

August 2005

# SCHOOL MEAL PROGRAMS

## Competitive Foods Are Widely Available and Generate Substantial Revenues for Schools



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# Highlights

Highlights of [GAO-05-563](#), a report to Congressional Requesters

## Why GAO Did This Study

Recent increases in child obesity have sparked concerns about competitive foods—foods sold to students at school that are not part of federally reimbursable school meals. The nutritional value of these foods is largely unregulated, and students can often purchase these foods in addition to or instead of school meals. In our April 2004 report on competitive foods (GAO-04-673), we reported that several states had enacted competitive food policies that were more restrictive than federal regulations. However, these policies differed widely in the type and extent of restrictions. In addition, it was unclear how and to what extent states were monitoring compliance with these policies. GAO was also asked to provide a national picture of competitive foods in schools, as well as strategies that districts and schools themselves are taking to limit the availability of less nutritious competitive foods. This report provides information from two nationally representative surveys about the prevalence of competitive foods in schools, competitive foods restrictions and groups involved in their sale, and the amounts and uses of revenue generated from the sale of competitive foods. It also provides information about strategies schools have used to limit the availability of less nutritious competitive foods, based on visits to a total of six school districts in California, Connecticut, Mississippi, Missouri, and South Carolina.

[www.gao.gov/cgi-bin/getrpt?GAO-05-563](http://www.gao.gov/cgi-bin/getrpt?GAO-05-563).

To view the full product, including the scope and methodology, click on the link above. For more information, contact David Bellis at (415) 904-2272 or [bellisd@gao.gov](mailto:bellisd@gao.gov).

## SCHOOL MEAL PROGRAMS

# Competitive Foods Are Widely Available and Generate Substantial Revenues for Schools

## What GAO Found

Nearly 9 out of 10 schools sold competitive foods to students in school year 2003-2004, and the availability of competitive foods sold in middle schools and through a la carte lines has increased over the last 5 years. Schools often sold these foods in or near the cafeteria and during lunch, and the competitive foods available ranged from nutritious items such as fruit and milk to less nutritious items such as soda and candy. High and middle schools were more likely to sell competitive foods than elementary schools.

Many different people made decisions about competitive food sales, but no one person commonly had responsibility for all sales in a school. In a majority of schools, district officials made competitive food policies, while school food authority directors and principals made decisions about specific sales. Other groups, such as student clubs and booster groups, also made competitive food decisions through their direct involvement in sales.

Many schools, particularly high schools and middle schools, generated substantial revenues through competitive food sales in 2003-2004. Specifically, the nearly 30 percent of high schools generating the most revenue from these sales raised more than \$125,000 per school. Food services, responsible for providing federal school meals, generally spent the revenue they generated through a la carte sales on food service operations. Other school groups often used revenues for student activities.

The six school districts visited all recently took steps to substitute healthy items for less nutritious competitive foods. In each district, committed individuals took actions to initiate and lead change while also involving those affected. However, districts faced several barriers to change, including opposition due to concerns about revenue losses. In the districts visited, the effects of changes on revenues were often unclear because of limited data.

### A Majority of Schools Sell Competitive Foods to Students through Vending Machines



Source: GAO.

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## Abbreviations

CCD	Common Core of Data
CDC	Centers for Disease Control and Prevention
FMNV	foods of minimal nutritional value
FNS	Food and Nutrition Service
HHS	Department of Health and Human Services
NSLP	National School Lunch Program
SFA	school food authority
USDA	U.S. Department of Agriculture
WIC	Special Supplemental Nutrition Program for Women, Infants, and Children

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**United States Government Accountability Office**  
Washington, DC 20548

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August 8, 2005

The Honorable Tom Harkin  
Ranking Member  
Committee on Agriculture, Nutrition, and Forestry  
United States Senate

The Honorable Patrick J. Leahy  
Ranking Member  
Subcommittee on Research, Nutrition, and General Legislation  
Committee on Agriculture, Nutrition, and Forestry  
United States Senate

The Honorable George Miller  
Ranking Member  
Committee on Education and the Workforce  
House of Representatives

The Honorable Lynn Woolsey  
Ranking Member  
Subcommittee on Education Reform  
Committee on Education and the Workforce  
House of Representatives

Increasing child obesity rates have recently focused attention on children's health and nutrition and have raised concerns about foods available in schools that compete nutritionally and financially with federally regulated school meal programs. The number of children who are overweight has more than doubled, and the number of adolescents who are overweight has more than tripled since 1980, according to the U.S. Centers for Disease Control and Prevention (CDC). These changes are related, in part, to poor nutrition. According to U.S. Department of Agriculture (USDA) data, more than 60 percent of young people eat too much fat and less than 20 percent of the recommended daily servings of fruits and vegetables. In addition to having negative health outcomes, children with poor nutrition may have a harder time concentrating and succeeding in school than other children. The Surgeon General's 2001 call to action identified schools as one of the key settings for public health strategies to address child nutrition. Since children spend a large portion of their day in school, providing them with healthful food options throughout the school day can be an important step toward good child nutrition.

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The key school meal programs, the National School Lunch Program and the School Breakfast Program, provide millions of children with nutritious meals each school day. USDA's Food and Nutrition Service administers these programs through local school food authorities (SFA) and subsidizes the meals served in local schools as long as meals meet certain nutritional guidelines. However, other foods not provided through these programs, typically referred to as competitive foods, are often available to children at school. Competitive food sales can take place at a variety of venues in schools, including vending machines, school stores, and a la carte lines in the cafeteria, through which the SFA sells individually priced food and beverage items. Federal restrictions concerned with the nutritional value of competitive foods are limited. Specifically, federal regulations require that one segment of competitive foods, defined as foods of minimal nutritional value, not be sold to students during the breakfast and lunch periods in food service areas.

In recent years, federal, state, and local governments have increasingly focused on the role that competitive foods play in children's diets. In our April 2004 report on competitive foods,<sup>1</sup> we reported that increasing numbers of state legislatures have enacted and proposed legislation to restrict the availability of competitive foods in schools. In addition, school districts and schools themselves are taking steps to limit the availability of competitive foods.

Because of your interest in further understanding issues related to competitive foods in schools, you asked us to answer the following questions: (1) How prevalent is the sale of competitive foods in schools across the country, and has this prevalence changed over time? (2) Who makes decisions about competitive food sales in schools? (3) What amount of revenue is generated from the sale of competitive foods, and for what purposes is the revenue used? (4) What strategies have schools used to limit the availability of less nutritious competitive foods, what obstacles did they face, and how have these strategies affected sales revenue?

To answer your first three questions, we obtained information through two Web surveys, one of school principals and the other of district-level SFA directors. To conduct our surveys, we selected a stratified random sample

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<sup>1</sup> See GAO, *School Meal Programs: Competitive Foods Are Available in Many Schools; Actions Taken to Restrict Them Differ by State and Locality*, [GAO-04-673](#) (Washington, D.C.: April 23, 2004).

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from the 80,000 public schools nationwide that participate in the National School Lunch Program, which allowed us to provide national estimates based on school level. The surveys were administered between October 19, 2004, and February 11, 2005, with 65 percent of principals and 70 percent of SFA directors responding.<sup>2</sup> The surveys asked respondents about conditions in their schools during specific school years, primarily 2003-2004, and therefore, all years cited refer to school years. In addition, all estimates presented from the surveys have margins of error of plus or minus 15 percent or less, unless otherwise noted. To answer the fourth question, we conducted site visits to 6 school districts in California (Oakland), Connecticut (New Haven), Mississippi (McComb), Missouri (Independence and Fort Osage), and South Carolina (Richland One), including visits to a total of 10 schools. Our site visit localities were selected from a group of approximately 100 districts and schools recognized as making efforts to limit access to less nutritious competitive foods. The 6 districts visited were also selected because it appeared that they used different strategies to restrict competitive foods, and when viewed as a group, they provided variation across characteristics such as geographic location, district size, and socioeconomic status. See appendix I for detailed information on our surveys, sampling strategy, and site visits.

We conducted our work from May 2004 through July 2005 in accordance with generally accepted government auditing standards.

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## Results in Brief

Almost all schools sold competitive foods to students in school year 2003-2004, and over the last 5 years, the availability of competitive foods has increased both in middle schools and in a la carte lines in many schools. We estimate that nearly 9 out of 10 schools offered competitive foods through one or more of the following venues in 2003-2004: a la carte cafeteria lines, vending machines, and school stores. While competitive foods were commonly sold in schools of all levels, high schools and middle schools were more likely to sell these foods than elementary schools. For example, vending machines were available to students in almost all high schools and middle schools but in less than half of elementary schools. Schools often sold competitive foods in or near the cafeteria and during lunchtime, allowing students to purchase these foods

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<sup>2</sup> These percentages reflect those principals and SFA directors who actually received the Web surveys. We were unable to contact a subset of principals and SFA directors selected in our sample of 656 schools. See appendix I for detailed information on response rates for each survey.



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as their lunch or to supplement their lunch. The competitive foods available ranged from nutritious items such as fruit and milk to less nutritious items such as soda and candy, with nutritious foods more frequently available through a la carte lines than through vending machines or school stores. Between 1998-1999 and 2003-2004, the availability of competitive foods increased in middle schools, and the volume and variety of a la carte foods sold increased in many schools.

Many people, including district and school officials as well as members of groups involved in sales at schools, made decisions about competitive foods, but no one person commonly had responsibility for all competitive food sales at the school level. The decisions ranged from broad policies about the school nutrition environment to decisions about which foods to sell at a specific venue or event. According to school principals, an estimated 60 percent of schools had written policies in place in school year 2003-2004 that restricted competitive food sales to students, and in a majority of those schools the policies were set at the district level, often by superintendents and school boards. Regarding competitive food sales in schools, district SFA directors were commonly involved in policy decisions related to a la carte sales, while school principals often had final approval over other competitive food sales, such as items sold through vending machines. In addition to SFA directors and school principals, many other groups such as teachers, student clubs, parent-teacher associations, and booster groups were involved in selling competitive foods in schools. These groups therefore often made decisions concerning the types of food to sell to students and when to make such food available. The number and variety of groups involved in these sales typically increased as the school level increased.

Many schools raised a substantial amount of revenue through competitive food sales in school year 2003-2004 and used this revenue to support food service operations and student activities. High schools and middle schools generally raised more revenue from competitive food sales than elementary schools, reflecting the greater availability of competitive foods in high and middle schools. According to our survey, the nearly 30 percent of high schools generating the most revenue from competitive food sales raised more than \$125,000 per school in 2003-2004. Across all competitive food sales, food services generated more revenue than other school groups, largely through a la carte sales, and they generally used this revenue to support overall food service operations. Other school groups commonly used their revenues to support student activities, and the most frequent uses were student field trips, school assemblies and programs, and athletic equipment and facilities.

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The six school districts we visited all recently took steps to substitute healthy competitive foods for less nutritious fare while overcoming obstacles to these changes, and the effects of these changes on sales revenues were often unclear because of limited data. Specifically, many of the schools we visited increased the availability of healthy items, including low-fat and low-sugar foods and beverages, while they decreased the availability of less nutritious foods, such as deep-fried French fries, candy, and soda. Further, although different districts used different approaches and achieved different outcomes, district and school officials identified several factors that consistently facilitated change and several that hindered it. For example, in all of the districts we visited, motivated individuals took action to initiate and lead the process of change while obtaining support from those affected in the district, schools, and community. However, districts noted that they also faced many barriers to implementing changes, such as opposition due to concerns about potential revenue losses. Regarding the effect of changes on sales revenues, none of the districts we visited had clear and reliable data concerning the impact of competitive food changes on sales revenues. From the limited data that were available, it appeared that changes had varied effects on revenues across districts. Related to this, while a few districts anticipated and planned for the effects of changes on sales revenues, most had not. Consequently, many officials expressed strong concerns about potential revenue losses because competitive food revenues have provided them with a valued source of funding.

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## Background

Competitive foods in schools are those foods sold to students during the school day that are not part of the federal meal programs. These federal programs, the National School Lunch Program (NSLP) and the School Breakfast Program, subsidize public school meals and regulate their nutritional content. Competitive foods, however, are only minimally regulated at the federal level. They are typically sold a la carte in the cafeteria, and through vending machines and school stores.

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## NSLP and School Breakfast Program

The two largest federal school meal programs, the NSLP and the School Breakfast Program, aim to address problems of hunger, food insecurity, and poor nutrition by providing nutritious meals to children in schools. The NSLP, established in 1946, provides nutritionally balanced low-cost or free lunches in participating schools to more than 28 million children each school day, as well as reimbursement for snacks served to those through age 18 in after-school educational and enrichment programs. Similarly, the School Breakfast Program, permanently established in 1975, provides free

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or reduced price breakfasts to more than 8 million schoolchildren daily.<sup>3</sup> At the federal level, these programs are administered by USDA's Food and Nutrition Service (FNS). As part of its strategic goal to improve the nation's nutrition and health, the department has laid out plans to increase access to, and utilization of, these school meal programs.

In fiscal year 2004, the federal government spent over \$8 billion on the NSLP and the School Breakfast Program. FNS provides reimbursement in the form of cash subsidies and donated commodities based on the number of lunches and breakfasts served that meet certain federal requirements. The meals must adhere to the Dietary Guidelines for Americans, which include limits on total fat and saturated fat and call for diets moderate in sodium.<sup>4</sup> The meals must also meet standards for the recommended daily allowances of calories, as well as nutrients such as protein, calcium, iron, and vitamins A and C. Compliance with the standards is determined by averaging the nutritional content of the meals offered over a school week. USDA reimburses states, usually through the state departments of education, which in turn reimburse local SFAs that operate the programs in one or more schools.

