Position of the Academy of Nutrition and Dietetics, Society for Nutrition Education and Behavior, and School Nutrition Association: Comprehensive Nutrition Programs and Services in Schools

ABSTRACT

It is the position of the Academy of Nutrition and Dietetics, School Nutrition Association, and Society for Nutrition Education and Behavior that comprehensive, integrated nutrition programs in preschool through high school are essential to improve the health, nutritional status, and academic performance of our nation's children. Through the continued use of multidisciplinary teams, local school needs will be better identified and addressed within updated wellness policies. Updated nutrition standards are providing students with a wider variety of fruits, vegetables, and whole grains, while limiting sodium, calories, and saturated fat. Millions of students enjoy school meals every day in the United States, with the majority of these served to children who are eligible for free and reduced-priced meals. To maximize impact, the Academy, School Nutrition Association, and Society for Nutrition Education and Behavior recommend specific strategies in the following key areas: food and nutrition services available throughout the school campus, nutrition initiatives such as farm to school and school gardens, wellness policies, nutrition education and promotion, food and beverage marketing at school, and consideration of roles and responsibilities.
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POSITION STATEMENT

It is the position of the Academy of Nutrition and Dietetics, School Nutrition Association, and Society for Nutrition Education and Behavior that comprehensive, integrated nutrition programs in preschool through high school are essential to improve the health, nutritional status, and academic performance of our nation's children. To maximize impact, the Academy, School Nutrition Association, and Society for Nutrition Education and Behavior recommend specific strategies in the following key areas: food and nutrition services available throughout the school campus; nutrition initiatives such as farm to school and school gardens; wellness policies; nutrition education and promotion; food and beverage marketing at school; and consideration of roles and responsibilities.

MILLIONS OF STUDENTS enjoy school meals every day in the United States, with the majority of these served to children from low-income families who are eligible for free and reduced-priced meals. The previous joint paper of the Academy of Nutrition and Dietetics, School Nutrition Association (SNA), and Society for Nutrition Education and Behavior (SNEB)[1] was published before the Healthy, Hunger-Free Kids Act of 2010 (HHFKA). The implementation of HHFKA between 2012 and 2016 has resulted in significant changes in nearly every aspect of school nutrition programs, which are explored in this current joint position paper and in greater detail in the Academy of Nutrition and Dietetics practice paper on comprehensive nutrition programs and services in schools.[2]

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MEAL PROGRAMS AVAILABLE PRESCHOOL-12

The National School Lunch Program (NSLP), the School Breakfast Program (SBP), the Child and Adult Care Food Program, the Summer Food Service Program, the Fresh Fruit and Vegetable Program, and After School Snack Program are US Department of Agriculture (USDA) programs that are available in public, charter, and nonprofit private preschool-12 schools.[3] These nutrition programs, administered by state education or agriculture agencies, are designed to provide nourishing meals and snacks to fuel students' minds and feed their bodies. Not all programs are available in all districts, and state budgets vary in their investments in nutrition programs.[4]

In 2016 an average of 30.4 million children per day participated in school lunch, and 14.6 million children participated in school breakfast.[5] The Figure shows annual summary data of school food and nutrition service programs in the United States. The SBP has shown a steady increase in participation, but the gap between lunch and breakfast participation is still wide. Strategies that increase SBP participation include breakfast in the classroom, breakfast after the bell, and universal free breakfast programs. To participate in the After School Snack Program, sites must operate the NSLP and sponsor or

National School Lunch Program	
Children participating daily	30,390,000
Total lunches served annually	5,052,000,000
Percent free	66.6%
Percent reduced-price	6.7%
Total after-school snacks served annually	211,000,000
School Breakfast Program	
Children participating daily	14,569,000
Total breakfasts served annually	2,448,000,000
Percent free or reduced price	85.2%
Summer Food Service Program	
Total meals served annually	153,000,000

Figure. Annual summary of school food and nutrition service programs in the United States. Adapted from reference 5 (data as of May 5, 2017 [FY 2016]; data are preliminary and subject to revision).

operate an after-school care program. Those snacks can be offered under either the NSLP or the Child and Adult Care Food Program. Operators are required to follow several different sets of regulations and guidance for the different USDA child nutrition programs.

