

NFSMI Research Summary

Please note that this study was published before the SY2014-15 implementation of the Smart Snacks Nutrition Standards for Competitive Food in Schools, as required by the Healthy, Hunger-Free Kids Acts of 2010. As such, certain research relating to food in schools may not be relevant today.

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The NFSMI Research Summary is a continuing series of summaries reporting recently completed research and research-based resources funded by the National Food Service Management Institute.

Recently Completed Research

Succession Planning for Management Level Staff in School Nutrition Programs

Succession planning for school nutrition (SN) directors can be addressed from two levels, which are the school district and the SN professional levels. The district level would apply to an individual SN program and SN director, while the professional level would involve developing strategies to meet the needs of SN programs throughout the United States. In 2009, the NFSMI National Advisory Council emphasized the importance and urgency of succession planning for SN directors and the SN profession. The purpose of this exploratory study was to identify issues associated with succession planning.

This project consisted of two expert panel discussions. One panel focused on succession issues for the profession of SN management, while the other panel focused on succession planning at the school district level. For the first panel, professionals were invited from different areas related to the profession of SN management, including: the School Nutrition Association and School Nutrition Services Dietetics Practice Group leadership; university professionals in the fields of dietetics and hospitality management; child nutrition state agency representatives, and SN directors with a demonstrated record of success and leadership in the operation of child nutrition programs. For the second panel, SN directors representing the diversity of school districts around the country were invited to participate.

Results suggest that school district officials are not aware of the importance of succession planning for SN directors and of the necessary qualifications required for these positions. Much can be gained by engaging in local and national succession planning, such as increasing the availability and retention of qualified talent and promoting sustainable quality in SN programs.

To achieve these gains, several challenges must be overcome:

- Changing public perception of the profession of SN management;

- Gaining administrative support and commitment for SN director succession planning;
- Growing the number of individuals interested in the field of SN management;
- Increasing avenues for developing SN talent;
- Coordinating the activities related to succession planning among SN professional organizations; and
- Working with limited financial resources to accomplish these objectives.

The areas that should be considered when looking for a solution are as follows:

- Marketing to promote interest in the profession;
- Internships and practicums to provide experience;
- Internal development of SN employees;
- Mentoring opportunities for new SN directors;
- Resources to support local school districts in succession planning; and
- Research to support succession planning.

Sustainability of School Wellness Policy Initiatives

In 2004, federal legislation reauthorizing the National School Lunch Program required that participating school districts establish a Local Wellness Policy (LWP) by the beginning of the 2006-2007 academic year. The purpose of this study is to explore successful strategies to sustaining school wellness, as well as monitoring activities and evaluation practices used for measuring progress, with the following research objectives in mind:

- Identify strategies and practices used to sustain LWP initiatives;
- Describe monitoring activities and evaluation practices for measuring progress of LWP initiatives; and
- Identify measures that are used to determine sustainability of LWP initiatives.

A two-phase research design was utilized. In Phase I of the study, SN professionals were invited to serve on an expert panel to discuss what strategies were utilized by SN directors and other administrators to implement and sustain school wellness initiatives. Expert panel members discussed that most school districts have implemented a mandated LWP, but there was a lack of funding for implementation, and a lack of tools for proper monitoring and evaluation of the initiatives.

In Phase II the qualitative data gained from the expert panel discussions were used to develop a quantitative survey instrument that explored successful strategies that lead to the sustainability of school wellness policy initiatives and monitoring/evaluation activities utilized for measuring progress of these initiatives. The survey was sent to a random sample of 700 SN directors in public school districts. The sample was stratified by USDA region with 100 school districts from each USDA region. A total of 225 surveys were returned for a return rate of 32%.

Results of this study suggest the following:

- Communication is vital for sustaining LWP goals, activities, and accomplishments and should be provided to all school district stakeholders.
- Leadership roles of the majority of SN directors involve implementing, monitoring, and evaluating LWP components related to school meal regulations and competitive

- foods (offered and sold) guidelines. Other school personnel including school nurses, school administrative staff, district-level wellness committees, and district administrative staff have leadership roles in implementing LWP components.
- Limited student outcomes are being measured to assess LWP implementation. The outcome measure used to assess the implementation of the LWP initiative most often was healthier selections of items from reimbursable school meals. Almost as many reported that “no measures were used” or that they “did not know” what measures were used.
 - Survey results suggest that either monitoring is not taking place or SN directors are not directly involved in the monitoring and evaluation aspects of the LWP initiatives.
 - Initial efforts have been made by school districts to sustain LWP initiatives but more systems could be put in place to support sustainability. As school districts seek to sustain LWP initiatives, consideration should be given to develop systems, policies, and procedures related to leadership, communication, monitoring, and funding.
 - School nutrition directors need training and resources to assist with LWP implementation, monitoring LWP activities, and communicating results to stakeholders.

