

***School Nutrition Dietary Assessment
Study—III:***

***Volume I: School Foodservice, School
Food Environment, and Meals Offered
and Served***

Executive Summary



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School Nutrition Dietary Assessment Study-III: Volume I: School Foodservice, School Food Environment, and Meals Offered and Served Executive Summary

Authors:

Anne Gordon
Mary Kay Crepinsek
Renee Nogales
Elizabeth Condon

Submitted by:

Mathematica Policy Research, Inc.
P.O. Box 2393
Princeton, NJ 08543-2393
Telephone: (609) 799-3535

Submitted to:

Office of Research, Nutrition and Analysis
USDA, Food and Nutrition Service
3101 Park Center Drive
Alexandria, VA 22302-1500
Telephone: (703) 305-2017

Project Director:

Anne Gordon

Project Officer:

Patricia McKinney

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EXECUTIVE SUMMARY

The U.S. Department of Agriculture (USDA) National School Lunch Program (NSLP) and School Breakfast Program (SBP) provide subsidized meals to children in school, and provide these meals free or at a reduced price to children from low-income families. In school year 2004-2005, these two programs together provided benefits of nearly \$10 billion in cash and commodities. Created in 1946, the NSLP operates in nearly all public and many private schools. On an average school day in 2005, the NSLP provided lunch to 27.5 million children; 59 percent of these lunches were served free or at a reduced price. The SBP, which became a permanent Federal program in 1975, is offered in a somewhat smaller number of schools and serves fewer children per school. In 2005, the SBP provided breakfast to 8.7 million children per school day; the majority of these breakfasts (82 percent) were served free or at a reduced price.

The Food and Nutrition Service (FNS) of USDA sponsored the third School Nutrition Dietary Assessment study (SNDA-III) to provide up-to-date information on the school meal programs, the school environments that affect the food programs, the nutrient content of school meals, and the contributions of school meals to children's diets. During the time SNDA-III was conducted, many State agencies and schools were establishing nutrition policies, supplemental to USDA regulations, to address growing concerns about child obesity. Many of these policies included additional requirements for school meals and for foods that schools often sell in competition with USDA school meals, known as "competitive foods." State agencies and schools were also beginning to plan school wellness policies, required by Congress as of school year 2006-2007, which must include goals for nutrition education and physical activity, as well as nutrition standards for all foods sold on campus, including competitive foods.

A. BACKGROUND

The SNDA-III study, which is based on data collected in the second half of school year 2004–2005, builds on the methods used in two previous SNDA studies sponsored by FNS and, thus, allows some examination of trends over time:

- The first SNDA study (SNDA-I), in SY 1991–1992, determined that school meals provided targeted levels of vitamins and minerals, but offered, on average, higher levels of fat and saturated fat than recommended in the *Dietary Guidelines for Americans*.
- SNDA-I helped prompt new policies, known as the School Meals Initiative for Healthy Children (SMI), which require schools to offer meals that provide no more than 30 percent of total calories from fat and less than 10 percent from saturated fat, while providing adequate levels of target nutrients (defined as one-quarter of daily needs at breakfast and one-third at lunch, on average). School Food Authorities (SFAs)—school districts or groups of districts operating the NSLP—were encouraged to use computerized nutrient analysis to plan school meals, but were also given the option of continuing food-based menu planning.

- SNDA-II, conducted in school year 1998–1999, early in the SMI implementation period, showed that schools had reduced fat and saturated fat levels in school meals while maintaining levels of target nutrients. However, school meals were still not consistent with standards for fat and saturated fat content established under SMI.

SNDA-III offers information on how the programs are operating eight years after the start of SMI implementation. It also provides a baseline for FNS to use in determining how best to improve the programs.

Another important challenge is that new scientific knowledge has led to changes in key recommendations for dietary standards. The new Dietary Reference Intakes (DRIs) provide the best measures of nutrient adequacy or inadequacy for individuals to achieve a healthy diet and prevent disease. The DRIs are used to assess children’s dietary intakes but have not yet been translated for application to menu planning for school meals. Because school meals were still required to meet SMI standards during the period of this study, those standards are used to evaluate the nutrition they provided. While SMI required schools to offer meals with less than 30 percent of energy from total fat, the DRIs set a range of fat intakes from 20 to 35 percent of energy as acceptable and place more emphasis on types of fat.

This report, the first of three volumes, focuses on the analysis of school meal program characteristics at the SFA and school levels. Volume II focuses on characteristics of students who participate in school meals, student and parent satisfaction with the meals, and analyses of the dietary intakes of school meal participants and nonparticipants. Volume III provides in-depth information on the sample design and data collection procedures used in the study.

