



No Free Lunch? Current Challenges Facing the National School Lunch and School Breakfast Programs

BACKGROUND
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OVERVIEW — This background paper describes important characteristics of the National School Lunch Program and the School Breakfast Program, reviews U.S. Department of Agriculture rules regarding the nutritional content of school meals, and examines compliance with current nutrition standards. It also considers the dietary status and obesity risk of meal program participants, discusses proposed improvements to nutritional standards and meal requirements, and highlights key legislative issues.

RELATED MATERIALS — A companion paper “Got Junk? The Federal Role in Regulating ‘Competitive’ Foods” (Issue Brief No. 835, December 11, 2009) explores proposals to increase federal regulation of competitive foods.

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As the nation confronts an alarming epidemic of childhood obesity, Congress is now considering modifications to the National School Lunch Program and the School Breakfast Program administered by the U.S. Department of Agriculture (USDA). The programs have tremendous reach, with virtually all public and private schools participating and most children eating a school meal on a regular basis. The National School Lunch Program, the School Breakfast Program, and the Child and Adult Care Food Program are permanently authorized. However, reauthorization of related child nutrition programs (such as WIC [Women, Infants, and Children] and the Summer Food Service Program) occurs every five years and has historically provided an opportunity to consider improvements to the school-based nutrition programs.

School nutrition policymakers face increasingly complex and far-reaching challenges. Historically in the United States, childhood malnutrition was characterized by dietary deprivation and hunger leading to a range of negative health outcomes for afflicted children, including stunted growth, compromised intellectual functioning, and life-long vulnerability to disease. While starvation continues to be a threat in much of the developing world, the food and beverage intake of most American children meets or exceeds energy needs. Despite this caloric abundance, nutritional deficiencies are not uncommon and hunger persists for some low-income children.

The typical diet of most American school children represents a paradox: it provides a surplus of energy, yet a deficit of important nutrients. The average school-age child consumes too much sugar, fat, and sodium and not enough fruit, vegetables, whole grains, milk, and lean protein.¹ Malnutrition—the excess *or* deficient intake of food energy, protein, or nutrients—can lead to a wide variety of developmental, cognitive, behavioral, social, and academic problems in children. Excessive intake of food energy, perhaps the most apparent form of malnutrition today, clearly contributes to obesity and the many health problems associated with excess body fat. Physical activity levels play an important role in determining the energy

needs of individual children, and the precise causal relationships among diet, body weight, and health risks are not fully understood. However, the association between unhealthy dietary choices, obesity, and poor health outcomes is strong.²

Childhood obesity has been linked to a range of immediate health concerns (including elevated blood cholesterol levels, high blood pressure, asthma, and diabetes), as well as an increased risk for diseases (such as cancer and cardiovascular disease) in adulthood. Obese children also experience increased psychological stress and low self-esteem that can affect their mental and social well-being. A limited body of evidence suggests that obesity is associated with higher rates of school absenteeism and diminished academic performance.³ Misguided attempts to address overweight and obesity can also have negative repercussions on health. Weight-loss efforts among adolescents have been linked to higher rates of smoking initiation, unsafe food restriction practices, and, in rare instances, eating disorders, such as bulimia.⁴

The negative consequences of improper nutrition extend far beyond those related to overweight and obesity. For example, iron deficiency anemia can cause fatigue, shortened attention spans, reduced resistance to infection, and impaired cognitive function. Inadequate intake of calcium during childhood and adolescence hinders healthy bone development and increases the risk of osteoporosis later in life. Diets high in sugary food and beverages promote dental caries, which affect over half of all school age children.⁵

Low-income children are particularly vulnerable to the prevailing nutritional paradox. Obesity is more prevalent among children living in poverty, yet these children are also more likely to face periodic food shortages and hunger due to economic constraints. Food insecurity (limited access to enough food for an active, healthy life) has been demonstrated to increase the risk of childhood obesity.⁶ Although the evidence base is still developing, cyclical periods of “feast” and “famine” appear to prime the body metabolically for weight gain. When food is available, the diets of low-income children are particularly likely to rely on less expensive, energy-dense, nutritionally deficient foods.⁷

Competitive foods (food and beverage items, like snacks or sodas, offered by schools in addition to school meals) are now in the spotlight,⁸ but the need to improve the nutritional quality of school meals

has also been raised. This background paper summarizes the National School Lunch Program and the School Breakfast Program and examines policy-relevant concerns regarding the impact and operation of these programs, including the criteria and processes used to determine eligibility for free and reduced-price meals, the adequacy of federal financial assistance, the relationship between school meals and childhood obesity, and proposed changes to nutritional standards for school meals.

OVERVIEW OF SCHOOL MEAL PROGRAMS

The school meal programs represent a long-standing federal commitment to childhood nutrition. The National School Lunch Program (NSLP) was established in 1946 “as a measure of national security, to safeguard the health and well-being of the Nation’s children and to encourage the domestic consumption of nutritious agricultural commodities and other food.”⁹ Although legislative authority for the program has been amended many times, the primary purpose has not been changed since it was first established. The NSLP was expanded in 1998 to include after school snacks offered to students in educational or enrichment programs. The School Breakfast Program (SBP) was piloted in 1966 and authorized in 1975.

The programs provide federal financial assistance for meals served in participating schools (in the form of both cash reimbursements and donated agricultural commodities) and also establish nutritional requirements for those meals.¹⁰ While USDA provides funding for *all* meals served in participating schools, schools receive significantly higher levels of reimbursement for breakfasts and lunches served to children who qualify for free or reduced-price meals on the basis of family income.

The programs have tremendous reach and exert a significant influence on children’s nutritional status. Nearly all schools participate in the programs (83 percent of public and private schools for lunch, 99 percent of public schools for lunch, and 85 percent of public schools for breakfast),¹¹ and lunches are available to nearly 92 percent of all students.¹² Over 70 percent of all students consume a school lunch three or more days per week, and approximately 20 percent consume a school breakfast three or more days per week.¹³ School meals represent approximately half of total daily caloric intake during the school

year for students participating in both meals, with lunch representing 30 percent of total intake and breakfast 20 percent of total intake.¹⁴

The programs are implemented through a collaborative effort by federal, state, and local agencies. The Food and Nutrition Service within USDA reimburses states for meals served in schools, coordinates policy, provides technical assistance, and oversees the work of the states. State agencies, usually state departments of education, administer the programs through agreements with local school food authorities, manage the fiscal aspects of the program, monitor local performance and compliance with federal and state standards, and provide technical assistance. Local school food authorities (which usually correspond to school districts but can represent individual schools or groups of districts) serve school meals, certify students eligible to receive free and reduced-price meals, verify eligibility status for a sample of certified students, and maintain program data for reporting and reimbursement claims.