SFAs function as the governing entities responsible for the local administration of the federal meals programs. They are often, but not always, responsible for school meals in an entire school district. SFAs have some flexibility in operating their school meal programs. For example, they may operate the programs themselves or contract with food service management companies to perform functions such as planning and preparing menus and selecting and buying food. All or some food preparation may occur at on-site school kitchens or at central kitchens, which then distribute food to satellite schools. In addition, SFAs may select among different menu-planning approaches to comply with the federal nutritional requirements.

SFAs receive a significant portion of their funding from federal reimbursements that are based on the number of meals served to students

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<sup>3</sup> These data are based on the fiscal year 2004 average daily participation in the NSLP and the School Breakfast Program, according to the FNS Program Information Report for December 2004 from USDA.

<sup>4</sup> These requirements for the federal meal programs were established by Congress in 1994 through the passage of the Healthy Meals for Healthy Americans Act, Pub. L. No. 103-448, § 106 (1994).

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in their schools. In addition, SFAs also receive some funding from states for program operations, and they may generate revenues by selling competitive foods or by offering fee-based catering services. Further, SFAs are permitted to combine costs and revenues for reimbursable meals and nonreimbursable offerings, such as competitive foods, as long as they maintain their nonprofit status. Therefore, if revenues from reimbursable meals are less than the costs of producing these meals, SFAs may use competitive food revenues to support the cost of reimbursable meals. Likewise, if revenues from reimbursable meals are more than the costs of producing these meals, SFAs may use these funds to support competitive food sales.

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## Minimal Federal Restriction of Competitive Foods

Competitive foods are those foods sold in schools, during the school day, that are not part of the federal school meal programs—that is, they compete with the nutritionally regulated school meal programs. These foods can range from candy and soda to pizza and popcorn to apples and milk and are typically available in cafeteria a la carte lines, vending machines, and school stores.

Unlike federally subsidized school meals, the sale and nutritional content of competitive foods are largely unregulated by the federal government. Federal regulations prohibit the sale of certain competitive foods, known as foods of minimal nutritional value (FMNV),<sup>5</sup> during meal periods in school cafeterias and other food service areas. FMNV, as defined by USDA, include soda, chewing gum, and hard candy, for example (see fig. 1). Other than this restriction, federal regulations do not prohibit or limit the sale of any other competitive foods anywhere on school grounds at any time.<sup>6</sup> In contrast, from 1980 to 1983, federal regulations prohibited the sale of FMNV anywhere in the school from the beginning of the school day until the last meal period. In *National Soft Drink Ass'n v. Block*, 721 F. 2d 1348 (D.C. Cir. 1983), the Court of Appeals for the District of Columbia overturned this regulation and construed a 1977 amendment to the Child Nutrition Act as allowing USDA to regulate the sale of competitive foods only in food service areas during meal periods. Following this decision,

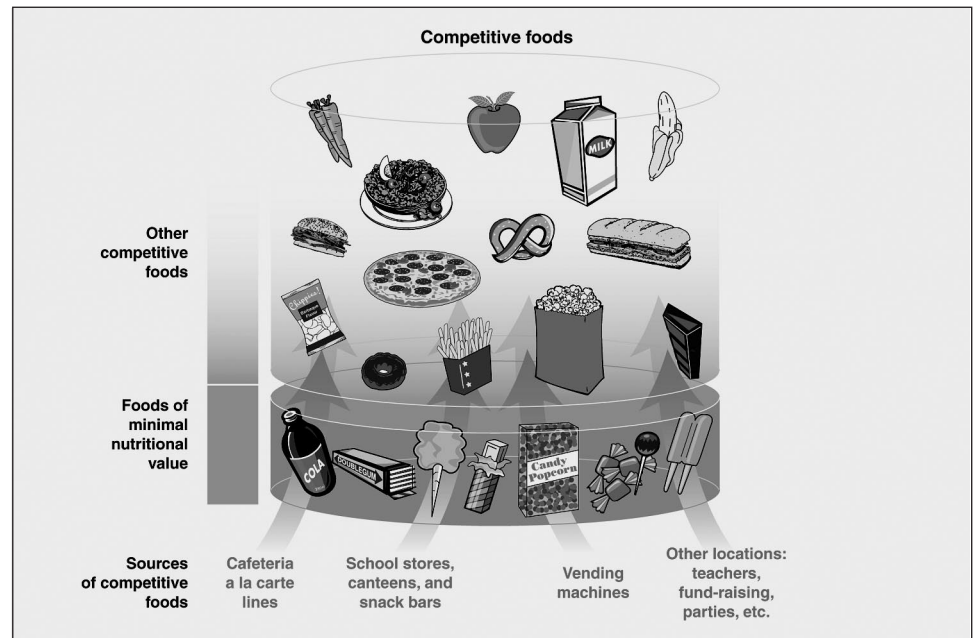
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<sup>5</sup> FMNV are defined in regulations for the NSLP (7 C.F.R. § 210.11) and listed in appendix B of those regulations. USDA has the authority to change the definition of FMNV and also has established procedures to amend the list of these foods.

<sup>6</sup> According to regulations, all income from the sale of competitive foods in the food service area must accrue to the nonprofit food service provider, the school, or an organization approved by the school.

USDA amended its regulation to limit the prohibition of these foods to food service areas during meal periods.

**Figure 1: Categories and Sources of Competitive Foods in Schools**



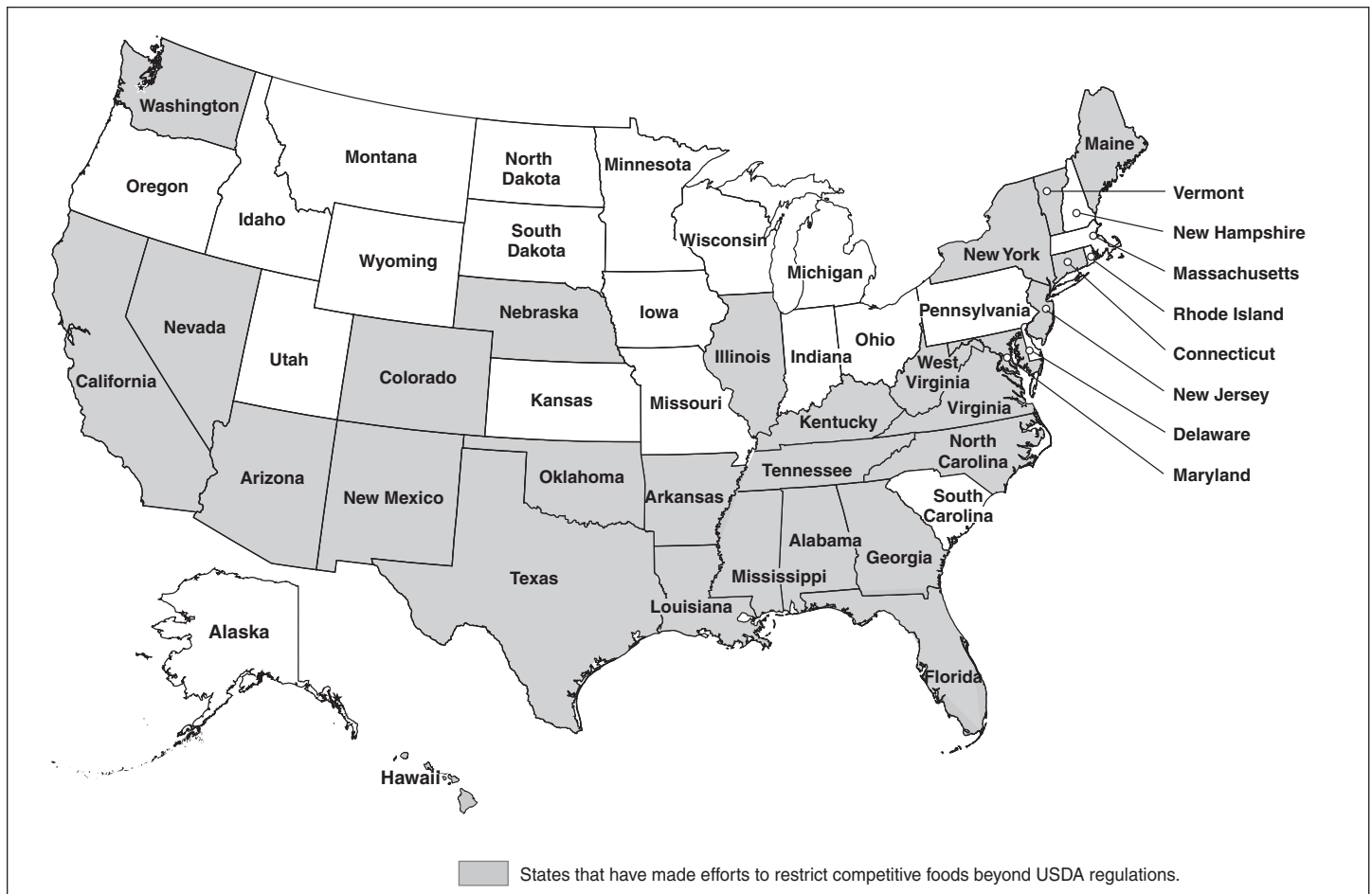
Source: GAO, clip art source: Art Explosion.

According to federal regulations, states and SFAs may impose further restrictions on all foods sold at any time throughout their schools. As of April 2005, 28 states have made efforts to restrict the sale of competitive foods beyond USDA regulations (see fig. 2). Five state policies do not restrict particular food items, but instead typically address the competitive food environment more broadly. For example, some of these states have created committees to develop policies concerning competitive foods in schools or have encouraged schools to find ways to improve their competitive food environments. The remaining 23 of these state policies place some form of specific restrictions on competitive foods, though they differ in the type and extent of restrictions.<sup>7</sup> The majority of these policies restrict some, but not all, competitive foods and restrict foods only at

<sup>7</sup> See [GAO-04-673](#) for more information on the type and extent of restrictions implemented by state competitive food policies in place as of March 2004.

times associated with school meal periods, rather than during the entire school day.<sup>8</sup>

**Figure 2: States That Have Made Efforts to Restrict Competitive Foods in Schools beyond USDA Regulations, as of April 2005**



Source: GAO.

<sup>8</sup> For example, some states restrict competitive foods for one half hour before and after each school meal period, while others restrict competitive foods from the start of the school day until the end of the last lunch period.

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## Recent Federal Initiatives to Promote Better Nutrition in Schools

The federal government has an interest in improving child nutrition in order to promote the health and wellness of the nation's children. Moreover, the current child obesity trend poses public health risks because of the relationship of obesity to serious illnesses, such as type 2 diabetes and hypertension. These illnesses can result in substantial long-term costs to society. In response, USDA has recently developed initiatives to support school efforts to provide a healthy nutrition environment, including competitive food sales. Beginning in 1995, USDA introduced the School Meals Initiative for Healthy Children in an effort to improve the nutritional quality of meals served through the NSLP and the School Breakfast Program. That same year, in order to assist with implementation of the School Meals Initiative, USDA launched Team Nutrition to focus on schools and promote the nutritional health of the nation's children. Team Nutrition provides schools with nutrition education materials for children and families, technical assistance materials for school food services, and materials to build school and community support for healthy eating and physical activity.<sup>9</sup> Since 1995, USDA has also created additional resources to help schools improve student nutrition, address competitive foods, and foster long-term health, sometimes in collaboration with other federal agencies (see table 1).<sup>10</sup>

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<sup>9</sup> For more information on federally funded nutrition education programs, including Team Nutrition, see GAO, *Nutrition Education: USDA Provides Services through Multiple Programs, but Stronger Linkages among Efforts Are Needed*, [GAO-04-528](#) (Washington, D.C.: April 27, 2004).

<sup>10</sup> In addition, USDA published its *School Nutrition Dietary Assessment Study II* in 2001, providing information on the nutritional quality of meals served in public schools that participate in the NSLP and the School Breakfast Program. This study found that students in school year 1998-1999 had access to a variety of breakfast and lunch options other than the federal meal programs.

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**Table 1: Select USDA Initiatives That Promote Child Nutrition and Address the Competitive Food Environment**

Initiative	Description
Changing the Scene—Improving the School Nutrition Environment (2000)	Toolkit that focuses on improving the school nutrition environment and serves as a guide to local action, developed with input from 16 education, nutrition, and health organizations
Fruits and Vegetables Galore (2004)	Toolkit for school food service professionals that contains tips on promoting fruits and vegetables to children
HealthierUS School Challenge (2004)	Effort to recognize schools that have met higher standards for nutrition and physical activity than those required by the federal government, and to encourage other schools to achieve such results
Making it Happen! School Nutrition Success Stories (2005)	Report that shares stories from 32 schools and school districts that have made innovative changes to improve the nutritional quality of all foods and beverages sold on school campuses, including competitive foods, developed in collaboration with CDC and supported by the Department of Education

Source: GAO.

The Department of Health and Human Services (HHS) has also focused on the school nutrition environment through various initiatives by CDC. These include

- an eight-component coordinated health model for schools that includes school nutrition services as one component, and
- a School Health Index designed to help schools assess their environments and improve the effectiveness of their health and safety policies and programs.<sup>11</sup>

In addition to these efforts to support a healthy school nutrition environment, the National Academy of Sciences' Institute of Medicine recently released a broad-based report on preventing childhood obesity. Among other things, the institute recommended that the current federal funding structure of school meals and the policies and practices of selling competitive foods in schools be examined for improvements that would encourage students to consume nutritious foods and beverages, and that nutritional standards be developed and implemented for all competitive foods sold or served in schools.

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<sup>11</sup> CDC also reported in its 2000 *School Health Policies and Programs Study* that competitive foods were widely available in schools.



