obese children are at higher risk for serious health problems, have greater psychological stress and are absent from school more often than their healthy-weight peers.[2–5] Lower-income youths, in particular, are more likely to be overweight as adults, which puts them at higher risk for lower educational attainment, chronic health problems, and dependency on welfare or unemployment compensation.[6]

Preventing childhood obesity requires change on many levels. Because children spend a significant portion of their time in school, there is strong reason to focus on improving the school environment to support healthy eating and promote physical activity. The Child Nutrition and WIC Reauthorization Act of 2004 (P.L. 108-265, Section 204) required school districts participating in the National School Lunch Program, School Breakfast Program and other federal child nutrition programs to develop and implement a wellness policy by the first day of the 2006–07 school year. The current study finds that well over 90 percent of U.S. secondary schools participate in such programs and are responsible for implementing a wellness policy that includes the following:

- *goals for nutrition education and physical activity;*
- *an assurance that reimbursable school meals meet the minimum federal school meal standards;*
- *guidelines for foods and beverages sold or served outside of school meal programs (i.e., "competitive foods"); and*
- *implementation plans.*

Nationally representative analyses show that wellness policies have improved since the Act went into effect, but current policy provisions are weak and fragmented, and many do not align with recommendations for nutrition or physical activity.[7,8] Monitoring efforts by districts and schools to implement their wellness policies and make schools healthier for children helps identify areas where progress is being made and where improvement is still needed. Such research is critical for informing policies and practices as districts, localities, states and the federal government continue to develop and strengthen their efforts to improve children's health.

Report Overview

This report summarizes findings from one of the most comprehensive studies to date of health-related policies and practices in U.S. public middle and high schools. We examined issues addressed by the federal wellness policy mandate and many other factors relevant to childhood obesity, such as foods and beverages offered through the National School Lunch Program and in competitive venues, including vending machines, school stores and à la carte cafeteria lines. Our survey also examined physical education requirements and rates of participation; participation in varsity and intramural sports; and walking and bicycling to and from school.

This report offers timely insights for the U.S. Department of Agriculture (USDA) to consider as it begins to implement the Healthy, Hunger-Free Kids Act of 2010 and helps inform future policies that aim to prevent obesity and improve children's diets, physical activity levels and overall health. Data presented in this report:

- *help document how secondary schools implemented district wellness policies during the first two years following the implementation deadline of the wellness policy mandate;*
- *provide guidance for local, state and federal policymakers about successes and areas where new legislation is needed to strengthen the policies; and*
- *help school administrators, school board members and parents benchmark their own schools' progress and identify areas of greatest progress and weakness.*

Our findings are based on surveys of administrators (primarily school principals) at nationally representative samples of public middle and high schools.[a] Results describe policies and practices in place during the 2006–07 and 2007–08 school years, which are referred to throughout this report as 2007 and 2008, respectively. Data are weighted to reflect the percentages of students nationwide who attended a school with a policy or practice referenced in our survey. Weighting by the numbers of students affected, rather than simply giving the percentage of schools with a particular practice, ensures that larger schools (which affect more students) count more heavily than smaller schools.

This summary concludes with Table 1.2, which presents data for 2008 that are featured in the full report. More information, including additional survey topics and complete statistical findings for both 2007 and 2008, is available at *www.bridgingthegapresearch.org/research/secondary_school_survey.*

Major Findings

Many U.S. public secondary schools have been making an effort to offer students healthier foods and beverages for lunch and to provide healthier options in competitive venues, such as vending machines, school stores and à la carte cafeteria lines. Yet, most students still had easy access to pizza, french fries, sugary drinks and junk foods. Measures to help increase physical activity during and after the school day are sorely needed. Physical education requirements for high school students were especially lax.

The current study also found that 78 percent of U.S. middle school students and 84 percent of high school students were in a district or school that had adopted a wellness policy by 2008. Yet, as shown in Table 1.1, far fewer were in a district or school that had implemented the required provisions, such as setting goals for physical activity or nutrition guidelines for foods available on campus.

[a] A companion report that focuses on health-related policies and practices in U.S. elementary schools is available at *www.bridgingthegapresearch.org/research/elementary_school_survey.*

TABLE 1.1 Percentage of Public Secondary School Students Exposed to Selected Policies and Practices, 2007 and 2008

	Middle School		High School	
	2007	2008	2007	2008
SCHOOL MEALS[b]				
Sugar-sweetened beverages[c] were available some days or most/every day	35%	26%*	46%	36%*
Pizza was available most or every day	37%	39%	48%	51%
French fries were available most or every day	10%	8%	27%	22%
Regular, non-fat-free snacks[d] were available some days or most/every day	61%	54%	65%	59%
FOODS AND BEVERAGES IN COMPETITIVE VENUES				
Sugar-sweetened beverages were available in vending machines, à la carte, in stores and/or in snack bars	78%	71%	95%	92%
Regular soft drinks were available in vending machines	24%	15%*	51%	43%*
Pizza was available in vending machines, à la carte, in stores and/or in snack bars	65%	64%	76%	79%
French fries were available in vending machines, à la carte, in stores and/or in snack bars	31%	26%	48%	45%
Regular, non-fat-free snacks were available in vending machines, à la carte, in stores and/or in snack bars	71%	61%*	83%	77%*
PHYSICAL ACTIVITY AND PHYSICAL EDUCATION				
Attended a school that gave physical fitness tests to all students	53%	54%	12%	16%
Attended a school that measured body mass index (BMI) for all students	24%	26%	6%	11%
Attended a school that required physical education in the target grade[e]	83%	83%	37%	35%
WELLNESS POLICIES				
Attended a district or school with an established wellness policy	73%	78%	80%	84%
Attended a district or school without an established wellness policy	10%	13%	12%	11%
Attended a district or school with an administrator who did not know if there was an established wellness policy	17%	9%*	8%	6%
Attended a district or school with nutrition guidelines for all foods	66%	67%	59%	68%*
Attended a district or school with explicit physical activity goals for student wellness	55%	58%	54%	53%
Attended a district or school with a plan for implementing the wellness policy	33%	33%	33%	36%

Source: Bridging the Gap, Institute for Social Research, University of Michigan, 2011.

b Data reported only for students whose schools participated in the National School Lunch Program.

c Any one or more of regular soft drinks; sports drinks; and fruit drinks that are not 100% fruit juice and that are high in calories.

d Any one or more of candy; salty snacks that are not low in fat, such as regular potato chips; cookies, crackers, cakes, or other baked goods that are not low in fat.

e The target grade for middle school was grade 8 and the target grades for high school were grades 10 and 12.

*Differences between 2007 and 2008 were significant at p<.05 or greater.

Nutrition-Related Findings

School Meals

Trends over the two-year study period show that schools were making an effort to offer healthier foods and beverages for lunch, but also that many students could still buy sugary drinks, junk foods and high-fat entrees, such as pizza and french fries, as part of National School Lunch Program meals. Decisions regarding menus were largely made at the district or school level.

Key Findings

- In 2008, principals reported one-quarter of middle school students ate breakfast at school and almost three-fourths ate lunch at school. Respective rates for high school students were lower, with 18 percent eating breakfast at school and 60 percent eating lunch at school.
- In schools with higher percentages of students eligible for free and reduced-price lunch, both breakfast and lunch consumption were significantly greater, indicating that school meals were an especially important source of nutrition for students in low-SES schools.
- There was a significant decline in the availability of sugar-sweetened beverages offered as part of National School Lunch Program meals. Yet in 2008, one-quarter of middle school students and more than one-third of high school students still had access to such beverages as part of these meals.
- By 2008 regular soft drinks were rarely available as part of the National School Lunch Program; instead, sports drinks and high-calorie fruit drinks made up the majority of the sugar-sweetened beverages available through the program.
- As part of the National School Lunch Program, one-half of high school students had access to pizza most days or every day, one-fifth had almost daily access to french fries, and nearly 60 percent had access to snacks, such as candy and non-fat-free chips, cookies and ice cream. The corresponding rates for middle school students were 39 percent, 8 percent and 54 percent.
- Virtually all schools offered vegetables and fresh fruits as part of the National School Lunch Program. There also was some evidence that, in both middle and high schools, more students were offered whole grains as part of the lunch program, and fewer were offered french fries—indicating some movement toward a healthier mix of items.
- While an increasing proportion of both middle and high schools provided menus with nutritional information to parents during the study interval, by 2008 more than one-third still did not.
- Decisions regarding menu options were made at the district or school level for 88 percent of middle school students and 90 percent of high school students in 2008.
- In 2008, the overwhelming majority of students attended a school where food service was provided by the school system, as opposed to an external food service management company or other entity.

Policy Opportunities

Expand Participation in the School Breakfast Program

Although eating breakfast is widely recommended, significant proportions of U.S. secondary school students, especially those from low-SES families, do not eat breakfast.[9] This study found that students in low-SES schools were much more likely to eat breakfast at school. As such, efforts to expand school participation in the School Breakfast Program may have a significant impact on student nutrition, especially in low-SES schools, and also may enhance student academic performance. The Healthy, Hunger-Free Kids Act of 2010 allows for grants to establish or expand school breakfast programs and gives priority to schools where 75 percent of students are eligible for free and reduced-price meals. It is important that this grant program be funded adequately by Congress.

Improve the Nutritional Quality of School Meals

There is significant room for improvement in the nutritional quality of foods served as part of National School Lunch Program meals. The Institute of Medicine (IOM) recommends that USDA school meal standards be updated regularly to reflect current nutrition science.[10] Among those recommendations are increasing the

availability of fruits, vegetables and whole grains, while at the same time reducing saturated fats, trans fats, added sugars and salt, and limiting milk fat to 1% or less. Reducing the availability of less healthy options, like french fries, pizza, commercial fast foods, high-fat milk and sugar-sweetened beverages would be consistent with the IOM recommendations.

As directed by the Healthy, Hunger-Free Kids Act of 2010, USDA is working to update nutrition standards for breakfast and lunch meals. It is critical that these efforts continue swiftly and are as rigorous as possible to ensure that students have more healthy options at school.

Promote Healthy Foods and Beverages

This study found that fruits and vegetables were widely available in schools, yet national surveys show that secondary students consume low levels of such foods, which suggests that many students are not availing themselves of the healthier choices being offered at school.[11] This indicates the need for school offerings to be more attractive to students, either in terms of the types of foods presented or the way in which they are presented.

Creative examples of the latter approach, which is generally less expensive, have been tried in a number of schools with considerable success,[12] including:

- placing vegetables at the beginning of the lunch line;
- encouraging the use of cafeteria trays (which increased choosing salads);
- having cafeteria staff routinely ask children if they want a salad;
- placing the salad bar in front of the checkout register;
- moving the chocolate milk behind the plain milk;
- keeping ice cream in a freezer with a closed opaque top; and
- giving healthy food choices more attractive names.

These approaches are parallel to the kind of thinking that goes into marketing efforts in supermarkets, where placement, sequencing, labeling and other methods are carefully designed to maximize sales.

Increase Federal Reimbursement Rates for School Meals

Providing healthier foods, such as fresh fruits, vegetables, whole grains and a salad bar, as part of school meals and relying less on pre-packaged entrees that are high in fat and sodium are two important strategies for improving the nutritional quality of school meals. Because such changes will increase food service costs to the schools, it is critical that Congress fully fund the increased federal reimbursement rate for school lunches included in the Healthy, Hunger-Free Kids Act of 2010. Funding should also be provided to enhance the quality of school breakfasts.

Increase Training for and Collaboration with Food Service Providers and Staff

Given that districts or schools were largely responsible for providing food service and making menu decisions, policy efforts for improving the nutritional quality of school meals will likely be most effective when they include policy advocates, school food service managers, researchers and students. The federal government and states should provide training and technical assistance to help food service staff prepare nutritious meals that are appealing to students. The authorization of the Healthy, Hunger-Free Kids Act of 2010 included some $50 million for such efforts.

Increase the Number of Schools Providing Menus with Caloric Information to Parents

Providing menus may help parents become involved in the nutritional decisions of students at school and perhaps in setting school practices. It also may help encourage parents to look for nutritional information when making food choices outside of school. Notably, the Healthy, Hunger-Free Kids Act of 2010 requires school districts, in their reports to USDA and the public in their state, to include information about the quality of school meals. Efforts by schools to increase parents' awareness of the childhood obesity problem, educate them about the issues and motivate them to help seek solutions are critical for reversing the epidemic.

Competitive Foods and Beverages

Competitive venues—vending machines, à la carte cafeteria lines, and school stores—were widely available to students in U.S. secondary schools during our two-year study period. Yet by 2008, a large percentage of schools still had no nutritional guidelines for the foods and beverages sold in such venues. We also found that the availability of sugary drinks, pizza and french fries did not decline over time and that exclusive contracts governing food and beverage sales were in place at many schools.

Key Findings

- Virtually all high school students and more than three-quarters of middle school students had vending machines on campus in 2008. Competitive products were sold à la carte in the cafeteria to 92 percent of high school students and 81 percent of middle school students that same year.
- Only a little more than one-half of U.S. secondary students attended schools where principals reported that competitive venue prices were set to encourage healthier consumption in 2008.
- In 2008 about one-half of middle and high school students were in a school that had not implemented the nutritional guidelines for competitive foods set by the Alliance for a Healthier Generation.[f] Even fewer attended a school that had implemented the Alliance school beverage guidelines.[g]
- More than one-half of middle school students and more than two-thirds of high school students attended a school that received some percentage of sales from an exclusive beverage contract in 2008. Comparable percentages for vending machine food sales were 19 percent for middle school students and 44 percent for high school students.
- As detailed in Table 1.1, access to sugar-sweetened beverages and less healthy foods, such as pizza, french fries and snacks (e.g., cookies, candy, ice cream), was very high among middle and high school students for both study years. However, the availability of soft drinks and some snacks significantly declined from 2007 to 2008.

Policy Opportunities

Ensure USDA Guidelines for Competitive Foods and Beverages are Consistent with the Current Dietary Guidelines for Americans

The Healthy, Hunger-Free Kids Act of 2010 gives USDA authority to update standards for all foods and beverages served and sold in schools going forward. Standards for competitive foods set by the IOM, which recommend limits on fat, sugar, calories and serving sizes,[13] should serve as a guide for USDA as it works to update national nutritional standards for these products. The final guidelines should be consistent with the most recent Dietary Guidelines for Americans.

Implement Nutritional Guidelines for Competitive Products

Districts and schools should update their policies to require implementation of nutritional guidelines for competitive products that are based on the current Dietary Guidelines for Americans. This will help ensure that all foods and beverages available to students contribute to a healthy diet.

[f] The voluntary nutritional guidelines for competitive foods spell out acceptable portion sizes and set limits on fat, sugar and sodium. They also define caloric limits for elementary, middle and high school students. The guidelines are available at www.healthiergeneration.org/companies.aspx?id=2540.

[g] The voluntary school beverage guidelines spell out acceptable portion sizes and caloric content for beverages offered to elementary, middle and high school students. The guidelines are available at www.healthiergeneration.org/companies.aspx?id=1376.

Physical Activity and Physical Education

Evidence suggests that schools have made very little progress toward better supporting physical activity among students. Physical education has been almost entirely squeezed out of the standard curriculum in many high schools, and in some middle schools, requirements for physical education were lax. Participation in interscholastic and intramural programs was low, especially among students at low-SES schools and schools that have a predominately Black or Latino student body.

Key Findings

- In 2008, 83 percent of middle school students and 35 percent of high school students were required to take physical education during the school year. While about 90 percent of middle school students and one-half of high school students actually took physical education classes in 2008, it is likely that many did so for only one semester or trimester.
- Among those secondary school students who took physical education, the time they spent in those classes was generally consistent with National Association for Sport and Physical Education standards, which recommend 225 minutes per week of physical education. However, it is very likely that many of the students who took physical education did *not* meet these standards for the entire school year. It also is not clear how much time was spent in moderate-to-vigorous physical activity, which is key to meeting recommendations by the U.S. Department of Health and Human Services (USDHHS) that specify students spend at least 50 percent of their physical education time in moderate-to-vigorous physical activity.[14] In future surveys, we intend to measure these factors.
- In 2008, nearly 30 percent of both boys and girls participated in interscholastic or varsity sports at middle and high schools. Students in low-SES schools and majority Black or Latino schools had significantly lower rates of participation in varsity sports programs than did students in higher-SES and predominantly White schools.
- Only 10 percent to 13 percent of high school students and 21 percent to 24 percent of middle school students participated in intramural sports and physical activity clubs in 2008. The rates were lower for girls than for boys, and lower among middle school students in low-SES schools compared with higher-SES schools.
- Only one-quarter of middle school students and 14 percent of high school students walked or bicycled to school in 2008. Active commuting was more common among students in low-SES schools and in majority Black or Latino schools.
- In 2008 only about one-half of middle school students and 16 percent of high school students attended a school in which all students were given physical fitness tests.
- About one-quarter of middle school students and 11 percent of high school students attended a school where body mass index (BMI) was assessed for all students in 2008.

Policy Opportunities

Improve Physical Education Requirements

Districts and schools should develop and enforce physical education policies that align with evidence-based guidelines, including those for time spent in moderate-to-vigorous physical activity, to help more students meet national recommendations and learn lifelong skills that contribute to healthy behavior. Additionally, as USDA develops model policies and technical assistance for local wellness policies in accordance with the Healthy, Hunger-Free Kids Act of 2010, it should consider requiring districts to set specific goals for physical education.

Regular fitness assessments can help monitor student progress and ensure that physical education programming is effective. Increasing awareness of the link between physical activity and improved academic performance[15,16] is one strategy for motivating key decision-makers to support such policy changes.

Include Active Physical Education as a Core Requirement in the Elementary and Secondary Education Act

As Congress reauthorizes the Elementary and Secondary Education Act, it should consider making physical education a core and mandatory requirement to ensure that all students are getting adequate amounts of exercise and that physical education classes follow evidence-based guidelines and are taught by certified teachers.

Increase Participation in Physical Activity Outside of Physical Education

Policies that support opportunities for students to be active before, during and after the school day, including participation in intramural sports, physical activity clubs and/or varsity sports will likely help more children meet the USDHHS recommendation for at least 60 minutes of moderate-to-vigorous physical activity daily.

Increase Prevalence of Joint-Use Agreements

Local policy officials should facilitate joint-use agreements between municipalities and educational institutions to create more opportunities for community members, including schoolchildren in sports clubs and teams not run by the schools, to use available facilities for physical activity. They should adopt policies to address liability issues that might block implementation of joint-use agreements, when necessary.[17]

The National Policy and Legal Analysis Network to Prevent Childhood Obesity provides several resources that help guide the structure and implementation of joint use agreements, including model agreements, an overview of liability risks in all 50 states and a checklist for developing an agreement.[h]

Support Walking and Bicycling to School

Increasing participation in Safe Routes to School and walking school bus programs could help increase active commuting among students. Safe Routes to School programs also may help advance long-term changes in the community that support walking and bicycling more generally, such as new sidewalks, bike lanes and traffic calming devices. Collaboration among school administrators, planners and local officials is essential for building and maintaining such initiatives.

The federal government has the opportunity to increase its support for Safe Routes to School programs during the upcoming surface transportation reauthorization.

Implementation of Wellness Policies

In 2008, about one-quarter of middle school students and one-sixth of high school students attended a district or school with no wellness policy—or had a principal who did not know if such a policy was in place. Among districts or schools with a wellness policy, a substantial percentage did not meet mandatory provisions of the 2004 Child Nutrition Act, such as having nutritional guidelines for all foods, goals for physical activity or an implementation plan.

Key Findings

- Low- and medium-SES schools were lagging behind more affluent schools in having a wellness policy in place, and districts or schools attended by Black and Latino students were less likely on average to have a wellness policy established than were districts or schools attended by White students. In other words, the policy environment was lacking in districts or schools where the students were most likely to be at high risk for obesity.

[h] More information about NPLAN's joint-use agreement resources is available at www.nplanonline.org/nplan/joint-use.

- In 2008, only about one-third of secondary school students attended a district or school with a wellness policy and an implementation plan in place, and only about one-half (for middle schools) to two-thirds (for high schools) attended a school with a person who was responsible for ensuring that the wellness policy provisions were implemented.
- Explicit physical activity goals, which were required by the wellness policy mandate, were in place in districts or schools attended by only about one-half of secondary school students in 2007, with little indication of that proportion growing in 2008.
- Wellness policies also were required to include nutritional guidelines for all foods. In 2008, slightly more than two-thirds of secondary students attended a school that had developed such guidelines.

Policy Opportunities

Maximize Opportunities Included in the Healthy, Hunger-Free Kids Act of 2010

Model wellness policies and technical assistance developed for school districts by USDA should reflect the intent of the Healthy, Hunger-Free Kids Act of 2010, which calls for:

- making the content of wellness policies more transparent to help parents, students and others in the community better understand the provisions;
- requiring the measurement and evaluation of the wellness policies; and
- providing resources and training to help with designing, implementing, promoting, disseminating and evaluating wellness policies.

To ensure that wellness policies are implemented successfully at the local level, USDA should develop best practices and model policies, as well as regulations that allow districts and schools to tailor the provisions to meet their individual needs.

Schools should take the lead in implementing their district wellness policy, ensure timely review and provide feedback about their implementation efforts to the school community.

Ensure that Schools and Districts Have Adequate Resources to Implement Wellness Policies

Lack of funding, insufficient staff time and limited support from district and school administrators have been identified as barriers for implementing district wellness policies.[18] Governments at all levels will need to reallocate and maximize resources to help districts and schools implement wellness policy provisions.

Principals' Perceptions

In 2008, about one-half of secondary school students had a principal who expressed considerable concern about his or her students being overweight. Yet a substantial and gradually growing proportion of principals reported their district or school was making a significant effort to promote increased physical activity and healthy eating and drinking habits among students.

Key Findings

- In 2008, 65 percent of middle school students and 60 percent of high school students had a principal who expressed considerable concern about his or her students consuming more nutritious foods and beverages. A slightly higher percentage of middle school students (67%) and high school students (68%) had a principal who was concerned about students getting more exercise and physical activity.
- Middle school students who attended a low-SES school were more likely to have a principal who expressed concern about students being overweight than were those in high-SES schools. We found this to be appropriate given that an individual student's risk of being overweight is strongly and negatively correlated with school SES.[19]
- In 2008, a large proportion of middle school students (about 40%) and high school students (about 50%) attended a school that was *not* making a significant effort to support healthy eating and increased physical activity among students. However, the percentage of students who attended a school that was making such efforts did increase from 2007 to 2008.

Policy Opportunities

Support the Implementation of Successful, Low-Cost Interventions

Principals and other administrators need models of success both for improving student dietary and beverage choices during the school day, as well as for helping students be more active. Clearly more resources would help, and they may be most needed in schools serving low-SES populations and Black and Latino students. Because resources are likely to be in short supply for the foreseeable future, models that carry only modest costs would appear most promising.

Participate in National Initiatives that Support Healthy Schools

A number of national initiatives provide resources and technical assistance to help principals, teachers and administrators make the school environment healthier for students. For example, the Team Nutrition program and the HealthierUS School Challenge are supported by USDA, and the Alliance for a Healthier Generation offers the Healthy Schools Program. There is certainly room for increased participation in such programs. This study found 44 percent of middle school students and 45 percent of high school students attended a school that participated in Team Nutrition in 2008.

Next Steps

While many U.S. secondary schools have made an effort to create a healthier environment for their students, significant changes are still needed to provide more nutritious meals and snacks, remove junk foods and sugary drinks, and increase opportunities for physical activity. Annual surveys by Bridging the Gap will continue to track changes in district policies and school practices relevant to student health. We also will monitor the impact of these changes to identify areas where progress is being made, as well as areas where particular need remains. These findings will provide timely guidance for the implementation of the Healthy, Hunger-Free Kids Act of 2010.

In addition, ongoing tracking will help assess the impact of the Healthy, Hunger-Free Kids Act of 2010 and the pending reauthorization of the Elementary and Secondary Education Act. Future reports also will examine links between adopted wellness policies, their level of implementation, and students' self-reported physical activity levels, dietary patterns and body mass indices to identify policies with greatest potential to reverse the childhood obesity epidemic.

Summary of Health-Related Policies and Practices in Secondary Schools

Table 1.2 summarizes data included in our full report for 2008. All data are weighted to reflect the percentages of public secondary school students nationwide who were affected by these practices. Data for 2007, additional survey topics and demographic sub-sample comparisons are available in the full report and at *www.bridgingthegapresearch.org/research/secondary_school_survey.*

TABLE 1.2 Summary of Secondary School Policies and Practices, 2008

Principals' Perceptions	Responses	Middle School	High School
Extent of concern about student overweight	Great or very great	53%	47%
Extent of concern about student nutrition	Great or very great	65%	60%
Extent of concern about student physical activity levels	Great or very great	67%	68%
Extent of school effort to improve student nutrition	Great or very great	59%	49%
Extent of school district effort to improve student nutrition	Great or very great	62%	52%
Extent of school effort to improve student physical activity	Great or very great	59%	43%
Extent of school district effort to improve student physical activity	Great or very great	46%	38%

School Meals	Responses	Middle School	High School
Students ate breakfast offered by school	[Average %]	26%	18%
School offered breakfast to students			
...School Breakfast Program	Yes	82%	86%
...any breakfast	Yes	89%	94%
Average full price charged for School Breakfast Program meal	[Average price]	$1.11	$1.20
Students ate lunch offered by school	[Average %]	74%	60%
School offered National School Lunch Program	Yes	92%	96%
Average full price charged for National School Lunch Program meal	[Average price]	$1.93	$2.04
Average length of lunch period	[Time in minutes]	31	34
Beverages available in National School Lunch Program meals[i]:			
...Alliance beverages approved for middle and high school[j]	Some days or most/every day	98%	98%
...Alliance beverages approved for high school only[k]	Some days or most/every day	32%	39%
...sugar-sweetened beverages[l]	Some days or most/every day	26%	37%
...whole, 2% or flavored milk	Some days or most/every day	71%	74%

Source: Bridging the Gap, Institute for Social Research, University of Michigan, 2011.

[i] Data reported only for students whose schools participated in the National School Lunch Program. Availability defined as offered as part of the school lunch meal "some days" or "most or every day."

[j] Any one or more of beverages that meet Alliance guidelines for both middle and high school: bottled water; 100% fruit or vegetable juice with no added sweeteners; low-fat (1%) or non-fat (skim) milk.

[k] Any one or more of beverages that meet Alliance guidelines for high school only (diet soft drinks; other no-calorie or very low-calorie beverages; "light" juices).

[l] Any one or more of regular soft drinks; sports drinks; and fruit drinks that are not 100% fruit juice and that are high in calories.

TABLE 1.2, CONTINUED

School Meals (CONTINUED)	Responses	Middle School	High School
Healthier foods available in National School Lunch Program meals:			
...fruits and vegetables	Some days or most/every day	100%	100%
...fresh fruits	Some days or most/every day	100%	99%
...other fruits (e.g., dried or canned fruits)	Some days or most/every day	91%	95%
...vegetables (e.g., carrot sticks or celery sticks)	Some days or most/every day	99%	100%
...salads	Some days or most/every day	92%	94%
...pre-made, main course salads	Some days or most/every day	83%	87%
...salad bar	Some days or most/every day	41%	43%
...whole grains	Some days or most/every day	87%	92%
Less healthy foods available in National School Lunch Program meals:			
...commercial fast foods	Some days or most/every day	13%	18%
...french fries	Some days or most/every day	40%	52%
...pizza	Some days or most/every day	98%	98%
...regular fat and sugary snacks[m]	Some days or most/every day	54%	59%
School participated in Team Nutrition	Yes	44%	45%
	No	24%	28%
	Don't know	32%	27%
School food service was provided by:			
...school system	Yes	79%	81%
...food service management	Yes	20%	16%
...other	Yes	3%	5%
Decisions about menus and food service issues were made by:			
...district	Yes	82%	79%
...school	Yes	20%	31%
...contractor	Yes	14%	10%
...other	Yes	6%	3%
School provided menus to:			
...students	Yes	92%	87%
...parents	Yes	88%	81%
School provided nutrition information to:			
...students	Yes	64%	64%
...parents	Yes	60%	57%

Source: Bridging the Gap, Institute for Social Research, University of Michigan, 2011.

[m] Any one or more of candy; salty snacks that are not low in fat, such as regular potato chips; cookies, crackers, cakes or other baked goods that are not low in fat; ice cream or frozen yogurt that is not low in fat.

TABLE 1.2, CONTINUED

Competitive Foods and Beverages	Responses	Middle School	High School
School offered foods or beverages in the following competitive venues:			
...à la carte sales in the cafeteria	Yes	81%	92%
...stores or snack bars/carts	Yes	48%	62%
...vending machines	Yes	77%	96%
School offered foods or beverages in the following competitive venues but the Alliance school beverage guidelines *had not* been implemented:			
...à la carte sales in the cafeteria	Yes	43%	31%
...stores or snack bars/carts	Yes	40%	26%
...vending machines	Yes	38%	33%
School administrator was aware of Alliance school beverage guidelines	No	28%	14%
	Yes, some	56%	66%
	Yes, quite a bit	17%	21%
School offered foods or beverages in the following competitive venues but the Alliance nutritional guidelines for competitive foods *had not* been implemented:			
...à la carte sales in the cafeteria	Yes	50%	52%
...stores or snack bars/carts	Yes	48%	46%
...vending machines	Yes	52%	49%
School administrator was aware of Alliance nutritional guidelines for competitive foods	No	46%	31%
	Yes, some	38%	56%
	Yes, quite a bit	16%	13%
Competitive venue prices were set to encourage consumption of healthier:			
...beverages	Some or a lot	55%	57%
...foods	Some or a lot	51%	58%
District or school had existing exclusive beverage contract in place	Yes	65%	79%
School received specified percentage of sales from exclusive beverage contract	Yes	55%	68%
School received specified percentage of sales from food vending machines	Yes	19%	44%
Beverages available in competitive venues:			
...Alliance beverages approved for middle and high school[n]	Yes	96%	99%
...Alliance beverages approved for high school only[o]	Yes	69%	88%
...sugar-sweetened beverages[p] (including regular soft drinks)	Yes	71%	92%
...regular soft drinks	Yes	17%	45%
...whole or 2% milk, or flavored milk	Yes	61%	72%
Regular soft drinks available in:			
...à la carte sales in the cafeteria	Yes	1%	5%
...stores or snack bars/carts	Yes	4%	12%
...vending machines	Yes	15%	43%

Source: Bridging the Gap, Institute for Social Research, University of Michigan, 2011.

[n] Any one or more of beverages that meet Alliance guidelines for both middle and high school: bottled water; 100% fruit or vegetable juice with no added sweeteners; low-fat (1%) or non-fat (skim) milk.

[o] Any one or more of beverages that meet Alliance guidelines for high school only (diet soft drinks; other no-calorie or very low-calorie beverages; "light" juices).

[p] Any one or more of regular soft drinks; sports drinks; and fruit drinks that are not 100% fruit juice and that are high in calories.

TABLE 1.2, CONTINUED

Competitive Foods and Beverages (CONTINUED)	Responses	Middle School	High School
Healthier foods available in competitive venues:			
...fruits and vegetables	Yes	70%	86%
...fresh fruits	Yes	67%	84%
...other fruits (e.g., dried or canned fruits)	Yes	60%	79%
...vegetables (e.g., carrot sticks or celery sticks)	Yes	62%	78%
...salads	Yes	62%	78%
...pre-made, main course salads	Yes	59%	75%
...salad bar	Yes	23%	34%
...whole grains	Yes	54%	72%
Less healthy foods available in competitive venues:			
...commercial fast foods	Yes	15%	23%
...french fries	Yes	26%	45%
...pizza	Yes	64%	79%
...regular fat and sugared snacks[q]	Yes	61%	77%
Soft drinks and/or fast-food restaurants were promoted by:			
...sponsorships	Yes	13%	21%
...coupons	Yes	11%	6%
...textbook covers or menus	Yes	3%	2%
...exclusive beverage contract ads (excluding those on vending machines)	Yes	9%	19%
...posters	Yes	3%	4%

Physical Activity and Physical Education	Responses	Middle School	High School
School required physical education	Yes	83%	35%
Students took physical education	[Average %]	91%	49%
Students participated in interscholastic or varsity sports:			
...boys	[Average %]	30%	31%
...girls	[Average %]	27%	27%
Students participated in intramural sports or physical activity clubs:			
...boys	[Average %]	24%	13%
...girls	[Average %]	21%	10%
Students walked or bicycled from home to school	[Average %]	25%	14%
School gave students physical fitness tests:			
...had any testing	Yes	76%	41%
...all students were tested	Yes	54%	16%
...only students taking physical education were tested	Yes	20%	23%

Source: Bridging the Gap, Institute for Social Research, University of Michigan, 2011.

q Any one or more of candy; salty snacks that are not low in fat, such as regular potato chips; cookies, crackers, cakes or other baked goods that are not low in fat; ice cream or frozen yogurt that is not low in fat.

TABLE 1.2, CONTINUED

Physical Activity and Physical Education (CONTINUED)	Responses	Middle School	High School
School measured students' body mass index (BMI):			
...had any assessments	Yes	37%	32%
...all students were assessed	Yes	26%	11%
...only students taking physical education were assessed	Yes	8%	15%
School had activities in place to promote physical activity	Yes	65%	51%

Wellness Policies	Responses	Middle School	High School
District or school had established a wellness policy	Yes	78%	84%
Implementation plan for wellness policy:			
...district or school had developed plan	Yes	33%	36%
...district or school was currently developing plan	Yes	20%	26%
...district or school had not developed plan	Yes	23%	22%
...district or school had no wellness policy	Yes	7%	4%
...administrator did not know if plan existed	Yes	17%	12%
Designated individual was responsible for implementing school wellness policy	Yes	54%	66%
Explicit student wellness goals had been developed for:			
...physical activity	Yes	58%	53%
...nutrition education	Yes	50%	60%
...promoting healthier eating and drinking practices[r]	Yes	63%	55%
District or school had nutrition guidelines for all foods	Yes	67%	68%
Had advisory body for nutrition and/or exercise recommendations:			
...at district level only	Yes	44%	44%
...at school level only	Yes	7%	6%
...at both district and school level	Yes	17%	14%
Stakeholders involved in wellness policy development included:			
...school food personnel	Yes	72%	83%
...school administrators	Yes	68%	78%
...teachers	Yes	67%	71%
...parents	Yes	61%	61%
...students	Yes	45%	60%
...school board members	Yes	42%	51%
District offered formal classroom instruction on:			
...physical activity, exercise and fitness	Yes	94%	97%
...nutrition and dietary behavior	Yes	83%	95%

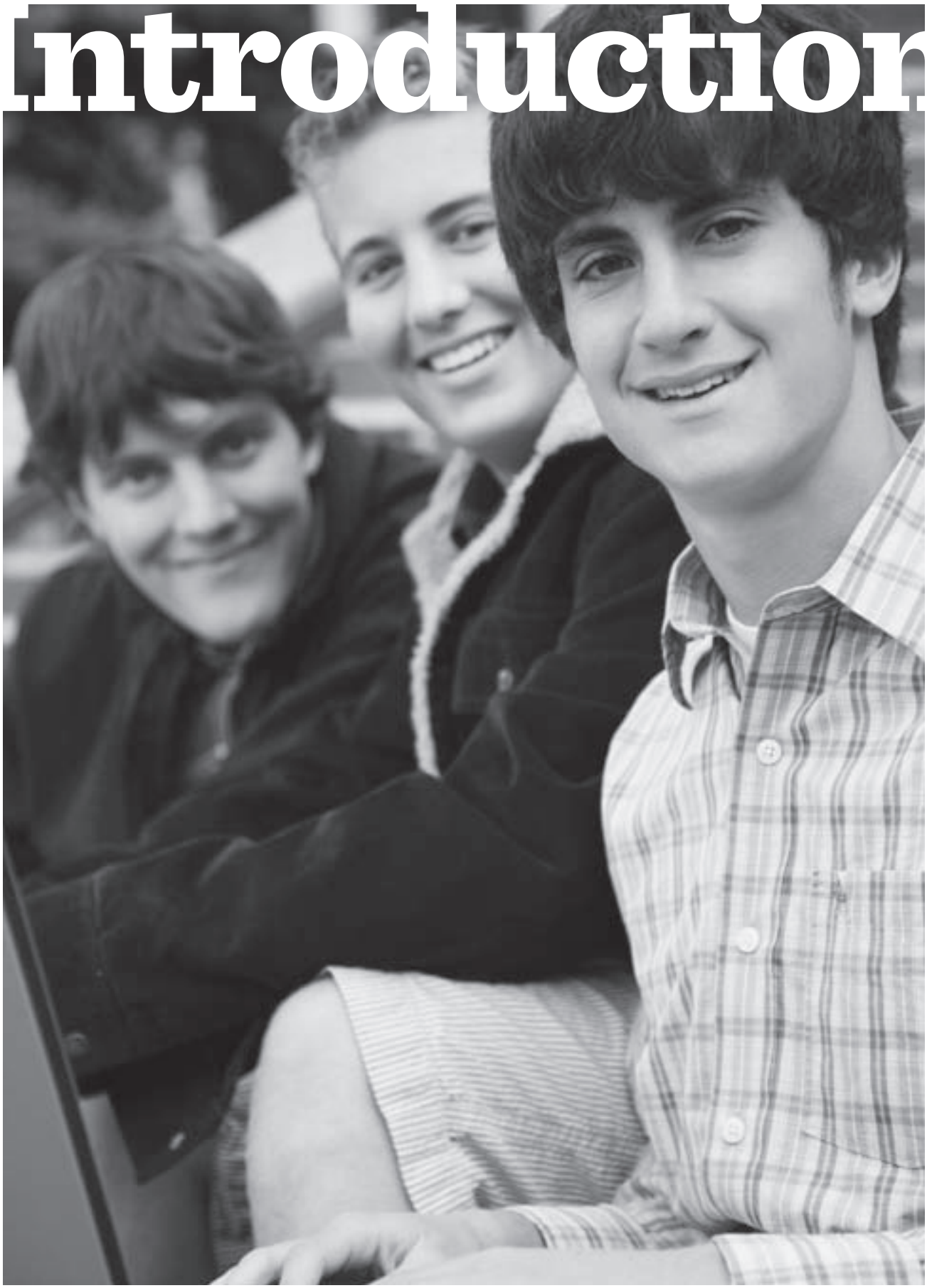
Source: Bridging the Gap, Institute for Social Research, University of Michigan, 2011.

[r] The federal wellness policy mandate did not require districts to develop goals for promoting healthier eating and drinking practices.

Overview of Study Methods

This study is based on mail-back survey data gathered in 2007, and again in 2008, from principals, food service managers and other staff in nationally representative samples of public schools in the coterminous U.S. that had students in target grades 8, 10 or 12. A separate sample of schools was drawn for each target grade. For 2007, responses were received from 222 middle schools and 224 high schools. For 2008, responses were received from 265 middle schools and 262 high schools. The overall response rate was 76 percent of originally sampled schools for 2007. For 2008, the overall response rate was 77 percent of the original sample; a system of matched replacement for non-responding schools was introduced, resulting in an adjusted response rate of 89 percent. For this report, each respondent's answer has been weighted by the number of students served by that school in the target grade (8, 10 or 12), and thus results reflect the *proportion of students served* (and not the proportion of all schools).

Introduction



CHAPTER 1

Introduction

The intent of this monograph is to call the nation's attention to the conditions in U.S. middle and high schools likely to influence the extent of overweight among our young people, and to show to what extent improvements in these conditions are or are not occurring. The monograph is the first in an annual series that will report on secondary school policies and practices that are of particular relevance to students' dietary and physical activity behaviors. These practices have become increasingly important as obesity rates among U.S. youth have reached epidemic levels. Monitoring and evaluating school-based practices over time will help inform policy-makers about what's working to make the school environment healthier, as well as areas where new and/or stronger policies are needed.

The consequences of early obesity are serious and far-reaching. Individuals who suffer from obesity as children or adolescents have increased risk for health problems during youth and adulthood, including high blood pressure, high cholesterol, and type 2 diabetes.[20] Adolescents who are obese also experience early and systematic social discrimination,[21] and resulting psychological stress can be related to lower academic and social functioning via low self-esteem.[22] Childhood obesity frequently leads to adult obesity; if overweight begins prior to age 8, the level of adult obesity is likely to be more severe.[23] Recent estimates indicate that 32 percent of U.S. children and adolescents (ages 2 to 19) were either overweight or obese: 17 percent were obese (at or greater than 95th percentile of body mass index for age) while 12 percent were very obese (at or greater than 97th percentile).[24] Importantly, significant differences by gender as well as race and ethnicity have been found in the likelihood of being either overweight or obese.[25]

For this study, a nationally representative sample of 600 secondary schools is selected each year. School principals are invited to complete a self-administered questionnaire dealing with a broad variety of characteristics of the school and its student body. A special section of the questionnaire is completed in many cases by the director of food services in the school. Results for both the 2007 and 2008 surveys are presented in this report, with documentation of the conditions that existed in both years and the extent to which there is evidence of *change* between 2007 and 2008. The results also show the degree to which there are subgroup differences between:

- *middle schools and high schools;*
- *schools with student bodies categorized into three socioeconomic levels—low, medium and high—based on the proportion of students eligible for free or reduced government-subsidized school lunch;*
- *schools attended by White students, those attended by Black students and those attended by Latino students; and*
- *schools that are predominantly White, those that are majority Black, and those that are majority Latino in their student composition.*

These analyses are conducted because there is extensive evidence that childhood obesity is higher among children and adolescents from lower socioeconomic backgrounds and among Black and Latino populations. By distinguishing among schools serving these subpopulations, we hope to show to what degree schools may play a role in creating or maintaining these differences in student overweight, and, hopefully, over time to show the degree to which such disparities in school conditions are diminished.

A recently published companion report from Bridging the Gap[26] examines conditions and practices in U.S. elementary schools (see *www.bridgingthegapresearch.org/research/elementary_school_survey*). The report covers most of the topics covered in this monograph for secondary schools and involves a similar series of national surveys. Indeed, the two series of surveys have been closely coordinated to facilitate comparison across three levels of education: elementary, middle and high schools. A third annual report from Bridging the Gap[27] addresses wellness policies adopted by school districts (see *www.bridgingthegapresearch.org/research/district_wellness_policies*).

The complete descriptive tabular results for both 2007 and 2008 may be found in *Bridging the Gap: Complete Descriptive Statistics on Secondary Schools, School Years 2006-07 and 2007-08 (see www.bridgingthegapresearch.org/research/secondary_school_survey).* This document contains all questions asked of school administrators along with their answers. It will be updated each year to show detailed trend results for all secondary schools as well as for key demographic subgroups. It should serve as an important resource to those interested in the complete findings.

Report Overview

The text of the current monograph summarizes the findings of greatest potential relevance to childhood obesity and discusses their implications. Chapter 2 contains a synopsis of the study design and some of the demographic characteristics of the annual national samples. Chapter 3 describes the level of concern among school administrators (most of whom are principals) are about the extent of overweight among their students, about students making healthy food and beverage choices, and about students getting more physical activity. The chapter further elucidates the school administrators' judgments concerning the degree to which their school districts and their own schools have made serious efforts to improve the eating, drinking and physical activity habits of their students.

Chapters 4 and 5 address the important issue of food and beverage selection in the school. Chapter 4 reports on meals served in the School Breakfast Program and the National School Lunch Program while Chapter 5 describes all other foods and beverages offered in the school—also known as competitive foods. The availability of sugar-sweetened beverages, including soft drinks, is given special attention. The chapters also present the extent to which school administrators are aware of, and adhering to, the school beverage guidelines and nutritional guidelines for competitive foods, negotiated between the Alliance for a Healthier Generation and major beverage and snack food producers.

Chapter 6 explores the other side of the obesity coin: calorie expenditure through physical activity of various types. Several aspects of physical education programs are examined, including requirements for taking physical education classes and the proportion of students who take physical education in each of the three grade levels studied (8th, 10th and 12th). Participation rates in intramural and varsity sports, an important component of physical activity available in schools, are estimated separately for boys and girls by the school administrators. The proportion of students who walk or bicycle to school also is assessed.

Finally, Chapter 7 presents findings on the extent to which schools have implemented a wellness policy, as required by the Child Nutrition and WIC Reauthorization Act of 2004. Under this Act, which was intended to improve school characteristics likely to impact student wellness, all school districts that participate in federally subsidized child nutrition programs were required to adopt and implement a wellness policy by the start of the 2006–07 school year. Our results suggest that this would include 92 percent of public middle schools and 95 percent of public high schools.

Because the emphasis in this series of school surveys will increasingly be on the extent to which change is taking place in the schools, the graphics in this volume document differences between middle and high schools and show changes over time.

This monograph is the first in a series to summarize annual trends in middle and high school food and fitness policies and environments, with direct relevance for actions that may help reverse the childhood obesity epidemic. Additional surveys will be conducted annually and abbreviated reports will follow to document and discuss results from subsequent years, updating the results of this monograph. The detailed publication of descriptive statistics has been designed to incorporate results from future years in a manner that facilitates cross-time comparisons for all groups and subgroups.

