

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

VOLUME 2

2006-2007
2007-2008
2008-2009
2009-2010

SCHOOL YEARS

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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

University of Michigan
Institute for Social Research
426 Thompson Street
P.O. Box 1248
Ann Arbor, MI 48106-1248
(734) 936-9488
www.bridgingthegapresearch.org

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About the Authors

Lloyd D. Johnston, PhD, co-directs the Bridging the Gap program and is a University Distinguished Senior Research Scientist and Angus Campbell Collegiate Research Professor at the Institute for Social Research, University of Michigan.

Patrick M. O'Malley, PhD, is a Research Professor at the Institute for Social Research, University of Michigan.

Yvonne Terry-McElrath, MSA, is a Research Associate in the Bridging the Gap Program at the Institute for Social Research, University of Michigan.

Natalie Colabianchi, PhD, is a Research Assistant Professor at the Institute for Social Research, University of Michigan.

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For questions contact:

Yvonne Terry-McElrath, MSA
Survey Research Center
Institute for Social Research
University of Michigan
E-mail: yterry@umich.edu
www.bridgingthegapresearch.org

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Introduction

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 In addition, significant disparities exist. Hispanic and non-Hispanic Black youths are more likely to be obese or overweight than non-Hispanic White youths,¹ and significant differences in overweight and obesity among children have been observed based on family income.⁶ 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.⁷

Many leading public health authorities, including the Institute of Medicine (IOM), recognize the critical role schools play in preventing and reducing childhood obesity.⁸ For example, the foods and beverages available in school have a significant impact on children's diets and their weight.⁹ Schools also provide important opportunities for physical activity to children across all grade levels.¹⁰ A growing body of evidence shows that school-based policies can help reduce children's caloric intake,^{11,12} as well as their purchases and consumption of sugary drinks.¹³ School-based interventions also help increase the amount of time children spend in physical activity while at school.¹⁴ Because school policies and practices impact millions of children nationwide, changing the school environment to support healthy eating and promote physical activity are important goals for improving children's health and addressing disparities in overweight and obesity.

Report Overview

This report provides updated results from one of the most comprehensive studies of health-related policies and practices in U.S. public middle and high schools to date, which was released in August 2011.¹⁵ The major findings and trends presented in this report describe issues relevant to childhood obesity for four school years, from 2006–07 to 2009–10. We examine foods and beverages offered through the National School Lunch Program and outside of school meal programs, including those sold in vending machines, school stores and à la carte cafeteria lines. We also examine 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 continues implementation of the Healthy, Hunger-Free Kids Act of 2010. The report also 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 four years following the implementation deadline of the wellness policy mandate;*
- *provide guidance for local, state and federal policy-makers about successes and areas where new legislation is needed to strengthen existing efforts;*
- *help school administrators, school board members and parents benchmark their own schools' progress and identify areas of greatest progress and weakness; and*
- *help school administrators, policy-makers and the public understand gains made and work still needed to address disparities in childhood obesity rates.*

Major Findings

Our findings are based on surveys of administrators (primarily school principals) from nationally representative samples of public middle and high schools.^a Results describe policies and practices in place during the 2006–07 through 2009–10 school years, which are referred to throughout this report as 2007 through 2010, 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. All findings were examined for changes over time and differences 1) between middle and high school; 2) by school socioeconomic status (SES); 3) by student race and ethnicity; and 4) by school majority race and ethnicity. In the presentation of results that follows, we discuss time trends for all measures. In general, differences between middle and high school, or by SES, or by race and ethnicity, are discussed only if the differences are statistically significant.

This report concludes with Table 1, which summarizes key practices for the 2007 through 2010 school years. More information, including complete statistical findings for all four school years, is available at www.bridgingthegapresearch.org/research/secondary_school_survey.

Since our study began in 2007, there have been some improvements in the nutrition environment of U.S. public secondary schools. Many 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.

Little to no progress was observed related to promoting physical activity among students during or after the school day. Physical education requirements for high school students were especially lax. Participation in sports and physical activity clubs remained low, as did the number of students who walk or bike from home to school.

This report highlights a number of conditions in middle and high schools that may be contributing to disparities across socioeconomic levels and across the racial and ethnic groups served. For example, students in low-SES schools and Black and Latino students were less likely to have salads available at school. Students in low-SES schools and majority Black or Latino schools were less likely to participate in sports programs than their peers in predominantly White or high-SES schools. In addition, students in low-SES schools were less likely to attend a school that offered formal nutrition education or one that shares its recreational facilities outside of school hours. These are disparities that deserve focused attention and corrective action.

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^a A companion report that focuses on health-related policies and practices in U.S. elementary schools is available at www.bridgingthegapresearch.org/_asset/92v1fd/ES_2012_execsumm.pdf.

Nutrition: School Meals

Public middle and high schools have demonstrated some progress in improving the nutritional quality of foods and beverages available through the National School Lunch Program; however, much remains to be done. Schools have a significant impact on 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 calories at school; among those who participated in school meals, the level reached almost 50 percent.¹⁶ School meals—in particular school breakfasts—have been shown to be especially important to lower-income youths. Based on an extensive review of the literature, Brown et al.¹⁷ reported that among children in lower-income households (who are at high risk for obesity), those who participated in the School Breakfast Program had better eating habits, nutritional status, educational preparedness and educational outcome measures than their lower-income peers who did not eat breakfast.

Key Findings

The following section describes key findings among public secondary school students from 2007–2010.

Student Eligibility to Receive Free and Reduced-Price Lunch

- Participating secondary school administrators reported that the percentage of students eligible to receive free and reduced-price lunch (FRPL) gradually increased from 47 percent in 2007 to 51 percent in 2010 for middle school, and from 37 percent to 41 percent for high school. The increase was not significant for the total samples, but was significant in five of the six SES tertiles.^b
- While no significant increase was observed in majority Black or Latino schools (where 50% or more of the students were of the specified racial and ethnic group), the percentage of students eligible for FRPL

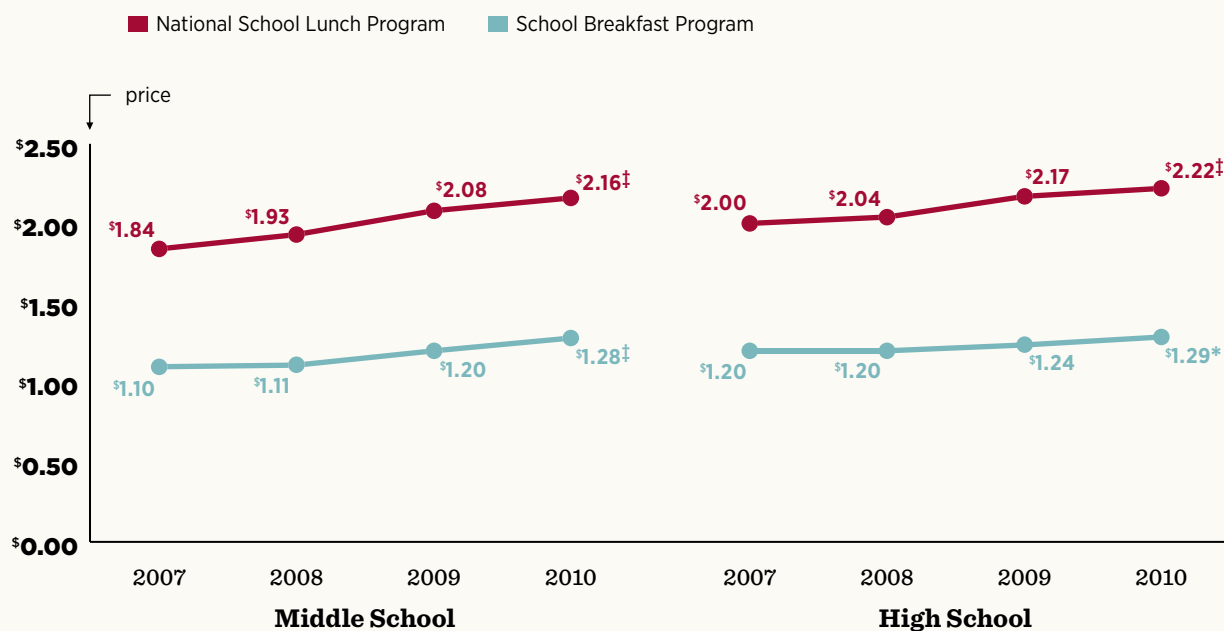
significantly increased in predominately White schools (where 66% or more of the student population was White), from 28 percent to 34 percent of students in middle schools, and 25 percent to 30 percent of students in high schools ($p < .05$). Such trends likely reflect current economic stresses. As the percentage of students eligible for FRPL increases, the nutritional impact of foods and beverages available in schools is also likely to increase.

Eating Breakfast and Lunch at School

- The percentage of middle school students eating breakfast at school increased from 25 percent in 2007 to 30 percent in 2010 ($p < .05$), and the percentage of high school students doing so increased between 2009 and 2010 (from 20% to 23%, $p < .01$). Eating breakfast at school continued to be significantly related to school SES and student race and ethnicity for both middle and high school students, with participation significantly higher in low-SES schools ($p < .001$), and significantly more likely for Black and Latino students compared with White students ($p < .01$).
- In 2010, free breakfast for any student, regardless of ability to pay, was offered to approximately one-fifth of students in both middle and high schools. Such availability was much higher in low-SES schools than mid- or high-SES schools: 49 percent versus 9 percent and 6 percent for middle school students, and 42 percent versus 20 percent and 4 percent for high school students ($p < .01$). Free breakfast regardless of ability to pay was also significantly less likely for White students than for Black or Latino students: 10 percent versus 34 percent and 38 percent for middle school, and 14 percent versus 40 percent and 36 percent for high school students ($p < .001$).
- The average full prices charged for meals in the School Breakfast Program and National School Lunch Program increased significantly for both middle and high school students. School Breakfast Program prices rose from an average of \$1.10 in 2007 to \$1.28 in 2010 for middle school students (a 16% increase; $p < .001$), and from \$1.20 to \$1.29 for high

^b SES tertiles for both middle and high school are calculated yearly and are based on school administrator-reported percentages of students eligible for free and reduced-price lunch (FRPL). Each tertile represents one-third of the students ranked by this percentage for their school.

FIGURE 1 Average Full Price Charged for Meals Through the School Breakfast Program and National School Lunch Program



* $p < .05$; [‡] $p < .001$ (significance level of differences between 2007 and 2010).

Source: Bridging the Gap, Institute for Social Research, University of Michigan, 2012.

The average full price charged for a School Breakfast Program or National School Lunch Program meal increased significantly for both middle and high school students from 2007 to 2010.

school students (an 8% increase; $p < .05$). Average National School Lunch Program prices rose from \$1.84 to \$2.16 in middle school (a 17% increase; $p < .001$) and from \$2.00 to \$2.22 in high school (an 11% increase; $p < .001$).

- In 2010, middle and high school students in low- and mid-SES schools were significantly more likely than their peers in high-SES schools to have School

Breakfast Program meals priced at \$1.00 or less ($p < .01$) and to have National School Lunch Program meals priced at \$1.50 or less ($p < .01$).