Training and Educational Resource Needs of Child Care Professionals Participating in the CACFP

The purpose of this research was to explore and assess the various needs of child care professionals participating in the Child and Adult Care Food Program (CACFP). In the first phase of the study, an expert panel of child care professionals convened to discuss research objectives and provide suggestions for the development of a national survey. In the second phase, the expert panel data was used to create a quantitative survey instrument to assess child care professionals’ CACFP-related education, training, and resource needs; to identify methods to reach and disseminate training and resource materials; and to identify preferred resources and methods of training delivery. The survey was piloted, and reviewers suggested that two surveys be created to meet the diverse audience of child care professionals. Two surveys, *Family Childcare Home Providers’ CACFP Survey (FCHP)* and *CACFP Needs Assessment Survey (CNAS)*, were created, pilot tested, revised, and formatted for family child care home providers, sponsoring organization representatives, child care directors/providers, and Head Start representatives. The *Family Childcare Home Providers’ CACFP Survey* was designed to meet the unique needs of family child care home providers and their sponsors, while the *CNAS* was developed to address the needs of child care center directors/providers, their sponsors, and Head Start representatives. The *FCHP* survey packets were mailed to a sample of 400 family child care home providers and sponsors, and 800 *CNAS* survey packets were mailed to child care directors/providers, child care sponsoring organization representatives, and Head Start personnel. A total of 111 (27.8%) *FCHP* surveys and 303 *CNAS* surveys (37.5%) were completed and returned.

Results from both surveys revealed that time was a major barrier for obtaining training for child care professionals and members of their staff. Child care center providers indicated that it was an issue for staff to travel to training sessions. Despite the barriers for training, many respondents indicated that they receive training from their state agency and sponsoring organizations and use computer technology to access various resources to meet their training needs. Family child care

home providers, sponsors, and child care center providers identified several education and resource needs. Resources for purchasing healthy food on a budget and food allergies had high mean ratings from both surveys. However, nutrition education and resources to assist child care professionals sustain active play for children were also needed for family child care home providers. Additional resources for approved food substitutes, healthy snacks, and menu planning were reported as needs for child care center providers. Because the needs of all CACFP participants vary, the majority of the respondents from both surveys indicated that it was easy for them to find resources for parents and children in their care.

All in all, the CACFP includes a variety of programs that provide food and nutrition assistance to child care professionals working in diverse settings. The information from this study could be used to develop future research projects to explore and examine specific needs of child care professionals in various roles and settings. Organizations that provide training should continue to market up-to-date education and training resources using CACFP participants' preferences to assist them in implementing the CACFP successfully.

Comparison of NSLP Lunches and Lunches Brought from Home in Four Elementary Schools Receiving HUSSC Awards

The purpose of this research project was to compare the nutritional content of lunches brought from home (LBFH) and lunches served in school as part of the National School Lunch Program (NSLP) in elementary schools that earned HealthierUS School Challenge (HUSSC) awards. Lunches served and lunches consumed were considered separately. Results were based on the nutrient content of 1,085 lunches from 560 individual students in four HUSSC schools. In addition, demographic data for 759 of these lunches was obtained (354 from NSLP and 404 LBFH).

Chi-square tests indicated a significant difference ($p < 0.05$) between the sex of students and where they obtained their lunches. Of the meals examined, a majority of LBFH (64.9%) were brought by females, whereas a majority of NSLP meals (64.9%) were eaten by males. For lunches served, two sample *t*-tests revealed that several differences were significant ($p < 0.05$). Lunches obtained from the NSLP contained more of the following nutrients compared to LBFH: protein, calcium, cholesterol, iron, sodium and vitamin C. However, lunches obtained from the NSLP contained less of the following nutrients: food energy, percentage of calories from total fat, percentage of calories from saturated fat, carbohydrates, and fiber. Similarly for lunches consumed, these same differences were found to be statistically significant ($p < 0.05$) with the addition of the fact that lunches obtained and consumed from the NSLP contained more vitamin A than LBFH.

