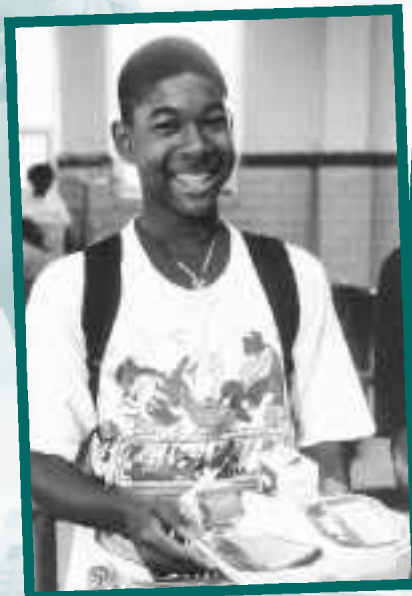


# Evaluation of the Nutrient Standard Menu Planning Demonstration

Summary of Findings  
August 1998



United States  
Department of  
Agriculture

Food and Nutrition  
Service

Office of Analysis &  
Evaluation

Contract No.  
53-3198-4-001



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# Evaluation of the Nutrient Standard Menu Planning Demonstration

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Submitted by:

Abt Associates, Inc.  
55 Wheeler Street  
Cambridge, MA 02138

Project Director:  
Mary Kay Fox

Submitted to:

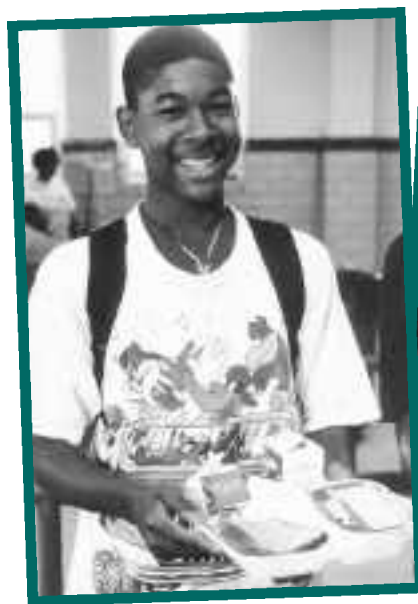
Office of Analysis and Evaluation  
USDA Food and Nutrition Service  
3101 Park Center Drive, Room 208  
Alexandria, VA 22302

Project Officer:  
John Endahl



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## Introduction

The National School Lunch Program (NSLP) and the School Breakfast Program (SBP) are administered by the Food and Nutrition Service (FNS) of the U.S. Department of Agriculture (USDA). The NSLP operates in over 94,000 schools and institutions. More than 26 million children receive meals through the program on any given day; about half of these meals are provided free of charge. The SBP operates in approximately two-thirds of the schools and institutions that offer the NSLP, most commonly in schools that serve large numbers of economically disadvantaged children. On an average day, roughly seven million children receive breakfast through the SBP. The vast majority of these meals are provided free of charge. School Food Authorities (SFAs) participating in the NSLP and SBP receive two types of federal assistance: donated surplus commodities and cash reimbursements.

Meals served in the NSLP and SBP meet defined nutrition standards in order to be eligible for Federal subsidies. Program regulations for the NSLP stipulate that lunches must provide, on average, approximately one-third of students' *Recommended Dietary Allowances* (RDAs). To ensure that these standards are met, program regulations have historically included food-based menu planning guidelines which define specific types of food to be offered as well as minimum portion sizes. The authorizing legislation for the SBP did not include a specific RDA goal, but a meal pattern was developed to ensure that breakfasts would provide approximately one-fourth of the RDA.

While historically the NSLP and SBP have been successful in meeting these nutrition standards, a 1993 USDA study found that school meals were not consistent with goals for total fat and saturated fat intake specified in the *Dietary Guidelines for Americans*. At the time, programs were not required to meet these guidelines.

Since this problem was identified, FNS has worked to enhance this aspect of the nutritional quality of meals offered in the NSLP and SBP. As part of this ongoing initiative, FNS sponsored a demonstration project to evaluate the acceptability and impact of an alternative system for planning lunch and breakfast menus. This system, known as Nutrient Standard Menu Planning (NSMP), uses computerized nutrient analysis to assess the nutrient content of planned menus.

Abt Associates Inc. of Cambridge, Massachusetts was awarded a contract to conduct an independent evaluation of the three-year demonstration project. This publication summarizes major findings from that evaluation. While regulatory changes that have taken place since the inception of the NSMP demonstration have already incorporated NSMP into NSLP and SBP operations, findings from the evaluation are important in providing information about requirements of the current NSMP system and the potential need for training, technical assistance, and monitoring.

### *The NSMP Demonstration*

In January 1994, FNS selected 34 volunteer SFAs to participate in the NSMP demonstration. SFAs were purposefully selected to provide diversity in geographic location, district size, student participation rates, food service program characteristics, and staff experience with computerized nutrient analysis.

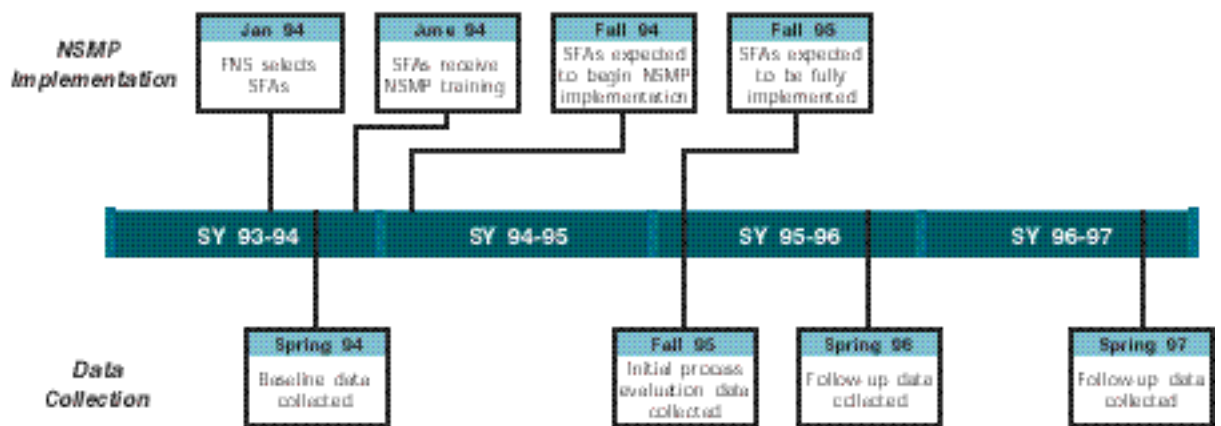
The demonstration spanned three school years (SY), from SY 1994-95 through SY 1996-97. Participating SFAs were expected to implement NSMP for both lunch and breakfast in all schools. Menus were to be planned using newly-developed software systems that evaluated the nutrient content of planned menus using a *weighted* nutrient analysis. A weighted analysis incorporates information about students' food selection patterns and gives more weight to foods that are selected more often. SFAs were expected to base weighted analyses on district-wide menu production data, i.e., information on the actual food selection patterns of all students in the district.

Menus planned under NSMP were expected to meet a defined set of nutrient standards. Lunches were expected to provide one-third of the RDA for calories and key nutrients and breakfasts were expected to provide one-fourth of the RDA. Both meals were expected to be consistent with *Dietary Guidelines* goals for the percentage of calories from total fat and saturated fat.

The sequence and timing of major milestones in both the demonstration and its associated evaluation are summarized in Exhibit 1. Baseline data were collected in Spring 1994 while traditional meal patterns were still being used to plan menus and before SFA staff received training on NSMP. Key staff from participating SFAs attended a three-day training session in June, 1994. Staff were expected to begin serving meals planned using NSMP the following fall, with the goal of achieving full implementation by Fall 1995.

Implementation was substantially delayed in most SFAs because of a significant lag in the approval of NSMP software systems. Software vendors were slow to submit products for USDA review and approval, and many of the software systems submitted did not satisfy the functional criteria defined by USDA. By January 1995, only two software systems had been approved. Participating SFAs were asked to select one of the two available systems and to continue to work toward full implementation by Fall 1995.

### Exhibit 1 Evaluation Design



Note: Process evaluation data were originally scheduled to be collected in Spring 1995.

## Exhibit 2 Nutrient Standards Used in the Evaluation

NUTRIENT	STANDARD
<b>Standards Defined for NSMP</b>	
<b>Nutrients with established RDAs:</b> Calories, protein, vitamin A, vitamin C, calcium, and iron	<b>Breakfast:</b> One-fourth of the RDA <b>Lunch:</b> One-third of the RDA
<b>Nutrients included in the <i>Dietary Guidelines for Americans</i>:</b>	
Total fat	≤ 30% of total calories
Saturated fat	< 10% of total calories
<b>NRC Recommendations</b>	
Carbohydrate	> 55% of total calories
Protein	< 15% of total calories
Cholesterol	<b>Breakfast:</b> ≤ 75 mg <b>Lunch:</b> ≤ 100 mg
Sodium	<b>Breakfast:</b> ≤ 600 mg <b>Lunch:</b> ≤ 800 mg

The evaluation examined the process of NSMP implementation in demonstration SFAs and assessed how well menus planned under NSMP complied with defined nutrient standards (Exhibit 2). For purposes of the evaluation, menus were also compared to National Research Council (NRC) recommendations for carbohydrate, protein, cholesterol, and sodium content. (SFAs were not expected to meet the NRC recommendations.) In addition, the evaluation assessed differences in program operations and costs between Spring 1994 (pre-NSMP or before NSMP) and Spring 1997 (NSMP or after NSMP).