Schools are responsible for providing high-quality meals that are appealing to students while meeting all federal regulations and nutrition standards. Although updated nutrition standards improved the nutrition quality of school meals, they also created some financial and acceptance challenges for some school districts and school food authorities.[6] According to the USDA's cost estimates of the regulations for food and labor in 2012, the updated regulations added an estimated 10 cents to the cost of preparing every school lunch and 27 cents for every breakfast.[7] The 2010 HHFKA provided only an additional reimbursement of 6 cents per lunch to school districts that were certified to be in compliance with the 2012 meal patterns. Nearly 8 in 10 school district directors have reported the need to reduce staffing, defer or cancel equipment investments, and reduce reserve funds to offset financial losses since the 2012 standards were implemented.[8]

The Community Eligibility Provision (CEP) allows schools with an Identified Student Percentage over 40% to serve free breakfast and lunch to all students. Identified students are those that are qualified to receive a meal at no cost through Direct Certification, including students certified as homeless, runaway, migrant, foster, children enrolled in a federally funded Head Start program, Supplemental Nutrition Assistance Program, or Temporary Assistance for Needy Families, and nonapplicant students approved by the local education agency (LEA). An evaluation of participating LEAs found that they were satisfied and likely to continue using the CEP; the CEP appeared to increase NSLP and SBP participation.[9] As of September 2014, enrollment at CEP schools was 6,408,507.[10]

STANDARDS AND MEAL PATTERNS FOR REIMBURSABLE MEALS

The 2010 HHFKA required the USDA to update nutrition standards for the first time in 15 years. The updated regulations, based on the Dietary Guidelines for Americans and issued by the USDA in 2012 after an extensive comment process, included meal patterns with a wider variety of fruits, vegetables, and whole grains while limiting sodium, calories, and saturated fat. The nutrition standards included phases for implementation of new breakfast requirements, sodium targets, and inclusion of whole grain–rich menu items.[7] The HHFKA required food-based menu planning and five vegetable subgroups that include dark green, red/orange, starchy, legumes, and other vegetables each week.

Since implementation of the USDA's 2012 Nutrition Standards for School Meals, districts have made significant progress in offering whole grains, two or more vegetables, and fresh fruit each day, using low-sodium canned vegetables and reducing overall sodium content of meals.[11] Studies have shown some positive effects in students' nutrient intake after implementation of the 2012 nutrition standards.[12,13] Concerns have remained about the acceptability of some whole-grain products, the planned further reductions in sodium levels, and the availability of 1% flavored milk. On November 29, 2017, the Secretary of the USDA issued an interim final rule, the School Meal Flexibility Rule, which amends USDA regulations for the 2018-2019 school year to continue offering waivers for whole grains, to maintain sodium at Target 1 levels, and to offer 1% flavored milk as an option. Details and additional USDA memos, rules, and updates addressing the meal pattern can be found on the Food and Nutrition Service website.[14]

Food Waste

Plate waste has been an oft-noted concern in school meal programs for several decades. Offer versus Serve, a best practice for reducing food waste, allows students to decline some food items they do not wish to eat. Choosing which foods they will eat may decrease waste and increase satisfaction.[15] In 2016, the USDA updated the 2004 Offer versus Serve guidance to align it with the HHFKA-related meal requirements. According to directors surveyed by the USDA, reducing food waste requires a multifaceted approach, including what foods are served, how new foods are introduced to students, and where meals are offered, in addition to the scheduling of school meals and the atmosphere in dining areas.[16]

Time to Eat

Currently no national standard or mandate is in place for the amount of time students should have to eat during school meals, but the USDA has recommended 20 minutes after seating for lunch, and 15 minutes for breakfast.[15] Meal schedules are locally controlled by the district or individual schools. Students who have less than 20 to 25 minutes at lunch often do not

have enough time to enjoy all the food on their tray.[17] Experts suggest that policies encouraging lunches with at least 25 minutes of seated time may reduce food waste and improve dietary intake. Recess placement also may have an impact on consumption of lunch. Both the USDA and the Centers for Disease Control and Prevention recommend scheduling recess before lunch to increase consumption of fruits, vegetables, and entrees, as well as milk and water.[18]

Water Access

As part of the HHFKA, free water must be available in the cafeteria during lunch and breakfast service. USDA Food and Nutrition Service guidance addresses water availability, such as: location requirement, reasonable costs, implementation, and food safety.[19] In addition, the Centers for Disease Control and Prevention has tools and suggestions for ways that schools can increase access to and consumption of drinking water by students.[20]

