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# Serving Healthy School Meals in California

## The tools needed to do the job

## Contents

The Kids' Safe and Healthful Foods Project is a collaboration between The Pew Charitable Trusts and the Robert Wood Johnson Foundation that provides nonpartisan analysis and evidence-based recommendations on policies that impact the safety and healthfulness of school foods. For more information, see HealthySchoolFoodsNow.org.


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# California's Regions

## The three regions of the state as delineated for this report

# Overview

Schools play a crucial role in influencing children's health, which in turn affects academic achievement. Adopting strategies that improve health, such as encouraging healthy eating throughout the school day, should be a priority for all schools. More than 3.2 million children in California participate in the National School Lunch Program each school day,[1] and students can consume up to half of their daily calories at school.[2] Unfortunately, many schools have not invested in the equipment and infrastructure of school kitchens and cafeterias, leaving them challenged in their efforts to serve healthy meals and meet children's dietary needs.

The U.S. Department of Agriculture updated national school meal standards in 2012 to ensure that school meals promote children's healthy development. These updates—the first in more than 15 years, based on current child nutrition science[3]—require schools to serve more fruits, vegetables, and whole grains while limiting saturated fat, sodium, and calories. Some states began updating nutrition standards even earlier; California, for example, began in the late 1990s.

To fully understand the school food service equipment, infrastructure, and training needs that exist today and how best to address them, The Pew Charitable Trusts and the Robert Wood Johnson Foundation, with support from The California Endowment, conducted the Kitchen Infrastructure and Training Study nationally and in California in the fall of 2012. The information presented in this report is based on that self-administered, online survey of California school food service directors or their designees (primarily food service managers) from a representative sample of the administrators of public school food authorities. The survey data give a clear picture of the kitchen upgrade and training needs statewide and within the northern, central, and southern regions.

The good news is that healthier meals are being served by the vast majority of school food authorities (SFAs) that administer the National School Lunch Program and the School Breakfast Program, despite the challenges they face. As of March 2014, USDA had certified 95 percent of California schools as meeting the updated standards.[4] Even so, schools continue to face hurdles to successful implementation, such as inadequacies of their existing kitchen equipment and infrastructure and limitations in the knowledge and skills of food service staff.[5]

Some infrastructure challenges have resulted from funding fluctuations. For many years following the creation of the National School Lunch Program in 1946, the federal government offered funding for school kitchen equipment, but those programs ended. Many states and districts did not prioritize these needs, and the difficulties of working with outdated equipment and infrastructure grew.

Nearly 30 years later, in 2009 and 2010, USDA used funds primarily from the American Recovery and Reinvestment Act to provide $125 million to SFAs nationally—$12.8 million of which went to California—for the purchase, renovation, and replacement of food service equipment. These dollars made a tremendous difference, paying for improvements such as salad bars, expanded breakfast programs, and more "scratch" cooking—meals made from fresh ingredients instead of processed foods. In 2013, USDA allocated $11 million and then $25 million in 2014, with a total of $4.5 million going to California schools. Yet the funding, while welcome, could not address all of the impediments faced by school districts nationwide or in California.

## Key findings

This report presents findings about the challenges California SFAs face in implementing the updated meal standards, specifically as they relate to equipment and infrastructure needs. Below are the key findings:

- **Finding 1:** While nearly all California school districts (95 percent) meet the updated nutrition standards, the vast majority (93 percent) reported needing at least one piece of kitchen equipment to help them better procure, store, prepare, and serve these healthy meals. Ninety-five percent of SFAs in the northern and central regions and 91 percent in the southern region reported needing at least one piece of equipment.
- **Finding 2:** Only one-quarter (25 percent) have an equipment replacement and upgrade plan. This number varies by region, with districts in the southern region being more likely to have a plan (39 percent) and northern districts less likely (14 percent).
- **Finding 3:** The majority of districts (70 percent) need infrastructure changes at one or more schools to successfully serve healthy lunches. The most commonly reported infrastructure upgrade in every region of the state was the need for more physical space.*
- **Finding 4:** Most school districts (68 percent) in California reported needing additional training for school nutrition staff to fully implement the updated nutrition requirements.

## Recommendations

Additional funds are needed to assist California's school districts in upgrading their kitchen equipment and infrastructure to serve healthy meals that students will enjoy. In light of these findings, the project recommends the following:

- **Recommendation 1:** Federal, state, and local governments should prioritize funding to help schools upgrade kitchen equipment and infrastructure.
- **Recommendation 2:** Nonprofit and for-profit organizations interested in improving children's health, education, school infrastructure, and community wellness should consider assisting schools in assessing the need for and feasibility of enhancing infrastructure and acquiring the necessary equipment.
- **Recommendation 3:** Students' nutritional needs should be considered in the master plans developed by district leadership that guide capital improvements. School officials and local policymakers should work collaboratively with school food service directors, parents, and community members to identify and implement strategies that meet kitchen equipment, infrastructure, and training needs.

The ability to provide healthy, high-quality food depends upon the knowledge and skills of the food service operators and the food service facilities available. This report focuses on the major challenges in California school kitchens and cafeterias, and what is needed—improved equipment and infrastructure, and enhanced personnel training—to serve healthy, appealing meals.

* Given the relatively high proportion of SFAs that did not answer the questions regarding their infrastructure needs, this percentage may be an underestimate.

# Background

The National School Lunch Program operates in nearly all public schools and 94 percent of public and private schools combined.[6] The main goal of the school lunch and breakfast programs is to promote the health and well-being of children by ensuring that they have access to nutritious meals that support normal growth and development. Schools that participate in the programs must make nutritionally adequate meals available to all students and provide free or reduced-price meals to children from low-income families. During the 2012-13 school year, California schools used this program to serve more than 4.5 million meals each day, or more than 559 million lunches for the school year.[7]

The health and nutrition of children is a priority in the state, and California voters overwhelmingly support programs and initiatives to improve child health. In fact, a 2014 poll shows 59 percent of voters cited unhealthy eating or a lack of physical activity as the top two health risks for children. Nearly all Californians (93 percent) support the idea of making clean, fresh drinking water freely available with school meals. And the vast majority of voters support marketing of healthy foods such as fruits and vegetables and making these foods more affordable than less-healthy products.[8]

California began making strides in improving the nutritional quality of foods and beverages sold in schools well before updated national standards were put in place. In 1997, the California Education Code declared that meals served to school-age children were to be of the highest quality and greatest nutritional value possible.[9] In 2006, the state passed landmark legislation that allowed only certain healthy foods and beverages to be sold on school campuses,[10] and followed up in 2007 by prohibiting schools from serving foods that contained trans fat.[11] In addition to school meal policies, state legislation set nutrition standards for snack food and beverages sold outside the meal programs, such as snacks sold in vending machines and canteens.[12]

At the federal level, USDA establishes policies and regulations governing the school meal programs and provides funding to states based on meals served and adherence to policies and regulations. State child nutrition agencies and local SFAs administer the programs and ensure that meals meet minimum nutrition standards. In California, school meal programs are implemented by public school districts, county offices of education, charter schools, camps, private schools, nonpublic schools, and residential child care institutions. In December 2010, the federal Healthy Hunger-Free Kids Act reauthorized the school breakfast and lunch programs with a focus on improving access to healthy foods in schools and promoting healthy eating and physical activity. The act also provided funds to allow USDA to increase the reimbursement rate for school meals served at lunch and provided USDA with expanded authority to update nutrition standards for all foods sold on campuses during the school day. School food authorities that comply with updated meal requirements now receive an additional 6 cents per lunch—the first increase in funding in more than 30 years.* USDA also created professional standards for school food service directors, expanded training opportunities for school food service staff, and strengthened school wellness policies.

In January 2011, USDA proposed updated nutrition standards for school meals that would require schools to offer more fruits, vegetables, and whole grains. For the first time, the nutrient standards include maximum caloric and sodium levels and seek to eliminate trans fats.

* Reimbursement rates for the school lunch and breakfast programs are adjusted annually to reflect changes in the consumer price index (Food Away From Home Series for All Urban Consumers). (Source: Federal Register, "National School Lunch, Special Milk, and School Breakfast Programs, National Average Payments/Maximum Reimbursement Rates," U.S. Department of Agriculture 77 [142] [July 24, 2012], http://www.fns.usda.gov/sites/default/files/NAPs12-13.pdf.)

The final rule establishing the updated meal requirements* went into effect July 1, 2012.[13] These requirements marked the first major changes to the federal nutrition standards for school meals in more than 15 years. Schools were required to implement the new requirements for lunches beginning in school year 2012-13 and for the school breakfast program in SY 2013-14. The early efforts of school food authorities in California to improve the nutritional quality of school foods positioned the state to quickly meet the updated federal guidelines: The majority (95 percent) of California districts had qualified for the additional reimbursement rate by March 2014,[14] exceeding the national rate of 89 percent.

To efficiently and effectively prepare and serve meals that also meet nutrition standards, schools need proper kitchen equipment and infrastructure. For example, schools need ovens to bake rather than fry foods; refrigerators to safely store fresh fruits, vegetables, and low-fat dairy products; counter space to prepare foods; and proper infrastructure such as electrical capacity, plumbing, and overall physical space. Fresh meals prepared on site usually require more space and equipment to prepare and serve than meals that are received frozen and heated in a microwave.

California has about 10,000 public elementary and secondary schools serving more than 6 million children. The public education system of the nation's most populous state requires an immense number of employees and inventory of infrastructure to function. However, due to competing funding priorities, the proper training of school nutrition staff or the infrastructure needs of school cafeterias and kitchens may not be uppermost on a district's priority spending list.[15] Setting nutrition standards is a start, but schools need the proper kitchen equipment and infrastructure to facilitate the safe preparation and service of high-quality, healthy meals that appeal to an often discerning student body.

* The final rule, "Nutrition Standards in the National School Lunch and School Breakfast Programs," included new meal patterns and updated nutrient standards for lunches and breakfasts. (Source: Federal Register, 7 C.F.R. Parts 210 and 220, "Nutrition Standards in the National School Lunch and School Breakfast Programs: Final Rule," U.S. Department of Agriculture 77 [17], Jan. 26, 2012.)

## About our survey

The Kitchen Infrastructure, Training, and Equipment in Schools study, or KITS, collected data from a national sample of 3,459 public SFAs from August to December 2012. SFA directors or their designees completed an online survey about the equipment, infrastructure changes, and training necessary for their schools to successfully implement the updated meal standards for school lunches (hereafter referred to as lunch requirements). The survey was developed collaboratively by the Kids' Safe and Healthful Foods Project and Mathematica Policy Research with input from child nutrition and school food service experts nationwide.

This report presents data for a random sample of SFAs throughout California and compares the findings with data for other state SFAs. Of the SFAs that were selected to participate, 238 completed the survey: 80 in the northern region (a 65 percent response rate); 84 in the central region (a 64 percent response rate); and 74 in the southern region (a 60 percent response rate). The data for each region are weighted to represent all public SFAs there, and data for California are weighted to represent all public SFAs in the state. (See Appendix B for information on the study methodology.)

## Meeting updated national lunch requirements

As schools work to implement the updated USDA standards, the menu changes require revisions to other food service functions, including purchasing, receiving, and storing food, and preparing and serving meals. Each function has individual needs for labor, equipment, physical space, and infrastructure upgrades. The additional 6 cents per lunch provided to schools under the Healthy Hunger-Free Kids Act may help cover additional food costs. However, the immediate challenges faced by some school food authorities involved more than increased food costs.*

* In California, any equipment purchase greater than $5,000 per unit must be approved as a capital expenditure by the Department of Education. Purchases less than $5,000 per unit do not need to be approved if they only benefit the operations and maintenance of the food-service program. Infrastructure upgrades may or may not use cafeteria funds, but this is determined on a case-by-case basis. For questions regarding the use of funds, email the California Department of Education at snpcafefundquestions@cde.ca.gov.

Table 1

### A Snapshot of California School Districts

Across the country, school districts' equipment and infrastructure needs vary, based on factors such as a district's size, number of schools, and community type

| School district characteristics | Northern | Central | Southern | California |
|---|---|---|---|---|
| **Student Enrollment* (median per SFA)** | **936** | **1,980** | **7,729** | **1,875** |
| **Number of public schools* (median per SFA)** | 3 | 4 | 9 | 5 |
| **Location of Most Schools†** | | | | |
| **Urban/suburban** | 45% | 32% | 81% | 51% |
| **Rural** | 52% | 68% | 19% | 48% |
| **Students Approved for Free/Reduced-Price Lunch* (mean per SFA)** | **52%** | **65%** | **57%** | **59%** |
| **Food service management company used** | 18% | 9% | 22% | 16% |

Note:

* Data from 2010-2011 SFA Verification Summary Report, Form FNS 742.

† Questionnaire item had nonresponse rates between 1 and 3 percent.

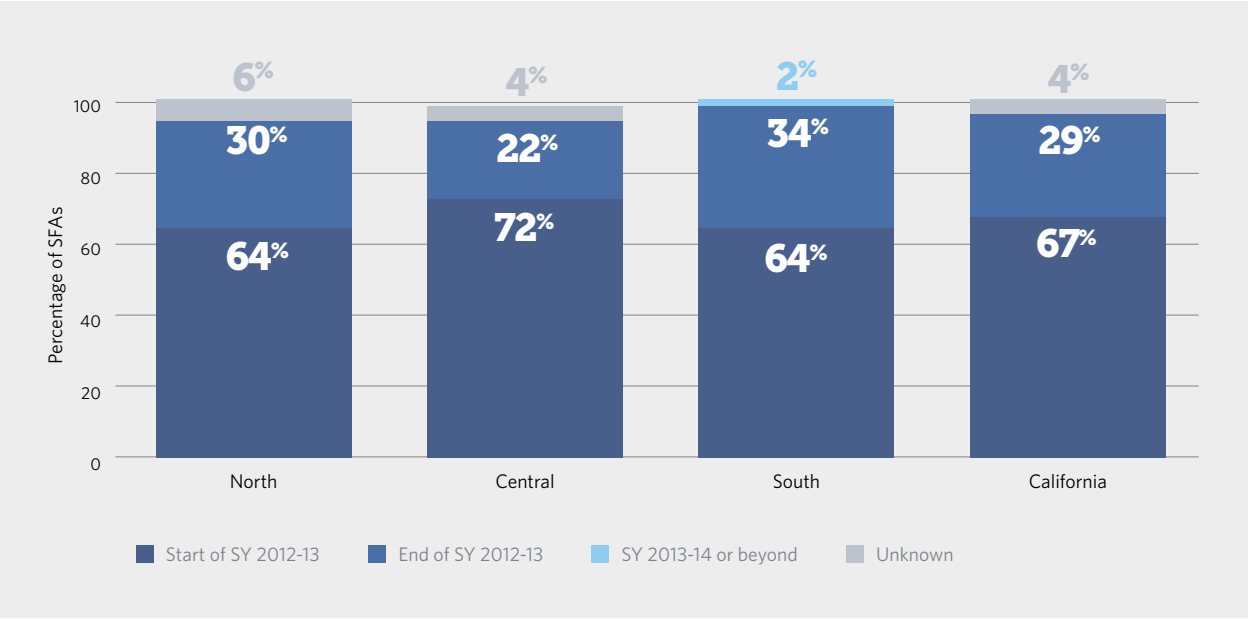
Source:

## California schools were ready

Nearly all SFAs in California (96 percent) expected to meet the updated national lunch requirements by the end of SY 2012-13 when the new requirements went into effect. (See Figure 1.) Two-thirds (67 percent) expected to meet the requirements at the start of that school year, and nearly one-third (29 percent) expected to meet the standards by the end. Only 4 percent said they did not know when they would be able to meet the requirements. Little regional difference existed in SFAs' readiness to meet the standards, with 94 percent of SFAs in the northern and central regions and 98 percent of SFAs in the south expecting to meet the standards at the end of SY 2012-13. As of March 2014, 95 percent of California's SFAs were certified as meeting the national standards—similar to their expectations at the beginning of implementation.