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## On the Horizon: School Wellness Policies and Research on Nutritional Standards

The Child Nutrition and WIC Reauthorization Act of 2004 requires school districts that participate in the federal meal programs to establish local wellness policies by the first day of the 2006-2007 school year.<sup>12</sup> Congress added this requirement, in part, in order to promote nutrition and address child obesity by encouraging localities to provide healthy school environments. These policies must include nutrition guidelines for all foods available on each school campus during the school day and goals for nutrition education and physical activity, as well as establish a plan for measuring implementation of the local wellness policy. Further, the local wellness policies must be developed in collaboration with the community—including a combination of school officials, parents, students, and the public. The act also requires that USDA, HHS—through CDC—and the Department of Education provide technical assistance to districts regarding wellness policies. In addition, in order to assist schools in setting appropriate nutrition standards for foods available in schools, Congress—through the Conference Report of the Consolidated Appropriations Act of 2005—provided \$1 million to the Institute of Medicine. With these funds, the institute will conduct a study and provide recommendations regarding appropriate nutritional standards for the availability, sale, content, and consumption of all foods at school, with a particular emphasis on competitive foods.

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## Almost All Schools Sold Competitive Foods in 2003-2004, and Middle School Availability Has Increased over the Last 5 Years

Nearly 9 out of 10 schools sold competitive foods to students in 2003-2004, and over the last 5 years, the availability of competitive foods has increased both in middle schools and in a la carte lines in many schools. While competitive foods were commonly available in all school levels, students in high schools and middle schools had greater access to these foods than students in elementary schools. The competitive foods available ranged from nutritious items such as fruit and milk to less nutritious items such as soda and candy. Between 1998-1999 and 2003-2004, the availability of competitive foods increased in middle schools, and the volume and variety of a la carte foods sold increased in many schools.

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<sup>12</sup> WIC is the acronym commonly used to refer to the Special Supplemental Nutrition Program for Women, Infants, and Children.

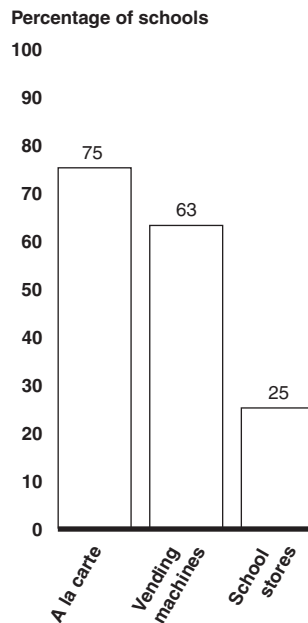
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## Competitive Foods Were Available in Almost All Schools and Were More Common in High Schools and Middle Schools

We estimate that almost 90 percent of schools sold competitive foods to students in 2003-2004 through one or more of the following venues: a la carte lines, vending machines, and school stores.<sup>13</sup> Considering each type of venue individually, a majority of schools sold foods through a la carte lines and vending machines, as shown in figure 3.

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**Figure 3: Estimated Percentage of Schools Selling Competitive Foods through Each Type of Venue in 2003-2004**



Source: GAO.

High schools and middle schools were more likely to sell competitive foods than elementary schools. Table 2 shows the percentage of elementary, middle, and high schools selling competitive foods through each type of venue and through one or more venues.

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<sup>13</sup> We asked survey respondents questions about “school stores and/or snack bars.” Throughout this report, we will use the term “school stores” to refer to both school stores and snack bars.

**Table 2: Estimated Percentage of Schools of Different Levels with Each Competitive Food Venue in 2003-2004**

	Elementary schools	Middle schools	High schools
A la carte	67	88	91
Vending machines	46	87	91
School stores	15	25	54
One or more of the above venues	83	97	99

Source: GAO.

In addition to the competitive food venues regularly available in schools, students in some schools also were able to purchase competitive foods through on-campus fund-raisers. For example, more than 4 out of 10 schools allowed fund-raising—such as seasonal candy sales or short-term sales of baked goods raising revenues for school organizations—through the sale of foods to students during the school day in 2003-2004. Such fund-raisers were permitted in two-thirds of high schools and less than 40 percent of middle and elementary schools.

While federal regulations restrict access to FMNV—a subset of competitive foods—in food service areas during meal periods, many types of competitive foods are allowed to be sold in these locations at meal times. According to our survey, competitive foods sold in 2003-2004 through a la carte lines, vending machines, and school stores were frequently available for purchase in or near school cafeterias and during lunch.<sup>14</sup>

- A la carte items were available to students in the cafeterias of schools that offered them and were available to students during lunch in 94 percent of those schools.
- One-half of schools with vending machines had machines in or near the cafeteria, and one-third of schools with vending machines had machines that were available to students during lunch.

<sup>14</sup> A la carte foods, vending machines, and school stores were also available in some schools during other periods of the school day. In addition, vending machines and school stores were available in other locations in some schools, such as outside school buildings.

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- Nearly half of schools with stores had such stores in or near the cafeteria, and about one-third of schools with stores sold competitive foods through these stores during lunch.

Although schools that sold competitive foods through a la carte lines or school stores often sold these foods in just one physical location, schools with vending machines typically had multiple machines available throughout the school, ranging from 1 to 25 machines. For example, the quarter of high schools with the most vending machines had 10 or more machines, the top quarter of middle schools had 7 or more machines, and the top quarter of elementary schools had 3 or more machines.<sup>15</sup> Schools generally had more beverage vending machines than snack vending machines.

Further, in many schools, particularly high schools, beverages sold in vending machines or elsewhere in the school were provided through an exclusive beverage contract—a contract granting a company exclusive rights to sell beverages to students in that school. In addition to covering vending machine sales, these contracts may require schools to provide beverages through the contracted company in other venues, such as school stores or athletic event concessions. Nearly half of all schools in 2003-2004 had an exclusive beverage contract. In over a third of schools with exclusive beverage contracts, the contracts covered 5 years or more, with some covering at least 10 years.<sup>16</sup> Nearly 75 percent of high schools, 65 percent of middle schools, and 30 percent of elementary schools had exclusive beverage contracts.

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### Types of Competitive Foods Ranged from Nutritious to Less Nutritious, with High and Middle Schools Selling a Wider Variety of Items

Competitive foods available through a la carte lines, vending machines, and school stores ranged from nutritious items, such as vegetables and salad, to less nutritious items, such as soda and candy. Nutritious foods were more frequently available through a la carte lines than through vending machines and school stores. For example, as shown in table 3, we estimate that many of the types of foods commonly available through a la carte sales were nutritious foods and beverages, such as fruit and milk.

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<sup>15</sup> The elementary school estimate has a margin of error that exceeds plus or minus 15 percent. See table 6 in appendix I for more information.

<sup>16</sup> While contracts could be negotiated by the school district, the school, the school food service, or a combination of those groups, over half of schools with exclusive beverage contracts had a contract that was negotiated with the school district.

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However, types of less nutritious items, such as sweet baked goods and salty snacks not low in fat, were also available through a la carte lines in at least one-third of schools. Furthermore, many of the types of foods commonly available through vending machines and school stores were less nutritious ones, such as soda and salty snacks.<sup>17</sup>


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<sup>17</sup> While the federal government prohibits the sale of soda and certain candy in cafeterias and food service areas during mealtimes, these foods can be sold in other locations and during other periods of the school day. Other less nutritious items, such as sweet baked goods and salty snacks, can be sold in any school location during any period of the day.

**Table 3: Types of Competitive Foods Often or Always Available through Each Venue in Schools, by Nutrition Category**

	A la carte	Vending machines	School stores
Water	▲	▲	○
Milk, 1% or skim	▲		
Milk, whole or 2%	▲		
100% juice	▲	○	
Fruit	▲		
Vegetables and/or salad	▲		
Yogurt	○		
Less than 100% juice	▲	▲	
Sports drinks	○	▲	○
Low-fat salty snacks	○		
Low-fat sweet baked goods			
Low-fat frozen desserts	○		
Sandwiches	▲		
Pizza	▲		
Fried vegetables			
Frozen desserts (not low-fat)	○		
Salty snacks (not low-fat)	○	○	○
Sweet baked goods (not low-fat)	○		○
Candy			▲
Soda		▲	○

 Nutritious

 Neither clearly nutritious nor less nutritious

 Less nutritious

▲ Item is estimated to be available in approximately half or more schools with the venue

○ Item is estimated to be available in approximately one-third or more schools with the venue

Source: GAO.

Note: The nutrition categories, as signified by the shading, are general descriptions of the foods in each category. GAO created these nutrition categories to generally reflect the Dietary Guidelines for Americans, recognizing that they apply to many but not all foods of each type—nutritional content can vary depending on the ingredients and the methods used to prepare foods. Four of the estimates in this figure have margins of error that exceed plus or minus 15 percent. See table 6 in appendix I for more information.

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In addition, our data suggest that students may have had increased access to more types of competitive foods as they progressed from elementary school to middle school and high school. While nutritious foods were commonly available in schools of each level, students in high schools and middle schools had access to a greater variety of types of less nutritious foods than students in elementary schools. For example, salty snacks, sweet baked goods, soda, and candy were available in at least one-third of high schools and middle schools with competitive foods but in less than one-third of such elementary schools, as shown in table 4.<sup>18</sup>

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<sup>18</sup> However, less nutritious foods were available in some elementary schools. For example, frozen desserts not low in fat were available in nearly a quarter of elementary schools with competitive foods.

**Table 4: Types of Competitive Foods Often or Always Available through Any Venue in Schools, by School Level and Nutrition Category**

	Elementary schools	Middle schools	High schools
Water	▲	▲	▲
Milk, 1% or skim	▲	▲	▲
Milk, whole or 2%	▲	▲	▲
100% juice	▲	▲	▲
Fruit	▲	▲	▲
Vegetables and/or salad	▲	▲	▲
Yogurt		○	▲
Less than 100% juice	○	▲	▲
Sports drinks		▲	▲
Low-fat salty snacks		▲	▲
Low-fat sweet baked goods		○	▲
Low-fat frozen desserts			○
Sandwiches	○	▲	▲
Pizza		▲	▲
Fried vegetables			○
Frozen desserts (not low-fat)		○	▲
Salty snacks (not low-fat)		▲	▲
Sweet baked goods (not low-fat)		▲	▲
Candy		○	▲
Soda		○	▲

 Nutritious

 Neither clearly nutritious nor less nutritious

 Less nutritious

▲ Item is estimated to be available in approximately half or more schools with any venue

○ Item is estimated to be available in approximately one-third or more schools with any venue

Source: GAO.

Note: The nutrition categories, as signified by the shading, are general descriptions of the foods in each category. GAO created these nutrition categories to generally reflect the Dietary Guidelines for Americans, recognizing that they apply to many but not all foods of each type—nutritional content can vary depending on the ingredients and the methods used to prepare foods.



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## Over the Last 5 Years, the Availability of Competitive Foods Sold in Middle Schools and through a la Carte Lines Increased

According to our survey, the availability of competitive food venues in middle schools increased during the period between 1998-1999 and 2003-2004.

- The percentage of middle schools offering competitive foods through a la carte lines, vending machines, or school stores increased from 83 to 97 percent during this time period.<sup>19</sup>
- The percentage of middle schools with exclusive beverage contracts increased between 1998-1999 and 2003-2004.<sup>20</sup>
- The number of vending machines per school increased between 1998-1999 and 2003-2004 in more than one-third of middle schools that had vending machines.<sup>21</sup> In addition, the number of vending machines per school increased in more than half of high schools that had vending machines.

In addition, the availability of a la carte items, particularly the volume sold and the variety available for purchase, increased between 1998-1999 and 2003-2004 in many schools.

- The volume of a la carte items sold—that is, the overall amount of all a la carte items sold—increased in more than two-thirds of high schools, more than half of middle schools, and nearly one-third of elementary schools that had a la carte sales.<sup>22</sup>
- The variety—that is, the number of different types—of a la carte items available to students increased in about one-half of all schools that had a la carte sales.

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<sup>19</sup> For this analysis, we compared the percentage of middle schools that had any competitive food venues between school years 1998-1999 and 2003-2004 with the percentage that had any venues in 2003-2004.

<sup>20</sup> According to our survey, the percentage of middle schools with exclusive beverage contracts increased to 65 percent in 2003-2004 from 26 percent in 1998-1999. An additional 31 percent of middle school principals were unsure if their school had an exclusive beverage contract in 1998-1999.

<sup>21</sup> This estimate has a margin of error that exceeds plus or minus 15 percent. See table 6 in appendix I for more information.

<sup>22</sup> The elementary school estimate has a margin of error that exceeds plus or minus 15 percent. See table 6 in appendix I for more information.

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According to SFA directors, reasons for the increases in a la carte volume and variety between 1998-1999 and 2003-2004 included responding to student demand, providing more nutritious foods, making foods more appealing to students, and generating additional revenue for the food service.

Aside from increases in the availability of competitive foods sold in middle school and through a la carte lines, we did not find that the availability of competitive foods in schools changed considerably during the period between 1998-1999 and 2003-2004. For example, according to our survey, there have not been considerable changes in the percentage of high schools or elementary schools offering competitive foods through a la carte lines, vending machines, or school stores during this time period. Further, in a majority of all schools with school stores or vending machines, the number of different types of food offered for sale through these venues stayed the same.