- In 2010, approximately one-fifth (19%) of high school students were allowed to go off-campus at lunch; virtually no (1%) middle school students were allowed to go off-campus.

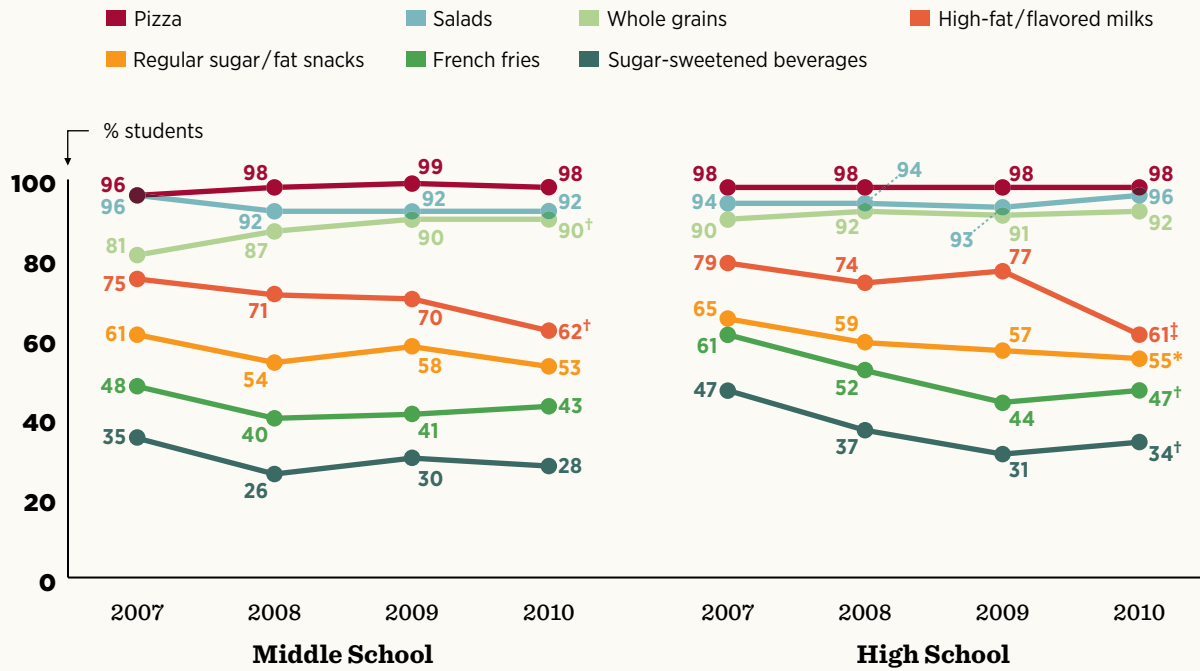
Beverages and Foods Available Through the National School Lunch Program Meal

- There have been some significant improvements taking place in the mix of beverages available to students at school. Healthy beverages—those recommended by the IOM, including water, 100% juice, and nonfat or 1% milk—were available to virtually all secondary school students (96% for middle and 98% for high school students in 2010).
- The availability of sugary beverages has decreased, but many students are still offered such drinks as part of school lunch meals. In 2010, 28 percent of middle school students had sugar-sweetened beverages available, down from 35 percent in 2007 (the change was not statistically significant). The availability of sugar-sweetened beverages decreased significantly for high school students from 47 percent in 2007 to 34 percent in 2010 ($p < .01$).
- Availability of high-fat or flavored milks decreased significantly from 2007 to 2010: from 75 percent to 62 percent for middle school students ($p < .01$), and from 79 percent to 61 percent for high school students ($p < .001$). In 2010, drinking fountains in the school cafeteria were available to approximately two-thirds of secondary school students.
- Availability of generally healthy foods like fruits, vegetables and salads remained stable at high levels. In 2010, more than 90 percent of both middle and high school students were able to access fresh fruits, dried or canned fruit, and vegetables some days or most/every day.
- By 2010, availability of whole grains some days or most/every day reached 90 percent of middle school students, a significant increase from 2007 levels of 81 percent ($p < .01$); rates remained around 90 percent for high school students.
- More than three-quarters of secondary school students were able to access pre-made main course salads in 2010 (high school students had higher availability at 87% than did middle school students at 79%; $p < .05$), but fewer than half of secondary school students had a salad bar available. Salad bar availability was significantly higher for White (48%) than Black (35%) or Latino (37%) middle school students ($p < .05$), and also significantly higher for White high school students compared with their Black peers (51% vs. 38%, $p < .01$). Increasing the availability of salad bars could encourage a more healthy diet for students, and there is a particular need in the Black and Latino student populations for such.
- Foods with lower nutritional value that were served as part of the National School Lunch Program meal remained widely available to middle and high school students, though some progress was observed at the high school level. Availability of french fries^c on some or most/every day did change—albeit not significantly—for middle school students (48% in 2007 and 43% in 2010). The availability of french fries decreased significantly for high school students from 61 percent in 2007 to 47 percent in 2010 ($p < .01$).
- While the availability of regular fat and sugary snacks^d did not change significantly for middle school students (53%), it significantly decreased for high school students from 65 percent in 2007 to 55 percent in 2010 ($p < .05$).
- One almost universally available food, pizza, was offered some days or most/every day for almost all students (about 98% for both middle and high school students) in both 2007 and 2010. In other words, there has been virtually no reduction in the availability of pizza.

^c The full wording of the questionnaire item referred to as french fries was “deep-fried fries (including fries that are just reheated).”

^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; ice cream or frozen yogurt that is not low in fat.

FIGURE 2 Percentage of Students With Selected Items Available at Lunch Meals



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

* $p < .05$; [†] $p < .01$; [‡] $p < .001$ (significance level of differences between 2007 and 2010).

Source: Bridging the Gap, Institute for Social Research, University of Michigan, 2012.

Sugary drinks, french fries, and regular fat and sugary snacks were significantly less available in lunch meals offered to high school students in 2010 compared with 2007. The availability of high-fat and flavored milks in lunch meals dropped significantly among both middle and high school students.

School Food Policy Environment

- The USDA initiative Team Nutrition offers a wide variety of resources to schools to improve nutrition choices available on school grounds and to improve nutrition education, ranging from fact sheets and education materials for students to classroom and school-wide events to competitive grant initiatives at the state level.¹⁸ General school participation in Team Nutrition^e did not change significantly from 2007 through 2010, at 35 percent for middle school students and 37 percent for high school students in 2010.
- Also remaining statistically stable were the percentages of students who had school food service provided by the school system (approximately 80% for both middle and high school) and food service management companies (approximately 20% for both middle and high school). Decisions about menus and food service issues continued to be made primarily at the district level; in 2010, approximately 80 percent of secondary school students attended schools with such decision-making.
- The percentage of middle and high school students attending schools that provided menus to students significantly increased over time: from 90 percent in 2007 to 96 percent in 2010 for middle school, and from 85 percent to 93 percent for high school ($p < .01$). However, provision of menus to students was significantly lower for students in majority Latino schools (94% for middle and 77% for high schools in 2010) than predominately White schools (99% and 96%; $p < .05$). Providing menus to parents increased for middle school students from 83 percent in 2007 to 92 percent in 2010 ($p < .001$); the rate for high school students in 2010 was 86 percent and had not changed significantly since 2007.

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.¹⁹ This study found that students in low-SES schools were much more likely than their mid- or high-SES peers 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 efforts to increase participation in and expand the school breakfast program continue.

Implement Updated Nutrition Standards for School Meals

There is significant room for improvement in the nutritional quality of foods served as part of National School Lunch Program meals. In January 2012, as required by the Healthy, Hunger-Free Kids Act of 2010, USDA issued final regulations to update school meals offered under the National School Lunch and School Breakfast Programs. The updated standards largely adopt the recommendations of the IOM²⁰ and require schools to offer more fruits, vegetables and whole grains, while at the same time reducing saturated fats, trans fats, and added sugars and salt, and limiting milk fat to 1% or less. Implementation of these updated standards is underway—changes are expected to be in place during the 2012–13 school year and will be phased in over time. It is critical that these efforts continue swiftly and that schools receive training and technical assistance to help implement the new standards.

^e Administrators were asked, "Does your school participate in the USDA-sponsored Team Nutrition program?" without specific detail on type of participation. Readers should be aware that participation in Team Nutrition can mean different things for different schools.

Finalize Certification and Compliance Procedures to Increase Federal Reimbursement Rates for School Meals

Offering more fruits, vegetables and whole grains and offering fewer entrees that are high in fat and sodium would greatly improve the nutritional quality of school meals. The Healthy, Hunger-Free Kids Act of 2010 provides for increased reimbursement of six cents per lunch meal for school food authorities that comply with updated nutrition standards. Because nutrition standard improvements likely will increase schools' food service costs, it is critical that USDA moves quickly to implement certification and compliance procedures so schools can benefit from the increased reimbursement rates. Additional funding will be needed to enhance the quality of school breakfasts and help schools comply with the updated standards.

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.¹⁹ 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,²¹ 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; 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.

Provide Training and Technical Assistance, and Encourage Collaboration to Promote Implementation of School Food Standards

Policy efforts for improving the nutritional quality of school meals will be most effective when supported by adequate training, technical assistance, resources and collaboration among policy-makers, advocates, school food service personnel, researchers and students. The Healthy, Hunger-Free Kids Act of 2010 included about \$50 million for training and technical assistance. USDA should develop and implement a comprehensive training and technical assistance plan to optimize available funds.

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

Promoting easy access to school menus that include nutrition information, such as calorie counts, should help parents become more involved in the nutritional decisions of students at school. 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 to include information about the quality of school meals in their reports to USDA and the public. Efforts by schools to increase parent awareness of the childhood obesity problem, educate parents about the issues and motivate them to help seek solutions are critical for reversing the childhood obesity epidemic.

Nutrition: Competitive Foods and Beverages

Competitive foods are so-designated because they “compete” with the School Breakfast Program and the National School Lunch Program, and students must pay to obtain them. There can be a number of possible venues for competitive foods on school grounds, including vending machines, school or student-run stores and snack bars/carts. School cafeterias can also provide a venue for competitive foods when individual items (often with poor nutritional value) are available for à la carte sale. Results indicate that competitive foods and beverages remain widely available in both middle and high schools. While the availability of some less healthy competitive items (such as regular soft drinks and high-fat or flavored milks) decreased significantly from 2007 to 2010 for both middle and high school students, the availability of healthier competitive items (such as salads and fresh fruits) also decreased for middle school students.

Key Findings

The following section describes key findings among public secondary school students from 2007 to 2010.