B. RESEARCH QUESTIONS

This study examined school meal program operations, foods and nutrients offered and served in school meals, competitive foods, and students’ dietary intake. Key research questions covered in this volume include:

- How do SFAs and schools provide NSLP and SBP meals?
- What are the characteristics of the school environment that affect school foodservice—for example, scheduling, rules about student mobility and open campus, and nutrition education?
- To what extent are competitive food sources available? Are there school policies that limit these foods? What types of foods and beverages are available from competitive sources?
- What is the food and nutrient content of USDA meals offered and served to students? How well do these meals meet SMI nutrient standards?
- How has the nutrient content of USDA meals served changed since the SNDA-II study in SY 1998–1999?

C. DATA SOURCES

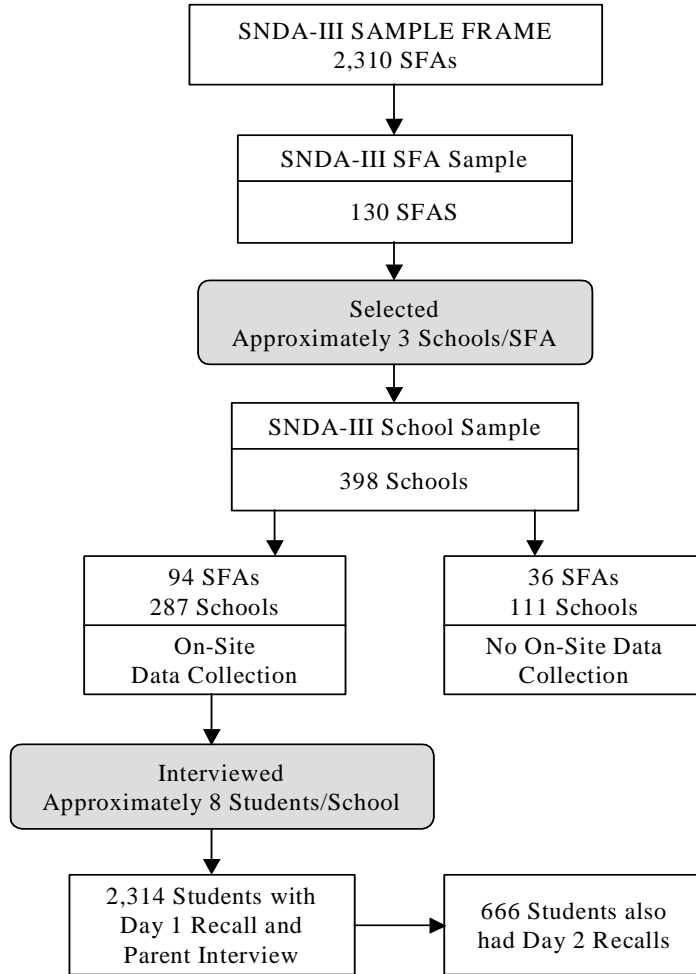
SNDA-III data represent all public SFAs that offer the NSLP in the contiguous United States, schools in those SFAs, and students in those schools. To represent these groups, the following three-stage sampling process was used: (1) SFAs were selected; (2) schools within these SFAs were selected (one elementary, one middle, and one high school, if possible); and (3) (for some SFAs and schools) students who attended these schools were selected (see Figure 1). Students were selected from lists of those enrolled at each school. Parents (or guardians) of the selected children provided consent for their child's participation, and were also interviewed.

Substantive data for the study were obtained at each of these levels; here, we describe the SFA- and school-level data used in this volume. SFA directors provided information on district-wide policies (such as menu planning) and operations (such as food purchasing). School foodservice managers completed a Menu Survey, providing detailed information on all foods offered on their menus during a selected week, including detailed food descriptions, portion sizes, and the number of servings provided in reimbursable meals. They also completed a brief telephone or in-person interview regarding their school's foodservice operations (for example, types of special needs they accommodated) and on competitive foods available in or near the foodservice area. Principals in each school were also interviewed concerning school schedules and rules about student mobility, nutrition education offered, and availability of competitive foods outside the foodservice area. In the representative subsample of schools in which student-level data were collected, study staff (on-site to interview students) also completed checklists based on their observations of competitive food sources and foods available through each major source (a la carte, vending machines, school stores, snack bars, and other sources).

All analyses in this report have been weighted to be representative of public SFAs or schools (as appropriate) in the contiguous United States that offer the NSLP.