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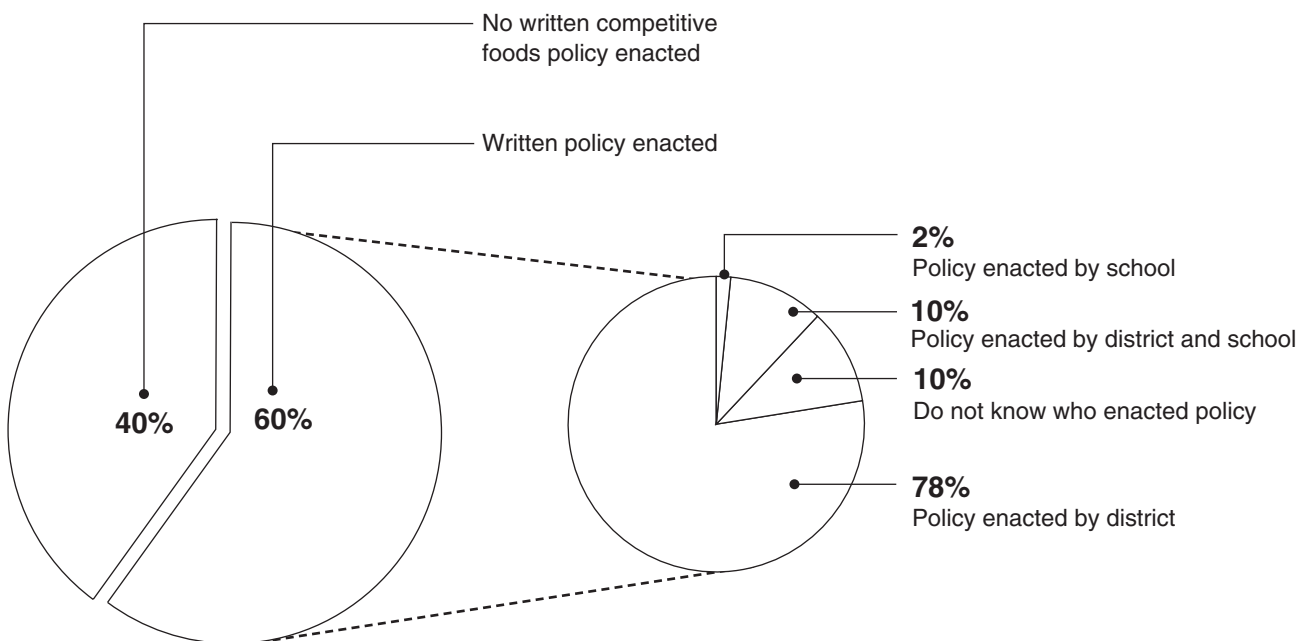
## Many People Made Decisions about Competitive Food Sales, but No One Person Commonly Had Responsibility over All Sales in a School

Many people, including district and school officials as well as members of groups selling foods in schools, made decisions about competitive food sales, but no one person consistently had responsibility for all competitive food sales at the school level. The decisions ranged from broad policies about the school nutrition environment to decisions about which foods to sell at a specific venue or event. In 2003-2004, a majority of schools had policies in place that restricted competitive food sales to students, and these policies were often set at the district level by superintendents and school boards. Regarding the actual selection and sale of competitive foods in schools, SFA directors were commonly involved in decisions related to a la carte sales, while principals often had final approval over other competitive food sales. In addition, many different groups were directly involved in selling competitive foods in schools in 2003-2004, and these groups could make decisions about which foods to sell and when to make them available. The number and variety of groups involved in these sales typically increased as the school level increased.

## District and School Officials Made Decisions about Competitive Food Policies

According to principals, an estimated 60 percent of schools had written policies in place that restricted competitive foods accessible to students in 2003-2004, and most often, districts enacted those policies (see fig. 4).<sup>23</sup> In contrast, 40 percent of schools had no such policies.

**Figure 4: Estimated Percentage of Schools with a Written Competitive Food Policy in 2003-2004 Enacted by Districts and Schools**



Source: GAO.

In addition to superintendents and school boards that were involved in making these competitive food policy decisions for a district, both SFA directors and school principals commonly made policy decisions about actual food sales at the school level, resulting in no one person having responsibility over all sales. Specifically, district SFA directors often made ongoing decisions about policies affecting the school nutrition environment. For example, SFA directors provided many of the foods available to students through their administration of the federal meal programs and typically decided which foods to serve through school a la carte sales. In addition, SFA directors were also often concerned with

<sup>23</sup> We did not collect information on the type and extent of restrictions placed on competitive foods by these policies or on the enforcement of these policies.

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other competitive food sales in the schools, such as those through vending machines, school stores, and fund-raising sales. According to our survey, 84 percent of SFA directors in 2003-2004 considered addressing the competitive food environment in schools to be part of their responsibilities. More than three-quarters of those directors considered it a priority.

Moreover, principals also made decisions about competitive food policies in their schools. For example, as shown in figure 4, aside from the more than three-quarters of schools with competitive food policies developed by their districts, school principals enacted policies in conjunction with their districts in an additional 10 percent of schools and enacted their own policies in another 2 percent of schools with policies. Regarding operational decisions, principals in more than half of schools with competitive food sales reported in our survey that they provided final approval over the foods and beverages sold through vending machines, school stores, and fund-raisers in their schools. Also, similar to SFA directors, principals in a majority of schools reported that they considered addressing the competitive food environment one of their responsibilities.

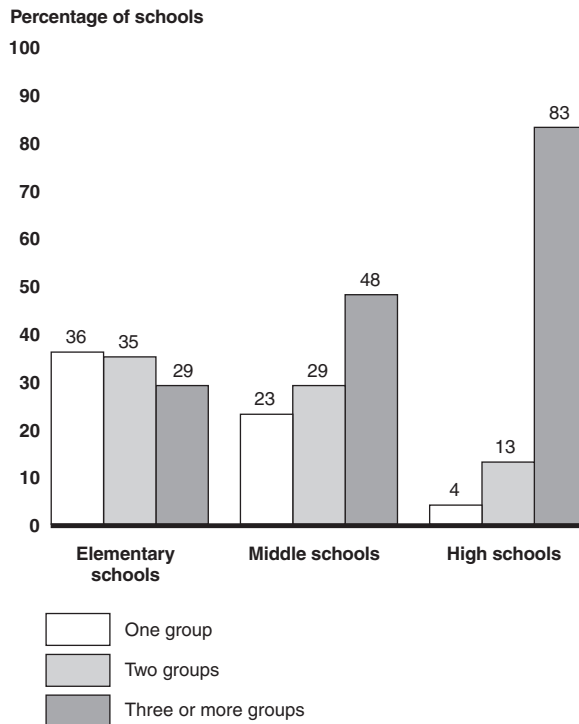
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### Many Different Groups Were Directly Involved in Deciding What to Sell and Selling Competitive Foods

In addition to the district and school officials involved in decisions related to competitive food policy, myriad individuals and groups were directly involved in the sale of competitive foods. These groups could make decisions about which specific foods to sell to students and when to conduct sales. During 2003-2004, groups such as students, parent-teacher associations, and booster groups—in addition to SFA directors and school principals—were most commonly involved in sales, according to our survey.

The number of groups involved in sales typically increased as the school level increased. For example, three or more different groups were much more likely to be involved in competitive food sales in high schools than in middle and elementary schools in 2003-2004 (see fig. 5).

**Figure 5: Number of Groups Directly Involved in Competitive Food Sales in 2003-2004, Reported as an Estimated Percentage of Schools with Sales**



Source: GAO.

Note: The estimates for elementary schools and one estimate for middle schools in this figure have margins of error that exceed plus or minus 15 percent. See table 6 in appendix I for more information.

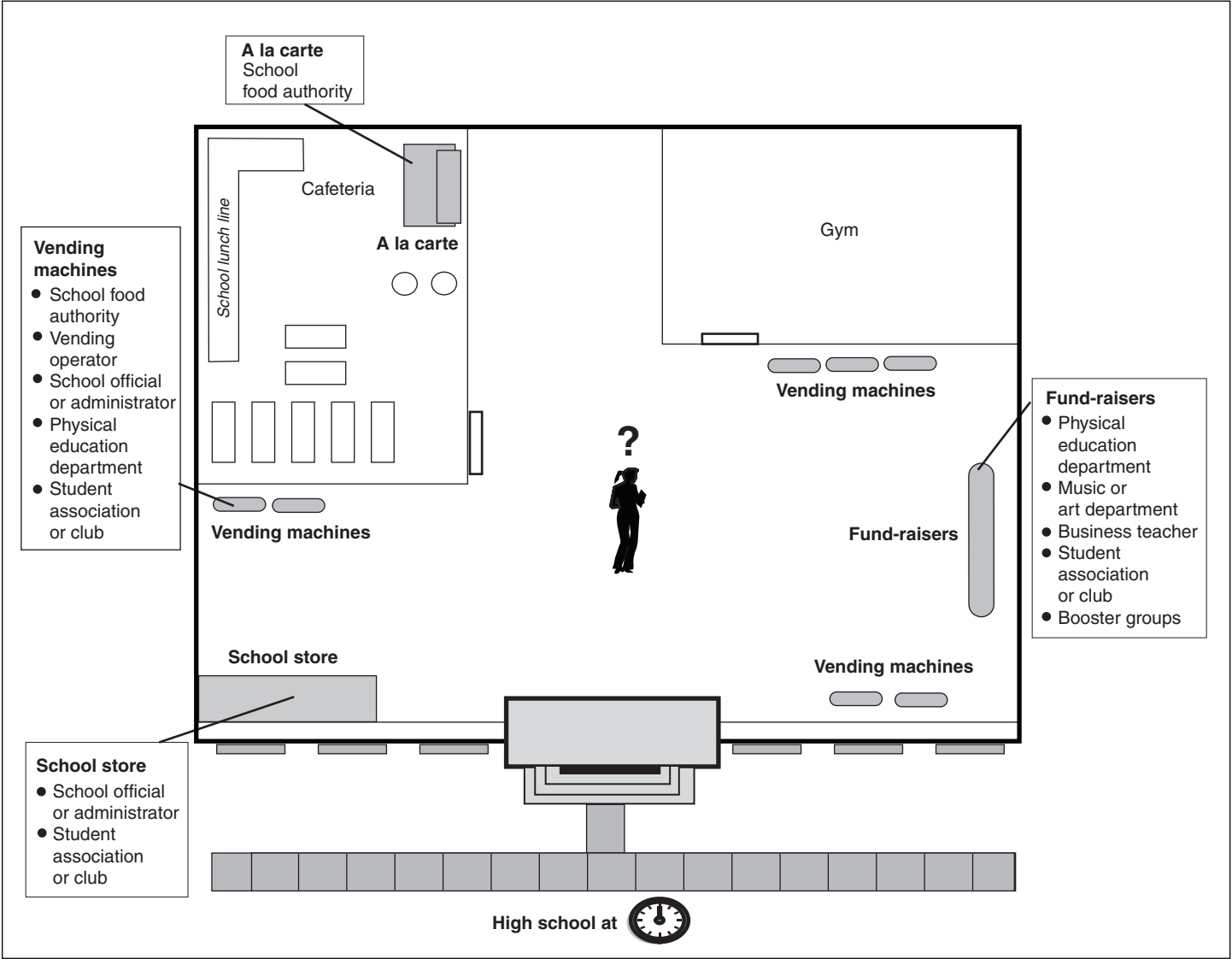
The groups directly involved in sales varied by school level. In elementary schools, the SFA/school food service and student associations/clubs were commonly involved in sales.<sup>24</sup> In middle schools, in addition to these groups, school officials/administrators were most commonly involved.<sup>25</sup> In high schools, where the greatest number of competitive food venues was typically available, these three groups and a variety of others were directly involved in sales. Consequently, within a high school that has a number of competitive food sales occurring simultaneously, a student at lunchtime

<sup>24</sup> The estimates for SFA/school food service and student associations/clubs have margins of error that exceed plus or minus 15 percent. See table 6 in appendix I for more information.

<sup>25</sup> The estimate for school officials/administrators has a margin of error that exceeds plus or minus 15 percent. See table 6 in appendix I for more information.

could be faced with many different food options sold by a variety of different groups through several venues (see fig. 6).

**Figure 6: Groups Most Frequently Involved in Various Competitive Food Venues Commonly Available in High Schools**



Source: GAO analysis.

Note: The competitive food venues shown were estimated to be available in a majority of high schools, according to our survey. The groups listed with these venues were estimated to be directly involved in competitive food sales through the specified venue in at least 25 percent of high schools.

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## Many Schools Raised a Substantial Amount of Revenue through Competitive Food Sales and Used It to Support Food Service Operations and Student Activities

Many schools generated substantial revenue through competitive food sales in 2003-2004, often using this revenue to support food service operations and student activities. High schools and middle schools generally raised more revenue from competitive food sales than elementary schools, reflecting the greater availability of competitive foods in high and middle schools. Across all competitive food sales, food services generated more revenue than other school groups, largely through a la carte sales. Some food service directors said they relied on this revenue to support overall food service operations, while other school groups primarily used their competitive food revenues to fund student activities.

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## Total Competitive Food Revenue Varied by School Level From More than \$125,000 in Some High Schools to More than \$5,000 in Some Elementary Schools

Many schools generated a substantial amount of revenue through competitive food sales in 2003-2004.<sup>26</sup> Total revenue generated through competitive food venues varied by school level, reflecting, among other things, the greater availability of competitive foods in high schools and middle schools than in elementary schools.<sup>27</sup> In particular, we estimate that about 30 percent of all high schools generated more than \$125,000 per school through competitive food sales in 2003-2004, while about 30 percent of all elementary schools generated more than \$5,000 per school through these sales (see fig. 7). These estimates of total competitive food revenue are conservative, as they are based on the sum of the minimums of specified revenue ranges.<sup>28</sup> Therefore, many schools likely generated more total revenue from competitive food sales than our analysis reflects.

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<sup>26</sup> Throughout this report, revenue for each type of competitive food venue includes all revenue generated through competitive food sales. We did not ask survey respondents for information on profits retained after covering expenses.

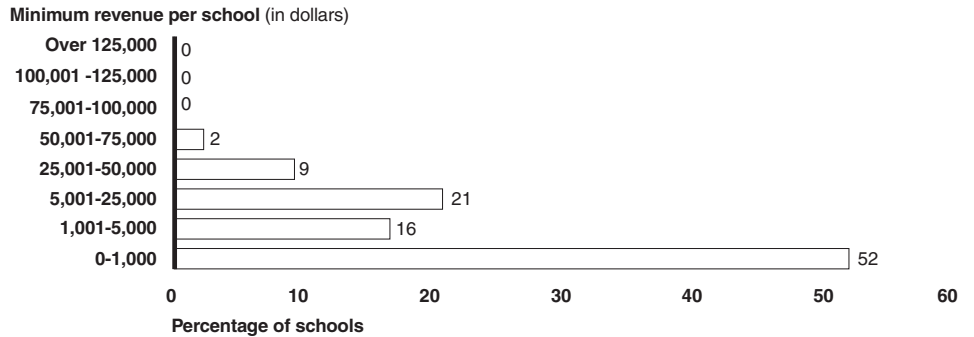
<sup>27</sup> While the number of students in each school likely affects the amount of revenue generated through competitive foods, our data do not allow us to determine the effect of school size on revenue.