When considering both lunches served and consumed independently, Chi-square tests indicated a significant ($p < 0.05$) difference between the percent of NSLP meals and LBFH that met the various School Meal Initiative (SMI) guidelines. National School Lunch Program meals met guidelines for lunches both served and consumed more often for the percentage of calories coming from total fat, protein, calcium, iron, and vitamins A and C. Lunches brought from home met guidelines more often for food energy both served and consumed. A relatively low percentage of all served lunches, whether NSLP or LBFH, met all the SMI nutrient standards.

Moreover, an even lower percentage of lunches consumed met the standards. Nonetheless, NSLP lunches tend to meet the SMI standards more often than LBFH.

Marketing the School Nutrition Program: A Resource Guide for School Nutrition Professionals

The purpose of this project was to identify sustainable strategies, resources, and successful practices used by SN professionals to market the SN program, and to develop a research-based resource to guide SN professionals in marketing the SN program. Seven SN professionals were asked to serve on an expert panel, work group session to assist in the development of marketing practice statements and goals. This project also included a national review panel consisting of SN directors to evaluate a draft marketing resource designed from the marketing practice statements and goals identified by the expert panel. The review panel members evaluated the practice statements, goal statements, and the draft practice resource. Panel members also reviewed and assessed the content, scales, format, and usefulness of the resource as a self-assessment tool for SN professionals.

The *Best Practices for Marketing the School Nutrition Program* resource consists of sixteen goals and seventy-three best practice statements within six practice categories. The resource can be used as a self-assessment tool for SN professionals to develop, maintain, and review the local SN program's marketing plan. Once the marketing plan has been assessed using the current status area of the assessment tool, the SN professional can establish a plan of action to address and/or implement those practices identified as needing attention. The following are suggestions and implications for using the resource:

- The resource can be used to identify essential marketing practices to implement in the SN program.
- School nutrition professionals can use the resource to identify the roles of SN personnel, school district personnel, school personnel, and community personnel, and the resources required for planning, developing, and implementing policies and procedures related to marketing.
- The practice resource can be used to identify marketing-related training needs for SN personnel.
- School Nutrition professionals can use the resource to establish a plan of action based on their assessment of the practice areas that require some attention.
- Additional resources in the reference list at the end of the best practice resource can also be used to assist with the implementation of marketing plans in SN programs.

Farm to School: Identifying Applied Research and Operational Resource Needs and Issues

Farm to School (FTS) has grown dramatically since the mid 1990's, when a few initiatives were piloted in New York, California, and Florida. Despite this growth, there has been only minimal peer-reviewed research to support SN professionals in managing FTS initiatives. Therefore, the purpose of this study was to explore and identify applied research needs associated with SN programs' engagement in FTS initiatives.

This project consisted of three site visits and an expert panel. The three SN programs selected for the site visits had SN directors in school districts who had successfully implemented a FTS initiative. Each site visit included structured interviews with SN managers and directors,

structured interviews with SN employees, and field observations of FTS operational activities. The expert panel consisted of 16 SN professionals, which included two state agency representatives and 14 SN directors. The SN directors were invited based on recommendations from state agency child nutrition directors. The criterion for the recommendations was experience implementing a FTS initiative within the past 10 years.

When expert panel members discussed “challenges and barriers to implementing a FTS initiative,” the top themes identified included procurement, knowledge, finances, and food processing/cooking. The theme “procurement” received the largest number of comments from the expert panel. Four suggestions were provided for increasing FTS sustainability: develop mutually beneficial partnerships and relationships with FTS stakeholders (such as farmers and nonprofit organizations); ensure future SN directors are interested in FTS; improve teacher involvement in FTS using school gardens; and work with school administrators to ensure FTS is written into the school wellness policy. When the discussion shifted to expanding a FTS program, a diverse grouping of challenges/barriers was offered. Some of the comments focused on the difficulties of finding farms large enough, limited growing seasons, and incorporating nutrition education.

When asked to identify resources to help overcome challenges and barriers to implementing, sustaining, or expanding FTS initiatives, many suggestions were offered, such as developing a step-by-step guide on how to implement a FTS program in a large and a small school district, developing standardized recipes for all possible FTS products, and updating USDA standardized recipes to include a side bar for dealing with raw products. Study results further suggest that SN directors would like to see future FTS research that measures the impact of FTS initiatives. The impact areas include academics, student participation, student satisfaction, local economies, number of local farmers, eating behaviors of students and their families, and SN compliance with federal meal pattern regulations.