The evaluation did not include a control group and sample sizes were small. For these reasons, the reader is cautioned that differences between pre-NSMP and NSMP measures can not necessarily be ascribed to NSMP and are not necessarily representative of what might happen in programs nationwide.



## Implementation of NSMP in Demonstration SFAs

**Less than half (16) of the original 34 SFAs fully implemented NSMP.** Ten of these SFAs implemented NSMP in full accordance with expectations. The other six SFAs used a modified approach to weighted nutrient analysis. Modifications included basing data used in the weighted analysis on production data from a subset of schools rather than all schools in the district or on staff predictions rather than actual menu production data.

**Four SFAs achieved only partial implementation and three SFAs never implemented NSMP.** Directors in the four partially implemented SFAs reported that they did not achieve full implementation because they were unable to dedicate the number of staff labor hours required. One of the three non-implemented SFAs attempted to implement NSMP according to the protocol, but never got beyond the process of entering data and analyzing initial menus. The other two non-implemented SFAs deviated substantially from the NSMP protocol. Both of these SFAs performed unweighted analyses and one SFA used unapproved software.

**A majority of eleven SFAs that withdrew from the demonstration did so because of concern about the use of weighted nutrient analysis.** Most often, the concern centered around the amount of staff labor required to obtain district-wide menu production data. Some SFA directors were also concerned that use of weighted nutrient analysis would limit flexibility in menu planning and decrease the ability of individual schools to cater to students' preferences. A few directors were worried that a weighted analysis could only meet nutrient standards if popular high-fat food items were eliminated or offered much less frequently. These directors believed that such changes would have a negative impact on lunch participation in middle and high schools.

Other factors contributing to SFA withdrawal included problems with NSMP software (unavailability, incompatibility, frequent problems with initial releases); the short implementation time line; a change in SFA directors; and SFA directors' responses to pending program regulations not directly related to the demonstration.

**Most SFAs required substantially more time to implement NSMP than anticipated.** Among the 16 SFAs that fully implemented NSMP, an average of 19 months elapsed between the time SFA staff started working on NSMP implementation and the time NSMP menus were served in all schools. The range was very broad, with a minimum of three months and a maximum of 33 months.

**Very large SFAs and, to a lesser extent, small SFAs were less likely to implement NSMP than medium or large SFAs.** Most of the very large SFAs (enrollment of 25,000 or more) that did not implement NSMP withdrew from the demonstration. The primary reason for termination was concern about the use of weighted analysis, specifically the level of effort involved in collecting and organizing district-wide menu production data. The burden associated with complying with this requirement clearly escalates as district size increases, unless a district is fully computerized or has highly centralized food production.

Three of four small SFAs (enrollment of less than 2,500) that did not implement NSMP also dropped out of the demonstration. The major issue for small SFAs was the amount of work involved in NSMP implementation given limited staffing.

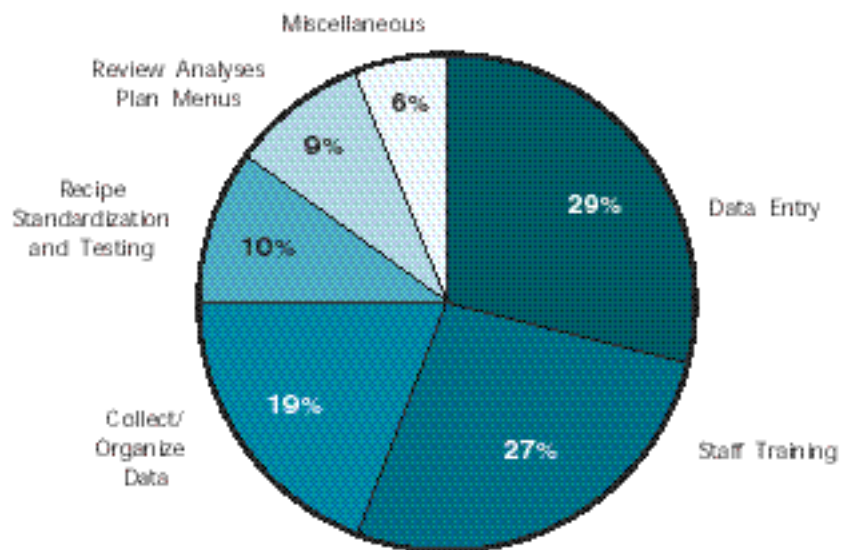
**SFAs that had some centralized food production prior to NSMP were more likely to achieve full implementation, without modification, than SFAs with little or no centralized production.** The presence of centralized food production may benefit NSMP implementation by reducing the amount of work required to document district-wide food usage. In addition, a more centralized program is likely to face fewer problems in identifying standardized recipes and ensuring that these recipes are used in all food production locations.

**SFAs that had fully centralized menu planning prior to NSMP were more likely to achieve full implementation, without modification, than SFAs with decentralized menu planning.** In order to implement NSMP in situations where schools have limited or total autonomy in menu planning, SFAs must either reduce the level of local control—i.e., move to centralized menu planning—or analyze menus for individual schools.

**The number of staff hours devoted to NSMP implementation varied widely.** The total number of hours devoted to NSMP implementation ranged from 334 hours, for a small district that had centralized menu planning prior to the initiation of NSMP and some centralized food production, to 3,830 hours, for a very large district that maintained partially decentralized menu planning for middle and high schools even after NSMP implementation. The median was 1,139 hours. Based on reported staff salaries, exclusive of fringe benefits, total costs for start-up labor ranged from \$4,272 to \$41,434, in 1997 dollars, with a median of \$16,139.

**Exhibit 3 Most of the Time Devoted to NSMP Implementation Was Spent on Data Entry and Staff Training**

*Contribution of NSMP Tasks to Total Implementation Hours*



Source: Data from 16 fully implemented SFAs

**Data entry and staff training together accounted for more than half of all labor hours spent on NSMP implementation (Exhibit 3).** Less than ten percent of all reported labor was associated with planning and analyzing menus. Thus, nine out of every ten hours spent on NSMP implementation was devoted, essentially, to building the system infrastructure. Only one of every ten hours was spent using the system to assess status of current and interim menus.

**A majority of SFAs reported that one or more NSMP tasks imposed a significant burden on SFA staff (Exhibit 4).** Only six of the 23 directors who continued in the demonstration through Spring 1997 reported that NSMP implementation did not impose an undue burden on SFA staff. The specific task most often cited as a significant burden was obtaining menu production data to support use of weighted nutrient analysis.

Tasks that were least often perceived as imposing a significant burden were those required for any menu planning option: planning menus, marketing healthy food choices, developing specifications for purchased foods, and monitoring purchased foods.

**All SFAs made errors in their nutrient analyses.** The most common errors were omission of a planned menu item and inaccurate serving projections. In a weekly analysis, about half of the SFAs omitted five or more menu items. Condiments, including salad dressing, tartar sauce, mayonnaise, and other high-fat items, were the most frequent omissions. Major menu items omitted from an analysis were generally alternative entree choices (e.g., salad bars, other specialty bars, or sandwiches) or one or more types of milk. In general, such omissions were made consistently in each daily analysis. Errors in serving projections generally resulted from failure to separate out *a la carte* and adult servings from menu production figures.

## Foods Offered Before and After NSMP

Changes in the types of food offered in NSMP menus were consistent with recommendations made in NSMP training. Compared to pre-NSMP menus, NSMP lunch menus included *more* of the following foods: skim milk and flavored lowfat milk; fresh fruit; raw vegetables and salads; extra bread and grain choices; pasta-based entrees; rice; and desserts. NSMP lunch menus also included *less* of the following foods: whole milk; french fries and similar potato products; entrees that tend to be high in fat, such as breaded meat, poultry and fish, burgers, nachos, and hot dogs; and snack chips. Secondary school menus showed more change than elementary school menus.