Figure 1

### SFA Readiness to Meet the Updated Lunch Requirements




Note:

Differences between each region and SFAs in the two other regions combined are not statistically significant. Questionnaire items had a nonresponse rate of 2 percent in the central region.

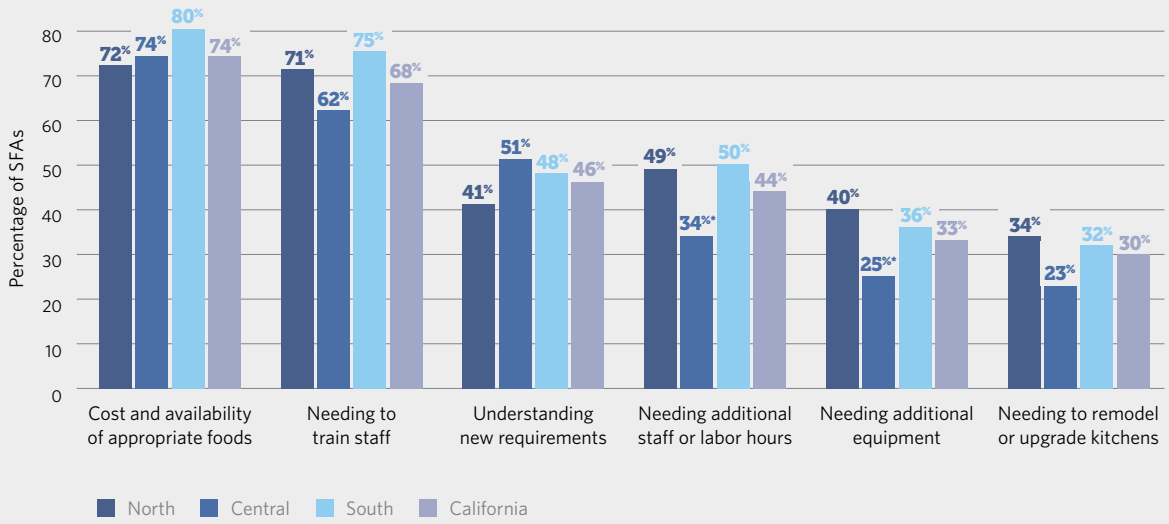
Source: Kitchen Infrastructure and Training for Schools Survey, 2012

## Challenges to implementation

Although most SFAs in California (96 percent) believed they would be able to meet the updated national requirements for school lunches during the initial school year, many faced challenges similar to those reported across the country. Nationally, 91 percent of SFAs faced one or more barriers to reaching full implementation by the start of SY 2012-13.[16] The two most frequently reported challenges, nationally and in California, were the cost and availability of healthy foods and the need to train staff: 74 percent of California SFAs reported challenges with purchasing appropriate foods, and 68 percent reported training needs. (See Figure 2.) Additionally, almost half identified additional staff or labor hours and an incomplete understanding of the new meal requirements as barriers (44 and 46 percent, respectively). Other challenges to California SFAs included additional equipment requirements (33 percent) and kitchens in need of remodeling or upgrading (30 percent). Compared with other SFAs in the state, significantly smaller proportions of SFAs in the central region reported the need for additional staff or labor hours and the need for additional equipment.

Figure 2

### Percentage of SFAs Reporting Barriers to Fully Implementing the Updated Federal Lunch Requirements




Note:

Questionnaire items had nonresponse rates between 2 and 12 percent for the northern region; between 2 and 9 percent for the central region; and between 6 and 12 percent for the southern region.

* Significantly different from SFAs in the other two regions combined ($p < .05$).

Source: Kitchen Infrastructure and Training for Schools Survey, 2012

> We have been serving fresh fruits and vegetables to our children since 2005. Kids will eat fresh fruits and vegetables when provided access on a daily basis. You can modify eating behaviors and teach our children to be lifelong healthy eaters. That's our responsibility and our moral obligation."
>
> **Rodney K. Taylor,** *director of nutrition services, Riverside (California) Unified School District*

## Overcoming challenges: Work-arounds

SFAs reported that they are "making do" and finding solutions for the challenges they face by implementing less-efficient work-arounds. Many school food authorities with inadequate equipment have found processes such as:

- Manually chopping and slicing fruits and vegetables because slicers and sectionizers—machines used to quickly slice large quantities of these foods—were unavailable.
- Storing fruits and vegetables in offsite locations and transporting them daily to school kitchens and cafeterias.
- Keeping fruits and vegetables in temporary storage containers, such as milk crates and small coolers.
- Increasing the frequency of delivery of fruits and vegetables to get around insufficient storage capacity.
- Preparing lunches in shifts because of inadequate space for food preparation and/or meal service.*

These techniques, while inventive, are often unsatisfactory and costly. More than one-third of respondents nationally found the accommodations to be expensive and/or inefficient (37 and 35 percent, respectively), and 11 percent reported that they were unsustainable.[17] Of those SFAs that gave "other" reasons their work-arounds were inadequate cited a lack of space as the main concern—for food storage, food preparation and service, and equipment such as walk-in refrigerators and freezers. Multiple respondents also said they lacked the space to expand kitchens. Providing proper equipment could lead to time and cost savings while also providing more healthy and appealing options to students.

* Questions asking for examples of work-arounds and reasons they were inadequate for meeting the lunch requirements were added to the survey approximately one-quarter of the way through the field period. Because of the late addition and because some respondents did not answer the questions, only 47 percent (weighted) of the SFAs that reported making do with a work-around provided this information.

## Equipment needs and costs

The survey asked SFA respondents to characterize the adequacy of their existing food service equipment for making the five main changes defined in the updated lunch requirements:

- Including more fruit and vegetable items on daily menus.
- Offering a greater variety of fruits and vegetables in both type and form (e.g., whole or sliced, fresh or canned).
- Providing different portion sizes for each grade group, which USDA defines as K-5, 6-8, and 9-12.
- Meeting new calorie ranges and limits for saturated fat, trans fat, and sodium.
- Ensuring that at least half of the grains offered are rich in whole grains.

For each change, respondents were asked to think about the adequacy of their existing equipment for four food service functions that would be necessary to put the changes into place:

- Receiving and storage.
- Food preparation.
- Holding and transportation.
- Meal service.

Survey response options were:

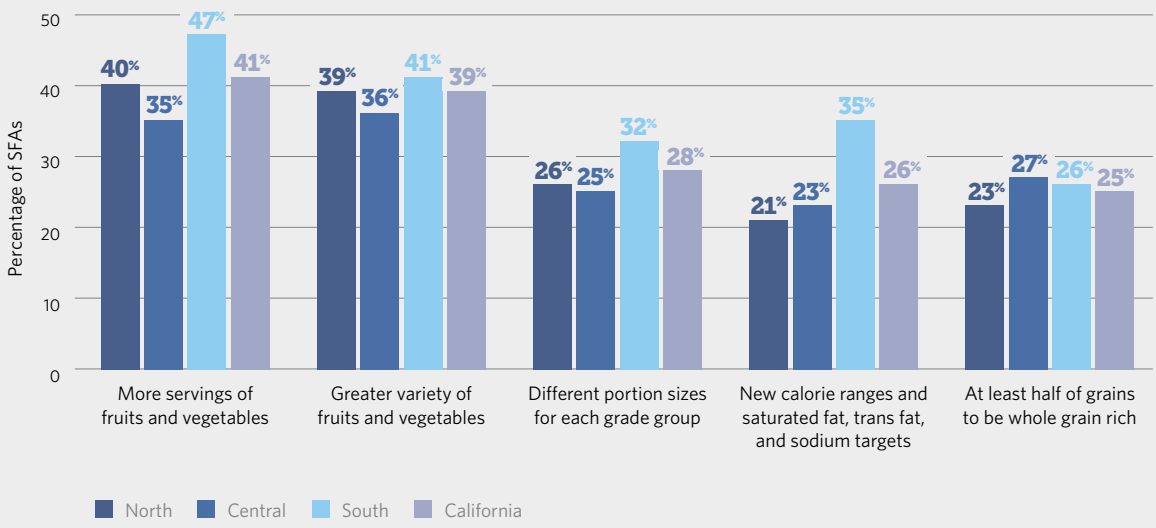
- Adequate, either as is or using a work-around.
- Inadequate, but making do with a work-around.
- Inadequate and no work-around.
- Adequacy of existing equipment for meeting lunch requirements.

SFAs in all three California regions reported that including more servings and a greater variety of fruits and vegetables on daily menus posed the greatest equipment difficulties. Specifically, the northern and southern regions cited inadequate equipment for receiving and storing fruits and vegetables, while the central region had the biggest problem with equipment for holding and transporting fruits and vegetables.

SFAs with central production facilities in all three regions cited as their greatest challenge the lack of adequate equipment for providing more servings and greater variety of fruits and vegetables in their schools. For those with central production facilities in the south, this also was a barrier to ensuring that at least half of grains served are rich in whole grains.

Figure 3

## Percentage of SFAs Reporting that Equipment Is Inadequate to Meet the Updated Lunch Requirements




### Note:

Includes SFAs "making do" with a work-around and those with no work-around. Questionnaire items had nonresponse rates between 7 and 17 percent for the northern region; between 1 and 11 percent for the central region; and between 3 and 12 percent for the southern region.

Source: Kitchen Infrastructure and Training for Schools Survey, 2012



## Estimated costs of needed equipment

To estimate costs associated with equipment needs, respondents were presented with a list of 49 items and asked to choose those they would need to replace or add for their districts to meet the new requirements for school lunches.* The list ranged from less-expensive supplies such as meal trays and serving utensils to larger units such as ovens and walk-in refrigerators. (See Appendix D.) An outside food service equipment consultant estimated the costs for purchasing, transporting, and installing the equipment and accessory parts, which were then independently reviewed by external industry consultants. (See Appendix B.)

### Estimated equipment costs: Overall and by kitchen type

Nationally, the vast majority (88 percent) of respondents reported needing at least one piece of kitchen equipment.[18] Statewide, 93 percent of SFAs reported needing at least one piece of equipment. That figure breaks down as 95 percent for the northern and central regions and 91 percent for the southern region.

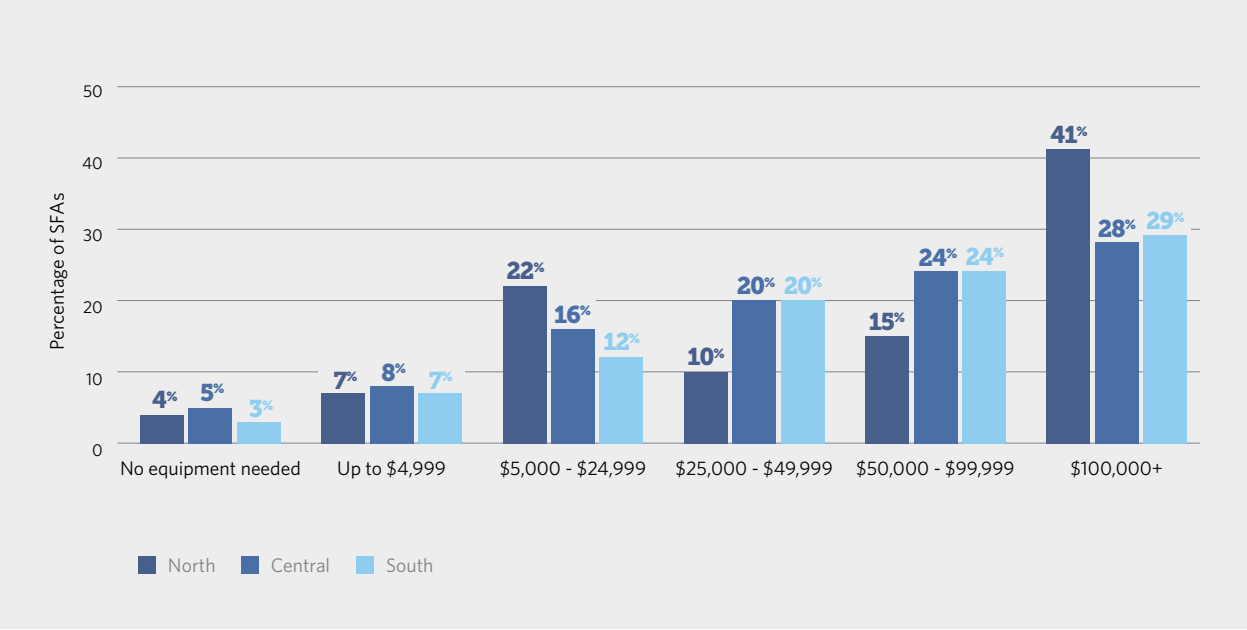
* The survey question asked respondents to "Please think only about what you really need, as opposed to what would be nice to have" and to provide their "best estimate" of the number of pieces needed. Per-unit cost estimates were not disclosed in the survey.

The statewide total to meet all the equipment needs was an estimated $620 million. Approximately 31 percent of these costs come from equipment needed in central production facilities. Regionally, southern SFAs needed approximately $300 million in food service equipment, while those in the northern and central regions needed approximately $161 million and $138 million, respectively. Of those dollars, central production facilities made up 33 percent of the costs in the southern region, 24 percent in the central, and 22 percent in the north.

Estimated equipment costs varied widely. Some districts reported that they did not need new equipment: 3, 4, and 5 percent of SFAs in the southern, northern, and central regions, respectively. Some reported needing less than $5,000 worth of equipment per school—the threshold necessary to qualify as a capital expense—including 7 percent of SFAs in the northern and southern regions and 8 percent in the central region. Others needed more than $100,000 worth of equipment per school: 41 percent in the northern region, 29 percent in the southern region, and 28 percent in the central region.

Figure 4

## In All Regions, SFAs Reported Needing more than $100,000 in Equipment per School




Note:

Costs are based on the type and number of pieces of equipment needed and representative prices for the average SFA.

Source: Kitchen Infrastructure and Training for Schools Survey, 2012



The median estimated cost of equipment needed was $64,000 per school in the northern region, $57,000 per school in the southern region, and $55,000 per school in the central region. Because of factors including the type, number, size, and age of kitchens, equipment costs for individual SFAs ranged from zero to $780,000 per school in the central region, zero to $446,000 per school in the southern region, and zero to $553,000 per school in the northern region.

At the district level, equipment costs also varied considerably, from zero to approximately $18 million in the south, $10 million in the north, and $5 million in the central regions of the state.

## Types of equipment needed to meet the updated lunch requirements

The equipment list for school kitchens included 49 items, while that for central production kitchens and commissaries consisted of 27 items. Unit costs for school kitchens ranged from $5 for a student meal tray to $52,417 for a conveyor/wrapper system. Unit costs for central kitchens and commissaries ranged from $318 for a dry storage shelving unit to $297,094 for an industrial-size steam-jacketed kettle capable of cooking and chilling 5,000 meals per day. The questionnaire did not include these amounts; SFAs picked their equipment needs without the context of cost. (See Appendix D for the questionnaire and Appendix E for equipment descriptions.)

Among the most commonly reported items needed (including full-service, production, and finishing or satellite* kitchens) were the following:

- **Northern region:** utility carts (56 percent), sets of knives and cutting boards (52 percent), serving portion utensils (51 percent), walk-in refrigerators (50 percent), and dry storage shelving units (50 percent).
- **Central region:** utility carts (64 percent), mobile milk coolers (50 percent), slicers (45 percent), hot holding cabinets (43 percent), and hot and/or cold transport containers or carts (43 percent).
- **Southern region:** walk-in refrigerators (63 percent),† utility carts (61 percent), walk-in freezer (57 percent), serving portion utensils (53 percent), and reach-in refrigerators (53 percent).
- **Total for SFAs statewide:** utility carts (60 percent), walk-in refrigerators (51 percent), walk-in freezers (48 percent), knives and cutting boards (46 percent), and serving portion utensils (46 percent).

* Meals are received from central facilities, production kitchens, or commercial vendors and may be heated or portioned before serving.