Eligibility and Certification of Students For Subsidized Meals

Eligibility for free and reduced-price meals is based on family income. In participating schools, free meals must be provided to children in households with income equal to or less than 130 percent of the federal poverty level or in households that are categorically eligible for school meal benefits. Categorical eligibility is provided to children in households that participate in Temporary Assistance for Needy Families (TANF), the Supplemental Nutrition Assistance Program (SNAP, formerly the Food Stamp Program), Head Start, or the Food Distribution Program on Indian Reservations (FDPIR) or to children who are homeless, runaway, or migrant. Reduced-price meals (sold for a maximum of 40 cents for lunch and 30 cents for breakfast) must be provided to children in households with income between 130 and 185 percent of poverty.

The majority of school meals are served to the students eligible for free or reduced-price meals, but students who pay full price represent a significant proportion of meal recipients. Of the 31.2 million school lunches served to students daily in 2009, approximately 52 percent were free to students, an additional 10 percent were provided at reduced price, and 38 percent were paid for by students.¹⁵ Of the 11 million school breakfasts served daily, approximately 82 percent were free or reduced-price (Figure 1, next page).

Students who qualify for free or reduced-price lunch are more likely to consume school meals than students who pay full price. Nearly 90 percent of students qualifying for free or reduced-price meals consume school lunch three or more days per week compared with 60 percent of the students who pay full price. These differences in participation rates are even more pronounced for breakfast, with about 45 percent of students qualifying for free or reduced-price meals usually consuming breakfast compared with 10 percent of students who pay full price.

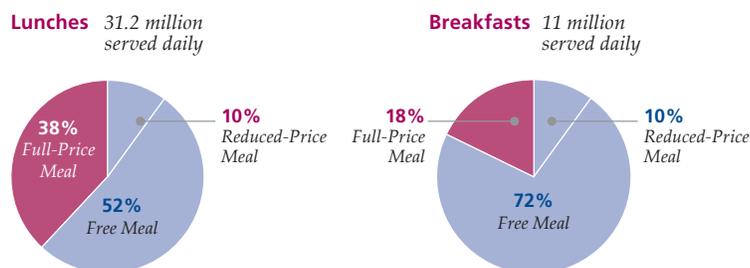
The process used to determine eligibility for free and reduced-price meals is known as certification. Most students certified for subsidized meals submit applications indicating either their household size and income level or their inclusion in one of the programs or populations that confer categorical eligibility for meal benefits. Approximately 25 percent of students receiving free meals are directly certified, meaning that some categorically eligible children are certified without submitting an application because some state agencies share information and directly verify the child's categorical eligibility. Direct certification for families participating in the SNAP became mandatory in the 2008–2009 school year. States may use direct certification for other categorically eligible programs at their discretion.

In certain high-poverty schools, all students may receive free meals without applying for benefits or being directly certified. These special provisions (known as Provision 2 and Provision 3) reduce the application processing burdens of high-poverty schools. Approximately 7 percent of students receiving free meals qualify through these provisions.

Relative to other public assistance programs that target low-income families, certification for free or reduced-price school meals is a

FIGURE 1 School Meal Recipients

Proportion of Meals Served, 2009



Participation Rates, 2004–2005 School Year

Lunches*



Breakfasts*



* Students consuming school meals three or more times per week.

Source: USDA, "National School Lunch Program: Participation and Lunches Served," December 3, 2009, available at www.fns.usda.gov/pd/slsummar.htm; USDA, "School Breakfast Program: Participation and Meals Served," November 2, 2009, available at www.fns.usda.gov/pd/sbsummar.htm; and USDA, School Nutrition Dietary Assessment Study III—Volume II: Student Participation and Dietary Intake, November 2007, pp. 39–40, available at www.fns.usda.gov/ORA/menu/Published/CNP/cnp.htm.

low-burden process. The programs do not require applicants to submit income documentation, apply in person, or meet any kind of asset test. Approximately two-thirds of children receiving free lunches come from families whose income appears to be low enough to qualify for TANF or SNAP but do not participate in these programs.¹⁶ Schools are only required to verify the eligibility of a very small proportion of applications (typically 3 percent or less).

These streamlined certification processes are credited with ensuring high rates of certification among eligible children, but have also raised concerns regarding program integrity. A USDA study conducted in the 2005–2006 school year suggests that certification errors are not uncommon. Approximately 22.5 percent of all certification determinations for subsidized meals (including both certified students and denied applicants) result in an erroneous certification status. Over-certification, that is certification granted to children actually ineligible for that level of meal benefits, is more common (15 percent of determinations) than under-certification (7 percent of determinations). These under-certifications include children certified for reduced-price meals who are actually eligible for free meals, as well as those erroneously denied school meal benefits. While only 5 percent of determinations result in denials, nearly 35 percent of denied applicants were erroneously rejected for free or reduced-price meals.