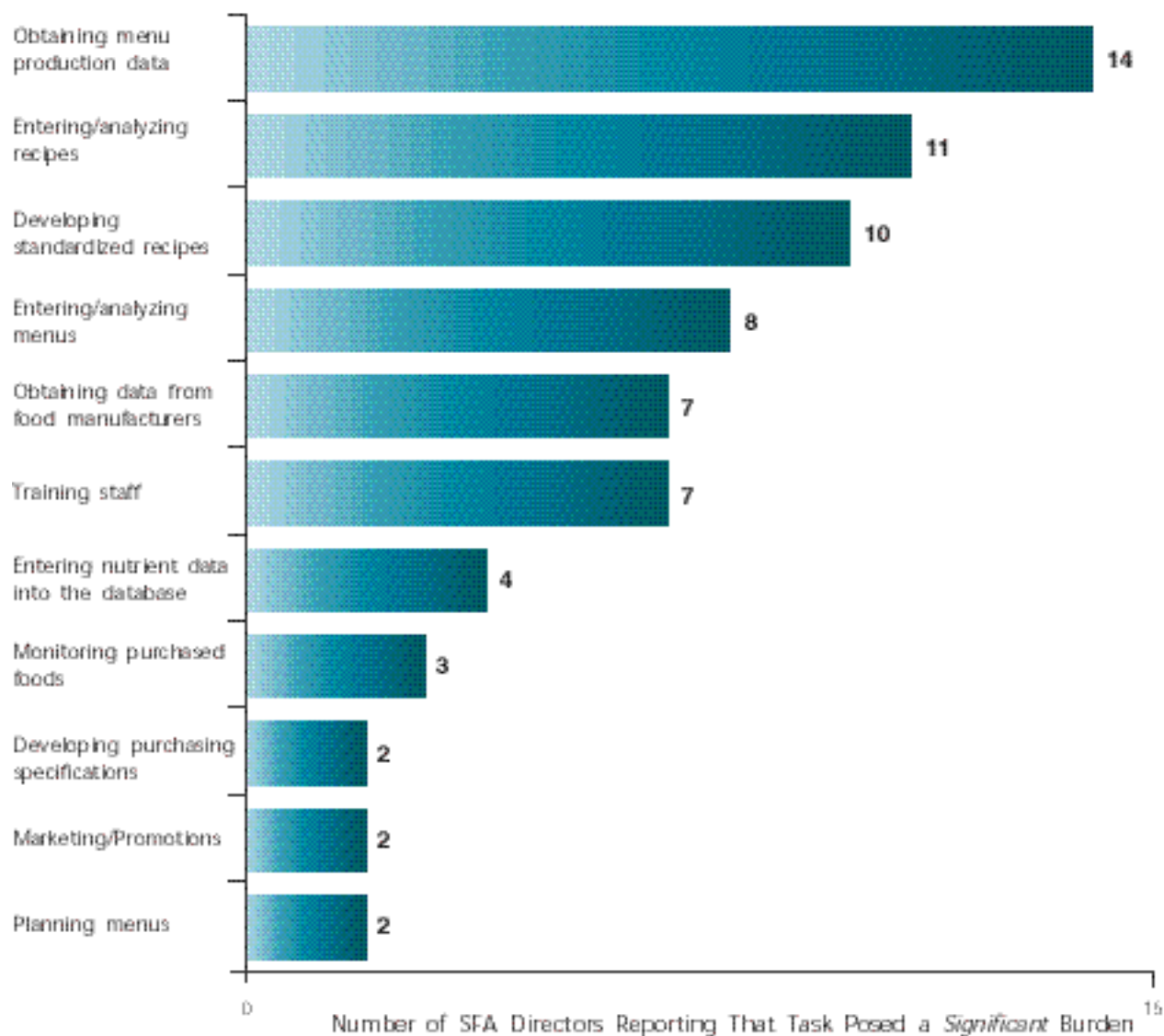
NSMP breakfast menus included *more* skim milk and flavored lowfat milk; canned and fresh fruit; fruit juice; breakfast potatoes; yogurt; cold cereals; and pancakes, and *less* whole milk; sausages; muffins; and French toast.

**NSMP menus included approximately the same number of daily options as pre-NSMP menus.**

There were no significant differences between pre-NSMP and NSMP menus in the average number of choices offered to students, within menu item category, each day.

**The variety of foods offered over the course of a week was comparable before and after NSMP.** There were no significant differences between pre-NSMP and NSMP menus in the number of different types of food offered over the course of a week within major food categories, e.g., fruits, vegetables, entrees.

**Exhibit 4 SFA Directors Found Obtaining Menu Production Data to be the Most Burdensome NSMP Task**



Source: Data from 23 SFA directors involved in the demonstration through Spring 1997.

## Nutrient Content of Lunches

This analysis is based on data from 19 SFAs that implemented NSMP, either district-wide or for elementary lunches only. All findings are based on weighted nutrient analyses.

**Lunches served both before and after implementation of NSMP provided one-third or more of the RDA for calories and key nutrients (Exhibit 5).** Lunches served at both points in time provided more than one-third of the RDA, with the exception of calories in secondary school lunches. Elementary school lunches served after NSMP provided significantly fewer calories and less protein than lunches served prior to NSMP. Secondary school lunches served after NSMP provided significantly more vitamin A than lunches served before NSMP. These differences have little substantive importance, however, because lunches served at both points in time exceeded the NSMP standard of one-third of the RDA.

**Lunches served after NSMP were significantly lower in fat than pre-NSMP lunches, but continued to exceed the *Dietary Guidelines* goal of no more than 30 percent of calories from fat (Exhibit 6).** NSMP lunches derived significantly fewer calories from fat than lunches served before NSMP (31% for elementary NSMP lunches and 33% for secondary NSMP lunches versus 36% for both elementary and secondary pre-NSMP lunches). The five percentage point drop in the percent of calories from fat in elementary school lunches represents an overall decrease in actual fat calories of 19 percent. For secondary school lunches, the three percentage point drop in percent of calories from fat represents an 12 percent decrease in actual fat calories.

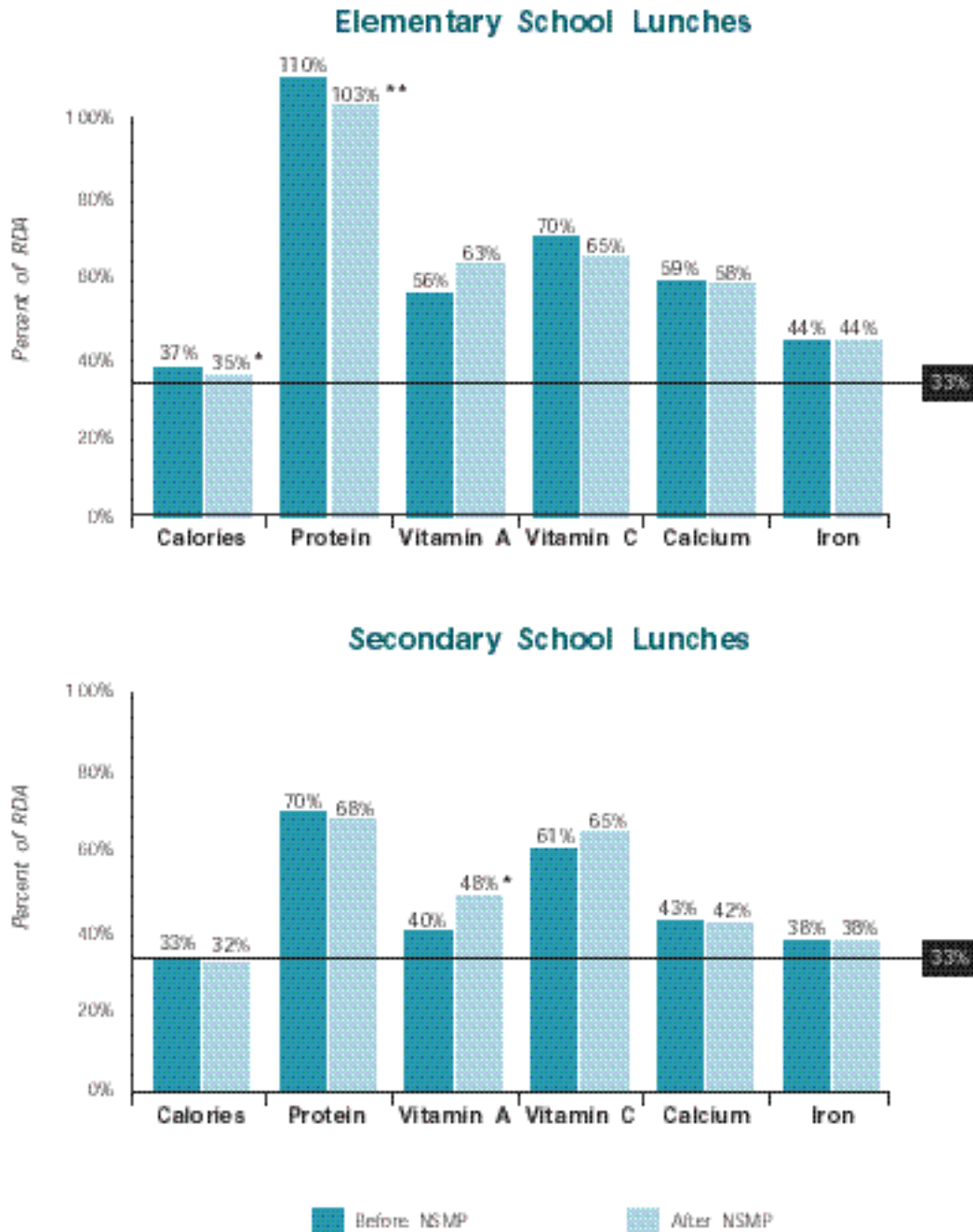
**Lunches served after NSMP provided significantly fewer calories from saturated fat than pre-NSMP lunches, but continued to exceed the *Dietary Guidelines* goal of less than 10 percent of calories from saturated fat (Exhibit 6).** The percentage of calories from saturated fat in elementary school lunches dropped three percentage points over the course of the demonstration (14% versus 11%). This difference represents a decline of 25 percent in actual saturated fat calories. The percentage of calories from saturated fat in secondary school lunches dropped one percentage point (13% versus 12%), equivalent to a 16 percent decrease in actual saturated fat calories.