† Significantly different from SFAs in the other two regions combined ($p < 0.05$).

## How the Right Equipment Helps Schools

The most-needed pieces of equipment throughout California ranged from less-expensive items such as knives, cutting boards, and serving utensils to costlier items like walk-in refrigerators and freezers. While costs varied widely among districts, ensuring that schools have the right food service equipment can help them better prepare and serve nutritious foods and beverages. For example:

- Utility carts efficiently and safely transport food from cold storage to preparation to serving lines and back to storage.
- Refrigerators maximize the shelf life, palatability, and safety of fresh produce and dairy foods. Walk-in refrigerators and freezers provide more storage space than reach-in models.
- Serving-portion utensils determine appropriate portion sizes quickly and efficiently, thereby preventing students from being either under- or overserved.
- The right knives and cutting boards reduce preparation time and improve safety for food service staff.

## Top pieces of equipment needed in central production facilities

Twenty-three SFAs in the northern region, 22 in the central region, and 30 SFAs in the southern region have central kitchens or commissaries. Among the most commonly reported pieces of equipment needed by these SFAs were the following:

- **Northern region:** hot holding mobile carts (55 percent), stainless steel work tables (54 percent), dry storage shelving units (49 percent), rolling sheet pan and steam table racks (49 percent), and fruit and vegetable prep sinks (49 percent).
- **Central region:** conveyor/wrapper system (51 percent), hot holding mobile carts (48 percent), refrigerated trucks (42 percent), forklifts and pallet jackets (35 percent), and walk-in refrigerators (24 percent).
- **Southern region:** walk-in freezers (64 percent), fruit and vegetable prep sinks (61 percent), walk-in refrigerators (61 percent), walk-in coolers (56 percent), and automatic can openers (54 percent).
- **Total for SFAs statewide:** fruit and vegetable prep sinks (48 percent), walk-in refrigerators (48 percent), walk-in freezers (46 percent), stainless steel work tables (44 percent), and hot holding mobile carts (44 percent).

### KITS Workshop

In addition to the Kitchen Infrastructure, Training, and Equipment in Schools survey, the Kids' Safe and Healthful Foods Project convened food service directors, school administrators, industry representatives, nonprofit organizations, foundations, and financiers in July 2013 to discuss how schools could meet and exceed the updated nutrition standards and find resources to update kitchens and cafeterias to improve efficiency and effectiveness. The group developed strategic approaches to finance equipment and infrastructure upgrades, including innovative partnerships, sponsorship, low-interest loans, and revenue generated outside of the school meal setting. These ideas, many of which have been demonstrated by schools across the country, are detailed in "Serving Healthy School Meals: Financing Strategies for School Food Service," which is available at www.pewtrusts.org/kitchen-equipment.

## Equipment replacement and upgrade plans

Compared with SFAs in the rest of the state, a significantly higher proportion in the southern region reported that their school nutrition programs have equipment replacement and upgrade plans (39 percent for the region vs. 25 percent statewide). A significantly smaller proportion of SFAs in the northern region (14 percent) and the central region (26 percent) reported the same.

## A Win-Win Solution for the Oakland Unified School District

Recognizing the importance of student health to academic achievement, leaders from the Oakland Unified School District (OUSD) set goals to improve the nutrition, quality, and reputation of its school meal programs, in part by preparing more food from scratch and increasing the amount of fresh produce served.

During the 2010-11 school year, OUSD partnered with the Center for Ecoliteracy—a nonprofit located in Berkeley that seeks to advance ecological education in schools—to conduct a comprehensive review of its nutrition services program and to assess ways to achieve its vision. District leaders had particular concerns about their aging schools, many of which were built during the 1920s, decades before the National School Lunch Program existed.

The study found that the condition of OUSD's kitchen equipment and infrastructure posed significant obstacles to serving healthier school meals, especially the goal of cooking at least 60 percent of food from scratch. Most of the equipment in the district's cooking kitchens was old and nonfunctional, and inadequate plumbing and electrical capacity presented further barriers at many facilities. In some schools, for example, meals were served in multi-purpose rooms that lacked plumbing, which made food service operations difficult.*

Researchers examined potential solutions to the shortcomings, including construction of a new, environmentally friendly central commissary; upgrades to existing kitchens; and the creation of "School-Community Kitchens" that would be available to the public when schools were not in session. The study found that the district would benefit economically from the enhanced food quality and nutrition made possible by these investments. More fresh and cooked-from-scratch items would lead to cost savings, and improved food quality would boost participation in school meal programs and, therefore, increase food service revenue from USDA reimbursements.

Based on these findings, OUSD explored financing options to build a central commissary as well as repair and upgrade existing school kitchen facilities.† Leaders in OUSD pursued a bond measure, which passed in 2012 with support from 85 percent of the electorate. Because of this initiative, efforts to modernize and improve school food service for both students and staff are becoming a reality.

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* Center for Ecoliteracy, "Rethinking School Lunch: Oakland Unified School District, Executive Summary," (2011), http://www.ecoliteracy.org/sites/default/files/uploads/shared_files/RSL_Oakland_Feasibility_Summary.pdf.

† Oakland Unified School District, "Measure J Renovation Projects," (accessed May 2, 2014), http://www.ousd.k12.ca.us/glenviewreconstruction.

## Infrastructure needs

SFAs may need more than equipment upgrades and replacements to implement the updated meal requirements for school lunches most efficiently. In some cases, acquiring equipment such as refrigerators and freezers will also require infrastructure changes at schools and central kitchens.*

The survey asked SFAs about their need for six types of infrastructure changes:

- Increased physical space for storage, preparation, and serving.
- Additional electrical capacity, such as greater amperages, heavier voltage, and additional outlets.
- Natural gas improvements, such as increased pressure or location of pipes.
- Additional plumbing, such as new water supply or location of sinks and drains.
- Ventilation, such as exhaust hoods or fire suppression systems.
- Remodeling to bring facilities up to local health department code.

The following sections present results for school kitchens and central production facilities separately.

The most common infrastructure change across the board was the need for more physical space for storage, preparation, and serving: 643 school kitchens in the north, 532 school kitchens in central California, and 1,503 school kitchens in the south. However, because a relatively high proportion of respondents did not answer questions regarding their infrastructure needs, these percentages may be underestimates.

* Funding for infrastructure needs may come from the district rather than from cafeteria funds. For questions regarding the use of funds, email the California Department of Education at snpcafefundquestions@cde.ca.gov.

Table 2

## Infrastructure Changes Needed in School Kitchens to Meet the Updated Lunch Requirements

| | Number of school kitchens, by region | | | Percentage of SFAs, by region | | | Percentage of SFAs in California |
|---|---|---|---|---|---|---|---|
| | Northern | Central | Southern | Northern | Central | Southern | |
| **More physical space for storage, preparation, or serving** | 643 | 532 | 1,503 | 61 | 49 | 66 | 59 |
| **More electrical capacity** | 304 | 387 | 1,279 | 31 | 40 | 51 | 40 |
| **Plumbing changes** | 301 | 253 | 990 | 29 | 34 | 42 | 36 |
| **More ventilation and fire suppression** | 199 | 206 | 816 | 24 | 23 | 35 | 28 |
| **Remodeling to meet local health codes** | 229 | 257 | 841 | 30 | 34 | 38 | 34 |
| **Greater natural gas access or pressure** | 129 | 130 | 525 | 10 | 12 | 19 | 14 |

Note:

Differences between each region and SFAs in the two other regions combined are not statistically significant. Questionnaire items had nonresponse rates between 9 and 25 percent for the northern region, 6 to 10 percent for the central region, and 9 to 14 percent for the southern region.

Source: Kitchen Infrastructure and Training for Schools Survey, 2012



### Infrastructure changes needed in central production facilities

Among the 23 SFAs in the northern region with central kitchens or commissaries, 64 percent needed more physical space, 44 percent needed more plumbing, and 37 percent needed more ventilation.

In the central region, 22 SFAs had central kitchens or commissaries. About one-quarter (23 percent) needed more physical space, and 20 percent needed remodeling to bring their facilities up to local health department codes.

Thirty SFAs in the southern region had central kitchens or commissaries. Of these, 41 percent needed more physical space, 38 percent needed more electrical capacity, and 30 percent needed more ventilation.

Across all 75 SFAs in California with central kitchens or commissaries, 43 percent needed more physical space and one-quarter needed infrastructure changes, including more plumbing (29 percent), more ventilation (27 percent), additional electrical capacity (26 percent), and remodeling to bring the facility up to local health department code (25 percent).

## Training needs

Food service staff must be trained as part of the state's efforts to implement the updated lunch requirements and operate school nutrition programs successfully. As noted previously, 68 percent of SFAs in California reported the need for additional staff training to fully implement the requirements, with 71 percent, 62 percent, and 75 percent in the northern, central, and southern regions, respectively.

The leading training needs for SFA directors and food service management teams were similar across the three regions. (See Table 3.) However, fewer SFAs in the central region identified the need for training on preparing the applications and paperwork required under USDA's Coordinated Review Effort (CRE).* Those in the southern region had the greatest need among the regions for training to revise food purchasing specifications.

High among the training needs for managers, cooks, and frontline servers involved education on how to comply with nutrient requirements, complete production records, and cooking at a basic level. A significantly higher percentage of SFAs in the central region identified training to modify and/or standardize recipes as a need for their kitchen and cafeteria managers.

* The CRE is a comprehensive on-site evaluation of school nutrition programs participating in the National School Lunch Program and the School Breakfast Program. State agencies must review all SFAs at least once every five years. In SY 2013-14, the CRE was replaced by Administrative Reviews, which follow a three-year cycle.

Table 3

# Top Training Needs for SFA Directors and Food Service Management Teams

| | Percentage of SFAs, by region | | | Percentage of SFAs in California |
|---|---|---|---|---|
| | Northern | Central | Southern | |
| **Completing applications/paperwork for additional reimbursement and CRE reviews** | 69 | 56* | 76 | 66 |
| **Developing or modifying menus** | 60 | 60 | 71 | 63 |
| **Understanding compliance with meal pattern and nutrient requirements** | 64 | 54 | 70 | 63 |
| **Marketing and promoting the new meal requirements** | 62 | 58 | 69 | 61 |
| **Revising food purchasing specifications** | 44 | 57 | 70* | 56 |
| **Modifying and/or standardizing recipes** | 56 | 47 | 63 | 56 |

Note:

* Significantly different from SFAs in the other two regions combined ($p < .05$).

Source: Kitchen Infrastructure and Training for Schools Survey, 2012

Table 4

# Top Training Needs for Kitchen and Cafeteria Managers

| | Percentage of SFAs, by region | | | Percentage of SFAs in California |
|---|---|---|---|---|
| | Northern | Central | Southern | |
| **Understanding compliance with nutrient requirements** | 55 | 73 | 66 | 64 |
| **Completing production records** | 51 | 64 | 59 | 56 |
| **Developing or modifying menus** | 45 | 56 | 49 | 50 |
| **Modifying and/or standardizing recipes** | 43 | 62* | 42 | 49 |
| **Basic cooking skills** | 34 | 58 | 54 | 47 |
| **Basic nutrition training** | 38 | 49 | 52 | 45 |
| **Basic food safety training** | 36 | 45 | 50 | 42 |

Note:

* Significantly different from SFAs in the other two regions combined ($p < .05$).

Source: Kitchen Infrastructure and Training for Schools Survey, 2012

Table 5

## Top Training Needs for Cooks and Frontline Servers

| | Percentage of SFAs, by region | | | Percentage of SFAs in California |
|---|---|---|---|---|
| | Northern | Central | Southern | |
| **Understanding compliance with nutrient requirements** | 59 | 51 | 62 | 57 |
| **Basic cooking skills** | 44* | 66 | 63 | 56 |
| **Basic food safety training** | 40* | 56 | 61 | 51 |
| **Basic nutrition training** | 48 | 46 | 60 | 50 |
| **Completing production records** | 42 | 35 | 50 | 42 |
| **Using or operating new equipment** | 33 | 39 | 36 | 35 |

Note:

* Significantly different from SFAs in the other two regions combined ($p < .05$).

Source: Kitchen Infrastructure and Training for Schools Survey, 2012

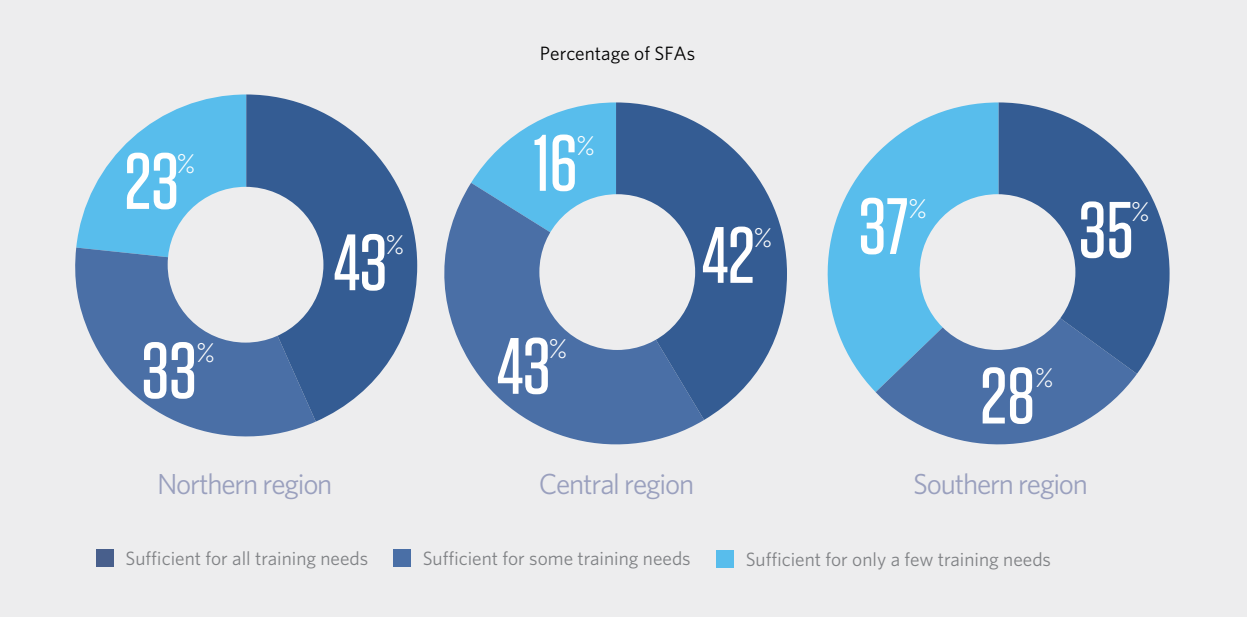


## Training budget

In California, 35 percent of SFAs reported having budgets for staff development and training. Regionally, 22 percent of SFAs in the northern region reported having these budgets, compared with 48 percent in the central and 41 percent in the southern. Statewide, 17 percent of respondents did not know whether their programs had training budgets, with regional totals at 22 percent in the northern region, 20 percent in the central, and 10 percent in the southern. Among those that reported having staff development and training budgets, 65 percent in the southern region reported that the budgets were not sufficient to meet all of their needs, while 59 and 56 percent of SFAs in the central and northern regions, respectively, reported the same, bringing the combined statewide figure to 59 percent.

Figure 5

# Adequacy of Staff Development and Training Budget




Note:

No SFAs reported that their budget was not sufficient for any of their training needs.

Source: Kitchen Infrastructure and Training for Schools Survey, 2012

## Summary of key findings

This report investigated the challenges California SFAs face in implementing updated meal standards, specifically as they relate to equipment and infrastructure needs.

**Finding 1:** While nearly all California school districts (95 percent) have met the updated nutrition standards, the vast majority (93 percent) reported needing at least one piece of kitchen equipment to help them more efficiently procure, store, prepare, and serve healthy meals that meet the current national lunch standards. Ninety-five percent of SFAs in the northern and central regions and 91 percent in the southern region reported needing at least one piece of equipment.