Smart Snacks and Competitive Foods

The HHFKA also required the USDA to develop standards for all snack foods and beverages that are served during the school day to students. The Smart Snacks in Schools rule limited low-nutrient foods and required that if healthier snack foods and beverages are sold they must meet strict nutrition standards.[21] These standards require snack foods to consist of specific nutrient-dense ingredients, with calorie, sodium, fat, and sugar limits, and must include grade-level limitations for beverages, as well as fundraising standards. Healthier weight and improved dietary intake could be a positive result associated with Smart Snacks because of decreased consumption of less nutritive snacks.[22] Removing à la carte foods has been shown to increase NSLP participation, replacing those à la carte foods with a complete nutritionally balanced school lunch.[23] Long and colleagues demonstrated the positive impact Connecticut legislative incentives provided for schools eliminating unhealthy competitive foods, resulting in increased school lunch participation.[24]

SCHOOL NUTRITION PROGRAM INITIATIVES

Since 2000, several popular initiatives have been introduced that may impact all school nutrition programs. These initiatives include farm to school; school gardens; sustainability; and culinary education for staff, students, and family. There are many case studies, poster presentations, and how-to manuals from initiatives, including the National Farm to School Network (www.farmtoschool.org), Food Corps,[25] USDA Food Waste Challenge,[15] and Chefs Move to School (www.chefsmovetoschools.org). The impact of these programs on child health and nutrition is a relatively new area of study. A theoretical farm-to-school framework was introduced in 2012[26] and refined in the 2014 Evaluation for Transformation: A Cross-Sectoral Evaluation Framework for Farm to School,[27] which the USDA will use as the basis for ongoing evaluation of farm-to-school grantees and other programs.

The 2015 USDA Farm to School Census demonstrates the rapid growth in this area and its wide acceptance.[28] A few of the notable findings from the 12,585 schools and school districts that completed usable responses (a response rate of 70%) include:

- $789 million invested in local communities through farm-to-school purchases, a 105% increase over the first USDA Farm to School Census in school year 2011-2012; and
- 7,101 school gardens, representing an increase of 42% from the previous census.

Schools with a farm-to-school program also reported benefits, including greater community support for school meals (38%), greater acceptance of HHFKA changes (28%), lower meals costs (21%), increased participation (17%), and reduced food waste (18%).

Although these metrics are impressive and positive, evidence for specific benefits on food choice, meal consumption, nutrient intake, and health status of students is mostly qualitative in nature. Future research should include control groups, randomized designs, and assessments of long-term changes in consumption. Cross-sector use of the evaluation framework adopted by the USDA can offer more substantial proof about the effects of school garden and farm-to-school programs. There is a similar lack of school-focused research in terms of sustainability and food waste initiatives. The publication of the Academy's 2016 wasted food report provides the opportunity to examine food waste in schools more carefully and to document the effects of programs in a variety of school districts.[29] As noted in the USDA's 2014 infographic, food waste in schools can be reduced and lunch consumption improved by scheduling recess before lunch and allowing sufficient time for students to eat.[30]

WELLNESS POLICIES: EVALUATING PROGRESS AND POTENTIAL

The 2010 HHFKA strengthened local wellness policies by requiring the participation of additional stakeholders and expanding their scope to include physical activity and other school-based activities as well as nutrition education and promotion. Mandated policies must include nutrition guidelines for all foods sold in schools, periodic assessment of compliance, and public updates on both the content and implementation of the wellness policies.[31] Each LEA must set measurable goals for nutrition education and promotion, consider evidence-based strategies and techniques, set standards for foods provided but not sold to students during the school day (such as classroom parties or foods given as incentives), and designate one or more local education agency officials to ensure that each school complies with the local wellness policy.

In 2014, approximately 90% of district policies included goals for nutrition education and physical activity and guidelines for school meals, but only approximately 60% had competitive food guidelines, and these tended to be weak, particularly for vending machines, class parties, and fundraisers. Approximately 80% had implementation and evaluation plans, but only about 50% had policies for all required elements. The policies averaged approximately 50% in comprehensiveness in terms of covering all the required areas of wellness policies

and approximately 30% in strength, which represents the degree to which the provisions promoting wellness are definitely required.[32] A population-based study of adolescents found that each additional component included in a district's wellness policy (that is, an increase in comprehensiveness) reduced the prevalence of obesity by approximately 3%.[33] Although few studies have yet been reported since implementation of HHFKA, recent studies have shown that strong local wellness policies can positively influence children's health. For example, an examination of 24 studies from 2005 to 2013 found that having policies governing the sale of foods and beverages sold outside of school meal programs was associated with changes in weight, body mass index, probability of overweight or obesity, and consumption and/or availability of foods and beverages in the expected direction.[22]