FIGURE 1

SNDA-III SAMPLES



Note: Samples (when weighted) are representative of all public SFAs, schools, and students in schools offering the NSLP.

SFA = School Food Authority.

D. SCHOOL FOODSERVICE OPERATIONS

1. Eligibility and Prices

USDA subsidizes lunches and breakfasts for American schoolchildren through the NSLP and SBP at levels that vary by family income. Students from families with incomes at or below 130 percent of the poverty level are eligible for free meals, those with family incomes greater than 130 percent but no more than 185 percent of the poverty level are eligible for reduced-price meals, and children from higher-income families must pay “full price” for their meals, but such meals are also slightly subsidized. Parents often must complete an application for their children to qualify to receive free or reduced-price meals. “Direct certification”—when students whose families receive certain types of public assistance are certified to receive school meal benefits through computer-matching to public assistance program records—is also widespread.

Based on reports of foodservice managers in the SNDA-III schools, the average full price for lunch in school year 2004–2005 was \$1.60, and the average for breakfast was \$.88, not counting schools that offer free meals for all. Children who qualify for reduced-price meals may be charged a maximum of \$.40 for lunch and \$.30 for breakfast. Approximately 15 percent of schools (usually those with high proportions of students certified for free or reduced-price meals) offered meals free to all students under special rules, known as Provisions 2 and 3. Students not eligible for free or reduced-price meals were more likely to purchase school meals in schools that charged lower prices.

2. Menu-Planning Systems

FNS has always required schools to plan their menus to ensure that Federally subsidized meals meet specific requirements. Traditionally, schools used food-based menu planning—which required school meals to offer set numbers of servings from specific food groups, with minimum portion sizes that varied by age. For example, NSLP lunches were required to offer one serving of meat or meat alternate (cheese, beans); one serving of grains or bread; two servings of different fruits and/or vegetables, and one serving of fluid milk. SMI introduced nutrient-based standards for school meals, as well as a new menu-planning system—nutrient standard menu planning (NSMP). NSMP allowed schools greater flexibility in the types of foods offered, but required nutrient analysis of planned menus to ensure they met age-/grade-appropriate nutrient standards. Because of concerns about staff burden, the school nutrition community protested proposals that all schools be required to use NSMP. The final SMI regulations included the nutrient-based standards as the new benchmarks for school meals but allowed schools flexibility in the approach used for planning menus. In addition to the traditional food-based menu-planning system and NSMP, an enhanced food-based system was introduced. The enhanced food-based system calls for larger fruit/vegetable portions and more grains and breads.

In school year 2004–2005, more than two-thirds of schools used food-based menu planning. Nearly half (48 percent) of schools used the traditional food-based menu-planning system, and 22 percent used the enhanced food-based menu-planning system. Less than a third of schools (30 percent) used NSMP; NSMP was more often used in larger, urban districts.

The SMI regulations specified that schools would be evaluated based on a weighted analysis of the nutrient content of their menus in a typical school week. Nutrients in each food are weighted by the proportion of students that selected that item. However, because it is challenging for many schools to collect the production data needed for weighted analysis, USDA allows use of an unweighted nutrient analysis under a waiver provided by Congress, which is available until September 30, 2009. The unweighted nutrient analysis gives equal weight to all choices in each food group in computing the average nutrients for that food group. About two-thirds of schools were in districts that conducted ongoing nutrient analysis of their menus—30 percent of schools were in districts that conducted only weighted analyses, 19 percent were in districts that conducted only unweighted analyses, and 19 percent were in districts that conducted both types of analyses.

3. Meal Production and Service

During the 2004–2005 school year, most SFAs offered the SBP in some or all schools. About 85 percent of public schools overall offered school breakfasts to students.

Most schools prepared food on-site. More than two-thirds of schools (70 percent) prepared meals on-site for consumption only in their school, 19 percent of schools received fully or partially prepared meals from a base or central kitchen, and 11 percent of schools prepared meals on-site for service in their school, as well as for shipment to other schools. About 5 percent of SFAs used central or commissary kitchens, including 15 percent of large (more than 5,000 enrolled) SFAs.

Nationally, 13 percent of SFAs contracted with foodservice management companies. These contracts were more common in large or medium-sized districts than in small ones and in lower-poverty areas than in high-poverty ones.

Offer-versus-serve (OVS) is a school meal policy under which students are allowed to refuse one or two of the components of a reimbursable school meal, with the goal of reducing the amount of food wasted. All high schools were required to use OVS, but it is optional for elementary and middle schools. In school year 2004–2005, 78 percent of elementary schools and 93 percent of middle schools used OVS.