- The top equipment needs in California overall include utility carts, knives and cutting boards, serving utensils, and walk-in refrigerators and freezers. Regionally, other needs include:
    - Dry storage shelving units in the northern region.
    - Mobile milk coolers, slicers, hot holding cabinets, and hot and/or cold transport containers or carts in the central region.
    - Reach-in refrigerators in the southern region.

**Finding 2:** Only one-quarter (25 percent) have an equipment replacement and upgrade plan. This number varies by region, with districts in the south more likely to have a plan (39 percent) and those in the north less likely (14 percent).

- The median estimated cost of equipment is $64,000 per school in the northern region, $57,000 per school in the southern region, and $55,000 per school in the central region. Because of the specific characteristics of the kitchens—type, number, size, and age—equipment costs for individual SFAs ranged from zero to $780,000 per school in the central region, zero to $446,000 per school in the southern region, and zero to $553,000 per school in the northern region.

**Finding 3:** The majority of districts (70 percent)* need infrastructure changes at one or more schools to successfully serve healthy lunches. The most commonly reported upgrade needed in every region of the state was for more physical space.

- In some cases, new equipment such as refrigerators and freezers will require infrastructure changes, such as additional space or electrical capacity.

**Finding 4:** Most school districts (68 percent) in California reported needing additional staff training to be able to fully implement the updated nutrition requirements.

- Top training needs include:
    - Completing applications/paperwork for additional reimbursement and USDA Coordinated Review Effort evaluations and developing or modifying menus for SFA directors and food service management teams.
    - Understanding compliance regulations and completing production records for kitchen and cafeteria managers.
    - Understanding compliance with nutrition standards for school meals and basic cooking skills for cooks and frontline servers.

* Given the relatively high proportion of those surveyed who did not answer the questions regarding their infrastructure needs, this percentage may be an underestimate.

# Recommendations

In light of the report findings and a series of specific suggestions discussed in the Kitchen Infrastructure, Training, and Equipment in Schools Workshop, the project recommendations are as follows:

**Recommendation 1:** Federal, state, and local governments should prioritize funding to help schools upgrade kitchen equipment and infrastructure.

- Decades of reduced budgets and lack of supplemental funding sources have left 9 out of 10 schools (93 percent) in California needing at least one piece of kitchen equipment to deliver quality meals to students. Policymakers should make school nutrition a high priority area when developing budgets.

**Recommendation 2:** Nonprofit and for-profit organizations interested in improving children's health, education, school infrastructure, and community wellness should consider assisting schools in assessing the need for and feasibility of enhancing infrastructure and acquiring the necessary equipment.

- While needs vary from school to school, the five most needed pieces of equipment are utility carts, serving utensils, knives and cutting boards, and walk-in refrigerators and freezers. Focusing on these items or helping schools address a common concern such as refrigeration for fruits and vegetables could have a tremendous effect on the school nutrition environment.

**Recommendation 3:** Students' nutritional needs should be considered in the master plans developed by district leadership that guide capital improvements. School officials and local policymakers should work collaboratively with school food service directors, parents, and community members to identify and implement strategies that meet equipment, infrastructure, and training needs.

- A range of strategies, such as leveraging partnerships, cultivating sponsors, obtaining low-interest loans, and generating revenue for services outside of the school meal setting, were identified and highlighted in "Serving Healthy School Meals: Financing Strategies for School Food Service." These models, available at http://www.pewtrusts.org/kitchen-equipment, should serve as a guide to districts looking to tackle these challenges.

## Conclusion

While the vast majority of California school districts anticipated meeting the updated nutrition standards by the end of the 2012-13 school year, they faced many challenges, such as purchasing the appropriate foods, training staff, and having in place appropriate kitchen equipment and infrastructure. To meet these challenges, many SFAs have turned to work-arounds to achieve their goals. But such accommodations are inefficient and unsustainable. Schools need cost-effective solutions that will allow them to provide safe and healthy foods that children will eat. Additional resources for staff training, equipment, and cafeteria upgrades are essential to meeting this goal.

The health and nutrition of children is a priority in California, where there is a strong history of programs and initiatives to improve child health, including in the school environment. Besides their homes, children spend more time in school than anywhere else, making these institutions an important and appropriate venue for providing nutritious foods and teaching healthy eating habits. In the case of California schools, they serve more than 4.5 million meals on an average school day, but most school food authorities in the state reported that their budgets are inadequate to meet equipment upgrade and training needs. Even though the districts are finding creative ways to meet nutrition standards, more investment is needed. California and its school districts must work collaboratively with each other and local communities to prioritize and address these needs for the sake of healthy schoolchildren throughout the state.

# Appendix A: Characteristics of school food authorities

To provide context for the study findings, Table A.1 presents data on key characteristics of public SFAs, including student enrollment and community type.

Table A.1

## Characteristics of School Food Authorities

| Characteristics of California's SFAs | Nation | California | North | Central | South |
|---|---|---|---|---|---|
| **Student Enrollment (median per SFA)** | **1,017** | **1,875** | **936** | **1,980** | **7,729** |
| **Number of public schools (median per SFA)** | 3 | 5 | 3 | 4 | 9 |
| **Location of Most Schools** | | | | | |
| **Urban/suburban** | 38% | 51% | 45% | 32% | 81% |
| **Rural** | 62% | 48% | 52% | 68% | 19% |
| **Free/reduced eligibility (mean per SFA)** | **49%** | **59%** | **52%** | **65%** | **57%** |
| **Food service management company used** | 17% | 16% | 18% | 9% | 22% |

Note:

Weighted data are representative of all SFAs offering the National School Lunch Program.

Source: School Food Authority Verification Summary Report (Form FNS-742). 2010-2011.



## Production systems used by public SFAs

SFAs may use one type of meal production system or a combination of systems to meet the needs of all of their schools. The KITS survey asked about four main types of production systems (or kitchen types), defined as follows:

- **Full-service kitchens**, which prepare and serve meals at the schools in which they are located.*
- **On-site production kitchens**, which prepare and serve meals at the schools where they are located but also send food or meals to other schools in the SFA.
- **Central production kitchens or commissaries**, which are typically stand-alone facilities that prepare food and ship it to multiple schools, either in bulk or as preportioned meals.

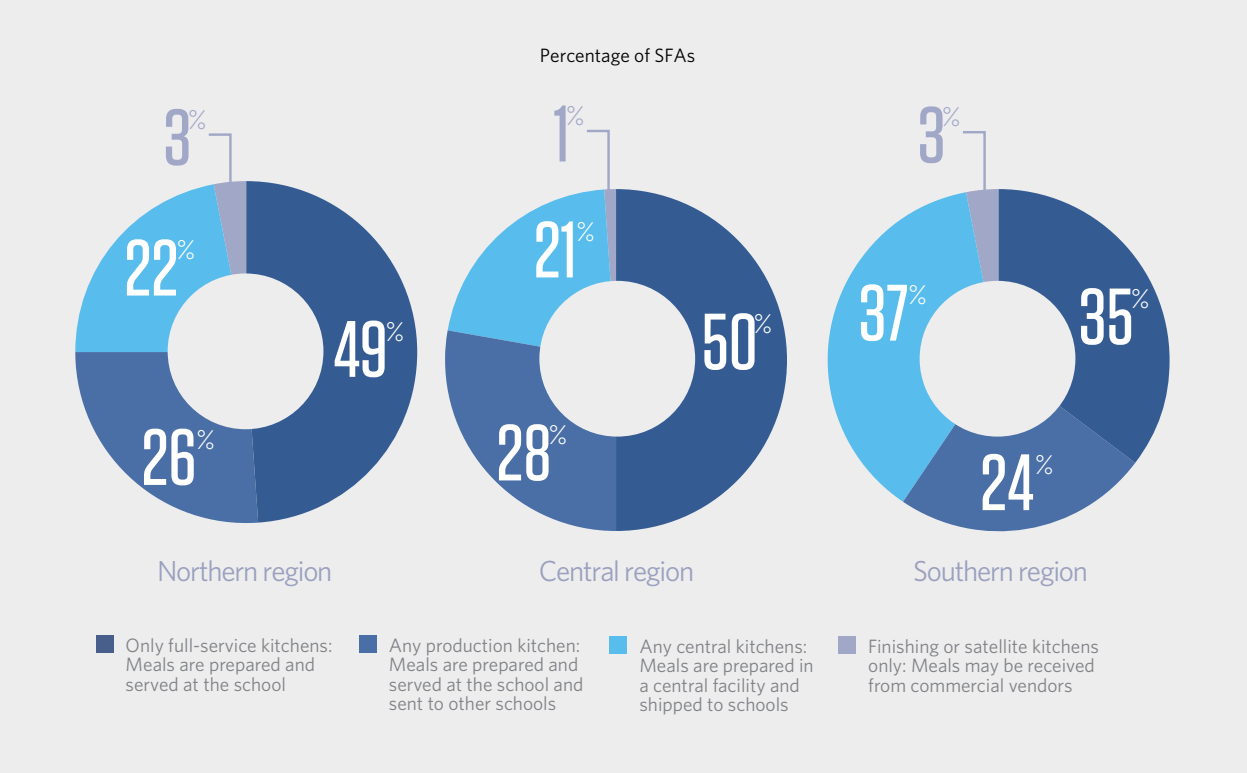
* These facilities include both kitchens that prepare food items from scratch and kitchens that mainly heat and serve food items they have purchased fully or partly prepared.

- **Finishing or satellite kitchens**, which receive food or meals from central production facilities, production kitchens, or commercial vendors. The food arrives ready to serve or requiring only minimal preparation.

See Figure A.1 to view the types of production systems used by SFAs by region in California. The type of meal production system used by an SFA or individual school has implications for its equipment, infrastructure, and staffing requirements. Differences between on-site school kitchens and central production facilities are the most notable. Therefore, respondents from SFAs with central kitchens or commissaries were asked to answer several survey questions separately for their central facilities, and these findings are discussed separately in the text.

Figure A.1

## Types of Production Systems Used by SFAs by Region in California




Note:

The data are weighted to be representative of all school food authorities offering the National School Lunch Program.

# Appendix B: Study design and methodology

This appendix describes the design and methodological processes involved in conducting the Kitchen Infrastructure and Training for Schools (KITS) study. Information is provided on questionnaire development and testing, sampling, data collection, response rates, weighting, and data analysis.

## Questionnaire development and pilot testing

The questionnaire was developed collaboratively by the study teams at Mathematica Policy Research and The Pew Charitable Trusts, with assistance from a consultant, Mary Jo Tuckwell, and input from an expert panel. (See Appendix D.)

## Expert panel input

Eight individuals with expertise in child nutrition and school food service served on the expert panel. The panel helped identify the key issues to be measured and determine critical survey questions, and provided feedback on the draft questionnaire. The panel members who received honoraria for their participation were:

- **Kate Adamick**, chef and co-founder of Cook for America®.
- **Pamela Lambert**, nutrition services director for the Oceanside Unified School District in California.
- **Robert Lewis, Ph.D.**, director of nutrition services for the El Monte City School District in California.
- **Steven W. Marshall**, president of Marshall Associates Inc.
- **Jean Ronnei**, chief operations officer for the St. Paul, Minnesota, public schools.
- **Keith Rushing**, Ph.D., research scientist for the National Food Service Management Institute at the University of Mississippi.
- **Margie Seidel**, vice president of nutrition and sustainability at Chartwells Schools Dining Services.
- **Donna West**, child nutrition manager at Brownwood Elementary School in Scottsboro, Alabama.

In early April 2012, the expert panel met via webinar with Mathematica project staff and representatives from Pew and the Robert Wood Johnson Foundation. The panel discussed the proposed framework for the study, the main topics to be covered in the survey, and potential groupings of questions. At this point, project staff and Tuckwell drafted the questionnaire. After the draft was completed, panel members reviewed the questionnaire and participated in another webinar in early May 2012 to provide additional feedback. The resulting survey covered four main topic areas, each focused on SFAs' perceptions of their needs relative to meeting the new meal requirements for school lunches: (1) readiness and perceived barriers to full implementation, (2) adequacy of existing kitchen equipment and need for new equipment, (3) needed changes or upgrades in kitchen infrastructure, and (4) staff training needs.

## Pilot testing

The draft questionnaire underwent two rounds of pilot testing. For the first round of testing, five respondents (including a kitchen manager, a retired SFA director, two active SFA directors, and an area supervisor) completed a paper copy of the draft questionnaire. Respondents generally provided positive feedback on the questionnaire design and topics covered. However, because the administration times were longer than anticipated, the survey was revised and shortened. The second draft of the questionnaire was then pilot-tested by three SFA directors and this version averaged 20 minutes to complete. Pew approved the final version of the survey in early June 2012.

The KITS survey was designed to be self-administered and completed online. Programming for the web-based questionnaire began in June, and internal testing was completed in early August 2012. The questionnaire was finalized and released online by mid-August 2012.

## Overview of study design

The KITS study was designed to provide national estimates as well as estimates at the state level and, for California, the regional level (presented in this report). This design allowed the study to develop and disseminate profiles at the national, state, and regional levels, including northern, central, and southern California. To produce reliable estimates from the survey data at all three of these levels, we drew a sufficiently large initial sample of SFAs and met target completion rates within each state and region. Because not all SFAs selected to participate were eligible for the study or completed a survey, we applied sampling weights so that the study findings would be representative of SFAs across the nation and within states and California regions.

To accomplish the goals of the KITS sample design, maximize response rates, and increase the likelihood of meeting sample size requirements for reliable estimates, a stratified random sampling approach was employed, target completion rates for each state were set, the initial sample was augmented, and the data collection period was extended by two weeks. These strategies are summarized below and discussed in further detail in the sample design, response rates, and weighting sections that follow.

Overall, the sampling frame was all public SFAs in the 50 states and the District of Columbia participating in the National School Lunch Program (NSLP) in school year (SY) 2010-11. In this report, the sampling frame was all public SFAs in California participating in NSLP in SY 2010-11. To select the sample, we first divided the SFAs within each state and California region into one to four strata based on size (number of schools). Mathematica statisticians then determined the target number of completed questionnaires required in each state and California region to obtain the desired precision level for survey estimates.* To avoid releasing a larger initial sample than might be needed, the number of SFAs selected across the size strata for each state and California region was based on a completion rate of 75 percent. After tracking the response rates in each state over several months of data collection, an additional sample of SFAs was selected based on the number of completed surveys needed in states where the targets had not yet been met.

The final KITS national sample was defined as the 3,372 eligible SFAs that completed questionnaires as of Nov. 20, 2012. While this sample was more than adequate for national estimates, we opted to keep the field period open longer because a few states had not met their sample size requirements. By Dec. 7, 2012, all states had reached the targeted number of completions needed for the state and California regional analyses. The final weighted response rate for the national sample was 54.3 percent.† Additional details on the state and California region sample sizes and response rates are provided in Tables B.1 and B.2 and Figure B.2.

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* It was not necessary to establish a separate target completion rate for the national sample, because the sum of the state-level targets was larger than that needed to provide precise national estimates.