Other Research on Health-Related Practices in Schools

Throughout this report, we reference two large, nationally representative projects that also evaluate important aspects of the school health environment: the School Nutrition and Dietary Assessment (SNDA) studies and the School Health Policies and Programs Study (SHPPS). Brief descriptions of both projects follow. We also provide a timeline to show how data from Bridging the Gap, SNDA and SHPPS will help assess the impact of key legislation and monitor the nutrition and physical activity environments in schools.

The School Nutrition and Dietary Assessment (SNDA) Studies

The SNDA studies are sponsored by the Food and Nutrition Service of the U.S. Department of Agriculture (USDA). The first study (SNDA-I) was conducted during the 1991–92 school year to examine school menus and students' diets. Results indicated that school meals contained higher levels of fat than recommended in the *Dietary Guidelines for Americans*.[28] As a result, USDA developed the School Meals Initiative for Healthy Children (SMI) in 1995, which established policies to limit the fat content of meals offered through USDA programs. SNDA-II, conducted during the 1998–99 school year, documented a reduction in fat content of school meals, but found that many meals still did not comply with the SMI standards.[29]

The most recent data yielded by SNDA-III, conducted during the 2004–05 school year, includes a nationally representative sample of 398 public elementary, middle and high schools. School menu analysis and detailed examination of student dietary intake revealed that participants in the National School Lunch Program were significantly less likely to consume competitive foods and sugar-sweetened beverages at school than other students, but that fewer than one-third of schools participating in the National School Lunch Program offered lunches that met the SMI standards for total fat or saturated fat.[30]

Although SNDA results were based on a smaller sample of middle and high schools than we report in the current study, the SNDA datasets provide valuable insight about school practices and have helped to shape school nutrition policy. It also is important to note that all SNDA data were collected prior to the beginning of the 2006–07 school year, and thus present a picture of the school food environment *before* district wellness policies were implemented. SNDA-IV data were collected between January and June 2010 and will yield important information about changes made since the federal wellness policy requirement went into effect.

The School Health Policies and Programs Study (SHPPS)

SHPPS is a national survey conducted at six-year intervals by the Centers for Disease Control and Prevention to assess a variety of school health policies and practices.[31] The first survey was conducted in 1994, and subsequently in 2000 and 2006. The most recent survey, fielded between January and October 2006, provides comprehensive information regarding policies and practices in a nationally representative sample of more than 1,100 public and private elementary, middle and high schools across the United States, and in corresponding school districts and states.

School health components from eight domains are assessed, four of which are of particular relevance to childhood obesity and to the current report: health education; physical education and activity; health services; and nutrition services. Again, it is important to note that most of the SHPPS 2006 data collection period occurred prior to the beginning of the 2006–07 school year, and thus indicates the status of school practices prior to implementation of district wellness policies. The next round of SHPPS data will be collected in 2012 and will therefore yield information about changes in policies and practices well after the federal wellness policy mandate went into effect.

This monograph is the product of a collaborative effort of researchers at the University of Michigan and the University of Illinois at Chicago, funded since its inception in 1997 by the Robert Wood Johnson Foundation. The research initiative, jointly titled Bridging the Gap: Research Informing Policies and Practices for Healthy Youth, is conducted through two separate but collaborative studies: Youth, Education, and Society, conducted at the University of Michigan, and ImpacTeen, conducted at the University of Illinois at Chicago. The initial emphasis of Bridging the Gap research was on youth smoking, drinking and drug use; in the early 2000s, the initiative began to address another pressing public health issue among children: childhood obesity. Today child and adolescent obesity and tobacco use are the two main foci of the Bridging the Gap initiative. Visit *www.bridgingthegapresearch.org* for more information.

TABLE 1.1 Major Studies in the Pre- and Post-Wellness Policy Eras

The timeline below presents an overview of prior, current and future research activities of particular relevance to children's health and obesity prevention in school settings. As shown, Bridging the Gap, SNDA and SHPPS data will help evaluate the effectiveness of the federal wellness policy mandate and other key legislation on nutrition and physical activity environments in schools. This research is crucial for informing future policies that aim to prevent obesity and improve children's diets, physical activity levels and overall health.

Pre-Wellness Policy Era
Post-Wellness Policy Era

	Nutrition	Physical Activity	School Implementation of Wellness Policies	Evaluating District Wellness Policies
COMPLETED RESEARCH				
1995				
1998–99 SNDA-II	X			
2000 SHPPS	X	X		
2004–05 SNDA-III	X			
2006 SHPPS	X	X		
COMPLETED RESEARCH				
2006–07 BTG Year 1	X	X	X	X
2007–08 BTG Year 2	X	X	X	X
2008–09 BTG Year 3 [i]	X	X	X	X
2009–10 BTG Year 4 [i]	X	X	X	X
2009–10 SNDA-IV [ii]	X			
RESEARCH IN PROGRESS				
2010–11 BTG Year 5	X	X	X	X
ANTICIPATED RESEARCH				
2011–12 BTG Year 6	X	X	X	X
2012 SHPPS	X	X	X	

USDA establishes School Meals Initiative for Healthy Children in 1995.

Federal wellness policy mandate takes effect on the first day of the 2006–07 school year.

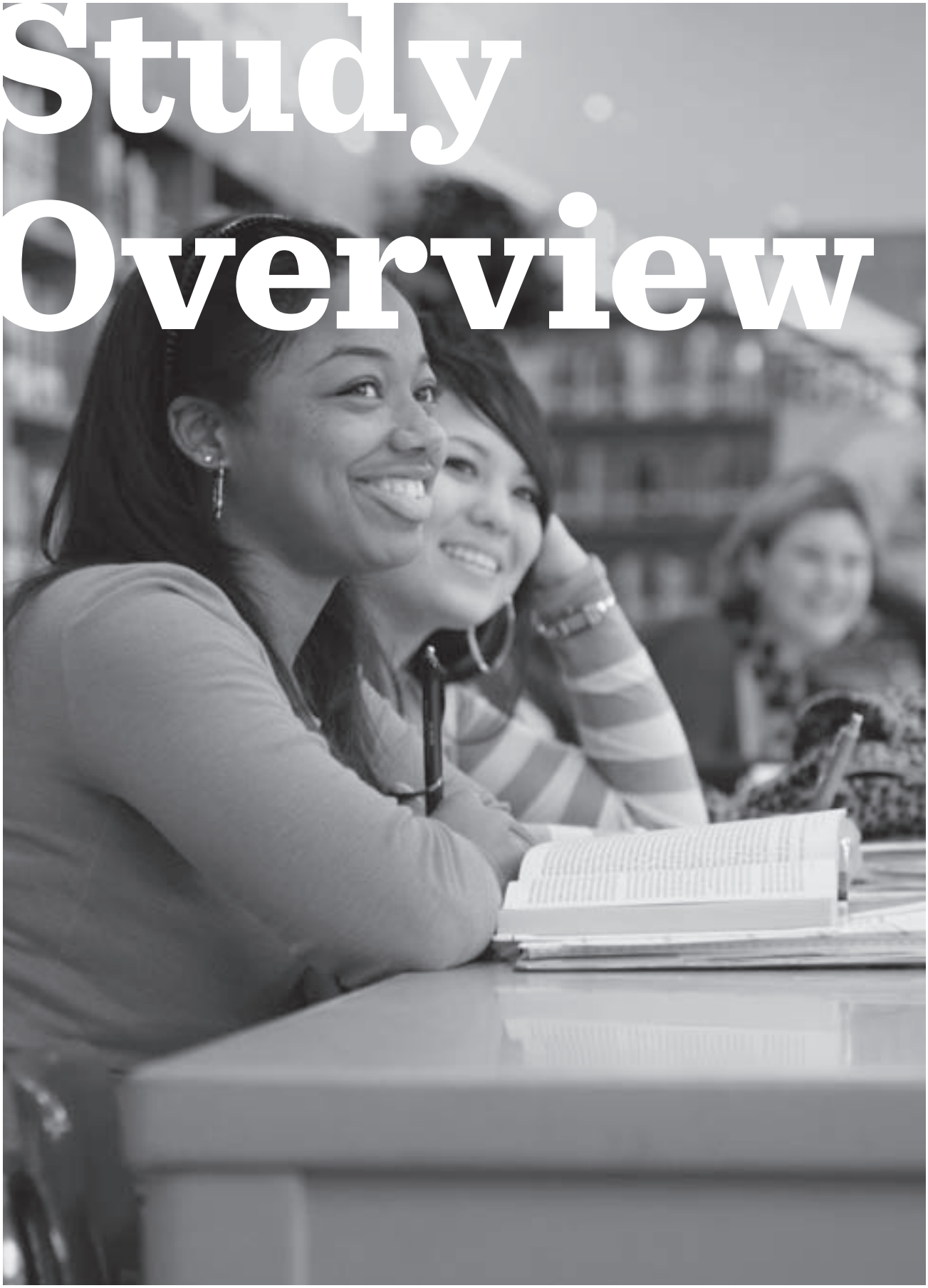
Reauthorization of Child Nutrition Act in 2010.

Reauthorization of Elementary and Secondary Education Act anticipated in 2010–11.

[i] Forthcoming reports will be available at *www.bridgingthegapresearch.org.*

[ii] The final SNDA-IV report is anticipated in 2011.

Study Overview



CHAPTER 2

CHAPTER 2

Study Overview

The results presented here are derived from surveys of school administrators—mostly school principals—in a sample of schools chosen to be representative of secondary schools in the coterminous United States. Separate sub-samples are used to represent middle schools and high schools, and the results for each are reported separately. There are a number of important differences between middle and high school, as is documented in the following chapters.

While the Bridging the Gap surveys of secondary schools go back a number of years, we focus here on the surveys of school administrators completed in 2007 and 2008—the first years in which the full complement of measures related to childhood obesity were administered to an enhanced national sample of secondary schools (as described below). Prior to 2007, the samples of secondary schools being surveyed were nationally representative, but too small in number to provide sufficiently reliable estimates of change across years.

Samples

The Bridging the Gap initiative was begun in 1997 and started with samples each year of those schools that had participated in the Monitoring the Future study, and were cycling out of that study after two years of having their students in a chosen grade surveyed in their classrooms.[32] The annual Monitoring the Future samples consisted of three nationally representative sub-samples—one each of schools containing 8th, 10th and 12th grade students. However, only about 200 schools participated each year in total—not enough to make reliable estimates of changes occurring in the conditions in U.S. schools.[s] Therefore, as the focus of the Bridging the Gap shifted toward childhood obesity, a supplementary nationally representative sample of some 600 secondary schools was added, and their principals were invited to complete a questionnaire each year beginning in 2007. These samples were defined in a way consistent with the Monitoring the Future design, in that three separate sub-samples of schools are surveyed each year—one each of schools selected because they contained students in 8th, 10th or 12th grade. Those selected in the 8th grade sample are here defined as middle schools, while those selected in the 10th or 12th grade samples are defined as high schools, and the 10th and 12th grade results have been combined here.

Response Rates and Sample Sizes

Sample sizes vary from year to year primarily as a result of slightly shifting response rates. In 2007, the overall response rate was 76 percent of the principals (or their designated administrator) in the originally sampled schools. In 2008, the original school sample response rate was 77 percent and a system of matched replacements for non-responding schools was introduced, resulting in an adjusted response rate of 89 percent including the replacement schools. The number of *middle schools* providing data was 222 in 2007 and 265 in 2008, while the number of *high schools* participating was 224 in 2007 and 262 in 2008.

[s] The Monitoring the Future samples were and are excellent for relational analyses in which policies, practices and other contextual conditions in the school are related to student outcomes (including body mass index, dietary habits, exercise and a number of other health related behaviors); a large number of other publications from Bridging the Gap make excellent use of them. We concluded, however, that those school samples generated by Monitoring the Future were not large enough to make sufficiently accurate estimates of cross-time change.

Presentation of Findings

This monograph contains results of two types. The first describes conditions in U.S. secondary schools in 2007 and 2008 as measured in the national school survey conducted that year. Results are reported separately for middle schools and high schools; and within each of those levels of schooling, are reported for the entire national sample of schools as well as for selected subgroups of schools and types of students. The second type of reporting deals with the amount of change has been observed over the one-year interval 2007–08. Indications of change in the policies and practices of schools are of particular importance, and providing good change estimates is one of the major goals of Bridging the Gap. As additional years are added, we should have an even better understanding of changing conditions and of the *rates* of change in U.S. secondary schools.

All results reported here reflect the proportion of *students enrolled* rather than the proportion of schools. Thus, the answers describing conditions in the schools given by principals of large schools weigh in more heavily by virtue of the fact that their schools serve more students than do smaller schools. For example, if one school has 100 students in the target grade [8th, 10th or 12th] and a second school has 500 students in the same target grade, then the larger school will weigh into the results at a rate five times greater than the first. Put another way, when percentages are calculated for the answers to questions, each principal's answers are weighted by the number of students enrolled in the target grade in that school.

The document from which the results reported in this monograph have been drawn, which provides a much more complete compilation of the findings from the 2007 and 2008 surveys is entitled *Bridging the Gap: Complete Descriptive Statistics on Secondary Schools, School Years 2006-07 and 2007-08* (see *www.bridging-thegapresearch.org/research/secondary_school_survey).*

Results are provided separately and side-by-side, to facilitate comparisons for:

a) all middle schools and all high schools;
b) three levels of socioeconomic status of the student body (separately for both middle schools and high schools);
c) middle schools and high schools attended by White, Black and Latino students; and
d) middle schools and high schools with student bodies that are predominately White (>66%), majority Black (>50%), and majority Latino (>50%).[t]

Note that there are two methods for comparing across diverse racial and ethnic populations. One looks at whole schools that are majority (or predominantly in the case of Whites) one race or ethnic group. Quite a number of schools do not fit into any of these three categories. Thus, the other method of comparison uses individual students as the unit of analysis. It looks at all schools and weighs each school into its calculations by how many students in each group attend it in the grade of interest. So, for example, if one school serves 50 out of 1,000 Latino students in the entire 8th grade national sample, the characteristics of that school will account for 5 percent of the total value for Latino students on any school characteristic of interest, since 5 percent of all Latino students are exposed to the characteristics of that particular school. A school that serves a lot of Latino students will weigh into the estimates for those students much more than a school that serves only a few, but all schools that serve Latino students will weigh into the calculation.

All differences between years and between groups are tested for statistical significance, and significant results are identified as such in the document *Bridging the Gap: Complete Descriptive Statistics on Secondary Schools, School Years 2006-07 and 2007-08,* as well as in this monograph. This resource document has been carefully designed to be readable and understandable to the non-scientist, and it has a guide to facilitate its easy use.

[t] Using information reported by principals on the racial and ethnic representation of students at the school, we classified schools as: predominantly White (>66% White), majority Black (>50% Black) or majority Latino (>50% Latino).

Demographic and Other Characteristics of the Schools

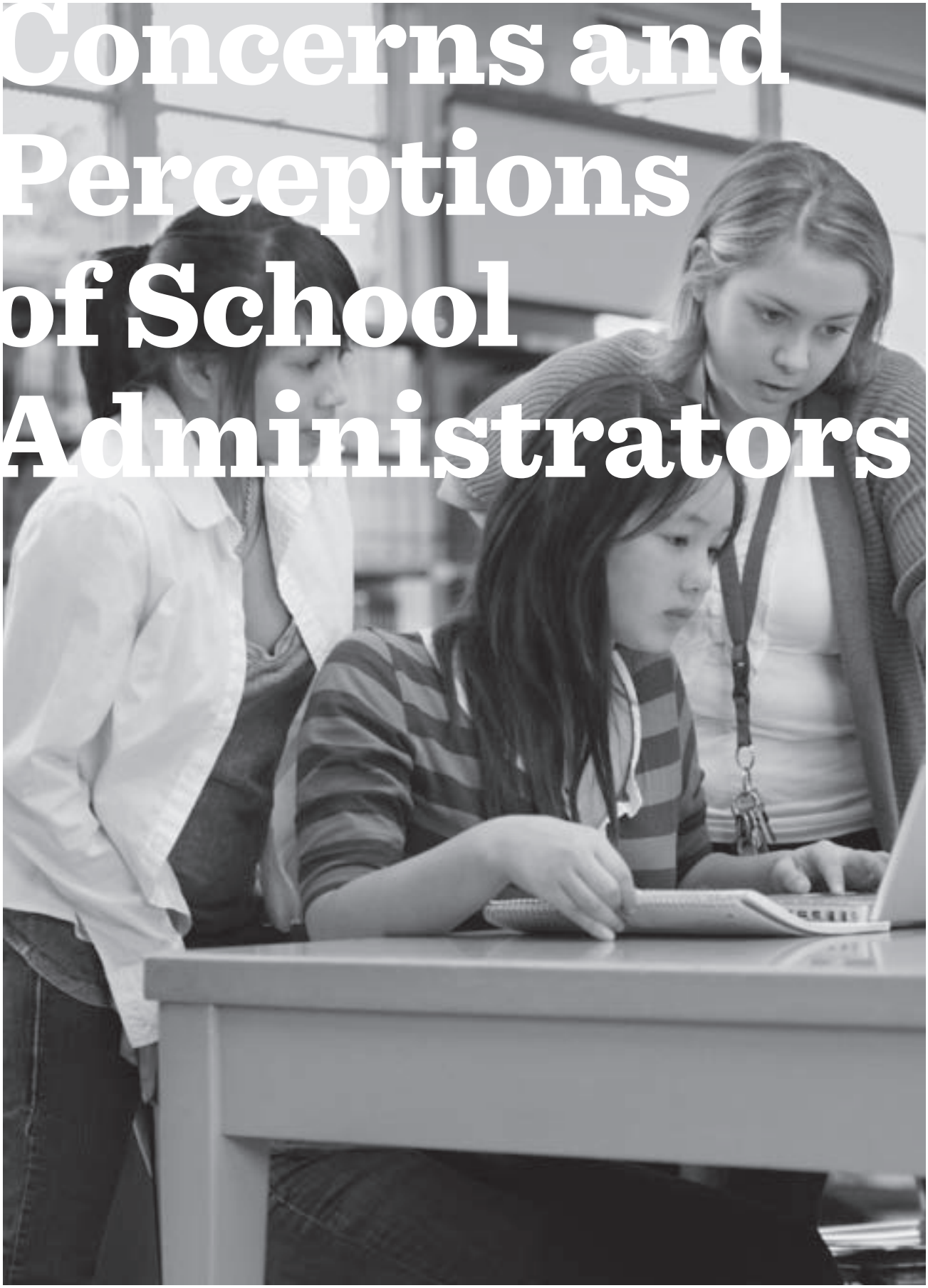
All schools in this study are public secondary schools. In 2008, 15 percent of middle school students and 11 percent of high school students were enrolled in schools of choice, while 3 percent and 2 percent, respectively, were enrolled in magnet schools. The great majority—some 78 percent of middle school students and 80 percent of high school students—were enrolled in public schools that were neither schools of choice nor magnet schools. A residual category of "other public schools" contained 4 percent and 6 percent of the students, respectively. The distributions across these several types of schools were very similar in 2007.

As for school size, the middle schools contained 771 students on average in 2008 and the high schools about twice as many, 1506. However, there was considerable variability in school size by the students' race and ethnicity. Latino students were in significantly larger schools on average than were White or Black students, at both the middle and high school levels.

The percentage of students who were eligible for free and reduced-price lunch (an indicator of economic need) was higher in middle schools than in high schools (48% compared with 37%) in 2008. The differential across levels of schooling is, no doubt, largely the result of higher dropout rates among students from lower income families. Black and Latino students, on average, were in schools that had about twice as many students eligible for free and reduced-price lunch as White students. In 2008, in schools that were predominantly White (>66% White), only 29 percent of the middle school and 25 percent of the high school students were eligible for free and reduced-price lunch, compared with 79 percent and 58 percent in schools where the majority of students were Black and 75 percent and 67 percent in schools where the majority of students were Latino. Clearly there are major racial and ethnic differences in the economic backgrounds of these groups of students: they tend to be somewhat clustered in the schools they attend, and Black or Latino students likely are much more reliant on the food served at school for their dietary intake.

A more detailed description of the methodology of this study may be found in the Appendix to this monograph.

Concerns and Perceptions of School Administrators



CHAPTER 3

CHAPTER 3

Concerns and Perceptions of School Administrators

A variety of stakeholders and policy-makers support creating healthier food and physical activity practices in public schools. In February 2010, the U.S. Secretary of Agriculture announced that the administration would put its weight behind proposals to "enhance the health of the school environment" by setting "standards for all the foods served and sold in schools."[33] A recent study commissioned by the Robert Wood Johnson Foundation found that "teachers and parents overwhelmingly support converting the contents of vending machines to healthy foods and beverages" and that both groups also "believe students should be required to take physical education every day at every grade level."[34]

Support at the district and school level is crucial to create and sustain healthier food and physical activity practices that may prevent childhood obesity. Indeed, in an informal study which surveyed school board members, parents, school-level and state-level health professionals, as well as community health professionals, it was school administrators that were routinely ranked first as being "best positioned to move local school wellness forward."[35]

Extent of Administrator Concern with Student Overweight

In the YES survey, school principals were asked the following questions:

Question: To what extent are you concerned about students in your school...

a) ...being overweight?

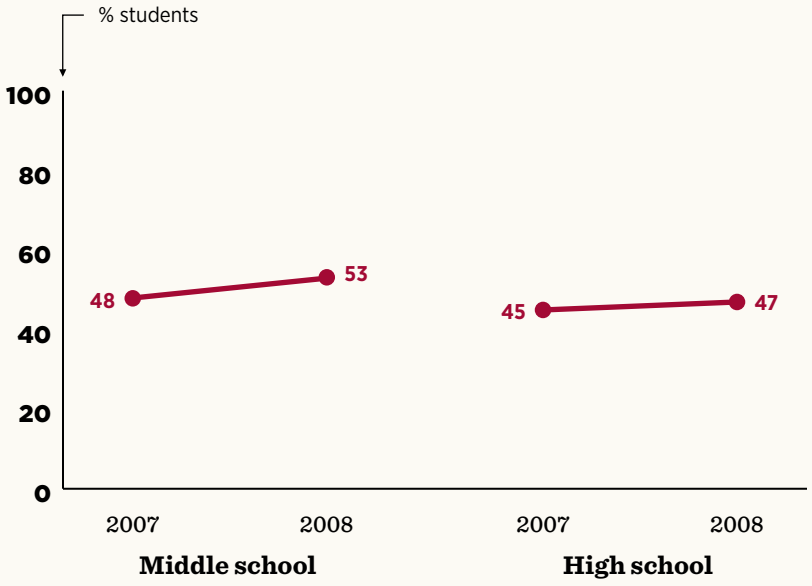
b) ...consuming more healthy and nutritious foods and beverages than they do now?

A five-point answer scale, ranging from "not at all" to "to a very great extent" was used for these questions.

- As shown in Figure 3.1, close to one-half of middle school students attended schools where the principal reported being concerned "to a great extent" or "to a very great extent" about their students being overweight for both study years. The same was true for about 45 percent of high school students.
- Among middle school students in 2008, there were significant differences between low- and high-SES schools in the extent to which principals had such concerns. Principals in low-SES schools expressed greater concern. (see Figure 3.2)
- In 2008, middle school Latino students were significantly more likely than White students to attend a school with a principal who reported great concern about their students being overweight. (see Figure 3.3)

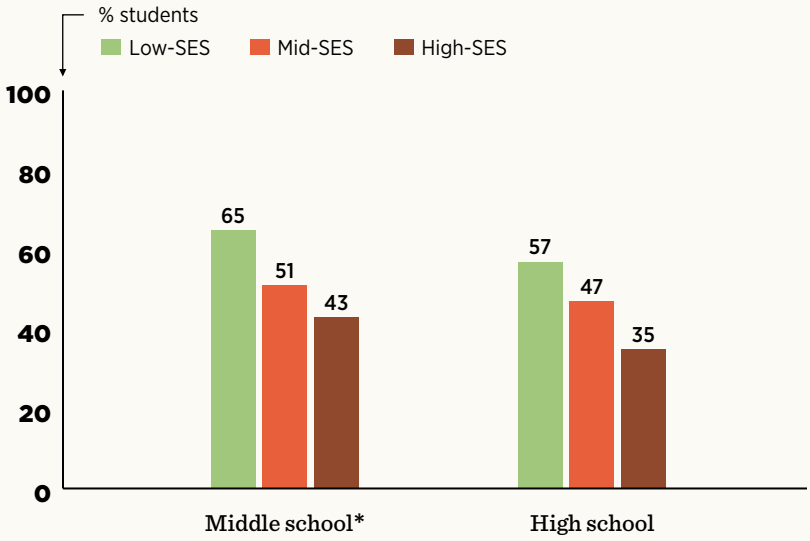
- A majority of both middle and high school students attended schools where the principals were concerned "to a great extent" or "to a very great extent" about having their students eat more healthy and nutritious foods and beverages than they do. Figure 3.4 shows that for both study years almost two-thirds of middle school students and more than one-half of high school students had principals who were concerned about their students' food and beverage choices.
- Principals' concern about their students' food and beverage choices was essentially the same across school SES levels and schools with different racial and ethnic composition in both 2007 and 2008.

FIGURE 3.1 Percentage of Students Attending Schools With Principals who Were Concerned to a "Great Extent" or "Very Great Extent" About Their Students Being Overweight, 2007–2008



Source: Bridging the Gap, Institute for Social Research, University of Michigan, 2011.

FIGURE 3.2 Percentage of Students Attending Schools With Principals who Were Concerned to a "Great Extent" or "Very Great Extent" About Their Students Being Overweight by School SES, 2008

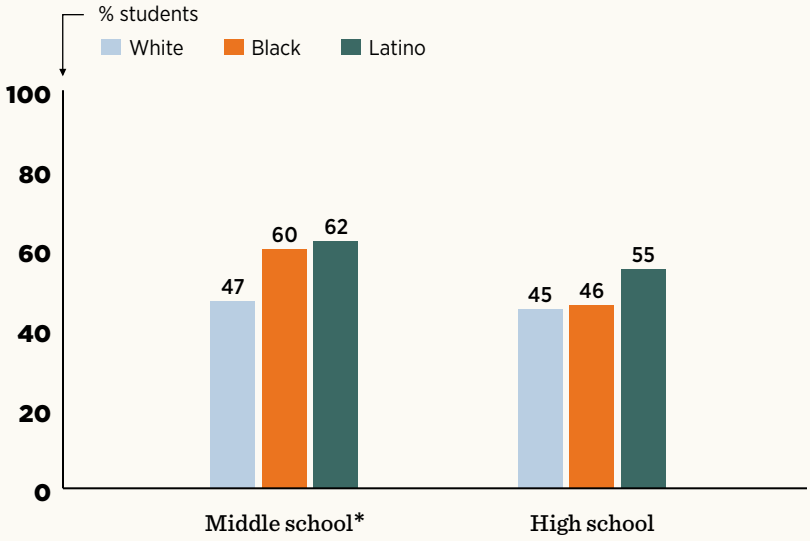


Low-, mid- and high-SES defined based on tertiles of the percentage of students eligible for free and reduced-price lunch.

*Differences between low-SES versus high-SES middle schools were significant at $p \leq .05$.

Source: Bridging the Gap, Institute for Social Research, University of Michigan, 2011.

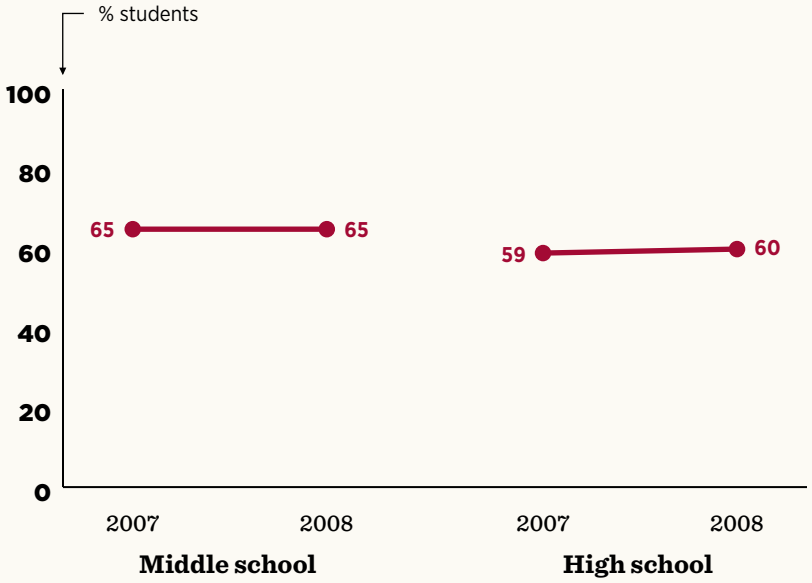
FIGURE 3.3 Percentage of Students Attending Schools With Principals who Were Concerned to a "Great Extent" or "Very Great Extent" About Their Students Being Overweight by Student Race and Ethnicity, 2008



*Difference between White versus Latino middle school students was significant at $p < .01$.

Source: Bridging the Gap, Institute for Social Research, University of Michigan, 2011.

FIGURE 3.4 Percentage of Students Attending Schools With Principals who Were Concerned to a "Great Extent" or "Very Great Extent" About Their Students Consuming More Healthy and Nutritious Foods and Beverages Than They Do Now, 2007–2008



Source: Bridging the Gap, Institute for Social Research, University of Michigan, 2011.

Attempts to Promote Healthy Student Eating and Drinking Habits

Two questions were asked of principals about the extent to which their school or school district had attempted to address student food and beverage intake:

Question: In your opinion, to what extent…

a) …has your *school district* made a serious/real effort to promote healthy eating and drinking habits among students?

b) …has your *school* made a serious/real effort to promote healthy eating and drinking habits among students?

A five-point answer scale, ranging from "not at all" to "to a very great extent" was used for these questions.

- As Figure 3.5 shows, for both study years, a majority of middle school students and slightly less than a majority of high school students had principals who believed that their own school made real and serious efforts to promote healthy eating and drinking habits.

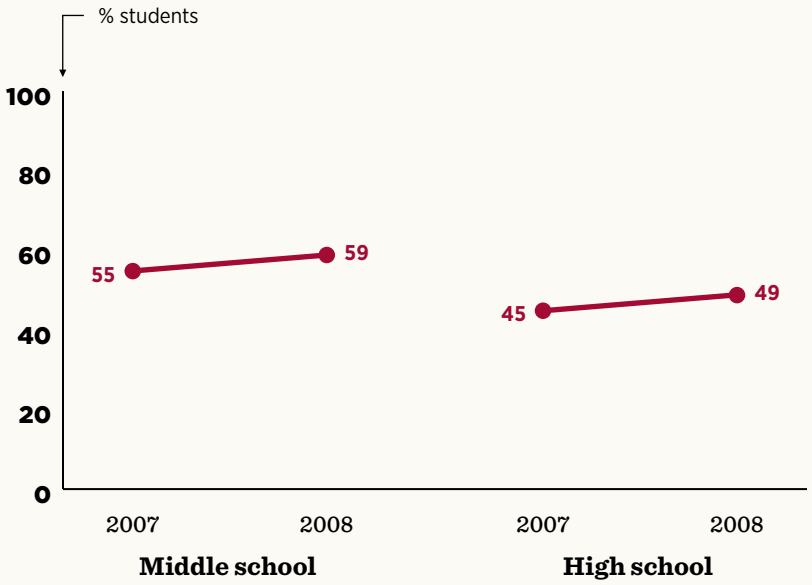
- In 2007, White and Latino middle school students were significantly more likely than Black students to have principals who reported that *their* school made a serious effort to promote healthy eating and drinking habits. Those differences disappeared in 2008, however.

- Principals' perceptions of efforts in *their own schools* to promote healthy eating and drinking habits were essentially the same across school SES levels and between 2007 and 2008.

- Slightly higher percentages of principals believed that their *district* made a serious effort to promote healthy eating and drinking habits. As Figure 3.6 shows, between 2007 and 2008, there was a significant increase in the percentage of both middle and high school students with principals who thought their school district made serious and real efforts to promote healthy food and beverage consumption among students.

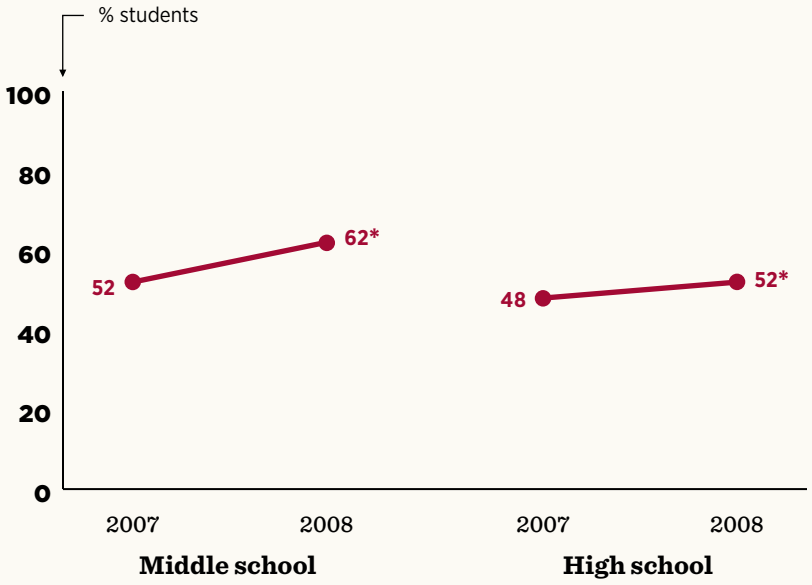
- Principals' perceptions of district-level efforts to promote healthy food and beverage consumption among students were essentially the same across school SES levels and school racial and ethnic composition in 2008.

FIGURE 3.5 Percentage of Students Attending Schools With Principals who Reported That *Their Own School* Made a Serious Effort to Promote Healthy Eating and Drinking Habits Among Students to a "Great Extent" or "Very Great Extent," 2007–2008



Source: Bridging the Gap, Institute for Social Research, University of Michigan, 2011.

FIGURE 3.6 Percentage of Students Attending Schools With Principals who Reported That *Their School District* Made a Serious Effort to Promote Healthy Eating and Drinking Habits Among Students to a "Great Extent" or "Very Great Extent," 2007–2008



*Increases between 2007 and 2008 in both middle and high school groups were significant at $p<.01$.

Source: Bridging the Gap, Institute for Social Research, University of Michigan, 2011.

Attempts to Promote Increased Student Physical Activity

Reports from the Surgeon General and the U.S. Department of Health and Human Resources assert that lack of physical activity is an important contributor to the rise in adolescent obesity.[36,37] Principals were asked:

Question: To what extent are you concerned about students in your school…

a) …getting more exercise and physical activity than they do now?

Question: In your opinion, to what extent…

a) …has your *school district* made a serious/real effort to promote increased physical activity among students?

b) …has your *school* made a serious/real effort to promote increased physical activity among students?

A five-point answer scale, ranging from "not at all" to "to a very great extent" was used for these questions.

- As Figure 3.7 shows, for the two-year study period, about two-thirds of secondary school students attended schools with principals who were concerned about their students getting more exercise and physical activity than they did at the time of the survey. There was little difference between middle and high schools.

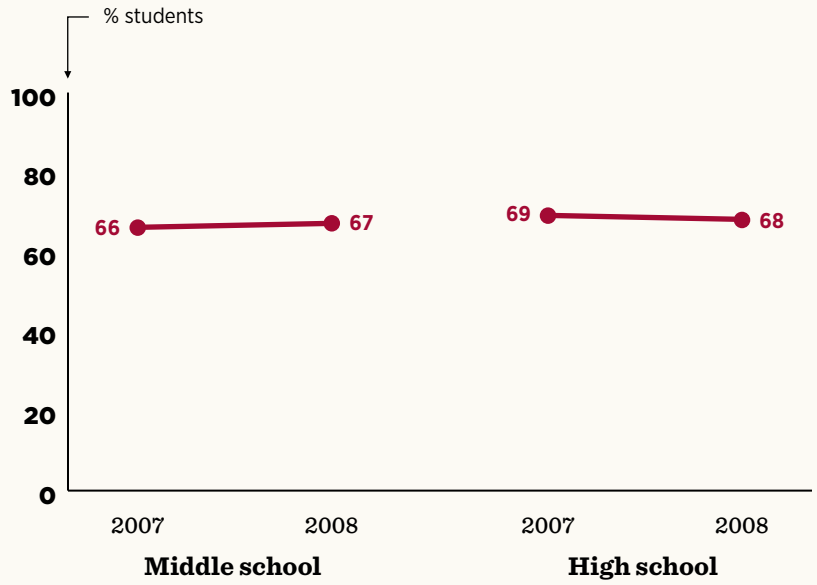
- As Figure 3.8 shows there were differences between middle and high schools around translating the principals' concern into serious and real efforts to promote increased physical activity among the students. In both 2007 and 2008, a significantly smaller percentage of high school students than middle school students had principals who thought their own schools made real and serious efforts to increase student physical activity.

- Principals' perceptions of efforts in their *own school* to promote increased physical activity among the student body did not differ appreciably across school SES levels or school racial and ethnic composition in either 2007 or 2008.

- As Figure 3.9 shows, for both study years, just under half of middle school students had principals who reported that their *school district* made serious and real efforts to promote increases in levels of physical activity among students. Even fewer high school students (about two in five) had principals who reported that their school districts made such efforts.

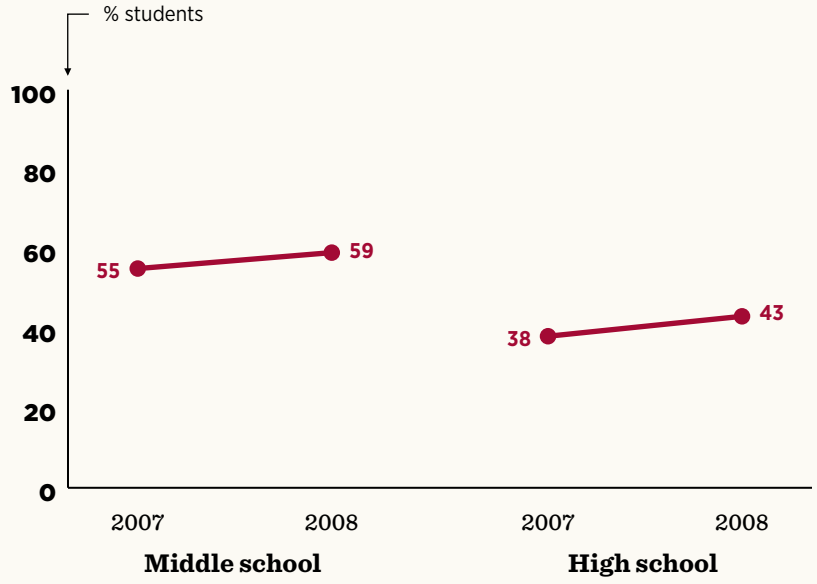
- Principals' perceptions of their school districts' efforts to promote increased physical activity were similar across school SES levels and school racial and ethnic composition in both 2007 and 2008.

FIGURE 3.7 Percentage of Students Attending Schools With Principals who Were Concerned to a "Great Extent" or "Very Great Extent" About Their Students Getting More Exercise and Physical Activity Than They Do Now, 2007–2008



Source: Bridging the Gap, Institute for Social Research, University of Michigan, 2011.

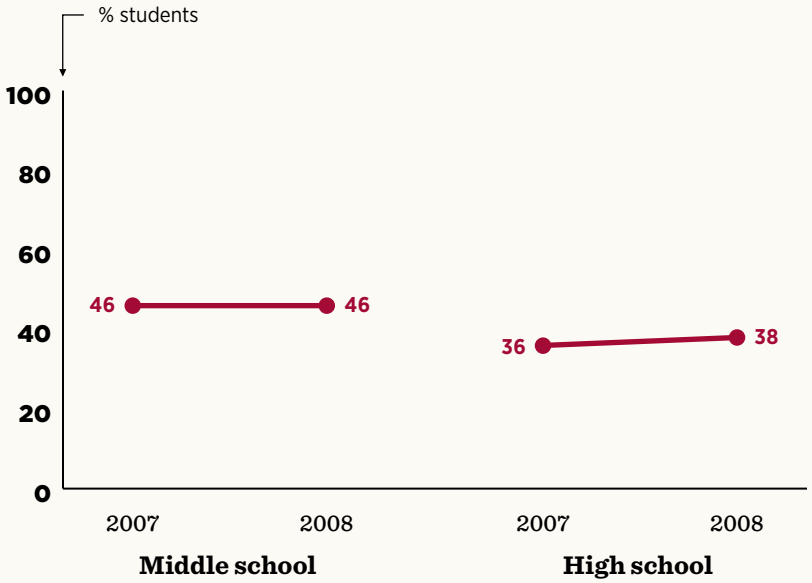
FIGURE 3.8 Percentage of Students Attending Schools With Principals who Reported That *Their Own School* Made a Serious Effort to Promote Physical Activity Among Students to a "Great Extent" or "Very Great Extent," 2007–2008



Differences between middle and high schools were significant at $p<.05$ in both 2007 and 2008.

Source: Bridging the Gap, Institute for Social Research, University of Michigan, 2011.

FIGURE 3.9 Percentage of Students Attending Schools With Principals who Reported That *Their School District* Made a Serious Effort to Promote Physical Activity Among Students to a "Great Extent" or "Very Great Extent," 2007–2008



Source: Bridging the Gap, Institute for Social Research, University of Michigan, 2011.

Conclusions, Implications and Opportunities

Given the extent of overweight and obesity among young people in the United States, it comes as a bit of a surprise that in 2008 only about one-half of all secondary school students were in schools where the principal expressed much concern about their degree of overweight. This may reflect in part the wide array of issues and problems with which school administrators must deal, particularly in the recent period of severely strained funding for schools. There is some evidence, however, that concern among principals may be growing very gradually.

Principals of schools that serve lower-SES students and principals of schools attended by Black and Latino students on average expressed greater concern about overweight among their students, which is consistent with the fact that adolescent obesity is higher than average in these subpopulations.

A higher percentage of principals were concerned with students' dietary and beverage choices than with student overweight in general. There were no differences in principals' concerns about dietary and beverage choices as a function of school SES or of the race and ethnicity of the student body.

A substantial and gradually growing proportion of secondary schools appear to be making a real effort to improve the drinking and eating habits of their students, which is encouraging. However, about 40 percent of middle school students and 50 percent of high school students were still attending schools that were not making such an effort in 2008, so there remains a great deal of room for improvement. More encouraging is that the proportion of secondary school students in school *districts* reported to be making a real effort to improve these behaviors increased significantly between 2007 and 2008. So the issue seems to be garnering increasing attention among educators.

Principals expressed greater concern about the need to increase students' physical activity than about the need to modify their eating and drinking habits. Principals serving about two-thirds of all secondary school students expressed such concern; but considerably fewer said that their school actually was trying to do something about the problem (only 59% of middle school and 43% of high school students attended such schools in 2008), and even fewer said that their school *district* was trying to do something about the problem (46% and 38%, respectively) in 2008.

The fact that significant proportions of the nation's secondary school principals expressed concern with the problem of overweight among their students provides an important base upon which to build. Principals and other administrators undoubtedly need models of success both for improving student dietary and beverage choices during the school day, as well as for helping their students be more active. Clearly more resources would help, and as we shall see, they may be most needed in schools serving low-SES populations and Black and Latino students. Resources are likely to be in short supply for the foreseeable future, so models that carry only modest costs would appear most promising in the absence of significant new sources of funding.

A number of national initiatives provide resources and technical assistance to help principals, teachers and administrators make the school environment healthier for students. For example, the Team Nutrition program and the HealthierUS School Challenge are supported by the U.S. Department of Agriculture (USDA), and the Alliance for a Healthier Generation offers the Healthy Schools Program. There is certainly room for increased participation in such programs.

School Meals

CHAPTER 4

CHAPTER 4

School Meals

Schools have a very significant impact on their students' nutritional choices and behaviors. According to the third School Nutrition Dietary Assessment Study, in 2005, the average student obtained and consumed one-quarter of their daily energy at school; among those who participated in school meals, the level reached almost 50 percent.[38] Students have access to a wide variety of food and beverage choices at school.

In the middle and high school environments, such food choices are usually defined as either school meals (offered through federal breakfast and lunch programs) or competitive foods (foods and beverages offered outside of meal programs in à la carte cafeteria sales, vending machines, school stores, snack bars/carts and fundraisers). Some important questions to be addressed in the Bridging the Gap initiative are to what extent are the food and beverage choices offered to students in secondary school changing, and to what extent are those changes likely to encourage more healthy consumption?