Practices and Perceptions of School Nutrition Professionals Toward Obtaining the HUSSC Award

In 2004, the USDA established the HealthierUS School Challenge (HUSSC) award, a voluntary SN and wellness initiative, to recognize schools participating in the National School Lunch Program (NSLP) that have created a healthier school environment through the promotion of nutrition and physical activity. The purpose of this research project is to explore the impact of obtaining the HUSSC award on SN programs participating in the NSLP.

Phase I of this project included site visits to two school districts that had received HUSSC awards and an expert panel meeting with six SN professionals with experience in successfully applying for a HUSSC award. The objective of Phase I was to identify the impact of obtaining the HUSSC award on SN programs, with a focus on practices and perceptions for the purpose of developing an online national survey. In Phase II, an online survey instrument was created from data gathered during the expert panel. The sample for the survey portion of Phase II consisted of SN directors from 266 public school districts representing all seven USDA regions. All SN directors in the sample were in school districts that had received a HUSSC award.

One hundred and thirty nine survey recipients responded to the survey, for a response rate of 52.2% ($n = 139$). Respondents were distributed throughout the seven USDA regions, with the largest percentage coming from the Southeast (22.8%) and the smallest percentage coming from the Mid-Atlantic (7.9%). Survey results provided insight into the practices, perceptions and barriers of SN professionals that have received HUSSC awards. Those insights were as follows.

- The USDA HUSSC Web site (89.1%) and state agency resources (81.9%) were the most common sources of support used to prepare for a HUSSC application.
- Bronze was the most frequently received HUSSC award (56.8%), while the gold was the least frequently received (19.4%).
- The vast majority of school districts (91.4%) made changes to their menus as part of the HUSSC application process, and those changes most often included more beans/legumes (80.8%) and more whole grains (77.6%).
- When asked if they would be applying for a HUSSC award at the middle or high school level, 43.9% of respondents said no; the most common reason given was “à la carte foods” (45.7%).
- Most recipients agreed that “the HUSSC award status increases recognition among other SN programs” (3.51 ± 0.58); however an “increase in cost” (3.13 ± 0.72) for SN programs and the “application processes” (3.07 ± 0.74) were commonly cited as perceived barriers to obtaining a HUSSC award.

The results of this research demonstrate that the HUSSC award process positively affects SN programs. However there is much opportunity to improve in the process, specifically increasing the percentage of school districts that apply for higher level awards and awards at higher grade levels. More research is needed to determine how to simplify the application process and how to make this process cost effective. Additionally, SN directors will have to identify ways to increase student participation and secure the support of school administration regarding SN program involvement in the HUSSC process.

Exploring How Production and Equipment Decisions Impact the Operation of School Nutrition Programs

The purpose of this study was to explore the impact of food production and equipment decisions on the operation of SN programs. The specific objectives were to: identify the issues and the potential impact that decisions related to food production and equipment will have on the operational effectiveness of SN programs, and explore what processes should be undertaken to evaluate these issues, and make the best decision based on a specific SN program’s operational needs and budget constraints. This project consisted of three site visits to SN programs and two expert panels. The site visits included structured interviews with the SN directors and field observations. Each expert panel was comprised of eight SN directors, one state agency representative, and one SN representative from commercial food and equipment industries. Four major topics were discussed with each expert panel: major operational decisions facing SN directors, implementation of major operational decisions, evaluation of the success of these decisions, and training/resources needed to support SN directors in making these decisions.

School nutrition directors are encountering a wide variety of major operational decisions. Examples of those decisions included serving more raw and local produce and implementing chef-to-school programs. When the discussion shifted to implementation of major operational

decisions, the categories that emerged were the planning process, information sources, and information needed to make or implement decisions; marketing and communication to promote the success of decisions; and three types of major projects requiring decisions, including innovation projects, capital expenditure projects, and financial management projects. When asked how the success of major operational decisions is measured, the general response areas were customer satisfaction, food quality, and financial controls. Customer satisfaction measures included surveys, plate waste, focus groups, and talking with students and staff, while food quality measures included tray evaluations, food temperature, student participation, and SN management observation of the production and serving areas during meals. The financial measures of success that were offered included meals per labor hour, recipe cost, meal cost, food cost, supply cost, labor cost, production sheets, and profit and loss statements.

Panel members suggested several areas for the development of training and resources to help SN directors make major operational decisions. Those areas included financial management, time management, strategic planning, and interviewing and coaching employees. Additionally, future research should focus on investigating the usage of standard productivity measures, such as meals per labor hour, for SN program decision making.