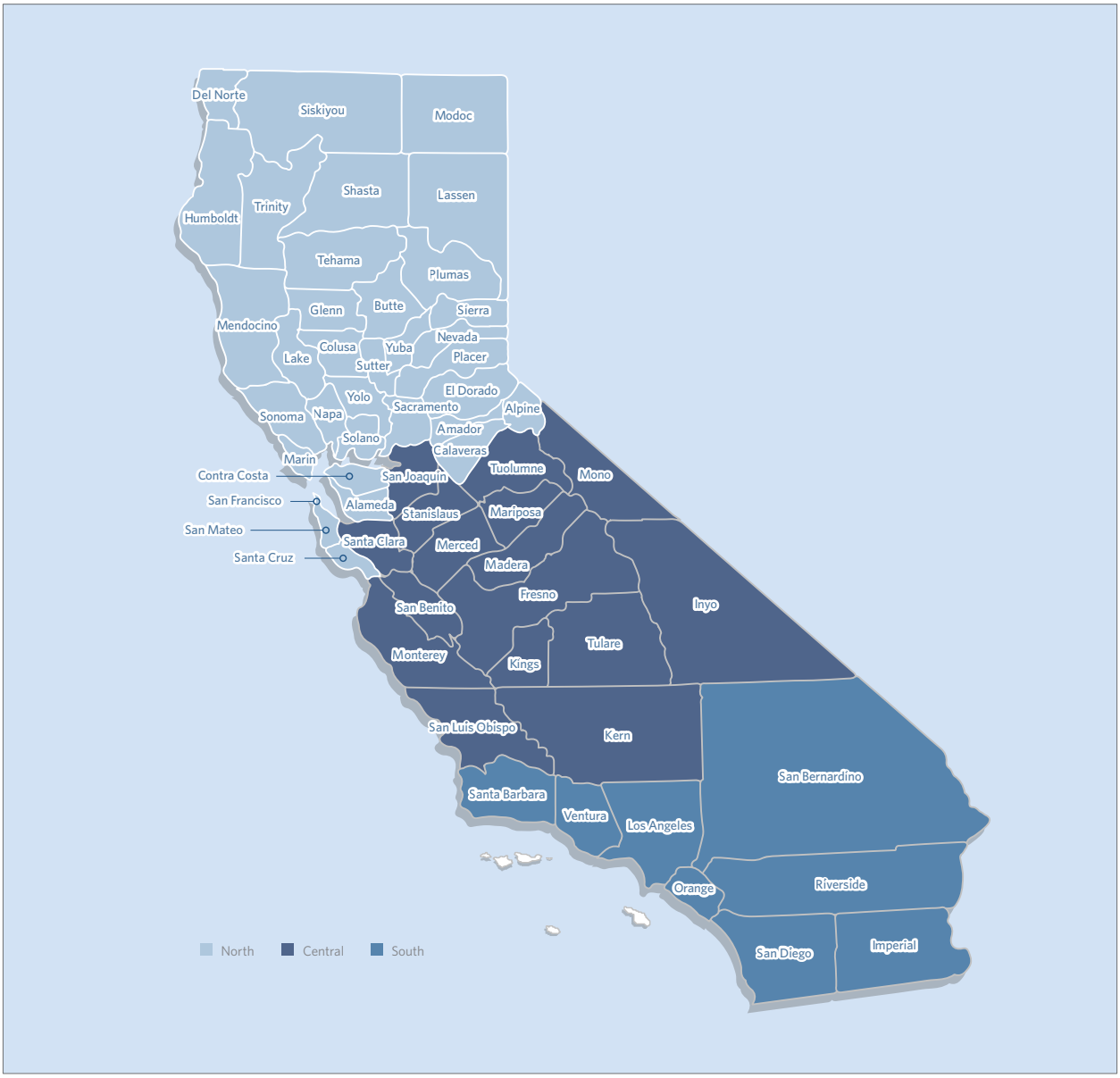
† Unweighted response rates measure the proportion of the sample that resulted in usable information for analysis and are useful in gauging the results of the interviewing effort. Weighted response rates are used to estimate a survey's sample coverage (the proportion of the population covered by the responding sample).

## Study design: California

This report presents data for SFAs in California and compares the findings among three regions. A random sample of California SFAs was selected to participate, and 238 completed the survey—80 SFAs in the northern region (65 percent response rate); 84 SFAs in the central region (64 percent response rate); and 74 SFAs in the southern region (60 percent response rate). The data for each region are weighted to represent all public SFAs in the region, and data for California are weighted to represent all public SFAs in the state.

Figure B.1

### California's Regions



Mathematica's statisticians computed sampling weights to make the samples of SFAs that responded to the survey more representative of the target populations: all public SFAs, SFAs in each state, and SFAs in each California region. Applying weights to the data helps to reduce the potential bias that sometimes occurs when subgroups of SFAs (such as SFAs of different sizes) are over- or undersampled relative to their actual population proportion, or when sample members do not respond to the survey. An analysis was conducted to determine whether characteristics of SFAs associated with nonresponse were also related to survey responses, and we adjusted the weights accordingly. The final weights used for analysis accounted for unequal selection probabilities, the two rounds of sample release, and potential nonresponse bias.

## Sample design

KITS was designed to be representative of public SFAs at the national, state, and California regional levels. The target population for the KITS study included public SFAs in all 50 states and the District of Columbia. The sampling frame was a file of all public SFAs participating in the National School Lunch Program derived from the school year 2010-11 School Food Authority Verification Summary Report (Form FNS-742).

## Stratification

The KITS study employed a stratified random sampling approach. We selected SFAs with equal probability within strata (or levels) that we defined based on geography and size. The first level of stratification was the state. Regional strata were also defined in California to help ensure an adequate sample for reporting regional estimates. Within the geographic strata, a second level of stratification was formed based on the number of schools in each SFA, which we refer to as the measure of size (MOS).* In California, the SFAs in the sampling frame were grouped into four sampling regions: central, north, south, and residual. The residual stratum included the SFAs whose region was not identified at the time of sample selection.†

Within a state or California region, we defined up to four strata, including (1) first-level certainty *(1-cert)*, (2) second-level certainty *(2-cert)*,‡ and either (3) large and small,§ or (4) noncertainty *(noncert)*. The noncert stratum combined SFAs that would have fallen into the large and small stratum except that the number of SFAs allocated to the large and small stratum would have been less than nine. Overall, 161 sampling strata were formed nationwide.

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* In most instances, we used the number of schools provided in the FNS-742 file as the MOS. However, we found that some of the data were not reasonable. For example, for some SFAs, the number of students per school was 1. Therefore, we either obtained an MOS from the National Center for Education Statistics 2009-10 Common Core of Data, or imputed the MOS, for 51 SFAs where the number of students per school was considered too small (fewer than 11) and for 63 SFAs where the ratio of students per school was considered too large (greater than 1,600).

† The region information was obtained during the data collection period for SFAs in the residual stratum, and for analysis, these SFAs were grouped with SFAs in the other three California regions.

‡ The first-level certainty stratum included SFAs with an MOS large enough that, if we were using probability proportional to size (PPS) sampling, would be certain to be sampled given a sample size and release based on the most optimistic assumptions about response rates. The second-level certainty stratum included those that would be selected with certainty using PPS sampling if all reserve sample was released.

§ The large and small stratum was defined based on the MOS. The definition varied from state to state.

## Sample allocation and selection

To allocate the sample across the states, the study team first determined the target number of completed questionnaires—the number needed in each state to obtain a 10 percent margin of error at the 95 percent confidence level for estimates presented in the reports.* The state-specific targets were based on a reasonable assumption of the design effects. The *total sample size* to be selected for a state or California region was calculated by dividing the target number of completes by a conservative completion rate (50 percent). This state-level or California region sample size was allocated to strata in that state/region such that all SFAs in the 1-cert and 2-cert strata were included, and the remaining sample was allocated to the other strata (large and small, noncert) in proportion to their share of the total MOS for the state or California region. Seven of the smaller states had only one stratum (1-cert); thus, all public SFAs in those states were included in the sample.

To ensure that the sampling process was as efficient as possible, the total sample size for each state and California region was adjusted using a less conservative completion rate. Thus, the initial sample sizes were calculated by dividing the target number of completes by a completion rate of 75 percent. Then, the state-level sample size was distributed across each stratum within that state such that: SFAs in the 1-cert stratum were all released, and the remaining sample size was allocated in proportion to the initial sample sizes of other strata. Using this approach, the total size of the initial sample release (release 1) across all states was set at 4,635 SFAs. SFAs were randomly sampled from the total sample to be part of this first release for obtaining contact information and data collection. Those SFAs were flagged as "main" sample, while the SFAs not sampled for the first release were flagged as the "alternate" sample.

About halfway through the data collection period, after tracking response rates in each state, we released additional sample in states at risk of not meeting (or coming close to) their targets. Alternates were selected randomly within each stratum to meet the target number of completes in each state and California region.† A total of 1,364 additional SFAs from the alternate sample were included in the second sample release (release 2). The total sample size across all states and the two sample releases was 5,999 SFAs.

## Data collection

Several advance activities were conducted to notify FNS's regional offices about the study, engage state child nutrition (CN) directors, and gain access to SFA directors. In May 2012, project staff emailed regional office liaisons to introduce the study and request their support for gathering SFA directors' contact information from state CN directors. One week later, emails were sent to the state CN directors to introduce the study, request contact information for the sampled SFAs in their state, and ask that they inform these SFAs about the study and encourage them to participate.

Reminder emails were sent to nonresponding CN directors at the end of May 2012, and SFA contact information was received from all 50 states and the District of Columbia by August. Project staff reviewed and edited contact information as needed, and noted SFA closures, merges, and other anomalies to prepare a complete sample contact list to use for the initial mailing to SFAs. Twenty-one SFAs that had closed or merged were replaced with SFAs from the alternate sample.

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* Alternatively, this can be stated as a two-sided 95 percent confidence interval of plus or minus 10 percentage points.

† This was done by (1) assigning a random number to each alternate, uniformly between 0 and 1; (2) sorting the SFAs in each stratum by those random numbers, from smallest to largest; and (3) releasing SFAs in order starting from the one with the smallest number until we obtained the desired size of the release (number of SFAs) in that stratum.

Data for the KITS study were collected between August and December 2012 (total of 17 weeks). The initial survey materials were mailed to SFA directors (or another staff member who had primary responsibility for making decisions about the types of equipment and training needed to implement the new meal requirements). The mailing included a letter inviting the SFA director to participate in the study, a colorful flyer with the web address and instructions for accessing the online questionnaire, a study fact sheet, and an endorsement letter from the School Nutrition Association.

Both email and telephone reminders were used to encourage participation and maximize response rates. Up to eight email reminders, each containing a link to the online survey, were sent to nonrespondents on a weekly basis after the initial mailing. Potential respondents had been identified by CN directors using state databases that did not always have the most up-to-date contact information, therefore, telephone follow up was needed. Several rounds of follow-up calls were made to nonresponding SFAs by trained telephone interviewers, both to identify the most appropriate respondent and to obtain or verify email addresses.* Because the questionnaire was designed for self-administration, telephone interviewers first encouraged respondents to complete it online rather than offer to complete the survey over the telephone. However, if a respondent requested or if it appeared that telephone administration was necessary to ensure completion, telephone interviewers used this mode. A total of 133 questionnaires (4 percent of all responses) were completed over the telephone.

To keep to the schedule for the KITS national report, and because the sample size was more than adequate to produce national estimates, the final national sample was defined as the 3,372 eligible† SFAs that completed questionnaires as of Nov. 20, 2012. We extended the field period by about two weeks because a few states had not met their sample size targets. As state targets were met, email reminders were stopped and telephone interviewers ceased calls to SFAs in those states. By Dec. 7, 2012 all states had reached the targeted number of completes needed for state and California regional analysis. Questionnaires completed by an additional 87 SFAs between Nov. 21 and Dec. 7, 2012 were included in their respective state and California region samples.‡

## Response rates

Three sets of response rates (unweighted and weighted) were computed for the KITS study:

- Response rates for the national sample of 3,372 SFAs (data presented in this report)
- Response rates for each of the 50 states and the District of Columbia
- Response rates for the three California regions

To compute the response rates, we defined four terms: (a) the total number of sample SFAs released, (b) the number for which eligibility was determined, (c) the number found to be eligible to complete the survey, and (d) the number of eligible SFAs that completed the survey. By the end of the data collection period (Dec. 7, 2012), we had released a total of 5,999 SFAs. Among those SFAs, 3,923 had their eligibility status determined.§

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* Throughout the field period, we contacted approximately 1,000 potential respondents, sending survey materials electronically to both new SFA directors and respondents with corrected email addresses.

† A sampled SFA was eligible for the study if it (1) had a food service operation, (2) participated in the NSLP in SY 2012-13, (3) had at least one public school, and (4) was *not a stand-alone Pre-Kindergarten or Head Start program; a jail, prison or juvenile detention center; or merged with another SFA*.

‡ The additional two weeks of data collection yielded completed surveys from 1 to 13 SFA across 35 states; these cases would have had little effect on the national estimates if they were included in the national sample.

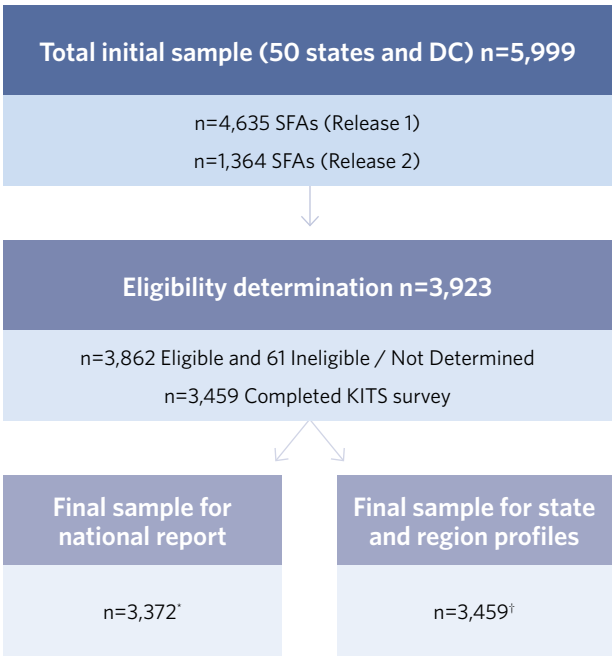
§ Eligibility was determined using information on "web completes," "telephone completes," "partial completes," "no schools in SFA," "no food service operation," "merged with another SFA," "refusal with eligibility known," and "other ineligibles."

Of the 3,923 SFAs for which we determined eligibility status, 3,862 were eligible for the study and a total of 3,459 completed the survey. For the national sample (as of Nov. 20, 2012), 3,372 of the 3,862 eligible SFAs completed the survey.

Figure B.2 summarizes sample selection, eligibility determination, and final samples available for the national, state, and California region reports.

Figure B.2

## KITS Sample Sizes for National Report and State and California Region Profiles (Unweighted)




Notes:

* Completed KITS survey by Nov. 20, 2012

† Completed KITS survey by Dec. 7, 2012.

Source: Kitchen Infrastructure and Training for Schools, 2012.



The *unweighted response rate* (for the nation or any state or California region) was defined as the product of the eligibility determination rate (b/a) and the completion rate (d/c):

$$\text{Unweighted Response Rate} = \text{Eligibility Determination Rate} \times \text{Completion Rate} = \frac{b}{a} \times \frac{d}{c}.$$

Please see previous national reports for more national information. The final unweighted response rates for each state and the California regions were computed and ranged from 42.5 to 83.0 percent (see Table B.1).

The *unweighted response rate* (for the nation or any state or California region) was defined as the product of the eligibility determination rate (b/a) and the completion rate (d/c):

Please see previous national reports for more national information. The final unweighted response rates for each state and the California regions were computed and ranged from 42.5 to 83.0 percent. See Table B.1. for unweighted California-specific response rates.

The weighted response rates were calculated by using the numbers of SFAs defined in (a), (b), (c), and (d) above and unadjusted sampling weights (the inverse of the probability of selection, as discussed in the next section).

The final weighted response rate for the national sample was 54.3 percent. The weighted response rates for the states and three California regions ranged from 36.9 to 83.0 percent. See Table B.2 for weighted California-specific response rates.