Competitive Food and Beverage Venue Availability

- The most common competitive food and beverage venue for middle school students continued to be à la carte sales in the cafeteria, available to 77 percent of students in 2007 and 2010. Availability of vending machines in middle schools significantly decreased from 79 percent in 2007 to 68 percent in 2010 ($p < .01$), and availability of stores or snack bars/carts held steady at 46 percent.
- Availability of all competitive venues remained stable over time for high school students. In 2010, availability was highest for vending machines (95%) followed by à la carte sales (88%) and stores or snack bars/carts (64%).
- In high-SES schools, availability of both à la carte and vending machines was significantly greater than in low-SES schools for middle and high school

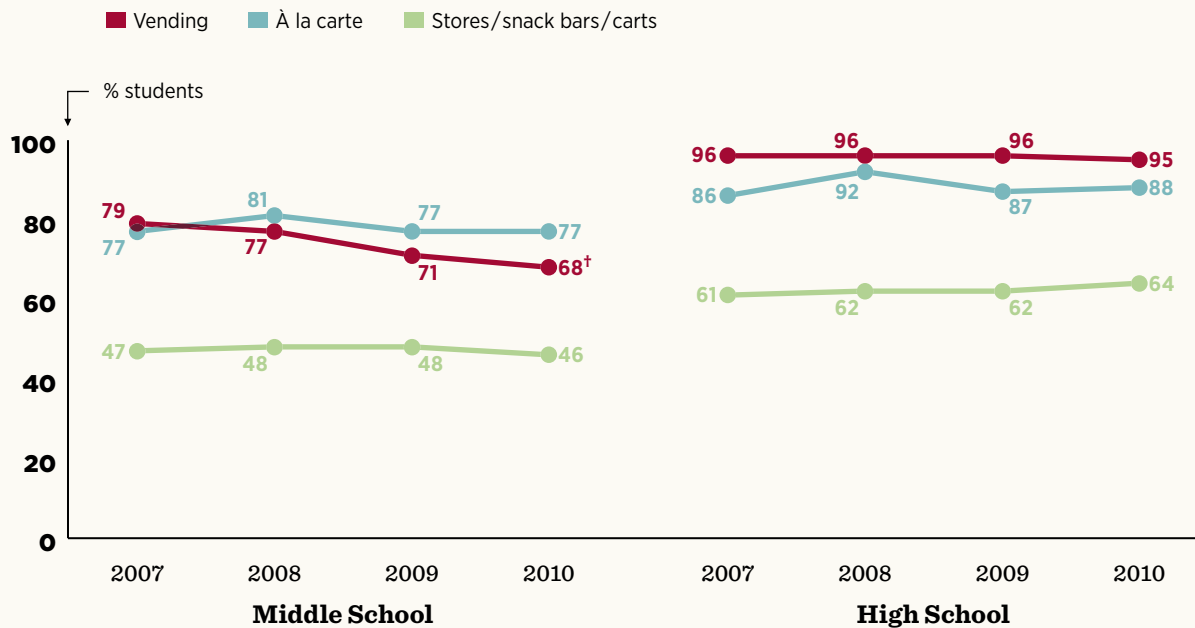
students in 2010 ($p < .05$). Vending machine availability was higher for White than Black middle and high school students ($p < .05$), and middle school à la carte availability also was significantly higher in 2010 for White than Black students ($p < .01$). Availability of stores or snack bars/carts was significantly higher for middle school Latino students than White or Black students ($p < .01$).

Competitive Food and Beverage Guidelines: Awareness and Implementation

In 2006, the Alliance for a Healthier Generation, a partnership of the American Heart Association and the William J. Clinton Foundation, reached agreement with the major food and beverage distributors to improve the nutrition of foods and beverages available to students in competitive venues at school. Both school beverage guidelines and nutritional guidelines for competitive foods were developed. Neither the school beverage guidelines nor the nutritional guidelines for competitive foods are mandatory. State education departments, school districts or individual schools determine whether, and to what extent, they will follow the guidelines.

- School administrator knowledge of the Alliance guidelines for both beverages and competitive foods has increased since 2007. The percentage of students attending schools where school administrators reported no knowledge of the Alliance beverage guidelines decreased from 49 percent in 2007 to 33 percent in 2010 for middle school students, and from 39 percent to 26 percent for high school students ($p < .001$). The percentage of students attending schools where school administrators reported no knowledge of the Alliance nutritional guidelines for competitive foods decreased from 63 percent in 2007 to 51 percent in 2010 for middle school students, and from 57 percent to 43 percent for high school students ($p < .01$).
- The percentage of students attending schools with competitive venues where the Alliance beverage guidelines had *not* been implemented decreased significantly for both middle and high school

FIGURE 3 Percentage of Students Attending Schools with Competitive Venues



[†]*p*<.01 (significance level of differences between 2007 and 2010).

Source: Bridging the Gap, Institute for Social Research, University of Michigan, 2012.

While there has been a significant decrease in the availability of vending machines among middle school students, competitive venues remain widely available to middle and high school students.

students across all three competitive venues examined. By 2010, the percentage of middle and high school students attending schools with no implementation of the beverage guidelines was 37 percent and 30 percent for à la carte sales (*p*<.001), 39 percent and 34 percent for stores or snack bars/carts (*p*<.05 for middle school and *p*<.001 for high school), and 31 percent and 30 percent for vending machines (*p*<.001). Remaining students attended schools where the guidelines were either in process of being implemented or had been fully implemented.

- The percentage of students attending schools with competitive venues where the Alliance nutrition guidelines for competitive foods had not been implemented decreased significantly for both middle and high school students for à la carte sales and store or snack bar/cart sales. By 2010, the percentage of middle and high school students attending schools with no implementation of the nutrition guidelines decreased to 51 percent and 46 percent for à la carte sales (*p*<.001), and 49 percent and 47 percent for stores or snack bars/carts (*p*<.01 for middle school

and $p < .001$ for high school). The percentage of high school students attending non-implementing schools for vending machine sales also significantly decreased to 48 percent ($p < .001$), while for middle school students it decreased from 68 percent to 58 percent (though not with statistical significance). As with the beverage guidelines, remaining students attended schools where the guidelines were either in process of being implemented or had been fully implemented.

- While both the Alliance guidelines for beverages and snack foods appear to have a constructive influence on the offerings of a large and increasing number of schools, it is clear that there remains a great deal of room to improve the nutritional quality of competitive foods and beverages.

School Policies on Competitive Foods and Beverages

- Approximately half of middle school students attended schools where competitive venue prices were set to encourage consumption of healthier beverages and foods,^f with no significant change over time. By 2010, 64 percent of high school students attended schools with such price setting to support healthier consumption of foods, a significant increase from 52 percent in 2007 ($p < .01$).
- School administrators were asked about a variety of written policies for competitive food and beverage nutrition standards such as fat and calorie limits, caffeine content, and portion size. Schools commonly addressed the fat and sugar content of competitive products. In 2010, 64 percent of middle school students had policies limiting the fat content of foods and milk products. Sixty-one percent of high school students had policies limiting the sugar content of drinks and the fat and sugar content of foods, and 60 percent had policies limiting the milk fat. Among all the policies surveyed, rates did not significantly change between 2009 (the first year the questions were asked) and 2010.

- In 2010, school administrators were asked if their school district had any restrictions on items sold to students as fundraisers. Just under one-quarter of middle school students (23%) and more than one-quarter of high school students (28%) attended schools where the policy prohibited “foods of minimal nutritional value (soft drinks, candy, and gum).” Lower percentages of students attended schools prohibiting sales of soft drinks as fundraisers (21% for middle and 23% for high school). Schools with a policy specifying “only healthy foods allowed” were attended by 17 percent of middle and 14 percent of high school students.
- In 2010, school administrators were also asked if mobile vendors (like those operating hot dog carts or ice cream trucks) were prohibited from selling food or beverages on school grounds during school hours. Responses indicated that approximately three-quarters of both middle and high school students attended schools with such restrictions.

In-School Marketing, Including Exclusive 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. Among middle schools, the percentage of students attending schools with exclusive beverage contracts declined from 67 percent in 2007 to 55 percent in 2010 ($p < .01$). A corresponding decline occurred among middle schools receiving a percentage of contract sales, from 54 percent of students attending such schools in 2007 to 45 percent in 2010 ($p < .05$). The percentage of high school students attending schools with an exclusive beverage contract remained relatively stable at 71 percent in 2010, and approximately 60 percent of high school students attended schools that reported receiving a specified percentage of sales from the existing contract.

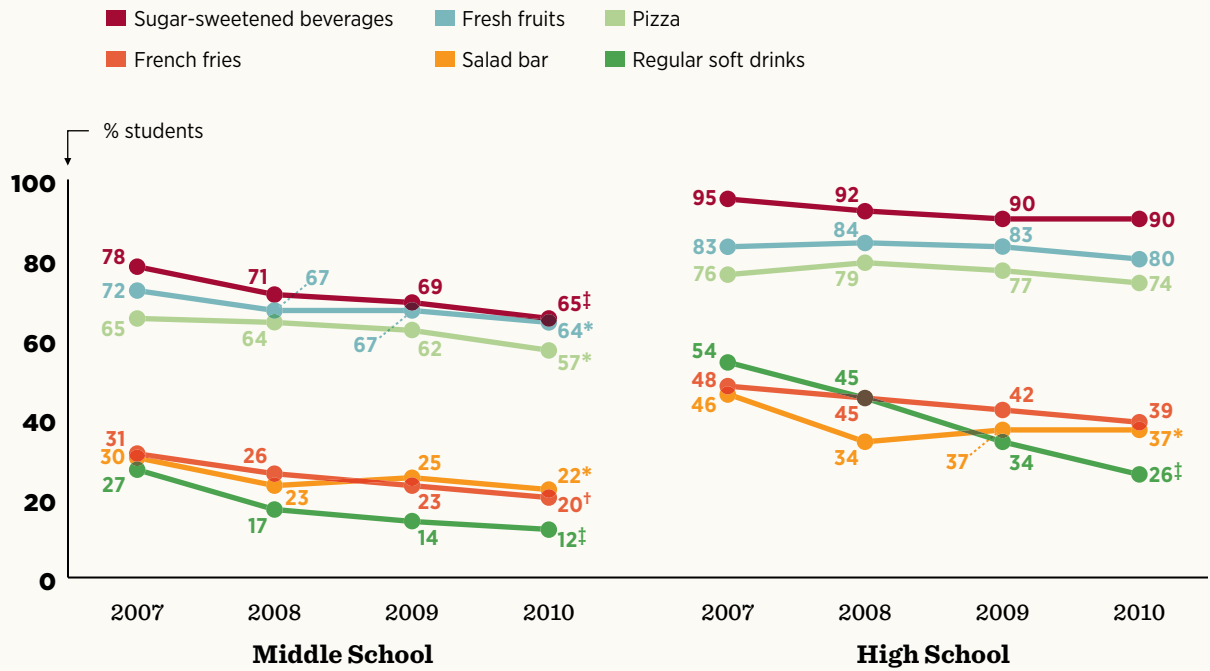
^f School administrators were asked “To what extent has your school or school district set food prices (in vending machines, stores, à la carte) with the intent of encouraging students to eat healthier foods (e.g., fruits, vegetables, low-fat foods)?”. A similar question asked to what extent the school or district set beverage prices (e.g., for bottled water, low-fat milk, sugar-free beverages) to encourage students to drink healthier beverages.