Districts should thus develop comprehensive and strong policies that promote health. Schools should not only motivate and teach the knowledge and skills for children to make healthful choices, but also should provide an environment fostering healthful eating. Strong policies need to be implemented so that nutrition guidelines for all foods and beverages available or for sale on the school campus during the school day, offered at classroom parties, or used as incentives are consistent with federal regulations for school meal nutrition standards or Smart Snacks in School. Nutrition standards ensure that children experience a healthful food environment at school. Policies for food and beverage marketing that allow marketing and advertising of only those foods and beverages that meet the Smart Snacks in School nutrition standards promote consistent messages throughout the school.[22]

NUTRITION EDUCATION AND PROMOTION

Nutrition education is a crucial component of comprehensive school nutrition programs. It contributes to healthful eating in and out of school and to a reduced risk of childhood obesity.[34,35] Nutrition education is defined as all of the educational activities that engage students, not only through direct classroom education but also through other venues throughout the school campus during the school day that are designed to motivate students and facilitate adoption of healthful food choices accompanied by a supportive school environment.[34,36]

The literature shows that simply knowing what to eat is not enough to change behavior. Research evidence indicates that nutrition education is more likely to bring about positive behavior change when it includes the following elements:

- targets specific behaviors or practices;
- enhances the interests and motivations of targeted youth, taking into consideration cultural diversity;
- uses appropriate behavior change strategies to provide relevant knowledge and teach behavior change skills, including self-assessment and goal-setting;
- includes experiences in growing and preparing food;
- delivers coherent and clearly focused curricula linked closely to national and local educational standards;
- uses active methods, including innovative multimedia technology tools;
- devotes adequate time and intensity to result in behavior change; and
- provides appropriate teacher training and support.[34,37]

Approximately 75% of wellness policies nationwide addressed teaching behavior-focused skills in 2014, up from 50% in 2006.[32] Only 10%, however, recommended that teachers receive professional development for new nutrition education skills. Consequently, schools and/or districts should adopt evidence-based strategies and techniques in establishing nutrition education goals, develop coherent behavior-focused curricula for all grades using existing resources, and provide adequate funding for professional development and resources.

Classroom nutrition education can be included as part of health education, integrated into all core and elective subjects, or provided as standalone curricula for all grade levels.[37] Nutrition education involves indirect methods such as posters or displays in cafeterias, classrooms, or hallways. These nutrition education activities should be more closely linked with participatory activities such as nutrition promotions, food demonstrations and taste testing in the cafeteria, school gardening, culinary education, and farm-to-school activities. In addition, it is important to engage families through school-sponsored family wellness activities, newsletters, workshops, or website postings to help families reinforce the nutrition education messages at home.[32,34,36]

Direct and indirect nutrition education needs to be integrated with high-quality food provided to children through school meals, healthful food choices available throughout the school campus, well-implemented wellness policies, other food- and nutrition-related activities in the school, and reinforcement in the home and community to have lasting impact. The USDA's Team Nutrition as well as other effective initiatives can provide frameworks for coordinated efforts by school foodservice personnel, teachers, parents, and other community members to work together to accomplish the goal of healthy children in healthful environments. The Society for Nutrition Education and Behavior has recently identified a list of competencies for nutrition educators who have the knowledge and skills to develop evidence-based nutrition education curricula, materials, and programs that can be used in and out of the classroom to assist students in developing healthful eating patterns.[38]

Nutrition promotion focuses in particular on evidence-based techniques to market or advertise nutritious foods and beverages to students through a comprehensive and multichannel approach and should be encouraged.[22] Nutrition promotion can enhance participation in school meal programs and decrease food waste by using tools and strategies to make the healthful foods more attractive and convenient and help children develop a respect for food, including appreciation of the farmers who grow it and those who prepare and serve it. Adequate funding and technical assistance can help schools use innovative strategies to create a health-promoting school.