Table B.1

## Unweighted Sample Sizes and Response Rates in California by State and Region

| Region | Region (a) Released for contact | (b) Eligibility status determined | (c) Eligible | (d) Completed Survey | Eligibility determination rate (%) (EDR = b/a) | Completion rate (%) (CR = d/c) | Response rate (%) (EDR*CR) |
|---|---|---|---|---|---|---|---|
| California | 391 | 276 | 265 | 238 | 70.6 | 89.8 | 63.4 |
| **Central** | 135 | 97 | 92 | 84 | 71.9 | 91.3 | 65.6 |
| North | 132 | 94 | 92 | 80 | 71.2 | 87.0 | 61.9 |
| **South** | 124 | 85 | 81 | 74 | 68.5 | 91.4 | 62.6 |



The weighted response rates were calculated by using the numbers of SFAs defined in (a), (b), (c), and (d) above and unadjusted sampling weights (the inverse of the probability of selection, as discussed in the next section).

$$\text{Weighted Response Rate} = \frac{\text{Weighted } b}{\text{Weighted } a} \times \frac{\text{Weighted } d}{\text{Weighted } c} .$$

The final weighted response rate for the national sample was 54.3 percent. The weighted response rates for the states and three California regions ranged from 36.9 to 83.0 percent and are reported in Table B.2.

Table B.2

## Weighted Sample Size and Response Rates in California by State and Region

| Region | (a) Released for contact | (b) Eligibility status determined | (c) Eligible | (d) Completed Survey | Eligibility determination rate (%) (EDR = b/a) | Completion rate (%) (CR = d/c) | Response rate (%) (EDR*CR) |
|---|---|---|---|---|---|---|---|
| California | 1,005 | 682 | 652 | 603 | 67.9 | 92.5 | 62.8 |
| **Central** | 288 | 198 | 186 | 174 | 68.6 | 93.6 | 64.3 |
| North | 365 | 254 | 251 | 233 | 69.6 | 92.9 | 64.7 |
| **South** | 352 | 231 | 215 | 196 | 65.5 | 91.2 | 59.7 |



## Data cleaning and coding

Data were cleaned to check for out-of-range values, valid identification numbers, duplicate entries, and inconsistent responses within the questionnaire. For example, in answering the equipment questions some respondents said they needed a certain type of equipment but then typed "0" as the number of pieces needed. In this case, the cleaning rule resulted in recoding the "yes" response to a "no," assuming that the zero was correct and the respondent did not need that particular piece of equipment. Trained staff coded open-ended responses. Project staff reviewed coded responses for accuracy.

## Data analysis

Sampling weights were used to adjust all estimates for unequal selection probabilities and nonresponse associated with known characteristics of the SFAs. Thus, the data presented in other national reports can be generalized to all public SFAs. Likewise, the KITS data presented in this report for California and its three regions can be generalized to all public SFAs in the state and those regions, respectively.

Descriptive analyses of all data collected in the KITS survey were conducted. The focus was on the proportions of SFAs that reported their perceived their readiness for and barriers to meeting the new lunch requirements, need to replace or add new equipment or upgrade kitchen infrastructures, and the need to train staff. Analyses of the estimated costs of reported equipment needs included tabulations of total costs; the median, range, and distribution of costs per SFA; and the distribution and mean costs per school. Data on distributions of SFA characteristics from the sample frame were also tabulated.

## Subgroup analysis

Key findings were examined for statistically significant differences among subgroups of SFAs defined as follows:

- **SFA size.** SFAs were grouped into five categories based on data from the FNS-742 file on the number of enrolled students: very small (fewer than 1,000), small (1,000 to 2,499), medium (2,500 to 9,999), large (10,000 to 24,999), and very large (25,000 or more).
- **Community type.** Survey respondents were asked to characterize the location of "the majority of schools" in their SFAs as urban, suburban, or rural.
- **FNS region.** FNS administers the NSLP through seven regions across the United States: Northeast, Mid-Atlantic, Southeast, Midwest, Southwest, Mountain Plains, and Western region. SFAs were grouped accordingly.
- **Poverty level.** SFAs were categorized into three poverty level groups based on data from the FNS-742 on the percentage of enrolled students approved for free or reduced-price meals*: lower poverty (less than 40 percent approved for free/reduced-price meals), higher poverty (40 to 60 percent approved for free/reduced-price meals), and highest poverty (greater than 60 percent approved for free/reduced-price meals).

We used *t* tests to determine whether there were statistically significant differences in estimates within subgroups of SFAs. Each group of SFAs was compared to all other SFAs combined. For example, SFAs with the highest poverty levels were compared to lower and higher poverty SFAs combined. For this report, each region was compared to the other two regions combined. Differences were considered statistically significant at the $\alpha = .05$ level.

All statistical procedures were conducted using Stata Statistical Software (Release 12, StataCorp LP, College Station, TX, 2011). In estimating the standard errors of the estimates for subgroups, we accounted for the complex sample design (stratification), the use of sampling weights, and the finite population correction factor (fpc). We applied the fpc to account for the fact that a large proportion of the target population was sampled (to allow for representative estimates in individual states). Standard errors were computed by taking a weighted sum of the variances from each sampling stratum

* In the NSLP and School Breakfast Program (SBP), children from families with household incomes at or below 130 percent of the federal poverty threshold are eligible to receive free meals; those from households with incomes between 130 and 185 percent of the federal poverty level are eligible to receive meals at a reduced price.

## Estimating equipment costs

To estimate the costs associated with SFAs' reported equipment needs, we linked survey data on the types and amounts of equipment needed to estimated unit costs. Respondents were presented with lists of equipment (49 items for school kitchens and 27 items for central production kitchens) but the survey did not disclose estimated unit costs. The unit cost estimates were compiled by Foodservice Consultants Studio, Inc. using AutoQuotes, a proprietary database commonly used in the food service industry for pricing equipment and supplies.* Estimated unit costs were based on national averages. Estimates were derived by first discounting manufacturers' list prices by the standard dealer discount to generate a dealer net cost and then adding estimated costs for the following routine additional expenses: over-the-road freight, delivery, unpacking and installation, sales tax, and overhead and profit for a food service equipment dealer. After the original estimates were generated, unit costs were independently reviewed by external industry consultants.

Two types of missing data on SFAs' reported equipment needs were encountered: some respondents reported that they needed a specific type of equipment but did not report the number of pieces needed, and some respondents did not answer one or more questions about whether a specific piece of equipment was needed. In computing estimates of total equipment costs at the national, state, and California regional levels, we first used modeling to impute the value of an equipment need for SFAs that reported needing equipment but failed to quantify this need for one or more types of equipment. The modeling was done within state, by specific piece of equipment, using SFA size (number of schools and number of enrolled students) as the predictors. For the national sample, equipment costs were imputed in this way for one or more pieces of equipment needed by 990 SFAs (29 percent). Approximately two-thirds of these SFAs (64 percent) had equipment costs imputed for no more than three pieces of equipment.

In developing national- and state-level estimates of total equipment costs, we also used an estimation procedure to adjust for SFAs that failed to respond to one or more questions about whether a specific piece of equipment was needed, including 21 SFAs that did not answer any questions on equipment needs. In these cases, we estimated total costs for each piece of equipment based on the weighted mean costs among SFAs that responded to the question (including zero dollars for SFAs that reported that they did not need the specific piece of equipment) and then multiplied this mean by the estimated number of public SFAs in the national or state population.

For all other estimates of equipment costs, such as estimated total costs per SFA and mean costs per school, we treated missing responses on whether a specific piece of equipment is needed as a "no" (zero dollars). Thus, estimated equipment costs per SFA and per school should be considered slight underestimates of true costs. The 21 SFAs that did not answer any questions on equipment needs, three SFAs that reported needing only "other" equipment for which no unit cost was available, and one SFA determined to be an outlier were excluded from these estimates.

For all estimates of equipment costs presented in this report, zeros were included for 317 SFAs (12 percent) that answered at least one question about specific equipment needs but did not provide a "yes" response to any questions on specific pieces of equipment needed.

* Information about AutoQuotes is available at: http://www.aqnet.com/community.html. The database is used by food service consulting firms, equipment dealers, manufacturing firms, and equipment manufacturers' representatives throughout the United States and the world. AutoQuotes is updated in real time so it included the latest models and pricing of food service equipment as of Nov. 1, 2012.

# Appendix C: Strengths and limitations of the study

In drawing conclusions from the KITS study, both its strengths and limitations should be considered. The major strengths of this study lie in its large representative sample of SFAs, the techniques the study team employed to create a robust survey, and the timeliness of the findings. KITS was designed to be representative of public SFAs at both the national and state levels.* The state-level samples allowed the study to develop and disseminate individual state profiles. Efforts were made during data collection to ensure that the targeted number of SFA directors (or their designees) responded from all 50 states and the District of Columbia, including several regions in the state of California. Although the overall response rate for the national sample was 54 percent (57 percent unweighted), the sample was weighted to make it characteristic of the full population and to account for potential non-response bias associated with known characteristics of the SFAs. The weighted estimates presented in this report can thus be generalized to all public SFAs.† The sample was larger than needed to provide precise national estimates.

The KITS survey was developed with the assistance of a consultant who provided important substantive expertise. She is a former SFA director, was a member of the Institute of Medicine committee that developed recommendations for the updated meal patterns and nutrient standards, and consults with SFAs across the country on creating action plans to enhance the nutritional quality of school meals as well as meet operational goals. In addition, the study team assembled an eight-person panel with expertise in child nutrition and school food service to help define the essential equipment, infrastructure, and types of staff training that SFAs might need to meet the updated meal requirements and to frame the questions appropriately. Two versions of the questionnaire were pilot-tested with SFA directors to help ensure that the questions were clear and that the survey would not be overly burdensome to complete.

The relevance and timeliness of the findings are also major strengths of the KITS study. It provides policymakers, school food service operators, and other stakeholders with concrete feedback on SFAs' experiences implementing the updated meal requirements at the time initial changes were being made. Information about SFAs' needs for equipment, infrastructure, and training is directly relevant to current and future endeavors to identify additional funding for the SFAs and schools that most need it. Moreover, the study makes a unique contribution to our understanding of SFAs' needs as they implement the updated requirements so that USDA, Congress, and others can address them.

One limitation of the study is that findings related to equipment needs are based on respondents' perceptions and projected average costs, rather than a standardized needs assessment. The questionnaire asked respondents to review a list of equipment and to indicate the items needed as well as their "best estimates" of the number of pieces needed across all kitchens in their SFA. Some SFAs may have over- or underestimated their actual needs. In addition, because the equipment list did not include detailed specifications (such as size or capacity), and because costs vary due to factors such as state taxes, delivery costs, and discounts, professional judgment was used to determine representative costs. Although it is difficult to predict the direction of any resulting bias in the cost estimates, the estimates could be high if, despite instructions to the contrary, SFAs identified some equipment that "would be nice to have" but was not essential to meeting the updated meal requirements.

* The study also drew a special sample within the state of California to be able to report KITS findings for each of the three regions: central, north, and south.

† Assumes that the weights corrected for potential bias and the survey data provided unbiased estimates.

A second limitation relates to the timing of the data collection period. The survey was fielded shortly after the start of SY 2012-13, when the updated requirements for school lunches first went into effect. This was an extremely busy time for SFA directors and, to avoid the added burden of completing a survey, some directors might have delegated the survey to less-knowledgeable staff. This could explain, in part, the relatively large proportion of respondents who did not identify themselves as SFA directors (about 30 percent) and some of the "don't know" responses to questions about equipment and training budgets and missing data on infrastructure needs. At the same time, the subject matter of the KITS survey might have been perceived as particularly salient to SFA directors once they had begun to implement the updated requirements; the timing of the study could have led to a higher response rate than might have been realized if the survey had been fielded earlier.

Lastly, the data of this study is specific to California and cannot be generalized to other states as their capacity to incorporate updated nutrition standards may have been different because of state-level policies already in place.

Nearly all SFAs had started making changes to meet the updated meal requirements by the time they completed the survey. However, there was a great deal of variability on when SFAs started to make these changes. More than half of all SFAs (54 percent) began making changes prior to January 2012 when the final rule was published. Respondents from these SFAs may have been in a better position to assess their equipment, infrastructure, and training needs than those that made changes after the final rule was published or at the start of SY 2012-13. If the study is replicated at a later time, results may differ from those reported here because SFAs will be further along in implementing changes to meet the requirements.

# Appendix D: KITS questionnaire

## Mathematica Policy Research

### Kitchen Characteristics

1. Please indicate the number of schools (by level and total) served by your school nutrition program. Please use the same definitions for level of school as registered with the State Child Nutrition agency for the National School Lunch Program. Do not include any stand-alone Pre-Kindergarten or Head Start programs. Count each school in one category only.

| | Number of |
|---|---|
| **a. Elementary schools** | |
| **a. Middle or junior high schools** | |
| **a. High schools** | |
| **TOTAL NUMBER OF SCHOOLS SERVED BY YOUR SCHOOL NUTRITION PROGRAM** | |

2. Thinking about all the schools in your School Food Authority (SFA) or district, would you say the **majority** of your schools are ...

   *Select one only*

   1 ❍ Located in urban areas,
   2 ❍ Located in suburban areas, or
   3 ❍ Located in rural areas?

3. Which of the following best describes your food service management approach?

   *Select one only*

   1 ❍ A self-operated program, or
   2 ❍ A program contracted (all or part) to a food service management company

4. Please indicate the types of food production systems in use in your SFA/district and the number of each. (Your best estimate at the number is fine.) *Select one per row*

| Type of production systems used in your SFA/district | Present in SFA/ district | | Number of each within SFA/district |
|---|---|---|---|
| | Yes | No | |
| **a. Central production facility or commissary**<br>Meals are prepared in central facility (not a school) and shipped to schools, either pre-portioned or in bulk | 1 ❍ | 0 ❍ | |
| **b. On-site production kitchen**<br>Meals are prepared at a school and sent to other schools in the district as well as served at own school | 1 ❍ | 0 ❍ | |
| **c. Finishing or satellite kitchens**<br>Meals are prepared in a different location and sent to the school kitchen where meals are served. Meals may or may not need to be heated or portioned | 1 ❍ | 0 ❍ | |
| **d. Full-service kitchens**<br>Meals are prepared and served in the school kitchen. Do not include production kitchen(s) already counted in 4b | 1 ❍ | 0 ❍ | |

5. IF ANY FINISHING/SATELLITE KITCHENS: How many of your finishing or satellite kitchens are served by central production facilities/commissaries and how many by on-site production kitchens at other schools?

| | Number |
|---|---|
| **a. Number of finishing/satellite kitchens served by central production facilities/ commissaries** | |
| **b. Number of finishing/satellite kitchens served by on-site production kitchens at other schools** | |

## Menu Planning

6. Who planned your menus for the 2012-13 school year? *Select all that apply*

1 ❍ You
2 ❍ Someone else on your staff, such as a dietitian, kitchen manager, lead cook, or an area supervisor
3 ❍ Someone at the food service management company
4 ❍ An outside consultant
5 ❍ A food vendor
6 ❍ Other (PLEASE SPECIFY) _____

7. Have any of your schools participated in or been recognized by any of the following health and nutrition award programs? *Select one per row*

| | Yes | No |
|---|---|---|
| **a. Alliance for a Healthier Generation** | 1 ❍ | 0 ❍ |
| **b. Team Nutrition** | 1 ❍ | 0 ❍ |
| **c. Healthier US School Challenge (HUSSC) award winner** | 1 ❍ | 0 ❍ |
| **d. State-based nutrition or health promotion award program** | 1 ❍ | 0 ❍ |
| **e. School Nutrition Association's (SNA) District of Excellence** | 1 ❍ | 0 ❍ |
| **f. Other (PLEASE SPECIFY)** _____ | 1 ❍ | 0 ❍ |

## Planning for New Meal Requirements

As you are aware, new meal pattern and nutrient requirements go into effect starting in the 201213 school year. SFAs/districts certified as meeting the new meal requirements for lunches are eligible to receive an additional 6-cent meal reimbursement. Some people started planning for the changes a while ago, while others may just now be starting to think about what needs to be done to meet and implement the new requirements.