E. CHARACTERISTICS OF THE SCHOOL FOOD ENVIRONMENT

Closely associated with school foodservice operations are school policies and practices that may affect school meal participation and school foodservice operations but that generally are outside the control of school foodservice staff—for example, nutrition education and recess policies. Such policies and practices comprise the environment in which school meal programs operate; data about that environment can help policymakers further understand factors affecting students' participation decisions and food choices.

Nearly all schools (99 percent) provided some form of nutrition education to students, and more than two-thirds of schools taught nutrition in all grades. Sixty-one percent of schools shared information with students and/or parents about the nutrient content of school meals on a

regular basis. Forty-four percent of schools had already met the Federal mandate to have a local wellness policy in place by the 2006–2007 school year.

On average, students had about 30 minutes to eat lunch, regardless of school type (elementary, middle, or high) or enrollment. Forty percent of schools had at least one lunch period that started before 11:00 A.M., although very few scheduled a lunch period to start after 1:30 P.M. Students had about half an hour from when breakfast started until classes began.

Among schools that had recess, about one-third of elementary schools and more than half of middle schools scheduled recess right after lunch for all students. Only 23 percent of schools with recess after lunch, however, let students go to recess as soon as they finished eating.

About 40 percent of schools allowed all or some students to leave the lunch area after a predetermined time, and 29 percent let them leave at their own discretion. These policies were largely used by high schools, where about two-thirds of schools allowed students to leave the lunch area at any time. Eleven percent of schools followed an open campus policy, with high schools most likely to offer it (25 percent). In general, mobility privileges increased with age.

F. AVAILABILITY OF COMPETITIVE FOODS

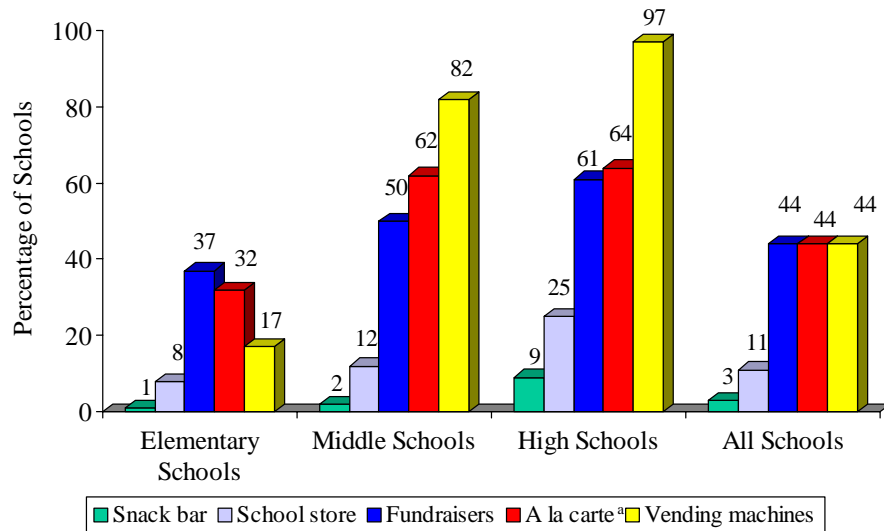
In recent years, interest in the healthfulness of foods offered in school meal programs has expanded to include competitive foods—foods and beverages sold on an a la carte basis in school cafeterias or through vending machines, snack bars, school stores, or other venues. Such venues may be operated by departments or groups other than the school foodservice program.

In school year 2004–2005, competitive foods were widely available, especially in middle and high schools (Figure 2). The most common sources of competitive foods were a la carte sales, fundraisers, and vending machines:

- Roughly one-third of elementary schools and close to two-thirds of middle and high schools had foods or beverages other than milk for sale on an a la carte basis during lunch periods.
- Fundraisers that focused on food or beverage sales occurred in 37 percent of elementary schools and 50 to 60 percent of middle and high schools, but were typically offered less than once a week.
- Vending machines were available in only 17 percent of elementary schools but were much more widespread in middle and high schools. Students in more than 80 percent of middle schools and all but 3 percent of high schools had access to vending machines.

FIGURE 2

COMPETITIVE FOODS WERE WIDELY AVAILABLE, ESPECIALLY IN MIDDLE AND HIGH SCHOOLS



Source: School Nutrition Dietary Assessment-III, Menu Survey of Food Service Managers and Principals (see Table III.6 and III.7 and A la Carte Checklist (see Table IV.8)

^aFood or beverages other than milk available during lunch.