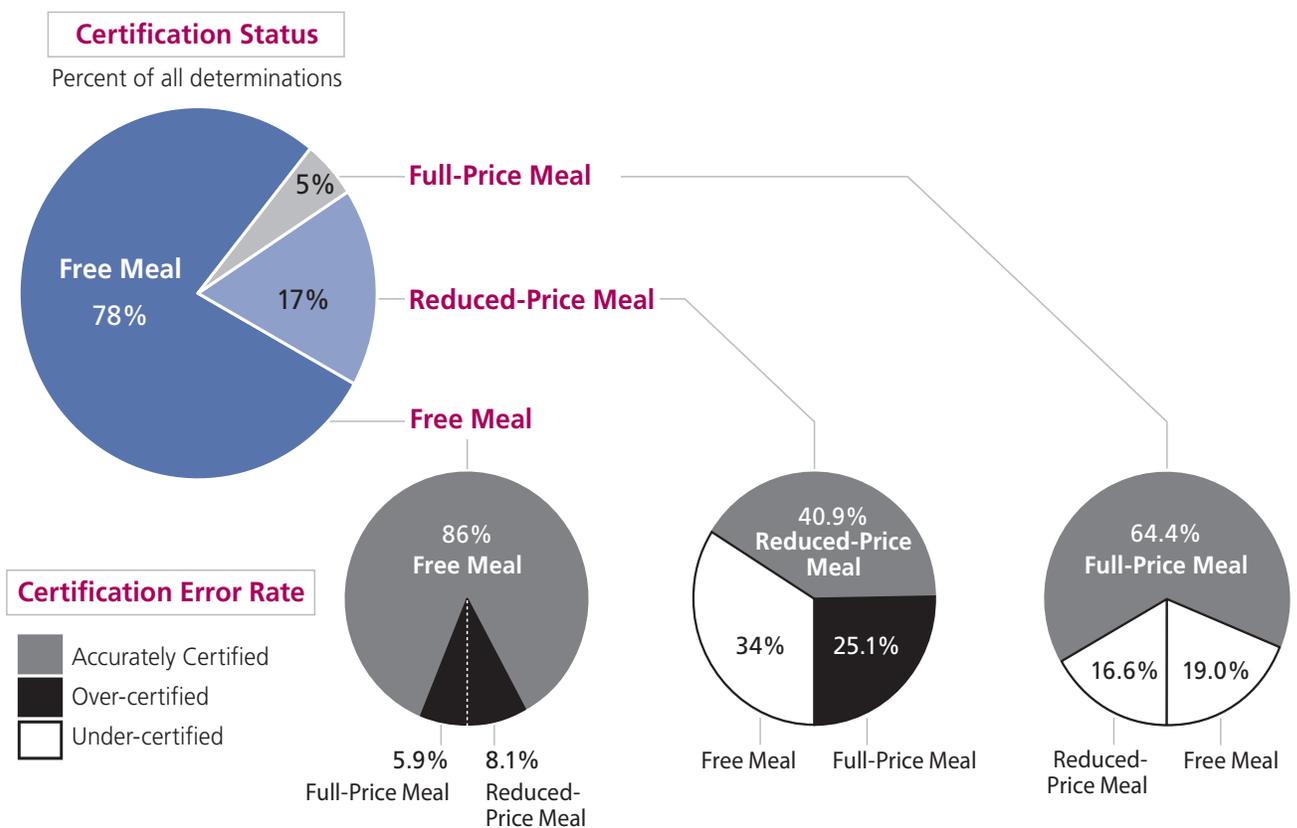
According to a USDA study, about half of all certification errors among certified students represent misclassifications between the free and reduced-price lunch categories. Errors were most likely among children certified for reduced-price meals. Errors were least likely among children certified for free lunch, with only about 6 percent of students certified for free meals actually ineligible for any type of meal subsidy and 8 percent eligible for reduced-price meals, as shown in Figure 2, next page. However, because the majority of determinations result in certification for free lunch (78 percent), errors within this category account for about half of all certification errors made. The USDA study of certification errors focused solely on certification determinations made; it did not seek to identify the proportion of children eligible for school meal subsidies who did not submit applications for these benefits.¹⁷

In response to concerns about certification errors, some have proposed that more rigorous verification processes be imposed, such as increased requirements for income documentation and in-person

applications. A pilot test of “up front” documentation found that certification error rates did not decline significantly, but did decrease program participation rates among low-income children. Others believe greater reliance on direct certification for children in categorically eligible households will allow school districts to concentrate their integrity control efforts on income-based applications.

Some advocates have proposed eliminating the reduced-price meal category and raising eligibility for free meals to 185 percent of poverty, a threshold consistent with WIC eligibility. Error concerns center

FIGURE 2 USDA Study of Eligibility Certification and Certification Error Rates, 2005–2006 School Year



Source: Michael Ponza et al., NSLP/SBP Access, Participation, Eligibility, and Certification Study – Erroneous Payments in the NSLP and SBP, Vol. I: Study Findings, USDA, Report No. CN-07-APEC, November 2007, available at www.fns.usda.gov/ORA/menu/Published/CNP/FILES/apecvol1.pdf.

on the reduced-price meal category and often reflect misclassification across subsidy categories. Proponents argue that creating a single benefit level could simplify certification procedures and encourage higher participation rates among eligible children.¹⁸ Raising the income level used to determine eligibility for free meals would also increase program costs, however. A recent study estimates that the additional cost to the federal government of eliminating the reduced-price meal category would be \$477 million based on both higher reimbursement rates and increased participation.¹⁹

Federal Financial Assistance

Federal costs for the school meal programs have increased substantially since the program was last reauthorized. Between 2004 and 2008 federal spending for the school meal programs increased nearly 25 percent, rising from \$9.4 billion to \$11.7 billion.²⁰ In inflation-adjusted dollars, federal funding has increased approximately 10 percent during this time period, driven largely by increases in the number of meals served.

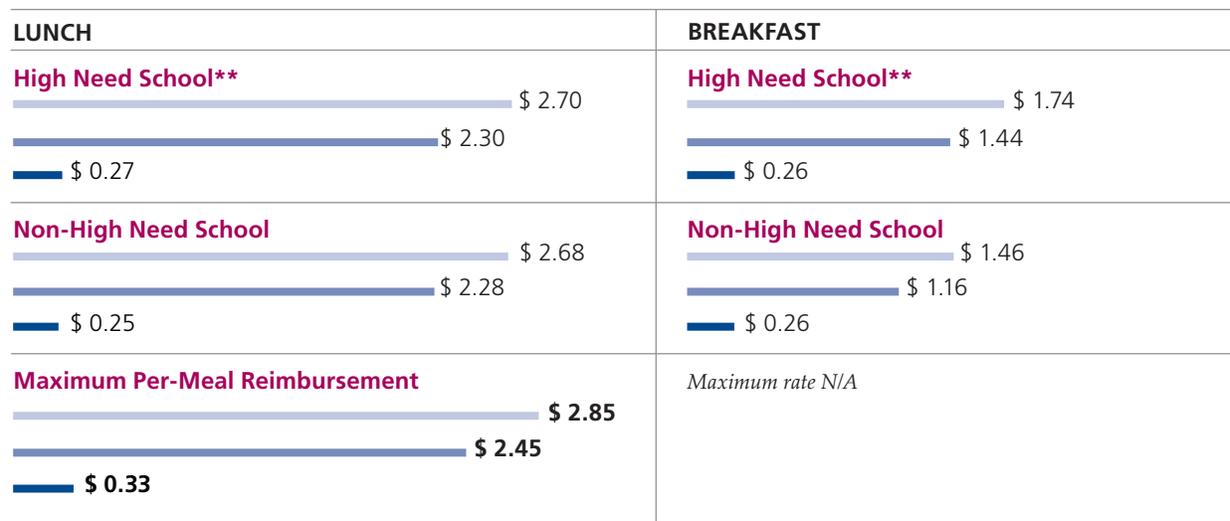
While student participation rates have remained relatively stable in recent years, rising school enrollment and expansions in the breakfast program have resulted in an increased number of meals served. The number of lunches served increased by nearly 8 percent between 2004 and 2008.²¹ During the same time period, the number of breakfasts served increased by nearly 20 percent.²² While the proportion of lunches served to students certified for free and reduced-price lunches increased slightly, rising from 59.1 percent to 60.1 percent between 2004 and 2008, the proportion of breakfasts served to students certified for free and reduced-price breakfasts decreased, falling from 82.4 percent to 80.6 percent.