**Lunches served after NSMP provided significantly more calories from carbohydrate than pre-NSMP lunches (Exhibit 6).** NSMP lunches derived significantly more calories from carbohydrate than lunches served before NSMP (54% for elementary NSMP lunches and 52% for secondary NSMP lunches versus 49% for both elementary and secondary pre-NSMP lunches). Despite these increases, lunches served in both types of schools continued to fall short of the NRC recommendation of more than 55 percent of calories from carbohydrate.

**Lunches served after NSMP provided significantly less cholesterol than pre-NSMP lunches. Amounts of sodium and fiber were similar (Exhibit 7).** NSMP lunches served in both elementary schools and secondary schools were significantly lower in cholesterol than lunches served prior to NSMP. These differences are of limited importance, however, because lunches served at both points in time met the NRC recommendation for cholesterol. Sodium content was essentially the same in pre-NSMP and NSMP lunches and, at both points in time, exceeded the NRC recommendation by a substantial margin. Fiber content of pre-NSMP and NSMP lunches was not significantly different.

**Exhibit 5**

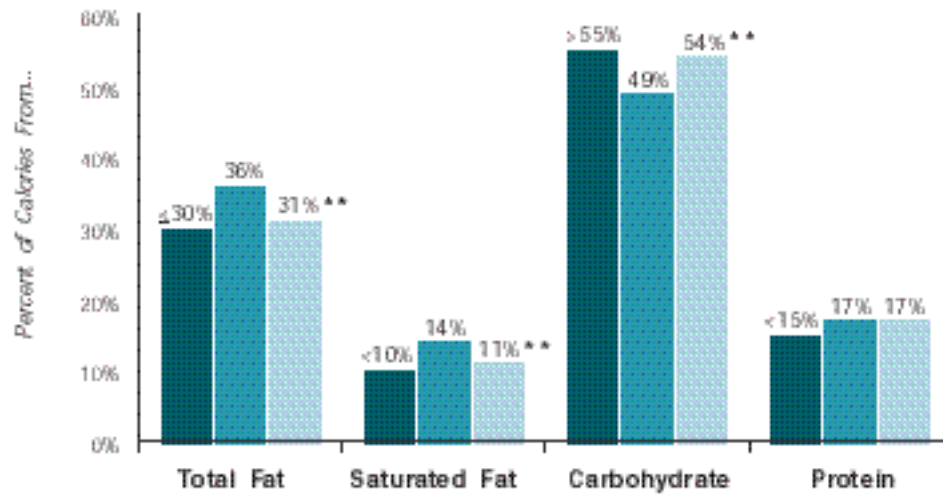
**With the Exception of Calories in Secondary Schools, Lunches Served Before and After NSMP Provided More than One-third of the RDA**



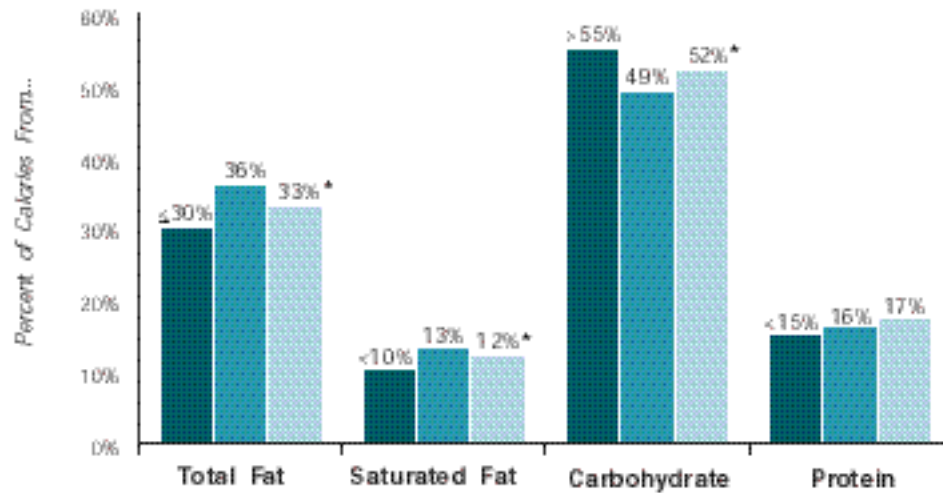
\* Difference is statistically significant at the 5 percent level  
 \*\* Difference is statistically significant at the 1 percent level

**Exhibit 6 Lunches Served After NSMP Provided Fewer Calories from Fat and Saturated Fat than Lunches Served Before NSMP**

**Elementary School Lunches**



**Secondary School Lunches**

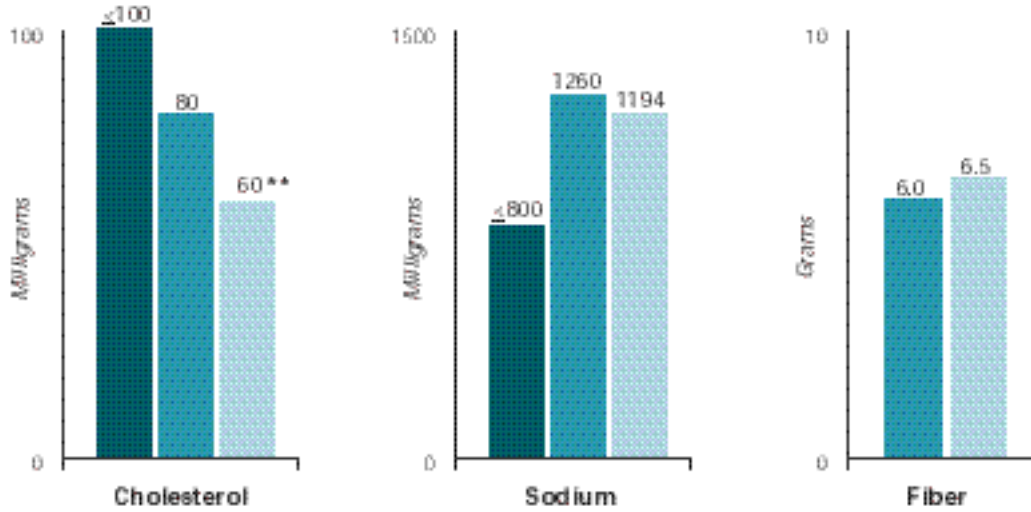


Dietary Guidelines or NRC Recommendation  
 Before NSMP  
 After NSMP

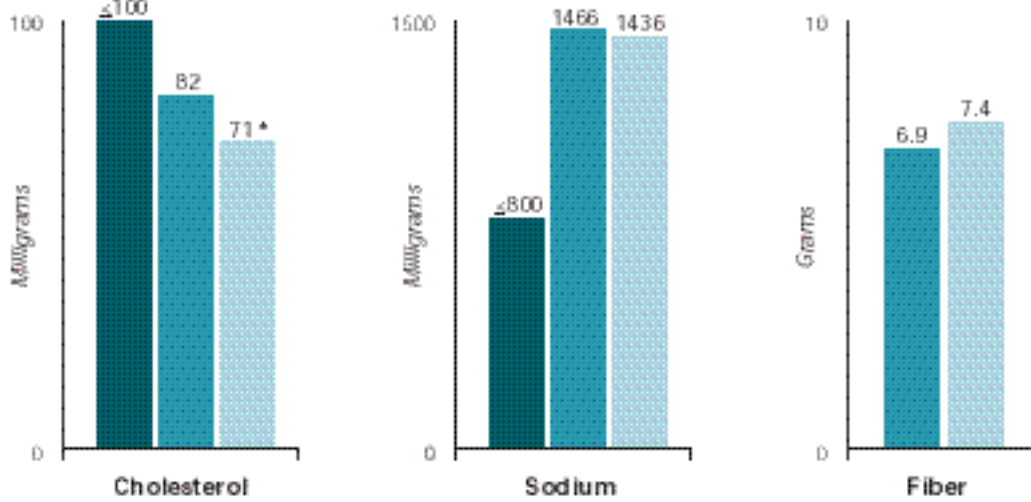
\* Difference is statistically significant at the 5 percent level  
 \*\* Difference is statistically significant at the 1 percent level

**Exhibit 7 Lunches Served Before and After NSMP Met the NRC Recommendation for Cholesterol But Not for Sodium**

**Elementary School Lunches**



**Secondary School Lunches**



NRC Recommendation  
 Before NSMP  
 After NSMP

\* Difference is statistically significant at the 5 percent level  
 \*\* Difference is statistically significant at the 1 percent level



## Nutrient Content of Breakfasts

This analysis is based on data from 12 SFAs that implemented NSMP for breakfast menus. All findings are based on weighted nutrient analyses.

**With the exception of calories, breakfasts served both before and after NSMP provided one-fourth of the RDA (Exhibit 8).** This finding is consistent with SFA director reports that the calorie standard for breakfast was one of the most difficult to meet.

**NSMP breakfasts served in secondary schools provided significantly greater amounts of vitamin A and iron than pre-NSMP breakfasts (Exhibit 8).** Although, on average, pre-NSMP breakfasts served in secondary schools provided more than one-fourth of the RDA for vitamin A and iron, the average amount of both nutrients was significantly higher in NSMP breakfasts. Both of these increases are attributable to an increase in the use of cold cereals, most of which were fortified with vitamin A and iron, in NSMP breakfasts.

**Breakfasts served before and after NSMP satisfied the *Dietary Guidelines* goal for calories from fat (Exhibit 9).** While both pre-NSMP and NSMP breakfasts were consistent with the *Dietary Guidelines* goal of no more than 30 percent of calories from fat, the percentage of calories from fat in NSMP breakfasts served in secondary schools was significantly lower than pre-NSMP breakfasts (24% versus 29%).