- In 2010, regular soft drinks were sold under an existing exclusive beverage contract for 12 percent of middle and 19 percent of high school students. Among high school students, this percentage had decreased substantially from the 2008 level of 37 percent ($p < .001$). Rates for middle school students were relatively unchanged from 2008 (the first year this item was included in the study). In both middle and high school, White students were more likely than Latino students to have access to such soft drinks in 2010: 16 percent versus 6 percent in middle schools, and 23 percent versus 10 percent in high schools ($p < .001$).
- For food vending revenue, school administrators 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 such venues. The percentage of students attending schools that received revenue from food vending machines remained relatively stable at 20 percent for middle and 44 percent for high school students in 2010.
- No significant changes were observed in the percentage of middle school students exposed to advertising and promotion of soft drinks and/or items from fast-food restaurants. Rates for middle school students ranged from only 1 percent for textbook covers/menus and posters to 12 percent for sponsorships. Rates for high school students ranged from 2 percent for textbook covers/menus to 17 percent for sponsorships. Over time, significant decreases in exposure among high school students were observed for posters (dropping from 7% in 2007 to 3% in 2010; $p < .05$) and sponsorships (decreasing from 29% in 2007 to 17% in 2010; $p < .001$).

Competitive Food and Beverage Availability

- Availability of IOM-approved beverages (water, 100% juice, and nonfat or 1% milk) in competitive venues was virtually universal (95% and 99% for middle and high school students, respectively). Availability of all sugar-sweetened beverages, including regular soft drinks, sports drinks and high-calorie fruit drinks that are not 100% juice, decreased significantly for middle school students (from 78% in 2007 to 65% in 2010; $p < .001$) but remained high for high school students at 90 percent.
- Importantly, the availability of regular soft drinks in any competitive venue decreased by more than half among both middle and high school students: from 27 percent in 2007 to 12 percent in 2010 for middle school, and from 54 percent to 26 percent for high school ($p < .001$).
- Decreases in regular soft drink availability occurred across competitive venue types. Among middle school students, availability via stores or snack bars/carts dropped 4 percentage points to 2 percent in 2010 ($p < .05$), and availability via vending machines dropped 14 percentage points to 10 percent ($p < .001$). Among high school students, availability significantly decreased as well, down from 10 percent to 2 percent for à la carte sales in the cafeteria, from 17 percent to 8 percent in stores/snack bars/carts, and from 51 percent to 23 percent in vending machines ($p < .001$ for all decreases).
- Significant decreases in the availability of high fat/flavored milks were also seen across the secondary school environment (from 64% in 2007 to 48% in 2010 for middle school, and from 75% to 57% for high school; $p < .001$).
- In 2010, two-thirds of secondary school students were reported to have drinking fountains available in the school cafeteria where meals and à la carte sales would occur. The availability of drinking fountains in other school locations was reported as follows: approximately 80 percent for gymnasium/locker rooms, nearly 100 percent for hallways near classroom areas, and approximately 50 percent for other non-cafeteria school locations. There was little difference between middle and high schools.
- Availability of vegetables and whole grains in competitive venues did not change significantly from 2007 to 2010. In 2010, 58 percent of middle and 74 percent of high school students had vegetables available in competitive venues; 50 percent of middle and 67 percent of high school students had whole grains available. The availability of whole grains was measured only in à la carte cafeteria sales.

FIGURE 4 Percentage of Students With Selected Items Available in Competitive Venues



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

*p<.05; †p<.01; ‡p<.001 (significance level of differences between 2007 and 2010).

Source: Bridging the Gap, Institute for Social Research, University of Michigan, 2012.

While the availability of regular soft drinks declined, almost two-thirds of middle and 90 percent of high school students still could purchase sugary drinks at school in 2010. Among middle school students, there was a significant drop in the availability of less healthy foods (pizza, french fries) and also healthier options (salad bars, fresh fruits).

- Vegetables were predominately offered through à la carte sales in the cafeteria. Only 3 percent of middle and 10 percent of high school students had access to vegetables in vending machines; 14 percent of middle and 22 percent of high school students had vegetables available through stores or snack bars/carts.
- Among middle school students, there was a significant *decline* in availability of the following offerings in competitive venues: fresh fruits (from 72% in 2007 to 64% in 2010; $p < .05$); pre-made main course salads (from 63% to 54%; $p < .05$); and salad bars⁹ (from 30% to 22%; $p < .05$). Availability of salad bars also significantly decreased for high school students (from 46% to 37%; $p < .05$). The decrease in salad availability (both pre-made and salad bar for middle school, and salad bar for high school) was concentrated in low-SES schools, where students are likely to be at high risk for obesity. It is possible that this reduction in the availability of vegetables and fresh fruits represents a cost-saving measure.
- Less healthy foods continued to be available in competitive venues to students; there was little improvement in high schools and some improvement in middle schools. Approximately three-quarters of high school students had pizza (74%) and regular fat and sugary snacks^h (76%) available in 2010, and almost two-fifths had french fries available (39%). Among middle school students, the availability of regular fat and sugary snacks also remained statistically unchanged at 63 percent. However, the availability of french fries significantly decreased in middle schools from 31 percent in 2007 to 20 percent in 2010 ($p < .01$). The availability of pizza also dropped significantly among middle school students, from 65 percent in 2007 to 57 percent in 2010 ($p < .05$).
- Commercial fast foodsⁱ in either competitive venues or the lunch meal were available to just under 30 percent of secondary school students in 2010.

Policy Opportunities

Ensure USDA Guidelines for Competitive Foods and Beverages Meet or Exceed 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, including those sold in vending machines, school stores and as à la carte items. Standards for competitive foods set by the IOM, which recommend limits on fat, sugar, calories and serving sizes,²¹ as well as the most recent Dietary Guidelines for Americans, should serve as a guide for USDA as it works to update national nutritional standards for foods and beverages available in competitive venues.

Encourage Schools to Implement Nutrition Guidelines for Competitive Foods and Beverages

As USDA updates standards for competitive foods and beverages, schools, districts and states should continue to strengthen efforts to update their own nutritional guidelines for competitive products, using the Dietary Guidelines for Americans and the IOM standards to guide their efforts. This will help ensure that all foods and beverages available to students contribute to a healthy diet.

Schools that have replaced less healthy competitive products with healthier items have reported no loss in revenues.²² In fact, adding healthier competitive foods can even increase participation in the National School Lunch Program and attract new revenue.^{23,24} Improving the nutritional quality of products offered in competitive food venues also could help to reinforce practices encouraged by school-based nutrition education.

⁹ Availability of pre-made main course salads was examined in all competitive venues; however, salad bar availability was asked about only for à la carte sales.

^h 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.

ⁱ Any availability of food from pizza places, sandwich or sub shops, or fast food chains during a typical week.

Physical Activity and Physical Education

Schools have historically played an important role in facilitating physical activity for their students during the school day.²⁵ However, physical education and other opportunities for activity, such as walking or biking to school, have been increasingly difficult to sustain due to competing demands and school siting choices. The importance of maintaining and improving support for these activities has been repeatedly emphasized.^{26–29} Our results show that from 2007 to 2010, participation in physical education, sports programs and physical activity clubs did not increase among middle or high school students. However, significant increases were observed in areas of physical fitness testing and body mass index (BMI) assessment. Important differences remain evident by school SES and predominant race and ethnicity of the student body.

Key Findings

The following section describes key findings among public secondary school students from 2007 to 2010.

Physical Education Requirements and Participation

- The percentage of students attending schools that require physical education (PE) at their grade level did not change significantly from 2007 to 2010. Not surprisingly, the percentage of students who participated in PE also did not change. Requirements and participation rates were markedly different for middle and high school students. In 2010, PE was required for 83 percent of students in middle schools but only 34 percent in high schools ($p < .001$). Following suit, 90 percent of middle school students took PE in 2010, whereas only half of high school students did ($p < .001$).

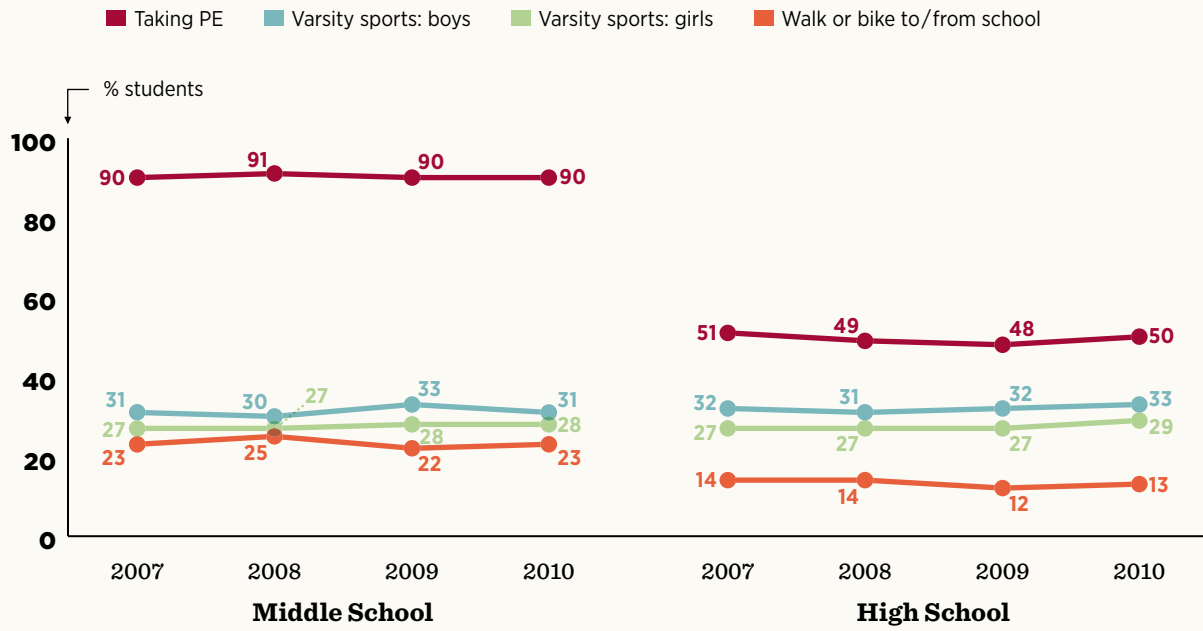
Participation in Sports Programs

- Participation in interscholastic or varsity sports, as well as intramural sports or physical activity clubs, did not change significantly from 2007 to 2010. The flat levels were consistent for boys and girls in both middle and high school. In 2010, no more than one-third of students (regardless of gender) participated in *interscholastic or varsity* sports at any level. For boys, participation rates in *intramural sports* or physical activity clubs were 23 percent in middle school and 13 percent in high school ($p < .001$); for girls, the rates were 19 percent in middle school and 12 percent in high school ($p < .001$).
- Both middle and high school students attending low-SES schools were significantly less likely than their peers in high-SES schools to participate in interscholastic or varsity sports ($p < .01$). In predominantly White middle and high schools, the percentage of boys and girls participating in interscholastic or varsity sports was higher compared with students in majority Black schools or majority Latino schools ($p < .01$).