According to principals' reports, income from vending machines located outside of the foodservice area usually went to school funds (57 percent). In 33 percent of high schools, some or all revenues went to the athletic department. In about one-fifth of schools, some portion of these funds went to the school foodservice department. Not including revenues that went to the foodservice department, 31 percent of schools earned \$100 to \$999 per month, and about 10 percent earned between \$1,000 and \$5,000 per month.¹

G. MEALS OFFERED AND SERVED

This section describes the food and nutrient content of meals offered and served in the NSLP and SBP, and assesses the proportion of schools meeting SMI standards and related benchmarks. Comparisons to the SNDA-II findings from school year 1998–1999 are also discussed.

¹ In most other cases (36 percent of all schools), the principal did not know the level of revenues; 20 percent of principals reported revenues of less than \$100 per month.

1. SMI Standards and Related Benchmarks

Before SMI, FNS had recommended that school breakfasts provide at least one-quarter of a student's daily needs and required that school lunches provide at least one-third of a student's needs. SMI and associated statutes formalized the requirements for energy (calories), protein, vitamin A, vitamin C, calcium, and iron (see Table 1). Standards for total fat and saturated fat were based on the 1995 *Dietary Guidelines for Americans*. SMI regulations recommended reducing sodium and cholesterol and increasing fiber in school meals, but no quantitative standards were established. To assess the levels of these dietary components, benchmarks for sodium and cholesterol were based on the National Research Council's (NRC's) 1989 *Diet and Health* study, as was done in the previous SNDA studies. The benchmark for fiber was based on a standard recommended by the Institute for Cancer Prevention—grams of fiber should be at least equal to age in years plus 5.

2. Methods for Analysis of Nutrient Content of Meals Offered and Served

Analyses of nutrients offered and served in school meals are similar to the unweighted and weighted nutrient analyses used by FNS to monitor whether school meals are meeting requirements. Analyses of the menu data are based on food groups in schools that used food-based menu-planning systems (meat/meat alternate, grain/bread, fruit/vegetable, milk) and on “menu items” (entrees, side dishes, and milk) in schools that used NSMP. For the unweighted analysis, nutrients in all the items offered that count for the same food group or menu item are simply averaged, and the average nutrients in each group or item are summed. This is interpreted as the average nutrients in the meal *as offered*, on the assumption that students could select any of the options. The weighted analysis incorporates data on how frequently each menu item was served/selected. The nutrients in the different options are weighted by how frequently they were served or selected, and then weighted averages for each food group or type of menu item are summed. These results are interpreted as representing the average nutrients in meals *as served to or selected by* students.²

3. Lunches Offered and Served in Public NSLP Schools

Using data on lunch menus provided by school foodservice managers, the study analyzed the types of foods offered in NSLP lunches, the proportions of schools offering meals that met the SMI standards, and the proportion of schools that offered students the *opportunity to select* a meal meeting SMI standards for total fat or saturated fat, if they selected items that would minimize the fat content of their meal.

² See Appendix C for further details.

TABLE 1

SMI NUTRIENT STANDARDS AND RELATED BENCHMARKS USED
TO EVALUATE NSLP LUNCHES AND SBP BREAKFASTS

Nutrient	Standard/Recommendation	
	Lunch	Breakfast
SMI Nutrient Standards		
Based on 1989 RDAs		
Food energy (calories)	One-third of the REA	One-fourth of the REA
Protein, vitamin A, vitamin C, calcium, and iron	One-third of the RDA	One-fourth of the RDA
Based on 1995 Dietary Guidelines for Americans		
Total fat	≤ 30 percent of total calories	≤ 30 percent of total calories
Saturated fat	< 10 percent of total calories	< 10 percent of total calories
Other Nutrition Benchmarks		
National Research Council (NRC) 1989 Recommendations:		
Cholesterol	< 100 mg	< 75 mg
Sodium	< 800 mg	< 600 mg
Based on Institute for Cancer Prevention Recommendation		
Dietary Fiber	One-third of daily target	One-fourth of daily target

Note: “Other Nutrition Benchmarks” are not USDA requirements, but benchmarks used to assess dietary components for which USDA regulations do not provide a quantitative standard. Cholesterol and sodium benchmarks are one-third of the NRC daily recommendations for lunch and one-fourth of the NRC daily recommendations for breakfast.