FOOD AND BEVERAGE MARKETING AT SCHOOL

Food and beverage marketing commonly includes all oral, written, or graphic statements designed to promote the sale of a product. Food and beverage marketing is prevalent, with most of those marketed being low in nutritional value,[39] and parents express concern.[40] Yet less than 10% of schools had strong policies about such marketing.[34] Schools are urged to develop strong policies designed to promote wellness. Schools may choose to restrict all such marketing. If schools choose to permit marketing, then school policies should only allow for the marketing of foods and beverages on the school campus during the school day that meet, at a minimum, the federal competitive foods standards.[22] These policies must specifically apply to the full range of food and beverage marketing in schools, such as displays on vending machines, coolers, trash cans, school buses, school publications, media-based advertising, food coupons as incentives, scoreboards, branded fundraisers, corporate-sponsored programs, and educational materials as well as for brand advertising. Strong policies provide consistent healthful eating messages for youth throughout the school environment, reduce confusion, complement the provision of healthful school meals, and reinforce nutrition education in and out of the classroom.[34]

ROLES AND RESPONSIBILITIES

The USDA has established professional standards requirements for school nutrition professionals who manage and operate school nutrition programs. These require minimum education standards for new state and local school nutrition directors based on a school district's size as well as annual training standards for all school nutrition professionals. SNA and the USDA have collaborated to provide school nutrition professionals with tools to track their annual training requirements and understand how to remain compliant with the updated regulation.[41]

Credentialed practitioners are uniquely qualified to lead school nutrition programs, and several dietetic internships focus on school nutrition. Many other dietetic education programs and dietetic internships offer school-based rotations of varying lengths. A survey of registered dietitian nutritionists and state agency directors in the USDA Food and Nutrition Service's Southeast food and nutrition region revealed that benefits to others, positive student health outcomes, and making a difference motivated respondents to choose school nutrition leadership positions.[42] Respondents' job satisfaction was related to using their dietetics skills, providing employee training, and handling financial aspects of their position.

More than 1,550 school nutrition specialists are credentialed by the SNA, and school nutrition internships are offered by the SNA, with three sites in Arizona, Texas, and Massachusetts.[43] The internships offer experience in school nutrition programs and prepare interns to sit for the school nutrition specialist examination.

CONCLUSIONS

The Academy, SNEB, and SNA support:

- promotion of healthful choices at school through nutrition standards, snack guidelines, and nutrition education to provide students with the tools to make lifelong healthful decisions in terms of food and nutrition;
- development and implementation of comprehensive local school policies to enhance the food and learning environments of children and promote student wellness;
- resources, training, best practices, and technical assistance from the USDA and other agencies that are easily accessible to assist schools to develop and fully implement strong programs and policies;
- research-based interventions that encourage student selection and consumption of fruits, vegetables, and whole grains;
- collaborative work between the USDA and the US Department of Education to establish best practices for schedules incorporating sufficient time for students to eat school meals;
- nutrition education standards to help ensure consistency so that students preschool-12 receive effective, evidence-based nutrition education through adequate funding, professional development, curricula, and resources;
- credentialed professionals who are uniquely qualified to lead school nutrition programs and oversee the development of training materials for dietetics students and school nutrition professionals;
- dietetics education about school nutrition programs, including, but not limited to, didactic courses and dietetics internship rotations at school nutrition sites; and
- quantitative and qualitative research documenting school nutrition program effectiveness. This includes designing, implementing, and evaluating innovative programs such as school salad bars, culinary education, healthful food promotion, farm-to-school programs, and sustainability initiatives. Research is also needed on how best to scale up existing effective programs. This research agenda will contribute to improved health of the nation's children.

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AUTHOR INFORMATION

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Authors: Dayle Hayes, MS, RD; Isobel R. Contento, PhD; Carol Weekly, RDN, SNS

Authors: Academy of Nutrition and Dietetics: Dayle Hayes, MS, RD (Nutrition for the Future, Inc, Billings, MT); *Society for Nutrition Education and Behavior*: Isobel R. Contento, PhD (Teachers College Columbia University, New York, NY); *School Nutrition Association*: Carol Weekly, RD, SNS (Queen Creek Unified School District, AZ).

STATEMENT OF POTENTIAL CONFLICT OF INTEREST

Dayle Hayes has had consultancies with the US Department of Agriculture, multiple state departments of education and agriculture, American Egg Board, California Walnuts, National Dairy Council and state/regional dairy councils, National Cattlemen's Beef Association and state beef councils, National Peanut Board, Potatoes USA, The Mushroom Council, US Highbush Blueberry Council, Clif Bar, Barilla USA, and General Mills. No potential conflict of interest was reported by the other authors.

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