USDA support accounts for approximately half of all revenues received by school food authorities.²³ The following summarizes the two major types of federal financial assistance (cash reimbursement for meals served and donated agricultural commodities) and describes the major components of program-related costs borne by school districts.

Cash Reimbursements for Meals Served

Most federal funding for school meal programs is provided in the form of cash reimbursement to participating schools for all meals that meet USDA’s nutritional standards. Nearly 91 percent of federal funding is distributed through cash reimbursements for meals served. The majority of reimbursement expenses (nearly 78 percent) are for school lunches. Reimbursement rates are established in statute that ties annual updates made to the Consumer Price Index *Food Away from Home for Urban Consumers*, set by the Bureau of Labor Statistics each July. Maximum rates for lunches are also set, which limit the amount states can redistribute to individual school food authorities to ensure equitable distribution of federal funds. Reimbursement rates for the 2009–2010 school year are summarized in Figure 3.

FIGURE 3 Federal Reimbursement Rates for School Meals (Per Meal, 2009–2010 School Year)*



Meal Type

- Free Meal
- Reduced-Price Meal
- Full-Price Meal

* Excludes Alaska and Hawaii which receive higher reimbursement rates.

** High-need schools are defined differently under the National School Lunch Program (NSLP) and the School Breakfast Program (SBP). The NSLP provides enhanced reimbursement for meals served by school food authorities that serve 60 percent or more free and reduced price meals. The SBP provides enhanced reimbursement for meals provided in “severe need” schools which serve 40 percent or more free and reduced-price meals.

Source: Federal Register, vol. 74, no. 134, July 15, 2009.

Agricultural Commodities

In addition to cash reimbursement for meals served, states also receive federal financial support through donations of agricultural commodities, commonly referred to as USDA foods. These USDA foods represent an important source of food for school meals. In 2008, USDA provided the child nutrition programs with agricultural commodities valued at more than \$1 billion. About 20 percent of foods acquired by schools were USDA foods.²⁴

Schools receive USDA foods through two mechanisms: entitlements and bonus purchases. Entitlements guarantee each state an allotment for commodity purchases. The dollar amount of this allotment is based on the number of lunches served the previous year with per-meal rates updated annually on the basis of the Bureau of Labor Statistic's *Producer Price Index for Foods Used in Schools and Institutions*. In 2008–2009, each state's USDA foods entitlement allotment equaled 20.75 cents for every lunch served the prior year.²⁵

States order products from a list of available offerings published by USDA until their entitlement allotment is depleted. Each state has a fair amount of flexibility in determining how to distribute USDA foods to schools. Some operate in a centralized fashion, with USDA foods delivered to a common warehouse. Others allocate the dollar value of the entitlement to districts, allowing districts to choose products from available offerings and delivering products directly to those districts.

USDA makes bonus purchases specifically to relieve market surpluses of, and provide price supports for, agricultural products. These bonus purchases are offered to states throughout the year on a fair-share basis proportionate to the state's share of total meals served. In 2008, bonus purchases accounted for less than 6 percent of the total cost of USDA foods in the school meal programs.²⁶

Program Costs

School food authorities have raised concerns that federal reimbursement for free meals is not adequate to cover the costs of preparing and serving reimbursable meals. A recent study of meal costs sponsored by the USDA found that the average full cost of producing a reimbursable lunch was \$2.79 in the 2005–2006 school year, compared with a federal reimbursement rate for free lunch

at that time of \$2.51 (90 percent of average full costs covered by reimbursement). The study found that 72 percent of reimbursable lunches were produced at a cost greater than the subsidy rate for a free meal.²⁷ Similar discrepancies between cost and reimbursement were found for school breakfasts, with the mean full cost of breakfast (\$1.81) found to be considerably higher than the prevailing reimbursement rate (\$1.27).

While differences between funding and costs varied, costs exceeded reimbursement in a majority of school food authorities. Approximately 68 percent of school food authorities had lunch costs that exceeded reimbursement, and 82 percent of authorities had breakfast costs that exceeded reimbursement. The USDA study was based on a nationally representative sample and did not document regional variation in costs. Such regional variations are likely, as labor costs are known to vary across states and regions.

The full cost of school meals is largely dominated by labor expenses. Nearly half of the average full cost of a reimbursable school lunch can be attributed to labor. In contrast, food costs (including the value of donated commodities) account for just over one-third of full costs. Other costs, including supplies, contracted services, and indirect charges from school districts (such as facility and utility costs) accounted for approximately 15 percent of full costs.

The full cost of producing reimbursable meals include costs directly incurred by food service departments within schools or districts (such as food costs and staff salaries), as well as additional costs incurred at the district level to support the programs (such as administrative costs associated with certification processes and costs related to employee benefits and facility operations). These additional costs, which do not directly accrue to the food service authority's budget and are typically not included in routine reports to USDA, account for approximately 20 percent of full meal costs.

Although schools have taken action to reduce their budgets, the disparity between full meal costs and reimbursements has increased slightly since the USDA meal cost study was completed. The School Nutrition Association reports that, in the 2008–2009 school year, the average full cost of a school lunch was estimated to be \$2.90, while the free lunch reimbursement rate that year was \$2.57 (89 percent of full costs covered by reimbursement).²⁸ Most school food authorities have taken steps to supplement revenues and decrease costs in

response to budgetary pressure, such as increasing the price of full price student meals (73 percent), reducing staff (60 percent), cutting training (26 percent), and making menu substitutions (75 percent).