RDA = Recommended Dietary Allowance; REA = Recommended Energy Allowance; SMI = School Meals Initiative for Healthy Children. Daily target for fiber = (age + 5) grams.

a. Food Choices

Students usually had a range of choices at lunch, particularly in secondary schools. The median number of fruit and vegetable options offered over the course of a week was 13 in secondary schools, and the percentage of menus offering *only* the minimum of two fruit/vegetable options per day was 27 percent, down from 37 percent at the time of SNDA-II. More than half of the schools (58 percent) offered students some type of fresh fruit and/or raw vegetables every day.

Food bars—which allow students to serve themselves, and may include many options—are another approach to offering variety to students. They were available at least once a week in 47 percent of high schools, 30 percent of middle schools, and 20 percent of elementary schools. Most were salad bars (available in 37 percent of high schools, 23 percent of middle schools, and

19 percent of elementary schools), which could be used to offer either entree salads or side salads. Eighteen percent of secondary schools and 13 percent of elementary schools offered a salad bar every day.

The type of milk offered most often was 1% low-fat milk (flavored and unflavored combined)—this was included in 83 percent of daily lunch menus. Whole milk appeared considerably less often (in 31 percent of daily lunch menus).

Lunch entrees varied by school type, but sandwiches with plain meat or poultry, such as turkey and ham sandwiches, were among the top five entrees for each type of school. Pizza with meat topping and entree salads (for example, chef's salad) were included in one-third or more of secondary school lunch menus.

b. Nutrients Offered and Served in NSLP Lunches Relative to SMI Standards

More than two-thirds of schools offered and served lunches that met SMI standards for protein, vitamins, and minerals at lunch (Figure 3); more than 85 percent of lunches *offered* met these standards, but slightly fewer lunches *served* did so. Although 71 percent of schools offered the required minimum for energy, only half of them served meals that met the energy standard, suggesting that students (given OVS) did not select all meal components. Elementary schools were more likely than middle or high schools to meet the energy standard for both lunches offered and served.

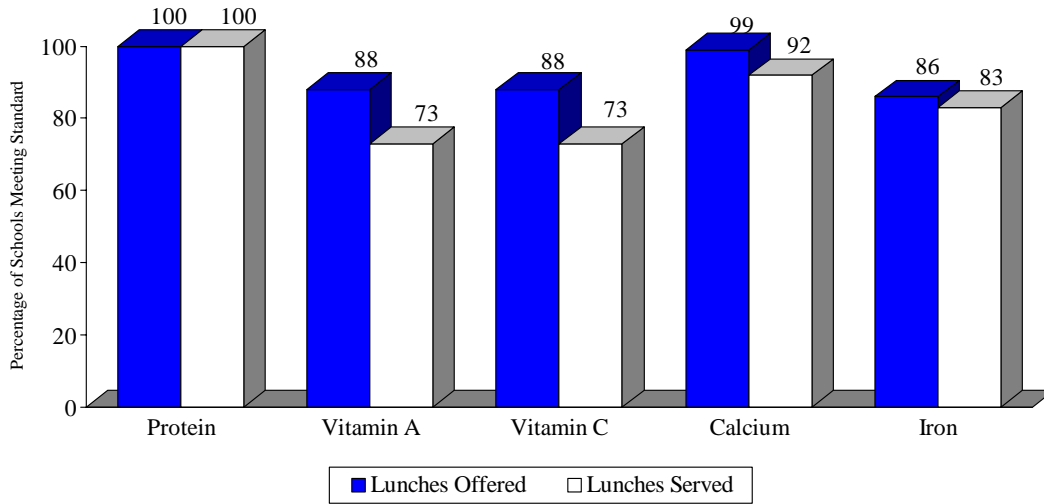
In most schools, lunches offered and served did not meet standards for fat and saturated fat (Figure 4). About 20 percent of schools offered and served lunches that met the total fat standard, and about 30 percent offered and served lunches that met the saturated fat standard. On average, school lunches both as offered and as served contained about 34 percent of energy from total fat and about 11 percent of energy from saturated fat. Thus, students' choices did not affect the fat content of their meals (as a percentage of energy).

Essentially no schools offered lunches that met the sodium benchmark; average sodium levels in school lunches were about twice the benchmark level. However, this result should be viewed in context. Other studies have found Americans of all ages consume much more sodium than recommended.

At the same time, almost all schools offered and served lunches consistent with benchmarks for fiber and cholesterol. However, only about five percent of lunch menus offered foods made from whole grains or dried beans, which are excellent sources of fiber.