<sup>28</sup> Total revenue reflects the combined minimums of revenue ranges reported by schools for a la carte lines, vending machines, school stores, and exclusive beverage contracts. To conduct this analysis, we used matched survey responses, which combined the principal and SFA director's responses for each specific school. We defined the minimum for each venue as the lower bound of the revenue range selected by the respondent, and we then summed the minimum revenues across all venues for each school. See appendix I for a description of this analysis.

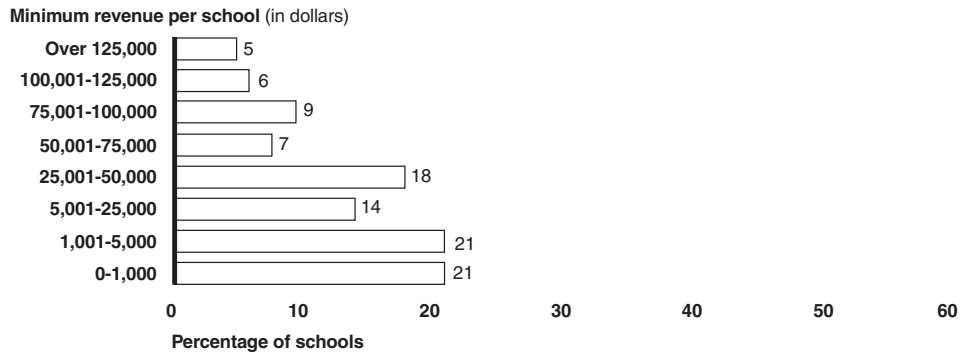


**Figure 7: Estimated Percentage of Schools Generating Different Minimum Amounts of Total Competitive Food Revenue in 2003-2004, by School Level**

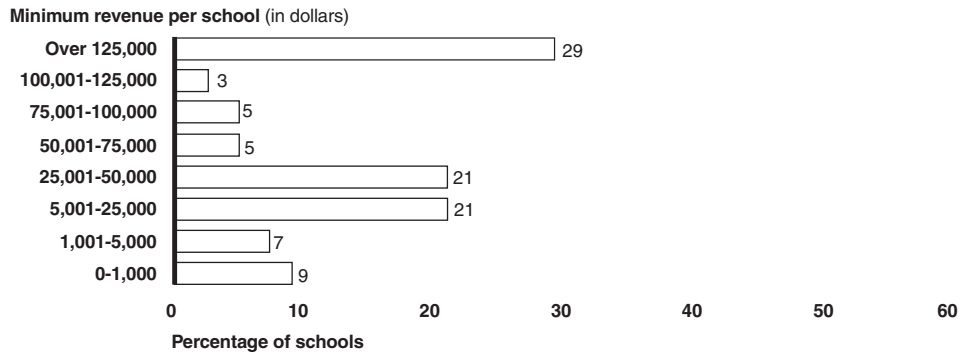
**Elementary schools**



**Middle schools**



**High schools**



Source: GAO.

Note: See appendix I for more information on this analysis, which used data obtained from the matched responses. One of the estimates in the high school figure has a margin of error that exceeds plus or minus 15 percent. See table 6 in appendix I for more information.

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**Food Services Generated More Revenue through These Sales than Other School Groups, with Food Services Using Revenue for Their Operations and Other School Groups Using Revenue for Student Activities**

Across all competitive food sales, food services generated more revenue than other school groups, such as school administrators, student associations, and booster groups.<sup>29</sup> Specifically, food services generated a greater amount of revenue through a la carte sales than through any other type of competitive food sale. Other school groups raised a greater amount of revenue through exclusive beverage contracts than through any other type of competitive food sale.<sup>30</sup> In addition to raising varying amounts of competitive food revenues through different types of sales, food services and other school groups generally used their revenues for different purposes.

**Food Services**

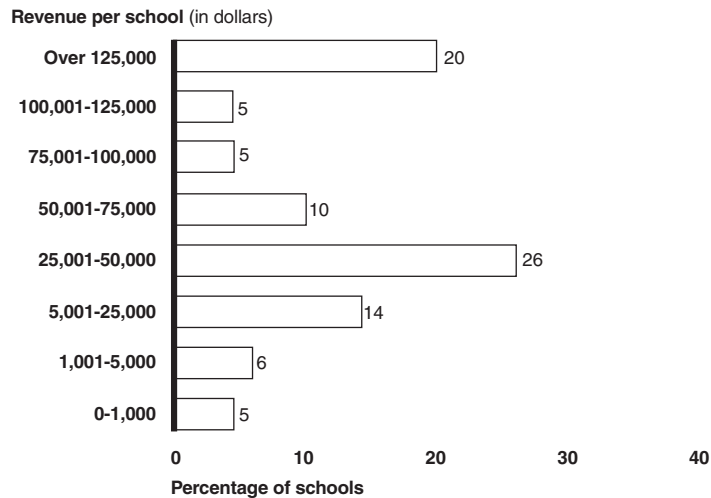
The revenue food services generated through a la carte sales was substantial in many schools. For example, we estimate that 40 percent of high school food services and nearly a quarter of middle school food services selling competitive foods through a la carte lines generated more than \$50,000 per school through these sales in 2003-2004. Furthermore, food services in 20 percent of high schools selling a la carte items generated more than \$125,000 per school through a la carte sales, as shown in figure 8.

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<sup>29</sup> For the purposes of this discussion, revenue generated by food services refers to revenue that was raised by both the school and district food services.

<sup>30</sup> Many schools also held fund-raisers to generate revenue for activities and programs, but this revenue is difficult to measure because of the involvement of numerous groups, and it is not included in our analysis.

**Figure 8: Estimated Percentage of High Schools in Which Food Services Generated Different Amounts of Revenue through a la Carte Sales in 2003-2004**



Source: GAO.

Note: Estimated percentages do not add to 100 because some SFA directors were unsure how much revenue they generated through a la carte sales.

Food services typically used their substantial a la carte revenue to support overall food service operations, supplementing revenue earned through the sale of school meals. According to our survey of SFA directors, in 2003-2004, food services in 40 percent of schools earned less revenue than they spent, generating a loss, and food services in an additional 20 percent of schools broke even. Food services in the remaining 40 percent of schools generated more revenue than they spent in 2003-2004, yielding a gain.<sup>31</sup> From the data we collected, it is not clear what proportion of this food service revenue came from federal reimbursement for meals served and what proportion came from revenue generated through competitive food sales.<sup>32</sup> In our previous work, we found that food services in some states had a small but increasing shortfall in total revenue compared with expenses between school years 1996-1997 and 2000-2001 and that a la

<sup>31</sup> In addition, food services in 20 percent of schools received supplemental funds from the district or school in 2003-2004, while food services in 21 percent of schools transferred funds to the district or school in that year.

<sup>32</sup> Further, because we did not collect information on total school food service revenue, we were not able to compare food services' competitive food revenue with their total revenue in 2003-2004 in order to determine the effect of competitive food revenue on food service budgets.

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carte sales had become an increasingly important source for augmenting total food service revenue.<sup>33</sup> Moreover, some SFA directors told us in survey comments for this study that they sold competitive foods in order to maintain balanced budgets. For example, one food service director commented that the food service would not be able to maintain a balanced budget without the substantial revenue generated through a la carte sales. Another commented that the district food service generated nearly half of its revenue through competitive food sales.

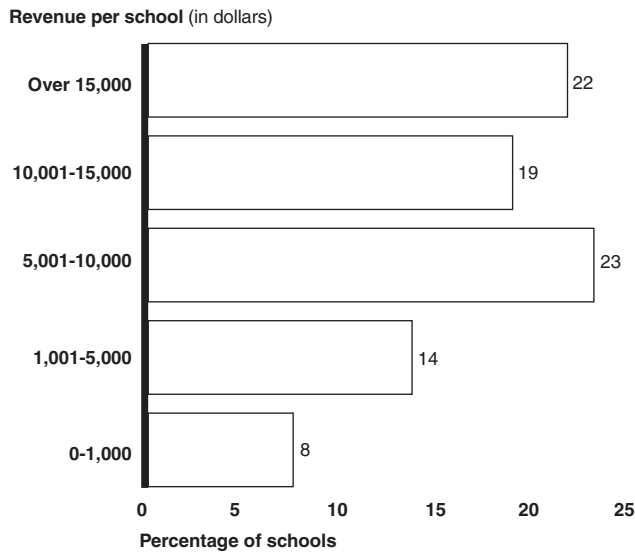
#### Other School Groups

Other school groups raised more revenue through exclusive beverage contracts than through any other type of competitive food sales. In particular, we estimate that school groups in nearly one-quarter of high schools with exclusive beverage contracts generated more than \$15,000 per school through these contracts in 2003-2004, as shown in figure 9. However, it is important to note that 15 percent of high school principals did not know how much revenue exclusive beverage contracts generated for their schools in 2003-2004.

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<sup>33</sup> GAO, *School Meal Programs: Revenue and Expense Information from Selected States*, [GAO-03-569](#) (Washington, D.C.: May 9, 2003). This report analyzed revenue and expense data from six selected states.

**Figure 9: Estimated Percentage of High Schools in Which Other School Groups Generated Different Amounts of Revenue through Exclusive Beverage Contracts in 2003-2004**



Source: GAO.

Note: Estimated percentages do not add to 100 because some school principals were unsure how much revenue other school groups generated through exclusive beverage contracts.

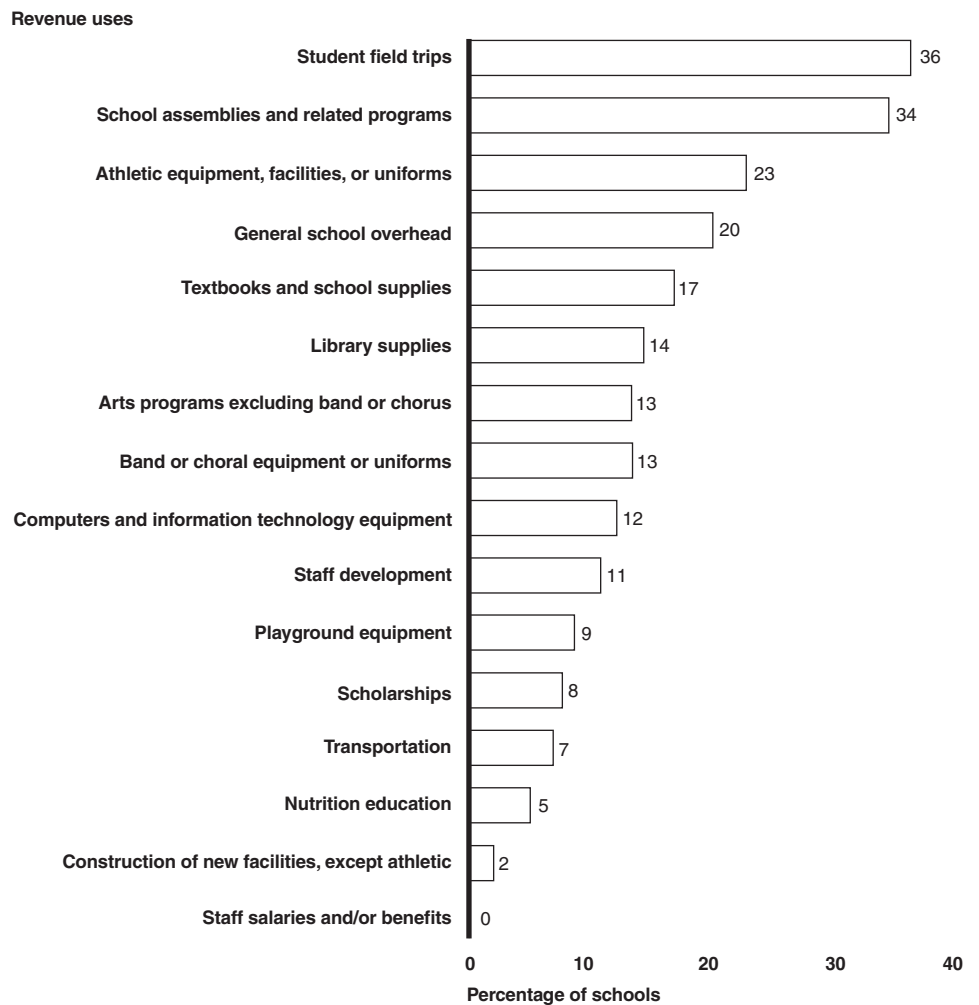
Exclusive beverage contracts also provided some schools with noncash benefits—goods and services such as athletic scoreboards and in-kind support of school events. In particular, nearly 30 percent of schools of all levels selling competitive foods through exclusive beverage contracts received noncash benefits. Nearly one-third of those schools received athletic equipment, facilities, or uniforms, and a small number of schools also received support for assemblies and programs, scholarships, and personal items for students and school staff, such as cups and coolers. The value of those items was sometimes considerable: in one-quarter of those schools receiving noncash benefits through exclusive beverage contracts in 2003-2004, the benefits were worth more than \$5,000 per school.<sup>34</sup>

School groups other than food services most commonly used their competitive food revenues to support student activities such as field trips and assemblies, as shown in figure 10. Similarly, groups in many schools

<sup>34</sup> This estimate has a margin of error that exceeds plus or minus 15 percent. See table 6 in appendix I for more information.

spent competitive food revenues on athletic equipment, facilities, or uniforms. However, some used revenues to meet school needs such as expenses associated with general school overhead or with textbooks and school supplies.