School Breakfast and Lunch Meals

A nationally representative 2004–07 sample of school principals reported that most middle school students were required to be at school from 7:00 to 9:30 a.m., and most high school students were required to be at school from 7:00 to 10:40 a.m.[39] Most middle and high schools continue classes until well after the noon hour. Thus, student needs for a lunch meal—and possibly breakfast—should be addressed by schools. In the sections below, provision of school breakfast and lunch meals will be discussed in detail. First, however, the federal government requirements as described in the School Breakfast Program[40] and National School Lunch Program[41] will be discussed.

The School Breakfast Program and National School Lunch Program are federally assisted meal programs that are intended to provide students with nutritionally balanced, affordable meals. Schools that take part in the programs receive cash subsidies and donated commodities for each served meal from the U.S. Department of Agriculture (USDA).[42,43] However, in order to participate, schools must offer free or reduced-price meals to eligible students, and the meals served must meet the specified recommendations of the 1995 Dietary Guidelines for Americans of no more than 30 percent of calories from fat and less than 10 percent from saturated fat, as well as provision of one-third of the Recommended Dietary Allowances of protein, Vitamin A, Vitamin C, iron, calcium and calories. Compliance with the standards is determined by averaging the nutritional content of the lunches offered over a school week.[44] While school lunches must meet federal nutrition requirements, decisions about what specific foods to serve and how they are prepared are made by local school food authorities.

Breakfast

Studies have shown that daily breakfast consumption among adolescents is related to lower obesity risk even after considering levels of physical activity and other dietary factors.[45,46] Breakfast consumption has also been tied to better academic performance.[47] In contrast, skipping breakfast has been found to relate to lower macronutrient intake and generally lower nutrition levels.[48] School provision of breakfast may be especially important for low-income youth. A summary of research studies on the subject by Brown et al.[49] indicated that positive relationships with school provision of breakfast may be limited to youth who do not obtain breakfast at home, and that only among low-income children is school breakfast associated with improved nutrition and overall diet.

Schools may or may not offer their students breakfast. Previous research has indicated that during the 2006–07 and 2007–08 school years, more than one-half of middle school students and more than two-thirds of high school students were enrolled in schools where breakfast consumption was addressed in school district policies.[50] If a school does offer breakfast, the program may or may not be part of the School Breakfast Program. Prices charged to eat meals through the School Breakfast Program also vary, with some schools providing breakfast at no charge to all students (referred to as "universal school breakfast"), while most schools utilize a sliding scale based on family income. Participation in the School Breakfast Program has steadily increased since the program was made permanent in 1975. In fiscal year 2008, 10.5 million children participated daily in the School Breakfast Program.[51]

Breakfast: Is it Offered in School?

Middle and high school principals responding to the YES survey were asked if their schools provided breakfast using two questions:

Question: Does your school offer breakfast to students?

Question: Does your school participate in the USDA reimbursable School Breakfast Program?

Response alternatives were yes or no.

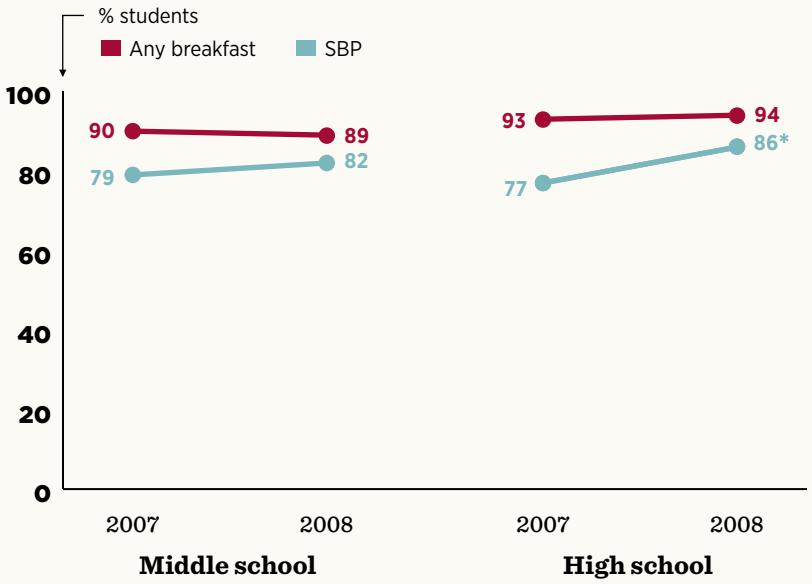
- The opportunity for students to have breakfast at school was very high for both middle and high school students (although high school students were significantly more likely than middle school students to attend a school offering breakfast in 2008). Eighty-nine percent of middle school students and 94 percent of high school students attended schools that offered breakfast in 2008. No significant change in any breakfast availability was observed between 2007 and 2008. (see Figure 4.1)

- Breakfast in 2008 through the School Breakfast Program was available for 82 percent of middle school students and 86 percent of high school students. The differences between middle and high school students were not significant. School Breakfast Program availability for high school students increased significantly from 77 percent in 2007 to 86 percent in 2008. (see Figure 4.1)

- Access to breakfast in 2008 through the School Breakfast Program was significantly higher for students attending low- and mid-SES schools compared to students attending high-SES schools at both the middle (92% and 89% vs. 64%) and high school levels (90% and 90% vs. 77%).

- In 2008, School Breakfast Program meals were also more likely to be available to Black and Latino middle school students than White middle school students (89% Black and 87% Latino vs. 77% White). Among high school students, however, Latino students had higher access to the School Breakfast Program than White or Black students (92% vs. 86% and 79%).

FIGURE 4.1 Percentage of Students Offered Breakfast at School, 2007–2008



SBP: School Breakfast Program

*Difference between 2007 versus 2008 was significant at $p \leq .001$.

Differences between middle and high schools for any breakfast access were significant at $p < .05$ in 2008.

Source: Bridging the Gap, Institute for Social Research, University of Michigan, 2011.

Paying the Price for Breakfast

The School Breakfast Program requires that meals be provided free of charge for children from families with incomes at or below 130 percent of federal poverty level, and schools cannot charge more than 30 cents for a reduced-price breakfast. Children from families with incomes above 185 percent of the federal poverty level must pay full price and schools may set their own costs for full-price meals.[52] In a study of School Breakfast Programs in 23 large urban school districts in the 2005–06 school year, school districts with universal school breakfast programs (those in which breakfast was offered free to all students, regardless of family income level) were found to out-perform other districts in reaching low-income children.[53] Hypotheses regarding the improved participation rates include reducing stigma (e.g., the perception that only low-income students eat breakfast at school), as well as eliminating fee barriers for low-income children.[54]

Food service managers or principals were asked to provide YES with information on the full-price cost of School Breakfast Program meals using the following question:

Question: If your school offers a USDA School Breakfast Program, what is the average *full price* charged for breakfast?

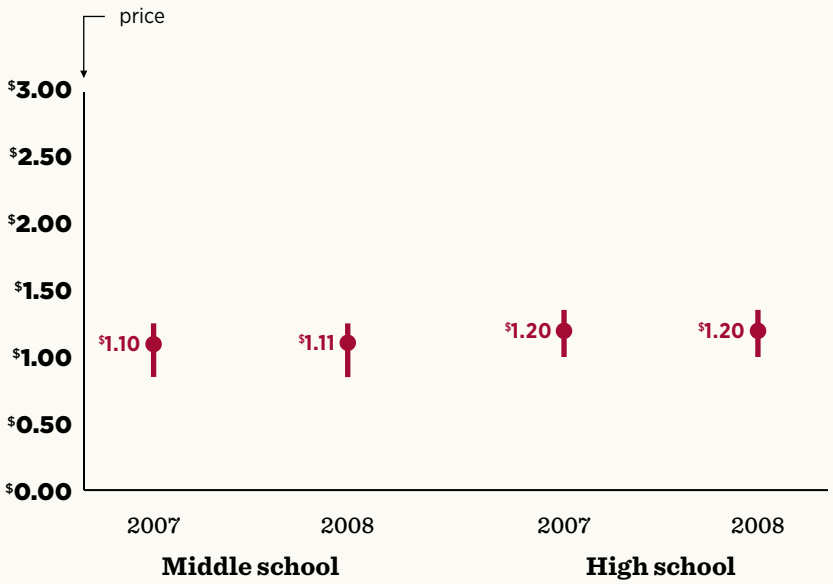
Respondents then recorded the daily price charged.

- In 2008, no principals or food service managers reported providing breakfast free of cost on average for either middle or high schools. In 2007, 1.6 percent of middle school students and 0.5 percent of high school students attended schools where this was the case.

- The average 2008 price paid for a full-price School Breakfast Program meal was $1.11 for middle school students (a low of $0.38 and high of $2.50) and $1.20 for high school students (a low of $0.45 and high of $3.00). (see Figure 4.2)

- The average full price for a School Breakfast Program meal in 2008 was significantly lower for students in low- and mid-SES schools than for high-SES schools. Among middle school students, 41 percent of students in low-SES schools and 49 percent of students in mid-SES schools paid an average of $1.00 or less for a full-price School Breakfast Program meal compared with 22 percent of middle school students in high-SES schools. Respective percentages for high school students were 41 percent, 39 percent, and 22 percent. Differences by race and ethnicity in average full-price paid for breakfast were generally not significant.

FIGURE 4.2 Average Full Price Charged for School Breakfast Program Meal, 2007–2008



Vertical lines represent the interquartile range of average full price charged for School Breakfast Program meal.

The interquartile range shows the interval between the bottom and top quartiles (or quarters of the distribution).

Source: Bridging the Gap, Institute for Social Research, University of Michigan, 2011.

How Many Middle and High School Students Eat Breakfast at School?

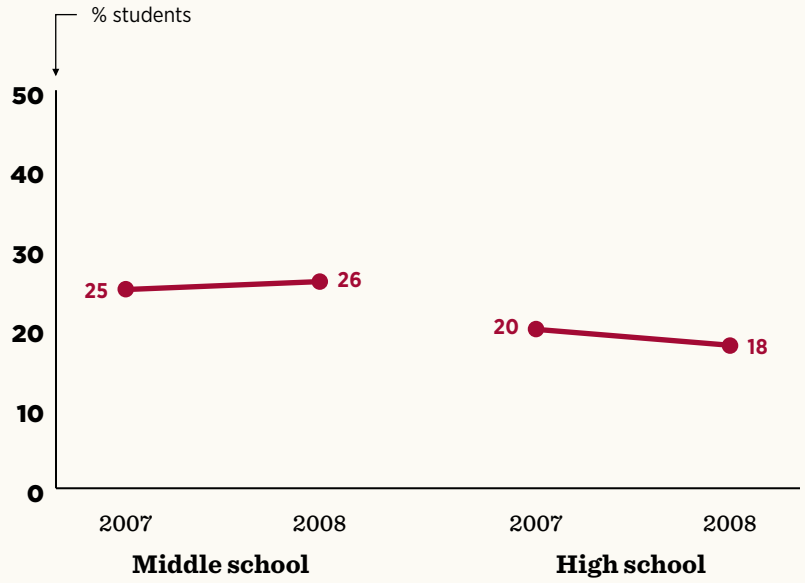
When asked directly about their breakfast consumption habits (regardless of location), less than one-half of U.S. middle and high school students reported consistently eating this important meal: 47 percent of middle school students and only 37 percent of high school students reported eating breakfast nearly every day or every day.[55] In order to measure how many students eat breakfast at school through the YES study, principals were asked:

Question: On a typical day, about what percent of your [target grade 8, 10 or 12] students eat breakfast offered by your school?

The target grade for any school could be *8th, 10th or 12th* grade, depending into which of these three subsamples the school was selected.

- Eating breakfast at school in 2008 was significantly more likely for middle school students than high school students (26% vs. 18%, respectively), with no significant changes between 2007 and 2008. (see Figure 4.3)
- In 2008, in both middle and high schools the percentage of students eating breakfast at school increased significantly and dramatically as the percentage of students eligible for free and reduced-price lunch increased. (see Figure 4.4)
- Eating breakfast at school in 2008 also was strongly related to student race and ethnicity, with Black and Latino students more likely than White students to be in schools where students ate breakfast at school. (see Figure 4.5)

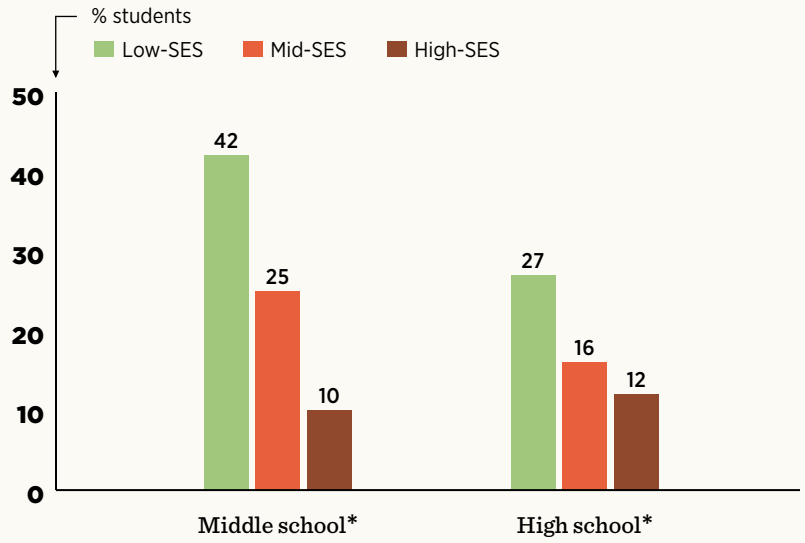
FIGURE 4.3 Percentage of All Students Eating Breakfast Offered by School, 2007–2008



Differences between middle and high schools were significant at $p<.05$ in both 2007 and 2008.

Source: Bridging the Gap, Institute for Social Research, University of Michigan, 2011.

FIGURE 4.4 Percentage of Students Eating Breakfast at School by School Socioeconomic Status, 2008

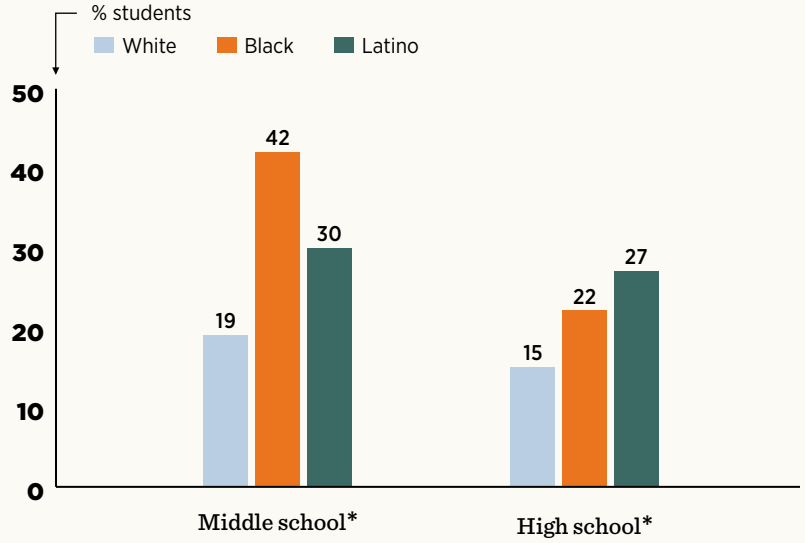


Low-, mid- and high-SES defined based on tertiles of the percentage of students eligible for free and reduced-price lunch.

*Differences between all middle school SES levels were significant at $p \leq .001$; differences between high school low-/mid-SES students versus high-SES students were significant at $p \leq .001$.

Source: Bridging the Gap, Institute for Social Research, University of Michigan, 2011.

FIGURE 4.5 Percentage of Students Eating Breakfast at School by Student Race and Ethnicity, 2008



*Differences between all middle school racial and ethnic groups were significant at $p < .05$. High school White students were significantly different from Black and Latino students at $p < .01$.

Source: Bridging the Gap, Institute for Social Research, University of Michigan, 2011.

Lunch

While breakfast may be eaten outside of school, the usual school day for U.S. middle and high school students encompasses lunch time. During the six to eight hours a day that U.S. students are usually on school grounds, administrators must decide on a variety of factors relating to the lunch meal. These issues include (a) if a lunch meal will be provided in some way or if students will be expected to bring food in from home or other off-campus sources; (b) how much time will be allotted to eating lunch; (c) the costs for school lunch meals; and (d) what foods will be offered in a school lunch meal.

Offering School Lunch

Students obtain approximately one-third of their total daily energy from school lunch.[56] If the child is coming from a home with limited food resources, the proportion of their daily energy obtained from school lunch may well be significantly higher. Schools can participate in the National School Lunch Program or provide other lunch program options. As with the School Breakfast Program, schools participating in the National School Lunch Program receive cash subsidies for meals served, and those meals must meet the federal nutritional guidelines and be offered at free or reduced prices to eligible children. In 2008, more than 30.5 million children obtained lunch each day through the National School Lunch Program.[57]

Lunch availability was measured in the YES survey using two questions:

Question: Does your school offer lunch to students?

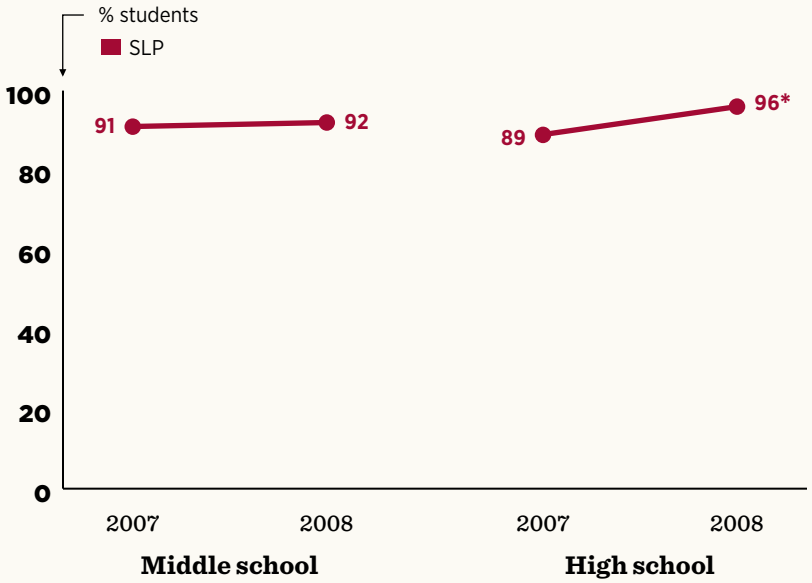
Question: Does your school participate in the USDA reimbursable National School Lunch Program?

Response alternatives were yes and no.

- Both middle and high school students had virtually universal access to some form of lunch at school in 2007 and 2008 (between 99.6% and 100%).

- National School Lunch Program meals were available to most students in 2008: 92 percent of middle school students and 95 percent of high school students. While these percentages did not reflect a significant change from 2007 for middle school students, significantly more high school students had access to National School Lunch Program meals in 2008 than 2007, when 89 percent of high school students had access to the program. (see Figure 4.6)

FIGURE 4.6 Percentage of All Students With Access to the National School Lunch Program, 2007–2008



SLP: National School Lunch Program

*Differences between 2007 versus 2008 were significant at $p<.01$.

Differences between middle and high schools were significant at $p<.05$ in 2008.

Source: Bridging the Gap, Institute for Social Research, University of Michigan, 2011.

Time Allotted for Lunch

In urging schools to improve their efforts to help children develop healthy eating habits and lower food waste, USDA specifically calls for schools to make sure that "meal periods are long enough for students to eat and socialize,"[58] and recommends a minimum time period of at least 20 minutes *after* students receive their food.[59,60] The American School Health Association further clarifies that meal time should be measured based on "seat time" (when students are able to begin eating), and should not include time spent waiting to be served.[61]

A summary of data from five school districts in four states examining how long K–12 students took to eat lunch showed that, regardless of grade, average eating time (not including any socialization or other activities) ranged from seven to 10 minutes.[62] Bussing of trays averaged less than one minute regardless of grade. However, average time spent waiting to be served varied from three to eight minutes.[63] The authors concluded that a 30-minute lunch period, allowing four minutes of travel to and from the cafeteria, 20 minutes at the table, as well as serving and bussing time, may be an ideal time period.[64]

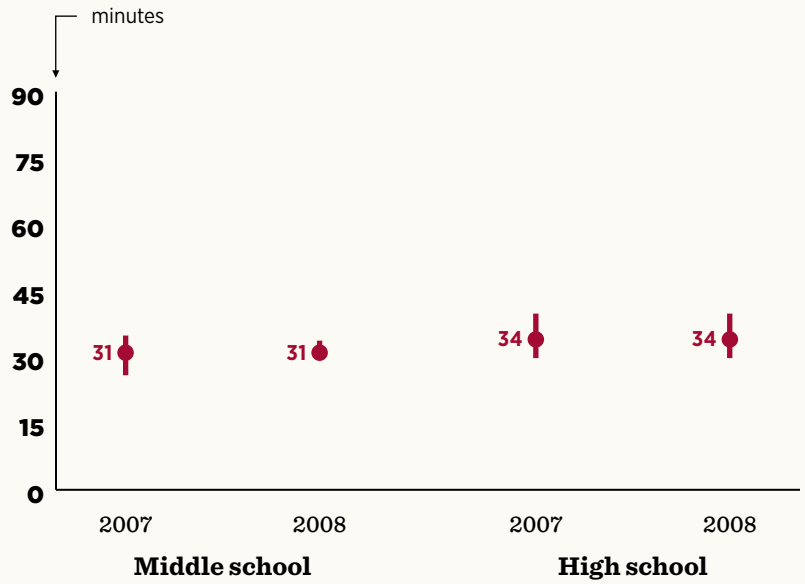
To learn more about the average length of time students were given for lunch, the YES survey asked school principals,

Question: How long is the normal lunch period for [target grade 8th, 10th or 12th] grade students in your school?

Respondents recorded their answers in minutes.

- The average lunch period for middle school students was 31 minutes, shorter than the 34 minute-average for high school students. The difference was statistically significant. (see Figure 4.7) No significant changes between 2007 and 2008 were observed, and no substantive differences were found by either school SES or student race and ethnicity.
- In 2008, less than one-quarter of middle school students (23%) and less than one-fifth of high school students (18%) experienced lunch periods shorter than 30 minutes.

FIGURE 4.7 Average Length of Lunch Period in Minutes, 2007–2008



Vertical lines represent the interquartile range of lunch period length in minutes.

The interquartile range shows the interval between the bottom and top quartiles (or quarters of the distribution).

Differences between middle and high schools were significant at $p<.05$ in 2008.

Source: Bridging the Gap, Institute for Social Research, University of Michigan, 2011.

The Price for School Lunch

Any child attending a school that participates in the National School Lunch Program may purchase a meal through the program. However, the price paid for a National School Lunch Program meal is designed to vary based on family income as a percentage of the national poverty level as noted in Table 4.1.[65,66]

TABLE 4.1 National School Lunch Program Pricing Structure for the 2010–11 School Year

Percentage of Poverty Level	Family Income[i]	National School Lunch Program Price
At or below 130%	At or below $28,665	Free
Between 130% and 185%	Between $28,665 and $40,793	Reduced (no more than $0.40)
Above 185%	Above $40,793	Full price as set by local school food authorities

[i] Income for a family of four.

Source: U.S. Department of Agriculture, 2009.

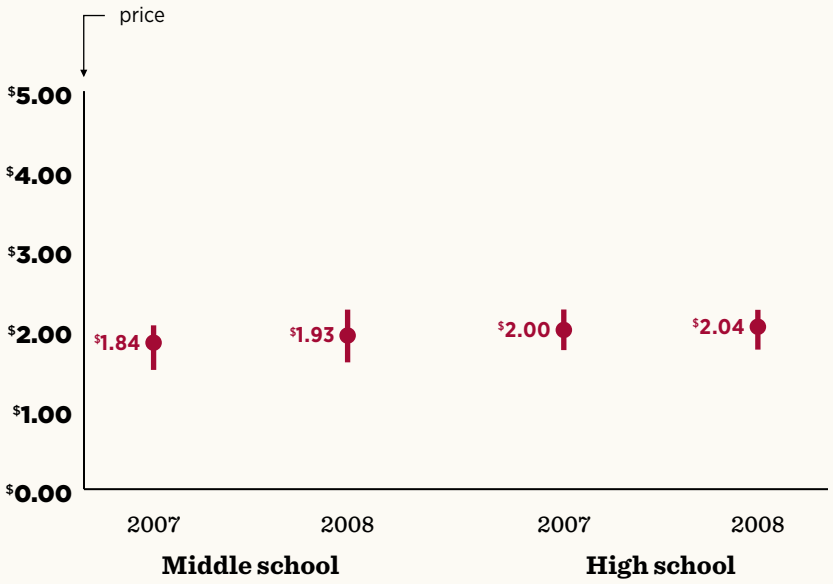
Food service managers or principals were asked to provide information on the full-price cost of National School Lunch Program meals on the YES survey using the following question:

Question: If your school offers a USDA School Lunch Program, what is the average *full price* charged for lunch?

Respondents provided the actual monetary value.

- The average full price charged for a National School Lunch Program meal in 2008 was $1.93 for middle school students and $2.04 for high school students. No significant differences between middle and high school students were found, and prices did not show significant changes between 2007 and 2008. (see Figure 4.8)
- The percentage of students attending schools that charged $1.50 or less for a full-price National School Lunch Program meal decreased ordinally with school SES. Among middle school students in 2008, 35 percent of students at low-SES schools, 24 percent at mid-SES schools and only 3 percent at high-SES schools had a full-price National School Lunch Program meal available for $1.40 or less. Corresponding percentages for high schools students were 29 percent, 12 percent and 5 percent. (see Figure 4.9)
- The percentage of students attending schools that charged $1.50 or less for a full-price National School Lunch Program meal in 2008 varied significantly by student race and ethnicity: 15 percent of White middle school students versus 28 percent of Black students and 32 percent of Latino students attended such schools. Among high school students, the numbers were 13 percent of White, 25 percent of Black and 18 percent of Latino students. (see Figure 4.10)

FIGURE 4.8 Average Full Price Charged for National School Lunch Program Meal, 2007–2008

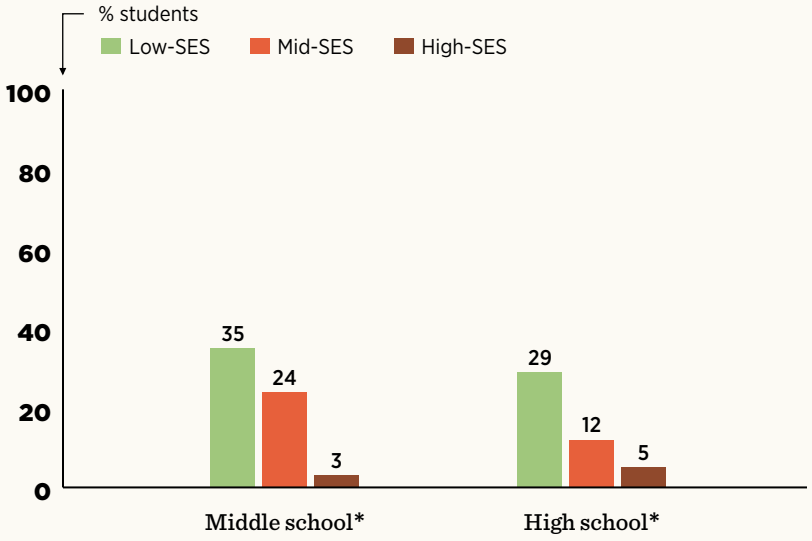


Vertical lines represent the interquartile range of average full price charged for National School Lunch Program meal.

The interquartile range shows the interval between the bottom and top quartiles (or quarters of the distribution).

Source: Bridging the Gap, Institute for Social Research, University of Michigan, 2011.

FIGURE 4.9 Perentage of Students in Schools With National School Lunch Program Average Full Price Meal of $1.50 or Less by School Socioeconomic Status, 2008

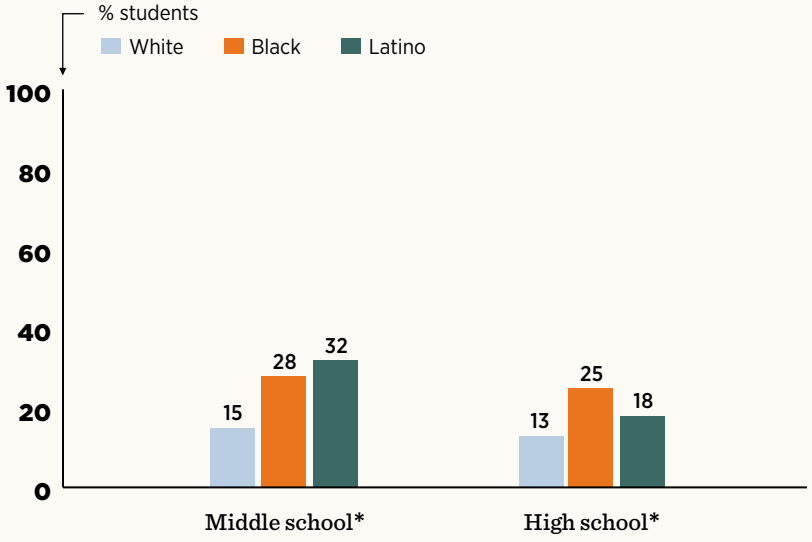


Low-, mid- and high-SES defined based on tertiles of the percentage of students eligible for free and reduced-price lunch.

*Differences between all middle school and high school SES groups were significant at $p<.01$.

Source: Bridging the Gap, Institute for Social Research, University of Michigan, 2011.

FIGURE 4.10 Perentage of Students in Schools With National School Lunch Program Average Full Price Meal of $1.50 or Less by Student Race and Ethnicity, 2008



*Differences between White students versus Black and Latino students were significant at $p<.05$.

Source: Bridging the Gap, Institute for Social Research, University of Michigan, 2011.

Food and Beverages Offered at Lunch

As noted previously, the National School Lunch Program nutritional guidelines specify that no more than 30 percent of the calories from a lunch come from fat, and less than 10 percent from saturated fat. In addition, National School Lunch Program meals are required to provide one-third of the recommended amounts of protein, Vitamins A and C, iron, calcium and calories.[67] The latest national evaluation of National School Lunch Program meals through the School Nutrition Dietary Assessment Study found that most schools offer and serve meals that meet the protein, vitamin and mineral standards,[68] and student participation in the National School Lunch Program was related to reduced levels of nutrient inadequacy.[69] Further, the School Nutrition Dietary Assessment Study found that consumption of milk, fruit and vegetables is higher—and consumption of competitive foods is significantly lower—among students who eat school lunch.[70,71] However, more than two-thirds of schools have been found not to meet National School Lunch Program standards for energy from fat or saturated fat in average lunch meals, and meals often have high levels of sodium and low levels of fiber.[72]

The YES study investigated the availability of a variety of school lunch food and beverage items by asking food service managers or principals the following:

Question: Please indicate how often the following *beverages* are available to students as part of your *school lunch meal* (not à la carte) in your school.

Question: Please indicate how often the following *food items* are available to students as part of your *school lunch meal* (not à la carte) in your school.

Question: During a typical week, on how many days are fast food items from commercial chains or other vendors (such as Pizza Hut, Taco Bell, others…) offered to students for school lunch meals?

For the first two questions, respondents were instructed to indicate if each item listed was available never; some days; or most or every day. Responses were combined to indicate if various types of items were ever available. For the last question on commercial fast food availability, respondents were instructed to answer in days per week; responses were then recoded into any versus none. Because a primary goal of these questions was to investigate the food and beverage items available through the National School Lunch Program, *the data reported here are limited only to students whose schools report participation in the National School Lunch Program*. As noted above, in 2008, 92 percent of middle school students and 96 percent of high school students attended schools that participated in the National School Lunch Program.

LUNCH MEAL BEVERAGE AVAILABILITY AT USDA SCHOOL LUNCH PROGRAM PARTICIPATING SCHOOLS

The YES survey asked about the availability of 10 beverage items/categories offered as part of the school lunch meal. These items were distinguished from being offered à la carte. To condense the data for reporting, beverages were grouped based on the Alliance school beverage guidelines, which are described in Table 4.2.[u, 73] Data on the availability of regular soft drinks are presented separately as well as combined within beverage categories. Table 4.2 provides definitions of the beverage coding categories used by the Alliance, and Figure 4.11 presents results from the YES survey by school level and year.

[u] More detailed information about the Alliance school beverage guidelines can be found in Chapter 5.

TABLE 4.2 Definitions of School Lunch Meal Beverage Categories

Beverages	
Alliance beverages[i]	Any one or more of: bottled water; 100% fruit or vegetable juice with no added sweeteners; low-fat (1%) or non-fat (skim) milk, including low-fat flavored milk
Additional high school Alliance beverages[ii]	Any one or more of: diet soft drinks; other no-calorie or very low-calorie beverages; "light" juices
Sugar-sweetened beverages	Any one or more of: regular soft drinks; sports drinks; fruit drinks that are not 100% fruit juice and that are high in calories
High-fat/flavored milks	Any one or more of: whole or 2% milk, or flavored milk

Categories include only items offered to students as part of the school lunch meal (*not* à la carte).

[i] Beverages that meet the Alliance guidelines for *both* middle and high school.

[ii] Beverages that meet the additional Alliance guidelines for high school only.

Source: Alliance for a Healthier Generation, 2009.

- *Alliance-approved beverages*. Both middle and high school students had essentially universal access to Alliance beverages as part of the National School Lunch Program meal (98% for both middle and high school students in 2008).

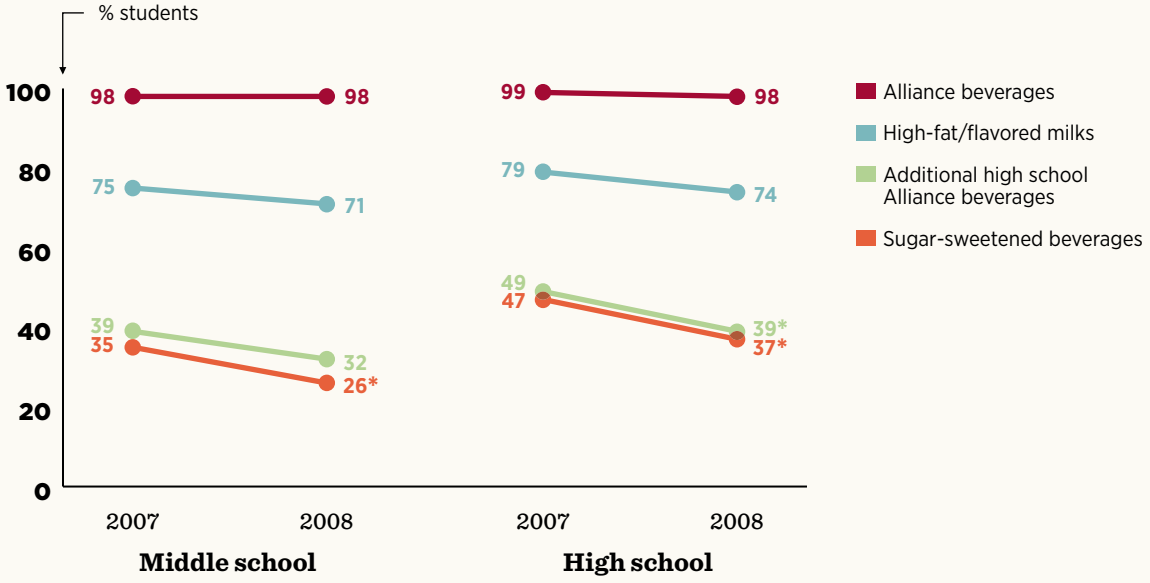
- *Additional Alliance beverages*. Access to the additional Alliance beverages—those judged by the Alliance to be permissible for high schools but not for elementary or middle schools—was much less prevalent. These include diet soft drinks, light fruit drinks, and other low-calorie or no-calorie beverages. In 2008, 32 percent of middle school students and 39 percent of high school students had access to these beverages as part of the lunch meal. However, high school access had significantly decreased from the 2007 levels of 49 percent. The decrease was concentrated among students in low-SES schools where access dropped from 52 percent to 32 percent.

- *High-fat/flavored milks*. Whole milk, 2% milk or flavored milks, were available as part of the school lunch meal for 71 percent of middle school students and 74 percent of high school students in 2008. No significant differences by school level or over time were observed.

- *Sugar-sweetened beverages.* In 2008, significantly more high school students (37%) than middle school students (26%) were able to obtain sugar-sweetened beverages as part of the school lunch meal. However, access had decreased significantly from 2007 levels for both (47% high school; 35% middle school).

- *Regular soft drinks*. Student access to regular soft drinks, such as Coke, Pepsi or Dr. Pepper, offered as part of the school lunch meal was very limited. In 2008, 0.4 percent of middle school students and 3 percent of high school students had such access, with no significant differences by school level or time.

FIGURE 4.11 Percentage of Students With Access to Various Types of Beverages in the School Lunch Meal, 2007–2008



Data reported only for students whose schools participated in the National School Lunch Program.

Availability was defined as: offered as part of the school lunch meal "some days" or "most or every day." Alliance beverages include those that meet guidelines for both middle and high school. Additional high school Alliance beverages include those that meet additional Alliance guidelines for high school.

*Differences between 2007 versus 2008 were significant at $p<.05$.

Differences between middle and high school access to sugar-sweetened beverages were significant at $p<.05$ in 2007 and 2008.

Source: Bridging the Gap, Institute for Social Research, University of Michigan, 2011.

LUNCH MEAL FOOD AVAILABILITY AT USDA SCHOOL LUNCH PROGRAM PARTICIPATING SCHOOLS

The YES survey asked about commercial fast food availability as well as the availability of 18 food items/categories offered as part of the school lunch meal. These items were distinguished from being offered à la carte. Food items were grouped based on categories previously used in reporting on these data.[74] Table 4.3 provides definitions of the food coding categories used.

TABLE 4.3 Definitions of School Lunch Meal Food Categories

Foods	
Fruits and vegetables	Any one or more of: fresh fruit; other fruit (such as dried or canned fruit); vegetables (excluding potatoes)
Salads	Any one or more of: pre-made, main course salads; salad bar
Whole grains	
Pizza	
French fries	Deep-fried fries (including fries that are just reheated)
Commercial fast foods	Fast food items from commercial chains or other vendors (such as Pizza Hut, Taco Bell and others)

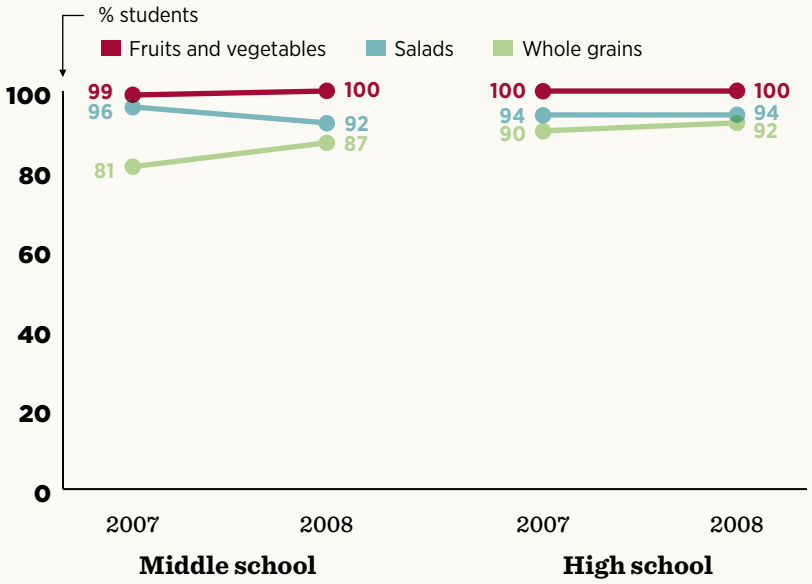
Categories include only items offered to students as part of the school lunch meal (*not* à la carte).

Source: Bridging the Gap, Institute for Social Research, University of Michigan, 2011.

Healthy lunch meal foods (see Figure 4.12)

- *Fruits and vegetables*. Essentially all middle and high school students in 2008 had access to fruits and vegetables as part of the school lunch meal.
- *Salads*. Salads were also widely available in 2008, with 92 percent of middle school students and 94 percent of high school students able to obtain pre-made, main course salads or salad bar as part of the offered lunch meal. There were no significant differences by school level or over time.
- *Whole grains*. Whole grains were available as part of the lunch meal in 2008 for significantly more high school students (92%) than middle school students (87%).
- Access to the healthy lunch meal foods examined was essentially equal for students across school SES levels for both middle and high school in 2008, and was also equitable based on student race and ethnicity among high school students. Among middle school students, however, access to salads and whole grains in the school lunch meal was significantly higher for White students in 2008 (94% and 89%, respectively) than for Black students (85% and 79%, respectively). No significant differences between White and Latino students were found.

FIGURE 4.12 Percentage of Students With Access to Healthy Lunch Meal Foods, 2007–2008



Data reported only for students whose schools participated in the National School Lunch Program.

Availability was defined as: offered as part of the school lunch meal "some days" or "most or every day."

Differences between middle and high school access to whole grains were significant at $p<.05$ in 2007 and 2008.

Source: Bridging the Gap, Institute for Social Research, University of Michigan, 2011.

Less healthy lunch meal foods (see Figure 4.13)

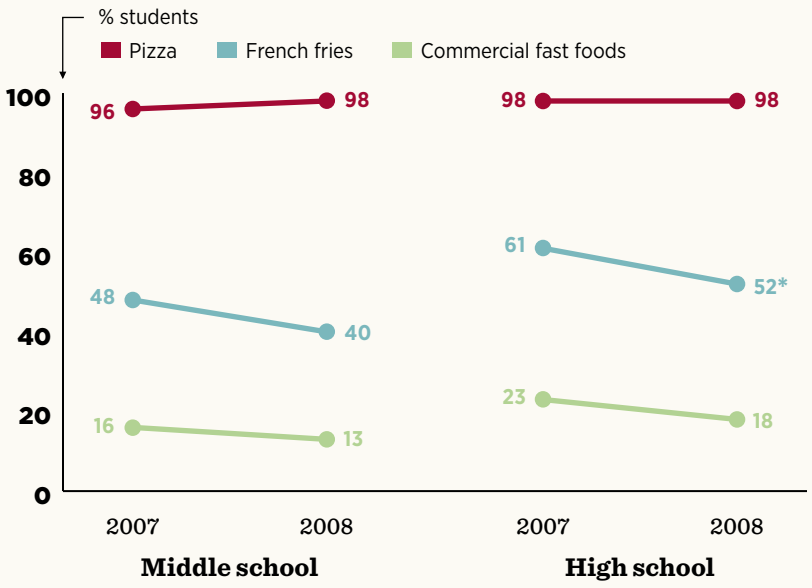
- *Pizza.* Access to pizza as part of the school lunch meal on at least some days was virtually universal for middle and high school students (98% for both in 2008). Obtaining pizza as part of the school lunch meal most or every day was possible for 39 percent of middle school students and 50 percent of high school students.

- *French fries*. In 2008, 40 percent of middle school students and 52 percent of high school students had access to french fries on at least some days as part of the school lunch meal. Access for high school students was significantly higher. However, among high school students such access decreased significantly from 2007 levels of 61 percent; and a decrease approaching significance was observed for middle school students (48% in 2007). Obtaining french fries as part of the school lunch meal most or every day was possible for 8 percent of middle school students and 22 percent of high school students in 2008.

- *Commercial fast foods*. Thirteen percent of middle school students and 18 percent of high school students attended schools that allowed fast food items from commercial chains or other vendors to be sold as part of the school lunch meal during the week in 2008. No significant differences were observed between middle and high schools, or between 2007 and 2008.

- Access to pizza, french fries, and commercial fast foods appeared to be relatively equal based on school SES in 2008. French fries were available to significantly fewer Latino middle (34%) and high school (40%) students than Black middle school students (50%), or either White or Black high school students (53% and 63%, respectively). In contrast, a higher percentage of Latino middle school students (22%) had access to commercial fast foods than either White or Black middle school students (11% and 10%, respectively) in 2008.

FIGURE 4.13 Percentage of Students With Access to Less Healthy Lunch Meal Foods, 2007–2008



Data reported only for students whose schools participated in the National School Lunch Program.

The availability of pizza and french fries was defined as: offered as part of the school lunch meal "some days" or "most or every day." Commercial fast food availability was defined as: sold one or more days per week.

*Difference between 2007 versus 2008 was significant at $p<.05$.

Differences between middle and high school access to french fries were significant at $p<.05$ in 2007 and 2008.

Source: Bridging the Gap, Institute for Social Research, University of Michigan, 2011.

LUNCH MEAL SNACK ITEM AVAILABILITY AT USDA SCHOOL LUNCH PROGRAM PARTICIPATING SCHOOLS

The YES survey asked about the availability of seven snack items/categories offered as part of the school lunch meal. These were distinguished from being offered à la carte. Items were grouped as either reduced-fat snacks or regular sugar/regular fat snacks. Table 4.4 describes the snack coding definitions and Figure 4.14 shows results by school level and year.