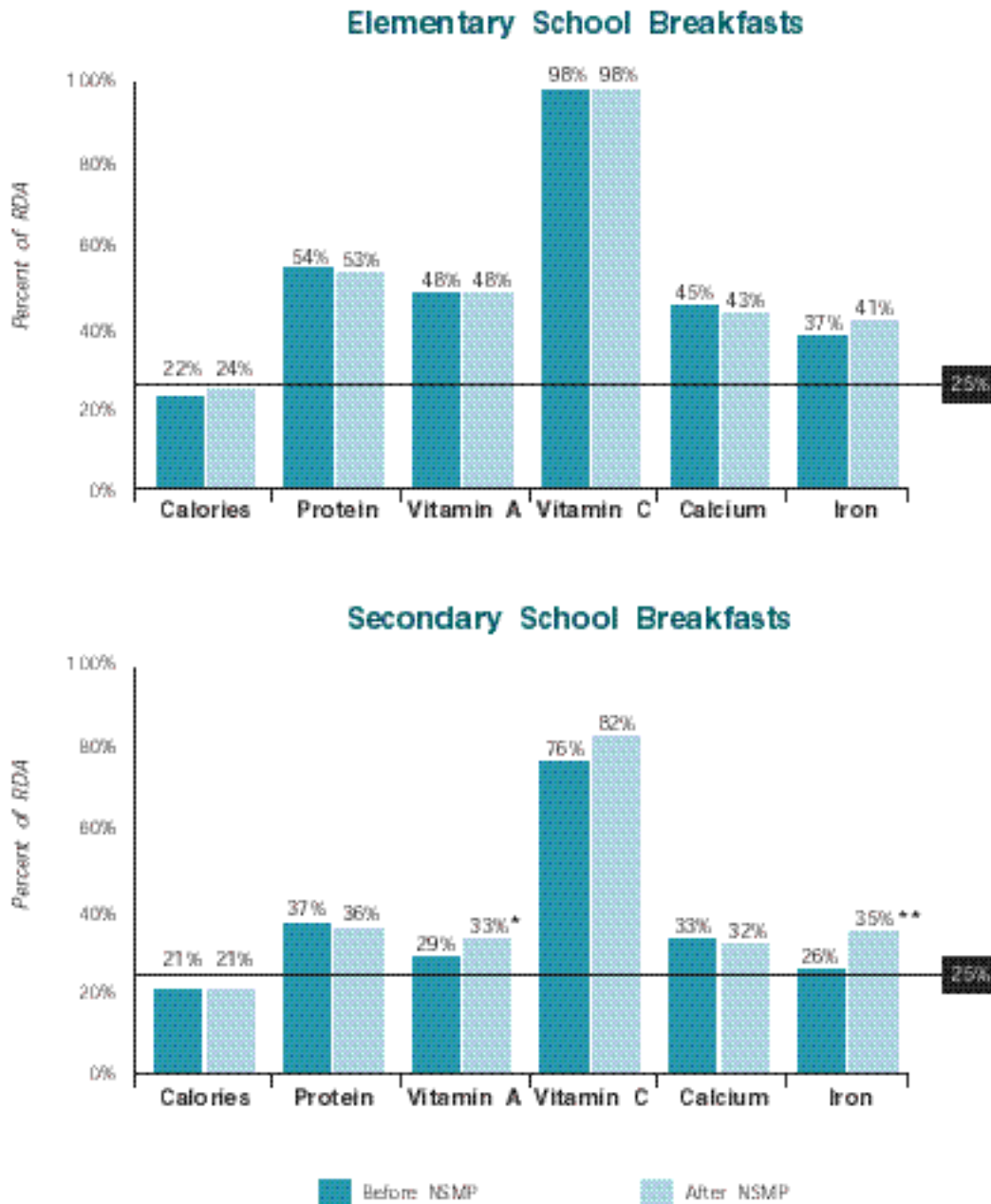
**Breakfasts served after NSMP provided significantly fewer calories from saturated fat than breakfasts served before NSMP, and satisfied the *Dietary Guidelines* goal for saturated fat (Exhibit 9).** NSMP breakfasts served in both elementary and secondary schools provided less than ten percent of calories from saturated fat (actual values of 9.5% and 9.7%, rounded to 10% in Exhibit 9), compared to 13% and 14%, respectively, for pre-NSMP breakfasts.

**Breakfasts served before and after NSMP satisfied the NRC recommendation for calories from carbohydrate (Exhibit 9).** While both pre-NSMP and NSMP breakfasts were consistent with the NRC recommendation of more than 55 percent of calories from carbohydrate, NSMP breakfasts served in both elementary and secondary schools provided significantly more calories from carbohydrate than pre-NSMP breakfasts.

**Breakfasts served before and after NSMP provided comparable amounts of cholesterol and sodium (Exhibit 10).** Breakfasts served both before and after NSMP satisfied the NRC recommendation for cholesterol. The same is true for sodium in elementary school breakfasts, however, secondary school breakfasts exceeded the recommendation for sodium at both points in time. Fiber content was higher in breakfasts served after NSMP and this difference was statistically significant for secondary school breakfasts.

**Exhibit 8**

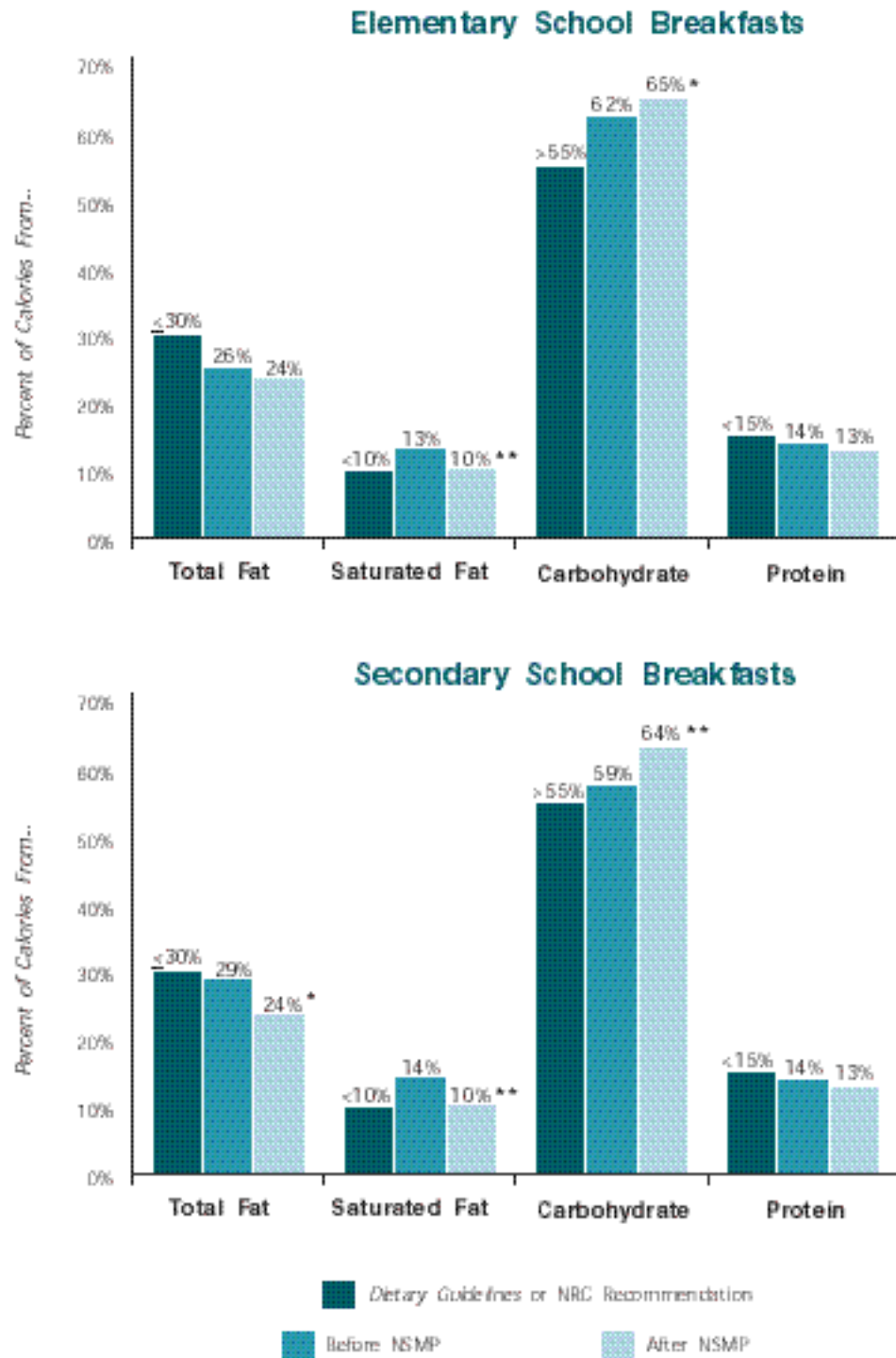
**With the Exception of Calories, Breakfasts Served Before and After NSMP Provided More than One-fourth of the RDA**