Walking or Bicycling to School

- The percentage of students who walked or bicycled to school remained relatively unchanged and very low. In 2010, fewer than one-quarter of middle school students and about one in eight high school students walked or bicycled to school ($p < .001$).
- Both middle and high school students in low-SES schools were significantly more likely to walk or bike to school than their mid-SES and high-SES counterparts (35% versus 17% and 17% in middle school, and 19% versus 11% and 9% in high school; $p < .01$). A greater percentage of students in majority Black and majority Latino middle and high schools walked or bicycled to school compared with students in predominately White schools (35% and 44% versus 11% in middle school, and 23% and 27% versus 8% in high school; $p < .001$).

FIGURE 5 Percentage of Students Participating in Various Forms of Physical Activity



Source: Bridging the Gap, Institute for Social Research, University of Michigan, 2012.

Participation in physical education, sports programs, and walking or bicycling to or from school did not change among middle or high school students.

Physical Fitness Testing and Body Mass Index Assessment

- The percentage of students attending schools that provided physical fitness tests increased from 2007 to 2010. In 2010, 86 percent of middle school students were in schools that had some fitness testing (up from 73% in 2007, $p < .001$). The corresponding figures for high school were 63 percent in 2010 versus 36 percent in 2007 ($p < .001$). Similar trends were seen for the percentage of students in middle and high schools where all students were tested ($p < .05$ and $p < .001$ for middle and high schools, respectively). The percentage of students in high schools where all students were tested was almost 2.5 times greater in 2010 (29%) than in 2007 (12%).
- There was an increase in the percentage of secondary school students who attended schools that measured BMI. The largest increases were seen in high schools where the percentage of students in schools that measured *any* student BMI increased from 27 percent in 2007 to 40 percent in 2010 ($p < .01$). There was a threefold increase from 2007 to 2010 in the percentage of high school students who were in schools where *all* students were measured (6% to 18%, $p < .001$). In middle schools there also was a significant increase in the percentage of students in schools where *all* students were assessed, from 24 percent in 2007 to 33 percent in 2010 ($p < .05$). Still, more than half of high school students were in schools that did not complete BMI measurements on any of their students in 2010.
- The percentage of students who attended schools that sent results of the fitness and BMI assessments to parents also increased, likely due to the increase in the percentage of students who underwent the tests. Parents of middle school students were more likely to be sent test information than parents of high school students ($p < .001$). More than half (56%) of middle school students were in schools that sent fitness test results to parents, compared with 32 percent of high school students. Slightly more than one-third (35%) of middle school students and one-fifth (23%) of high school students were at schools that sent BMI results to parents.

Shared Use of School Facilities

- The vast majority of middle and high school students (92% and 94% respectively) were in schools that allowed external organizations and individuals to use school grounds or facilities for physical activity or sports programs outside of school hours. Although the majority of students attended schools that shared their facilities, students in low-SES schools were significantly less likely to be in schools that allowed this access compared with students in high-SES schools (84% and 89% for middle school and high school students in low-SES schools compared with 97% and 99% for middle and high school students in high-SES schools; $p < .001$).

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 the U.S. Department of Health and Human Services (USDHHS) physical activity recommendation (at least 60 minutes of moderate-to-vigorous physical activity daily) 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 aggregate results can be used to improve physical education programming. Increasing awareness of the link between physical activity and improved academic performance^{30,31} 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 considers reauthorization of 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.

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 school children 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.³²

ChangeLab Solutions 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.¹

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.

Congress has the opportunity to ensure that programs such as Safe Routes to School and other bicycle and pedestrian-friendly initiatives receive adequate funding as part of surface transportation reauthorization efforts.

¹ More information about ChangeLab Solutions' joint use agreement resources is available at <http://changelabsolutions.org/childhood-obesity/joint-use>.

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 and School Breakfast Program) to establish and implement a local school wellness policy by the start of the 2006–07 school year. Our survey found that in 2010, 92 percent of middle school students and 93 percent of high school students were in schools that participated in the National School Lunch Program, so nearly all districts were obliged to establish a wellness policy.

Key Findings

The following section describes key findings among public secondary school students from 2007 to 2010.

Establishing and Implementing a Wellness Policy

- In 2010, 81 percent of middle and 77 percent of high school students attended a school where a wellness policy had been established by either the school or school district (a significant increase at the middle school level from 73% in 2007; $p < .05$). High school students attending low-SES schools were less likely than their peers in high-SES schools to have established wellness policies (69% vs. 84%; $p < .05$).
- Approximately one-third of both middle and high school students attended schools with a developed *plan for implementing* the wellness policy in 2010, and three-fifths attended schools where an individual had been designated as responsible for wellness policy implementation. These rates have remained relatively stable since 2007.

Specific Goals in the Wellness Policy

- The percentage of students attending schools with *explicit wellness goals for physical activity and nutrition education* remained generally stable, with one area of progress: nutrition education goals increased significantly for middle school students from 45 percent in 2007 to 56 percent in 2010 ($p < .05$).

They remained stable for high school students at 56 percent in 2010. Physical activity goals were in place in schools serving 63 percent of middle and 55 percent of high school students in 2010.

- More than two-thirds of both middle and high school students attended schools with nutrition guidelines for all foods in 2010, marking a significant increase for high school students from the 2007 level of 59 percent ($p < .05$).

Formal Classroom Instruction in

Physical Activity and Nutrition

- Formal classroom instruction in physical activity, exercise and fitness decreased at the middle school level, from 96 percent of students who were offered such instruction in 2007 to 91 percent in 2010 ($p < .05$). It stayed above the mid-nineties (at 96% in 2010) for high school students.
- Formal classroom instruction in nutrition and dietary behavior did not change significantly between 2007 and 2010. In 2010, 83 percent of middle and 90 percent of high school students were offered such instruction. Middle and high school students in low-SES schools were significantly less likely to attend schools with formal classroom instruction on nutrition and dietary behavior than their peers in high-SES schools (73% vs. 92% for middle school; 84% vs. 95% for high school; $p < .01$). These, of course, are among the ones which have the greatest need for such instruction.

Healthy School Recognition

- In 2010, only about 3 percent of secondary school students attended a school that was certified as a USDA HealthierUS school or designated as having an Alliance for a Healthier Generation Healthy School Program, according to administrator reports. It should be noted that nearly half of secondary school students attended schools where the administrator did not know if the school had received such certification or designation.

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.³³ Governments at all levels will need to reallocate and maximize resources to help districts and schools implement wellness policy provisions.

Concerns and Perceptions of School Administrators

The section of the school administrators' questionnaire that focused on their perceptions asked specifically about their levels of concern for student nutrition, physical activity and overweight, as well as for the perceived extent of effort directed towards addressing student nutrition and physical activity on the part of both the school and its school district. In general, the levels of concern about student nutrition, physical activity and overweight expressed by school administrators remained fairly stable from 2007 through 2010. Differences in levels of concern about overweight and physical activity were evident by school SES and by student race and ethnicity.

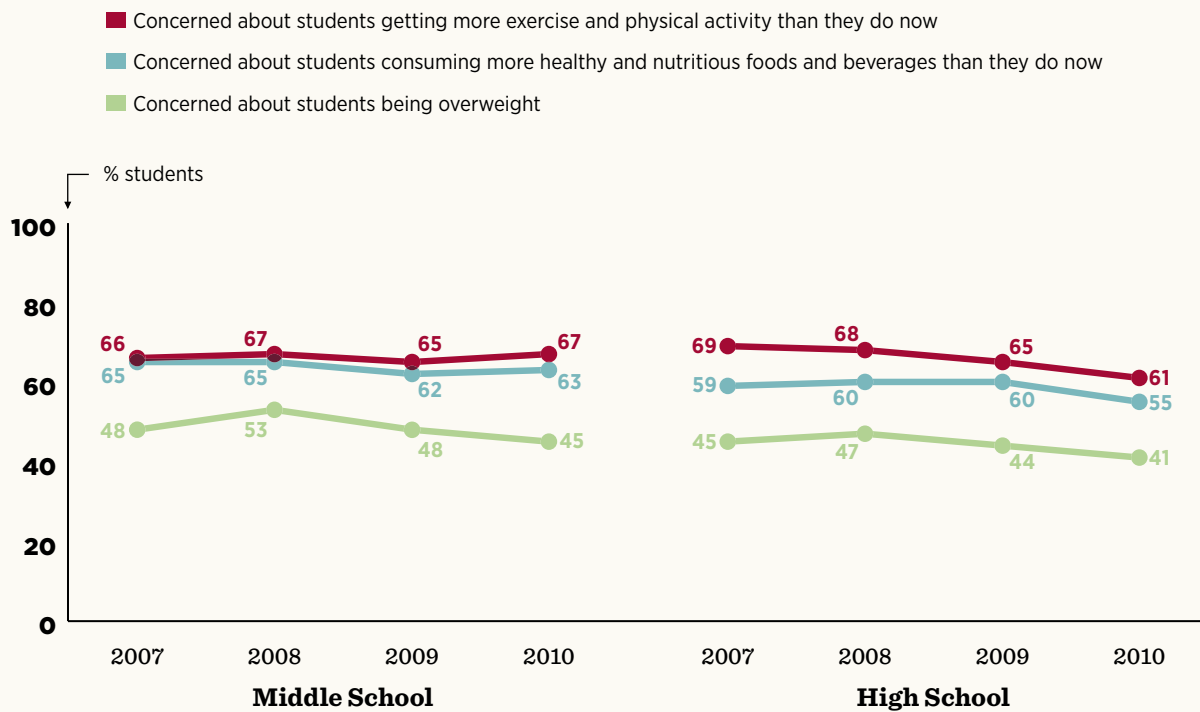
Key Findings

The following section describes key findings among public secondary school students from 2007 to 2010.

Concern for Student Overweight, Nutrition and Physical Activity

- Administrators seemed to be less concerned about students being overweight than about nutrition and physical activity. In 2010, two-thirds (67%) of middle school students attended schools where the administrator expressed great or very great concern about student physical activity levels; the corresponding figure for nutrition was 63 percent; and 45 percent attended schools where the administrator expressed concern about being overweight. Percentages for high school students were similar at 61 percent, 55 percent and 41 percent for physical activity, nutrition and overweight, respectively. These percentages showed no statistically significant change between 2007 and 2010.
- In 2010, high school students attending low-SES schools were significantly more likely to have school administrators expressing great or very great concern about student overweight and about their getting enough physical activity than students in mid- and

FIGURE 6 Percentage of Students Attending Schools With Principals who Were Concerned to a “Great Extent” or “Very Great Extent” About Student Overweight, Nutrition, and Physical Activity



Source: Bridging the Gap, Institute for Social Research, University of Michigan, 2012.

School administrators have consistently shown higher concern for student exercise and physical activity and nutrition than for student overweight.

high-SES schools (52% vs. 36% and 33% for overweight; 75% vs. 51% and 58% for physical activity).

- Differences also were observed by student race and ethnicity. White middle (41%) and high school (37%) students were less likely than Black students (54% and 51%) to have school administrators who expressed great or very great concern for student overweight. White high school students also were less likely than their Black or Latino peers to have

school administrators who expressed such concern about student physical activity levels (58% vs. 69% and 67%).