TABLE 4.4 Definitions of School Lunch Meal Snack Categories

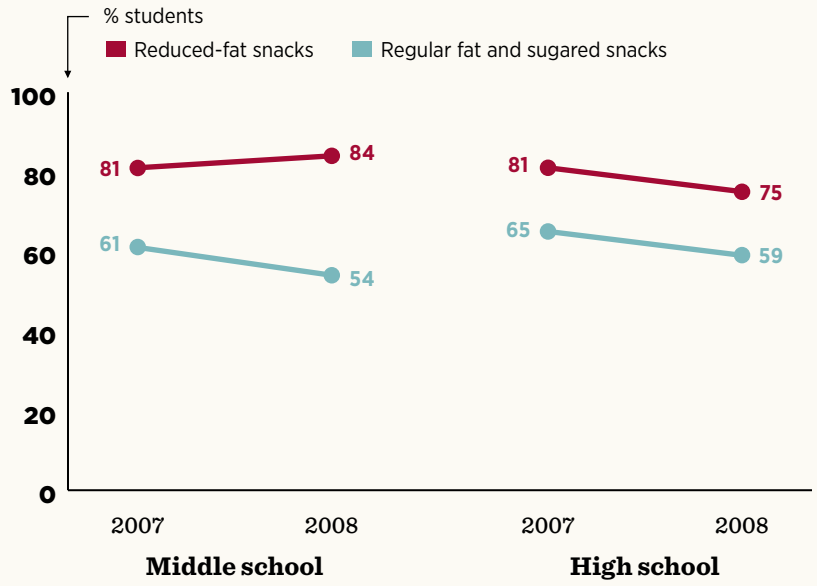
Snacks	
Reduced-fat snacks	Any one or more of: low-fat salty snacks, such as pretzels, baked chips or other low-fat chips; low-fat cookies, crackers, cakes, pastries, other low-fat baked goods; low-fat or fat-free ice cream, frozen yogurt, sherbet, or low-fat or non-fat yogurt
Regular sugar/regular fat snacks	Any one or more of: candy; salty snacks that are not low in fat, such as regular potato chips; cookies, crackers, cakes or other baked goods that are not low in fat; ice cream or frozen yogurt that is not low in fat

Categories include only items offered to students as part of the school lunch meal (*not* à la carte).

Source: Bridging the Gap, Institute for Social Research, University of Michigan, 2011.

- *Reduced-fat snacks*. In 2008, middle school students had significantly higher access to reduced-fat snacks as part of the school lunch meal than did high school students (84% vs. 75%). Access did not show significant change between 2007 and 2008.
- *Regular sugar/regular fat snacks*. Regular sugar/regular fat snacks were available as part of the school lunch meal for 54 percent of middle school students and 59 percent of high school students in 2008, and levels of access had not significantly changed from 2007.
- Middle school students attending low-SES schools had significantly lower access to regular sugar/regular fat snacks in the school lunch meal than did students in mid- or high-SES middle schools (43% in low-SES vs. 60% for both mid- and high-SES). Latino students in middle schools had significantly lower access to such snacks than did White students (42% vs. 61%) in 2008.

FIGURE 4.14 Percentage of Students With Access to Lunch Meal Snack Items, 2007–2008



Data reported only for students whose schools participated in the National School Lunch Program.

Availability was defined as: offered as part of the school lunch meal "some days" or "most or every day."

Differences between middle and high school access to reduced-fat snacks were significant at $p<.05$ in 2008.

Source: Bridging the Gap, Institute for Social Research, University of Michigan, 2011.

How Many Middle and High School Students Eat a School Lunch Meal?

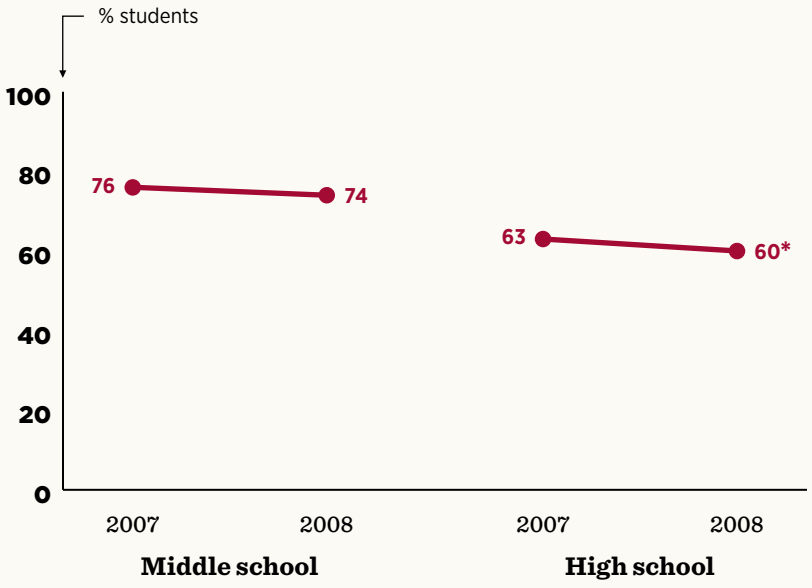
In order to measure how many students eat lunch at school, the YES study asked principals:

Question: On a typical day, about what percent of your [target grade 8, 10 or 12] students eat lunch offered by your school?

Respondents recorded their answers as percentage of students.

- Eating lunch at school in 2008 was significantly more likely for middle school students than high school students (74% vs. 60%, respectively), with some decrease for high school students from the 2007 level of 63 percent. (see Figure 4.15)
- The percentage of students eating lunch at school rose significantly and ordinally with the percentage of middle school students eligible for free and reduced-price lunch. (see Figure 4.16) In 2008, 67 percent of middle school students at high-SES schools ate a lunch offered by the school, 74 percent in mid-SES schools and 82 percent in low-SES schools. Among high school students, the differences in eating school lunch were significant between students in high-SES schools (56%) and low-SES schools (65%). Such findings agree with prior research showing that overall National School Lunch Program participation rates for all students, as well as students eligible for free or reduced-price lunches, was positively related to increased school-level numbers of free lunch eligible students.[75]
- In contrast to eating school breakfast, eating school lunches was related to student race and ethnicity only among middle school students, with Black students being more likely than White or Latino students to eat school lunches (81% vs. 72% and 75%). (see Figure 4.17)

FIGURE 4.15 Percentage of All Students Eating Lunch Offered by School, 2007–2008

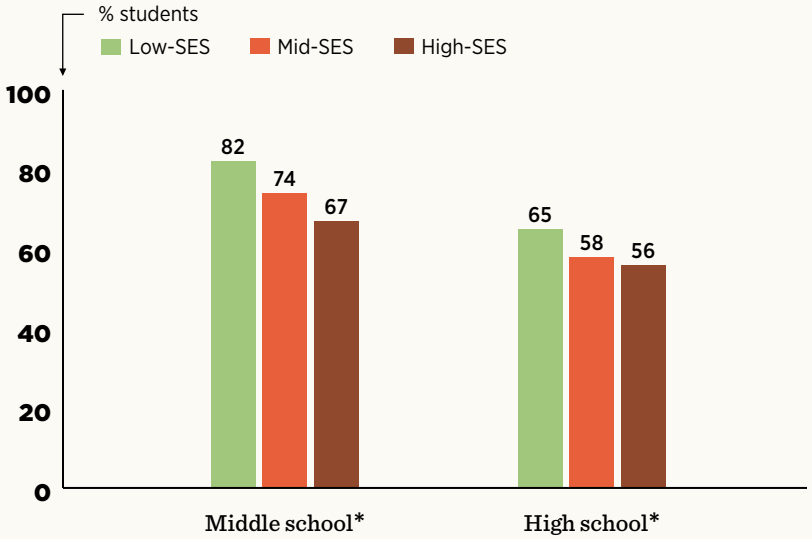


*Difference between 2007 versus 2008 was significant at $p<.05$.

Differences between middle and high school were significant at $p<.001$ in 2007 and 2008.

Source: Bridging the Gap, Institute for Social Research, University of Michigan, 2011.

FIGURE 4.16 Percentage of All Students Eating Lunch Offered by School by School Socioeconomic Status, 2008

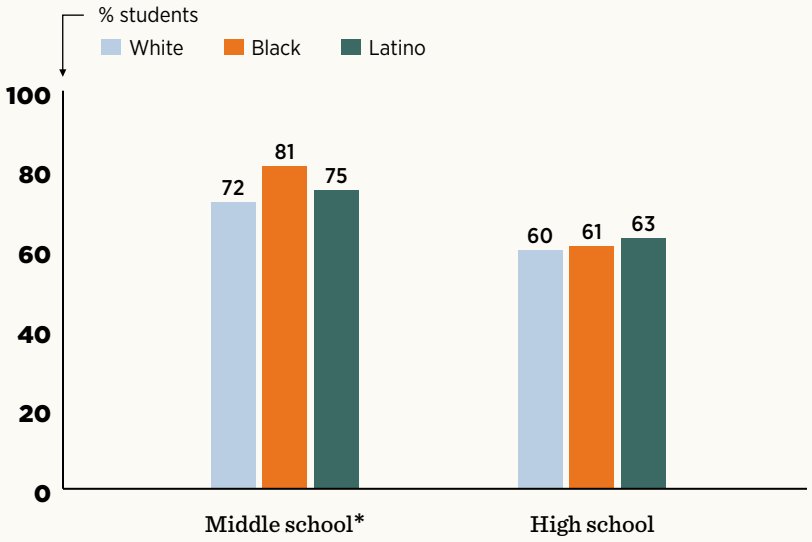


Low-, mid- and high-SES defined based on tertiles of the percentage of students eligible for free and reduced-price lunch.

*For middle school, differences among all SES groups were significant at $p<.05$. For high school, differences between low-SES versus high-SES levels were significant at $p<.05$.

Source: Bridging the Gap, Institute for Social Research, University of Michigan, 2011.

FIGURE 4.17 Percentage of All Students Eating Lunch Offered by School by Student Race and Ethnicity, 2008



*Differences between Black versus White and Latino middle school students were significant at $p<.05$.

Source: Bridging the Gap, Institute for Social Research, University of Michigan, 2011.

The School Food Policy Environment

The nutrition environment in any particular school is the result of a complex array of national, state, district, school and community factors. This section will focus on school nutrition policies and practices that define the food environment in the school, covering both school meals and competitive foods. Areas to be discussed include (a) school participation in the national Team Nutrition initiative; (b) the organizational level at which primary decision-making occurs for food service provision; and (c) provision of menus and nutrition information to both parents and students to encourage healthier eating.

Participation in the National Team Nutrition Initiative

In 1995, USDA published the School Meals Initiative for Healthy Children with the goal of improving school meal quality through steps such as requiring school meals to meet USDA Dietary Guidelines.[76] In order to help ensure that schools were able to implement the policy, USDA developed Team Nutrition, which (a) provides food service professionals with training and technical assistance; (b) provides students and parents with nutrition education; and (c) involves school administrators and community partners in supporting healthy exercise and eating habits.[77] Team Nutrition specifies roles and responsibilities for the federal government, state agencies and school districts. School-level roles and responsibilities accompanying Team Nutrition participation are defined as follows:

> "Offer a variety of healthy menu choices. Provide behavior-based nutrition education in pre-K through grade 12. Establish policy and provide resources that ensure a school environment supportive of healthy eating and physical activity. Involve parents and the community in Team Nutrition activities that reinforce Team Nutrition messages. Establish partnerships among teachers, food service staff, school administrators, parents, community leaders and the media."[78]

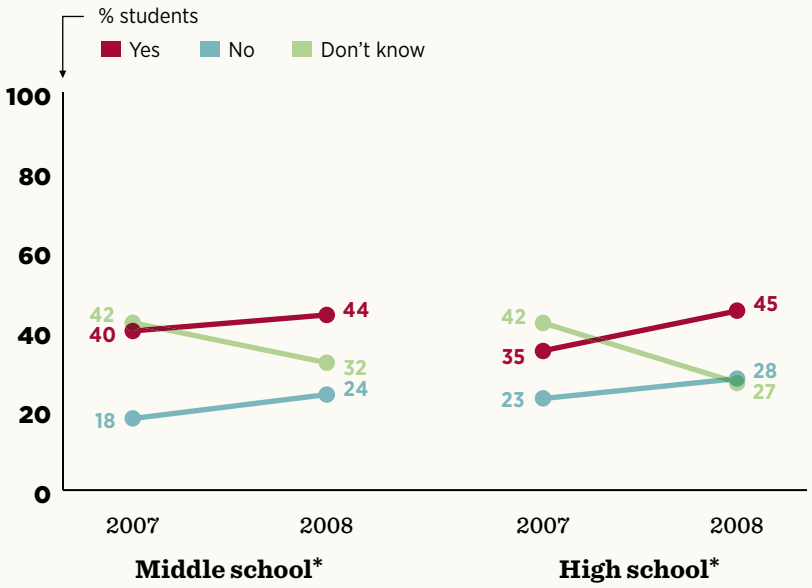
An early evaluation of Team Nutrition found that school participation in the initiative was associated with small but significant improvements in student nutrition knowledge, motivations to eat healthier and actual eating behaviors.[79] In fiscal year 2009, Team Nutrition awarded more than $5.8 million to 18 states for training grants.[80]

In the YES study we asked food service managers or principals:

Question: Does your school participate in the USDA-sponsored Team Nutrition program?

- In 2007, a substantial percentage of students attended schools in which the principal did not know if the school participated in Team Nutrition (42% for both middle and high school). (see Figure 4.18)
- By 2008, significantly fewer students attended schools where the principal did not know about their school's participation (32% for middle school, 27% for high school). Because the samples of schools in those two years are largely overlapping, it is possible that being asked the question in 2007 prompted many to learn the answer by the time of the following year's survey.
- The decrease in the percentage of students in schools whose principals did not know about their school's Team Nutrition participation was balanced by increases in the percentage of students in schools whose principals reported *not participating,* as well as increases in the percentage *participating.* It appears that in 2008, principals were more knowledgeable about Team Nutrition; however, the actual ratio of schools participating versus not participating did not change substantially.
- By 2008, 44 percent to 45 percent of middle and high school students attended schools where the principals stated that the school participated in Team Nutrition.

FIGURE 4.18 Percentage of Students Attending Schools That Participated in Team Nutrition, 2007–2008



*Differences between 2007 versus 2008 were significant at $p<.05$.

Source: Bridging the Gap, Institute for Social Research, University of Michigan, 2011.

The Locus of Nutrition Decision-Making

Like all other organizational entities, schools exist within a broader system. As described by Suarez-Balczar and colleagues,[81] the immediate components of a school system include parents, teachers, students, principals, district superintendents and the community at-large. Additional relevant components for the current discussion include state agencies and state and federal governments. Decisions relevant to nutrition may be made at very different levels from one school to another. Efforts to change the school nutrition system often involve complex collaborations involving multiple levels of organizational involvement.[82]

School food service providers are in charge of planning, ordering and preparing foods sold in the cafeteria, including federal school breakfast and lunch meals as well as à la carte cafeteria sales. The providers can range from school-specific staff to large corporate entities working across multiple states. According to the CDC's 2006 School Health Policies and Programs Study (SHPPS), the primary responsibility for deciding which foods to order was held by the school district in 38 percent of schools, by school staff in 37 percent of schools, and by food service management companies in 22 percent of schools.[83]

YES investigated the issue of food service provision by asking school principals:

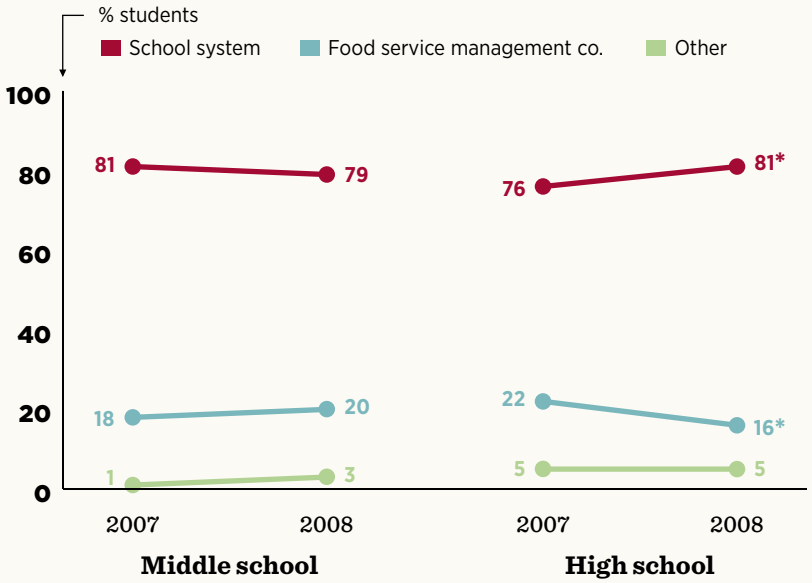
Question: Who provides the food service at this school?

Available responses included: school system food service; food service management company; and other.

- *The school system*. Most students were affected by food service decisions made by the school system. In 2008, 79 percent of middle school students and 81 percent of high school students attended schools in which the school system provided food service. The differences between middle and high school percentages were not significant. (see Figure 4.19) No significant change between 2007 and 2008 was observed for middle school students, but there was a significant increase for high school students when compared with 2007 levels of 76 percent. This increase was specifically observed for high school students attending high-SES schools (from 65% in 2007 to 80% in 2008), and for White high school students (from 74% to 80%).

- *Food service management companies*. In 2008, 20 percent of middle school students and 16 percent of high school students attended schools where food service management companies were involved in service provision. The differences between middle and high school percentages were not significant. (see Figure 4.19) The percentage of high school students attending schools with food service management involvement decreased significantly from 22 percent in 2007 to 16 percent in 2008 Again, the high school decrease was concentrated in high-SES schools (from 31% in 2007 to 19% in 2008); however, it was relatively equally distributed by student race and ethnicity.

FIGURE 4.19 Percentage of Students With Provision of School Food Service Through the School System versus A Food Service Management Company, 2007–2008



*Differences between 2007 versus 2008 were significant at $p<.05$.

Source: Bridging the Gap, Institute for Social Research, University of Michigan, 2011.

To determine how the school system was involved in food service provision, food service managers or principals were asked:

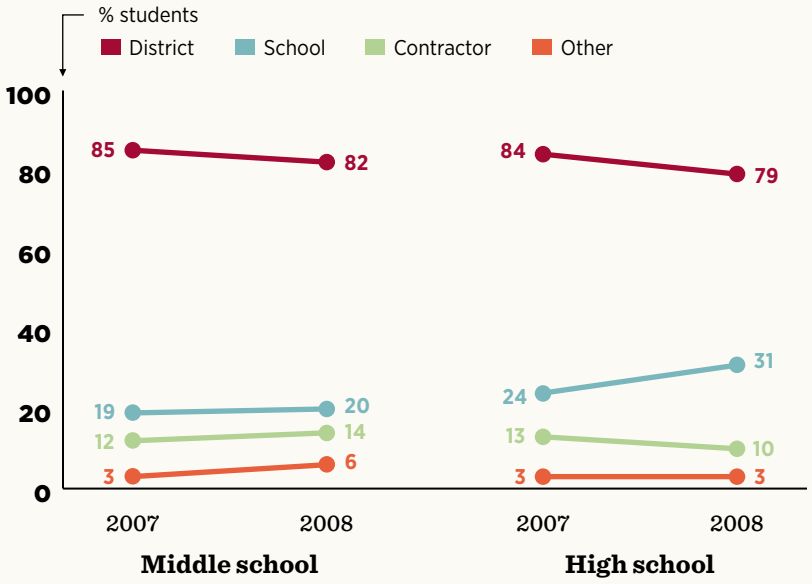
Question: At what level are decisions about menus and food service made?

Response options included: at the school level; at the district level; external contractor; and other. Respondents were instructed to check all that applied.

- In 2008, a large majority of students (82% middle school, 79% high school) attended schools where nutrition-related decisions were made at the district level. Decisions at the school level represented a lower percentage of students (20% middle school, 31% high school), followed by external contractors (14% middle school, 10% high school). Almost no students attended schools where a structural level other than the three already noted was involved in making decisions about menus and food services for the school (6% middle school, 3% high school). (see Figure 4.20)

- No significant changes in decision-making level between 2007 and 2008 were observed for middle or high school students. In 2008, school-level decision making was significantly less likely for students in low-SES high schools (19%) than students attending mid or high-SES high schools (33% and 40%, respectively). In middle schools, White students were more likely than Black students to attend schools where the menu and food service decision-making involved the school (22% vs. 12%). In high school, White students were significantly more likely than Black or Latino students to attend such schools (36% vs. 18% and 24%).

FIGURE 4.20 Percentage of Students Attending Schools With Various Decision-Making Levels for Menu and Food Service Issues, 2007–2008



Source: Bridging the Gap, Institute for Social Research, University of Michigan, 2011.

Providing Menus and Nutrition Information to Encourage Healthier Eating

The Nutrition Labeling and Education Act of 1990 required that all packaged foods and beverages be labeled with standardized nutrition information. However, such information was not required for foods that are not pre-packaged—including items served in school cafeterias either through the federal school breakfast and lunch programs or à la carte. According to a summary of research on menu labeling,[84] such information does reduce consumers' intentions to purchase unhealthy items. A few studies have found that labeling improves healthy item selection, including among adolescents ages 11 to 18.[85] However, other reviews of this issue in the literature have found weak or inconsistent results.[86]

Food service managers or principals were asked:

Question: During this school year, has your school district or school provided…

a) …menus to students in your school?
b) …information to students on the nutrition and caloric content of foods available to students?
c) …menus to parents of students in your school?
d) …information to parents on the nutrition and caloric content of foods available to students?

Response alternatives for each part were yes or no.

- For both 2007 and 2008, a large majority of all students attended schools where menus were given to students *and* parents, but provision of nutrition and caloric information was less likely. (see Figure 4.21)

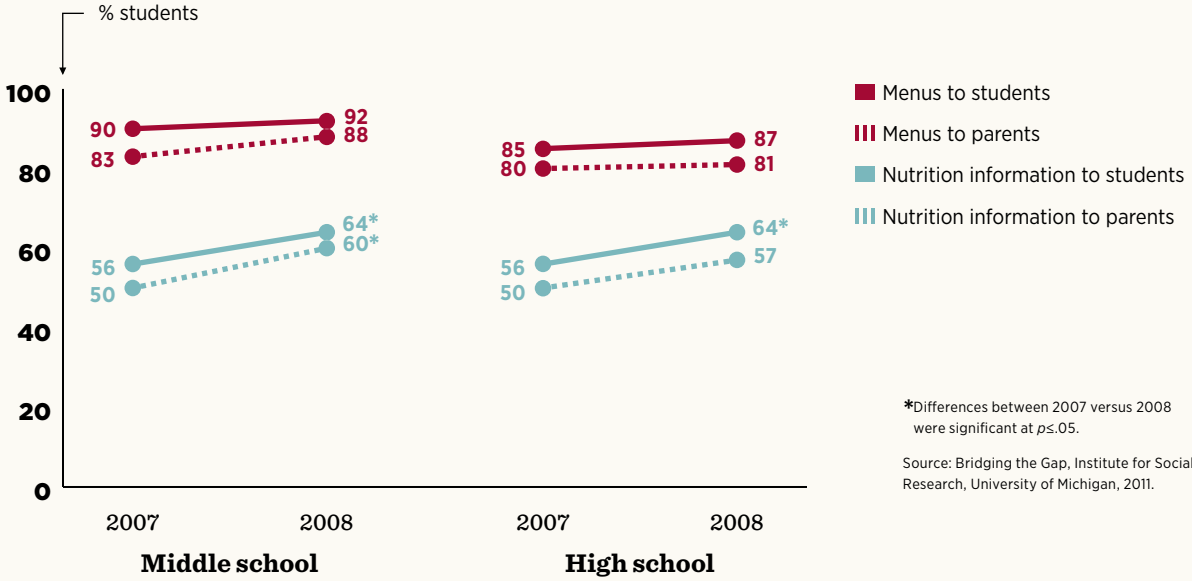
- In 2008, 92 percent of middle school students and 87 percent of high school students attended schools where menus were provided to students; the percentages for providing menus to parents for the same year were 88 for middle school and 81 for high school students. The differences between middle and high schools and between 2007 and 2008 were not significant. (see Figure 4.21)

- In 2008, menus were less likely (79%) to be provided to students in low-SES high schools than in high-SES high schools (93%). (see Figure 4.22) Further, Black and Latino high school students attended schools that were less likely than those attended by White high school students to have access to menus (78% and 80% vs. 91%). No such subgroup differences were found in middle schools.

- Parents' access to menus was even more strongly related to school SES and race and ethnicity than student menu access. In 2008, menus were provided to parents of significantly fewer middle and high school students in low-SES schools than high-SES schools (81% vs. 92% for middle school; 73% vs. 89% for high school). (see Figure 4.22) Both middle and high school White students were more likely than Black or Latino students to attend schools that provided parents with menus (middle school–91% White; 82% Black; 84% Latino; high school–87% White; 70% Black; 74% Latino).

- In 2008, 64 percent of both middle school and high school students attended schools where nutrition and caloric information was given to students; slightly fewer had such information provided to their parents (60% for middle school; 57% for high school). (see Figure 4.21) The 2008 data show a significant increase over 2007 for providing nutrition and caloric information to both middle and high school students, and show a similar increase for providing information to parents for middle school students. Increases for high school students approached traditional significance levels with p=.07. No school SES or race and ethnicity differences were observed.

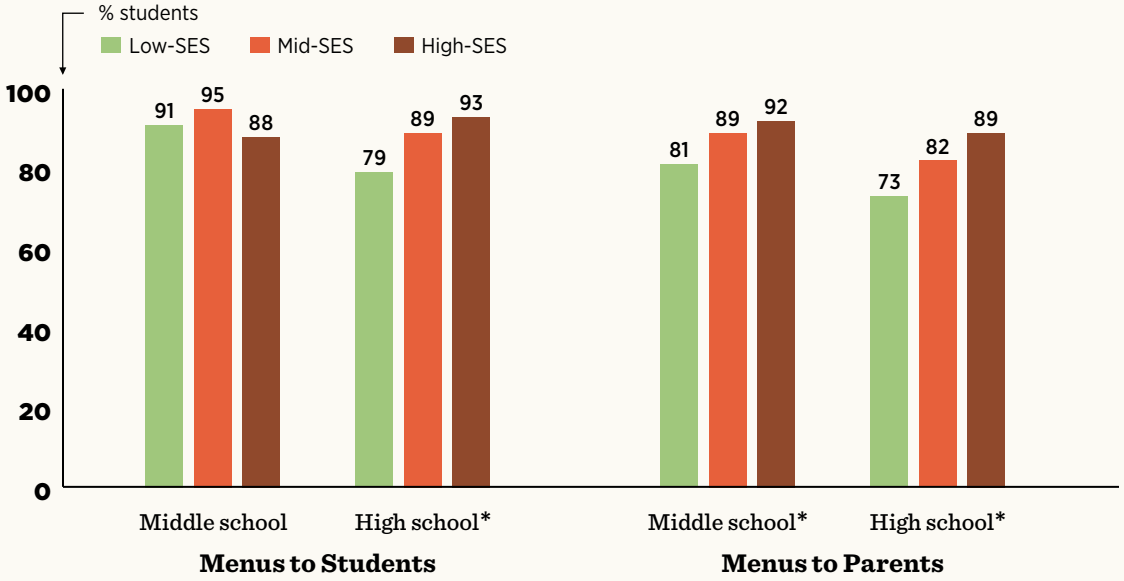
FIGURE 4.21 Percentage of Students Attending Schools That Provided Menus and Nutrition/Caloric Information to Students and Parents, 2007–2008



*Differences between 2007 versus 2008 were significant at $p \leq .05$.

Source: Bridging the Gap, Institute for Social Research, University of Michigan, 2011.

FIGURE 4.22 Percentage of Students Attending Schools That Provided Menus to Students and Parents by School Socioeconomic Status, 2008



Low-, mid- and high-SES defined based on tertiles of the percentage of students eligible for free and reduced-price lunch.

*Differences between low-SES versus high-SES students were significant at $p < .05$.

Source: Bridging the Gap, Institute for Social Research, University of Michigan, 2011.

Conclusions, Implications and Opportunities

The current study underscores the important role that school meals play in the nutritional intake of U.S. secondary school students. In 2008, principals reported one-quarter of middle school students ate breakfast at school and almost three-fourths ate lunch at school. That same year, principals estimated 18 percent of high school students ate breakfast and 60 percent ate lunch at school. Noteworthy is the fact that the proportion of students in high schools who had access to the National School Lunch Program increased significantly in 2008. Further, as the percentage of students eligible for free and reduced-price lunch increased, both breakfast and lunch consumption increased significantly, indicating that school meals are an especially important source of nutrition for students in low-SES schools.

Currently, the School Breakfast Program is not available in some low-SES middle schools and high schools. Efforts to expand school participation in the School Breakfast Program, especially in low-SES schools, may have a significant impact on student nutrition. The Healthy, Hunger-Free Kids Act of 2010 allows for grants to establish or expand school breakfast programs and gives priority to schools where at least 75 percent of students are eligible for free and reduced-price meals. It is important that this grant program be adequately funded by Congress.

There is some indication that the nutritional balance in school meals is improving, but there remains room for significant improvement in the nutritional quality of both the beverages and foods offered. In 2008, we saw a significant decline in the proportion of students who had access to sugar-sweetened beverages in the school lunch meal (Figure 4.11). Still, almost one-third of middle school students had access to beverages recommended only for high school students by the Alliance for a Healthier Generation, and one-quarter had access to sugar-sweetened beverages as part of their National School Lunch Program meal. Among high school students, more than one-third had access to sugar-sweetened beverages as part of the National School Lunch Program meal. Such sugar-sweetened beverages rarely included regular soft drinks; instead, sports drinks and high-calorie fruit drinks made up the majority of such beverages consumed as part of the National School Lunch Program.

Significant room for improvement also exists regarding the nutritional quality of foods served as part of the nation's secondary school National School Lunch Program meals. One-half of high school students had access to pizza most days or every day, one-fifth had almost daily access to french fries, and almost 60 percent had access to regular snacks that are not fat-free. The corresponding rates for middle school students were 39 percent, 8 percent and 54 percent. Still, while not statistically significant, there is some evidence that in both middle and high schools, more students are being offered whole grains as part of the National School Lunch Program and fewer are being offered french fries. The latter change is significant at the high school level (see Figures 4.12 and 4.13).

As recommended by the Institute of Medicine,[87] USDA school meal standards should be regularly updated to reflect current nutrition science. Among those recommendations are to increase the availability of fruits, vegetables and whole grains, while at the same time reducing saturated fats, trans fats, added sugars and salt, and limiting milk fat to 1% or less. Providing these types of healthier foods and relying less on pre-packaged entrees that are high in fat and sodium are two important strategies for improving the nutritional quality of school meals. Because such changes will increase food service costs to the schools, it is critical that Congress fully fund the increased federal reimbursement rate for school meals proposed by the Healthy, Hunger-Free Kids Act of 2010.

The current study also indicates that efforts to improve secondary school meals must involve collaboration with key players at the school level. The overwhelming majority of secondary school students attended schools where food service was provided by the school system as opposed to an external food service management company or other entity, and decisions regarding menus were made at the district or school level for 88 percent of middle school students and 90 percent of high school students. Policy efforts to continue improving school meal nutrition quality will likely be most effective when they include not only policy advocates and researchers but also school food service managers and students. The federal government and states should provide training and technical assistance to help food service staff prepare nutritious meals that are appealing to students.

There is evidence that both parents and students are increasingly being provided with caloric information on school menus (Figure 4.21), which is a positive development. However, schools serving lower SES students are lagging behind those serving more affluent students in this regard. Providing menus may help parents become involved in the nutritional decisions of students at school and perhaps in setting school practices, and may help sensitize parents to look for nutritional information when making food choices outside of school. Notably, the Healthy, Hunger-Free Kids Act of 2010 requires school districts, in their reports to USDA and the public in their state, to include information about the quality of school meals. Efforts by schools to increase parents' awareness of the childhood obesity problem, educate them about the issues and motivate them to help seek solutions are critical for reversing the epidemic.

The following table provides a quick synopsis of some of the key findings covered in this chapter, including where changes were occurring between 2007 and 2008, the first two years after the federal wellness policy mandate went into effect.

TABLE 4.5 Summary of key changes, or lack thereof, between 2007–2008

	Middle School		High School	
Percentage of Students	**2007**	**2008**	**2007**	**2008**
Ate breakfast at school	25%	26%	20%	18%
...in low-SES[i] schools	40%	42%	32%	27%
Ate lunch at school	76%	74%	63%	60%*
...in low-SES schools	82%	82%	66%	65%
Had access to the following as part of the school lunch meal:[ii]				
...sugar-sweetened beverages[iii] some days or most/every day	35%	26%*	47%	37%*
...regular soft drinks some days or most/every day	1%	.04%	6%	3%
...pizza some days or most/every day	96%	98%	98%	98%
...pizza most or every day	36%	39%	46%	50%
...french fries some days or most/every day	48%	40%	61%	52%*
...french fries most or every day	11%	8%	24%	22%
...regular, non-fat-free snacks[iv] some days or most/every day	61%	54%	65%	59%
Attended schools where nutrition information was given to:				
...students	56%	64%*	56%	64%*
...parents	50%	60%*	50%	57%

[i] Low-, mid- and high-SES defined based on tertiles of percent of students eligible for free and reduced-price lunch.

[ii] Data reported only for students whose schools participated in the National School Lunch Program.

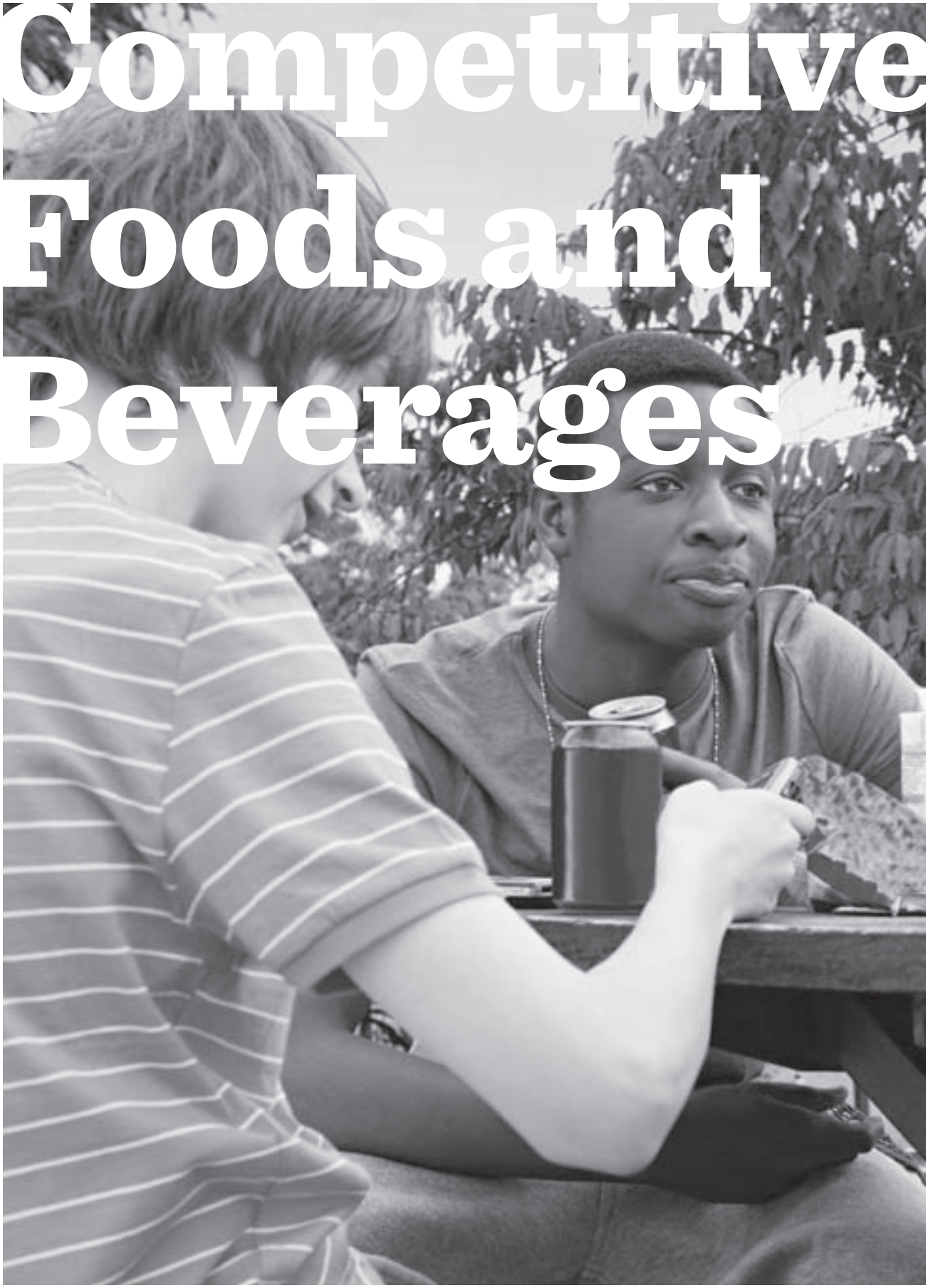
[iii] Any one or more of: regular soft drinks; sports drinks; fruit drinks that are not 100% fruit juice and that are high in calories.

[iv] Any one or more of: candy; salty snacks that are not low in fat, such as regular potato chips; cookies, crackers, cakes, or other baked goods that are not low in fat; ice cream or frozen yogurt that is not low in fat.

*Differences between 2007 and 2008 were significant at $p<.05$ or greater.

Source: Bridging the Gap, Institute for Social Research, University of Michigan, 2011.

Competitive Foods and Beverages



CHAPTER 5

Competitive Foods and Beverages

Competitive foods are so-designated because they "compete" with the School Breakfast Program and the National School Lunch Program. Unlike school meals, which must meet specified federal nutrition standards, competitive foods are virtually exempt from such requirements. Several leading authorities on children's health, including the Institute of Medicine and the Centers for Disease Control and Prevention have issued guidelines concerning the sale of competitive foods and beverages at school.[88,89] And while many states and school districts have developed their own nutritional guidelines for competitive products, they vary greatly in focus and strength.[90] There can be many possible venues for competitive foods on school grounds, including vending machines, school or student stores and snack bars/carts. School cafeterias can also provide a venue for competitive foods when individual items are available for à la carte sale.

According to the Government Accountability Office (GAO), approximately 90 percent of U.S. schools sold competitive foods to students in the 2003–04 school year,[91] with middle and high schools significantly more likely to do so than elementary schools. Both nutritious and less-nutritious items were sold in competitive venues. À la carte items sold during lunch tended to be more nutritious than those sold in other venues, but at least one-third of schools sold less-nutritious items in cafeteria à la carte lines. Availability and volume of competitive foods sales had increased substantially from 1998–99 to 2003–04, and school food service respondents to the GAO noted that reasons for the increase included responding to student demand, attempting to increase food appeal and generating additional revenue.

The GAO also reported that sales of competitive foods generated significant revenue for schools, and the raised funds were often used to support both food service operations and student activities.[92] Indeed, the GAO estimated that competitive foods sales resulted in 2003–04 revenue of more than $125,000 for approximately 30 percent of high schools, and $5,000 or more for approximately 30 percent of middle schools. School food authority director interviews for the GAO study indicated that schools are concerned that without the income generated through competitive food sales, food service budgets could not be balanced. However, Wharton and colleagues[93] reviewed both peer-reviewed papers and state reports on this issue, and found that changes in school nutrition standards did not lead to overall school revenue loss.

This chapter will review guidelines and policies related to the school competitive food environment, including advertising, price setting and vending contracts and incentives. It also reports on the prevalence of various competitive food venues and on the types of competitive foods and beverages offered to U.S. middle and high school students.

Competitive Food and Beverage Venues

As noted previously, the possible venues for competitive foods on school grounds include vending machines, school or student stores, and snack bars/carts. School cafeterias can also provide a venue for competitive foods when individual items are available à la carte. The 2005 GAO report estimated that in 2003–04, à la carte sales were available in 88 percent of middle schools and 91 percent of high schools, vending machines were present in 87 percent of middle schools and 91 percent of high schools, and school stores were operating in 25 percent of middle schools and 54 percent of high schools. Competitive venues are often operated within or near the school cafeterias during lunch. The 2005 GAO report indicated that, in 2003–04, both school stores and vending machines were frequently located in or near the school cafeteria, and one-third of schools with such venues had them open and available to students during the lunch period. Studies have shown that the availability of competitive venues has been linked with higher consumption of sugar-sweetened beverages and overall student caloric intake.[94]

The YES study asked food service managers or principals to report if various competitive food venues were available for both beverages and food items. For each venue, their responses were coded into any beverage availability; any food availability; and overall availability.

- Consistent with other research, competitive venues were available to most U.S. middle and high school students. In 2008, the following percentages of middle school students had access to competitive venues that sold food and/or beverages: 81 percent had access to à la carte sales in the cafeteria; 77 percent had access to vending machines, 48 percent had access to stores or snack bars/carts. Respective percentages for high school students were 92 percent with access to à la carte sales; 96 percent with access to vending machines, 62 percent with access to stores or snack bars/carts. (see Figure 5.1)

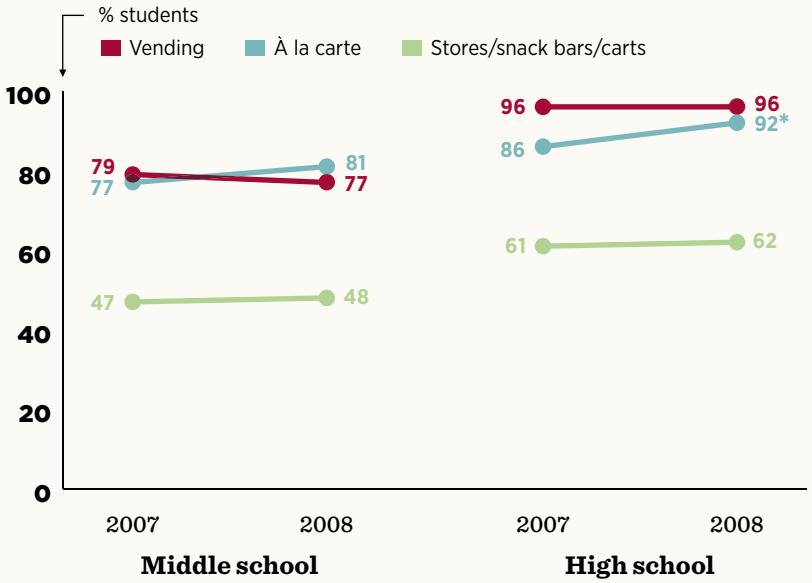
- As expected, high school students had significantly higher access to competitive venues than did middle school students. No significant differences in access to any venue were observed between 2007 and 2008 for middle school students. Among high school students, a significant increase in access was found only for à la carte sales, increasing from 86 percent in 2007 to 92 percent in 2008. (see Figure 5.1)

- In 2008, 76 percent of middle school students had access to vending machine *beverage* sales compared with 34 percent who had access to vending machine *food* sales. Among high school students, the percentages were higher: 96 percent for beverages compared to 72 percent for foods. Middle and high school students generally had equal access to both beverages and food items à la carte in the cafeteria, as well as in school or student stores or snack bars/carts.

- School SES played a significant role in student access to vending machine and à la carte sales. In 2008, 91 percent of high school students in low-SES schools had access to vending machines compared with 100 percent of high-SES high school students. A similar relationship was observed for both middle and high school students for à la carte sales. No differences by school SES in access to sales at stores or snack bars/carts were observed. (see Figure 5.2)

- Student race and ethnicity was significantly related to competitive venue access. For both middle and high school students, White students had higher access than did Black or Latino students to vending machines and to à la carte sales (à la carte sales for high school students was marginally significant at $p<.10$). In contrast, Latino middle and high school students were *more* likely to have access to stores or snack bars/carts than were White or Black students. (see Figure 5.3)

FIGURE 5.1 Percentage of Students Attending Schools With Specified Competitive Venues, 2007–2008

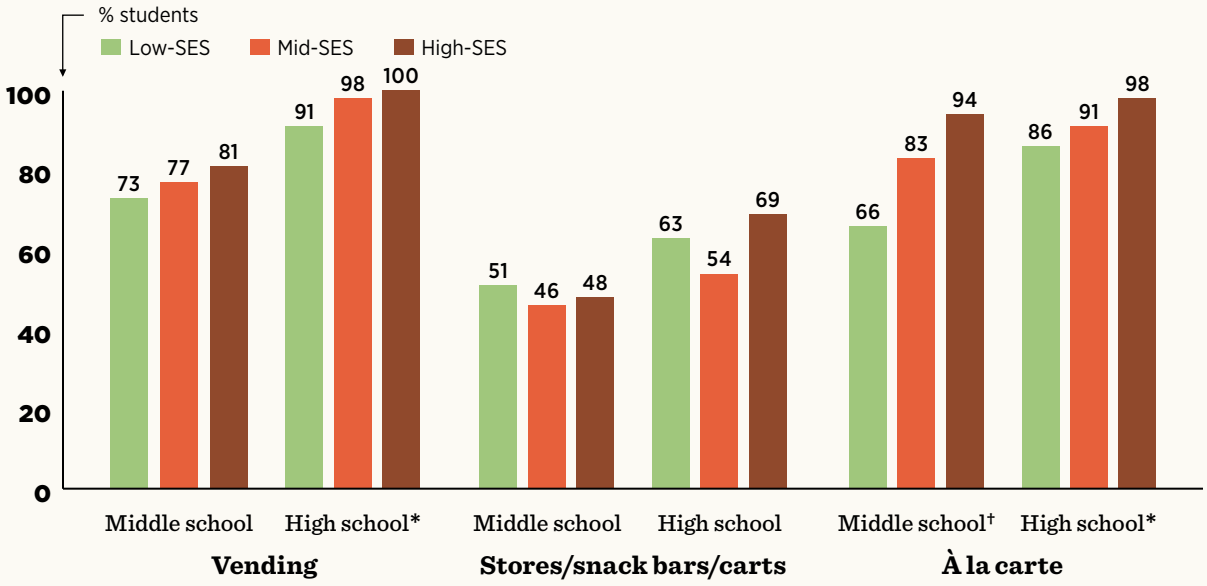


*Difference between 2007 versus 2008 was significant at $p<.05$.