Some argue that updates to meal reimbursement rates should be based on an index other than the current *Food Away from Home for Urban Consumers*. Proponents of a revised update mechanism note that most “away from home” food venues often do not provide benefits (such as health insurance and leave) to employees. Such benefits are common, and often generous, in school districts. Therefore, the labor cost increases experienced by schools are not likely to be reflected in the update index currently used.

NUTRITIONAL VALUE OF SCHOOL MEALS

The content and quality of school meals have a significant impact on children’s dietary intake due to the high rates of participation in the NSLP and SBP by both schools and students. All meals provided by schools participating in NSLP and SBP must conform to the nutrition standards and meal requirements established by USDA. Therefore, these standards influence the diets of *all* children who consume school meals—those who qualify for free and reduced-price meals and those who pay full price.

Current Nutrition Standards and Meal Requirements

Current nutritional requirements for school meals reflect policies established by the USDA under the School Meal Initiative for Healthy Children (SMI) in 1995. These rules require that school meals:

- Adhere to the then-current 1995 *Dietary Guidelines for Americans*
- Provide specified proportions of the 1989 Recommended Dietary Allowances (RDAs) for select nutrients
- Limit amounts of total and saturated fats to specified maximums
- Provide a minimum number of calories based on Recommended Energy Allowances (REAs), which vary across age-grade groups

Standards apply to the average content of meals over one school week (five days). USDA also recommends that school meal programs reduce the level of cholesterol and sodium in meals and increase the level of dietary fiber, whole grains, vegetables, and fruit. However,

TABLE 1 Current Nutrition Standards for School Meals

Nutrient	STANDARD FOR MEAL		Calories (minimums for school meals)		
	Lunch	Breakfast	Grades	Lunch	Breakfast
Calories	1/3 of the REA*	1/4 of the REA*	Preschool	517	388
Protein			K-3	633	N/A†
Calcium			K-6	664	N/A†
Iron	1/3 of the RDA**	1/4 of the RDA†	K-12	N/A	554
Vitamin A			4-12	785	N/A†
Vitamin C			7-12	825	618
Total Fat	≤ 30% of Calories	≤ 30% of Calories			
Saturated Fat	< 10% of Calories	< 10% of Calories			
Recommended but not required					
Cholesterol and Sodium	Decrease level in meals				
Dietary fiber, whole grain products, fruits and vegetables	Increase level in meals				

program requirements do not specify or suggest measurable targets for these recommendations. A more detailed description of current nutrition standards for school meals is provided in Table 1.

Program regulations allow schools some flexibility in achieving the nutrition standards established for school meals. Schools may choose one of four USDA-defined approaches to menu planning—Traditional Food-Based Menu Planning, Enhanced Food-Based Menu Planning, Nutrient Standard Menu Planning, or Assisted Nutrient Standard Menu Planning—or they may identify and implement a reasonable alternative.

USDA has established different meal requirements for each of the menu planning approaches the agency has defined. Traditional Food-Based Menu Planning (used by approximately half of all schools),²⁹ identifies the types and amounts of foods to be included in each meal. Enhanced Food-Based Menu Planning (used by 22 percent of schools) is similar to the traditional approach, but requires increased servings of fruits and vegetables. Nutrient Standard Menu Planning (used by 30 percent of schools) is more flexible in terms of the composition of the meal, but requires schools to calculate the

* REA – Recommended Energy Allowance
† RDA – Recommended Dietary Allowance
‡ N/A – Not Applicable

Source: USDA, School Nutrition Dietary Assessment Study III—Volume I: School Foodservice, School Food Environment, and Meals Offered and Served, November 2007, p. xxxii, available at www.fns.usda.gov/ORA/menu/Published/CNP/cnp.htm; and IOM, Nutrition Standards and Meal Requirements for National School Lunch and Breakfast Programs: Phase I. Proposed Approach for Recommending Revisions (Washington, DC: National Academies Press, 2008) p. 39.

nutritional content of meals offered to ensure compliance with nutrition standards. (Assisted Nutrient Menu Planning has the same nutrition requirements as Nutrient Standard Menu Planning but allows the school food authority to receive analytic assistance from the state or an outside consultant.)

Existing meal requirements distinguish between the meal that must be “offered” (that is made available to students for selection) and “served” (that is the meal that is actually provided to students). This “offer versus serve” provision was mandated by law for senior high school students in 1976 to reduce plate waste and was also offered as an option for lower grades.³⁰ Meal requirements for lunch are summarized in Table 2.

TABLE 2 Lunch Requirements for Alternative Menu Planning Approaches

Approach	MENU PLANNING		
	Traditional Food-Based	Enhanced Food-Based	Nutrient Standard*
Requirements for Meals Offered	Minimum quantities established for specific food items	Minimum quantities established for specific food items	Food items selected by menu planner to meet nutrition standards based on nutrient content analysis.
Requirements for Meals Served <i>(Required for high school students; Option for lower grades)</i>	A minimum of five food items in specific quantities must be offered: – One serving of fluid milk <i>(in a variety of fat-content levels)</i> – One serving of meat or meat alternative – Two servings of vegetable or fruit – One serving of bread or grain	Increased quantities of vegetable, fruit, or grain	Meal must contain: – Fluid milk <i>(in a variety of fat-content levels)</i> – Entrée – Side dish
	High school students must select at least three of the five items offered <i>Option for lower grades: schools may require students to select at least three or four of the five items</i>	Same as traditional	If three items are offered, students may decline one If four or more items are offered, students may decline two Students must always take the entrée

* Includes Assisted Nutrient Standard Menu Planning

Source: IOM, Nutrition Standards and Meal Requirements for National School Lunch and Breakfast Programs: Phase I. Proposed Approach for Recommending Revisions (Washington, DC: National Academies Press, 2008) p. 39.

Although states and school districts may impose additional nutritional requirements on school meals beyond those mandated by USDA, relatively few have done so. Many states have laws and regulations that govern the operation of school meal programs or place limits on competitive foods. However, these rules typically do not dictate the nutritional content of reimbursable school meals beyond reinforcing compliance with federal standards. Only a few states have established requirements for school meals that exceed those set by USDA. For example, North Carolina prohibits schools from using cooking oils that contain *trans* fat; Rhode Island requires that all milk sold in schools be 1 percent fat or less; and West Virginia bans the use of *trans* fat in school meals and limits the sugar content of cereal products offered in school breakfasts.³¹

The number of schools or districts that have established school meal standards more rigorous than federal requirements is difficult to ascertain, but such standards do not appear to be widely prevalent at the local level. USDA has recognized nearly 600 schools in about 80 districts that have implemented voluntary nutrition standards for school meals which are more stringent than existing program requirements. These voluntary standards surpass federal rules in that they guarantee more offerings of fruits, vegetables, and whole grains and limit milk selections to 1 percent or nonfat options. These schools have been recognized as high performers by USDA through the HealthierUS School Challenge (see text box, next page).