School and School District Efforts to Improve Student Nutrition and Physical Activity

- Reported school or school district efforts to improve both student nutrition and physical activity remained fairly stable from 2007 to 2010. A little more than

half of all middle school students and slightly fewer than half of all high school students attended schools where the school administrator reported making efforts to improve student nutrition to a great or very great extent at the school district or school level. Roughly half of all middle school students attended schools with such efforts to improve student physical activity at either the school district or school level. Efforts at the high school level were somewhat lower, averaging about 40 percent.

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. As noted previously, this study found 35 percent of middle school students and 37 percent of high school students attended a school that participated in some way in Team Nutrition in 2010.

Next Steps

Since 2007, a number of public secondary schools in the U.S. have made an effort to make healthier foods and drinks more available, but have done very little to limit foods that are high in fat, sugar and/or sodium. Further, there has been a significant lack of progress in helping students be active during and after the school day. This report also highlights a number of conditions in middle and high schools that may contribute to disparities in childhood obesity. Our data identify specific policies and practices that, if changed, may help address these disparities and create a healthier school environment for all students.

The Bridging the Gap team has been collecting nationally representative data on health-related practices in elementary, middle and high schools annually since the 2006–07 school year, which was the first year of the federal wellness policy mandate. Annual surveys by Bridging the Gap will continue to track changes in state and 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 continued 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, the reauthorization of the Elementary and Secondary Education Act, and key state and local policies that impact children's overall health. Future reports also will examine links between adopted wellness policies, their level of implementation in schools, and secondary school students' self-reported physical activity levels, dietary patterns and body mass indices to identify policies with the greatest potential to reverse the childhood obesity epidemic.

Summary of Health-Related Policies and Practices in Secondary Schools

Table 1 summarizes data from 2007 through 2010. All data are weighted to reflect the percentages of public secondary school students nationwide who were impacted by these practices. Data for other survey topics and demographic sub-sample comparisons are available at www.bridgingthegapresearch.org/research/secondary_school_survey.

TABLE 1 Summary of Secondary School Policies and Practices by School Level

Principals' Perceptions	MIDDLE SCHOOL					HIGH SCHOOL				
	2007	2008	2009	2010	2010	2007	2008	2009	2009	2010
Extent of concern about student overweight	48%	53%	48%	45%	45%	45%	47%	44%	44%	41%
Extent of concern about student nutrition	65%	65%	62%	63%	63%	59%	60%	60%	60%	55%
Extent of concern about student physical activity levels	66%	67%	65%	67%	67%	69%	68%	65%	65%	61%
Extent of school effort to improve student nutrition	55%	59%	56%	51%	51%	45%	49%	46%	46%	48%
Extent of school district effort to improve student nutrition	52%	62%	54%	52%	52%	48%	52%	48%	48%	47%
Extent of school effort to improve student physical activity	55%	59%	58%	51%	51%	38%	43%	38%	38%	38%
Extent of school district effort to improve student physical activity	46%	46%	50%	43%	43%	36%	38%	33%	33%	36%

School Meals	MIDDLE SCHOOL					HIGH SCHOOL				
	2007	2008	2009	2010	2010	2007	2008	2009	2009	2010
EATING BREAKFAST AND LUNCH AT SCHOOL										
Students ate breakfast offered by school	25%	26%	30%	30%*	30%*	20%	18%	20%	20%	23%
School offered breakfast to students										
...USDA School Breakfast Program	79%	82%	84%	83%	83%	77%	86%	82%	82%	83%
...any breakfast	90%	89%	90%	91%	91%	93%	94%	92%	92%	93%
School offered breakfast free to all students	Yes	N/A	N/A	21%	21%	N/A	N/A	18%	N/A	22%
Average full price charged for School Breakfast Program meal	[Average price]	\$1.10	\$1.11	\$1.20	\$1.28†	\$1.20	\$1.20	\$1.24	\$1.20	\$1.29*
Students ate lunch offered by school	[Average %]	76%	74%	76%	75%	63%	60%	59%	60%	60%
School offered USDA National School Lunch Program	Yes	91%	92%	93%	92%	89%	96%	92%	96%	93%

Significance of change from 2006-07 baseline to the most recent year of data available (2009-10) is indicated with * $p < .05$; † $p < .01$; ‡ $p < .001$.

Source: Bridging the Gap, Institute for Social Research, University of Michigan, 2012.

TABLE 1, CONTINUED

School Meals (CONTINUED)	Responses							
	MIDDLE SCHOOL			HIGH SCHOOL				
	2007	2008	2009	2010	2007	2008	2009	2010
EATING BREAKFAST AND LUNCH AT SCHOOL (CONTINUED)								
School offered lunch free to all students	N/A	N/A	10%	9%	N/A	N/A	9%	10%
Average full price charged for National School Lunch Program meal	\$1.84	\$1.93	\$2.08	\$2.16†	\$2.00	\$2.04	\$2.17	\$2.22†
Average length of lunch period	31	31	30	31	34	34	33	34
Students allowed to go off-campus at lunch	N/A	N/A	N/A	1%	N/A	N/A	N/A	19%
BEVERAGES AND FOOD AVAILABLE THROUGH THE NATIONAL SCHOOL LUNCH PROGRAM MEAL								
Beverages available in National School Lunch Program meals ^k :								
...healthy beverages ^l	98%	98%	96%	96%	99%	98%	95%	98%
...sugar-sweetened beverages ^m	35%	26%	30%	28%	47%	37%	31%	34%†
...whole, 2% or flavored milk	75%	71%	70%	62%†	79%	74%	77%	61%†
...other beverages ⁿ	39%	32%	32%	32%	49%	39%	35%	39%
Students have access to drinking fountains in cafeteria								
	N/A	N/A	N/A	68%	N/A	N/A	N/A	66%
Healthier foods available in National School Lunch Program meals ^k :								
...fruits and vegetables	99%	100%	100%	99%	100%	100%	99%	100%
...fresh fruits	99%	100%	99%	99%	98%	99%	98%	99%
...other fruits (e.g., dried or canned fruits)	89%	91%	91%	92%	92%	95%	93%	92%
...vegetables (e.g., carrot sticks or celery sticks)	96%	99%	98%	99%	99%	100%	98%	99%
...salads	96%	92%	92%	92%	94%	94%	93%	96%
...pre-made, main course salads	86%	83%	83%	79%	84%	87%	85%	87%
...salad bar	48%	41%	44%	43%	55%	43%	45%	48%
...whole grains	81%	87%	90%	90%†	90%	92%	91%	92%
Less healthy foods available in National School Lunch Program meals ^k :								
...french fries	48%	40%	41%	43%	61%	52%	44%	47%†
...pizza	96%	98%	99%	98%	98%	98%	98%	98%
...regular fat and sugary snacks ^o	61%	54%	58%	53%	65%	59%	57%	55%*

Significance of change from 2006-07 baseline to the most recent year of data available (2009-10) is indicated with * $p < .05$; † $p < .01$; ‡ $p < .001$.

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

^l Any one or more of beverages that have been defined by the Institute of Medicine as healthy beverages for students in all grades: bottled water; 100% fruit or vegetable juice with no added sweeteners; low-fat (1%) or non-fat (skim) milk.

^m 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.

ⁿ Any one or more of diet soft drinks; other no-calorie or very low-calorie beverages; "light" juices.

^o 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.

Source: Bridging the Gap, Institute for Social Research, University of Michigan, 2012.

TABLE 1, CONTINUED

School Meals (CONTINUED)	MIDDLE SCHOOL						HIGH SCHOOL		
	2007	2008	2009	2010	2007	2008	2009	2010	
SCHOOL FOOD POLICY ENVIRONMENT	Responses								
School participated in Team Nutrition	40%	44%	41%	35%	35%	45%	34%	37%	
School food service was provided by:	Yes	18%	24%	25%	23%	28%	31%	33%†	
...school system	42%	32%	34%	40%	42%	27%	34%	30%†	
...food service management	Yes	81%	79%	79%	76%	81%	81%	78%	
...other	Yes	18%	20%	18%	22%	16%	18%	22%	
Decisions about menus and food service issues were made by:	Yes	1%	3%	3%	5%	5%	3%	2%	
...district	Yes	85%	82%	80%	84%	79%	81%	81%	
...school	Yes	19%	20%	18%	24%	31%	23%	23%	
...contractor	Yes	12%	14%	13%	13%	10%	10%	12%	
...other	Yes	3%	6%	4%	3%	3%	4%	3%	
School provided menus to:	Yes	90%	92%	91%	85%	87%	87%	93%†	
...students	Yes	83%	88%	89%	80%	81%	82%	86%	
School provided nutrition information to:	Yes	56%	64%	61%	56%	64%	64%	59%	
...students	Yes	50%	60%	55%	50%	57%	53%	56%	
...parents									

Competitive Foods and Beverages	MIDDLE SCHOOL				HIGH SCHOOL			
	2007	2008	2009	2010	2007	2008	2009	2010
COMPETITIVE FOOD AND BEVERAGE VENUE AVAILABILITY	Responses							
School offered foods or beverages in the following competitive venues:	Yes	77%	81%	77%	86%	92%	87%	88%
...à la carte sales in the cafeteria	Yes	47%	48%	48%	61%	62%	62%	64%
...stores or snack bars/carts	Yes	79%	77%	71%	96%	96%	96%	95%
...vending machines								

Significance of change from 2006-07 baseline to the most recent year of data available (2009-10) is indicated with *p<.05; †p<.01; ‡p<.001.

Source: Bridging the Gap, Institute for Social Research, University of Michigan, 2012.

TABLE 1, CONTINUED

Competitive Foods and Beverages (CONTINUED)	Responses	MIDDLE SCHOOL			HIGH SCHOOL				
		2007	2008	2009	2010	2007	2008	2009	2010
COMPETITIVE FOOD AND BEVERAGE GUIDELINES: AWARENESS AND IMPLEMENTATION									
School administrator was aware of Alliance school beverage guidelines	No	49%	28%	27%	33%†	39%	14%	23%	26%†
School offered foods or beverages in the following competitive venues but the Alliance school beverage guidelines had <i>not</i> been implemented: ...à la carte sales in the cafeteria	Yes, some	33%	56%	56%	53%†	44%	66%	56%	56%†
...stores or snack bars/carts	Yes, quite a bit	18%	17%	17%	14%	18%	21%	21%	18%
...vending machines	Yes	62%	43%	32%	37%†	57%	31%	34%	30%†
School district or school implementing or planning to implement other beverage guidelines	Yes	55%	40%	39%*	39%*	57%	26%	34%	34%†
School administrator was aware of Alliance nutritional guidelines for competitive foods	Yes	57%	38%	33%	31%†	56%	33%	30%	30%†
School offered foods or beverages in the following competitive venues but the Alliance nutritional guidelines for competitive foods had <i>not</i> been implemented: ...à la carte sales in the cafeteria	Yes	N/A	N/A	31%	23%*	N/A	N/A	33%	27%
...stores or snack bars/carts	No	63%	46%	48%	51%†	57%	31%	44%	43%†
...vending machines	Yes, some	27%	38%	42%	41%†	31%	56%	42%	45%†
School district or school implementing or planning to implement other food guidelines	Yes, quite a bit	10%	16%	10%	8%	12%	13%	14%	12%
COMPETITIVE FOOD AND BEVERAGE AVAILABILITY									
Beverages available in competitive venues: ...healthy beverages ^p	Yes	70%	50%	50%	51%†	72%	52%	56%	46%†
...sugar-sweetened beverages (including regular soft drinks) ^q	Yes	69%	48%	61%	49%†	67%	46%	59%	47%†
...regular soft drinks	Yes	68%	52%	59%	58%	71%	49%	54%	48%†
...whole or 2% milk, or flavored milk	Yes	N/A	N/A	32%	22%†	N/A	N/A	29%	23%
...other beverages ^r	Yes	96%	96%	93%	95%	100%	99%	98%	99%
	Yes	78%	71%	69%	65%†	95%	92%	90%	90%
	Yes	27%	17%	14%	12%†	54%	45%	34%	26%†
	Yes	64%	61%	59%	48%†	75%	72%	74%	57%†
	Yes	74%	69%	65%	62%†	94%	88%	87%	87%*

Significance of change from 2006–07 baseline to the most recent year of data available (2009–10) is indicated with * $p < .05$; † $p < .01$; ‡ $p < .001$.