**Figure 10: Estimated Percentage of Schools Using Competitive Food Revenue, Excluding Food Service Revenue, for Various Purposes in 2003-2004**



Source: GAO.

Note: General school overhead includes facilities and grounds maintenance. Respondents in 22 percent of schools said they spent competitive food revenues on other uses, such as student rewards and incentives.

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## School Districts We Visited Substituted Healthy Competitive Foods for Less Nutritious Items while Overcoming Obstacles to Change, and the Effects on Revenue Were Unclear

The six school districts we visited all recently took steps to substitute healthy competitive foods for less nutritious items while overcoming several obstacles to change, and in the end, the effects of these changes on revenue were unclear. Although the districts we visited increased the availability of healthy competitive foods and decreased less nutritious items through differing approaches, perseverant and committed individuals took actions in each district to initiate and lead the process of change while also taking steps to involve and obtain support from those affected. At the same time, officials noted that they faced several barriers to making changes, including concerns about potential revenue losses, among others. Concerning the effects of changes on sales revenues, none of the districts we visited had sufficient data to examine these effects, and few had planned for these effects before implementing changes. Regardless of the limited data on revenue, many officials expressed strong concerns about potential revenue losses largely because competitive food sales have provided a source of flexible funding used for a wide variety of purposes.

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## School Districts We Visited Substituted Healthy Competitive Foods for Less Nutritious Items

Though the six school districts we visited varied in terms of socioeconomic status, student population size, and geographic location, they were all able to take steps to restrict the availability of less nutritious competitive foods in their schools. Further, rather than just remove less nutritious competitive foods from their schools, these districts continued to offer competitive foods to students by substituting healthy fare for the items removed. In addition, these districts all took steps beyond current federal and state competitive food regulations, and while there were differences in the details of changes, most districts' changes had similar characteristics. Specifically, most, if not all, of the districts we visited

- made changes to competitive foods in all of the schools in their districts, rather than changes only to certain schools, such as elementary;<sup>35</sup>
- made changes to the availability of competitive foods throughout the entire school day, rather than limiting availability only during certain hours of the day;

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<sup>35</sup> We selected Fort Osage School District as one of our site visits because of the changes made to competitive foods at Fire Prairie Middle School, and all references to Fort Osage in this report reflect only the changes made at Fire Prairie.

- 
- made changes to the availability of competitive foods in each of the venues through which they were sold, including fund-raising,<sup>36</sup> and,
  - made simultaneous changes to foods served through school meal programs.

Regarding districts' efforts to increase the availability of healthy competitive foods, as they defined them, all of the districts we visited recently took steps to make water and juice more available to students in their schools. For example, districts and schools often replaced soda in their vending machines with bottled water and juices with higher concentrations of real fruit juice. Further, several districts also replaced fried potato chips with baked potato chips, and packaged desserts with granola bars or similar items. Several districts also increased the variety of flavored milk available in schools to encourage milk consumption.

All of the districts we visited also took steps to restrict less nutritious items. The specific types of competitive foods restricted varied by district, with two of the districts limiting the availability of primarily soda and candy, and four districts limiting the availability of competitive foods high in sugar and fat.<sup>37</sup> In these districts, different criteria were used by each district to define foods high in sugar and fat. For example, in Fort Osage, all competitive foods must be low-fat (no specified percentage) and cannot have sugar listed as the first ingredient, while in Richland One, all competitive foods must contain less than 40 percent sugar (or other sweeteners) and less than 8 grams of fat per 1 ounce serving. In the other two districts, New Haven and Independence, formulating specific nutrition criteria has been an ongoing process.

In addition to making changes to the types of competitive foods sold in schools, all of the districts we visited also made similar changes to increase healthy foods available through school meals. For example, SFAs in both Independence and Oakland recently removed deep fryers from school cafeterias, and they now bake all foods. In Richland One, the SFA decided to implement stricter standards for school meals than those

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<sup>36</sup> The only exception to this was Independence, where districtwide changes had been made to only those competitive foods sold by the SFA through a la carte lines and vending machines at the time of our visit.

<sup>37</sup> Independence, one of the four districts restricting competitive foods high in sugar and fat, restricted many, but not all, of these foods. Further, as noted earlier, Independence made changes to only those competitive foods sold by the SFA.



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required by the federal government. Specifically, Richland One requires school meal menus to meet the federal requirements for nutrients, fat, and sugar intake on a daily basis, rather than averaging the nutritional value of meal components over the course of a week. In addition, several SFA directors stated that they would like to introduce a greater variety of fresh fruits and vegetables into school meal menus. However, they also expressed their opinion that the federal school meal reimbursement is insufficient to provide these items more frequently.<sup>38</sup>

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### Individuals Who Initiated and Led Change Also Obtained the Support of Multiple Groups

While the characteristics of the six districts we visited differed, as well as the process of change in each, districts typically noted several key components to their success. These key components included an enthusiastic initiator of change, leadership by dynamic and committed individuals, and support from groups directly affected by changes, such as teachers, parents, and students. Overall, those involved in the process of change agreed on the importance of improving student nutrition and health and directing resources and energy toward achieving this goal. As shown in table 5, the types of individuals and groups involved in the process of change varied across the districts visited and often included individuals from the district, school, and community.

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<sup>38</sup> In recognition of the importance of fruits and vegetables in children's diets, Congress included the Fruit and Vegetable Pilot Program in the 2002 Farm Bill and expanded and made the program permanent in the 2004 Child Nutrition and WIC Reauthorization Act. This program provides federal grants to schools in eight states and on three Indian reservations to provide free fruits and vegetables to students in order to improve student nutrition and introduce healthy snack options.

**Table 5: District, School, and Community Groups Involved in the Process of Changing Competitive Foods, by District Visited**

	SFA	School district officials	School officials and teachers	Students	Parents	Committee	Community members
<b>Independence (Missouri)</b>							
Initiators	x						
Leaders	x	x					
Others involved			x		x	x	x
<b>Fort Osage (Missouri)</b>							
Initiators			x				
Leaders	x		x				
Others involved		x		x	x		
<b>New Haven (Connecticut)</b>							
Initiators							x
Leaders	x	x	x	x	x	x	x
Others involved							
<b>Richland One (South Carolina)</b>							
Initiators	x						
Leaders	x	x					
Others involved			x	x			
<b>Oakland (California)</b>							
Initiators		x					
Leaders	x	x					
Others involved					x	x	x
<b>McComb (Mississippi)</b>							
Initiators		x					
Leaders		x					
Others involved	x		x		x	x	x

	District-level involvement
	School-level involvement
	Community involvement

Source: GAO.

Note: In Independence, New Haven, Oakland, and McComb, some of the groups indicated were involved in the process of changing competitive foods through districtwide committees to address school nutrition and health issues.

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As shown in table 5, in the districts we visited, initiators of change sometimes came from within the ranks of district staff and sometimes from the community, while leaders of change often were district or school staff. In some districts, one person or group acted as both the initiator and leader of change, while in other cases, the initiator pushed the idea of changing competitive foods forward and then the leader took over implementation of the changes. For example, in several districts, the superintendent or SFA director initiated and led changes to competitive foods because of concerns about both student nutrition and competition with the school food service. In another district, changes were initiated and led largely by a middle school principal and a physical education teacher. In contrast, in New Haven, a local pediatrician who was also the district's medical adviser initiated change to competitive foods, and then a committee of district staff, school staff, and community members took over leadership of changes. In all of the districts we visited, a strong leader helped formulate new policies, reached out to parties affected by changes, and ensured that policies were implemented.

While competitive food changes were often initiated and led by a few individuals, all six districts realized that changes would be successful only with the involvement of a variety of people in the process in order to ensure their support for the changes and help sustain changes. To address this need, some districts, such as Oakland and New Haven, convened formal committees to provide recommendations on school nutrition and health issues. In other districts, leaders took steps to reach out individually to those parties affected by changes, such as school principals, teachers, and students, to obtain support before their enactment. This support was also instrumental to sustaining changes. For example, the McComb superintendent noted that successful implementation of the district's coordinated school health program required both leadership as well as substantial community involvement, including input from school officials and teachers, parents, and health providers in the community. The involvement of these groups in formulating changes helped ensure continued commitment and support of the changes.

In addition to obtaining the support of a variety of groups before implementing changes, many districts noted that obtaining student acceptance of the changes was particularly important to the success of change. To that end, some districts held nutrition and health fairs to distribute related information to students and the broader community, and others involved students in taste testing and voting on the foods they preferred. For example, middle school students and parents in Fort Osage

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taste-tested healthy competitive foods during parents' night and the school's open house. In other districts, student feedback on policy changes was sought by officials before their implementation, sometimes by consulting the district's student advisory council.

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### Districts Faced Several Barriers to Changing Competitive Foods, Including Schools' Concerns about Revenue Losses

While the districts we visited all noted several key components to successful change, they also cited several barriers to implementing changes to competitive foods that they had commonly faced. In particular, officials in almost all of the districts visited cited opposition because of concerns about future revenue losses as a barrier to changing the availability of competitive foods. In these cases, school principals most frequently expressed these concerns because competitive food revenues often provided discretionary money that was otherwise unavailable to fund a variety of projects and needs at the school level.

In addition, a lack of information on other districts' efforts to make changes to competitive foods and a lack of nutritional guidelines for these foods were also barriers to change in the districts we visited. While a majority of the districts visited implemented their own changes to competitive foods without knowledge of the steps taken by other districts to make such changes, officials in Richland One and Oakland conducted their own research on other state and district competitive food policies in order to learn from the experiences of others. Related to this, officials in Independence, Fort Osage, and New Haven noted that the lack of agreed-upon nutrition guidelines for competitive foods was an obstacle to change because they had to independently develop their own nutrition standards. From our observations during these visits, the absence of a clear set of standards defining healthy and less nutritious foods can create a problem for districts making changes to competitive foods as continual debates and disagreements on such standards may slow the process of policy formation, particularly when many groups are involved in the process.

Several districts mentioned additional barriers to making changes, such as determining the full extent of competitive food sales in schools and the groups involved in sales. For example, the SFA director in Independence noted that the district's delay in developing nutrition standards for competitive foods was largely due to the difficulty of compiling a full picture of all competitive food sales occurring in schools. Related to this, given the number of groups that can be involved in these sales in each school, and the lack of clear roles and responsibilities in this environment, she noted that it has been difficult to determine the full extent of groups involved in sales across the district. She emphasized that it is important

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for the groups that have a stake in the revenues generated by these sales to be involved in discussions concerning competitive food policy in order to obtain support for the policy and successful implementation of changes.

Some districts also noted that the need to continually monitor implementation of competitive food changes at the school level can be an obstacle to change. Officials in both Oakland and Richland One stated that monitoring adherence to their competitive food policies at the school level has been difficult but is necessary to effective implementation. Even when school-level groups were involved in the process of developing changes, monitoring policy implementation was difficult because of the involvement of many groups in competitive food sales. In Richland One, the SFA director noted that she often relies on observances by food service staff working in the schools to ensure that the policy is being followed by all groups selling competitive foods. Our own observations of the school food environment during our visits to schools support the conclusion that districts have difficulty monitoring the implementation of policies, as we noticed a few deviations from district competitive food policies in some schools. Even though school officials often seemed devoted to the goal of improving the nutritional quality of foods available in their schools, they typically faced many competing priorities during the school day. Further, in many schools, it was unclear who was responsible for ensuring that policies were effectively implemented.

Food service staff in Fort Osage and New Haven stated that the difficulty of finding healthy foods that both meet district nutrition goals and appeal to students was also a barrier to making changes to competitive foods. They noted that some healthy foods students found appealing were unavailable from vendors, while in other instances, the healthy foods available were too expensive to sell to students. This sentiment was echoed by students in several districts, as they expressed their opinions that some of the newly introduced healthy foods, such as bottles of flavored milk or juice, were too costly to purchase as part of their lunch. In contrast to districts that mentioned problems obtaining new healthy products from vendors, several districts noted that they were able to work within their exclusive beverage contracts to obtain healthier beverages to serve to students. However, at least one mentioned that the major soft drink company with whom the district had a contract offered few nonsoda options.

In addition, districts also faced the challenge of educating students about healthy eating and encouraging students to change their behavior by choosing healthy foods. In several of the districts, schools reported

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providing students with nutrition information and education, sometimes through classroom lessons, posters, and programs and activities to promote healthy eating. During our visits, students we spoke with frequently demonstrated their understanding of the importance of healthy eating, and some noted that they would like to see the addition of certain healthy foods to school offerings, such as a greater variety of fresh fruits and vegetables. In addition, several middle school students in Fort Osage and New Haven explained that after changes were made to competitive foods and they began to learn more about good nutrition in their schools, they went home and talked to their parents about these issues.<sup>39</sup> However, experts agree that it is more difficult to change behavior than to educate individuals.<sup>40</sup> Related to this, high school students in most of the districts we visited mentioned that some students continue to purchase less nutritious foods before school and after school from neighborhood stores and restaurants. In addition, during our visits to schools, we observed students eating a wide range of both healthy and unhealthy items during lunch, with younger students being more likely to eat healthy foods than high school students.<sup>41</sup>

As part of their role in helping districts develop wellness policies that address, among other things, school nutrition, USDA has recently taken several steps that may help districts overcome some of these barriers.<sup>42</sup> In March 2005, USDA, in partnership with HHS/CDC and the Department of Education, sent a letter to state superintendents, district superintendents, and SFA directors describing the wellness policy requirements. Through this letter, the agencies offered to provide technical assistance to districts,

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<sup>39</sup> Related to this, students we met with made comments reflecting their awareness that, in addition to schools, families and the broader community play a key role in teaching children about good nutrition.

<sup>40</sup> For more information on federally funded nutrition education programs and efforts to increase healthy eating in schools, see [GAO-04-528](#) and GAO, *School Lunch Program: Efforts Needed to Improve Nutrition and Encourage Healthy Eating*, [GAO-03-506](#) (Washington, D.C.: May 9, 2003).