Compliance with Existing Federal Nutrition Standards

While some high-performing schools have surpassed program requirements, most school meals available in districts across the country do not fully comply with USDA nutrition standards and the 1995 *Dietary Guidelines*. A national evaluation of school meals offered and served during the latter half of the 2004–2005 school year found that most schools comply with the current federal standards related to caloric minimums, protein, vitamin A, vitamin C, calcium, and iron. However, few met the mandated limits for fat and saturated fat, and none met the recommended (but not required) guidelines for sodium.³² Breakfasts were more likely to meet limits for fat and sodium, but less than one-third of schools offered or served breakfast that met the calorie minimum.

For lunches, both offered and served, calorie and nutrient content tend to increase with grade level. Notable exceptions to this rule include higher average levels of vitamin A and calcium in the lunches served to elementary school children, presumably because younger students are more likely to select milk than older students. Also, while the lunches served in high schools and middle schools contained more

Team Nutrition and the HealthierUS Schools Challenge: Voluntary Efforts to Improve School Meals

USDA has pursued a variety of voluntary activities to improve the quality of meals offered and served in schools. A key contributor to these efforts is Team Nutrition which was launched in 1995 prior to the implementation of revised nutrition standards and meal requirements under the School Meal Initiative (SMI.) Team Nutrition provides training and technical assistance to school nutrition, food service, and teaching staff; supplies model curricula and materials for student nutrition education; and assists in the development of school policies and community environments that support healthy eating and active living.

A rigorous evaluation of the pilot found that a comprehensive program containing all the above elements positively influenced children's nutritional knowledge and motivation to eat a healthy diet. Team Nutrition also had a positive, yet small, effect on actual food choices, with educational efforts leading to an increase in the diversity of foods selected and tasted. Increased selection and consumption of fruits, vegetables, and low-fat milk by students were also observed in pilot sites, but these changes were not statistically significant. Participating staff and administrators were generally very supportive of Team Nutrition activities, but noted that the comprehensive intervention requires a significant commitment of staff time and energy.

Each year USDA spends approximately \$10 million in support of Team Nutrition implementation. Approximately half of these annual expenditures support state agencies in their efforts to implement Team Nutrition, with about 20 state training grants awarded each year on a competitive basis. However, any school can enroll in

Team Nutrition and receive resource kits to guide their nutrition education efforts.

Despite these efforts to disseminate resources and materials, implementation of Team Nutrition does not appear widespread. Nearly all schools provide some type of nutrition education to students, although nutrition education is not required under the school meals programs. However, less than 6 percent of schools report using Team Nutrition as a source for that education. More schools (nearly 25 percent of all schools) use Team Nutrition resources for meal planning.*

Schools that participate in Team Nutrition are also eligible for recognition under the HealthierUS School Challenge, which acknowledges schools that demonstrate superior performance in creating healthier school environments by awarding four levels of certification (Bronze, Silver, Gold, and Gold with Distinction). Criteria vary by award level, but all certified schools must achieve certain levels of average daily school meal program participation and meet school meal standards that are more rigorous than mandated program requirements. Enhanced standards relate to availability of fruits, vegetables, whole grains, and low-fat milk in reimbursable meals; competitive food policies; nutrition education; and opportunities for physical education and physical activity. Nearly 600 schools nationwide have achieved some level of certification.

* USDA, School Nutrition Dietary Assessment Study III—Volume I: School Foodservice, School Food Environment, and Meals Offered and Served, November 2007.

calories relative to those served in elementary schools, high school lunches were less likely to comply with calorie minimums for that age-grade group. Older students have more freedom to refuse components of the school lunch and have greater access to competitive food and beverages to supplement the reimbursable meal.³³

The menu planning approach used by schools does not appear to have a significant influence on compliance with program requirements, but does influence available food options somewhat. Lunches planned with the Nutrient Standard approach were more likely to offer deep yellow or dark green vegetables and less likely to offer deep-fried potatoes (which qualify as a vegetable choice) than lunches planned with the Traditional Food-Based method. However, schools using the Nutrient Standard approach were also more likely than those using one of the Food-Based systems to offer dessert, snacks, or juice as part of the school lunch.³⁴

RAISING THE BAR FOR THE NUTRITIONAL QUALITY OF SCHOOL MEALS

Some parents and nutrition experts have questioned the extent to which existing nutrition standards and meal requirements sufficiently ensure healthy school breakfasts and lunches, even when fully implemented. While school meals are widely viewed as more nutritious than competitive food offerings, concerns about the nutritional quality of school meals are frequently raised. Critiques often focus on inadequate offerings of fresh produce and low-fat dairy options, as well as an over-reliance on highly processed foods with added sugar and salt. Starchy vegetables (such as potatoes and corn) and canned fruits are the most common form of produce available in school lunches. Fresh fruits, non-starchy vegetables, and nonfat milk are often not available on a daily basis. French fries are more likely to be available (offered on 29 percent of school menus) than carrots (offered on 20 percent of school menus).³⁵

Nutritional Status of Participating Students

In some respects the dietary intake patterns of school meal participants appear better than those of non-participants. Studies have demonstrated that program participants are more likely to consume milk, fruit, and vegetables at lunch than non-participants. However,

much of the difference in vegetable consumption is due to increased consumption of French fries and other potato-based products. Program participation has also been linked to increased intake of vitamins, calcium, fiber, and (less desirably) sodium.

Although there is little evidence that participation in the school meal programs contributes to obesity, USDA has not ruled out an association.³⁶ The most inclusive study of food intake found no difference in calorie consumption, at lunch or over a 24-hour period, between lunch program participants and non-participants. Several studies have shown that program participants are more likely to be overweight than non-participants, but these studies generally did not control for other differences between these populations, such as income levels. Only two studies have fully controlled for such differences between participant and nonparticipant populations, and these studies yielded conflicting results.