\* Difference is statistically significant at the 5 percent level

\*\* Difference is statistically significant at the 1 percent level

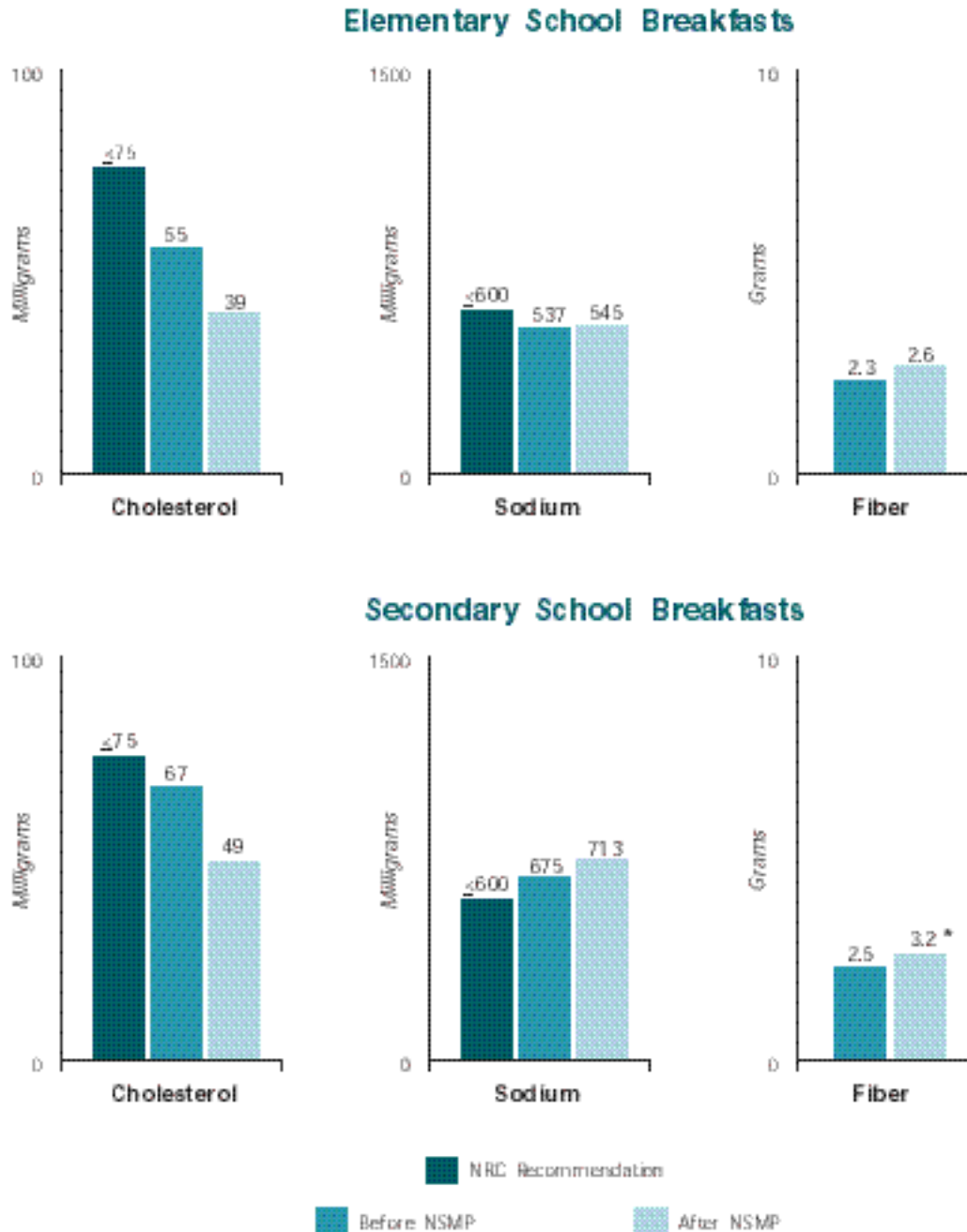
**Exhibit 9** Breakfasts Served After NSMP Provided Fewer Calories from Fat and Saturated Fat than Breakfasts Served Before NSMP



\* Difference is statistically significant at the 5 percent level.

\*\* Difference is statistically significant at the 1 percent level.

**Exhibit 10** With the Exception of Sodium in Secondary Schools, Breakfasts Served Before and After NSMP Met NRC Recommendations for Cholesterol and Sodium



\* Difference is statistically significant at the 5 percent level.

## Weighted and Unweighted Nutrient Analyses

A key component of NSMP is use of a weighted nutrient analysis to determine nutrient content of planned menus. A weighted analysis incorporates information about student selection patterns and does not assume that every student takes one serving of every type of food offered (e.g., milk, entree, fruits, vegetables). This approach provides a picture of the *average lunch served* to students. In contrast, an unweighted nutrient analysis represents a simple average of all foods offered, providing a picture of the *average lunch offered* to students.

Menus planned before and after NSMP were analyzed using both weighted and unweighted analysis techniques and the results of the two analyses were compared. Findings for weighted and unweighted analyses of Spring 1997 lunch menus are summarized below. The reader is cautioned that the patterns reported here are not necessarily representative of what can be expected for programs nationwide. The sample of SFAs included in this analysis was very small and was self-selected. Moreover, some of the SFAs did not complete NSMP implementation and those that did planned Spring 1997 menus using weighted analysis. It is possible that the results presented here may have been different if all SFAs had been included or if SFAs had planned Spring 1997 menus using unweighted analysis.

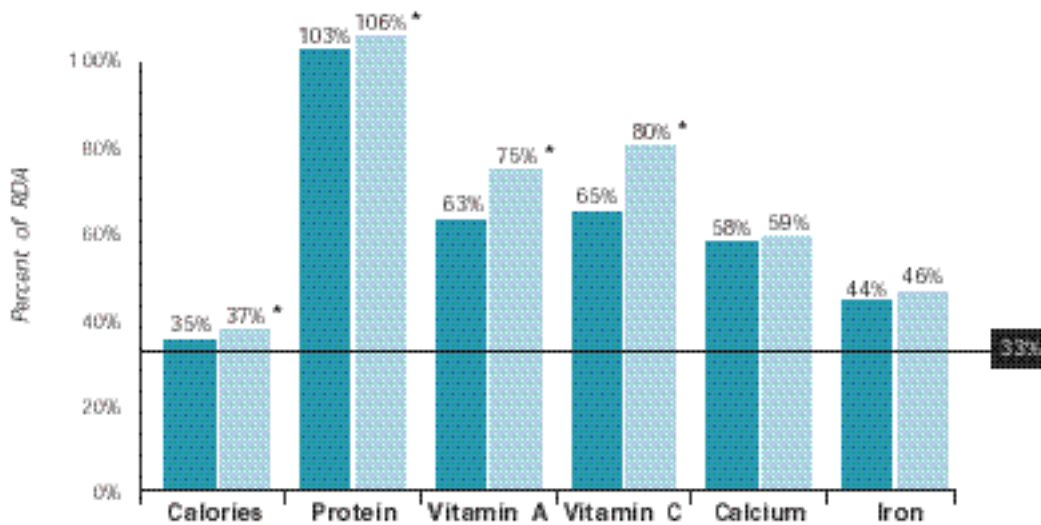
**Unweighted analysis of NSMP lunch menus resulted in greater estimated contributions to RDAs for calories and key nutrients (Exhibit 11).** The disparity between weighted and unweighted estimates is greatest for vitamins A and C, and tends to be larger for secondary school lunches. Regardless of which analysis is used, however, NSMP lunch menus in both elementary and secondary schools provided one-third or more of the RDA for calories and key nutrients with the exception of calories in secondary schools. Using weighted analysis, secondary school lunch menus, on average, fell just short of the one-third RDA target for calories.

**Weighted and unweighted estimates of the percentage of calories from fat, saturated fat, carbohydrate, and protein in NSMP lunch menus were very similar (Exhibit 12).** Regardless of which analysis is used, NSMP lunch menus did not meet *Dietary Guidelines* goals for calories from fat or saturated fat.

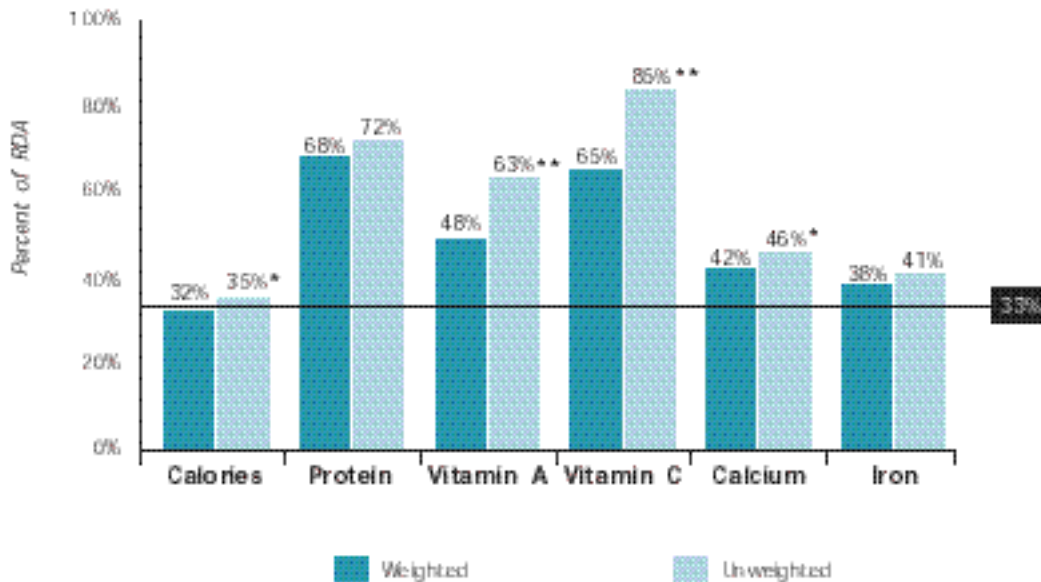
**Unweighted analysis of NSMP lunch menus resulted in somewhat greater estimates of cholesterol, sodium, and fiber content (Exhibit 13).** Although some of these differences are statistically significant, they do not affect conclusions about whether NSMP lunch menus met NRC recommendations.