<sup>41</sup> Specifically, we noticed that pizza appeared to be the most popular item purchased for lunch by students in almost all of the schools we visited. Burgers and fresh fruits and vegetables appeared to be the next most popular items, as they were purchased and eaten by students during lunch in almost half of the schools we visited. In the lunch periods we observed, these foods were sometimes sold as competitive foods and were sometimes served as components of the school lunch.

<sup>42</sup> McComb used federal resources to assist its own process of changing competitive foods. Changes in McComb were modeled on the CDC-developed coordinated school health model.

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and they also provided information on online resources available at the federal level to help districts develop their policies. Specifically, these agencies, in collaboration with several food and nutrition organizations, have begun to compile resources that will provide districts with information on state and local efforts to make changes to the school health and nutrition environment, including examples of nutrition standards used by states and localities that have already developed competitive food policies.<sup>43</sup> In addition to online resources, these three agencies recently released *Making it Happen! School Nutrition Success Stories*, a publication that describes local efforts to address the school nutrition environment, in order to assist districts as they move forward with their own changes.<sup>44</sup>

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**The Effects of Changes to Competitive Foods on Revenues Were Often Unclear because of Limited Data; Nonetheless, Many Officials Expressed Concerns about Revenue Losses**

In the districts we visited, reliable data on how changes to competitive food sales affected revenues were typically unavailable. Schools and districts often did not maintain detailed revenue records to enable the type of analyses needed to parcel out the direct effects of competitive food changes on revenues. Nonetheless, most schools and districts were able to provide partial data on revenue changes for specific venues, and these limited data suggest that districts experienced mixed revenue effects. Several schools we visited appear to have lost revenue from competitive food sales after they made changes, while at least one may have increased revenue. For example, after increasing the availability of healthy a la carte foods and restricting less nutritious items, SFA directors in both Independence and Richland One recorded decreases in a la carte sales. In contrast, a middle school in McComb reported that after removing soda from beverage vending machines and changing the policy regarding the times sales were allowed, vending revenues increased. However, these data did not account for other factors that may also have affected revenues.

While the limited data available suggest that school districts experienced mixed revenue effects after implementing competitive food changes, they also illustrate the difficulty of tracking these effects. Because the

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<sup>43</sup> USDA stated that Action for Healthy Kids, the School Nutrition Association, and the Food Research and Action Center are among the organizations that have assisted with these efforts.

<sup>44</sup> Food and Nutrition Service, USDA; CDC, HHS; and the U.S. Department of Education. *Making it Happen! School Nutrition Success Stories*. Alexandria, Va., January 2005.

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competitive food environment is complex, sometimes involving many sales and many groups, the effects of changes on revenues are often complicated and may differ for each group involved in sales. Some groups may benefit from changes, others may lose. For example, in Fort Osage, when the middle school decided to remove all less nutritious competitive foods available in the school and replace them with healthy items, it also simultaneously decided to stop using outside vendors to supply its vending machines. Subsequently, the district SFA took over operation of the middle school's vending machines, and as a result, vending revenue began to accrue to the SFA instead of school administrators. While the SFA director was unable to compare the revenue before changes with that generated after changes, she reported that the machines were self-supporting. In this instance, because of the changes made to competitive foods and their sale, school administrators lost a source of revenue while the SFA gained one.

In addition to the challenge of understanding the revenue effects of competitive food changes on different groups in schools, the relationship between changes in a la carte sales and school meal participation adds complexity. Although food service programs rely on reimbursement for school meal participation as a primary source of funding, officials often cite the importance of using additional revenue from a la carte sales to balance their budgets. Therefore, officials take risks when they make changes to the competitive foods available in schools, because changes may affect revenues from these sales and they may also affect school meals participation. In the districts we visited, competitive food changes were often accompanied by increased school meals participation. In four districts, federal reimbursements for meals subsequently increased, benefiting the SFA, and in at least one instance, this increase more than made up for food service losses in competitive food sales. While Richland One reported losing approximately \$300,000 in annual a la carte revenue after implementing changes, school lunch participation and subsequent federal reimbursements increased by approximately \$400,000 in the same year.

Despite the lack of conclusive data on revenue effects, district and school officials often expressed strong concerns about potential revenue losses. Because food services often operate on tight budgets and use competitive food revenues to support their operations, they take the risk of losing



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important revenues when they make changes to these foods.<sup>45</sup> In addition, principals frequently stated that competitive food revenues are used at the school level as discretionary funding, and they do not typically have other sources of flexible funding available to use for the wide variety of purposes toward which competitive food revenues are directed. Therefore, when making changes to competitive foods, principals also risk losing what is an oftentimes important source of funding. For example, in the schools we visited, many principals reported using competitive food revenues for student activities and classroom supplies, and some reported using these revenues to support school dances and assist needy students.

Although data on revenue effects were limited and complicated by the complex competitive food environment in the districts we visited, some districts tried to lessen adverse revenue effects by the process through which changes to competitive foods were implemented. Specifically, a few districts and schools reported taking incremental steps to change competitive foods in order to mitigate the severity of the effects on revenue. For example, in one Independence high school, incremental changes were being made to beverage vending machines to phase in juice and water and phase out soda over a span of several years. The high school principal reported that the school was conducting this change slowly in order to avoid surprising students with sudden changes and to maintain revenue. In addition, a few schools noted that their efforts to include students in decisions about changing food offerings may have helped ensure that the new foods would be accepted by students and mitigate the effects on revenues. However, many of the districts we visited did not fully plan for the effects on sales revenues when they were considering changes to competitive food policy, and several recognized that efforts to do so would have likely eased the implementation of policies. Moreover, some principals reported that their schools were able to find ways to support projects previously funded with competitive food sales after changes were implemented. For example, in several districts, principals reported that after restrictions on fund-raiser food sales were implemented, groups sold nonfood items like wrapping paper and candles, and also raised funds by providing services, such as car washes.

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<sup>45</sup> In the districts we visited, most SFA directors did not express concerns about potential revenue losses resulting from changes to competitive foods, possibly because they were often significantly involved and invested in the process of making these changes.

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In the publication *Making it Happen! School Nutrition Success Stories*, key contacts in selected schools reported similar mixed revenue results from their efforts to improve the school nutrition environment.<sup>46</sup> Of the group of schools that reported on revenue changes, some experienced increases in revenue while others reported decreases or no change. These schools used approaches similar to those in the schools we visited, such as replacing less nutritious food with more nutritious choices, obtaining input from the students, and using marketing to encourage students to make healthy choices. In addition, several of the schools reported increases in school meal participation.

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## Concluding Observations

Our nation's schools are uniquely positioned to positively influence the eating habits of children, yet almost all schools sell readily available foods that are largely unregulated by the federal government in terms of nutritional content. While not all of these competitive foods are unhealthy, many are. Although schools cannot be expected to solve the current problems with child nutrition and growing obesity alone, many states and districts have begun efforts to improve the nutritional environments in their schools.

As districts across the country develop their required wellness policies by school year 2006-2007, they will likely face decisions and challenges similar to those of the districts we studied and may benefit from their lessons learned. Although each district took a different approach, all of them recognized the value of including those parties affected by the changes, such as parents, teachers, and other community members, when developing new policies. In addition, they recognized that students are the ultimate consumers of competitive foods and took steps to consider their opinions.

Because districts reported they typically lacked a source of recommended nutrition standards for competitive foods in schools, officials were faced with difficult decisions about the criteria they would use to determine which foods were considered adequately nutritious to offer. The technical assistance available from FNS, including multiple examples of nutrition standards developed by other districts, as well as the Institute of

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<sup>46</sup> This publication contains self-reported information by key contacts from 32 schools and districts nationwide.

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Medicine's forthcoming recommendations on nutritional standards for foods in schools, should help district efforts to address this issue.

In addition, given the multiple groups that rely on sales of competitive foods for revenue, districts may choose to consider the possible revenue effects of changes in food offerings as they develop and implement new policies. Since competitive food revenues are often critical to food service operations and provide principals with flexible funds relied on for a multitude of discretionary purposes, making changes to competitive foods entails risks for both groups. Districts we visited took varied steps that may mitigate potential revenue changes, such as substituting healthy foods for less healthy ones instead of removing all competitive foods, asking students to taste and approve the more nutritious foods, offering alternate means for fund-raising, or implementing change gradually. Lack of support from the groups that use revenue from competitive food sales can scuttle policy changes. Furthermore, the lack of a single person responsible for the presence and sale of competitive foods in schools complicates efforts to ensure that new policies will be implemented as intended and maintained over time. Despite the complex food environment in schools, new wellness policy requirements and USDA's efforts to provide technical assistance to districts will provide an opportunity for districts to plan and implement changes that recognize the needs of the various groups and assign individuals with responsibility for consistent and sustained implementation.

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## Agency Comments

We provided a draft of this report to the U.S. Department of Agriculture for review and comment. On June 17, 2005, FNS officials provided us with their oral comments. The officials stated that they were in general agreement with the findings as presented in the report and offered technical comments that we have incorporated as appropriate. In addition, the officials reiterated that the 1983 court decision in *National Soft Drink Ass'n v. Block* is significant because they believe it severely limits USDA's ability to restrict the sale of competitive foods. FNS officials pointed out that prior to this ruling, USDA regulations prohibited the sale of FMNV anywhere in the school from the beginning of the school day until the last meal period. Following the decision, USDA restricted the sale of FMNV only in food service areas during meal periods. We agree that this ruling limited USDA's ability to regulate competitive food sales as to time and place. However, we believe the department has the authority to expand the definition of FMNV to include additional foods with limited nutritional value. Doing so could further limit the types of these foods available in the cafeteria during meal times.

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Second, officials discussed what is known about the use of revenue from competitive food sales and reimbursable meals compared to their costs. We did not determine if revenues generated by competitive food sales were sufficient to cover the actual cost of the competitive foods sold. The officials stressed that the 1994 *School Lunch and Breakfast Cost Study*, the last definitive study of cost and revenue in the NSLP and the School Breakfast Program, found that regardless of size, most school food authorities failed to generate enough revenue to cover the reported costs of nonreimbursable food sales.<sup>47</sup> The mean reported revenue-to-cost ratio was 71 percent for the study period. The officials noted that this would equate to a loss of 41 cents for every dollar received from the sale of nonreimbursable foods. Further, this revenue-to-cost ratio did not include all costs for school food service operations, such as uncharged labor costs, indirect costs, and utilities. If these were included, the revenue to cost ratio would generate even higher losses. FNS informed us that they are in the process of contracting for a new school meal cost study.

We agree with FNS that our report focused on revenues generated by competitive food sales and that we did not determine if revenues generated by competitive food sales were sufficient to cover the actual cost of the foods sold. However, our report and others have shown that the availability of competitive foods, and particularly a la carte items, has increased over time. In addition, the *Cost Study's* definition of nonreimbursable meals included food sales such as adult meals and special functions, as well as competitive foods, and therefore, it is unclear how each of these types of sales contributed to the mean reported revenue-to-cost ratio. Absent more current information on the actual costs and revenues of providing competitive foods and reimbursable school meals, we believe it is difficult to know whether the results of the 1994 study are applicable today.

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As agreed with your offices, unless you release the report's contents earlier, we plan no further distribution of it until 30 days from its issue date. We will send copies of this report to the Secretary of Agriculture, appropriate congressional committees, and other interested parties. In addition, the report will be available at no charge on GAO's Web site at <http://www.gao.gov>.

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<sup>47</sup> Abt Associates, Inc. *School Lunch and Breakfast Cost Study—Final Report*, a special report prepared at the request of USDA (Cambridge, Mass.: October 1994).

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If you or your staff have any questions about this report, please contact me at (415) 904-2272 or [bellisd@gao.gov](mailto:bellisd@gao.gov). Contact points for our Offices of Congressional Relations and Public Affairs may be found on the last page of this report. Key contributors to this report are listed in appendix II.

A handwritten signature in black ink that reads "David D. Bellis". The signature is written in a cursive style with a large, looped 'D' at the beginning and a stylized 'B' at the end.

David D. Bellis  
Director, Education, Workforce,  
and Income Security Issues

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# Appendix I: Scope and Methodology

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To obtain nationally representative information on competitive food availability, policies, decision makers, groups involved in their sale, and revenues generated by their sale, we conducted two Web-based surveys. In addition, to gather information on strategies used by school districts to restrict less nutritious competitive foods in their schools, we visited six school districts. Further, to inform the design of our study, we spoke with staff at the U.S. Department of Agriculture (USDA) as well as the Centers for Disease Control and Prevention (CDC). We also interviewed numerous researchers and organizations that have been involved with child nutrition and school health environment issues in recent years.<sup>1</sup>

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## Surveys

To better understand competitive foods in the school environment, we designed and administered two Web-based surveys. For a random sample of schools, we administered one survey to each school's school food authority (SFA) director and a second survey to each school's principal. We chose to survey these officials because we believed they would be the most knowledgeable sources on competitive food issues in schools. The surveys were conducted between October 19, 2004, and February 11, 2005. We defined competitive foods as all foods or beverages sold to students on school grounds during the school day that are not part of federally reimbursable school meals.

While neither survey asked questions about the full range of competitive food issues, together the two surveys were designed to provide a broad picture of the competitive food environment. Both Web surveys contained school background, a la carte, (beverage and snack) vending machine, and school store and snack bar sections. However, each survey had unique sections as well. The SFA directors' survey included sections that asked questions about the SFA, the school food service, and school meals participation. The principals' survey included unique sections on school and district policies for competitive foods, including fund-raising and exclusive beverage contracts.

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<sup>1</sup> We spoke with staff of Mathematica Policy Research Inc., Abt Associates Inc., Nutrition for the Future Inc., University of Minnesota—School of Public Health, School Nutrition Association, the National Association of Secondary School Principals, the National Association of Elementary School Principals, Samuels & Associates, the Association of School Business Officials International, the Council of Chief State School Officers, the National Association of State Boards of Education, and the National School Boards Association.