One of these studies did find a link between school meal participation and obesity for children ineligible for free or reduced-price meals.³⁷ The study analyzed longitudinal data which followed a cohort of children beginning in kindergarten and found that at the end of first grade program participants were both more likely to experience an increase in BMI and more likely to be overweight than nonparticipants. This study did not document food intake differences, and other studies have been unable to demonstrate significant differences in calorie consumption between participants and non-participants. However, one theory is that small differences in daily calorie intake (which are difficult to document through food intake studies) aggregate over time, leading to weight gain. The researcher who conducted the analysis estimated that the difference in BMI observed between participants and nonparticipants could be attributed to a daily energy imbalance of as little as 40 calories.

USDA views these findings as significant enough to raise concern and has called for additional research to examine the relationship between school meals and childhood obesity. Concerns have been raised that large studies which report the average experience of participants versus nonparticipants may mask important variations in student intake patterns and food service practices. For example, there is some evidence that the quality of school meals offered may influence student obesity. One study found that elementary school children attending schools where French fries were available more than once per week were more likely to be obese than children who

attended schools where French fries were available less frequently. It is unclear if such differences in school menus truly contribute to obesity or if they simply reflect broader variations in community dietary norms and food environments.

Call for Revised Nutrition Standards

While there is no evidence that school meal programs are driving childhood obesity, policymakers have sought to make the programs more effective in responding to the epidemic. Due in part to concerns about rising rates of obesity among children, in 2004 Congress mandated USDA to update program nutrition standards and meal requirements to reflect the most recent *Dietary Guidelines*. The most current version of the *Dietary Guidelines* was released in 2005, and they differ from the 1995 recommendations (which dictate existing school meal program requirements) in a number of important ways. Current recommendations:

- Explicitly cite the need to balance energy consumed against energy expended and establish a small “discretionary” calorie allotment for food and beverages with little nutritional value
- Establish limits for *trans* fats, cholesterol, added sugars, and salt
- Increase the emphasis on fruit, vegetable, and whole grain consumption
- Encourage nonfat or low-fat milk consumption for children
- Set total fat consumption target for children at 25 to 35 percent of total calories
- Express reference values for nutrients in Dietary Reference Intakes (DRIs) rather than Recommended Daily Allowances (RDAs)

USDA has yet to promulgate formal rules to integrate the updated *Dietary Guidelines* into mandated³⁸ nutrition standards and meal requirements. In 2007 USDA issued general guidance for school meals to increase fruit, vegetable, whole grain, and fiber consumption; encourage low-fat or nonfat milk selections; and decrease sodium, cholesterol, and *trans* fat intake. However, the Department deferred formal rule-making and commissioned an Institute of Medicine (IOM) study to advise on changes needed to bring nutrition standards and meal requirements in accordance with the current *Dietary Guidelines*.

USDA commissioned the IOM's Committee on Nutrition Standards for National School Lunch and Breakfast Programs (the Committee) to consider a variety of possible modifications to existing requirements to school meals. Requests to the expert panel included:

- Recommendations on appropriate calorie requirements for diverse age-grade groupings (both changes to existing calorie minimums and possibly the creation of calorie maximums not currently required)
- Clear specifications for the sodium, cholesterol, and fiber content of school meals
- Advice on how best to increase fruit, vegetable, and whole grain consumption under the existing menu planning options, as well as consideration of the need for novel approaches to menu planning

USDA recognized that developing these recommendations would involve a number of difficult and complex decisions. The Department urged the Committee to consider variability in student nutrient and calorie needs, particularly with regard to low-income, food-insecure students, as well as variability in the quality and amount of foods consumed outside of school meals. USDA also cited the importance of creating feasible program standards and explicitly asked the Committee to factor potential barriers to implementation into their decision-making processes.

The Committee released its final report in October 2009 and proposed substantial changes to the way USDA regulates the nutritional quality of school meals.³⁹ Recommendations suggested that USDA should:

- Rely on evidence-based Nutrient Targets to guide the formulation of meal requirements, without using the target specified for each vitamin and nutrient level as a compliance standard
- Adopt a single approach to meal planning based on foods with quantitative specifications for calories (minimum and maximum), saturated fat (maximum), and sodium (maximum) (summarized in Table 3, next page)
- Establish meal requirements using both Standards for Menu Planning and Standards for Meals Selected by Students
- Conduct a broad range of technical assistance and evaluative activities to support and monitor the implementation of proposed program changes

TABLE 3 Recommended Quantitative Specifications for School Meal Standards (as offered)

Nutrient	STANDARD FOR MEAL	
	Lunch	Breakfast
Calories (<i>minimum–maximum kcal</i>)		
K–5	550–650	350–500
6–8	600–700	400–550
9–12	750–850	450–600
Saturated Fat (<i>% of total calories</i>)		
All Grades	< 10%	< 10%
Sodium (<i>mg</i>)		
K–5	≤ 640	≤ 430
6–8	≤ 710	≤ 470
9–12	≤ 740	≤ 500

Source: Institute of Medicine, School Meals: Building Blocks for Healthy Children (Washington, DC: The National Academies Press, 2009), p. S-9.

The meal requirements recommended by the IOM Committee differ from current program requirements in a number of ways, including:

Calories — Specifications for the maximum calories in school meals are only slightly higher than current minimums. The Committee recognized that some children with limited access to food or relatively high calorie needs might benefit from additional calories in school meals. However, the Committee concluded that alternative mechanisms exist for ensuring that children’s daily food needs are met and did not feel that higher calorie maximums in school meals were warranted.

Fruits and vegetables — The proposed requirements double the amount of fruit and vegetables to be included in school meals, set separate requirements for fruits and vegetables (which are treated interchangeably under current rules), limit juice to no more than half of the required fruit offerings, specify the types of vegetables that must be offered, and limit starchy vegetables to once per week. Over a five-day period, vegetables offered at lunch must include at least one-half cup equivalent of each of the following: dark green vegetables, bright orange vegetables, and legumes.

Grains — The amount of grains in school meals do not change significantly under the IOM Committee’s proposal, but the recommended meal requirements specify that at least half of the bread/grain offerings must be “whole grain-rich.” The Committee established criteria for identifying whole grain-rich foods, requiring at least half the total grain content be whole grain. Current requirements only encourage whole grains, without setting specific requirements for whole grain offerings.

Milk — The proposed requirements do not change the amount of milk offered in school meals, but limit offerings to fat-free (plain or flavored) or plain low-fat (1 percent milk fat or less).

Trans fats — The Committee recommends that *trans* fats be eliminated from school meals. For food items purchased commercially, the food labeling or manufacturer’s specification must indicate that the product contains zero grams of *trans* fat per serving.