FIGURE 3

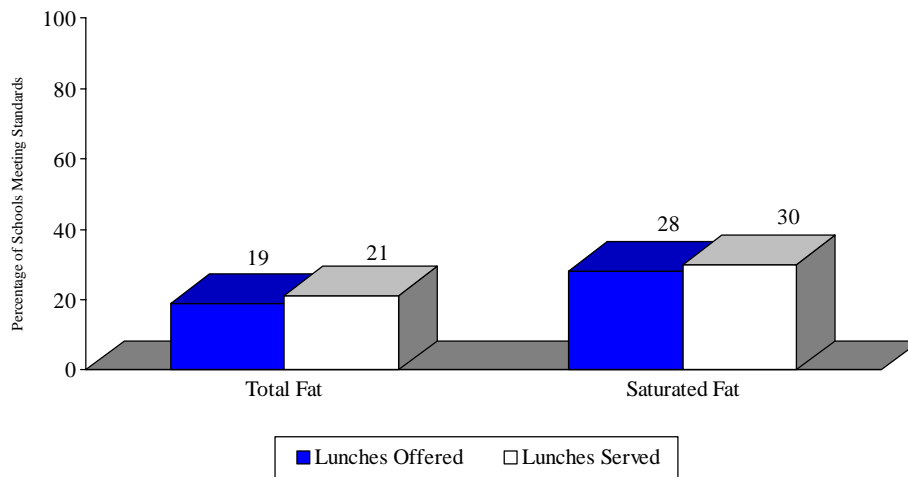
LARGE PROPORTIONS OF SCHOOLS MET SMI STANDARDS FOR KEY NUTRIENTS OFFERED AND SERVED IN NSLP LUNCHES



Source: School Nutrition Dietary Assessment-III, Menu Survey (see Tables VI.3 and VI.6).

FIGURE 4

LESS THAN ONE-THIRD OF SCHOOLS MET THE SMI STANDARDS FOR FAT AND SATURATED FAT IN NSLP LUNCHES



Source: School Nutrition Dietary Assessment-III, Menu Survey (see Tables VI.3 and VI.6).

c. Availability of Low-Fat and Low-Saturated-Fat Options at Lunch

One question was whether students could select a lunch that met SMI standards for fat and saturated fat if they made appropriate choices. Both low-fat and low-saturated-fat options (defined as full lunches that contained 30 percent of calories from fat or less, and less than 10 percent from saturated fat, respectively) were widely available (Figure 5). Ninety-three percent of elementary schools and 86 percent of secondary schools offered students the *opportunity to select* a low-fat lunch on a typical day. Ninety percent of elementary schools and 96 percent of secondary schools offered students the *opportunity to select* a low-saturated-fat lunch.

4. SBP Breakfasts Offered and Served in Public SBP Schools

Schools were more likely to offer and to serve SBP breakfasts that met SMI standards for total and saturated fat and key nutrients than NSLP lunches that met these standards.

a. Foods Offered

Breakfasts tend to have simpler menus than lunch, in part because they are not required to include entrees (in NSMP) or meat/meat alternates (in food-based menu planning). NSMP breakfasts must offer fluid milk and two side dishes. Food-based menu planning requires fluid milk; one serving of fruit or vegetable or 100% fruit or vegetable juice; and either two servings of bread/grains, two servings of meats/meat alternates, or one serving of each. The fruit/vegetable serving is most often juice (available in 88 percent of breakfast menus), and grains/breads are almost always available (on 95 percent of menus), particularly cold cereals (on 78 percent of breakfast menus). In contrast, meats or meat alternates and combination entrees were available on 40 and 35 percent of breakfast menus, respectively. The most popular meat/meat alternates were sausage (on 17 percent of menus) and yogurt (on 13 percent), while the most popular meat/grain combinations were breakfast sandwiches (on 13 percent); in general, only one meat/alternate or combination meat/bread option was offered per menu.