A majority of the survey questions asked both SFA directors and principals to consider school year 2003-2004. To gain a sense of change for certain competitive food issues, a few questions asked SFA directors and principals to consider school year 1998-1999 alone, make comparisons between these reporting periods (1998-1999 versus 2003-2004), or consider change in specific competitive food issues over the entire time of these reporting periods (from 1998-1999 to 2003-2004).

## Population

The target population consisted of all public schools in the 50 states and the District of Columbia that participated in the National School Lunch Program (NSLP) for the 2003-2004 school year. We used the Department of Education's Common Core of Data (CCD) Public Elementary/Secondary School preliminary file for the 2002-2003 school year as a basis for defining our population. On the basis of our review of these data, we determined this source to be adequate for the purposes of our work.

To define our sampling frame, we removed schools from the CCD that were permanently or temporarily closed; not yet operational; special education, vocational education, or alternative/other; run by the Department of Defense or Bureau of Indian Affairs; or located in American Samoa, Guam, Northern Marianas, Puerto Rico, or the Virgin Islands. From this analysis, we obtained a sampling frame consisting of 85,569 regular public schools in the 50 states and the District of Columbia. However, consistent information specifically identifying a school's participation in the NSLP was not available in the CCD.

## Sample Design and Errors

The sample design for the Web surveys was a stratified random probability sample of 656 schools that allows for estimates to be calculated for each school level (elementary, middle, and high). We stratified by school level, census region, and rural status, and we produced estimates by school level. With this probability sample, each school in the population had a known, nonzero probability of being selected. Each selected school was subsequently weighted in the analysis to account statistically for all the schools in the population, including those that were not selected. Because each school was randomly chosen, some SFA directors had more than one school under their responsibility selected for our study, and they were therefore asked to complete a separate survey for each school.

Because we surveyed a sample of schools, our results are estimates of a population of schools and thus are subject to sample errors that are associated with samples of this size and type. Our confidence in the precision of the results from this sample is expressed in 95 percent confidence intervals, which are expected to include the actual results in 95

percent of the samples of this type. We calculated confidence intervals for this sample based on methods that are appropriate for a stratified probability sample.

Through a telephone survey of the schools selected in our sample, we determined the number of schools selected in our sample that participated in the NSLP. We estimate that 80,245 (94 percent) schools in our population participated in the NSLP. All estimates produced from the sample and presented in this report are for the estimated target population of 80,245 schools that participated in the NSLP. All percentage and numerical estimates included in this report have margins of error of plus or minus 15 percentage points or less, except for those shown in table 6.

**Table 6: Sampling Error Calculations for Questions in Which the Error Exceeded 15 Percent**

Page	Question	Estimate	Lower bound	Upper bound
15	Percentage of elementary schools with vending machines that had three or more vending machines in school year 2003-2004	29	15	47
17	Percentage of schools with school stores in which salty snacks (not low-fat) were often or always available for students to purchase from these stores in school year 2003-2004	45	29	61
17	Percentage of schools with school stores in which sports drinks were often or always available for students to purchase from these stores in school year 2003-2004	44	28	60
17	Percentage of schools with school stores in which sweet baked goods (not low-fat) were often or always available for students to purchase from these stores in school year 2003-2004	40	25	56
17	Percentage of schools with school stores in which water was often or always available for students to purchase from these stores in school year 2003-2004	47	32	62
20	Percentage of middle schools with vending machines in which the total number of vending machines on school grounds increased between school years 1998-1999 and 2003-2004	39	25	54
20	Percentage of elementary schools with a la carte sales in which the total volume of a la carte items sold to students increased between school years 1998-1999 and 2003-2004	31	19	47
24	Percentage of elementary schools with one group directly involved in competitive food sales in school year 2003-2004	36	19	56
24	Percentage of elementary schools with two groups directly involved in competitive food sales in school year 2003-2004	35	20	53
24	Percentage of elementary schools with three or more groups directly involved in competitive food sales in school year 2003-2004	29	14	48
24	Percentage of middle schools with two groups directly involved in competitive food sales in school year 2003-2004	29	17	44
24	Percentage of elementary schools with SFA/school food service directly involved in competitive food sales in school year 2003-2004	62	45	77



Page	Question	Estimate	Lower bound	Upper bound
24	Percentage of elementary schools with student associations/clubs directly involved in competitive food sales in school year 2003-2004	35	19	52
24	Percentage of middle schools with school officials or administrators directly involved in competitive food sales	35	21	51
28	Percentage of high schools that generated total minimum combined revenue of \$25,001 to \$50,000 through competitive food sales in school year 2003-2004	21	9	37
32	Percentage of schools with exclusive beverage contracts that received noncash benefits through these contracts that were valued at over \$5,000 in school year 2003-2004	25	13	41

Source: GAO.

## Nonsampling Errors

We took steps to minimize nonsampling errors that are not accounted for through statistical tests, like sampling errors. Nonsampling errors could figure into any data collection effort and involve a range of issues that could affect data quality, including variations in how respondents interpret questions and their willingness to offer accurate responses.

In developing the Web surveys, we conducted several pretests of draft instruments. We held pretest discussions of the principals' survey with staff and members of the National Association of Elementary School Principals and the National Association of Secondary School Principals. We pretested the SFA survey with members of the American School Food Service Association (now known as the School Nutrition Association). In addition, both surveys were also pretested during a preliminary visit to the SFA and an elementary school in Fairfax County, Virginia. All pretests were conducted between July and September 2004.

For the survey pretests, we were generally interested in the clarity of the questions and the flow and layout of the surveys. For example, we wanted to ensure definitions used in the surveys were clear and known to the respondents, categories provided in closed-ended questions were complete and exclusive, and the ordering of the survey sections and the questions within each section was appropriate. On the basis of our pretests, the Web instruments underwent some slight revisions.

After the survey was closed, we also made comparisons between select items from our competitive food Web-based survey data and other

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national-level data sets.<sup>2</sup> Our comparisons found our survey data were reasonably consistent with the external sources. Of the basis of our comparisons, we believe our survey data are sufficient for the purposes of our work.

Using Web-based surveys also helped remove error in our data collection effort. By allowing respondents to enter their responses directly into an electronic instrument, this method automatically created a record for each respondent in a data file and eliminated the need for and the errors (and costs) associated with a manual data entry process. To further minimize errors, programs used to analyze the survey data and make estimations were independently verified to ensure the accuracy of this work.

## Response Rates

For each school in our sample, we attempted to obtain valid e-mail addresses for the principal and the SFA director. For the 656 schools in our sample, we obtained valid e-mail addresses for 489 principals and 455 SFA directors. We administered the surveys to those groups, and we received completed surveys from 70 percent of the SFA directors and 65 percent of the principals who received the surveys. The response rates for our sample of 656 schools, including those officials we were unable to contact, were 51 percent for both principals and SFA directors, excluding the 26 non-NSLP schools. We received responses from both the SFA director and the principal for the same school (matched responses) for 192 schools (30 percent of schools that participated in the NSLP in our sample). Tables 7 and 8 summarize the population and sample by school level for the SFA director and principal surveys respectively.

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<sup>2</sup> We compared our Web-based survey data to data on competitive foods reported by USDA in the *School Nutrition and Dietary Assessment Study II (1998-1999)* and the *School Meals Implementation Initiative—Third Year Report (2002)*, and by CDC in the *School Health Policies and Programs Study (2000)*.

**Table 7: SFA Director Survey: Population and Sample by School Level**

School level	Schools in population	Schools in sample	Non-NSLP schools	No valid e-mail	NSLP schools surveyed	NSLP schools responding
Elementary	51,997	188	6	55	127	85
Middle	15,737	188	3	45	140	96
High	14,979	188	6	48	134	103
Other	2,856	92	11	27	54	35
<b>Total</b>	<b>85,569</b>	<b>656</b>	<b>26</b>	<b>175</b>	<b>455</b>	<b>319</b>

Source: GAO.

**Table 8: Principal Survey: Population and Sample by School Level**

School level	Schools in population	Schools in sample	Non-NSLP schools	No valid e-mail	NSLP schools surveyed	NSLP schools responding
Elementary	51,997	188	6	39	143	88
Middle	15,737	188	3	39	146	91
High	14,979	188	6	41	141	96
Other	2,856	92	11	22	59	42
<b>Total</b>	<b>85,569</b>	<b>656</b>	<b>26</b>	<b>143</b>	<b>489</b>	<b>317</b>

Source: GAO.

While the majority of our estimates are calculated based on survey responses from either the SFA directors' survey or the principals' survey, we used the matched responses (192 schools) to calculate the total combined minimum revenue estimates. Specifically, the amount of revenue earned from each competitive food venue within a school was reported by SFA directors and principals in multiple ranges. For example, SFA directors reported revenue generated by food services through competitive food sales, such as a la carte sales, and principals reported revenue generated by all other competitive food sales in the school. To estimate the combined competitive food revenue for a school, we defined the minimum for each of the school's venues as the lower bound of the revenue range reported by SFA directors and principals. We then summed the minimum revenue across all venues for each school.

## Survey Nonresponse Issues

Another type of nonsampling error is nonresponse or, in the case of our work, those SFA directors and principals from schools in our sample who did not provide a complete survey. To increase survey responses, after the Web surveys were initially deployed, we made several follow-ups with

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nonrespondent SFA directors and principals via e-mail and phone to remind them of their respective surveys.

After the surveys were closed, we analyzed each set of survey respondents (SFA directors, principals, and the matched responses) to determine if there were any differences between the responding schools, the nonresponding schools, and the population.<sup>3</sup> We performed this analysis for four characteristics—total number of students enrolled, total number eligible for free lunch, total number eligible for reduced price lunch, and total number eligible for either free or reduced price lunch. We determined whether sample-based estimates of these characteristics compared favorably with the known population values, and we also tested the differences of the estimates for survey respondents and nonrespondents. We performed this analysis for all schools and separately for each school level (high, middle, and elementary). For each set of survey respondents, the population value for all of the characteristics we examined fell within the 95 percent confidence intervals for the estimates. We also determined that there were no significant differences between estimates from the respondents and nonrespondents.

Additionally, we compared the distribution of several demographic variables, including region, school level, and rural status, for survey respondents and nonrespondents. On the basis of this analysis, we found no significant distributional differences between respondents and nonrespondents. Although the characteristics were selected because they may be related to other school characteristics asked for on our surveys, we do not know the extent to which the respondents reflect the population characteristics for our specific survey questions. On the basis of both sets of analyses, we chose to include the survey results in our report and produce sample-based estimates to the population of schools that participated in the NSLP.

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## Site Visits

To gather information on local efforts to restrict the availability of less nutritious competitive foods, we conducted site visits to six districts between September 21 and December 9, 2004. The districts visited included Independence School District (Independence, Missouri), Fort Osage R-1 School District (Independence, Missouri), New Haven Public

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<sup>3</sup> Nonresponding schools include both schools for which we were unable to obtain valid e-mail addresses and schools that received the survey but did not respond.

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Schools (New Haven, Connecticut), Richland County School District One (Columbia, South Carolina), Oakland Unified School District (Oakland, California), and McComb School District (McComb, Mississippi). We selected these districts from a list of approximately 100 districts and schools recognized as making efforts to restrict access to less nutritious competitive foods. This list was compiled by reviewing recently released reports, studies, and articles that described local efforts to make changes to competitive foods. The six districts visited were selected because they used different strategies to restrict competitive foods, and when viewed as a group, they provided variation across characteristics such as geographic location, district size, and socioeconomic status.

During the site visits, we interviewed district officials, including the superintendent and SFA director, as well as visited one or two schools within each district. At the schools, we interviewed principals, food service staff, and health and physical education teachers, as well as others involved with the school food environment. From these interviews, we gathered information on the district and school food environment, strategies used to restrict competitive foods, individuals and groups involved in implementing changes, facilitators and barriers to change, revenues generated by competitive foods, ongoing efforts, students' reactions to changes, and opinions on the school wellness policies mandated in the 2004 Child Nutrition and WIC Reauthorization Act. In addition to our interviews with district and school officials, we also met with students to collect their opinions regarding nutrition and healthy eating, competitive foods in schools, and school meals. Further, we observed at least one lunch period in each school visited, in order to better understand the school nutrition environment and the choices students make at lunch.

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# Appendix II: GAO Contacts and Staff Acknowledgments

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## GAO Contacts

David Bellis, Director, (415) 904-2272, [bellisd@gao.gov](mailto:bellisd@gao.gov)

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## Staff Acknowledgments

Kay E. Brown, Assistant Director, and Rachel Frisk, Analyst in Charge, managed this assignment and made significant contributions to all aspects of this report. Marissa Jones, Avani Locke, Kevin Jackson, and Jim Ashley also made significant contributions to this report. In addition, Daniel Schwimer assisted in the legal analysis, Amber Edwards assisted in the analysis of local efforts to restrict competitive foods across the country, and Susan Bernstein assisted in the message and report development.

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# Related GAO Products

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*Commercial Activities in Schools: Use of Student Data is Limited and Additional Dissemination of Guidance Could Help Districts Develop Policies.* [GAO-04-810](#). Washington, D.C.: August 20, 2004.

*Nutrition Education: USDA Provides Services through Multiple Programs, but Stronger Linkages among Efforts Are Needed.* [GAO-04-528](#). Washington, D.C.: April 27, 2004.

*School Meal Programs: Competitive Foods Are Available in Many Schools; Actions Taken to Restrict Them Differ by State and Locality.* [GAO-04-673](#). Washington, D.C.: April 23, 2004.

*School Lunch Program: Efforts Needed to Improve Nutrition and Encourage Healthy Eating.* [GAO-03-506](#). Washington, D.C.: May 9, 2003.

*School Meal Programs: Revenue and Expense Information from Selected States.* [GAO-03-569](#). Washington, D.C.: May 9, 2003.

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