Sodium — The Committee recommends that sodium levels be reduced gradually, with specified targets reached by the year 2020. Current requirements recommend that sodium levels be decreased but do not specify target levels.

Selection of foods by students — Two options for standards for meals as selected by students were proposed for USDA consideration. The Committee’s preferred option would allow two items to be declined at lunch, but requires students to select at least one fruit or vegetable. The alternative option would allow for an additional item to be declined.

Barriers to Healthier School Meals

The Committee recognized that schools would likely face challenges in implementing the recommended meal requirements. An interim report explored numerous factors that have hindered past efforts to improve school meals, many of which had been previously identified by USDA as important concerns. Key considerations include the cost implications of more rigorous nutrition standards and the foods available through commodities, as well as other practical realities that confront school food service operators.

Healthy school meals can be more costly to produce than less healthy alternatives. Fresh fruit, vegetables, and meats are often more expensive than processed food options due to differences in purchase

price, as well as food inventory management and preparation costs. Canned foods, frozen products, and dry mixes keep for longer time periods, reduce spoilage waste, and require less storage space. Some schools also find it more economical to purchase fully or semi-prepared foods from commercial food vendors rather than incur the labor and benefit costs that would be required to prepare fresh foods on-site. While some healthy options may be available from commercial vendors, in general processed foods tend to have higher fat, salt, and sugar content than recipes prepared from minimally processed ingredients.

Historically some food service managers have expressed concerns that the USDA food items constrained their ability to improve the nutritional quality of school meals. The types of commodities available to schools have changed significantly over the years and school meal programs can now choose from over 180 different types of food items. USDA has invested significant resources into improving the commodities programs (see text box for additional details). Despite these improvements, advocates call for additional changes to ensure that commodities fully contribute to healthier school meals.

A major concern focuses on the 50 percent of USDA foods that are diverted to commercial food processors who convert the raw bulk foods into ready-to-use products for school districts. For example, school districts may choose to further process poultry provided through the commodity

Improvements in USDA Foods

Availability of fruits and vegetables through the USDA commodities programs (sometimes called USDA foods) has increased significantly. Between fiscal years 1995 and 2008, the value of fruits and vegetables made available to child nutrition programs through the commodities programs nearly doubled, rising from \$135 million to \$236 million. Fruits and vegetables now represent roughly one-quarter of the total value of commodities used in schools. About 20 percent of all commodity fruits and vegetables used in schools are acquired through the U.S. Department of Defense's Fresh Fruit and Vegetable Program. This program utilizes the military's extensive food purchasing and distribution system to provide a wider range of fresh produce than would normally be available through the USDA's traditional commodity purchases. A related effort, the Farm to School Initiative, encourages small farmers to sell fresh fruits and vegetables to schools and help schools establish the structures needed to promote these purchasing relationships.

USDA has made other efforts to improve the quality of commodities provided to schools. For example:

- Canned fruits can be packed only in light syrup, water, or natural juice
- Tropical oils (most of which contain trans fat) have been eliminated from commodity products
- The allowable fat content of commodity meats, cheeses, bakery product mixes, and processed potatoes has been lowered
- Sodium levels in all canned vegetables have been lowered

Future plans include continuing to bring commodities into alignment with the 2005 *Dietary Guidelines* and increasing whole grain offerings.

program into nuggets or sandwich patties. Although such diversion offers convenience to schools and reduces their labor costs, commercial processing can be a significant source of added salt and sugar.

A broad range of other pragmatic concerns are perceived to hinder improvements in the nutritional quality of school meals. The lack of appropriate training for food service staff, inadequate equipment and facilities, skepticism regarding student receptivity to healthier meals, and limitations in existing food labeling requirements⁴⁰ have all been cited as problems that must be addressed. The importance and extent of these issues is likely to vary by school district, depending on the organization and structure of their food service operations.

The IOM Committee recognized that implementation of its recommendations for improving the nutritional quality of school meals would raise costs. Cost estimates suggest that the new meal requirements will increase the food-related costs of school meals by 20 to 25 percent for breakfast and 4 to 9 percent for lunch, largely due to increases in fruit, vegetable, and whole grain offerings. The Committee also acknowledged that the proposed meal requirements have the potential to increase labor and facility costs, in addition to food costs. However, the Committee did not feel that enough information was available to accurately estimate the magnitude of these impacts.

The Committee concluded that most school food authorities would not be able to absorb the increases in food costs likely to result from the proposed meal requirements and recommended higher federal rates for meal reimbursement, along with capital investment in equipment and facilities, and resources to train school food service operators. Specific recommendations regarding the level of increase needed for reimbursement rates or the amount of infrastructure and training support were not provided.

CONCLUSION

Much of the legislative policy debate surrounding school-based nutrition is now focused on the “competitive” foods and beverages sold alongside reimbursable school meals, but Congress is also concerned with the quality and accessibility of the school meal programs. While USDA prepares for future regulatory changes regarding school meal nutrition standards, some advocates believe that statutory changes may also be necessary to expedite improvements. Proposals have

been made for legislative intervention to ensure more timely updates of nutrition standards on the basis of the evolving scientific evidence. Some have suggested statutory language that would establish mandatory timelines for regulatory changes based on release of current, and future, *Dietary Guidelines*.

Others have proposed that additional nutritional standards be included in legislative text. Congress has generally delegated authority over the nutritional content of school meals to USDA, but some aspects of meal composition are now defined by legislation. For example, legislation explicitly requires participating schools to offer fluid milk in a variety of fat contents. Some advocates would like to see broad directives for other nutritional improvements proscribed in statute. Arguments against legislative proscriptions focus on concerns regarding the timeliness of future changes, as well as the possibility that political influence could encourage a departure from evidence-based standards.

Similar to the debate regarding competitive foods, legislative and regulatory efforts to improve the nutritional quality of school meals will be considered in light of the effect these improvements could have on childhood obesity, as well as the likely fiscal impact of changes. Any policy to significantly enhance nutrition standards for school meals will undoubtedly raise questions about the adequacy of federal funding for the school meal programs. The perceived adequacy of federal financial support will be informed by a variety of factors, including the proportion of children eligible for free or reduced-price meals, meal reimbursement rates, the value and utility of donated commodities, program costs, and the availability of alternative revenue sources. Policy changes in these areas may be needed to complement enhanced nutrition standards for school meals.

ENDNOTES

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