^p Any one or more of beverages that have been defined by the Institute of Medicine as healthy beverages for students in all grades: bottled water; 100% fruit or vegetable juice with no added sweeteners; low-fat (1%) or non-fat (skim) milk.

^q 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.

^r Any one or more of diet soft drinks; other no-calorie or very low-calorie beverages; "light" juices.

Source: Bridging the Gap. Institute for Social Research, University of Michigan, 2012.

TABLE 1, CONTINUED

Competitive Foods and Beverages (CONTINUED)		MIDDLE SCHOOL						HIGH SCHOOL		
		2007	2008	2009	2010	2007	2008	2009	2010	
Responses										
COMPETITIVE FOOD AND BEVERAGE AVAILABILITY (CONTINUED)										
Regular soft drinks available in:										
...à la carte sales in the cafeteria	Yes	0%	1%	0%	0%	10%	5%	3%	2%†	
...stores or snack bars/carts	Yes	6%	4%	3%	2%*	17%	12%	10%	8%†	
...vending machines	Yes	24%	15%	13%	10%†	51%	43%	32%	23%†	
Students have access to drinking fountains in:										
...gymnasium/locker rooms	Yes	N/A	N/A	N/A	83%	N/A	N/A	N/A	82%	
...hallways near classroom areas	Yes	N/A	N/A	N/A	99%	N/A	N/A	N/A	97%	
...other non-cafeteria locations at school	Yes	N/A	N/A	N/A	47%	N/A	N/A	N/A	51%	
Healthier foods available in competitive venues:										
...fruits and vegetables	Yes	74%	70%	69%	67%	84%	86%	85%	83%	
...fresh fruits	Yes	72%	67%	67%	64%*	83%	84%	83%	80%	
...other fruits (e.g., dried or canned fruits)	Yes	64%	60%	61%	57%	72%	79%	74%	72%	
...vegetables (e.g., carrot sticks or celery sticks)	Yes	64%	62%	62%	58%	73%	78%	77%	74%	
...salads	Yes	68%	62%	64%	59%*	78%	78%	78%	76%	
...pre-made, main course salads	Yes	63%	59%	60%	54%*	72%	75%	73%	70%	
...salad bar	Yes	30%	23%	25%	22%*	46%	34%	37%	37%*	
...whole grains	Yes	53%	54%	53%	50%	61%	72%	69%	67%	
Less healthy foods available in competitive venues:										
...french fries	Yes	31%	26%	23%	20%†	48%	45%	42%	39%	
...pizza	Yes	65%	64%	62%	57%*	76%	79%	77%	74%	
...regular fat and sugared snacks ^s	Yes	71%	61%	61%	63%	83%	77%	78%	76%	
Commercial fast foods available in competitive venues and/or lunch meals ^t	Yes	N/A	N/A	27%	27%	N/A	N/A	29%	28%	

Significance of change from 2006–07 baseline to the most recent year of data available (2009–10) is indicated with * $p < .05$; † $p < .01$; ‡ $p < .001$.

^s 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.

^t Any availability of food from pizza places, sandwich or sub shops, or fast-food chains during a typical week.

Source: Bridging the Gap, Institute for Social Research, University of Michigan, 2012.

TABLE 1, CONTINUED

Competitive Foods and Beverages (CONTINUED)		MIDDLE SCHOOL				HIGH SCHOOL			
		2007	2008	2009	2010	2007	2008	2009	2010
		Responses							
Competitive venue prices were set to encourage consumption of healthier:									
...beverages	Some or a lot	54%	55%	58%	54%	55%	57%	62%	63%
...foods	Some or a lot	48%	51%	56%	52%	52%	58%	62%	64% [†]
School had written policies addressing nutritional guidelines for the following in competitive venues:									
...foods									
...fat content	Yes	N/A	N/A	67%	64%	N/A	N/A	63%	61%
...sugar content	Yes	N/A	N/A	68%	62%	N/A	N/A	61%	61%
...sodium content	Yes	N/A	N/A	57%	53%	N/A	N/A	52%	49%
...calorie content	Yes	N/A	N/A	63%	59%	N/A	N/A	59%	58%
...portion size	Yes	N/A	N/A	66%	61%	N/A	N/A	64%	59%
...milk									
...fat content	Yes	N/A	N/A	69%	64%	N/A	N/A	63%	60%
...sugar content	Yes	N/A	N/A	62%	55%	N/A	N/A	53%	53%
...calorie content	Yes	N/A	N/A	62%	57%	N/A	N/A	55%	53%
...beverages other than milk									
...sugar content	Yes	N/A	N/A	61%	59%	N/A	N/A	61%	61%
...caffeine content	Yes	N/A	N/A	49%	50%	N/A	N/A	48%	50%
...calorie content	Yes	N/A	N/A	56%	55%	N/A	N/A	55%	56%
...portion size	Yes	N/A	N/A	58%	58%	N/A	N/A	58%	57%
...availability of free drinking water	Yes	N/A	N/A	53%	53%	N/A	N/A	50%	48%
School district had restrictions on items sold to students as fundraisers:									
...no soft drinks allowed	Yes	N/A	N/A	N/A	21%	N/A	N/A	N/A	23%
...no food products	Yes	N/A	N/A	N/A	3%	N/A	N/A	N/A	4%
...no foods of minimal nutritional value (soft drinks, candy, gum)	Yes	N/A	N/A	N/A	23%	N/A	N/A	N/A	28%
...only healthy foods allowed	Yes	N/A	N/A	N/A	17%	N/A	N/A	N/A	14%
Mobile vendors prohibited from selling food or beverages on school grounds during school hours									
	Yes	N/A	N/A	N/A	78%	N/A	N/A	N/A	76%

Significance of change from 2006-07 baseline to the most recent year of data available (2009-10) is indicated with * $p < .05$; [†] $p < .01$; [‡] $p < .001$.
 Source: Bridging the Gap, Institute for Social Research, University of Michigan, 2012.

TABLE 1, CONTINUED

Competitive Foods and Beverages (CONTINUED)	Responses								
	MIDDLE SCHOOL			HIGH SCHOOL					
	2007	2008	2009	2010	2007	2008	2009	2010	
IN-SCHOOL MARKETING, INCLUDING EXCLUSIVE CONTRACTS									
District or school had existing exclusive beverage contract in place	Yes	67%	65%	63%	55%†	74%	79%	74%	71%
School received specified percentage of sales from exclusive beverage contract	Yes	54%	55%	53%	45%*	64%	68%	62%	61%
Regular soft drinks sold to students under exclusive beverage contract	Yes	N/A	14%	13%	12%	N/A	37%	28%	19%‡
School received specified percentage of sales from food vending machines	Yes	21%	19%	19%	20%	46%	44%	43%	44%
Soft drinks and/or fast-food restaurants were promoted by:									
...sponsorships	Yes	11%	13%	9%	12%	29%	21%	21%	17%‡
...coupons	Yes	10%	11%	8%	7%	8%	6%	9%	8%
...textbook covers or menus	Yes	2%	3%	0%	1%	1%	2%	2%	2%
...exclusive beverage contract ads (excluding vending machine ads)	Yes	7%	9%	9%	6%	17%	19%	12%	14%
...posters	Yes	2%	3%	4%	1%	7%	4%	2%	3%*
Physical Activity and Physical Education									
Responses									
School required physical education for students' grade level	Yes	83%	83%	82%	83%	37%	35%	32%	34%
Students took physical education	[Average %]	90%	91%	90%	90%	51%	49%	48%	50%
Students participated in interscholastic or varsity sports:									
...boys	[Average %]	31%	30%	33%	31%	32%	31%	32%	33%
...girls	[Average %]	27%	27%	28%	28%	27%	27%	27%	29%
Students participated in intramural sports or physical activity clubs:									
...boys	[Average %]	26%	24%	23%	23%	12%	13%	12%	13%
...girls	[Average %]	23%	21%	20%	19%	11%	10%	11%	12%
Students walked or bicycled from home to school	[Average %]	23%	25%	22%	23%	14%	14%	12%	13%
School gave students physical fitness tests:									
...had any testing	Yes	73%	76%	83%	86%‡	36%	41%	58%	63%‡
...all students were tested	Yes	53%	54%	61%	62%*	12%	16%	27%	29%‡
...only students taking physical education were tested	Yes	20%	20%	22%	24%	23%	23%	29%	32%*
Parents or guardians provided with results of physical fitness tests	Yes	44%	52%	53%	56%†	15%	21%	29%	32%‡

Significance of change from 2006-07 baseline to the most recent year of data available (2009-10) is indicated with * $p < .05$; † $p < .01$; ‡ $p < .001$.

Source: Bridging the Gap, Institute for Social Research, University of Michigan, 2012.

TABLE 1, CONTINUED

Wellness Policies (CONTINUED)	Responses	MIDDLE SCHOOL			HIGH SCHOOL				
		2007	2008	2009	2010	2007	2008	2009	2010
Had advisory body for nutrition and/or exercise recommendations:									
...at district level only	Yes	36%	44%	43%	39%	37%	44%	45%	44%
...at school level only	Yes	6%	7%	5%	7%	6%	6%	5%	7%
...at both district and school level	Yes	19%	17%	13%	12%*	18%	14%	12%	11%*
Stakeholders involved in wellness policy development included:									
...school food personnel	Yes	74%	72%	75%	77%	76%	83%	77%	77%
...school administrators	Yes	67%	68%	73%	72%	77%	78%	70%	70%
...teachers	Yes	68%	67%	68%	67%	69%	71%	66%	64%
...parents	Yes	60%	61%	60%	60%	63%	61%	57%	60%
...students	Yes	47%	45%	43%	45%	63%	60%	54%	52%
...school board members	Yes	43%	42%	44%	42%	51%	51%	46%	45%
District offered formal classroom instruction on:									
...physical activity, exercise and fitness	Yes	96%	94%	94%	91%*	98%	97%	95%	96%
...nutrition and dietary behavior	Yes	78%	83%	81%	83%	91%	95%	91%	90%
School was certified as a USDA HealthierUS School	Yes	N/A	N/A	N/A	3%	N/A	N/A	N/A	4%
	No	N/A	N/A	N/A	50%	N/A	N/A	N/A	53%
	Don't know	N/A	N/A	N/A	47%	N/A	N/A	N/A	43%
School designated as an Alliance Healthy School Program	Yes	N/A	N/A	N/A	1%	N/A	N/A	N/A	3%
	No	N/A	N/A	N/A	51%	N/A	N/A	N/A	54%
	Don't know	N/A	N/A	N/A	48%	N/A	N/A	N/A	43%

Significance of change from 2006-07 baseline to the most recent year of data available (2009-10) is indicated with * $p < .05$; † $p < .01$; ‡ $p < .001$.