Differences between middle and high school access to all competitive venues were significant at $p<.05$ in 2007 and 2008.

Source: Bridging the Gap, Institute for Social Research, University of Michigan, 2011.

FIGURE 5.2 Percentage of Students With Access to Competitive Venues by School Socioeconomic Status, 2008



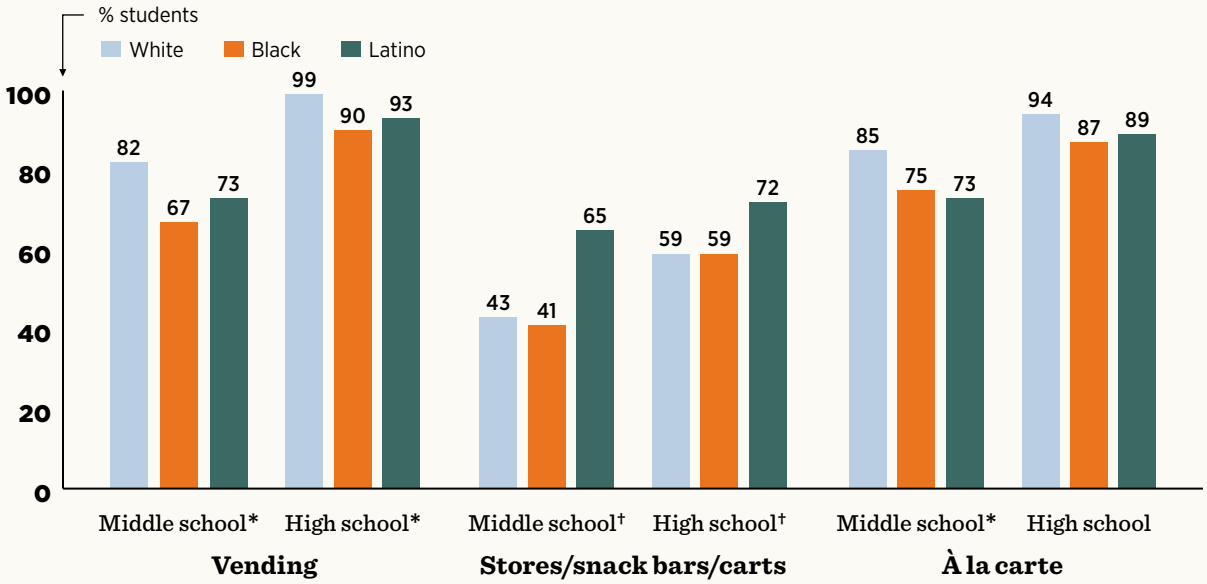
Low-, mid- and high-SES defined based on tertiles of the percentage of students eligible for free and reduced-price lunch.

*Differences between students in low-SES versus high-SES schools were significant at $p<.01$.

†Differences between all SES groups were significant at $p<.05$.

Source: Bridging the Gap, Institute for Social Research, University of Michigan, 2011.

FIGURE 5.3 Percentage of Students With Access to Competitive Venues by Student Race and Ethnicity, 2008



*Differences between White students versus Black and Latino students were significant at $p<.05$.

†Differences between Latino students versus White and Black students were significant at $p<.05$.

Source: Bridging the Gap, Institute for Social Research, University of Michigan, 2011.

Competitive Food and Beverage Guidelines: Awareness and Participation

In 2006, two national food and beverage agreements that had the potential to significantly impact school competitive food environments were reached: the school beverage guidelines and the nutritional guidelines for competitive foods.

School Beverage Guidelines

In May 2006, the Alliance for a Healthier Generation, a partnership of the American Heart Association and the William J. Clinton Foundation, reached an agreement with the American Beverage Association, Coca-Cola, PepsiCo and Cadbury Schweppes to limit portion sizes and caloric content of beverages offered to students during the regular and extended school day. A set of school beverage guidelines was adopted under the agreement. The guidelines aimed to help schools efficiently and quickly implement changes to make low-calorie and nutritious beverage available for students. To do this, the agreement defined specific portion size and caloric content categories separately for elementary, middle and high schools. The definitions for each category are available at *www.healthiergeneration.org/companies.aspx?id=1376.* The guidelines are not mandatory. State education departments, school districts or individual schools determine if they will follow the guidelines, and to what extent.

A report of an evaluation of the guidelines implementation process published by the American Beverage Association in 2008 states that between 2004 and 2007–08, total calories in beverages shipped to schools were reduced by 58 percent, including a two-thirds reduction in shipments of full-calorie soft drinks to schools. These improvements are based only on school districts under contract with soft drink bottlers, while the current survey covers all schools. The report also states that 79 percent of schools under contract have come into compliance with the guidelines.

The YES survey used two different questions to investigate how widely the school beverage guidelines have reached into U.S. middle and high schools. The questions were preceded by a short description of the agreement.

Question: Have you heard of this agreement?

Response alternatives were: no; yes, some; yes, quite a bit.

Question: Please indicate in which of the following venues you have implemented the 'School Beverage Guidelines.'

Response alternatives for each venue were: yes; no; don't know; and not applicable.

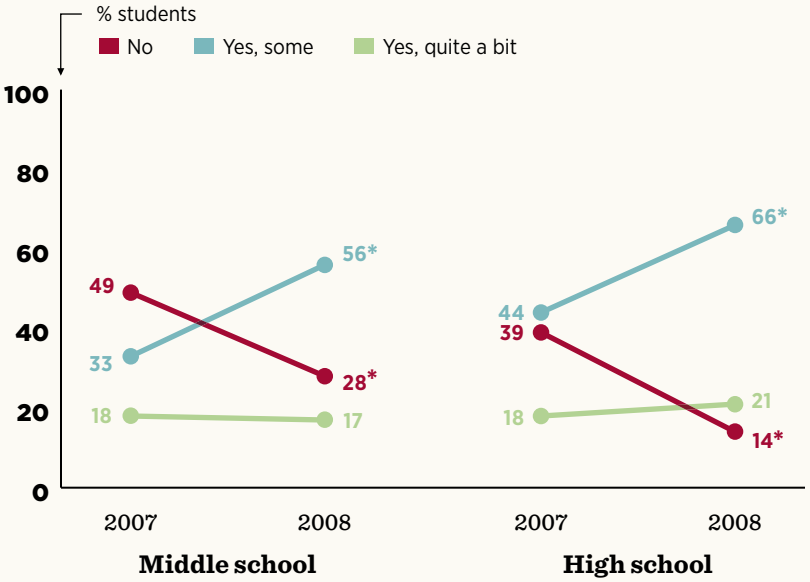
- *Awareness of the guidelines.* Significantly more high school students had principals who were aware of the guidelines than middle school students, and awareness reported by principals sharply increased between 2007 and 2008. The percentage of students with principals who were *unaware* of the guidelines dropped from 49 percent to 28 percent in middle schools and from 39 percent to 14 percent in high schools during that one-year interval. Some of this improvement may have resulted from participation in this study, because about two-thirds of the respondents had received the same question a year earlier and may have been motivated to learn about the guidelines. Still, as of 2008, only 17 percent of middle school students and 21 percent of high school students had principals who reported having heard "quite a bit" about the guidelines. (see Figure 5.4)

- *Lack of guideline implementation in different venues in the school.* As noted in the previous section, student access to various types of competitive venues varied. (see Figure 5.1) We were interested in finding the percentage of students who were "at risk" in terms of schools not implementing the school beverage guidelines. *Thus, this section reports the percentage of students in schools that provide access to the venue and* have not *implemented the school beverage guidelines in that venue.*

- In 2008, 38 percent of middle school students and 33 percent of high school students attended schools with vending machine beverage access where principals reported that the guidelines had not been implemented in that venue. For à la carte sales the 2008 percentages of students attending schools with access but no guideline implementation were: 43 percent of middle school and 31 percent high school students; and for stores/snack bars/carts, 40 percent middle school and 26 percent high school students. Observed percentages of high school students *without* guideline implementation were significantly lower than middle school students for both à la carte and beverage sales from stores and snack bars/carts. (see Figure 5.5)

- Significant decreases between 2007 and 2008 were observed for all venues in the "at risk" percentage of middle and high schools students, defined as those attending schools with competitive venue access in which school beverage guidelines had not been implemented. (see Figure 5.5)

FIGURE 5.4 Percentage of Students With School Administrator Awareness of Alliance School Beverage Guidelines, 2007–2008

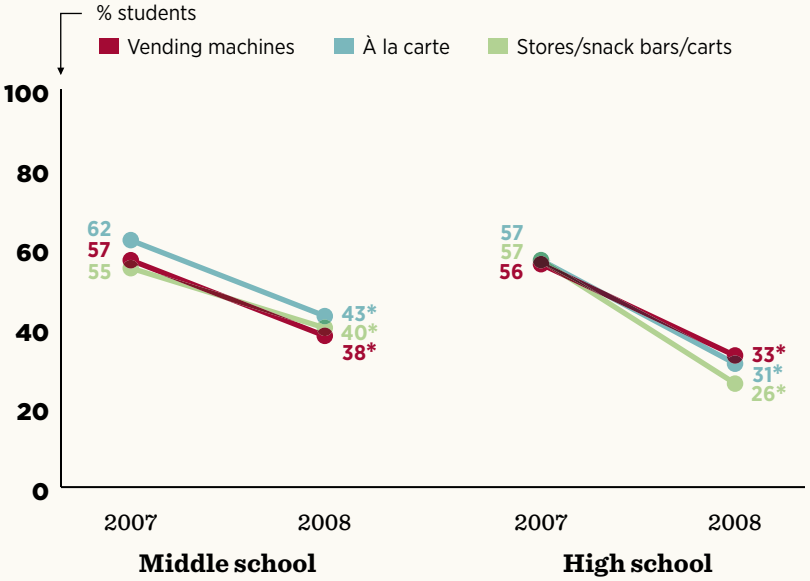


*Differences between 2007 versus 2008 were significant at $p<.001$.

Differences between middle and high school were significant at $p\leq.05$ in 2007 and 2008.

Source: Bridging the Gap, Institute for Social Research, University of Michigan, 2011.

FIGURE 5.5 Percentage of Students With Access to Competitive Venues in Schools That Had Not Implemented the Alliance School Beverage Guidelines, 2007–2008



School beverage guidelines differ between middle and high schools (see Table 5.1). Includes only students in schools with access to the specified competitive beverage venues.

The 2007 value was 57 percent for high school students for both à la carte and school/student stores or snack bars/carts.

*Differences between 2007 versus 2008 were significant at $p<.05$.

Differences between middle and high school for à la carte and school/student stores or snack bars/carts were significant at $p<.05$ in 2008.

Source: Bridging the Gap, Institute for Social Research, University of Michigan, 2011.

Nutritional Guidelines for Competitive Foods

In October 2006, the Alliance for a Healthier Generation reached an agreement with the Campbell Soup Company, Dannon, Kraft Foods, Mars and PepsiCo relating to the nutritional content of competitive foods sold in schools to students. The nutritional guidelines for competitive foods were developed as part of the agreement, and apply to "…snacks, side items, treats and desserts offered for sale as Competitive Foods in schools" during the regular and extended school day.[95] À la carte sales in USDA supported School Breakfast Program or National School Lunch Program are not covered.

The nutritional guidelines for competitive foods spell out acceptable portion sizes and levels of total and saturated fats, prohibit trans fats, and set limits on sugar and sodium for snack foods. In addition, separate caloric limits for elementary, middle and high school are defined. Details about the guidelines are available at *www.healthiergeneration.org/companies.aspx?id=2540.* As with the school beverage guidelines, state education departments, school districts or individual schools may or may not choose to implement the nutritional guidelines for competitive foods as written. For example, the Vermont Department of Education and Department of Health chose to implement the guidelines with changes for some dairy product portion sizes and allowances for specified juice sales.[96]

As with the school beverage guidelines, the YES study used two different questions to determine how widely the nutritional guidelines for competitive foods have reached into U.S. middle and high schools, after providing a brief description of the agreement:

Question: Have you heard of this agreement?

Question: Please indicate in which of the following venues you have implemented the 'Nutritional Guidelines for Competitive Foods.'

Response alternatives for each venue were: yes; no; don't know; and not applicable.

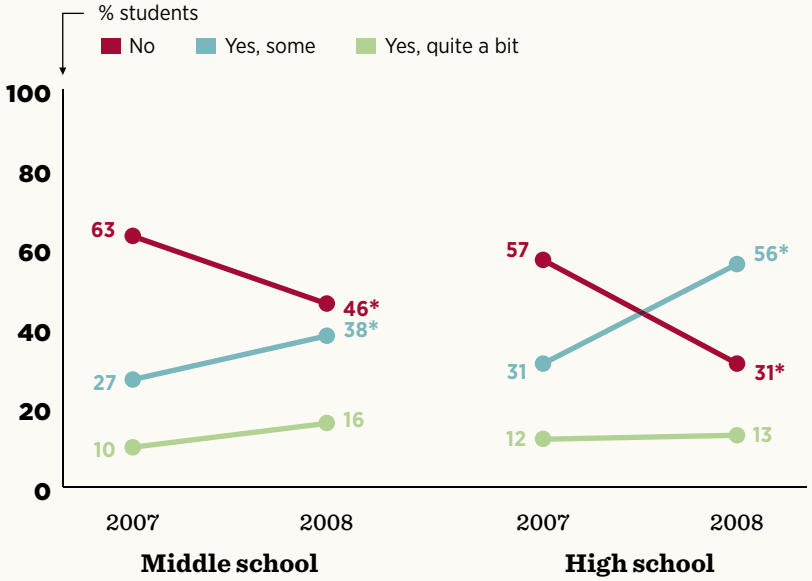
- *Awareness of the guidelines.* The percentage of students attending schools with administrator knowledge about the nutritional guidelines for competitive foods increased significantly from 2007 to 2008. By 2008, 54 percent of middle school students had principals who had some level of awareness about the guidelines and 69 percent of high school students did. In comparison, 2007 levels were 37 percent for middle school students and 43 percent for high school students. No school SES or student race and ethnicity differences in awareness were observed. As previously mentioned, the fact that about two-thirds of the respondents had answered these same questions a year earlier may well have led to an increase in awareness which exceeded that which may actually have occurred in the general population of school administrators. (see Figure 5.6)

- *Lack of guideline implementation.* The following data show the percentage of "at risk" students, defined as those who attended schools with the specified competitive food venues, but where the nutritional guidelines for competitive foods *had not* been implemented. In 2008, 52 percent of middle school students and 49 percent of high school students attended schools where the guidelines had not been implemented for available vending machines. Percentages of students without guideline implementation for the remaining venues were: 50 percent of middle school and 52 percent of high school students for à la carte sales; and 48 percent middle school and 46 percent high school students for sales from stores or snack bars/carts. (see Figure 5.7)

- As was observed for the school beverage guidelines, there were significant decreases between 2007 and 2008 in the percentage of "at risk" middle and high school students across all venue types. That is, in the proportion of students attending schools where the nutritional guidelines for competitive foods *had not* been implemented for available venues. (see Figure 5.7)

- Overall, more students attended schools that had not implemented the nutritional guidelines for competitive foods than attended schools that had not implemented the school beverage guidelines. For example, in 2008 for vending machines, 38 percent of middle school students were at risk for no *beverage* guideline implementation, compared with 52 percent who were at risk for no *food* guideline implementation. (see Figure 5.8)

FIGURE 5.6 Percentage of Students With School Administrator Awareness of Alliance Nutritional Guidelines for Competitive Foods, 2007–2008

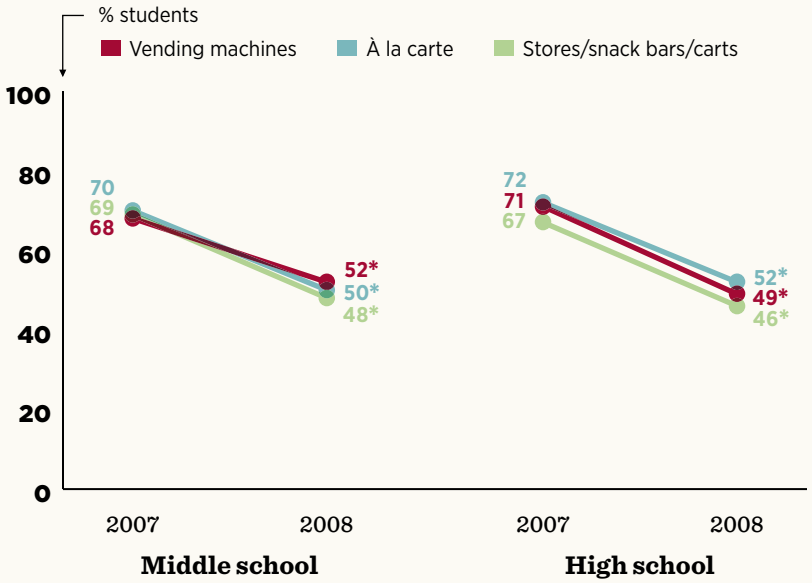


*Differences between 2007 versus 2008 were significant at $p<.001$.

Differences between middle and high school were significant at $p<.001$ in 2008.

Source: Bridging the Gap, Institute for Social Research, University of Michigan, 2011.

FIGURE 5.7 Percentage of Students With Access to Competitive Venues in Schools That Had Not Implemented the Alliance Nutritional Guidelines for Competitive Foods, 2007–2008

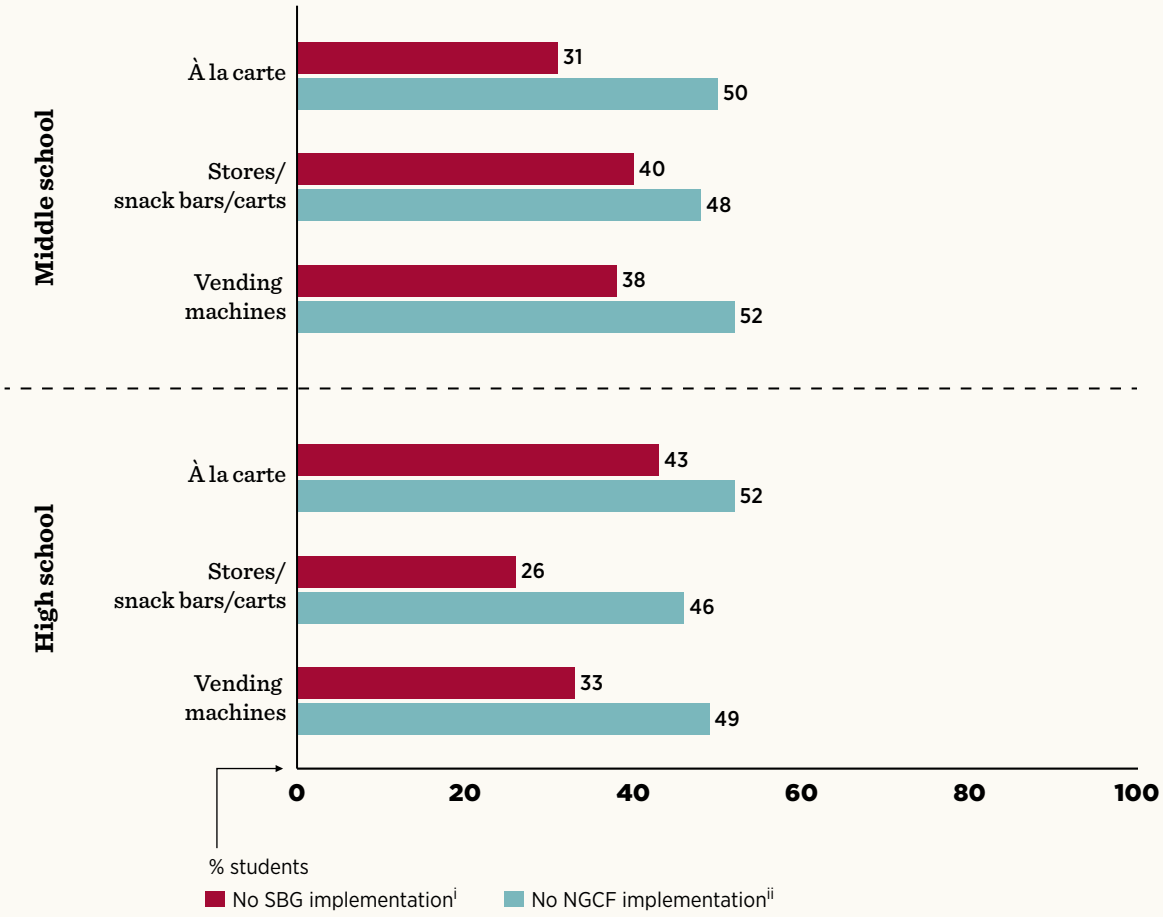


Includes only students in schools with access to the specified competitive food venues.

*Differences between 2007 versus 2008 were significant at $p<.05$.

Source: Bridging the Gap, Institute for Social Research, University of Michigan, 2011.

FIGURE 5.8 Comparison of the Percentages of Students With Access to Venues Without Alliance School Beverage Guidelines and Without Alliance Nutritional Guidelines for Competitive Foods, 2008



Includes only students in schools with access to the specified competitive venues.

[i] SBG: School Beverage Guidelines

[ii] NGCF: Nutritional Guidelines for Competitive Foods

Source: Bridging the Gap, Institute for Social Research, University of Michigan, 2011.

Competitive Food and Beverage Pricing

Pricing incentives play a key role in food marketing strategy. Virtually all Americans are familiar with the fast-food industry's "super size" approach that discounts the price of a meal with larger portion sizes compared to the regular size. As noted by French,[97] such pricing incentives encourage an individual both to purchase and consume larger quantities. Price incentives may also be used to encourage nutritious food and beverage choices. In the school setting, the cost of nutritious items could be set to encourage students and parents to purchase healthy items, and not resort to buying lower cost foods of poor nutritional value.[98]

French and colleagues[99] conducted pricing studies in both school and workplace environments. A small intervention study with two high schools showed that à la carte sales of fruit and carrots increased when the price was reduced.[100] In a randomized trial focusing on sales of low-fat snacks in vending machines, price reductions were significantly associated with increased sales for both adolescents and adults.[101] However, as French[102] noted, lowering the price of healthy choices may have a significant and negative effect on school food service revenues. One approach suggested by the authors was to balance the decrease in prices of healthful items with a corresponding increase in cost for less nutritious items.[103,104]

The YES survey included the following questions to investigate whether food prices were being used to encourage healthier choices:

Question: To what extent has your school or school district set *food prices* (in vending machines, stores, à la carte) with the intent of encouraging students to eat healthier foods and/or discouraging them from eating less healthy foods?

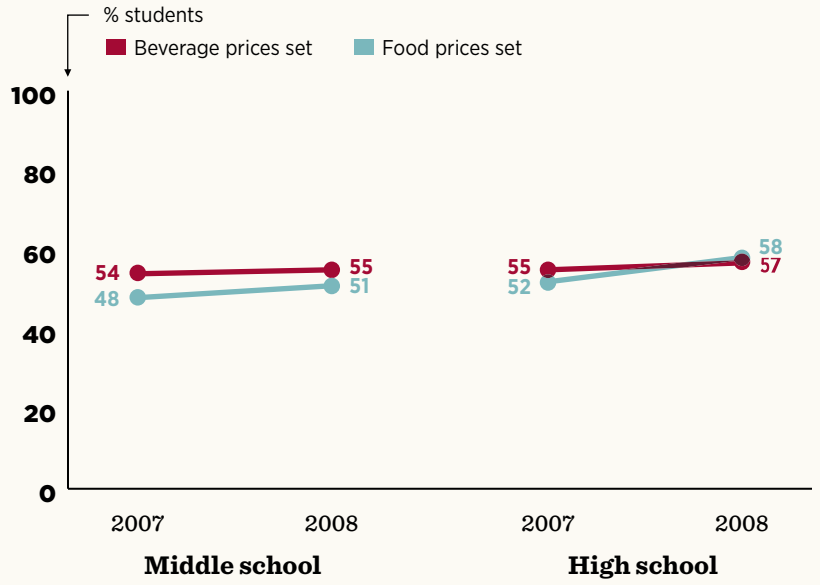
Question: To what extent has your school or school district set *beverage prices* (in vending machines, stores, à la carte) with the intent of encouraging students to drink healthier beverages and/or discouraging them from drinking less healthy beverages?

Response alternatives for both questions included: not at all; a little; some; a lot; don't know.

- In 2008, approximately one-half of U.S. middle school students attended a school where competitive food and beverage prices were set "some" or "a lot" to encourage healthier consumption: 55 percent of students for beverages, and 51 percent for foods. For high school students, 57 percent attended schools with price setting for beverages and 58 percent for foods. (see Figure 5.9)

- No significant differences based on school SES or student race and ethnicity were observed, and percentages had not appreciably changed since 2007.

FIGURE 5.9 Percentage of Students Attending Schools Where Prices Were Set to Encourage Healthier Food and Beverage Consumption in Competitive Venues, 2007–2008



Extent of price setting combining "some" and "a lot."

Source: Bridging the Gap, Institute for Social Research, University of Michigan, 2011.

In-School Marketing, Including Exclusive Contracts

Schools provide a unique opportunity for marketing to children and adolescents. Marketing companies are interested in developing brand loyalty, and school-based marketing allows access to a captive consumer group. The Federal Trade Commission (FTC) defines in-school food marketing broadly as methods used to obtain corporate access to youth, including payments and incentives from food and beverage contracts, as well as more traditional advertising and promotional activities.[105] According to the FTC,[106] food marketing expenditures in schools (not including colleges and universities) totaled $186 million in 2006 alone. Of that total, 62 percent was for carbonated beverages, 28 percent for juice and non-carbonated beverages, and 5 percent for restaurant foods. The FTC further found that the majority of in-school marketing expenditures resulted from incentives or payments associated with competitive food and beverage contracts. To examine competitive food in-school marketing, three areas will be discussed: exclusive beverage contracts, incentives from such contracts and other vendors, and additional advertising and promotion approaches.

Exclusive Beverage Contracts

Exclusive beverage contracts are typically multi-year contracts that grant a supplier sole rights to sell beverages on school grounds and, in turn, generate revenue for schools. Specifics of such contracts vary, but generally the benefits for business include the opportunity to develop brand loyalty in the student population; exclusive sales of all carbonated and non-carbonated beverages sold, dispensed, or provided at any time or place on school grounds; and provision of significant direct advertising.[107,108] Such beverage suppliers have a ready target audience: during the 2004–05 school year, 67 percent of middle school students and 74 percent of high school students reported that they obtained sugar-sweetened beverages at school on school grounds.[109]

The GAO[110] found that many schools (especially high schools) had exclusive beverage contracts in the 2003–04 school year: approximately 75 percent of high schools, 65 percent of middle schools, and 30 percent of elementary schools. In more than 50 percent of schools, these contracts were negotiated at the school district level. Beverages sold under exclusive contracts are not necessarily non-nutritious. Competitive food venues can stock both carbonated and non-carbonated drinks, caffeinated and non-caffeinated choices, milk, water, etc. However, due to high rates of obesity among U.S. youth, significant concerns have been raised regarding exclusive beverage contracts sales of sugar-sweetened beverages. Exclusive beverage contracts usage of schools as marketing environments has also been questioned.[111] Research has shown that consumption of sugar-sweetened beverages by adolescents contributes to significantly higher daily energy intake,[112] and up to 15 percent of such consumption occurs in schools.[113] Data from the nationally representative third School Nutrition Dietary Assessment Study showed that middle school student consumption of sugar-sweetened beverages was significantly lower among youth attending schools without exclusive beverage contracts than if such a contract was in place.[114]

The YES survey included the following question:

Question: Does your *school or school district* have a contract with a beverage supplier, such as Coca-Cola, PepsiCo, or Cadbury Schweppes (Dr. Pepper), giving the company exclusive rights to sell beverages to students at your school?[v]

If the answer was "Yes", the following question was asked:

Question: Is this an agreement between the beverage supplier and…

a) …the school only?
b) …the school district only?
c) …both the school and the school district?[v]

Respondents were instructed to choose only one response.

Finally, the following yes/no item was asked:

Question: Has this contract been renegotiated in the past year?

- In 2008, significantly more high school students (79%) than middle school students (65%) attended a school that had entered into an exclusive beverage contract with a beverage supplier. (see Figure 5.10) No school SES or student racial or ethnic differences were observed, nor was there a significant time difference.

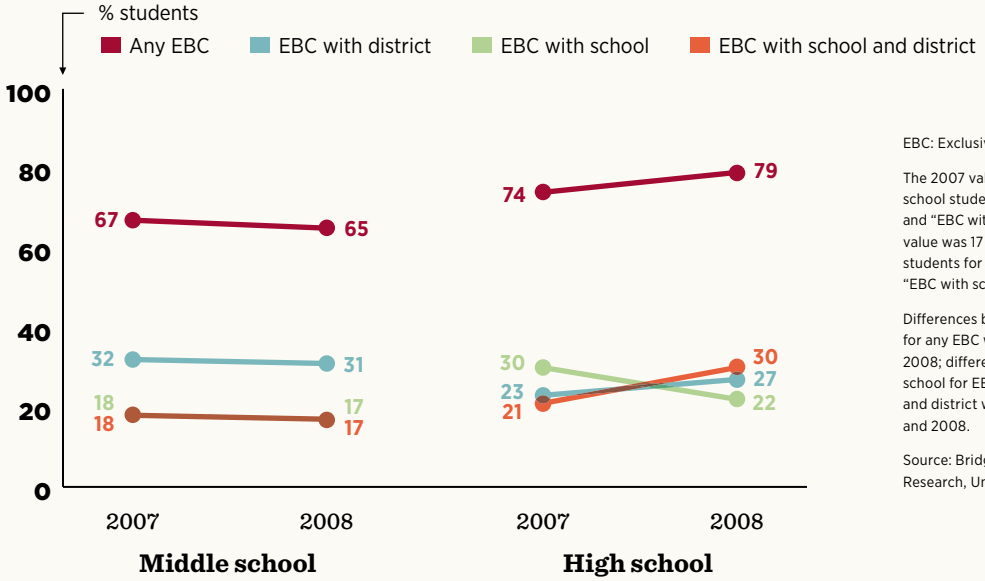
- Thirty-one percent of middle school students in 2008 attended schools where the exclusive beverage contract was between the school district and the beverage supplier, while the remaining middle school students attending schools with an exclusive beverage contracts were equally divided as to if the contract was made at the school (17%) or combined school and district level (17%). High school students were less clearly divided as to the level at which their school's exclusive beverage contract was made: 22 percent school, 27 percent district, 30 percent both school and school district. (see Figure 5.10)[w]

- In 2008, significantly fewer middle school students (19%) than high school students (29%) attended schools where the exclusive beverage contract had been renegotiated in the past year. No significant changes between 2007 and 2008 were observed in the prevalence of renegotiations.

[v] In 2007, the wording of this question was slightly different, using the term "soft drink bottler" instead of "beverage supplier," and "soft drinks" instead of "beverages." However, no significant differences in response frequency were found between the two years.

[w] Readers should note that in Figure 5.10, the following data lines for middle school are virtually identical and thus overlay each other: (a) exclusive beverage contract with school; (b) exclusive beverage contract with school and district.

FIGURE 5.10 Percentage of Students Attending Schools With Exclusive Beverage Contracts, 2007–2008



EBC: Exclusive Beverage Contract

The 2007 value was 18 percent for middle school students for both "EBC with school" and "EBC with school and district." The 2008 value was 17 percent for middle school students for both "EBC with school" and "EBC with school and district."

Differences between middle and high school for any EBC were significant at $p<.001$ in 2008; differences between middle and high school for EBC with district, school, or school and district were significant at $p<.01$ in 2007 and 2008.

Source: Bridging the Gap, Institute for Social Research, University of Michigan, 2011.

In 2008, an additional question was asked of school principals to investigate student access to regular soft drinks under their school's exclusive beverage contract:

Question: Are regular soft drinks (like Coke or Pepsi, but not including diet soft drinks) sold to students in your school under this contract?

- In 2008, significantly more high school students had access to regular soft drinks through their school's exclusive beverage contract than middle school students (37% vs. 14%). Among high school students, students at low-SES schools were less likely to have such access than students at high-SES schools (26% vs. 47%). Regular soft drink access through an exclusive beverage contract also was more likely for White high school students than Black or Latino high school students (43% vs. 31% and 24%).

Incentives from Exclusive Beverage Contracts and Other Vendors

Exclusive beverage contract benefits to schools typically include immediate signing bonuses as well as on-going sales revenues.[115] Exclusive beverage contracts frequently also provide non-monetary items for schools, such as athletic equipment, facilities and uniforms.[116] Income generation from exclusive beverage contracts can be substantial. While the competitive venue that typically generates the most revenue for food services is à la carte sales in the cafeteria, for other school groups (such as student clubs and booster groups), exclusive beverage contracts provide more income than any other competitive venue.[117] Estimates of the annual income generated from such contracts to other school groups during 2003–04 show that more than 60 percent of high schools generated $5,000 or more from exclusive beverage contracts; 22 percent of high schools brought in more than $15,000.[118] In addition to income from exclusive beverage contracts, schools can also contract with vendors for competitive items such as vending machine foods. Contracts for such vendors, while not exclusive, can also be an important source of incentives and revenue for schools.

The YES survey included questions about specific beverage incentives and other revenue associated with exclusive beverage contracts using the following yes/no items:

Question: Does your *school or school district* receive incentives, such as cash awards or donations of equipment, supplies, or other donations, once total beverage sales receipts exceed a specified amount?[x]

Question: Does your *school or school district* receive a specified percentage of the beverage sales receipts?[x]

For food vending incentives and related revenue, principals first confirmed if food vending machines were available to students and if a company, such as a vending company or soft drink/beverage supplier, sold food items in available vending machines. If so, then principals answered yes/no items closely related to the questions about exclusive beverage contracts:

Question: Does your school receive incentives, such as cash awards or donations of equipment, supplies, or other donations, once total food receipts from a vendor exceed a specific amount?

Question: Does your school receive a specified percentage of the food sales receipts from vending machines?

- Receipt revenue was more frequently reported than incentives for both exclusive beverage contracts and food vending. In 2008, 55 percent of middle school students and 68 percent of high school students attended schools where exclusive beverage contract receipt revenue was reported by principals. Some 19 percent of middle school students and 44 percent of high school students were in schools where food receipt revenue was reported by principals. (see Figure 5.11)

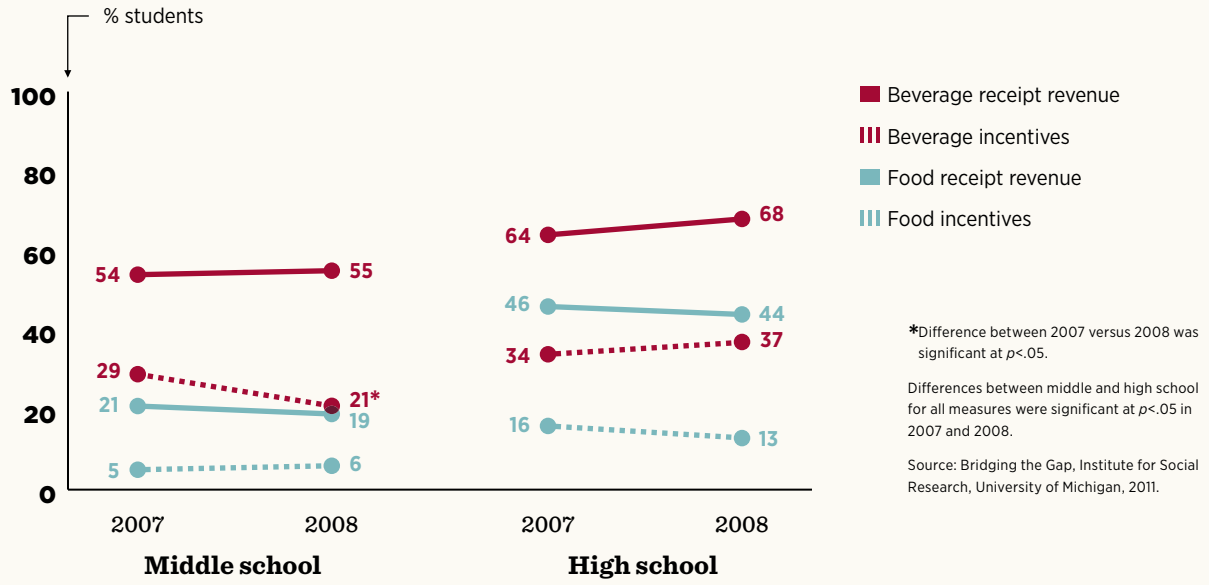
- Just 21 percent of middle school and 37 percent of high school students attended schools where beverage incentives were reported by principals in 2008. Food incentives were less frequently reported. In 2008, only 6 percent of middle school students and 13 percent of high school students attended schools where principals reported receiving such incentives. (see Figure 5.11)

- High school students were significantly more likely than middle school students to attend a school that received either incentives or receipt revenue for exclusive beverage contracts or food vending in 2008. (see Figure 5.11)

- The percentage of middle school students attending schools receiving beverage incentives decreased significantly from 29 percent in 2007 to 21 percent in 2008. (see Figure 5.11) This decrease was concentrated among students at mid-SES schools (2007 rates of 37% vs. 2008 rates of 20%) and White middle school students (2007 rates of 31% vs. 2008 rates of 19%).

[x] In 2007, the wording of this question was slightly different, using the term "soft drink receipts" instead of "beverage sales receipts."

FIGURE 5.11 Percentage of Students Attending Schools With Incentives or Revenue From Exclusive Beverage Contracts or Food Vending Machine Sales, 2007–2008



*Difference between 2007 versus 2008 was significant at $p<.05$.

Differences between middle and high school for all measures were significant at $p<.05$ in 2007 and 2008.

Source: Bridging the Gap, Institute for Social Research, University of Michigan, 2011.

Additional Advertising and Promotion

When they are on school grounds, students are a captive audience to advertising messages that can be displayed on vending machines, posters, textbook covers, athletic equipment and supplies, audio/visual materials, school-based television, and the list goes on. Reviews of food advertising to youth clearly indicate that food marketing works.[119] Most studies have been done focusing on television advertising; clearly, the methods of school advertising listed above are less direct. However, research shows that advertising can affect beliefs and behaviors without conscious and active processing of the presented information.[120]

As noted in the exclusive beverage contracts section above, one of the benefits to beverage suppliers is often provision of significant direct advertising options to students.[121,122] With regard to other forms of advertising in the schools, earlier work from Bridging the Gap indicated that these forms of advertising are not very common.[123]

In a questionnaire section including other items related to exclusive beverage contracts, the following questions were asked:

Question: Other than on the vending machine itself, is the beverage supplier allowed to advertise in your school building, on school grounds, or school buses?[y]

Response alternatives were yes or no.

[y] In 2007, the wording of this question was slightly different, using the term "soft drink bottler" instead of "beverage supplier."

Other questions about advertising and marketing in general (not limited to exclusive beverage contracts) included:

Question: At your school, are soft drinks or meals from fast food restaurants advertised or promoted...

a) ...with posters or other materials on display in the school?
b) ...with advertisements on textbook covers or school food service menus?
c) ...with coupons for free or reduced prices on these products?
d) ...through sponsorship of school events?

Response alternatives were yes or no.

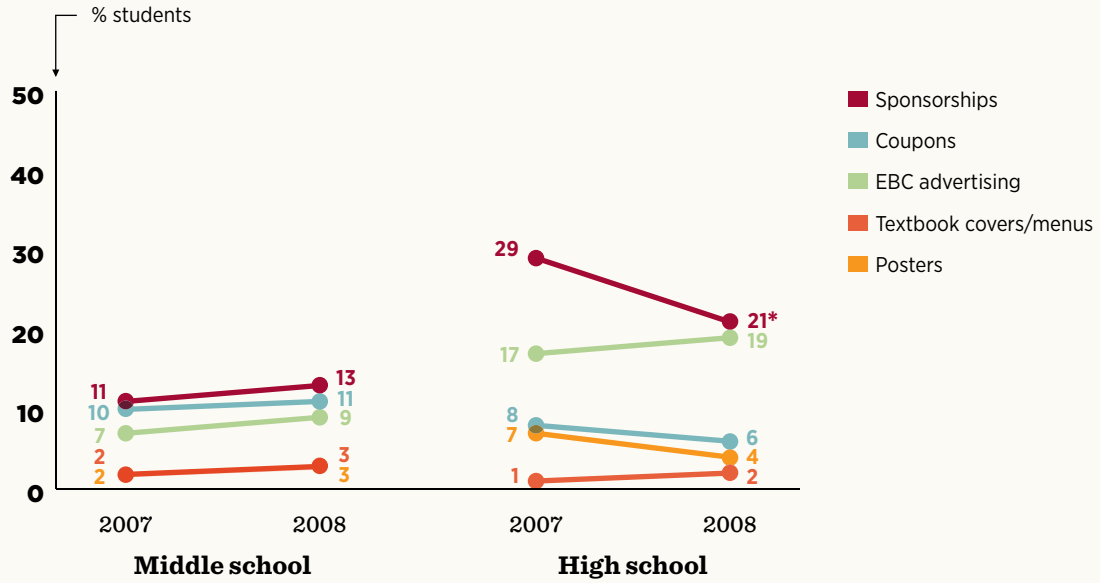
- Exclusive beverage contract advertising was significantly more likely for high school than middle school students, though it was not particularly high in either case. (see Figure 5.12) In 2008, only 9 percent of middle school students were exposed to exclusive beverage contract ads in locations other than vending machines compared with 19 percent of high school students. No significant differences between 2007 and 2008 were observed, and responses by both school SES and student race and ethnicity were comparable.

- Regarding soft-drink and fast-food advertising in general, the format most frequently experienced by both middle and high school students was sponsorships of school events. However, in 2008, high school students (21%) were more likely than middle school students (13%) to experience such marketing. High school student exposure to such advertising had decreased since 2007 levels of 29 percent. (see Figure 5.12)

- Provision of coupons for soft drinks or fast-food restaurants was a marketing strategy that was used in schools attended by 11 percent of middle school students and 6 percent of high school students in 2008. Also in 2008, the percentage of students possibly affected by advertising through the use of posters or other display materials was 3 percent for middle school and 4 percent for high school, and percentages for textbook covers or menus were 3 percent for middle school and 2 percent for high school. (see Figure 5.12)

- There were no appreciable differences in exposure to advertising or promotions by either school SES or student race and ethnicity in 2008.

FIGURE 5.12 Percentage of Students Attending Schools With Advertising or Promotion of Soft Drinks or Fast-Food Restaurants, 2007–2008



EBC advertising: Exclusive Beverage Contract advertising other than on vending machines.

Remaining advertising categories refer to advertising or promotions for soft drinks or meals from fast-food restaurants.

*Difference between 2007 versus 2008 was significant at $p<.05$.

Differences between middle and high school for sponsorships and EBC advertising were significant at $p<.05$ in 2007 and 2008; differences between middle and high school for coupons were significant at $p<.05$ in 2008.

Source: Bridging the Gap, Institute for Social Research, University of Michigan, 2011.