8. Which of the following best describes how close you feel your SFA/district is to being able to meet the new meal pattern and nutrient requirements **as specified for lunch** in the 2012-13 school year? *Select one only*

   1 ❍ We will be able to meet all or nearly all of the lunch requirements by the start of the 2012-13 school year

   2 ❍ We expect to be able to meet the lunch requirements by the end of the 2012-13 school year

   3 ❍ It will likely take us until the 2013-14 school year or beyond to meet the lunch requirements

   4 ❍ I am not sure when we'll be able to meet the lunch requirements

9. Which of the following best describes when you began making changes in preparation for implementing the new meal requirements for lunch? *Select one only*

   1 ❍ Started making changes prior to proposed regulations (before January 2011)

   2 ❍ Started making changes when regulations were first proposed (between January 2011 and January 2012)

   3 ❍ Started making changes after final regulations were published (after January 2012)

   4 ❍ Have not yet made changes

10. Which of the following do you consider to be barriers to being able to fully implement the new meal requirements for lunch by the start of the 2012-13 school year? *Select one per row*

| Barrier to fully implementing by start of 2012-13 school year | Yes | No |
|---|---|---|
| a. Understanding new meal requirements | 1 ❍ | 0 ❍ |
| b. Purchasing foods to meet the new meal requirements (cost and availability) | 1 ❍ | 0 ❍ |
| c. Needing additional staff or labor hours | 1 ❍ | 0 ❍ |
| d. Training of staff | 1 ❍ | 0 ❍ |
| e. Needing additional equipment | 1 ❍ | 0 ❍ |
| f. Training of staff | 1 ❍ | 0 ❍ |
| g. Other (PLEASE SPECIFY) _____ | 1 ❍ | 0 ❍ |

11. DISPLAY BARRIERS SELECTED IN Q.10.

And how would you rank each of the barriers? Please enter a "1" next to what you consider the biggest barrier to your SFA/district being able to fully implement the new meal requirements for lunch. Enter a "2" next to what you consider to be second greatest barrier, and continue until all barriers are assigned a ranking.

| Barrier to fully implementing by start of 2012-13 school year | Ranking |
|---|---|
| a. Understanding new meal requirements | |
| b. Purchasing foods to meet the new meal requirements (cost and availability) | |
| c. Needing additional staff or labor hours | |
| d. Training of staff | |
| e. Needing additional equipment | |
| f. Needing to remodel or upgrade kitchens | |
| g. Other (PLEASE SPECIFY) _____ | |

12. There are a number of different ways that SFAs/districts might change their production approach to meet the new meal requirements. For each of the following, please indicate if this is a change your SFA/district made or expects to make in order to implement the new meal requirements for lunch.

| | Yes | No |
|---|---|---|
| **a. Move to central facility/commissary or production kitchen(s)** | 1 ❍ | 0 ❍ |
| **b. Implement standard recipes and/or work methods** | 1 ❍ | 0 ❍ |
| **c. Move to more cooking from scratch** | 1 ❍ | 0 ❍ |
| **d. Move to buying ready to eat foods from vendors** | 1 ❍ | 0 ❍ |
| **e. Other (PLEASE SPECIFY)** _____ | 1 ❍ | 0 ❍ |

## Training

13. Which of the following types of training do you feel are essential for food service staff, including yourself, in order to successfully operate your school nutrition program, including implementing the new meal requirements? *Select all staff that apply for each row*

| Types of training | Training needed for ... | | | Training not needed in this area |
|---|---|---|---|---|
| | Director or food service management team | Kitchen or cafeteria managers | Cooks or front-line servers | |
| a. Developing or modifying menus | 1 ❍ | 2 ❍ | 3 ❍ | 4 ❍ |
| b. Modifying and/or standardizing recipes | 1 ❍ | 2 ❍ | 3 ❍ | 4 ❍ |
| c. Revising food purchasing specifications | 1 ❍ | 2 ❍ | 3 ❍ | 4 ❍ |
| d. Assessing equipment and infrastructure needs | 1 ❍ | 2 ❍ | 3 ❍ | 4 ❍ |
| e. Purchasing new equipment | 1 ❍ | 2 ❍ | 3 ❍ | 4 ❍ |
| f. Using/operating new equipment | 1 ❍ | 2 ❍ | 3 ❍ | 4 ❍ |
| g. Understanding compliance with meal pattern and nutrient requirements | 1 ❍ | 2 ❍ | 3 ❍ | 4 ❍ |
| h. Basic cooking skills, including hands-on training and standardized work methods | 1 ❍ | 2 ❍ | 3 ❍ | 4 ❍ |
| i. Basic nutrition training | 1 ❍ | 2 ❍ | 3 ❍ | 4 ❍ |
| j. Basic food safety/ServSafe training | 1 ❍ | 2 ❍ | 3 ❍ | 4 ❍ |
| k. Completing applications/paperwork for additional reimbursement and Coordinated Review Effort (CRE) reviews | 1 ❍ | 2 ❍ | 3 ❍ | 4 ❍ |
| l. Completing production records | 1 ❍ | 2 ❍ | 3 ❍ | 4 ❍ |
| m. Marketing and promoting the new meal requirements | 1 ❍ | 2 ❍ | 3 ❍ | 4 ❍ |
| n. Other (PLEASE SPECIFY) _____ | 1 ❍ | 2 ❍ | 3 ❍ | 4 ❍ |

14. Does your SFA/district have a budget for staff development and training?

1 ❍ Yes

0 ❍ No

d ❍ Don't know

**GO TO Q.16**

15. IF TRAINING BUDGET: Thinking about your budget allocated for staff development and training and the amount of training needed for your staff to be able to implement the new meal requirements, would you say your training budget should be sufficient to meet …

*Select one only*

1 ❍ All your training needs,

2 ❍ Some of your training needs,

3 ❍ Only a few of your training needs, or

4 ❍ None of your training needs?

16. How much of the new meal requirements training do you expect the state will provide (or has already provided)?

*Select one only*

1 ❍ All your training needs,

2 ❍ Some of your training needs,

3 ❍ Only a few of your training needs, or

4 ❍ None of your training needs?

## Preparing Meals

As you are aware, there are a number of changes in the new meal requirements that may have an impact on your SFA's/district's equipment needs. For each of the following changes in the meal pattern and nutrient requirements for lunch, please indicate the adequacy of your equipment in terms of receiving and storage, production, holding and transporting, and the meal service area.

IF CENTRAL PRODUCTION FACILITY/COMMISSARY, PLEASE ANSWER Q.17 AND Q.18.

17. First thinking only about your **central production facility/commissary**, how would you characterize your SFA's/district's equipment needs as they relate to …

*Select one per row*

| | Adequate: either as is or using a workaround | Inadequate: but making do with a workaround | Inadequate: and no workaround |
|---|---|---|---|
| **More fruit and vegetable items on daily menus** | | | |
| **a. Receiving and storage** | 1 ❍ | 2 ❍ | 0 ❍ |
| **b. Preparation (including assembly and packaging)** | 1 ❍ | 2 ❍ | 0 ❍ |
| **c. Holding and transportation** | 1 ❍ | 2 ❍ | 0 ❍ |
| **d. Meal service area** | 1 ❍ | 2 ❍ | 0 ❍ |
| **Greater variety and forms of fruits and vegetables** | | | |
| **e. Receiving and storage** | 1 ❍ | 2 ❍ | 0 ❍ |
| **f. Preparation (including assembly and packaging)** | 1 ❍ | 2 ❍ | 0 ❍ |
| **g. Holding and transportation** | 1 ❍ | 2 ❍ | 0 ❍ |
| **h. Meal service area** | 1 ❍ | 2 ❍ | 0 ❍ |
| **At least half of grains to be whole grain rich across the week** | | | |
| **i. Receiving and storage** | 1 ❍ | 2 ❍ | 0 ❍ |
| **j. Preparation (including assembly and packaging)** | 1 ❍ | 2 ❍ | 0 ❍ |
| **k. Holding and transportation** | 1 ❍ | 2 ❍ | 0 ❍ |
| **l. Meal service area** | 1 ❍ | 2 ❍ | 0 ❍ |
| **Differing portion sizes by grade groups** | | | |
| **m. Receiving and storage** | 1 ❍ | 2 ❍ | 0 ❍ |
| **n. Preparation (including assembly and packaging)** | 1 ❍ | 2 ❍ | 0 ❍ |
| **o. Holding and transportation** | 1 ❍ | 2 ❍ | 0 ❍ |
| **p. Meal service area** | 1 ❍ | 2 ❍ | 0 ❍ |
| **New calorie ranges, saturated fat, trans fat, and sodium targets** | | | |
| **q. Receiving and storage** | 1 ❍ | 2 ❍ | 0 ❍ |
| **r. Preparation (including assembly and packaging)** | 1 ❍ | 2 ❍ | 0 ❍ |
| **s. Holding and transportation** | 1 ❍ | 2 ❍ | 0 ❍ |
| **t. Meal service area** | 1 ❍ | 2 ❍ | 0 ❍ |

18. Thinking now about specific pieces of equipment, please indicate whether or not you would need a new or additional piece of this equipment **at any central production facility/commissary** to meet the new meal requirements for lunch and, if so, how many pieces of the equipment are required. Please think only about what you really need, as opposed to what would be nice to have.

| | Piece of equipment needed | | Number of this equipment required *(Your best estimate is fine)* |
|---|---|---|---|
| | Yes | No | |
| **Receiving and storage** | | | |
| a. Central production facility or commissary | 1 ❍ | 0 ❍ | |
| b. Scales, large or floor | 1 ❍ | 0 ❍ | |
| c. Dry storage shelving units | 1 ❍ | 0 ❍ | |
| d. Walk-in refrigerators | 1 ❍ | 0 ❍ | |
| e. Walk-in freezers | 1 ❍ | 0 ❍ | |
| **Production** | | | |
| f. Fruit and vegetable preparation sinks | 1 ❍ | 0 ❍ | |
| g. Stainless steel work tables | 1 ❍ | 0 ❍ | |
| h. Slicers | 1 ❍ | 0 ❍ | |
| i. Automatic can openers | 1 ❍ | 0 ❍ | |
| j. Food processors | 1 ❍ | 0 ❍ | |
| k. Vertical cutters | 1 ❍ | 0 ❍ | |
| l. Mixers | 1 ❍ | 0 ❍ | |
| m. Sets of knives with cutting boards | 1 ❍ | 0 ❍ | |
| n. Roll-in convection oven | 1 ❍ | 0 ❍ | |
| o. Rolling sheet pan and steam table racks | 1 ❍ | 0 ❍ | |
| p. Steam jacketed kettles with pumps/filler | 1 ❍ | 0 ❍ | |
| q. Blast or tumble chillers | 1 ❍ | 0 ❍ | |
| r. Conveyor/Wrapper system with containers configured to menu | 1 ❍ | 0 ❍ | |
| s. De-nester and fillers | 1 ❍ | 0 ❍ | |
| t. Meal baskets and dollies | 1 ❍ | 0 ❍ | |
| **Holding and transportation** | | | |
| u. Walk-in cooler (separate from Receiving/Storage walk-in refrigerators) | 1 ❍ | 0 ❍ | |
| v. Hot holding mobile carts | 1 ❍ | 0 ❍ | |
| w. Non-refrigerated trucks | 1 ❍ | 0 ❍ | |
| x. Refrigerated trucks | 1 ❍ | 0 ❍ | |
| **Administrative** | | | |
| y. Computer | 1 ❍ | 0 ❍ | |
| z. Software programs | 1 ❍ | 0 ❍ | |
| aa. Other (PLEASE SPECIFY) _____ | 1 ❍ | 0 ❍ | |

ASK ALL: [INSERT (other) IF SFA HAS CENTRAL FACILITY]

19. Focusing on all your (other) production systems and kitchen types combined, that is any production kitchens that prepare meals for other schools, finishing or satellite kitchens, and full service kitchens that prepare their own meals, how would you characterize your SFA's/district's equipment needs as they relate to …

*Select one per row*

| | Adequate: either as is or using a workaround | Inadequate: but making do with a workaround | Inadequate: and no workaround |
|---|---|---|---|
| **More fruit and vegetable items on daily menus** | | | |
| **a. Receiving and storage** | 1 ❍ | 2 ❍ | 0 ❍ |
| **b. Preparation (including assembly and packaging)** | 1 ❍ | 2 ❍ | 0 ❍ |
| **c. Holding and transportation** | 1 ❍ | 2 ❍ | 0 ❍ |
| **d. Meal service area** | 1 ❍ | 2 ❍ | 0 ❍ |
| **Greater variety and forms of fruits and vegetables** | | | |
| **e. Receiving and storage** | 1 ❍ | 2 ❍ | 0 ❍ |
| **f. Preparation (including assembly and packaging)** | 1 ❍ | 2 ❍ | 0 ❍ |
| **g. Holding and transportation** | 1 ❍ | 2 ❍ | 0 ❍ |
| **h. Meal service area** | 1 ❍ | 2 ❍ | 0 ❍ |
| **At least half of grains to be whole grain rich across the week** | | | |
| **i. Receiving and storage** | 1 ❍ | 2 ❍ | 0 ❍ |
| **j. Preparation (including assembly and packaging)** | 1 ❍ | 2 ❍ | 0 ❍ |
| **k. Holding and transportation** | 1 ❍ | 2 ❍ | 0 ❍ |
| **l. Meal service area** | 1 ❍ | 2 ❍ | 0 ❍ |
| **Differing portion sizes by grade groups** | | | |
| **m. Receiving and storage** | 1 ❍ | 2 ❍ | 0 ❍ |
| **n. Preparation (including assembly and packaging)** | 1 ❍ | 2 ❍ | 0 ❍ |
| **o. Holding and transportation** | 1 ❍ | 2 ❍ | 0 ❍ |
| **p. Meal service area** | 1 ❍ | 2 ❍ | 0 ❍ |
| **New calorie ranges, saturated fat, trans fat, and sodium targets** | | | |
| **q. Receiving and storage** | 1 ❍ | 2 ❍ | 0 ❍ |
| **r. Preparation (including assembly and packaging)** | 1 ❍ | 2 ❍ | 0 ❍ |
| **s. Holding and transportation** | 1 ❍ | 2 ❍ | 0 ❍ |
| **t. Meal service area** | 1 ❍ | 2 ❍ | 0 ❍ |

20. Thinking now about specific pieces of equipment, please indicate whether or not you would need a new or additional piece of this equipment in any **production kitchens, satellite or finishing kitchens, or full service kitchens** to meet the new meal requirements for lunch and, if so, how many pieces of the equipment are required. Please think only about what you really need, as opposed to what would be nice to have.