**Weighted and Unweighted Analyses Produced Different Mean Values for Calories and RDA Nutrients, But Conclusions About Whether Lunches Met NSMP Standards Are Similar**

**Spring 1997 Elementary School Lunches**



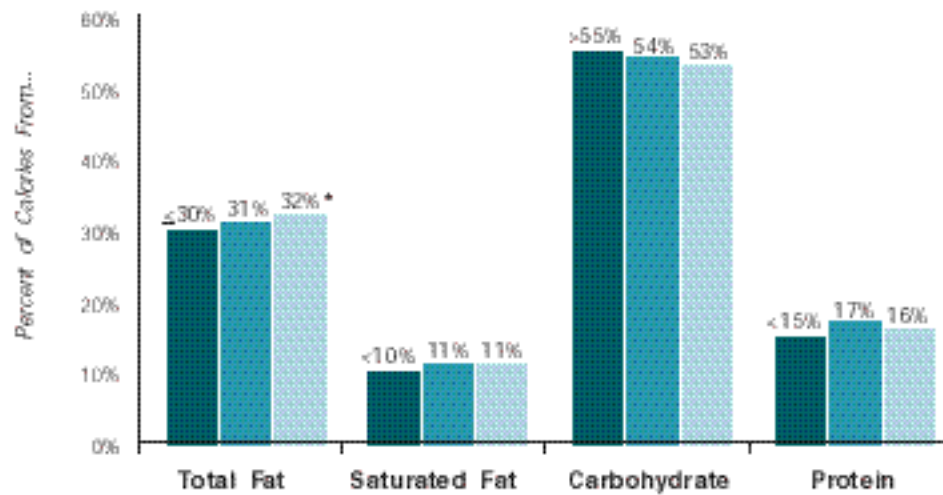
**Spring 1997 Secondary School Lunches**



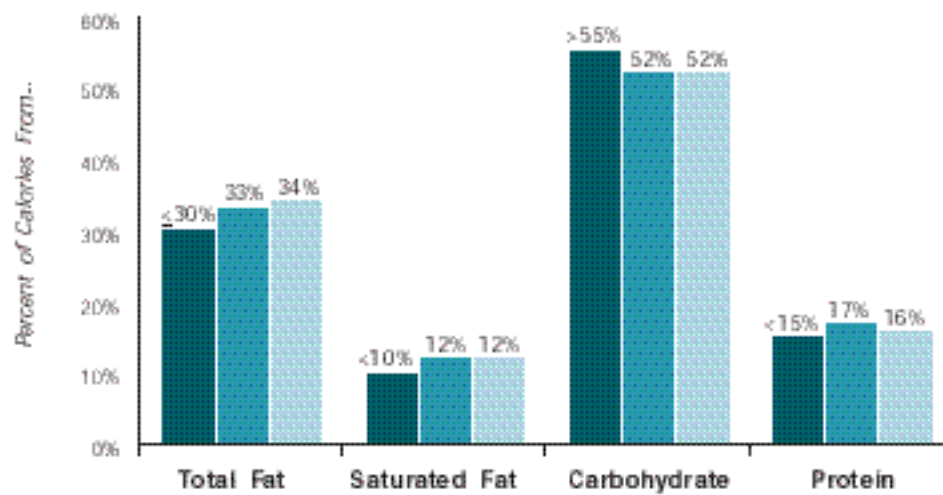
\* Difference is statistically significant at the 5 percent level  
 \*\* Difference is statistically significant at the 1 percent level

**Exhibit 12** Weighted and Unweighted Analyses Produced Similar Results for Calories from Fat, Saturated Fat, Carbohydrate, and Protein

**Spring 1997 Elementary School Lunches**



**Spring 1997 Secondary School Lunches**

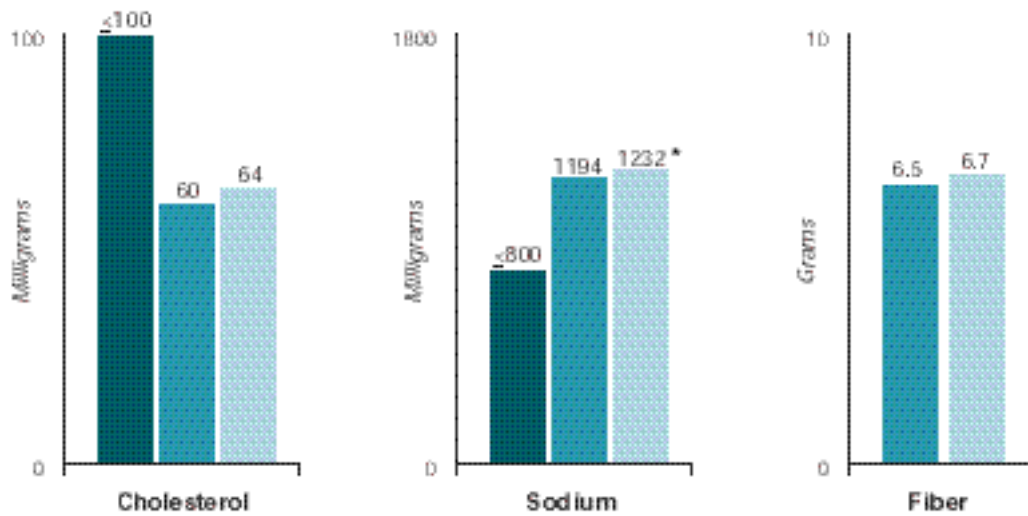


Dietary Guidelines or NRC Recommendation  
 Weighted  
 Unweighted

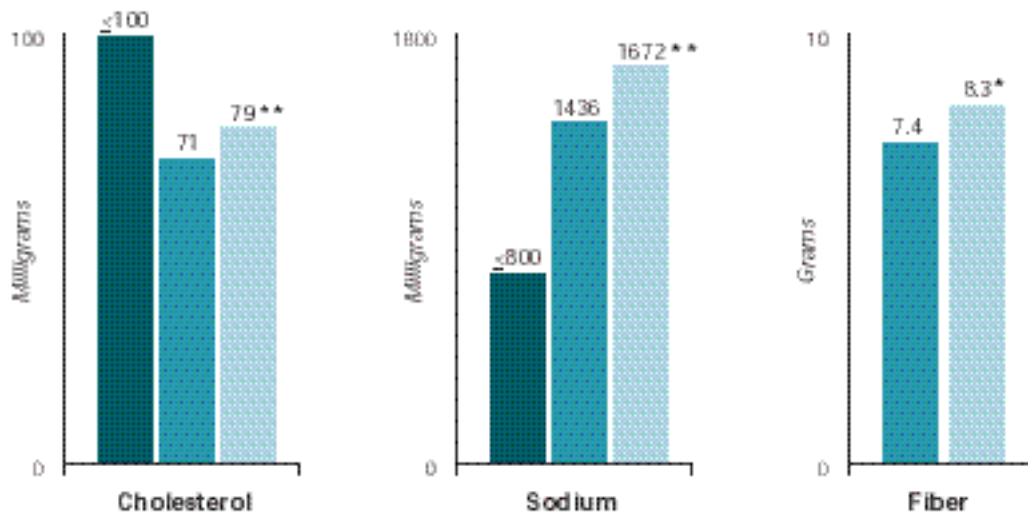
\* Difference is statistically significant at the 5 percent level

**Exhibit 13** Weighted and Unweighted Analyses Produced Different Mean Values for Cholesterol, Sodium, and Fiber, But Conclusions About Whether Lunches Met NRC Recommendations Are Similar

**Spring 1997 Elementary School Lunches**



**Spring 1997 Secondary School Lunches**



NRC Recommendation  
 Weighted  
 Unweighted

\* Difference is statistically significant at the 5 percent level.

\*\* Difference is statistically significant at the 1 percent level.