Competitive Food and Beverage Availability

Food and beverages sold through competitive venues are neither inherently calorie-laden nor nutritionally poor. Research has found that schools without stores or snack bars had reduced consumption of sugar-sweetened beverages among middle and high school students, and that middle schools without à la carte sales had lower overall student energy intake.[124] However, the authors of the study concluded that sugar-sweetened beverages should be removed from such venues, and that à la carte choices should be improved—they did not suggest removing the venues themselves.[125]

Efforts to improve the nutritional quality of foods sold through competitive venues in the nation's schools point to the fact that, currently, most competitive foods are nutritionally poor. A nationally representative study of U.S. public school students in the 2004–05 school year found that 40 percent consumed competitive foods during a typical school day,[126] and the foods most commonly chosen were nutrient-low and energy dense. The risk of unhealthful competitive food options has been shown to be higher for schools with high levels of free and reduced-price lunch enrollment.[127]

In order to investigate which foods and beverages were offered in competitive food venues, the YES survey included the following:

Question: Please indicate whether the following *beverages* are available to students from *[venue]* in your school.

Question: Please indicate whether the following *food items* are available to students from *[venue]* in your school.

The venues listed included: vending machines, school/student store or snack bars/carts, and à la carte at lunch. Response alternatives for vending machines and stores/snack bars/carts were yes or no. For à la carte, response alternatives were never; some days; most or every day.

An additional question focused on only à la carte venues:

Question: During a typical week, on how many days are fast food items from commercial chains or other vendors (such as Pizza Hut, Taco Bell, others…) offered to students for à la carte lunch items?

Respondents were instructed to answer in days per week; responses were then recoded into any versus none.

Competitive Venue Beverage Availability

Beverages were grouped based on the Alliance school beverage guidelines[128] and coded for availability in *any* competitive venue. Data on the availability of regular soft drinks are presented separately by venue, as well as combined within beverage categories. Table 5.1 provides definitions of the coding categories used for competitive venues.

TABLE 5.1 Definitions of Competitive Venue Beverage Categories

Beverages	
Alliance beverages[i]	Any one or more of: bottled water; 100% fruit or vegetable juice with no added sweeteners; low-fat (1%) or non-fat (skim) milk, including low-fat flavored milk
Additional high school Alliance beverages[ii]	Any one or more of: diet soft drinks; other no-calorie or very low-calorie beverages; "light" juices
Sugar-sweetened beverages	Any one or more of: regular soft drinks; sports drinks; fruit drinks that are not 100% fruit juice and that are high in calories
High-fat/flavored milks	Any one or more of: whole or 2% milk, or flavored milk

Categories include items available in any of the following venues: vending machines, school/student stores or snack bars/carts, and à la carte at lunch.

[i] Beverages that meet the Alliance guidelines for *both* middle and high school.

[ii] Beverages that meet the additional Alliance guidelines for high school.

Source: Alliance for a Healthier Generation, 2009.

High school students had significantly higher access to all competitive venue beverages than did middle school students. This may be partly explained by more high school students than middle school students having access to venues where they could buy competitive beverages or foods.

- *Alliance-approved and additional Alliance beverages.* In 2008, high school students had virtually universal access to Alliance beverages (99%), and 88 percent of high school students had access to the additional Alliance beverages permitted for high schools. Middle school students also had very high access to Alliance beverages (96%). Further, 69 percent of middle school students had access to additional Alliance beverages—those that the Alliance guidelines recommended only for the high school level. (see Figure 5.13)

- *Sugar-sweetened beverages.* Sugar-sweetened beverages were also widely available, with 92 percent of high school students and 71 percent of middle school students having access to these drinks in one or more competitive venue in 2008. (see Figure 5.13)

- *High-fat/flavored milks.* In 2008, 61 percent of middle school students and 72 percent of high school students had access to milk products with higher fat or sugar than 1% or skim milk, via competitive venues. (see Figure 5.13)

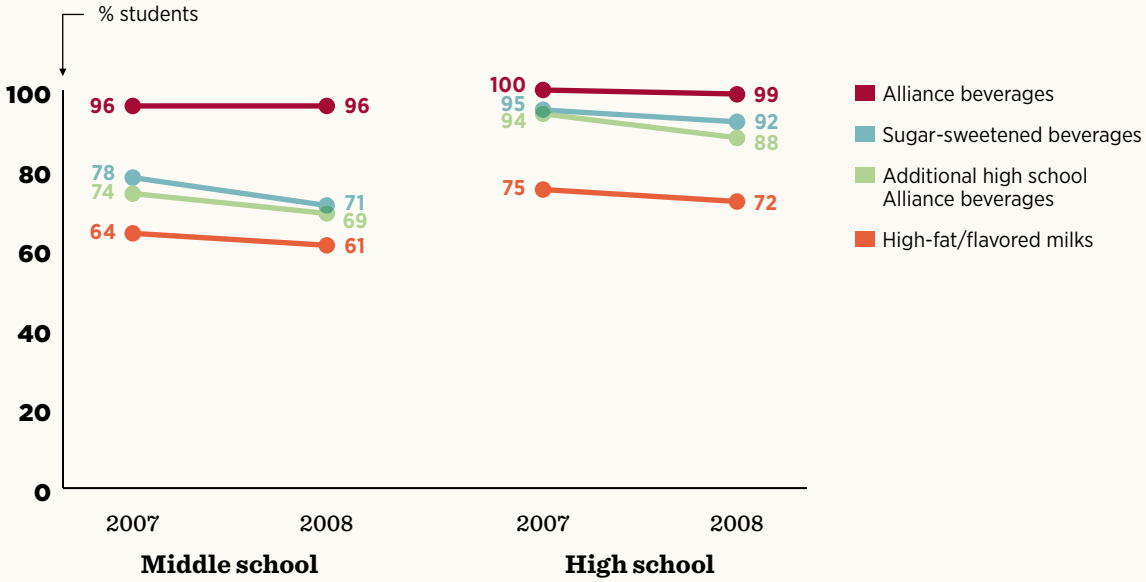
- School SES had a significant relationship with middle school student access to all competitive beverage categories in 2008. Students in low-SES schools had less access than students in mid- or high-SES schools. For high school students, access to all beverage categories other than Alliance beverages also was less likely for students in low-SES schools compared with those in high-SES schools. As discussed previously, competitive vending availability differed significantly by school SES and is likely a factor in these findings.

- Student race and ethnicity was related to middle school student competitive venue access for all categories of beverages in 2008. White middle school students had significantly higher access to both Alliance and additional Alliance beverages than either Black or Latino students. White middle school students also had significantly higher access to sugar-sweetened beverages and high-fat/flavored milks than Latino students, but did not significantly differ from Black students in terms of access to these beverages. Among high school students, no racial or ethnic differences were observed for access to Alliance beverages or high-fat/flavored milks. However, White high school students had higher access to additional Alliance beverages than did Black or Latino students, and higher access to sugar-sweetened beverages than did Black students. As with SES findings, differences in competitive vending availability by student race and ethnicity may be a factor in these findings.

- *Regular soft drinks.* Student vending machine access to regular soft drinks (such as Coco-Cola, Pepsi-Cola or Dr. Pepper) decreased significantly from 2007 to 2008 for both middle school (24% to 15%) and high school students (51% to 43%). (see Figure 5.14)

- No school SES differences were observed in the percentage of students with vending machine access to regular soft drinks. However, White high school students were significantly more likely to have vending machine access (51%) than Black (34%) or Latino (29%) students in 2008. Student access to regular soft drinks at other competitive venues did not change over time but remained significantly higher for high school students (12% for stores, snack bars/carts; and 5% for à la carte) than middle school students (4% and 1%, respectively).

FIGURE 5.13 Percentage of Students With Beverages Available in Any Competitive Venue, 2007–2008

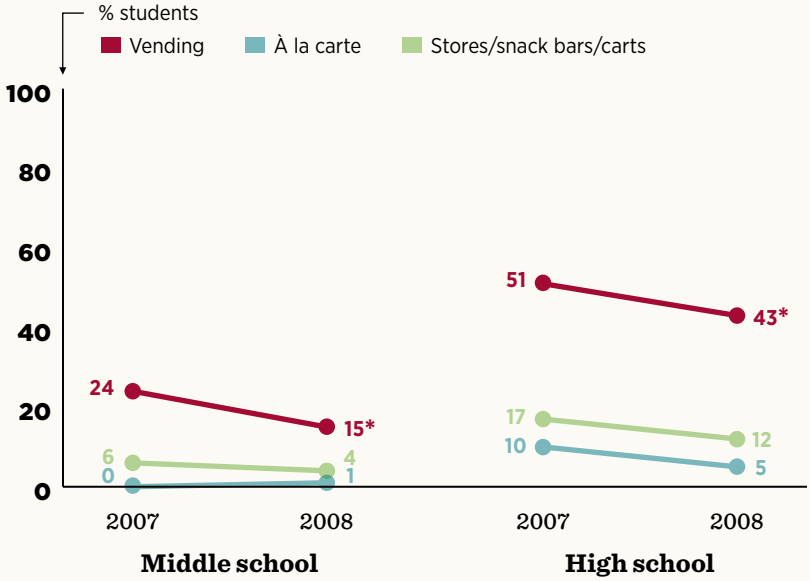


Competitive venues include vending machines, school/student stores or snack bars/carts, and à la carte at lunch.

Differences between middle and high school for additional high school Alliance beverages, sugar-sweetened beverages, and high-fat/flavored milks were significant at $p<.01$ in 2007 and 2008.

Source: Bridging the Gap, Institute for Social Research, University of Michigan, 2011.

FIGURE 5.14 Percentage of Students With Access to Regular Soft Drinks by Competitive Venue, 2007–2008



*Differences between 2007 versus 2008 were significant at $p<.05$.

Differences between middle and high school for all venues were significant at $p<.001$ in 2007 and 2008.

Source: Bridging the Gap, Institute for Social Research, University of Michigan, 2011.

Competitive Venue Food Availability

The YES survey asked about commercial fast food availability, as well as the availability of 18 food items/categories offered in competitive venues. Table 5.2 provides definitions of the food coding categories used.

TABLE 5.2 Definitions of Competitive Food Categories

Foods	
Fruits and vegetables	Any one or more of: fresh fruit; other fruit (such as dried or canned fruit); vegetables (excluding potatoes)
Salads	Any one or more of: pre-made, main course salads; salad bar
Whole grains	
Pizza	
French fries	Deep-fried fries (including fries that are just reheated)
Commercial fast foods	Fast food items from commercial chains or other vendors (such as Pizza Hut, Taco Bell and others)

Categories include items available in any of the following venues: vending machines, school/student stores or snack bars/carts, and à la carte at lunch.

Source: Bridging the Gap, Institute for Social Research, University of Michigan, 2011.

As with competitive beverage availability, high school students had significantly higher access to all categories of competitive foods than middle school students across both study years. Again, this may be partly explained by high school students having significantly more access to competitive food venues.

School SES was again significantly related to all competitive food availability measures. For middle school students, those in low-SES schools had significantly lower access to all competitive food categories than did those in high-SES schools. The same relationships were observed for high school students except for french fries and regular sugar/regular fat snack items: for these foods, no SES differences were observed.

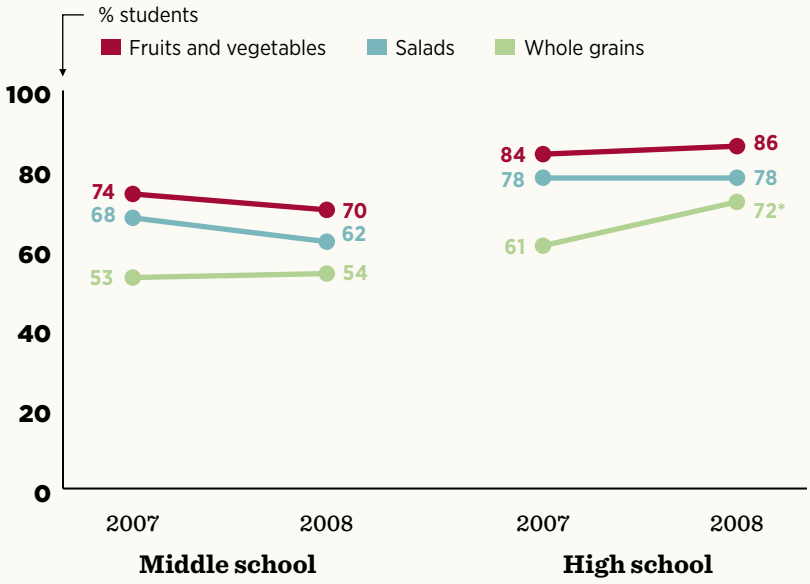
Competitive Venue Healthy Food Availability

- *Fruits and vegetables.* In 2008, 70 percent of middle school students and 86 percent of high school students had access to fruit (fresh, canned or dried) and/or vegetables (excluding potatoes) through competitive venues at their schools. (see Figure 5.15)

- *Salads and whole grains.* Salads and whole grains were available through competitive venues to fewer students than were fruits and vegetables. In 2008, 62 percent of middle school students had access to salads, and 54 percent had access to whole grains. Among high school students, 78 percent had access to salads, and 72 percent to whole grains. High school students' access to whole grains increased significantly from 2007 levels of 61 percent. (see Figure 5.15)

- In 2008 middle schools, White students had higher access to all healthy competitive food types than did Latino or Black middle school students with the single exception that there was no differences in access to whole grains between White and Black students. Among high school students in 2008, access to fruits and vegetables, as well as salads, was higher in competitive venues for White students than Black students; access to salads was also higher for White students than for Latinos. (see Figure 5.16)

FIGURE 5.15 Percentage of Students With Access to Healthy Competitive Foods in Any Competitive Venue, 2007–2008



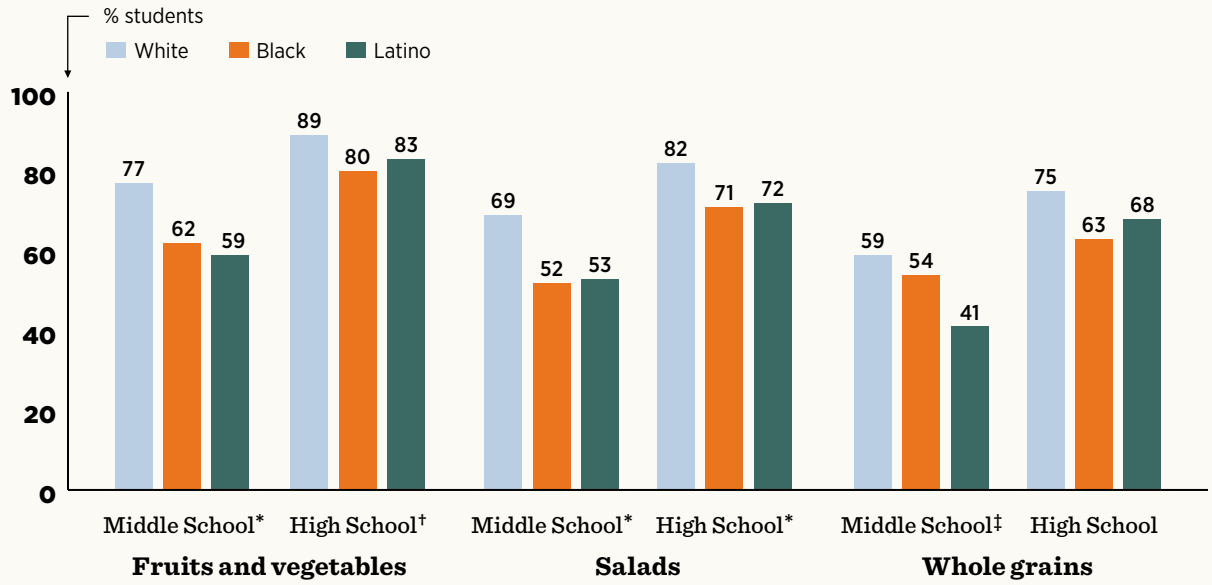
Competitive venues include vending machines, school/student stores or snack bars/carts, and à la carte at lunch.

*Difference between 2007 versus 2008 was significant at $p<.05$.

Differences between middle and high school for all items were significant at $p<.05$ in 2007 and 2008.

Source: Bridging the Gap, Institute for Social Research, University of Michigan, 2011.

FIGURE 5.16 Percentage of Students With Access to Healthy Competitive Foods in Any Competitive Venue by Student Race and Ethnicity, 2008



*Differences between White students versus Black and Latino students were significant at $p<.05$.

†Difference between White students versus Black students was significant at $p<.05$.

‡Difference between White students versus Latino students was significant at $p<.05$.

Source: Bridging the Gap, Institute for Social Research, University of Michigan, 2011.

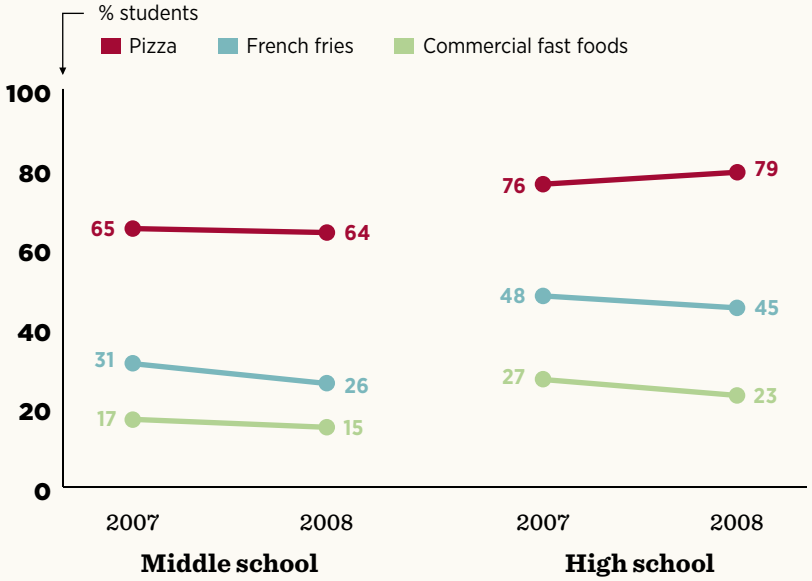
Competitive Venue Less Healthy Food Availability

- *Pizza and french fries.* In 2008, 64 percent of middle school students and 79 percent of high school students had access to pizza through competitive venues, and french fries were available to 26 percent of middle school students and 45 percent of high school students. The proportion of middle school and high school students in 2008 who had access to pizza most or every day à la carte at lunch was 32 percent and 56 percent, respectively; while the proportion who had à la carte access to french fries most or every day was 10 percent and 30 percent, respectively. (see Figure 5.17)

- *Commercial fast foods.* Middle school students were less likely than high school students to have access to commercial fast foods through à la carte sales in the cafeteria at least one day per week (15% vs. 23% in 2008). Rates had not appreciably changed since 2007. (see Figure 5.17)

- In 2008, the proportions of students who had pizza available most or every day was substantially higher in high-SES schools than low-SES schools. French fries were available to fewer Latino high school students than White or Black high school students; and pizza was available to more White than Latino students at the high school level. Commercial fast food availability among high school students was significantly higher for students in high-SES schools (35%) than for high school students in either low-SES schools (16%) or mid-SES schools (18%).

FIGURE 5.17 Percentage of Students With Access to Less Healthy Competitive Foods in Any Competitive Venue, 2007–2008



Competitive venues include vending machines, school/student stores or snack bars/carts, and à la carte at lunch.

Differences between middle and high school for all items were significant at $p<.05$ in 2007 and 2008.

Source: Bridging the Gap, Institute for Social Research, University of Michigan, 2011.

Competitive Venue Snack Item Availability

The YES survey asked about the availability of seven snack items/categories in competitive venues. Items were grouped as either reduced-fat snacks or regular sugar/regular fat snacks (see Table 5.3 for snack coding definitions).

TABLE 5.3 Definitions of Competitive Snack Categories

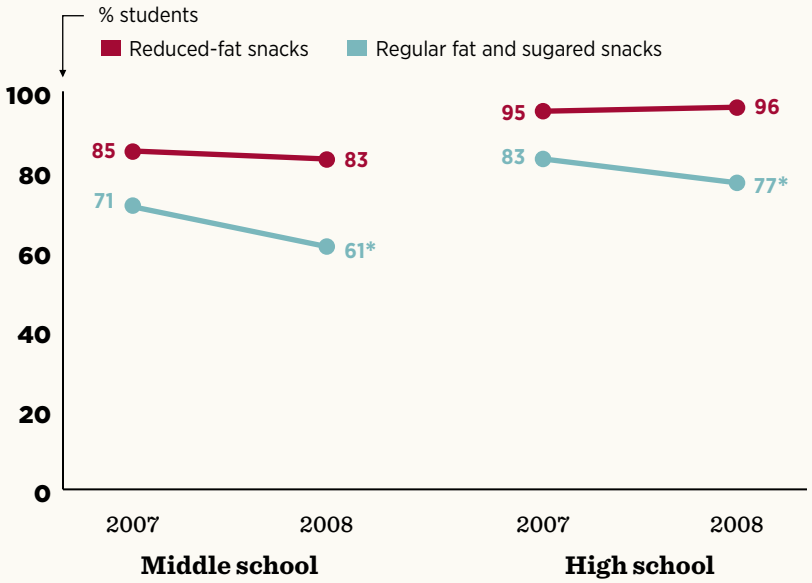
Snacks	
Reduced-fat snacks	Any one or more of: low-fat salty snacks, such as pretzels, baked chips or other low-fat chips; low-fat cookies, crackers, cakes, pastries, other low-fat baked goods; low-fat or fat-free ice cream, frozen yogurt, sherbet, or low-fat or non-fat yogurt
Regular sugar/regular fat snacks	Any one or more of: candy; salty snacks that are not low in fat, such as regular potato chips; cookies, crackers, cakes or other baked goods that are not low in fat; ice cream or frozen yogurt that is not low in fat

Categories include items available in any of the following venues: vending machines, school/student stores or snack bars/carts, and à la carte at lunch.

Source: Bridging the Gap, Institute for Social Research, University of Michigan, 2011.

- *Regular sugar/regular fat snacks.* Sixty-one percent of middle school students were able to obtain regular sugar/regular fat snacks through competitive venues at their school in 2008, a significant decrease from 2007 when 71 percent had access. Among high school students, 77 percent had access to these items in 2008, a significant decrease from the 2007 level of 83 percent. (see Figure 5.18)
- *Reduced-fat snacks.* The great majority of both middle and high school students had access to reduced-fat snack items at competitive venues (83% for middle school and 96% for high school). (see Figure 5.18)
- Access to reduced-fat snack items did not vary based on student race and ethnicity for middle school students. No racial or ethnic differences were observed for high school student access to regular sugar/regular fat snacks. White middle school students did have higher access to regular sugar/regular fat snacks than Latino middle school students (66% vs. 50%) in 2008.

FIGURE 5.18 Percentage of Students With Access to Competitive Food Snack Items, 2007–2008



Competitive venues include vending machines, school/student stores or snack bars/carts, and à la carte at lunch.

*Differences between 2007 versus 2008 were significant at $p<.05$.

Differences between middle and high school for both items were significant at $p<.05$ in 2007 and 2008.

Source: Bridging the Gap, Institute for Social Research, University of Michigan, 2011.

Conclusions, Implications and Opportunities

Competitive venues—vending machines, à la carte cafeteria sales, and stores or snack bars/carts—are an established component of the U.S. secondary school nutrition environment. Virtually all high school students (96%) had access to vending machines as did more than three-quarters of middle school students in 2008. The ability to purchase either a beverage or food item à la carte in the cafeteria (and thus not have the complete USDA meal) was available to 92 percent of high school students and 81 percent of middle school students. Thus, efforts to provide nutritionally-sound foods and beverages in competitive venues are key to a school's overall nutritional environment. However, a significant percentage of U.S. secondary school students attended schools that had not implemented nutritional guidelines for foods and beverages sold in competitive venues. These students are at risk for increased portion sizes and calories, and for lowered nutritional content of available foods and beverages.

It is encouraging that more than one-half of U.S. secondary students attended schools where principals report that competitive venue prices were set to encourage healthier consumption; however, there remains significant room for improvement in this area. Decisions on what foods and beverages to offer in competitive venues, and how to market those items, are complex. More than one-half of middle school students and more than two-thirds of high school students attended schools where principals reported that the school received specified percentages of sales from exclusive beverage contracts. Similar percentages for vending machine food sales were 19 percent for middle school students and 44 percent for high school students. In times of shrinking school budgets, the income generated from such competitive sales cannot be lightly dismissed. Schools hope to continue revenue income, but also to improve the nutritional balance of the items offered.

The current study indicates that as of 2008, access to sugar-sweetened beverages and less healthy foods such as pizza and french fries, or regular sugar/regular fat snacks, is very high in competitive venues for both middle and high school students. While important reductions have been seen for specific items such as reductions in the percentage of students with competitive venue access to regular soft drinks and regular sugar/regular fat snacks, overall access to sugar-sweetened beverages, pizza and french fries has not declined.

The Healthy, Hunger-Free Kids Act of 2010 gave USDA authority to update standards for all foods and beverages served and sold in schools. The IOM recommendations for competitive foods, which set limits on fat, sugar, calories and serving sizes,[129] should serve as a guide for USDA as it works to update national nutritional standards for these products. Further, districts and schools should update their policies to require implementation of nutritional guidelines for competitive products that are based on current dietary guidelines to ensure that all foods and beverages available to students contribute to a healthy diet.

The following table summarizes some of the key facts presented in this chapter. It shows the conditions as they existed in 2008 and the amount of change that occurred since 2007, if any.

TABLE 5.4 Summary of key changes, or lack thereof, between 2007–2008

	Middle School		High School	
Percentage of Students	**2007**	**2008**	**2007**	**2008**
With access to foods or beverages:				
...sold in vending machines	79%	77%	96%	96%
...sold à la carte	77%	81%	86%	92%*
...sold in stores, snack bars or carts	47%	48%	61%	62%
School offered foods or beverages in the following competitive venues but the Alliance nutritional guidelines for competitive foods had not been implemented:				
...in vending machines	68%	52%*	71%	49%*
...à la carte	70%	50%*	72%	52%*
...in stores, snack bars or carts	69%	48%*	67%	46%*
Attended schools where competitive venue prices were set to encourage consumption of:				
...healthy beverages	54%	55%	55%	57%
...healthy foods	48%	51%	52%	58%
Attended schools that received a percentage of sales from:				
...exclusive beverage contracts	54%	55%	64%	68%
...vending machine food sales	21%	19%	46%	44%
With access to the following through competitive venues:[i]				
...sugar-sweetened beverages[ii]	78%	71%	95%	92%
...regular soft drinks (vending machines)	24%	15%*	51%	43%*
...pizza	65%	64%	76%	79%
...french fries	31%	26%	48%	45%
...regular, non-fat-free snacks[iii]	71%	61%*	83%	77%*

[i] Competitive venues include vending machines, school/student stores or snack bars/carts, and à la carte at lunch.

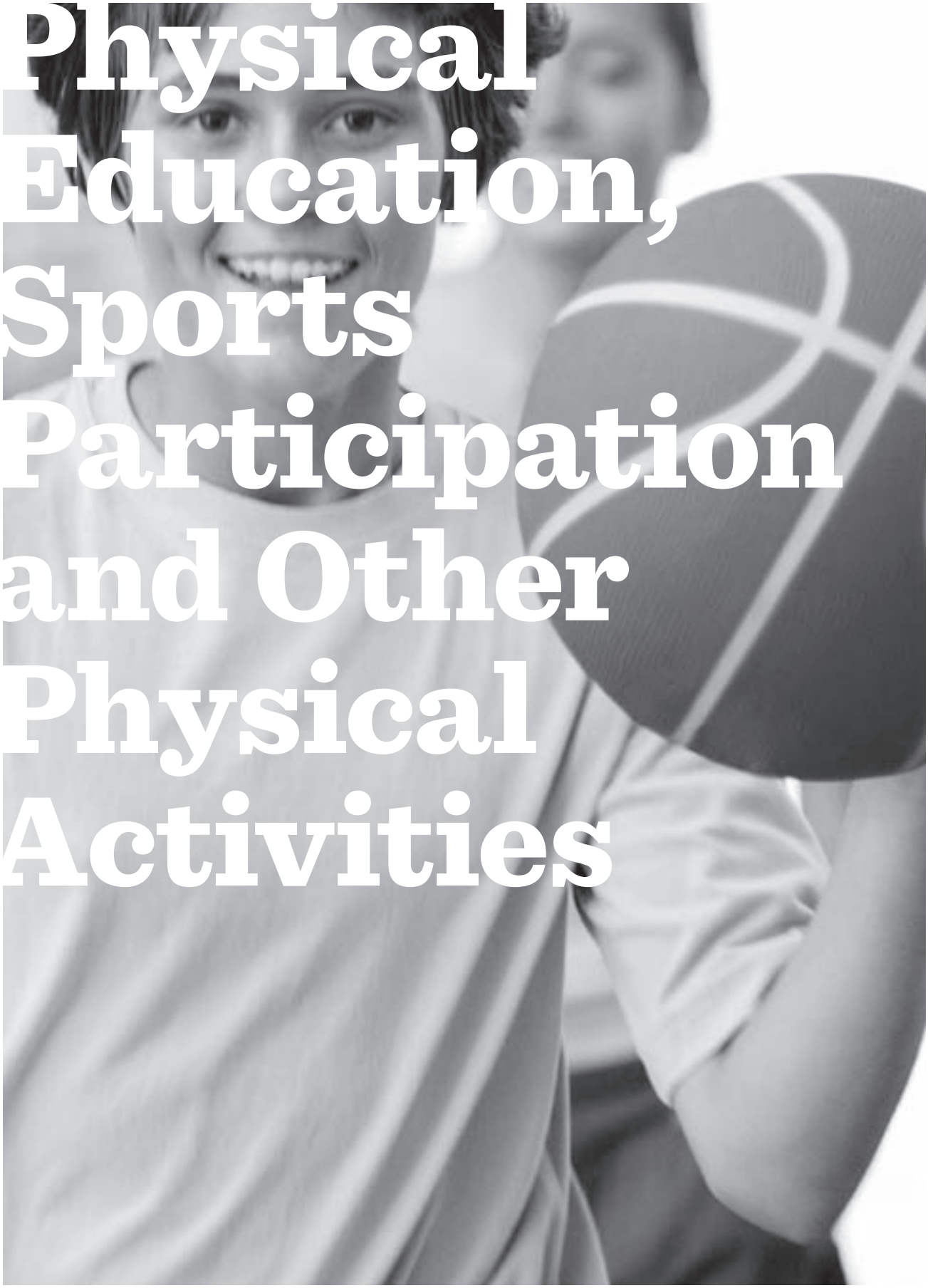
[ii] Any one or more of regular soft drinks; sports drinks; and fruit drinks that are not 100% fruit juice and that are high in calories.

[iii] Any one or more of: candy; salty snacks that are not low in fat, such as regular potato chips; cookies, crackers, cakes or other baked goods that are not low in fat; ice cream or frozen yogurt that is not low in fat.

*Differences between 2007 and 2008 were significant at $p<.05$ or greater.

Source: Bridging the Gap, Institute for Social Research, University of Michigan, 2011.

Physical Education, Sports Participation and Other Physical Activities



CHAPTER 6

Physical Education, Sports Participation and Other Physical Activities

Along with high caloric intake, insufficient physical activity is considered a key contributor to high rates of obesity among American youth.[130-132] Because young people spend a great deal of time in school, the school environment is a natural place to consider practices and policies that may affect student physical activity levels.

Several objectives set in Healthy People 2010 focus on the goals of increasing physical activity among both children and adolescents, including school-specific issues such as daily physical education and increased walking and bicycling to school.[133] Additional recommendations from the U.S. Department of Health and Human Services (USDHHS) state that children should have at least 60 minutes of physical activity daily, most of which should be moderate-to-vigorous physical activity.[134] Further, the National Association for Sport & Physical Education (NASPE) recommends 225 minutes per week of physical education at the middle and high school levels.[135] Such objectives could be addressed within the school setting through both physical education classes and other activities, such as intramural and varsity sports.

The Institute of Medicine recommends that children should expend approximately 50 percent of daily energy at school.[136] Thus, school-based physical activity provides an important opportunity to shape an individual's physical activity habits through the completion of secondary school and perhaps beyond. Many states have adopted or are considering legislation that is intended to promote physical activity among students.[137,138]

Interventions targeting existing school physical education curricula (e.g., adding additional physical education classes, extending the length of physical education classes, increasing time spent in moderate-to-vigorous physical activity in those classes) all have been found to relate positively to time spent in physical activity at school, as well as increased moderate-to-vigorous physical activity, energy expenditure, aerobic capacity and muscular endurance, flexibility, and physical activity knowledge and self-efficacy.[139] However, few relationships have been found between physical education interventions and student body mass index (BMI) or body fat percentage.[140] Some researchers posit that the lack of observed relationships between interventions that mandate dietary and physical activity changes in the school setting and student BMI may be due to students compensating by altering their behaviors outside of school.[141] Another possibility is that physical education may be effective in increasing energy expenditure, but may not be enough to affect weight or even may be offset by increased calorie consumption. Although empirical data are not strong, there are many calls to increase the quality of physical education programs; thus, school policies and practices in this area are well worth monitoring.

Physical Education Requirements and Participation

While some school-based physical education is required in virtually all states, participation requirements are generally low.[142-146]

Middle and high school principals responding to the YES survey were asked about physical education requirements and participation using the following two questions:

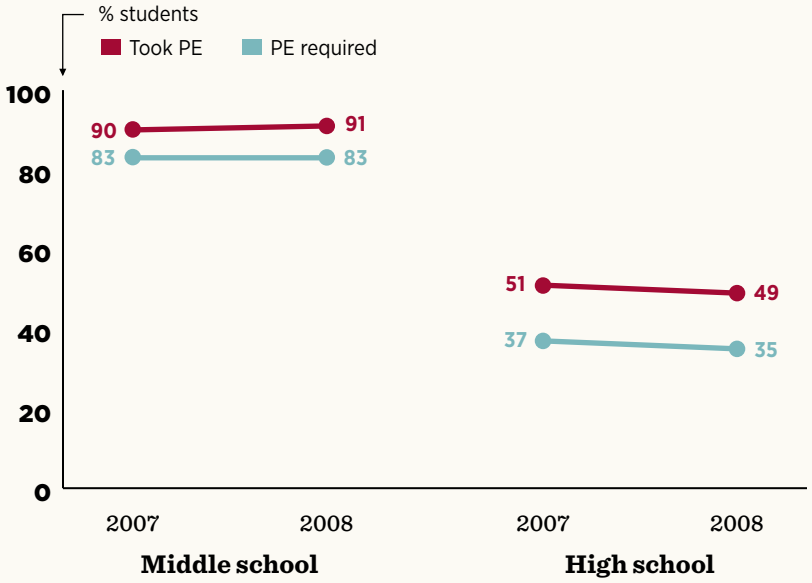
Question: Are [target grade 8, 10 or 12] students at this school required to take physical education in [target] grade?

Question: About what percent of [target grade 8, 10 or 12] students actually take a P.E. class in [target] grade?

The target grade for any school could be *8th, 10th or 12th* grade, depending into which of these three subsamples the school was selected. Response alternatives were yes or no for the first question, and for the second question respondents wrote in the percentage of students who took physical education. Note that these questions refer to the entire year in the target grade; some students may have been required to take physical education, or actually took physical education, during only one semester or one or two trimesters during the year.

- The findings show that much higher percentages of middle school students than high school students were in schools where they were required to take physical education—83 percent versus 35 percent, respectively, in 2008.
- Across both years, considerably higher percentages of middle school students actually took physical education classes, as well, about 90 percent versus only 50 percent in high school. (see Figure 6.1)
- There was little change in these statistics between 2007 and 2008, and there were no important systematic variations by school SES. There was, however, some difference by student race and ethnicity in high schools, with Latino students more likely than Black students to take physical education (56% versus 43% in 2008).
- Although physical education classes were more likely to be required in middle schools than in high schools, in 2008, high schools averaged slightly more days per week when they did have physical education. The mean number of days per week was 4.2 in high schools versus 4.0 in middle schools, and the normal physical education class time was 62 minutes in high schools versus 52 minutes in middle schools. No important systematic variations by year, school SES, or race and ethnicity were evident in these measures.

FIGURE 6.1 Percentage of Students Attending Schools Where Physical Education was Required and Average Percentage of Students Reported to Actually Take Physical Education, 2007–2008



PE: Physical Education

Differences between middle and high school for both outcomes were significant at $p<.001$ for both 2007 and 2008.

Source: Bridging the Gap, Institute for Social Research, University of Michigan, 2011.

Varsity Sports Participation

Participation in the various sports teams and activity clubs in the school is another important means by which many students increase their activity levels. We first consider student participation in varsity sports—also called interscholastic sports.

Principals responding to the YES survey were asked,

Question: About what percent of [target grade 8, 10 or 12] boys and girls in your school would you estimate participate in interscholastic or varsity sports sometime during the school year?

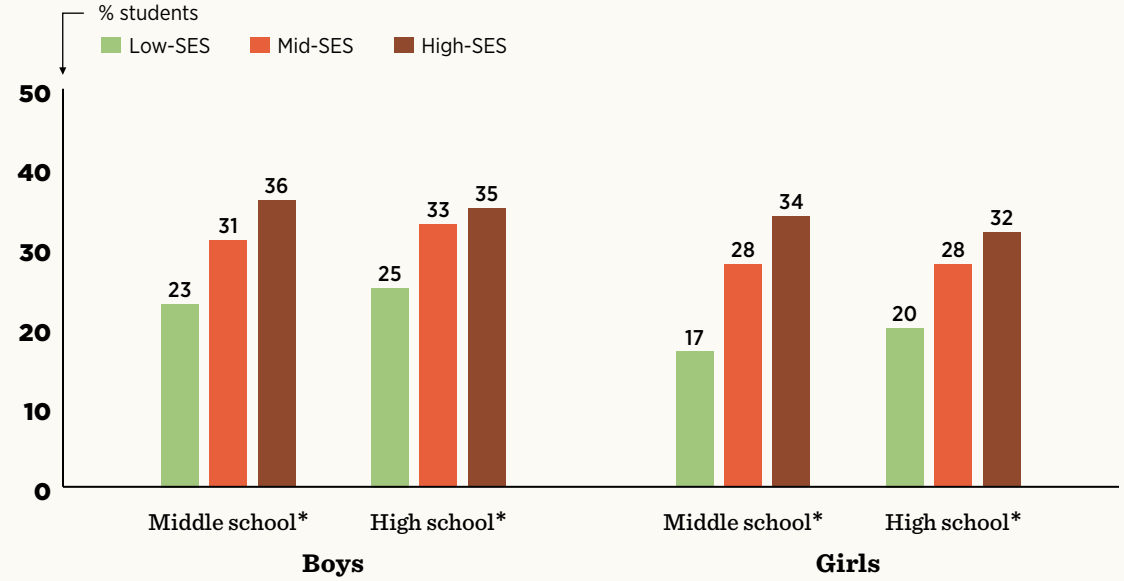
Separate answers were written in for the percentage of boys and percentage of girls.

- Slightly fewer than one-third (about 31%) of middle and high school boys participated in interscholastic or varsity sports sometime during the school year, with very little difference between 2007 and 2008. (see Figure 6.2)
- School SES was positively associated; in 2008 about one-quarter of boys in low-SES schools participated in varsity sports compared with 31 percent to 36 percent in mid- and high-SES schools, respectively. (see Figure 6.3)
- Participation in varsity sports also varied by the racial and ethnic makeup of the school, with boys in predominantly White schools more likely to participate in varsity sports than boys in majority Black or majority Latino schools. This was true for both middle schools and high schools in both 2007 and 2008. (see Figure 6.4)
- The findings for girls were very similar, though at slightly lower levels: in both middle and high schools about 27 percent of girls participated in interscholastic or varsity sports in 2008 compared with about 31 percent for boys. (see Figure 6.2)
- As with the boys, school SES was positively associated with girls' participation in varsity sports. In 2008, about one-fifth (17% in middle, 20% in high schools) of girls in low-SES schools participated, compared to 28 percent to 34 percent of girls in mid- and high-SES schools, respectively (for both middle and high schools). The pattern was very similar in 2007. (see Figure 6.3)
- Also similar to findings for boys, girls' participation in varsity sports varied by the racial and ethnic makeup of the school, with girls in predominantly White schools more likely to participate than girls in majority Black or majority Latino schools. In 2008, one-third of girls in predominantly White schools (34% in middle, 32% in high schools) participated, compared to 17 percent to 19 percent in majority Black and majority Latino middle and high schools. The pattern was very similar in 2007. (see Figure 6.4)

FIGURE 6.2 Percentage of Students Participating in Interscholastic or Varsity Sports During the School Year, 2007–2008

Source: Bridging the Gap, Institute for Social Research, University of Michigan, 2011.

FIGURE 6.3 Percentage of Students who Participated in Interscholastic or Varsity Sports During the School Year by School Socioeconomic Status, 2008

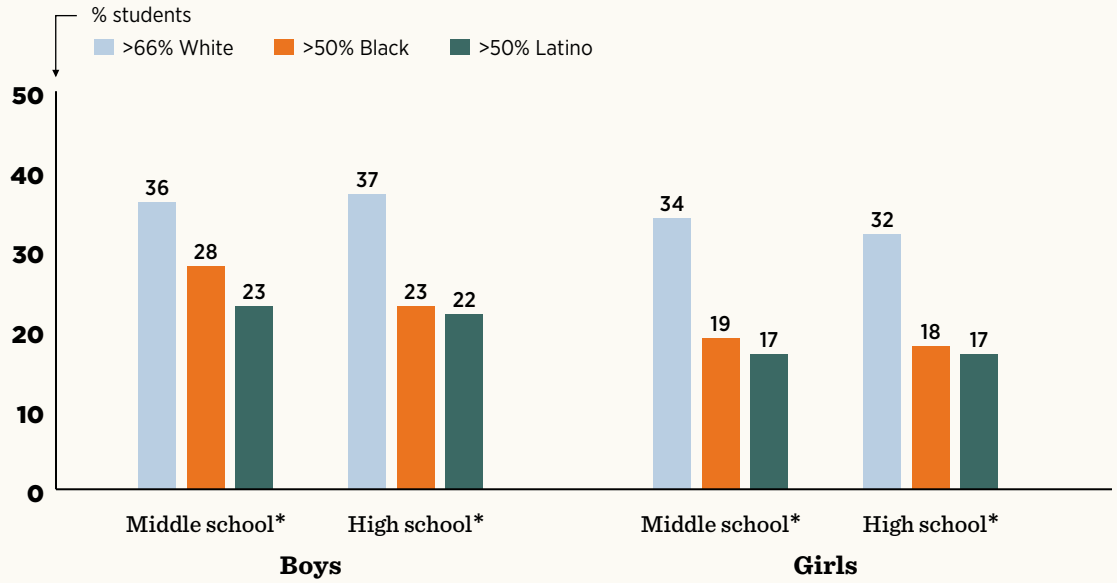


Low-, mid- and high-SES defined based on tertiles of the percentage of students eligible for free and reduced-price lunch.

*For both genders, as well as both school levels (middle and high school), differences between students in low-SES versus mid-/high-SES schools were significant at $p<.05$.

Source: Bridging the Gap, Institute for Social Research, University of Michigan, 2011.

FIGURE 6.4 Percentage of Students who Participated in Interscholastic or Varsity Sports During the School Year by the Predominant Racial and Ethnic Makeup of the School, 2008



*For both genders, as well as both school levels (middle and high school), students in predominantly White schools were significantly different from students in predominantly Black or Latino schools at $p<.05$.

Source: Bridging the Gap, Institute for Social Research, University of Michigan, 2011.

Intramural Sports Participation

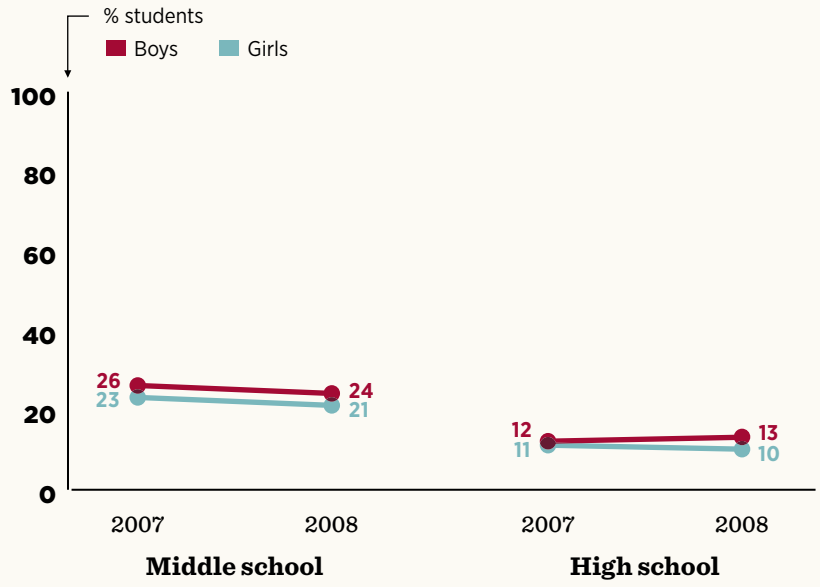
Principals were also asked to estimate the level of student participation in non-varsity sports:

Question: About what percent of [target grade 8, 10 or 12] boys and girls in your school would you estimate participate in intramural sports or physical activity clubs (not including P.E.) sometime during the school year?