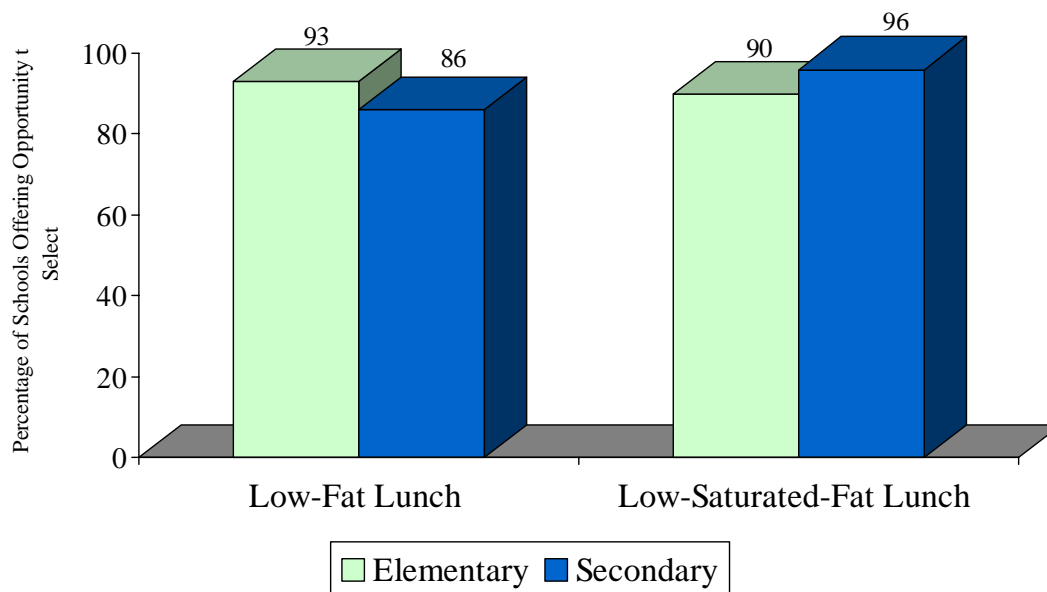
b. Nutrients Offered and Served in SBP Breakfasts Relative to Standards

Schools offered and served breakfasts that usually met standards for targeted nutrients (in more than 90 percent of schools for breakfasts offered, in more than 75 percent for breakfasts served). However, less than one-third of schools met the standard for energy (23 percent of schools met the standard for breakfasts offered, and 31 percent met the standard for breakfasts served). Elementary schools were more likely to meet the standard for breakfasts offered; surprisingly, secondary schools were more likely to meet the standard for breakfasts served than breakfasts offered, suggesting that students selected more energy-dense options at breakfast.

In contrast to energy, school breakfasts most often met the SMI standards for both total fat and saturated fat (88 and 81 for breakfasts offered; 75 and 69 for breakfasts served). Sodium in school breakfasts was higher than the NRC benchmark, but less so than at lunch. Fully 43 percent of schools offered breakfasts that met the sodium benchmark.

FIGURE 5

LOW-FAT AND LOW-SATURATED-FAT LUNCH OPTIONS WERE WIDELY AVAILABLE



Source: School Nutrition Dietary Assessment-III, Menu Survey (see Tables VIII.6, VIII.7 and VIII.9).

5. Comparisons with SNDA-II

SNDA-III used data collection and analytic methods similar to those of SNDA-II, to make it easier to analyze trends in the nutrient content of school meals over time. Some differences could not be avoided, however. Thus, differences in the nutrient content of the meals may reflect differences in the nutrient databases used, in coding of recipes and pre-prepared foods, or other factors. Nonetheless, differences discussed are large enough that they seem likely to reflect real trends. Because resources were not available to reanalyze the SNDA-II data, comparisons focus on the nutrient content of meals *as served*, as some relevant data on meals *as offered* are not available in the SNDA-II report.

a. Lunch

There were no major changes in the calories, vitamins, or minerals served in NSLP lunches between school year 1998–1999 (SNDA-II) and school year 2004–2005 (SNDA-III), particularly among elementary schools. Among secondary schools, there was a statistically significant decline in percentage of schools meeting the vitamin A standard for secondary students;

however, differences between the two studies in nutrient databases or default coding assumptions may have affected this result.

In contrast, some improvement occurred in saturated fat content of the average lunch served (a decrease from 12 to 11 percent of calories from saturated fat) and in the proportion of schools meeting the SMI standard for saturated fat (less than 10 percent of energy). The proportion of schools whose average lunch met the standard roughly doubled from 15 percent in 1998–1999 to 34 percent in 2004–2005 for elementary schools, and from 13 to 24 percent for secondary schools. The percentage of schools meeting the total fat standard did not change significantly.

b. Breakfast

In general, large proportions of schools served SBP breakfasts that met the RDA standards for SMI nutrients in both SNDA-II and SNDA-III, and changes were not statistically significant. Exceptions were vitamin C (for which the proportion of elementary schools meeting the SMI standard fell from 98 to 87 percent) and iron (for which the proportion of secondary schools meeting the standard increased from 57 to 78 percent). On the other hand, in both time periods, most schools fell short of the SMI energy standard.

Breakfasts made progress in meeting the standards for both total fat and saturated fat. There were statistically significant increases in the proportion of schools meeting the standards for total fat (from 75 to 88 percent) and in the proportion of schools meeting the standard for saturated fat—about 71 percent of schools met the standard for fat (versus 54 percent in 1998–1999).