Source: Bridging the Gap. Institute for Social Research, University of Michigan, 2012.

Study Methods

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 subsamples are used to represent middle schools and high schools, and the results for each are reported separately. A full description of the study can be found elsewhere.^{15,34}

Samples

The Bridging the Gap initiative began in 1997. Schools for the Bridging the Gap study were drawn each year from the 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. The annual Monitoring the Future samples consisted of three nationally representative subsamples—one each of schools containing 8th, 10th and 12th grade students. However, only about 200 schools participated each year in total (including both public and private schools)—not enough to make reliable estimates of changes occurring in the conditions in U.S. schools. Therefore, as the focus of the Bridging the Gap shifted toward childhood obesity, a supplementary nationally representative sample of almost 600 public 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 subsamples of schools are surveyed each year—one each of schools selected because they contained students in 8th, 10th or 12th grade.

For the years 2007 and 2008, the data presented here are taken from the supplementary nationally representative sample of public schools described above. Beginning in 2009, the annual Monitoring the Future samples were asked the full complement of questionnaire items related to childhood obesity. Thus, for 2009 and 2010, this monograph combines data from both the annual Monitoring the Future samples (public schools only) and the supplementary samples. Those selected in the 8th grade samples 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. Table 2 provides sample sizes and response rates for both the Monitoring the Future (MTF) and supplement samples.

TABLE 2 Response Rates, 2007–2010

Year	MTF SAMPLE		SUPPLEMENT SAMPLE		
	Schools Responding	Response Rate	Schools Responding	Response Rate – Original	Response Rate – With Replacement
2007	N/A	N/A	446	76%	N/A
2008	N/A	N/A	527	77%	89%
2009	141	84%	566	76%	91%
2010	138	84%	569	73%	90%

MTF schools were first combined with the larger supplement sample of schools in 2009. Replacement schools were first introduced into the supplement sample in 2008.

Presentation of Findings

This report contains results of two types. The first describes conditions in U.S. secondary schools 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 that has been observed between the first year and the most recent data collection year (spanning four years from 2007–2010). Indications of change in the policies and practices of schools are of particular importance, and provision of accurate 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 percentage of students enrolled rather than the percentage 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 results presented in this report have been drawn from *Bridging the Gap: Complete Descriptive Statistics on Secondary Schools, School Years 2006-07 to 2009-10*, which provides a complete compilation of the findings from the 2007–2010 surveys (see www.bridgingthegapresearch.org/research/secondary_school_survey). In this report, 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%).*

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, because 5 percent of all Latino students are exposed to the characteristics of that particular school. A school that serves many Latino students will weigh into the estimates for those students 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 to 2009–10*, as well as in this report. 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.

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References

- Ogden CL, Carroll MD, Curtin LR, et al. Prevalence of high body mass index in US children and adolescents, 2007-2008. *JAMA*. 2010;303(3):242-249.
- Dietz WH. Health consequences of obesity in youth: Childhood predictors of adult disease. *J Pediatr*. 1998;101:518-525.
- Freedman DS, Mei Z, Srinivasan SR, et al. Cardiovascular risk factors and excess adiposity among overweight children and adolescents: The Bogalusa Heart Study. *J Pediatr*. 2007;150(1):12-17.e2.
- Geier AB, Foster GD, Womble LG, et al. The relationship between relative weight and school attendance among elementary school-children. *Obesity*. 2007;15(8):2157-2161.
- Schwartz MB, Puhl R. Childhood obesity: A societal problem to solve. *Obes Rev*. 2003;4(1):57-71.
- Singh GK, Kogan MD. *Childhood Obesity in the United States, 1976-2008: Trends and Current Racial/Ethnic, Socioeconomic, and Geographic Disparities*. A 75th Anniversary Publication. Health Resources and Services Administration, Maternal and Child Health Bureau. Rockville, Maryland: U.S. Department of Health and Human Services; 2010.
- Clarke PJ, O'Malley PM, Schulenberg JE, et al. Midlife health and socioeconomic consequences of persistent overweight across early adulthood: Findings from a national survey of American adults (1986-2008). *Am J Epidemiol*. 2010;172(5):540-548.

8. Institute of Medicine. *Accelerating Progress in Obesity Prevention: Solving the Weight of the Nation*. Washington, DC: The National Academies Press; 2012.
9. Briefel RR, Wilson A, Gleason PM. Consumption of low-nutrient, energy-dense foods and beverages at school, home, and other locations among school lunch participants and nonparticipants. *J Am Diet Assoc*. 2009;109:Suppl-90.
10. Ward D. *School Policies on Physical Education and Physical Activity*. Princeton, NJ: Robert Wood Johnson Foundation; 2011.
11. Chriqui JF. *Competitive Food and Beverage Policies: Impact on Diet and BMI among Children and Adolescents*. Princeton, NJ: Robert Wood Johnson Foundation; 2012.
12. Taber DR, Chriqui JF, Chaloupka FJ. Differences in nutrient intake associated with state laws regarding fat, sugar, and caloric content of competitive foods. *Arch Pediatr Adolesc Med*. 2012;166(5):452-458.
13. Craddock AL, McHugh A, Mont-Ferguson H, et al. Effect of school district policy change on consumption of sugar-sweetened beverages among high school students, Boston, Massachusetts, 2004-2006. *Prev Chronic Dis*. 2011;8:A74.
14. Kahn EB, Ramsey LT, Brownson RC, et al. The effectiveness of interventions to increase physical activity. A systematic review. *Am J Prev Med*. 2002;22(4S):73-107.
15. Johnston LD, O'Malley PM, Terry-McElrath YM, et al. *School Policies and Practices to Improve Health and Prevent Obesity: National Secondary School Survey Results, School Years 2006-07 and 2007-08. Volume 1*. Ann Arbor, MI: Bridging the Gap Program, Survey Research Center, Institute for Social Research; 2011. www.bridgingthegapresearch.org/research/secondary_school_survey. Accessed June 14, 2012.
16. Briefel RR, Crepinsek MK, Cabili C, et al. School food environments and practices affect dietary behaviors of US public school children. *J Am Diet Assoc*. 2009;109(2 Suppl 1):S91-S107.
17. Brown JL, Beardslee WH, Prothrow-Stith, D. *Impact of School Breakfast on Children's Health and Learning: an Analysis of the Scientific Research*. Gaithersburg, MD: Sodexo Foundation; 2008. http://www.sodexofoundation.org/hunger_us/Images/Impact%20of%20School%20Breakfast%20Study_tcm150-212606.pdf. Accessed June 14, 2012.
18. Turner L, Ohri-Vachaspati P, Chaloupka F. *Improving School Foods through the Team Nutrition Program: New Findings from U.S. Elementary Schools*. BTG Research Brief. Chicago, IL: Bridging the Gap Program, Institute for Health Research and Policy, University of Illinois at Chicago; November 2011. http://www.bridgingthegapresearch.org/_asset/z9cm9b/btg_team_nutrition_111711.pdf. Accessed June 14, 2012.
19. Terry-McElrath YM, O'Malley PM, Delva J, et al. The school food environment and student BMI and food consumption: 2004 to 2007 national data. *J Adolesc Health*. 2009;45:S45-S46.
20. Institute of Medicine. *Child and Adult Care Food Program: Aligning Dietary Guidance For All*. Washington, DC: The National Academies Press; 2010.
21. Institute of Medicine. *Nutrition Standards for Foods in Schools: Leading the Way Toward Healthier Youth*. Washington, DC: The National Academies Press; 2007.
22. French S, Story M, Fulkerson JA, et al. An environmental intervention to promote lower-fat food choices in secondary schools: Outcomes of the TACOS study. *Am J Public Health*. 2004;94(9):1507-1512.
23. Wharton CM, Long M, Schwartz MB. Changing nutrition standards in schools: The emerging impact on school revenue. *J Sch Health*. 2008;78(5):245-251.
24. Wojcicki JM, Heyman MB. Healthier choices and increased participation in a middle school lunch program: Effects of nutrition policy changes in San Francisco. *Am J Public Health*. 2006;96(9):1542-1547.
25. Pate RR, Davis MG, Robinson TN, et al. Promoting physical activity in children and youth: A leadership role for schools. A scientific statement from the American Heart Association Council on Nutrition, Physical Activity, and Metabolism (Physical Activity Committee) in collaboration with the Councils on Cardiovascular Disease in the Young and Cardiovascular Nursing. *Circulation*. 2006;114(11):1214-24.
26. Centers for Disease Control and Prevention. Guidelines for school and community programs to promote lifelong physical activity among young people. *MMWR Morb Mortal Wkly Rep*. 1997;46(RR-6):1-36.
27. Institute of Medicine. *Preventing Childhood Obesity: Health in the Balance*. Washington, DC: The National Academies Press; 2004.
28. National Association of State Boards of Education. *Fit, Healthy, and Ready to Learn: A School Health Policy Guide*. Alexandria, VA: National Association of State Boards of Education; 2000.
29. National Association for Sport and Physical Education. *Physical Education is Critical to Educating the Whole Child [Position Statement]*. Reston, VA: National Association for Sport and Physical Education; 2011.
30. Hillman CH, Erickson KI, Kramer AF. Be smart, exercise your heart: Exercise effects on brain and cognition. *Nat Rev Neurosci*. 2008;9(1):58-65.
31. Trudeau F, Shephard RJ. Physical education, school physical activity, school sports and academic performance. *Int J Behav Nutr Phys Act*. 2008;5:10.
32. Leadership for Healthy Communities. Action Strategies Toolkit. Washington, DC: Leadership for Healthy Communities; 2009. http://www.leadershipforhealthycommunities.org/index.php?option=com_content&task=view&id=352&Itemid=154. Accessed June 14, 2012.
33. Longley CH, Sneed J. Effects of federal legislation on wellness policy formation in school districts in the United States. *J Am Diet Assoc*. 2009;109(1):95-101.
34. Johnston LD, O'Malley PM, Bachman JG, et al. *Monitoring the Future National Survey Results on Drug Use, 1975-2010. Volume I: Secondary School Students*. Ann Arbor, MI: Institute for Social Research, The University of Michigan; 2011.

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