Separate answers were written in for the percentages of boys and percentage of girls.

- Rates of participation in intramural sports or physical activity clubs differed considerably between middle and high schools, with about twice as many middle school students as high school students participating in 2008. Rates for middle school boys were 24 percent compared with 13 percent for high school boys. For girls, the corresponding rates were 21 percent and 10 percent. (see Figure 6.5)
- The association between intramural sports participation and SES was positive in middle schools for both boys and girls, as was true for varsity sports. In other words, those in high-SES schools were more likely to participate in intramural sports in 2008. In high schools, however, there was essentially no such association. (see Figure 6.6)
- In predominantly White middle schools, both boys and girls were more likely than students in other racial and ethnic majority schools to participate in intramural sports or physical activity clubs, similar to the association for interscholastic or varsity sports. However, as with school SES, there was essentially no association in high schools. All these associations were similar in 2007 and 2008.

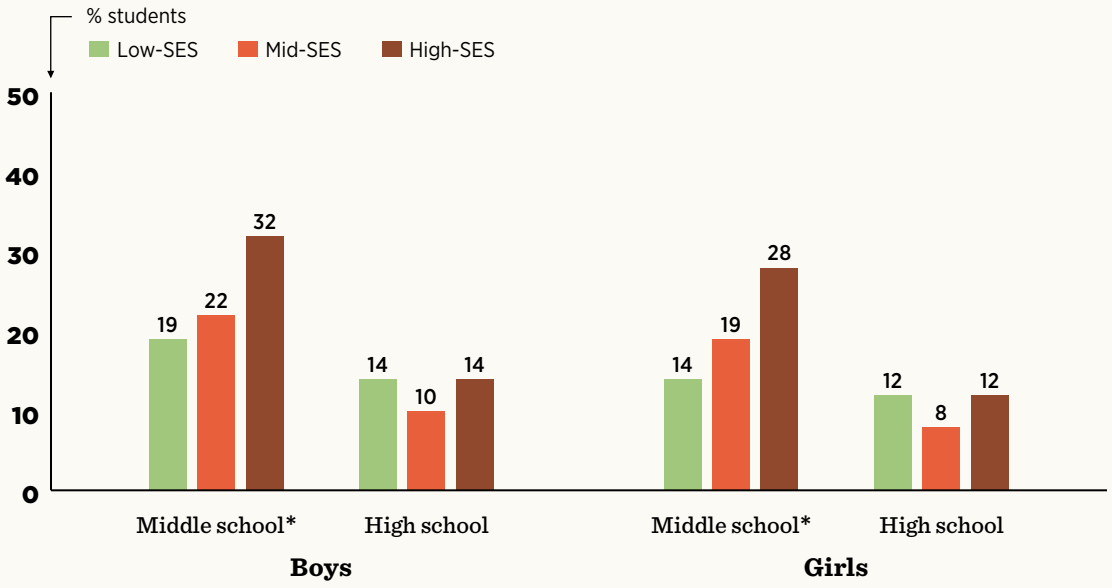
FIGURE 6.5 Percentage of Students Who Participated in Intramural Sports or Physical Activity Clubs During the School Year, 2007–2008



Differences between middle and high school for both genders were significant at $p<.001$ for both 2007 and 2008.

Source: Bridging the Gap, Institute for Social Research, University of Michigan, 2011.

FIGURE 6.6 Percentage of Students Who Participated in Intramural Sports or Physical Activity Clubs During the School Year by School Socioeconomic Status, 2007–2008



Low-, mid- and high-SES defined based on tertiles of the percentage of students eligible for free and reduced-price lunch.

*For both genders in middle school, differences between students in low-/mid-SES versus high-SES schools were significant at $p<.05$.

Source: Bridging the Gap, Institute for Social Research, University of Michigan, 2011.

Walking or Biking to School

Relatively few students walk or bicycle to school.[147-150] Although frequency of bicycling overall has been reported to be associated with lower body weight,[151] there is not yet much empirical evidence demonstrating beneficial effects from bicycling or walking to school.[152-154] Nevertheless, evaluations of Safe Routes to School (SRTS) programs have shown an increase in the proportion of walking or biking trips, and reductions in the number of students who are driven to school.[155,156] Through SRTS and other initiatives, communities across the country are making an effort to increase active commuting, so it is of value to monitor this behavior.[157-160]

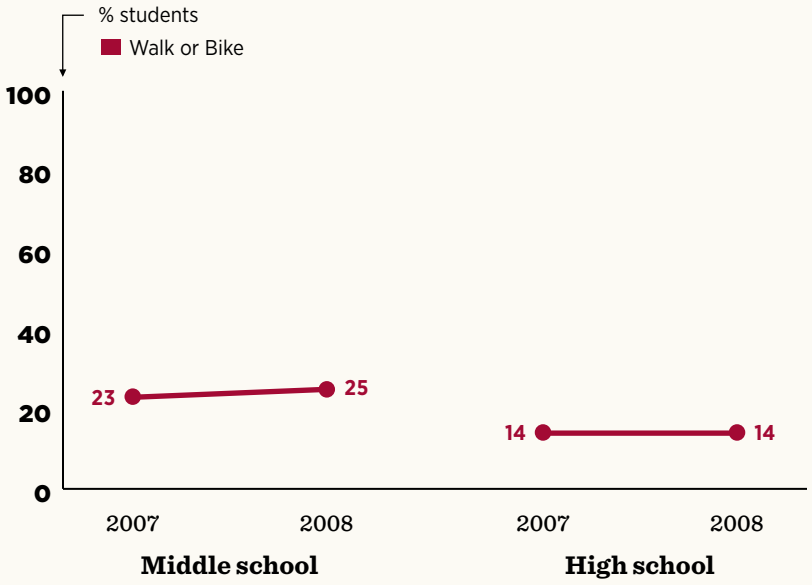
School administrators were asked:

Question: About what percent of [target grade 8, 10 or 12] students in your school would you estimate walk or bike from home to school on an average school day?

Respondents recorded the percentage of students.

- Relatively few students walked or biked to school: about one in four middle school students (25%), and one in seven high school students (14%) in 2008. There was little change between 2007 and 2008. (see Figure 6.7)
- There was a moderately strong negative association with school SES; about twice as many students in low-SES schools walked or biked to school as students in high-SES schools. (see Figure 6.8)
- At both the middle and high school levels, there were large differences associated with the racial and ethnic makeup of the schools. Students in predominately White schools were much less likely to walk or bike to school, compared with students in majority Black or majority Latino schools. Students attending majority Latino schools were somewhat more likely than students in majority Black schools to walk or bike to school, particularly in high schools. (see Figure 6.9)

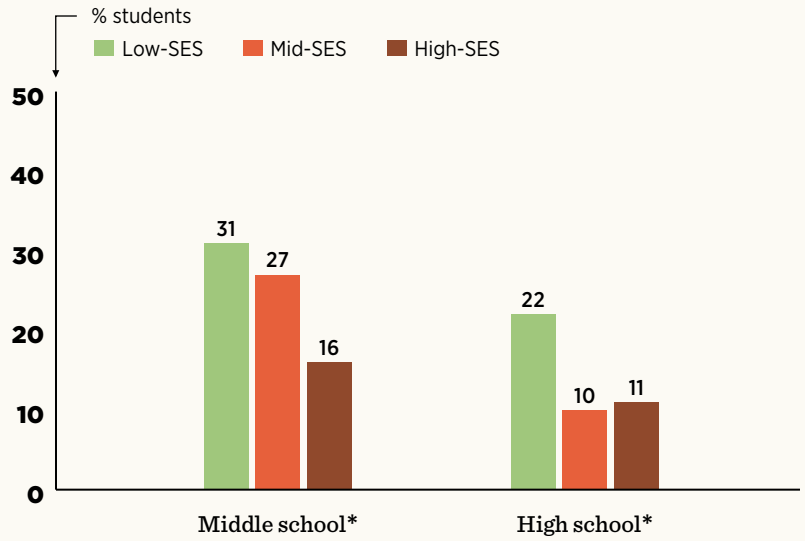
FIGURE 6.7 Percentage of Students who Walked or Biked From Home to School, 2007–2008



Differences between middle and high school were significant at $p<.001$ for both 2007 and 2008.

Source: Bridging the Gap, Institute for Social Research, University of Michigan, 2011.

FIGURE 6.8 Percentage of Students who Walked or Biked From Home to School by School Socioeconomic Status, 2008

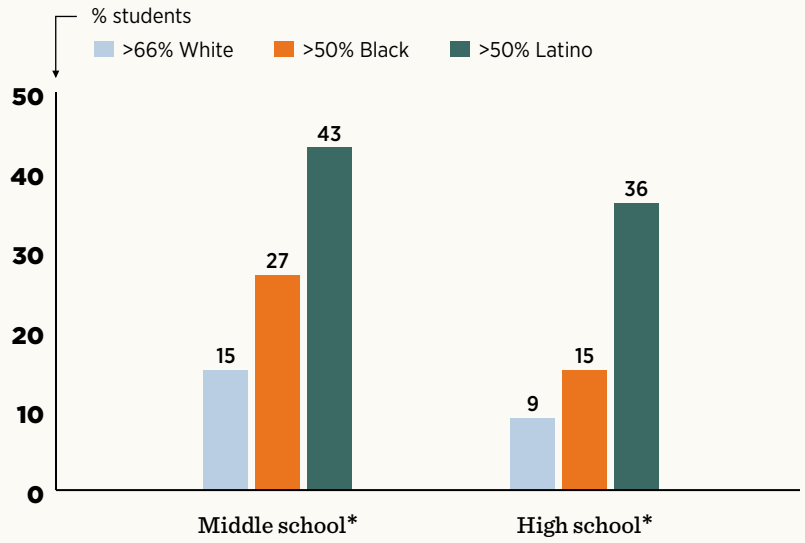


Low-, mid- and high-SES defined based on tertiles of the percentage of students eligible for free and reduced-price lunch.

*For middle school, differences between students in low-/mid-SES versus high-SES schools were significant at $p<.01$. For high school, differences between students in low-SES versus mid-/high-SES schools were significant at $p<.001$.

Source: Bridging the Gap, Institute for Social Research, University of Michigan, 2011.

FIGURE 6.9 Percentage of Students who Walked or Biked From Home to School by the Predominant Racial and Ethnic Makeup of the School, 2008



*For middle school, differences between all groups were significant at $p<.05$. For high school, students in predominantly Latino schools were significantly different from students in predominantly White or Black schools at $p<.001$.

Source: Bridging the Gap, Institute for Social Research, University of Michigan, 2011.

Physical Fitness Testing

To examine how physical fitness tests were utilized in middle and high schools, principals were asked:

Question: Does your school give [target grade 8, 10 or 12] students physical fitness tests?"

If yes, two additional questions follow:

Question: What groups of students are tested?

Question: Are parents or guardians provided the results of their student's fitness test?

Answer alternatives for the first and third question were yes or no. For the second question, response options were: all [target grade 8, 10 or 12] students are tested; only [target grade 8, 10 or 12] students who take P.E. are tested; other.

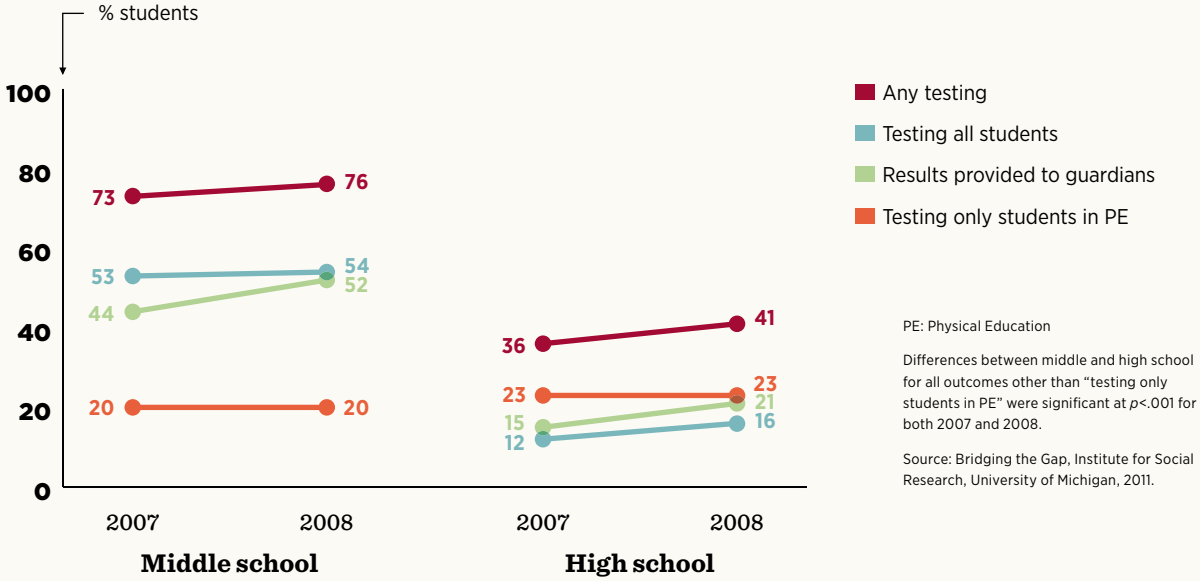
- Almost twice as many middle school students (76%) attended schools that gave any physical fitness tests as compared with high school students (41%) in 2008. Middle school students were also much more likely to be in schools that gave physical fitness tests to *all* students (54% compared with only 16% of high school students being in schools testing all students in 2008). Further, high schools were more likely to restrict physical fitness testing to only those students who took physical education. These rates did not differ significantly from 2007. (see Figure 6.10)

- High-SES schools were somewhat more likely to give physical fitness tests, particularly in middle schools in both 2007 and 2008. Race and ethnicity were not associated with either the likelihood of giving all students physical fitness tests or if only those students taking physical education were tested.

- In middle schools, parents or guardians were much more likely to be provided with the results of students' physical fitness tests (52%) compared with high schools (21%) in 2008. (see Figure 6.10)

- High-SES middle schools were somewhat more likely to give physical fitness test results to parents or guardians, significantly so in 2007 only. Race and ethnicity were not associated with the likelihood of parents or guardians getting results of the physical fitness tests; this was true for both middle and high schools in 2007 and 2008.

FIGURE 6.10 Percentage of Students Attending Schools With Physical Fitness Testing, 2007–2008



PE: Physical Education

Differences between middle and high school for all outcomes other than "testing only students in PE" were significant at $p<.001$ for both 2007 and 2008.

Source: Bridging the Gap, Institute for Social Research, University of Michigan, 2011.

Measuring Body Mass Index of Students

One method for the schools to assess the degree to which their students are overweight, and to make parents aware of it, is to measure BMI of students and communicate the results to parents. BMI is the ratio of weight to height squared, and is often used to assess overweight status because it is relatively easy to measure accurately and is a reliable indicator of body fat.[161] The Institute of Medicine has recommended using schools as a primary means of providing annual BMI screening.[162] Such school-based programs may provide important surveillance and screening to identify individuals potentially at risk for weight-related health issues; however, research has not clarified if school-based BMI screening programs are effective in improving student health.[163] To determine to what extent schools are measuring BMI, principals in the YES study were asked the following:

Question: Body mass index (BMI) is a measure of overweight based on height and weight. Does your school measure [target grade 8, 10 or 12] students' BMI?

Answer alternatives were yes and no. If the answer was yes, an additional question followed:

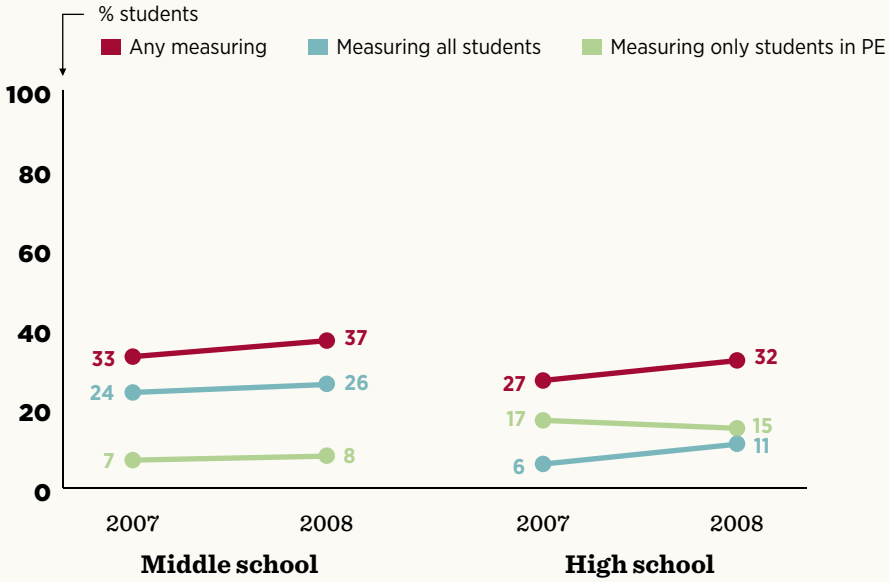
Question: BMI is measured on:

Response options were: all [target grade 8, 10 or 12] students; only [target grade 8, 10 or 12] students who take P.E.; and other.

- As Figure 6.11 shows, about one-third of students attended schools that measured student BMI. There was no significant variation by middle versus high school, nor by year, school SES, or student race and ethnicity.

- Middle schools were more likely to measure BMI for all students (26% in 2008), while high schools were more likely to measure only students who took physical education (15% in 2008). This is similar to the pattern for physical fitness testing as well. Year, school SES, and student race and ethnicity were not systematically associated with whether BMI was measured for all students or only students taking physical education (see Figure 6.11).

FIGURE 6.11 Percentage of Students Attending Schools That Measured Body Mass Index, 2007–2008



PE: Physical Education

Differences between middle and high school for "measuring all students" and "measuring only students in PE" were significant at $p<.001$ for both 2007 and 2008. Differences between middle and high school for "any measuring" were not significant.

Source: Bridging the Gap, Institute for Social Research, University of Michigan, 2011.

Activities Underway to Promote Increased Physical Activity

On the assumption that more schools and school districts today are attending to ways to reduce the extent of overweight among their students, we asked school administrators whether there were any significant activities currently underway to promote increased physical activity among students:

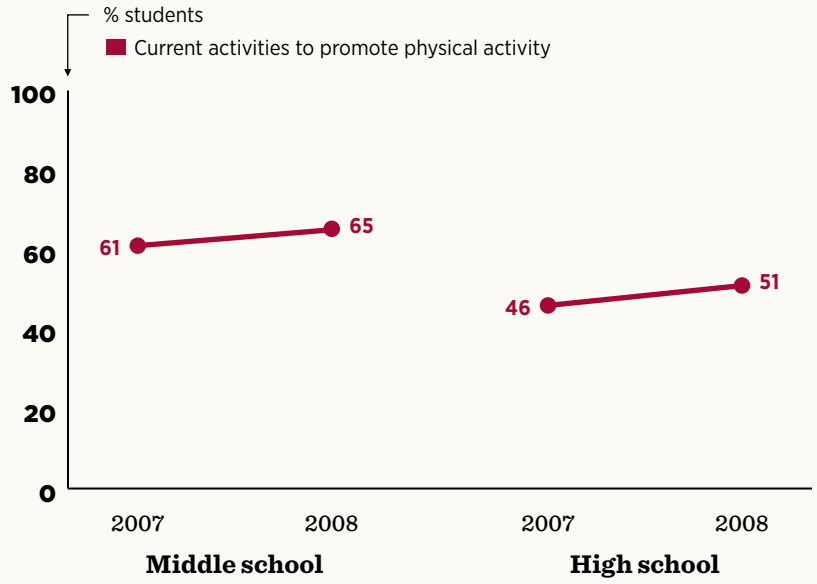
Question: Are there any significant activities currently underway at your school, or school district, to promote increased physical activity among students?

Answer alternatives were yes and no. If yes, they were asked to briefly describe the activities.

- In 2007, significantly more middle school students (61%) than high school students (46%) were attending schools that answered that there were significant activities underway. In 2008, the corresponding figures were slightly higher (65% and 51%), though the increases did not reach statistical significance. Thus, about one-half or more of all students were in schools that reported significant attempts to promote increased physical activity among students. But that also means that significant numbers of secondary school students were attending schools where there were *not* significant activities underway to address the need for more physical activity. (see Figure 6.12)

- There was some positive association between school SES and the likelihood of there being significant activities to promote increased student physical activity underway, particularly for the middle schools. Students attending majority Black schools were the least likely to have such activities underway in 2008. (see Figures 6.13 and 6.14)

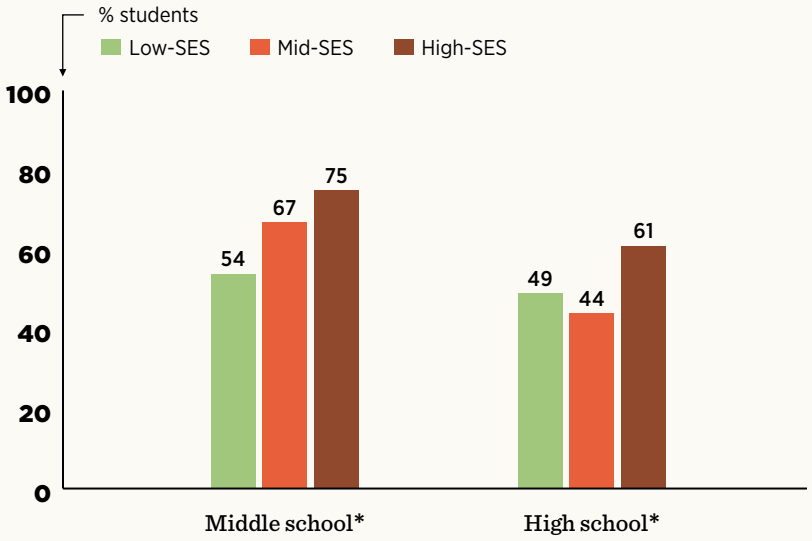
FIGURE 6.12 Percentage of Students Attending Schools With Activities to Promote Student Physical Activity, 2007–2008



Differences between middle and high school were significant at $p<.001$ for both 2007 and 2008.

Source: Bridging the Gap, Institute for Social Research, University of Michigan, 2011.

FIGURE 6.13 Percentage of Students Attending Schools With Activities to Promote Student Physical Activity by School Socioeconomic Status, 2008

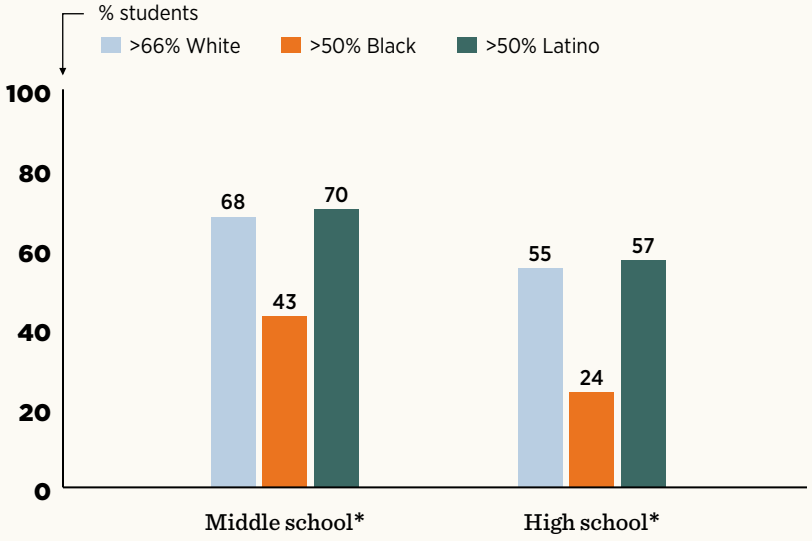


Low-, mid- and high-SES defined based on tertiles of the percentage of students eligible for free and reduced-price lunch.

*For middle school, differences between students in low-SES versus high-SES schools were significant at $p<.01$. For high school, differences between students in mid-SES versus high-SES schools were significant at $p<.05$.

Source: Bridging the Gap, Institute for Social Research, University of Michigan, 2011.

FIGURE 6.14 Percentage of Students Attending Schools With Activities to Promote Student Physical Activity by the Predominant Racial or Ethnic Makeup of the School, 2008



*For both middle and high school, students in predominantly Black schools were significantly different from students in predominantly White or Latino schools at $p<.05$.

Source: Bridging the Gap, Institute for Social Research, University of Michigan, 2011.

Conclusions, Implications and Opportunities

Insufficient physical activity is a key contributor to the problem of childhood obesity. The data in this chapter indicate that much more could be done in schools to increase students' physical activity, especially among low-SES schools and those that do not have a predominately White student body.

Although physical education was required for a high percentage of middle schools students, relatively few high school students were required to take physical education. Among those secondary school students who took physical education, the time they spent in those classes was generally consistent with NASPE standards, which recommend 225 minutes per week of physical education. However, it is very likely that many of the students who took physical education did not meet these standards for the entire school year. It also is not clear how much time was spent in moderate-to-vigorous physical activity, which is key to meeting recommendations by the USDHHS.

As Congress reauthorizes the Elementary and Secondary Education Act, it should consider making physical education a core and mandatory requirement to ensure that all students are getting adequate amounts of exercise and that physical education classes follow evidence-based guidelines and are taught by certified teachers. In addition, as the U.S. Department of Agriculture develops model policies and technical assistance for local wellness policies in accordance with the Healthy, Hunger-Free Kids Act of 2010, it should consider requiring districts to set specific goals for physical education. Stronger district and school policies that align with evidence-based guidelines, including those for time spent in moderate-to-vigorous physical activity, would help more students meet national recommendations and learn lifelong skills that contribute to healthy behavior. Increasing awareness of the link between physical activity and improved academic performance[164,165] is one strategy for motivating key decision-makers to support such policy changes.

There also is considerable room for more students to be participating in interscholastic or varsity sports and in intramural sports. Overall, we found that students in low-SES schools and predominately Black or Latino schools had significantly lower rates of participation in physical activity programs outside of physical education. Policies that support opportunities for students to be active before, after and during the school day will likely help more children meet the USDHHS daily recommendation for at least 60 minutes of moderate-to-vigorous physical activity.

Relatively few students walked or biked to school. Given the large catchment areas of most schools, and the inclement weather for part of the school year in much of the nation, there may be some limits on how much can be done to increase the numbers of students walking or biking to school. Nevertheless, changes to the physical environment (e.g., providing sidewalks) and the social environment, such as increasing safety measures and supporting walking school bus programs, hold promise for increasing active commuting among students.

We also found that many students were not given physical fitness tests or BMI assessments in school, particularly in high schools. It is possible that increasing the numbers of students who are assessed for both measures and reporting results to parents would have a positive effect on the rates of obesity.

Many schools have significant activities underway that are intended to promote increased physical activity. However, many schools do not, especially those with predominately Black student populations and low-SES schools. Thus, there is considerable room for more efforts here, and such efforts are likely to have substantial benefits.

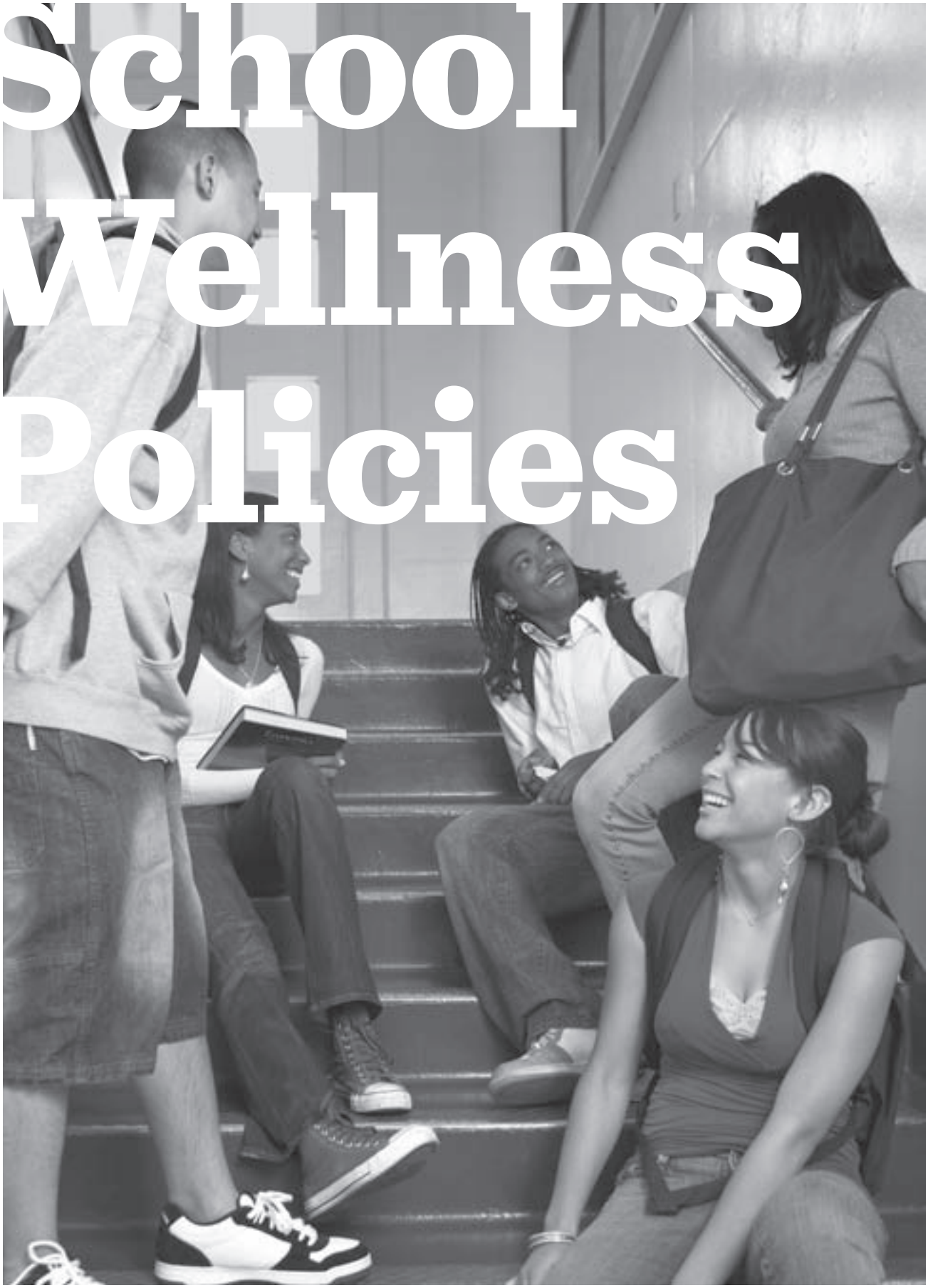
Table 6.1 summarizes key findings among U.S. middle and high school students that may be particularly important for informing wide-reaching policies that will impact guidelines for school-based physical activity. Table 6.1 also highlights changes from 2007 to 2008, which were the first two years following the federal wellness policy mandate. These data can be used to monitor school-level implementation of the district wellness policies and assess the nation's progress in creating healthier school environments to help reverse the adolescent obesity epidemic.

TABLE 6.1 Summary of key changes, or lack thereof, between 2007–2008

	Middle School		High School	
Percentage of Students	**2007**	**2008**	**2007**	**2008**
Attended schools that require physical education	83%	83%	37%	35%
Participated in varsity sports:				
...boys	31%	30%	32%	31%
...girls	27%	27%	27%	27%
Participated in intramural sports:				
...boys	26%	24%	12%	13%
...girls	23%	21%	11%	10%
Walked or bicycled from home to school	23%	25%	14%	14%
Attended schools that gave physical fitness tests to all students	53%	54%	12%	16%
Attended schools that measured BMI for all students	24%	26%	6%	11%
Attended schools that had activities in place to promote physical activity	61%	65%	46%	51%

Source: Bridging the Gap, Institute for Social Research, University of Michigan, 2011.

School Wellness Policies



CHAPTER 7

CHAPTER 7

School Wellness Policies

The Child Nutrition and WIC Reauthorization Act of 2004 required school districts or local education agencies that participate in federally subsidized child nutrition programs, such as the National School Lunch Program, School Breakfast Program or Special Milk Program, to establish and implement a local school wellness policy by the start of the 2006–07 school year.

Our survey found that in 2008, 92 percent of middle school students and 95 percent of high school students were in schools that participated in the National School Lunch Program, so nearly all schools were obliged to establish a wellness policy.

Establishing a Wellness Policy

School administrators were asked:

Question: Has your school district or your school established a school wellness policy that addresses student nutrition and/or physical activity issues?

Answer alternatives were yes; no; and don't know.

We found that by the 2007 survey, most middle school and high school students were in districts and/or schools that had established a school wellness policy. (see Figure 7.1)

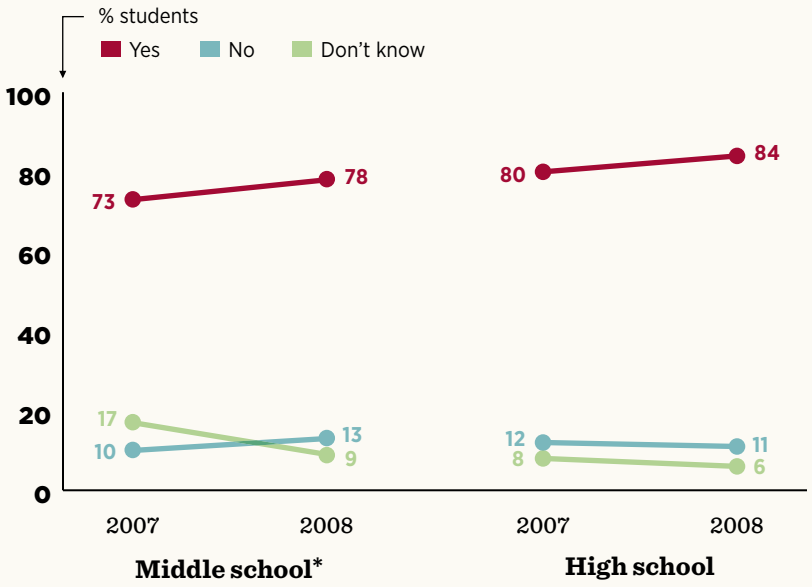
In 2007:

- 73 percent of middle school students and 80 percent of high school students were in schools that had an established school wellness policy.
- 10 percent of middle school students and 12 percent of high school students were in schools that had not yet established a wellness policy.
- 17 percent of middle school students and 8 percent of high school students were in schools where the school administrator surveyed didn't know whether a wellness policy had been established.

By 2008:

- 78 percent of middle school students and 84 percent of high school students were in schools that had an established school wellness policy. Although this difference was not statistically significant in 2008, it was in 2007.
- 13 percent of middle school students and 11 percent of high school students were in schools that had not yet established a wellness policy.
- 9 percent of middle school students and 6 percent of high school students were in schools where the school administrator didn't know whether a wellness policy had been established.
- Administrators were becoming more familiar with the existence of school wellness policies, particularly for middle schools. Also, for middle schools, significantly more administrators reported that their districts had adopted a wellness policy in 2008 than in 2007. (see Figure 7.1)
- High school students attending high-SES schools were more likely than students in mid- and low-SES schools to have an established wellness policy. (see Figure 7.2)
- Similarly, White high school students were more likely to be in schools with an established wellness policy in place than were Black students. (see Figure 7.3)

FIGURE 7.1 Percentage of Students in Schools With an Established School Wellness Policy, 2007–2008

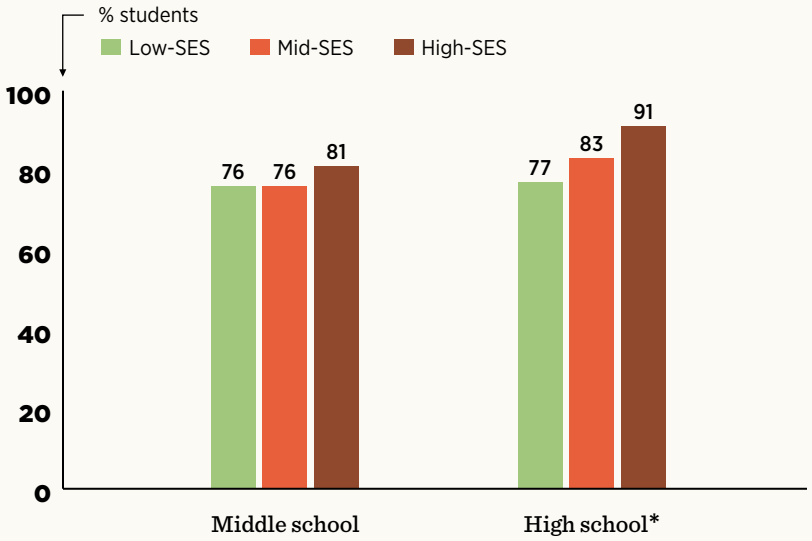


*Differences between 2007 and 2008 were significant at $p<.05$.

Differences between middle and high school in 2007 were also significant at $p<.05$.

Source: Bridging the Gap, Institute for Social Research, University of Michigan, 2011.

FIGURE 7.2 Percentage of Students in Schools With an Established School Wellness Policy by School Socioeconomic Status, 2008

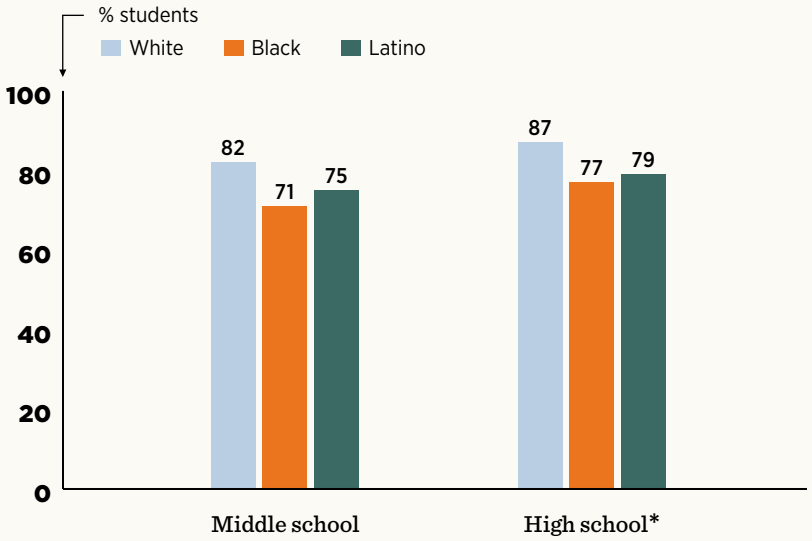


Low-, mid- and high-SES defined based on tertiles of percentage of students eligible for free and reduced-price lunch.

*Differences between high school low-/mid-SES versus high-SES levels were significant at $p<.05$.

Source: Bridging the Gap, Institute for Social Research, University of Michigan, 2011.

FIGURE 7.3 Percentage of Students in Schools With an Established School Wellness Policy by Student Race and Ethnicity, 2008



*Differences between White high school students and Black students were significantly different at $p<.05$.

Source: Bridging the Gap, Institute for Social Research, University of Michigan, 2011.

Plan for Measuring Implementation of the Wellness Policy

Another requirement in the Act of 2004 was that school districts develop a plan for measuring the implementation of the wellness policy.

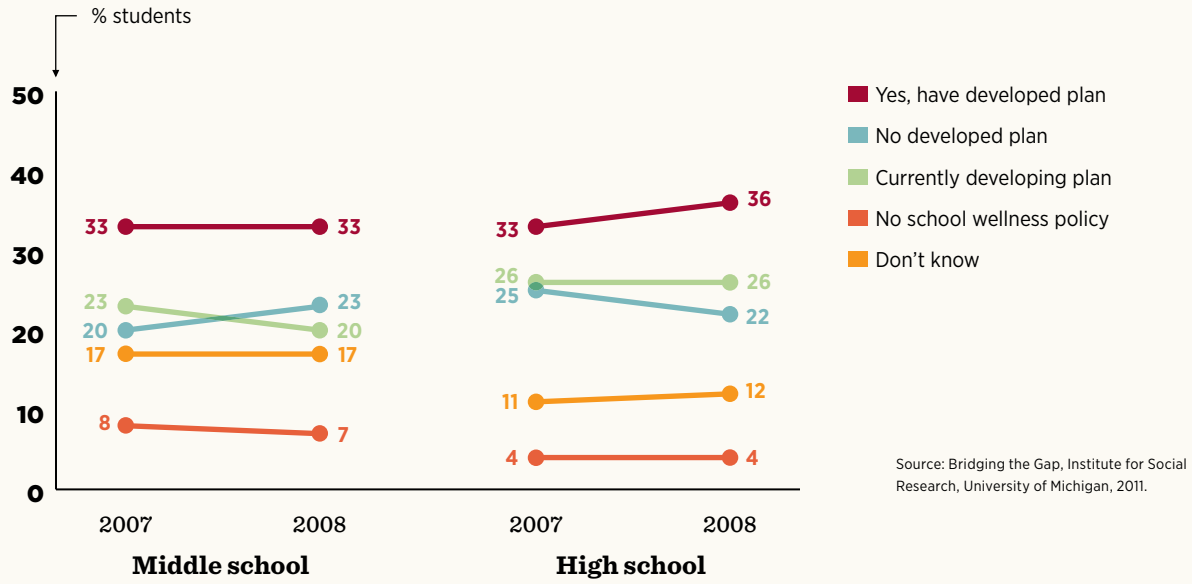
School administrators were asked:

Question: Has your school district or your school developed a plan for measuring implementation of the school wellness policy?

Answer alternatives were: yes, we have developed a plan; we are currently developing a plan; no, not yet; don't know; and no school wellness policy.

- In 2008, only about one-third of middle and high school students were in a school that had developed a plan for measuring implementation of the wellness policy.
- One-fifth of middle school students and about one-quarter of high school students were in schools or districts that were currently developing a plan to measure the implementation of the wellness policy in 2008. (see Figure 7.4)

FIGURE 7.4 Percentage of Students in Schools With a Plan for Implementing a School Wellness Policy, 2007–2008



Source: Bridging the Gap, Institute for Social Research, University of Michigan, 2011.

To achieve wellness policy implementation, the Act of 2004 required that one or more persons were to be appointed to have operational responsibility for ensuring that the wellness policy was implemented.

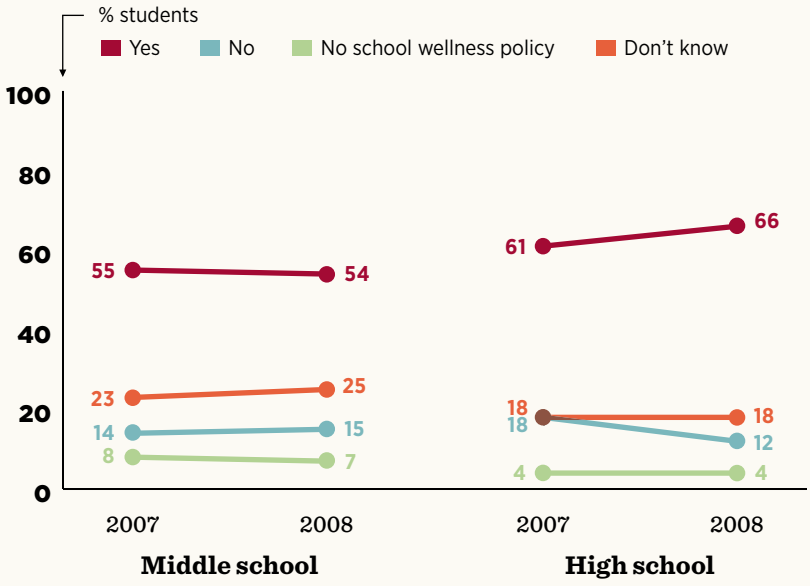
School administrators were asked:

Question: Has your school district or school designated one or more persons to have operational responsibility for ensuring that the wellness policy is implemented?

Answer options were: yes; no; and don't know.

- In 2008, the majority of middle school students (54%) and significantly more high school students (66%) were in schools where someone had been appointed to be responsible for implementation of the wellness policy. (see Figure 7.5)
- At the same time, about one-quarter of middle school students and about one-fifth of high school students were in schools where the school administrator did not know whether someone had been appointed to have responsibility for implementation of the wellness policy.

FIGURE 7.5 Percentage of Students in Schools With Designated Individual Responsible for Planned Implementation of School Wellness Policy, 2007–2008



Differences between middle and high school were significant at $p<.05$ in 2008.

Source: Bridging the Gap, Institute for Social Research, University of Michigan, 2011.

Specific Goals in the Wellness Policy

Based on the Act of 2004, school wellness policies are required to include goals for nutrition education, physical activity and other school-based activities designed to promote wellness. School administrators were asked whether these explicit goals had been developed as part of their wellness policy:

Question: Has your school district or your school developed explicit goals designed to promote student wellness through...

a) ....nutrition education?

b) ...physical activity?