## Program Operations Before and After NSMP

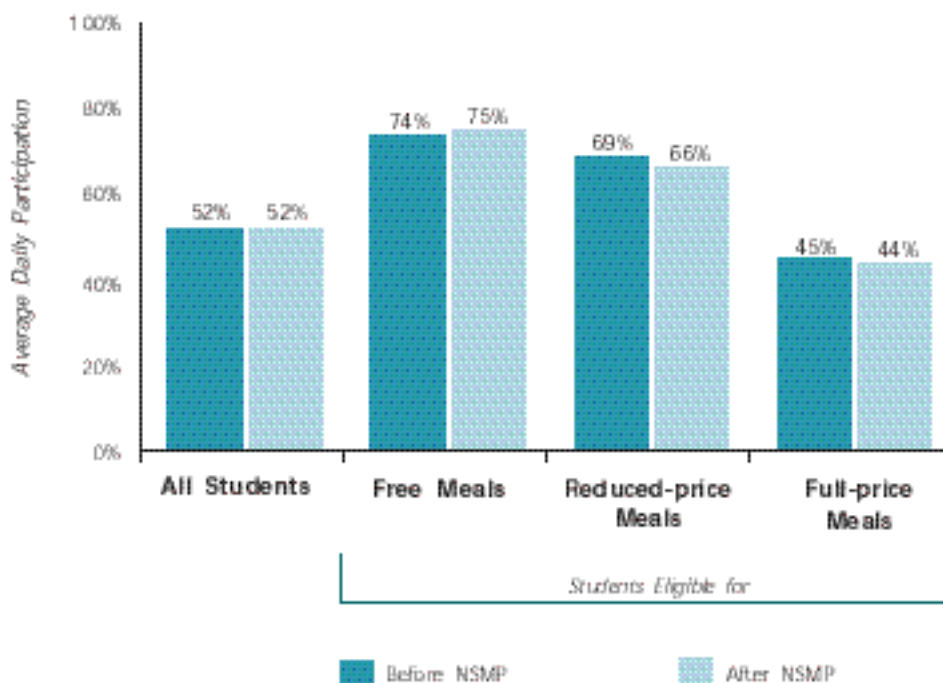
**Use of NSMP did not influence NSLP participation rates (Exhibit 14).** The overall rate of student participation in the NSLP was essentially constant over the course of the demonstration.

SBP participation rates increased significantly over time, however, the sizeable increase that was observed (a 26% increase in overall participation, from 6.5% to 8.2%) probably can not be attributed to NSMP. Each of the SFAs that showed a substantial increase in breakfast participation over time had made a concerted effort to increase SBP participation, particularly among middle and high school students, as part of an ongoing national initiative.

**The vast majority of kitchen managers did not believe that NSMP had an impact on levels of plate waste.** More than two-thirds of kitchen managers reported that the level of plate waste observed after NSMP, for a variety of different food items, was no different than what was observed prior to NSMP.

Moreover, with the exception of cooked vegetables and, to a lesser extent, entrees in elementary and middle schools, changes that were reported were largely positive, i.e., managers indicated that students were wasting *less* food since the implementation of NSMP. Fifteen to 25 percent of kitchen managers reported that students wasted more cooked vegetables after implementation of NSMP than before NSMP. Fourteen to 18 percent of managers in elementary and middle schools reported an increase in waste of lunch entrees.

**Exhibit 14** Average Daily NSLP Participation Remained the Same Over the Course of the Demonstration



Source: Data from 14 fully implemented SFAs.

**More SFAs used centralized menu planning and cycle menus after implementing NSMP than before NSMP.** Four of six fully implemented SFAs that entered the demonstration with a decentralized menu planning system switched to a fully centralized system. Eight of eleven fully implemented SFAs that did not use a cycle menu prior to NSMP had adopted one by the end of the demonstration.

**Most SFA directors spend the same amount of time on NSMP maintenance as they spent on traditional menu planning activities prior to NSMP.** Directors in nine of the 16 SFAs that achieved full implementation reported that NSMP maintenance requires about the same amount of their time as routine menu planning activities required before NSMP. Three directors reported that NSMP maintenance requires less of their time than previous menu planning. Only four directors reported that NSMP maintenance takes more of their time than previous menu planning practices.

**About half of the SFA directors reported that other staff members spend more time on NSMP maintenance than on previous menu planning practices.** Required NSMP activities that reportedly contribute to an increased level of staff effort include: reviewing and entering data for purchased products; collecting and synthesizing menu production data; updating nutrient analyses with new production data or early substitutions; and continuing to modify and test recipes.

**State agencies plan to use a variety of approaches in scheduling SMI and CRE reviews.** Of 12 State directors who had made decisions about how to incorporate SMI reviews, five States were conducting combined SMI/CRE reviews. Four States were conducting SMI and CRE reviews on separate schedules, requiring two visits to each SFA every five years. The remaining three States planned to use both scheduling approaches, depending on the circumstances in each SFA.

**Almost all State directors using combined SMI/CRE reviews reported that these reviews took more time than traditional CRE reviews.** Three State directors estimated the increase to be about four hours and two estimated it to be six to eight hours.

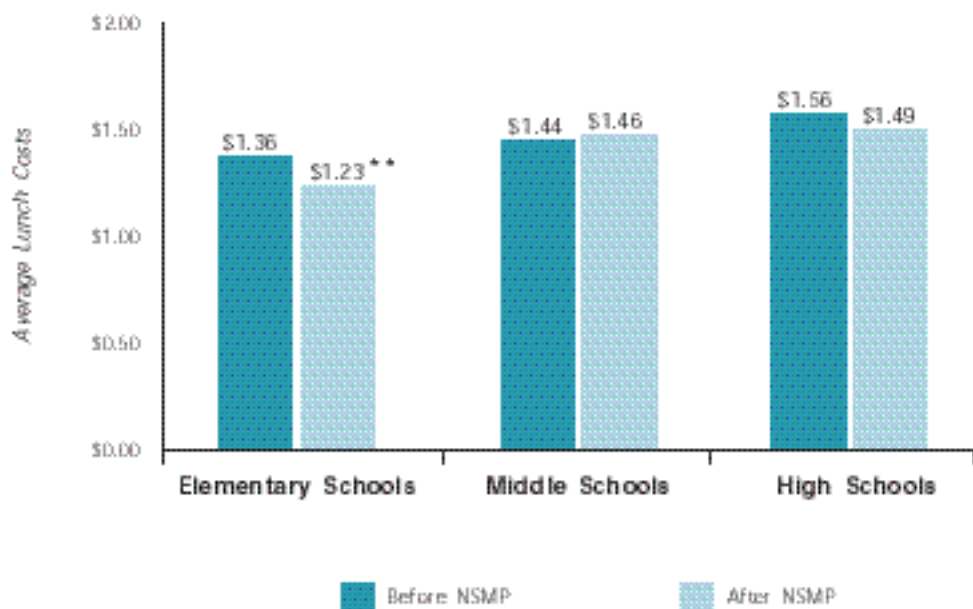
## Program Costs Before and After NSMP

**The cost of producing reimbursable meals under NSMP was comparable to or lower than the cost before NSMP (Exhibit 15).** Pre-NSMP and NSMP meal costs were similar for middle and high school lunches. NSMP costs were significantly lower than pre-NSMP costs for lunches in elementary schools (\$1.23 per lunch versus \$1.36, in 1997 dollars). While it is possible that NSMP contributed to this decrease (three SFA directors reported that costs declined after implementing NSMP), another possible explanation is an increase in the number of meals produced over time, with a stable labor pool and fixed other costs. (Although participation remained constant, enrollment — and the number of lunches produced — increased in most districts.) Average costs for NSMP breakfasts were comparable to pre-NSMP breakfasts.

**Annual a la carte revenues were comparable before and after NSMP .** Although average annual a la carte revenues increased about 1.5 percent per year, from \$42.75 per student before NSMP (1997 dollars) to \$44.74 per student after NSMP, this difference was not statistically significant.

**NSMP did not affect SFAs' utilization of donated commodities .** The average level of commodity assistance received after implementation of NSMP, expressed on a per-meal basis, was lower than the level of assistance received before NSMP (\$0.149 versus \$0.163, in 1997 dollars). This difference was not statistically significant and is attributable to both a decline in the entitlement over time and a

**Exhibit 15** On Average, the Cost of Producing a Reimbursable Lunch Under NSMP Was Comparable to or Lower than the Cost Before NSMP



\*\* Difference is statistically significant at the 7 percent level.

Source: Data from 16 fully implemented SFAs.

large disparity in the amount of bonus commodities available in the two school years. On a dollar-for-dollar basis, the availability of bonus commodities in SY 1993-94 (before NSMP) was more than three times as great as the availability in SY 1996-97.

**Although all SFAs entered the demonstration with computer capabilities, about half of the SFAs had to purchase computer hardware in order to implement NSMP.** The total cost of hardware purchases ranged from \$500 to \$6,500, with a median of \$2,867. The most common purchase was a computer with increased processing power. Other purchases included computer work stations, needed in order to provide staff working on NSMP with more immediate access to computer hardware.

**Eight SFAs had to purchase software.** SFAs that did not have to purchase software either owned nutrient analysis software prior to the demonstration or received a complimentary copy because they were participating in the demonstration. Costs for software purchases ranged from \$475 to \$4,600, with a median of \$555. The \$4,600 expenditure was incurred for a nutrient analysis module of a multi-faceted software package for food service program management.

**Seven SFAs had to purchase other goods or services in order to implement NSMP.** The most common purchase was gram scales needed for accurate measurement of ingredients and portions. The largest equipment purchase reported by an SFA was \$53,750 for 35 milk coolers needed to store an expanded array of fruit juices offered in NSMP lunches.

**Total costs for hardware, software, and other goods and services ranged from zero to more than \$56,000, with a median of \$210.** Excluding the site with the milk cooler purchase, the maximum cost for NSMP-related purchases was \$11,100. Among SFAs that had at least one hardware, software, or other NSMP-related purchase, the minimum cost was \$200 and the median cost was \$3,900.