Competencies, Knowledge and Skills Needed for State Agency Child Nutrition Professionals in the 21st Century

The NFSMI has conducted research that led to the identification of the competencies, knowledge and skills needed by SN technicians, managers, and district directors/supervisors. However, little information is available about the needs of state agency child nutrition (CN) professionals; thus, the purpose of this project was to identify the competencies, knowledge and skills needed by CN professionals working in state agency positions.

An expert panel of ten CN state directors and state agency staff was convened to bring about consensus on the job competencies and knowledge and skill statements needed by state agency CN professionals. The panel's evaluation resulted in the identification of 25 competencies and 180 knowledge and skill statements. This information was incorporated into an electronic survey sent to 84 CN professionals serving in state agencies across the nation. They were asked to verify whether the knowledge and skill statements are important to the job responsibilities of a state agency CN professional, confirm whether the competency statements are consistent with the supporting knowledge and skill statements, and categorize the knowledge and skill statements into two distinct groups, *when hired* and *advanced*, to indicate the time frame in which the knowledge or skill is needed.

The review panel verified 24 competency statements, 66 knowledge statements, and 104 skill statements. From these statements, only 34 statements were identified as needed *when hired*, and 136 statements were identified as *advanced*, requiring additional experience and knowledge. Research outcomes imply that state agency CN professionals begin their service at a basic competency level, and training and improvement opportunities will be provided while on the job to reach the advanced level of practice identified by the review panel. The information gained from this study will be an important resource to assist NFSMI, USDA, and state agencies in developing appropriate educational materials and resources for CN professionals working at the state agency level.

The competencies, knowledge and skill statements confirmed in this research, and the six functional areas determined in previous research, provide a clear picture of the role of CN professionals at the state level. State agency administrators and USDA can apply the knowledge and skill statements to design job descriptions, and then use them as a framework for administrators to evaluate the effectiveness of state agency CN professionals. The competencies, knowledge and skills can assist in identifying agency personnel who demonstrate the potential to advance within the agency. They can form the basis for mentoring and other succession planning activities to prepare CN professionals for state agency-level responsibilities.

Exploring School Nutrition Professionals' Preferences of USDA Recipes and R4HK Competition Recipes for Meeting USDA Meal Pattern Requirements

The purpose of this study was to explore SN professionals' perceptions, preferences, and needs pertaining to USDA recipes and R4HK competition recipes for meeting the 2012 USDA meal pattern requirements. An expert panel of eight SN professionals was convened to identify the major issues related to SN professionals' preferences of USDA and R4HK recipes for meeting the USDA meal pattern requirements. The findings from the expert panel were then used to develop an online survey. The survey was sent to a random sample of 2,100 SN directors, representing the seven USDA regions, to achieve the study goals and objectives.

The response rate to the survey was 23.4% ($N = 511$). The majority (72.4%) of respondents indicated that 49% or less of the foods prepared at the SN program were from scratch. The majority of SN directors (74.6%) indicated that they used USDA recipes, and most (64.4%) said they modified the USDA recipes to meet their needs. District enrollment size had a significant and inverse relationship with SN directors' perceived value of the USDA recipes regarding several operational issues. School nutrition directors from the smallest school districts (district enrollment under 1,000) were significantly more likely to rate the USDA recipes as *excellent* or *good* for meeting their needs for participating in the Summer Food Service Program [$F(5, 99) = 3.28, p = 0.009$], the Fresh Fruit and Vegetable Program [$F(5, 83) = 3.89, p = 0.003$], and breakfast in the classroom [$F(5, 54) = 6.15, p < 0.001$], when compared to SN directors from the largest school districts (district enrollment of 25,000 or greater). Further, SN directors from the smallest school districts (district enrollment under 1,000) were significantly more likely to rate the USDA recipes as *excellent* or *good* for meeting their needs for complying with the USDA regulations for sodium [$F(5, 276) = 2.54, p = 0.036$] when compared to SN directors from the largest school districts (district enrollment of 25,000 or greater). District enrollment size also played a significant role in SN directors' perceived value of the USDA recipes regarding the following customer service issues: trendiness, regional appropriateness, and cultural diversity. Only 17.5% of respondents reported they used R4HK. The reason most often cited for not using R4HK was, "I did not know about R4HK" (60.1%).

The results of this study suggest the following conclusions: there is a strong need for USDA recipes; school district size has a significant effect on the usage of USDA recipes; the current USDA recipe file has several perceived strengths; and there are several potential opportunities for improving the USDA recipes. These opportunities include developing recipes to support breakfast and farm-to-school initiatives and meal pattern requirements pertaining to dark green and red/orange vegetables and legumes.