Answer alternatives were: yes, we have developed goals; we are currently developing goals; no, not yet; and don't know.

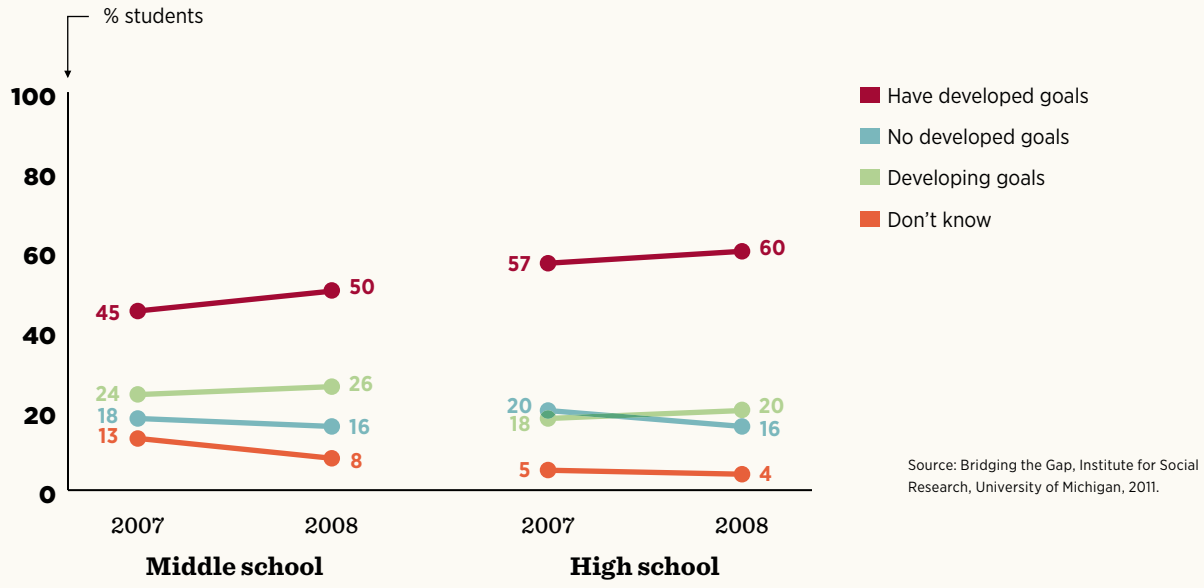
Nutrition Education Goals

As with the physical activity goals, schools had a great deal of latitude in defining the nutrition education goals that were required as part of their school wellness policy. When setting the nutrition education goals, schools often have some existing state or local mandates or standards that are more stringent than the requirements of the Act of 2004. The wellness policy goals were intended to incorporate these existing requirements, or if none exist, to use federal guidelines.

- Among middle school students, 50 percent were in schools that had developed nutrition education goals and 26 percent were in schools that were developing them in 2008; the corresponding figures for high school were 60 percent and 20 percent. (see Figure 7.6)

- In 2008, relatively few middle (8%) and high school students (4%) were in schools where the school administrator surveyed did not know the status of the nutrition education goals.

FIGURE 7.6 Percentage of Students in Schools With Explicit Nutrition Education Goals for Student Wellness, 2007–2008



Source: Bridging the Gap, Institute for Social Research, University of Michigan, 2011.

Physical Activity Goals

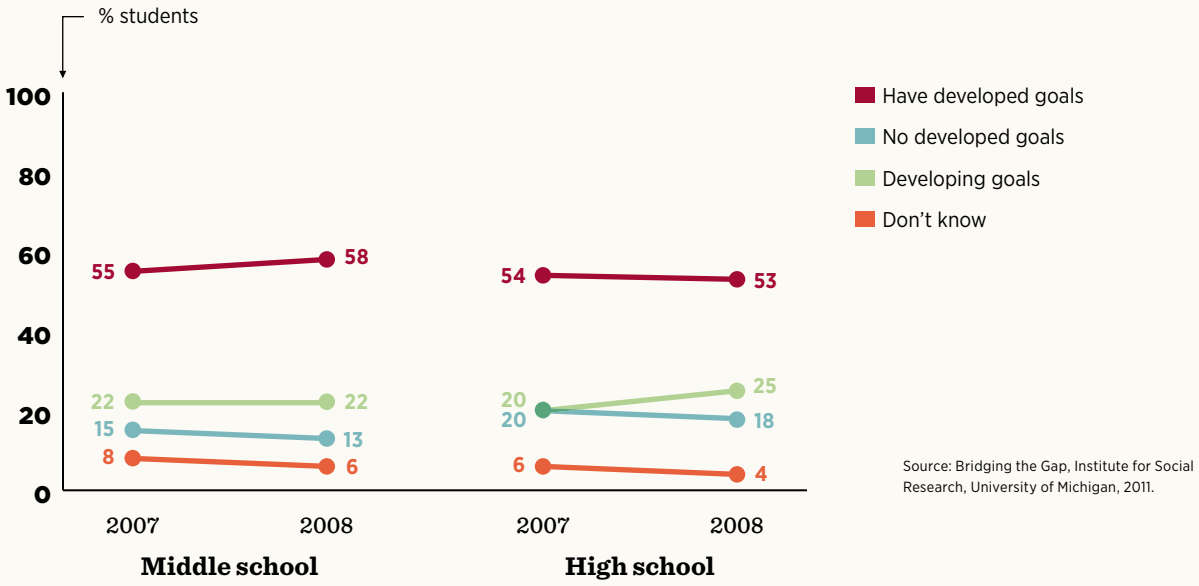
- Of all middle school students, 58 percent were in schools that had developed physical activity goals and 22 percent were in schools that were developing such goals in 2008. These rates were 53 percent and 25 percent, respectively, for students in high school. Both middle school and high school percentages had increased only slightly, and not significantly, from their respective percentages for 2007. (see Figure 7.7)

It is important to point out here that the physical activity goals specified in the Act of 2004 were not clearly defined and thus were open to a great deal of variability in implementation. The Act of 2004 also did not require districts to include physical education requirements as part of the wellness policy.

Physical activity goals are intended to increase student opportunities to be physically active before, between and after classes, during lunch, or within physical education classes and other classes. This need for increased physical activity is especially important for students in high schools, which usually do not offer recess, and where far fewer students are required to take physical education at each grade level, compared with students in elementary and middle schools.[166]

In the physical education section of the questionnaire, school administrators were asked whether significant activities were currently underway in their schools to promote increased physical activity among students. The majority of middle (65%) and high school students (51%) in 2008 were in schools where the administrator reported that significant activities were currently underway to promote physical activity. This difference was statistically significant in both years surveyed. (see Figure 6.12 in Chapter 6). The kinds of physical activities that respondents wrote in as being promoted in schools ranged from expanding existing sports programs and increasing vigorous physical activity requirements in physical education classes, to starting walking and running clubs and fitness programs at lunch or after school. It is obvious from the wide range of answers that schools and districts have a great deal of latitude when interpreting and defining these physical activity goals, although state and district mandates often do help define some requirements.

FIGURE 7.7 Percentage of Students in Schools With Explicit Physical Activity Goals for Student Wellness , 2007–2008



Source: Bridging the Gap, Institute for Social Research, University of Michigan, 2011.

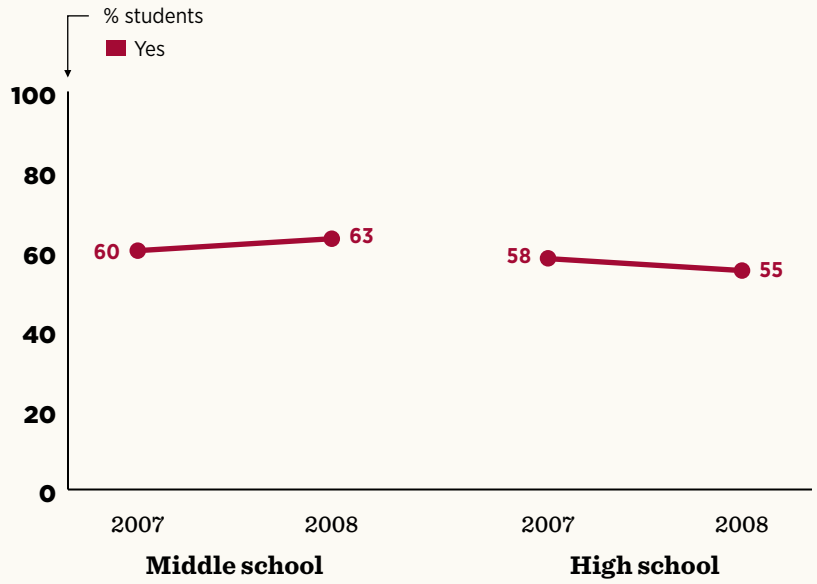
Activities to Promote Healthier Eating and Drinking Practices Among Students

School administrators were asked whether significant activities were currently underway in their schools to promote healthier eating and drinking practices among students.

Question: Are there any significant activities currently underway at your school, or school district, to promote healthier eating and drinking practices among students?

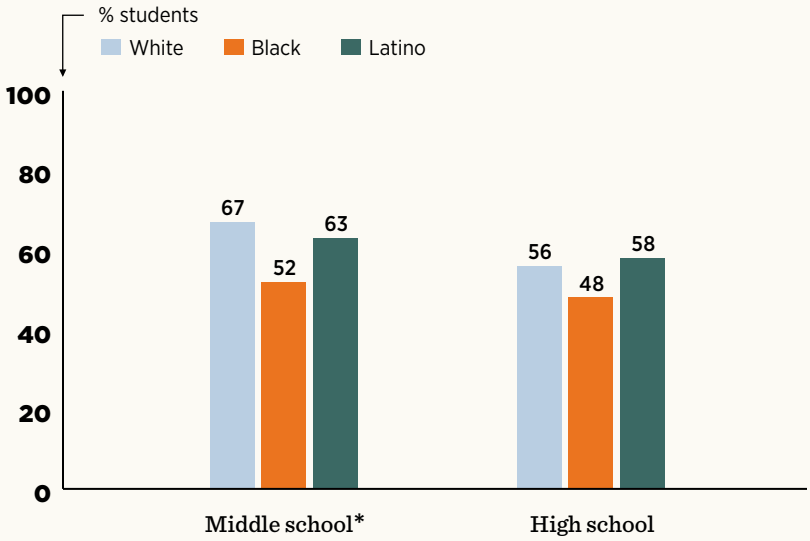
- In 2008, the majority of middle (63%) and high school students (55%) were in schools where significant activities were reported to be underway to promote better student nutrition. (see Figure 7.8)
- In 2008, White middle school students were more likely than Black middle school students to have an administrator who reported significant activities underway to promote better student nutrition. (see Figure 7.9)

FIGURE 7.8 Percentage of Students in Schools With Significant Activities to Promote Healthier Eating and Drinking Practices, 2007–2008



Source: Bridging the Gap, Institute for Social Research, University of Michigan, 2011.

FIGURE 7.9 Percentage of Students in Schools With Significant Activities to Promote Healthier Eating and Drinking Practices by Student Race and Ethnicity, 2008



*Differences between Black middle school students were significantly different from White middle school students at $p<.05$.

Source: Bridging the Gap, Institute for Social Research, University of Michigan, 2011.

Nutrition Guidelines

Nutrition guidelines are another required aspect of each district's school wellness policy. The guidelines apply to all foods available on each school campus during the school day with the objectives of promoting student health and reducing childhood obesity. Although guidelines are required by the Act of 2004, they are selected by the local district or educational agency.

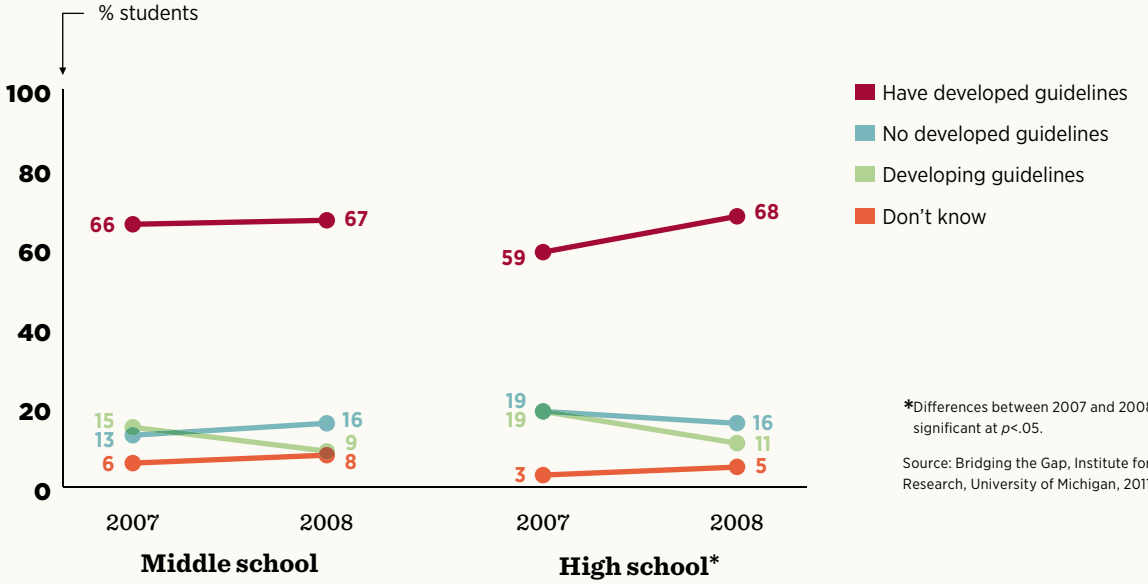
School administrators were asked:

Question: Has your school district or school developed nutrition guidelines for all foods available during the school day, designed to promote student health and reduce student obesity?

Answer categories were: yes, we have developed guidelines; we are currently developing guidelines; no, not yet; and don't know.

- By 2008, two-thirds of students in middle (67%) and high schools (68%) were in schools that had developed nutrition guidelines.
- There was a statistically significant increase in the percentage of students in high schools that had developed nutrition guidelines between 2007 and 2008, from 59 percent to 68 percent. (see Figure 7.10)
- In 2008, significantly more Latino than Black middle schools students were in schools that had developed nutrition guidelines for all foods offered during the school day. (see Figure 7.11)

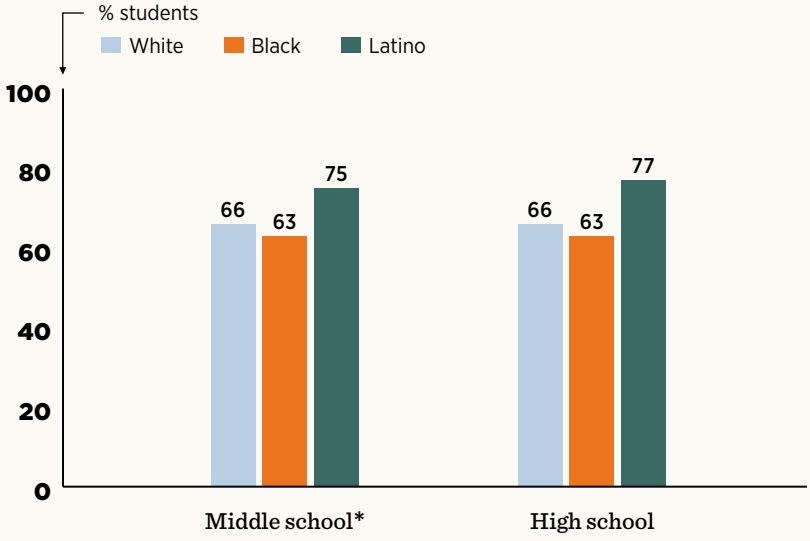
FIGURE 7.10 Percentage of Students in Schools With Nutrition Guidelines for All Foods, 2007–2008



*Differences between 2007 and 2008 were significant at $p<.05$.

Source: Bridging the Gap, Institute for Social Research, University of Michigan, 2011.

FIGURE 7.11 Percentage of Students in Schools With Nutrition Guidelines for All Foods by Student Race and Ethnicity, 2008



*Differences between middle school Latino students and Black students were significantly different at $p<.05$.

Source: Bridging the Gap, Institute for Social Research, University of Michigan, 2011.

Health Advisory Councils

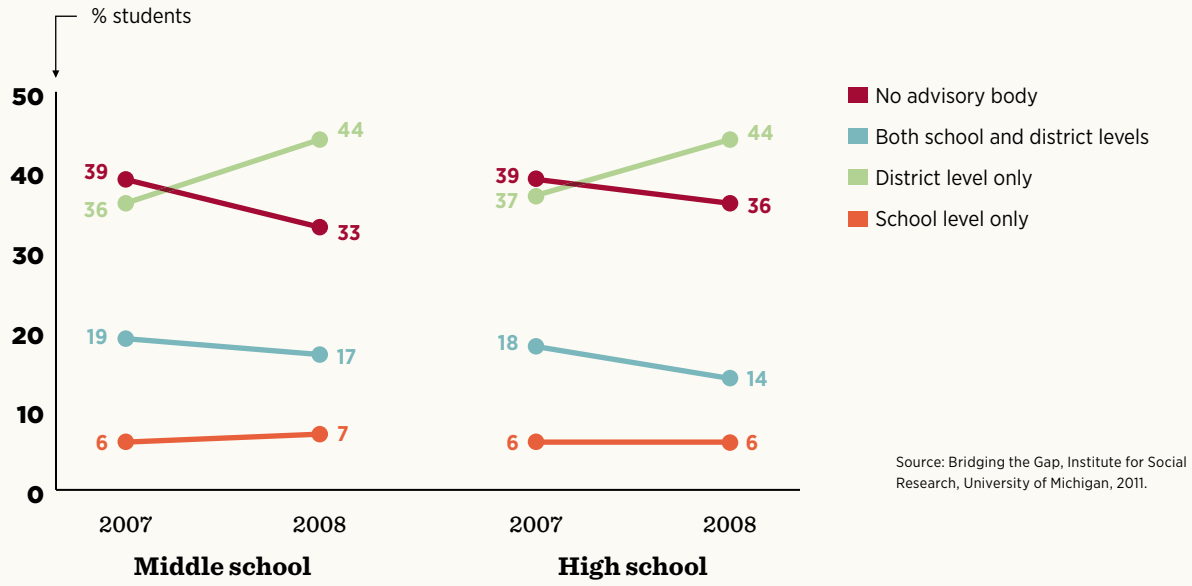
Often, schools or districts had existing groups or councils that met to address and work to improve the school health environment for students before the creation of the school wellness policy. These existing groups can be helpful in developing the school wellness policy, but they are not explicitly required by the Act of 2004.

School administrators were asked:

Question: Does your school district or school have a health advisory council or an advisory group that makes recommendations regarding nutrition and/or exercise for students?

- In 2008, the majority of middle (67%) and high school students (64%) were in schools and/or districts that had a health advisory council or group making recommendations regarding nutrition and exercise for students. (see Figure 7.12)
- Generally these councils were established at the district level, although some districts also had groups or councils that met at the school level. In 2008, very few students in middle (7%) and high schools (6%) were in schools that had councils meeting at the school level only, not at the district level.
- The proportion of students in districts having such councils increased between 2007 and 2008 in both middle and high schools, but the increases did not reach statistical significance.

FIGURE 7.12 Percentage of Students in Schools With Advisory Body for Making Nutrition and/or Physical Activity Recommendations, 2007–2008



Source: Bridging the Gap, Institute for Social Research, University of Michigan, 2011.

Community Involvement

School districts were required under the Act of 2004 to include various groups in the development of their wellness policy: parents, students, school food personnel, school board members, school administrators and other members of the public. Most of the secondary school administrators surveyed reported that they had already established a school wellness policy by 2008, and we asked administrators to identify which groups were involved in the development of their wellness policy.

School administrators were asked:

Question: Has your school district or school involved any of the following participants in the development of the school wellness policy?

The response categories are listed in Figure 7.13.

- Some school administrators who indicated that a wellness policy was being developed or had been developed did not mark any of the participants: 9 percent of middle school students and 4 percent of high school students were in such schools in 2008. It is possible that these administrators did not know who was involved in the development of their wellness policy, which may have been developed at the district level.

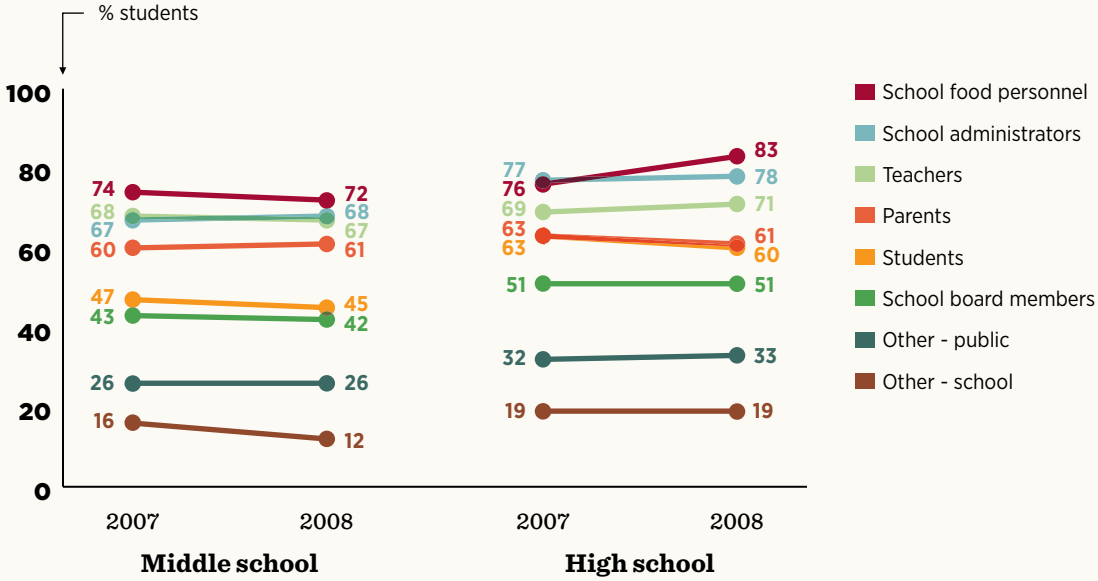
As stated, school administrators were asked to identify those who their school district or school involved in the development of their wellness policy. Figure 7.13 shows the percentages of middle and high school students in schools where each type of participant was involved in the development of the wellness policy.

- The majority of high school students were in schools where students were involved in the development of the school wellness policy, while this was not the case with middle school students. Generally there were no significant differences in the involvement of specific participants in the 2007 data compared to the order and frequency in the 2008 data. (see Figure 7.13)

- In both years, students in low-SES schools (both middle and high school) were less likely to be in a district where parents participated in the development of the wellness policy, compared with their peers in the high-SES schools. These differences were statistically significant.

- In fact, these lower rates of participation in the development of the wellness policy for low-SES schools held true for other types of participants, including school food personnel, teachers and school board members for both years of data. These differences were statistically significant.

FIGURE 7.13 Percentage of Students in Schools With Involvement of Various Stakeholders in School Wellness Policy Development, 2007–2008



Differences between middle and high school for students were significant at $p<.01$ in 2007 and 2008; differences between middle and high school for school food personnel were significant at $p<05$ in 2008.

Source: Bridging the Gap, Institute for Social Research, University of Michigan, 2011.

Formal Classroom Instruction in Nutrition and Physical Activity

Although the Act of 2004 did not require formal classroom instruction on nutrition or physical activity, school administrators were asked whether such curricula were offered to students in their district. The goal was to record the level of instruction each year to see if trends emerge with the implementation of school wellness policies.

Question: At present in your school district, is formal classroom instruction offered on...

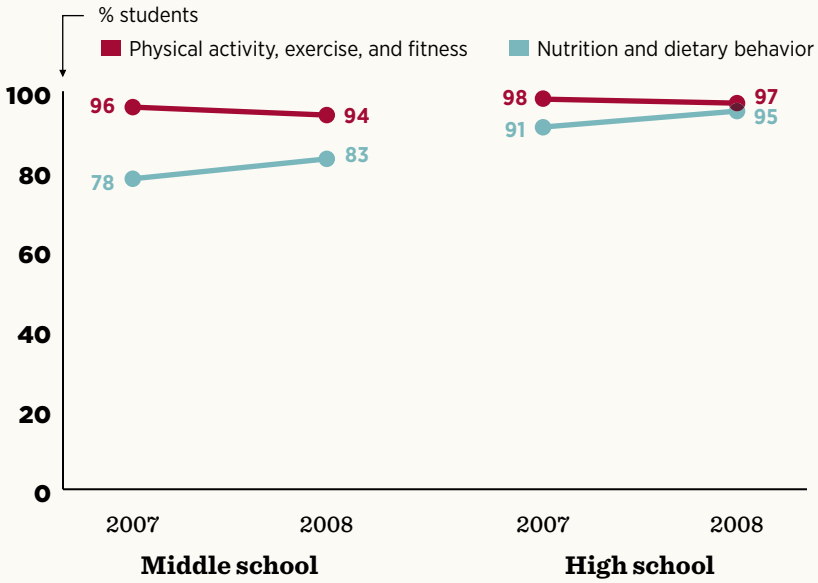
a) ....nutrition and dietary behavior?

b) ...physical activity, exercise, and health related fitness?

According to school administrators surveyed in 2008:

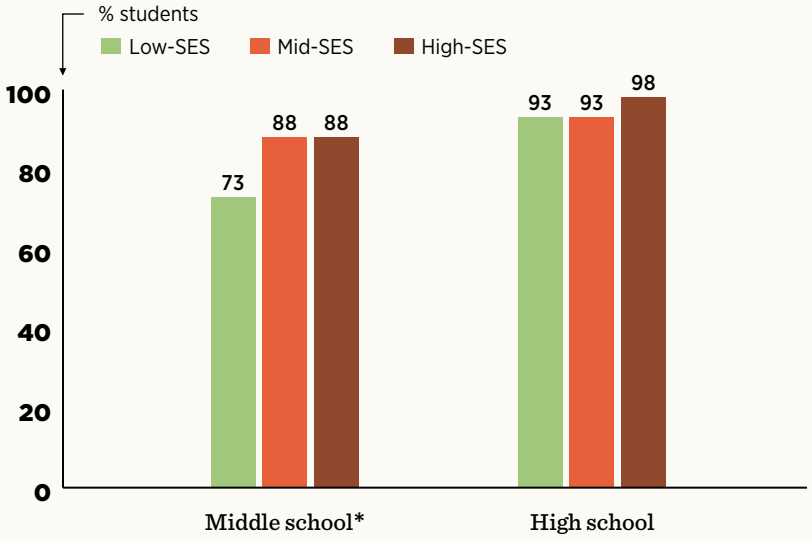
- The great majority of students in high (95%) and middle school (83%) had been given formal classroom instruction about nutrition and dietary behavior. (see Figure 7.14) These high percentages appear to be up slightly from the levels of instruction from 2007, but the differences were not statistically significant.
- Students in low-SES schools and Black and Latino students were somewhat less likely to have received formal classroom instruction on nutrition, when compared to high-SES and White students, respectively. These differences were statistically significant at the middle school level. (see Figures 7.15 and 7.16)
- The great majority of students in middle (94%) and high school (97%) were said to be given formal classroom instruction in physical activity. These high levels of instruction were consistent with the 2007 results.
- Black students were less likely to receive formal classroom instruction on physical activity and exercise compared to White students in both middle school and high schools. Middle school Latino students were also significantly below middle school White students in receiving such instruction. (see Figure 7.17)

FIGURE 7.14 Percentage of Students in Schools With Formal Classroom Instruction on Health-Related Issues, 2007–2008



Source: Bridging the Gap, Institute for Social Research, University of Michigan, 2011.

FIGURE 7.15 Percentage of Students in Schools With Formal Classroom Instruction on Nutrition and Dietary Behavior by School Socioeconomic Status, 2008

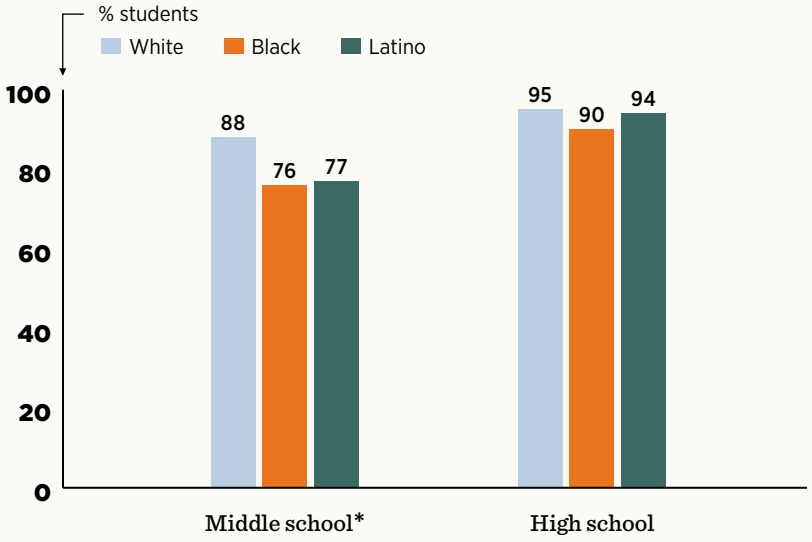


Low-, mid- and high-SES defined based on tertiles of percentage of students eligible for free and reduced-price lunch.

*Differences between middle school students in low-SES schools versus mid-/high-SES schools were significant at $p<.05$.

Source: Bridging the Gap, Institute for Social Research, University of Michigan, 2011.

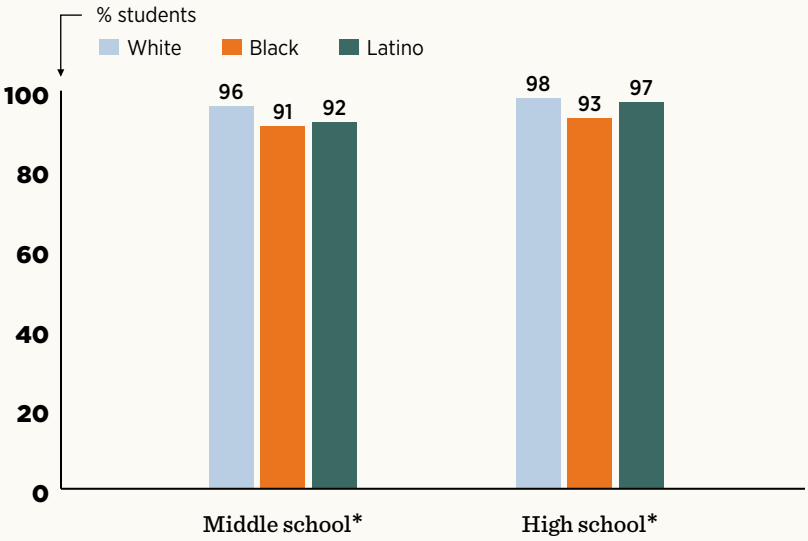
FIGURE 7.16 Percentage of Students in Schools With Formal Classroom Instruction on Nutrition and Dietary Behavior by Student Race and Ethnicity, 2008



*Differences in middle school between White students and Black and Latino students were significant at $p<.05$.

Source: Bridging the Gap, Institute for Social Research, University of Michigan, 2011.

FIGURE 7.17 Percentage of Students in Schools With Formal Classroom Instruction on Physical Activity by Student Race and Ethnicity, 2008



*Differences in middle school between White students and Black and Latino students were significant at $p<.05$. Differences in high school between Black students and White and Latino students were significantly different at $p<.05$.

Source: Bridging the Gap, Institute for Social Research, University of Michigan, 2011.

Conclusions, Implications and Opportunities

A substantial and rising proportion of students were in schools or school districts in 2008 that had established school wellness policies, as required by the Child Nutrition and WIC Reauthorization Act of 2004. Still, about one-quarter of middle school students and one-sixth of high school students were in schools that still had no such policy (or the principal did not know if they had one). Low- and medium-SES schools were lagging behind more affluent schools in having a policy in place, and on average, schools attended by Black and Latino students were somewhat less likely to have a wellness policy established than were schools attended by White students. In other words, where the need was greatest, given the differentials in rates of obesity, the policy environment was trailing.

Many schools that have established a wellness policy appear not to have implemented its provisions. Only about one-third of secondary school students attended a school which had put an implementation plan in place by 2008; and only about one-half (for middle school students) to two-thirds (for high school students) attended schools that had a designated individual responsible for seeing that the wellness policy provisions were implemented. A growing proportion of students were in schools that had an advisory body for making nutrition and/or physical activity recommendations at either the school or district level—about two-thirds in 2008. Explicit physical activity goals were in place in schools attended by only about one-half of secondary school students, with little indication of that proportion growing in 2008. The situation was a little better on the nutrition side of the equation. In 2008, slightly more than two-thirds of secondary students attended a school that had developed nutrition guidelines for all foods. Only 50 percent of middle school students and 60 percent of high school students attended schools having explicit nutrition education goals in 2008, but these proportions had increased slightly since 2007.

Black and Latino students were somewhat less likely than White students to receive formal classroom instruction in nutrition and dietary behavior during middle school, though there was little difference at the high school level. Similarly, students in low-SES schools were less likely than those in medium- or high-SES schools to receive such instruction.

While one could argue that the glass was half full, because significant proportions of students are in schools and districts that have established wellness policies, one could also argue that the glass remained half empty in that substantial proportions of students were still in schools where either there was no established policy or there was very limited implementation of the policy that had been adopted. Both are true. Lack of funding, staff time and support from district and school administrators have been identified as barriers for implementing district wellness policies.[167] Governments at all levels will need to reallocate and maximize resources to help districts and schools successfully implement wellness policy provisions.

In addition, model wellness policies and technical assistance developed for school districts by the U.S. Department of Agriculture (USDA) should reflect the intent of the Healthy, Hunger-Free Kids Act of 2010, which calls for:

- *making the content of wellness policies more transparent to help parents, students and others in the community better understand the provisions;*
- *requiring the measurement and evaluation of the wellness policies; and*
- *providing resources and training to help with designing, implementing, promoting, disseminating and evaluating wellness policies.*

To ensure that wellness policies are implemented successfully at the local level, USDA should develop best practices and model policies, as well as regulations that allow districts and schools to tailor the provisions to meet their individual needs. Further, schools should take the lead in implementing their district wellness policy, ensure timely review and provide feedback about their implementation efforts to the school community.

Table 7.1 provides a quick synopsis of some of the key findings covered in this chapter, including where changes were occurring between 2007 and 2008, the first two years after the federal wellness policy mandate went into effect.

TABLE 7.1 Summary of key changes, or lack thereof, between 2007–2008

	Middle School		High School	
Percentage of Students	**2007**	**2008**	**2007**	**2008**
Attended schools with the following status on district or school wellness policy implementation:				
...have developed plan	33%	33%	33%	36%
...currently developing plan	23%	20%	26%	26%
...no developed plan	20%	23%	25%	22%
...no school wellness policy	8%	7%	4%	4%
Attended schools with the following status on explicit physical activity goals:				
...have developed goals	55%	58%	54%	53%
...currently developing goals	22%	22%	20%	25%
...no developed goals	15%	13%	20%	18%
Attended schools with the following status on explicit nutrition education goals:				
...have developed goals	45%	50%	57%	60%
...currently developing goals	24%	26%	18%	20%
...no developed goals	18%	16%	20%	16%
Attended schools with the following status on nutrition guidelines for all foods:				
...have developed guidelines	66%	67%	59%	68%*
...currently developing guidelines	15%	9%	19%	11%*
...no developed guidelines	13%	16%	19%	16%
Attended schools with nutrition and/or exercise advisory body:				
...at the district level only	36%	44%	37%	44%
...at the school level only	6%	7%	6%	6%
...at both school and district levels	19%	17%	18%	14%
...no advisory body	39%	33%	39%	36%

*Differences between 2007 and 2008 were significant at $p<.05$ or greater.

Source: Bridging the Gap, Institute for Social Research, University of Michigan, 2011.

Appendix

In this appendix we briefly describe the development of this study; the universe of secondary school students to which the results can be generalized; the nature of the sampling plan to accurately represent them; procedures followed in the recruitment of the school samples; the analysis approaches followed; and the accompanying document that provides the complete descriptive results for the years covered in this monograph.

The Evolution of the Study

Bridging the Gap is a research initiative of the Robert Wood Johnson Foundation. Launched in 1997, it started with an emphasis on adolescent smoking, drinking and illicit drug use and the policies and practices at different levels of social organization that might affect those outcomes. Surveys of secondary school students were carried out by the University of Michigan in 1997 and in all years since as part of the Monitoring the Future study, which began in 1975 and is sponsored by the National Institute on Drug Abuse. Schools that had completed their second year of student surveys in the Monitoring the Future nationwide study initially comprised the sample of schools to be studied each year as part of Bridging the Gap. Schools in Monitoring the Future were selected separately at 8th, 10th and 12th grades with probability of selection proportionate to estimated schools size in those grades. The Youth, Education, and Society study—the component of the Bridging the Gap initiative located at the University of Michigan—focused on these Monitoring the Future secondary schools, and surveyed the principals of those schools (around 200 schools per year) to examine the many school policies and practices that might be of particular relevance to student substance abuse.

The special strength of this part of the Youth, Education, and Society study has been its ability to determine the degree of association between school characteristics and outcomes among the students in them. Considerable additional data of relevance were collected by our colleagues at the University of Illinois at Chicago at two levels of social organization: the community and the state in which the Monitoring the Future schools were located. These data also could be connected to the Monitoring the Future student outcomes.

However, those Monitoring the Future schools are not the ones on which data are reported in this volume. That original component of the Youth, Education, and Society study, which is still ongoing, has subsequently been supplemented by an additional data collection from school administrators in a non-overlapping sample of some 600 secondary schools per year. These two studies do overlap in two important ways, however. The focus on particular grades—in this case grades 8, 10 and 12, which was a feature of the original Monitoring the Future design—continued into the supplementary study. Schools were selected based on their inclusion of one of those grades and many of the questions asked of principals ask specifically about school policies or practices regarding students in one of those target grades.

The interest of the Foundation shifted in the early 2000s toward the issue of childhood obesity. As a result the surveys of administrators in the Monitoring the Future schools grew to include an increasing number of questions of likely relevance to childhood and adolescent obesity. Coincidentally, since 1986, the student surveys in Monitoring the Future schools had a number of outcome measures of relevance to obesity, including

height and weight, exercise, eating practices, sleep and sedentary activities; so student outcome measures relevant to this new interest of the Foundation fortuitously were already being gathered as part of Monitoring the Future.

It became apparent, however, that the Monitoring the Future samples of roughly 200 secondary schools per year were not large enough to provide sufficiently reliable estimates of *change* in the policies, practices and conditions in American secondary schools; and accurately measuring change had become an important objective of the initiative. So, the design for a companion study in which we would gather data from larger numbers of schools—but only data from school administrators, not from students—was developed. This companion study, upon which the present monograph is based, was begun with a national survey in the 2006–07 school year and has been repeated every year since. The results in the current monograph derive entirely from that companion study and address the objective of accurately measuring conditions extant in American secondary schools and changes in those conditions over time.

Instrumentation

A good deal of the instrumentation used in this study came from the earlier surveys of administrators in the Monitoring the Future schools that were conducted in school years 2003–04 through 2005–06. That was also true of a parallel study of elementary schools by our colleagues at the University of Illinois at Chicago initiated in school year 2006–07. In the years since, our two institutions have collaborated closely in the further development of instrumentation in an attempt to keep the surveys at elementary, middle and high school levels comparable. The input of outside experts has been sought along the way and new material has been added each year.

Universe and Sampling

The universe to which the findings in this monograph can be projected are students in public middle and high schools (taken separately) in the coterminous United States. As stated earlier, the schools were selected because they contained an 8th grade in the case of middle schools and because they contained a 10th or 12th grade in the case of high schools. The statistics presented in the various tables are weighted in such a way as to characterize the proportion of students who were enrolled in schools having each characteristic.

Sampling

The sampling strategy used a multi-stage probability proportional to size (PPS) design, with districts selected at the first stage and schools selected at the second stage. The overall sampling goal was to develop three separate but connected samples, each of which would be nationally representative. The data gathered from each of three samples form the basis for each monograph in this companion series, including the current report. The three nationally representative samples were:

1. *a sample of public, K–12 school districts;*
2. *a sample of public elementary schools (with grade 3) from within those districts; and*
3. *a sample of public secondary schools (with grade 8, 10 or 12) from within those districts*

The public school sampling frame was developed using the National Center for Education Statistics (NCES) Common Core of Data (CCD) for the 2004–05 school year. The first stage of sampling was at the district level with probability proportionate to size; thereafter, middle schools and high schools were selected from within those districts based on probability proportionate to size, with the target grade enrollment as the measure of size. Separate samples were drawn for

target grades 8, 10 and 12. To be eligible, public schools were required to be located in one of the 48 coterminous states, to have a target-grade enrollment of at least 20 students for 8th grade and 25 students for 10th or 12th grade, and to be a regular school, as opposed to a vocational school, home school coordinating office or alternative school.

Schools were invited to participate for three years. Beginning in the second year, replacement schools were selected for those not participating in the first year although non-responding schools were still asked again to participate and some did. Replacements were also contacted during the period of data collection if it appeared that we were unlikely to get a response from a school.

Recruitment of School Administrators

Prior to mailing an invitation to participate, we telephoned each school selected into the sample to determine the name of the principal and to verify the mailing address of the school. An invitation letter, signed by the principal investigator, was sent initially to the principal of each school, along with the folder containing the two parts of the questionnaire. Reminder calls and letters were initiated subsequently to encourage return of the questionnaires. As an incentive, payment of $100 was offered. In about 80 percent of the schools surveyed in both years the principal completed Part 1 of the questionnaire, and in the remainder asked another administrator to complete it. They were also encouraged to give the second, separate part of the questionnaire, dealing with specific food and beverages available in different venues in the school, to the food service manager in the school, if there was one. Part 2 of the questionnaire was answered by the food service manager in 54 percent of the schools participating in 2006–07 and 57 percent in 2007–08.

The two parts of the questionnaire were sent in a folder containing the name of the study and study year. Principals were instructed to return both parts to Ann Arbor using a pre-addressed, stamped envelope. No data were collected from, or about, individual students.

To encourage honest reporting, we assured respondents that neither their name nor the name of their school would be revealed. Data collection spanned the interval from roughly February through October of each year, though the majority of the questionnaires were returned in the spring. All responses were to refer to the school year ending that spring. When returned questionnaires were received with important information missing, or with answers that appeared to be problematic in some way, copies of the pages on which this occurred were returned to the principal with the request that the information be provided or corrected; and in some cases a staff member contacted the principal by phone for clarification. These procedures were relatively successful in terms of securing more complete information and reducing errors.

The study design called for selecting a replacement school for each original selection in the sample, with the intent being to invite the replacement school to participate if and when it became apparent that the original school was unlikely to respond. Beginning in 2008 this plan was followed each year with considerable success. Response rates attained from the original sample of schools were 76 percent for the 2006–07 school year and 79 percent for the 2007–08 school year (which was increased to 89% with the inclusion of replacement schools). Considering the very demanding roles held by the target respondents, the frequent research requests made of them, and the length of the study's questionnaires, we were pleased to be able to attain these response rates.

Data Processing and Analysis

Once questionnaires were received back at the Ann Arbor location, they were edited to identify any problems or missing sections, and in some cases further contact was made with the principal as described above. They were then coded by the study staff, following a predetermined coding procedure, and the data were entered into computer files. Preliminary analyses were conducted to determine the need for editing or recoding and to identify problems in the data. (Those results were also used in the revision of the questions asked in subsequent years, if problems were identified.)

All data presented here have been adjusted with weights to allow inferences about middle school- and high school-specific student populations. The weights correct for any unequal probabilities of students being represented in the selection process. They also correct for any unequal probabilities of selection across grades. Thus, even though schools were randomly selected for participation within each grade, the weights adjust for the relative proportions of students in 8th, 10th and 12th grades nationally. For example, we can reliably report that in 2007, 83 percent of middle school students and 37 percent of high school students in the United States were in schools that required students in their grade to take physical education.

In the present monograph straightforward descriptive statistics have been generated. So, for categorical variables such as the type of school it is, univariate percentage distributions were calculated for each group and subgroup. For continuous scales, for example, the number of students enrolled in the school, means and standard deviations were calculated.

The complete descriptive results for the two school years covered in this monograph may be found in the companion publication to this monograph, entitled *Bridging the Gap: Complete Descriptive Statistics on Secondary Schools, School Years 2006-07 and 2007-08*. That document contains all questions contained in the questionnaires each year and the results for all subgroups discussed in this monograph, reported separately for middle schools and high schools. The *User's Guide to Complete Descriptive Statistics on Secondary Schools, School Years 2006-07 and 2007-08* explains in more detail what is contained in the tables and provides the reader guidance on how to navigate fairly easily through that sizeable document. These documents, along with copies of the original survey instruments, are available at *www.bridgingthegapresearch.org/research/secondary_school_survey/*.

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