| | Piece of equipment needed | | Number of this equipment required *(Your best estimate is fine)* |
|---|---|---|---|
| | Yes | No | |
| **Receiving and storage** | | | |
| a. Platform and hand trucks | 1 ❍ | 0 ❍ | |
| b. Scales | 1 ❍ | 0 ❍ | |
| c. Dry storage shelving units | 1 ❍ | 0 ❍ | |
| d. Dunnage racks | 1 ❍ | 0 ❍ | |
| e. Basket dollies | 1 ❍ | 0 ❍ | |
| f. Walk-in refrigerators | 1 ❍ | 0 ❍ | |
| g. Walk-in freezers | 1 ❍ | 0 ❍ | |
| **Production** | | | |
| h. Fruit and vegetable preparation sinks | 1 ❍ | 0 ❍ | |
| i. Stainless steel work tables | 1 ❍ | 0 ❍ | |
| j. Utility sinks | 1 ❍ | 0 ❍ | |
| k. Slicers | 1 ❍ | 0 ❍ | |
| l. Can openers | 1 ❍ | 0 ❍ | |
| m. Food processors | 1 ❍ | 0 ❍ | |
| n. Mixers | 1 ❍ | 0 ❍ | |
| o. Sectionizers | 1 ❍ | 0 ❍ | |
| p. Sets of knives with cutting boards | 1 ❍ | 0 ❍ | |
| q. Rolling (mobile) sheet pan or steam table pan racks | 1 ❍ | 0 ❍ | |
| r. Utility carts | 1 ❍ | 0 ❍ | |
| s. Convection ovens (double deck) | 1 ❍ | 0 ❍ | |
| t. Steam-jacketed kettles | 1 ❍ | 0 ❍ | |
| u. Tilting skillet | 1 ❍ | 0 ❍ | |
| v. Combi ovens | 1 ❍ | 0 ❍ | |
| w. Convection (pressureless) steamer | 1 ❍ | 0 ❍ | |
| x. Pressure steamer | 1 ❍ | 0 ❍ | |

| | Piece of equipment needed | | Number of this equipment required *(Your best estimate is fine)* |
|---|---|---|---|
| | Yes | No | |
| y. Re-thermalization and holding ovens | 1 ❍ | 0 ❍ | |
| z. Commercial microwave | 1 ❍ | 0 ❍ | |
| aa. Blast chillers | 1 ❍ | 0 ❍ | |
| bb. Reach-in freezers | 1 ❍ | 0 ❍ | |
| cc. Reach-in refrigerators | 1 ❍ | 0 ❍ | |
| dd. Hot holding cabinets | 1 ❍ | 0 ❍ | |
| ee. Conveyor/Wrapper system with containers configured to menu | 1 ❍ | 0 ❍ | |
| ff. Meal baskets and dollies | 1 ❍ | 0 ❍ | |
| **Holding and transportation** | | | |
| gg. Walk-in cooler (separate from Receiving/Storage walk-in refrigerator) | 1 ❍ | 0 ❍ | |
| hh. Hot and/or cold transport containers or carts | 1 ❍ | 0 ❍ | |
| ii. Non-refrigerated trucks | 1 ❍ | 0 ❍ | |
| jj. Refrigerated trucks | 1 ❍ | 0 ❍ | |
| **Meal serving area** | | | |
| kk. Cold food merchandisers | 1 ❍ | 0 ❍ | |
| ll Utility serving counters (5-foot length) | 1 ❍ | 0 ❍ | |
| mm. Mobile milk coolers | 1 ❍ | 0 ❍ | |
| nn. Mobile utility serving counter (5-foot length) | 1 ❍ | 0 ❍ | |
| oo. Hot food serving line counters (4-5 wells) | 1 ❍ | 0 ❍ | |
| pp. Cold food serving line counters (5-foot pan) | 1 ❍ | 0 ❍ | |
| qq. Salad or fruit/vegetable bar (free standing, self serve) | 1 ❍ | 0 ❍ | |
| rr. Student meal trays | 1 ❍ | 0 ❍ | |
| ss. Steam table pans (stainless steel or plastic) | 1 ❍ | 0 ❍ | |
| tt. Serving portion utensils | 1 ❍ | 0 ❍ | |
| **Administrative** | | | |
| uu. Computer | 1 ❍ | 0 ❍ | |
| vv. Software programs | 1 ❍ | 0 ❍ | |
| ww. Other (PLEASE SPECIFY) _____ | 1 ❍ | 0 ❍ | |

21. Does your school nutrition program have an equipment replacement and upgrade plan?

1 ❍ Yes
0 ❍ No
d ❍ Don't know

22. Do you have a line item for capital equipment purchases in your annual budget? By capital we mean purchases of equipment, usually at least $1,000, that can be depreciated over time.

1 ❍ Yes
0 ❍ No
d ❍ Don't know

**GO TO Q.16**

23. IF YES: Is the budgeted amount for capital purchases adequate to purchase the equipment required to implement the new meal requirements for lunch?

1 ❍ Yes
0 ❍ No
d ❍ Don't know

## Infrastructure

ASK Q.24 ONLY IF SFA HAS CENTRAL PRODUCTION FACILITY. IF NO CENTRAL PRODUCTION FACILITY, GO TO Q.25.

24. Thinking about the changes needed to implement the new meal requirements for school lunch, which of the following infrastructure changes are essential at your central production facility/commissary? Please only think about what is critical as opposed to items that would be nice to have, but are not essential to meet the new meal requirements.

Does your central production facility/commissary need ... *Select one per row*

| | Yes | No | Don't know |
|---|---|---|---|
| **More fruit and vegetable items on daily menus** | | | |
| **a. More physical space for storage, preparation, or serving?** | 1 ❍ | 2 ❍ | d ❍ |
| **b. More electrical, such as more amps, voltage, or locations of outlets?** | 1 ❍ | 2 ❍ | d ❍ |
| **c. More natural gas, such as increased pressure or location of pipes?** | 1 ❍ | 2 ❍ | d ❍ |
| **d. More plumbing, such as water supply or location of sinks and drains?** | 1 ❍ | 2 ❍ | d ❍ |
| **e. More ventilation, such as exhaust hoods or fire suppression systems?** | 1 ❍ | 2 ❍ | d ❍ |
| **f. Remodeling that would require bringing the facility up to local health department code?** | 1 ❍ | 2 ❍ | d ❍ |

IF CENTRAL KITCHEN, USE 25.1 WORDING, ALL OTHERS USE 25.2.

25.1 Are the following kitchen infrastructure changes needed at any of your schools? And if so, at how many schools would the infrastructure changes be needed? Please only think about what is essential as opposed to items that would be nice to have but are not essential to meet the new meal requirements for lunch.

25.2 Thinking about the changes needed to implement the new meal requirements, are the following kitchen infrastructure changes needed at any of your schools? And if so, at how many schools would the infrastructure changes be needed? Please only think about what is essential as opposed to items that would be nice to have but are not essential to meet the new meal requirements for lunch.

Are infrastructure changes needed at any school kitchens in the area of ...

| | Yes | No | Don't know | Number of schools requiring infrastructure upgrade |
|---|---|---|---|---|
| **a. More physical space for storage, preparation, or serving?** | 1 ❍ | 0 ❍ | d ❍ | |
| **b. More electrical, such as more amps, voltage, or locations of outlets?** | 1 ❍ | 0 ❍ | d ❍ | |
| **c. More natural gas, such as increased pressure or location of pipes?** | 1 ❍ | 0 ❍ | d ❍ | |
| **d. More plumbing, such as water supply or location of sinks and drains?** | 1 ❍ | 0 ❍ | d ❍ | |
| **e. More ventilation, such as exhaust hoods or fire suppression systems?** | 1 ❍ | 0 ❍ | d ❍ | |
| **f. Remodeling that would require bringing the facility up to local health department code?** | 1 ❍ | 0 ❍ | d ❍ | |

26. What level of financial resources do you think your local education agency (LEA) is able to allocate to make the kitchen infrastructure and remodeling changes you believe are necessary to implement the new meal requirements for school lunch? *Select one only*

1 ❍ All or nearly all the resources needed to upgrade kitchen infrastructure
2 ❍ About three-fourths of the resources needed
3 ❍ About half
4 ❍ About a quarter
5 ❍ Less than a quarter
0 ❍ None
d ❍ Don't know

**GO TO Q.28**

27. IF GETTING ANY RESOURCES IN Q.26: What is your best estimate of the time frame for when kitchen remodeling would be completed? *Select one only*

1 ❍ During this school year (2012-2013)
2 ❍ In the next 2 to 3 years
3 ❍ In the next 4 to 10 years
4 ❍ More than 10 years from now
d ❍ Don't know

## Background Questions

28. What is the title of your position within the local education agency? (If you have multiple titles and one is Director, please select Director.) *Select all that apply*

1 ❍ School Food Service Director or School Nutrition Director
2 ❍ Area Supervisor, Area Manager, or Area Coordinator
3 ❍ Contract company's Food Service Manager
4 ❍ Kitchen/Cafeteria/Food Service Manager or Lead Cook
5 ❍ Business Manager
6 ❍ Dietitian or Nutritionist
99 ❍ Other (PLEASE SPECIFY) _____

29a. IF DIRECTOR, ASK: How long have you been a School Food Service or School Nutrition Director?

_____ YEARS and/or _____ MONTHS **GO TO Q.30**

29b. IF NOT DIRECTOR, ASK: How long have you been a [FILL FROM Q.28]?

_____ YEARS and/or _____ MONTHS

30. Do you work for the local education agency (LEA) or a food service management company? *Select one only*

1 ❍ LEA
2 ❍ Food Service Management Company
99 ❍ Other (PLEASE SPECIFY) _____

31. Which of the following credentials do you hold? *Select all that apply*

1 ❍ Associate's degree in consumer science, food service management, baking/culinary arts, etc.
2 ❍ Bachelor's degree in consumer science, nutrition, food service management, hotel/restaurant management, baking/culinary arts, etc.
3 ❍ Advanced degree in business, foods and nutrition, public health
4 ❍ On-the-job training
5 ❍ Registered dietitian
6 ❍ School Nutrition Specialist (SNA certified)
7 ❍ SNA Certified Level I
8 ❍ SNA Certified Level II
9 ❍ SNA Certified Level III
10 ❍ State food service certificate
99 ❍ Other (PLEASE SPECIFY) _____

**ANSWER Q.32a AND Q.32b IF MIDDLE RESPONSE "INADEQUATE BUT MAKING DO" TO ANY ITEM IN Q.17 OR Q.19**

32a. Earlier in the survey we asked about adequacy of equipment to meet the new meal standards and you indicated that in some areas your equipment was inadequate to meet standards, but that you were making do with a workaround ...

Could you give some examples of workarounds that you are using, that while helping you make do, are still inadequate to meet the new meal standards?

(PLEASE SPECIFY) _____

32b. Which of the following are reasons you feel your workarounds are inadequate to meet the new meal standards? *Select all that apply*

1 ❍ Expensive

2 ❍ Inefficient

3 ❍ Unsustainable

4 ❍ Can't meet increasing needs

5 ❍ Too labor intensive

99 ❍ Other (PLEASE SPECIFY) _____

If you used this PDF version of the KITS Study questionnaire as a worksheet to collect and/or organize information about your school food authority/school district, please go to the website https://www.kitsstudy.com and enter your answers.

Or you can fax or mail the completed questionnaire to Jennifer McGovern at:

Mathematica Policy Research
P.O. Box 2393
Princeton, NJ 08543-2393
Attention: Jennifer McGovern
Fax number: 609-799-0005

**Please complete the following information:**

SFA Name: _____

State: _____

Your Name: _____

Email Address: _____

Phone Number: _____

We will contact you only if we have questions about your responses.

If you have any questions about the survey or the KITS Study, please call our toll-free study hotline at 1-855-528-4550 or send an email to the study mailbox KITSStudy@mathematica-mpr.com.

Thank you for your interest in the KITS Study!

# Appendix E: Equipment descriptions

## Equipment descriptions:

- **Conveyor/wrapper system**: automated display cases for serving cold foods such as fruits, vegetables, and dairy items.
- **Dry storage shelving unit**: maximize the available space for stocking goods such as canned foods, condiments, paper products, and cookware.
- **Hot and/or cold transport containers and carts**: transport foods within a kitchen and from one kitchen to another.
- **Hot holding cabinets**: keep food hot and fresh for hours, allowing meals prepared in advance to be kept hot until served.
- **Mobile milk coolers**: provide a convenient way of keeping milk cartons at the right temperature for storage and for serving in the cafeteria line.
- **Reach-in refrigerators**: used to conveniently store food items in bulk to consume throughout the week.
- **Serving-portion utensils**: serving utensils determine appropriate portion sizes. Without them, servings could be measured inaccurately.
- **Sets of knives with cutting boards**: without enough of the right knives, preparation takes more time and poses safety risks for food service staff.
- **Slicers**: improve efficiency of food preparation in school kitchens because personnel are able to quickly and consistently slice meats and other foods.
- **Steam-jacketed kettles (with pumps/filler)**: similar to a double boiler, a steam-jacketed kettle cooks large quantities of food by using steam heat. It is designed with both an inner and outer steel wall that cooks the contents inside by releasing steam into the space between the walls. These devices are often used to cook foods like stock, gravy, sauce, or soup. Because it offers a uniform cooking surface it may cook more evenly than a traditional stock pot. It also tends to warm contents more quickly than a traditional pan that is heated from the bottom. Often, a steam-jacketed kettle is used for industrial cooking purposes, like hotels, and schools and on military ships and bases. This kind of kettle can cook large amounts of stew, pasta, or chili and can also be used to braise meat, cook dessert, or reheat various foods. Steam-jacketed kettles tend to be popular for institutional use because they require less stirring, can simmer longer-cooking recipes, and are less apt to burn food.
- **Utility carts**: used to transport items within a kitchen or cafeteria. Without enough carts, food service personnel must carry items and make multiple trips that waste valuable time.
- **Walk-in refrigerators**: used to safely and efficiently store large quantities of perishable foods and beverages.
- **Walk-in freezers**: store large quantities of frozen foods and beverages.

# Endnotes


1 U.S. Department of Agriculture, Food and Nutrition Service, "National School Lunch Program: Total Participation, FY 2013 (Data as of August 8, 2014)," accessed Aug. 14, 2014, http://www.fns.usda.gov/pd/01slfypart.htm.

2 Mary Story, "The Third School Nutrition Dietary Assessment Study: Findings and Policy Implications for Improving the Health of US Children," *Journal of the American Dietetic Association* 109, no. 2 (2009): S7–S13, doi: 10.1016/j.jada.2008.11.005.

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4 U.S. Department of Agriculture, Food and Nutrition Service, "HHFKA Section 201 Administrative Funds Spending Progress and School Meals Compliance Rates: Percent of Districts Certified as of March 2014," accessed Aug. 18, 2014, http://www.fns.usda.gov/sites/default/files/subcert.pdf.

5 The Pew Charitable Trusts, Kids' Safe and Healthful Foods Project, *Serving Healthy School Meals: Despite Challenges, Schools Meet USDA Meal Requirements* (2013), http://www.pewtrusts.org/en/research-and-analysis/reports/2013/09/30/serving-healthy-school-meals.

6 Katherine Ralston et al., *The National School Lunch Program: Background, Trends, and Issues*, Economic Research Report 61, U.S. Department of Agriculture, Economic Research Service (2008), http://www.ers.usda.gov/publications/err-economic-research-report/err61.aspx#.U9vRWWNCq6I.

7 California Department of Education, "Food Programs," accessed Feb. 10, 2014, http://www.cde.ca.gov/ds/sh/sn/#annual.

8 Field Research Corp., "Voter Concerns About Risk Factors for Obesity and Diabetes Have Eclipsed Other Health Concerns Facing California Kids Over the Past 10 Years," Release 2460 (2014), http://field.com/fieldpollonline/subscribers/Rls2460.pdf.

9 California Education Code 49590 (1997), accessed Aug. 1, 2014, http://www.leginfo.ca.gov/cgi-bin/displaycode?section=edc&group=49001-50000&file=49590.

10 California Department of Education, "Restrictions on Food and Beverage Sales" (2006), accessed May 5, 2014, http://www.cde.ca.gov/ls/nu/sn/mb06110.asp.

11 California Education Code 49431.7 (2007), accessed Aug. 1, 2014, http://www.leginfo.ca.gov/pub/07-08/bill/sen/sb_0451-0500/sb_490_bill_20070417_amended_sen_v97.html.

12 California Department of Education, "Restrictions on Food and Beverage Sales."

13 "Nutrition Standards in the National School Lunch and School Breakfast Programs: Final Rule," U.S. Department of Agriculture, 7 C.F.R Parts 210 and 220, Fed. Reg. 77 (17) (Jan. 26, 2012).

14 U.S. Department of Agriculture, Food and Nutrition Service, "HHFKA Section 201 Administrative Funds."

15 California Legislative Analyst's Office, "Maintaining Education Facilities in California: The 2014-15 Budget" (2014), accessed Aug. 1, 2014, http://www.lao.ca.gov/reports/2014/budget/education-facilities/maintaining-facilities-041114.pdf.

16 The Pew Charitable Trusts, Kids' Safe and Healthful Foods Project, *Serving Healthy School Meals*.

17 Ibid.

18 Ibid.

Robert Wood Johnson Foundation

rwjf.org

THE PEW CHARITABLE TRUSTS

pewtrusts.org

The California Endowment

calendow.org