

# Update of Institute of Child Nutrition Competencies, Knowledge, and Skills for Effective School Nutrition Assistants/Technicians

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**KEYWORDS:** School Nutrition Assistants, School Nutrition Technicians, School Nutrition Competencies, Job Description, Performance Appraisal, Mentoring Plan

## ABSTRACT

### PURPOSE/OBJECTIVES

School nutrition (SN) assistants/technicians are vital to the operation of successful school nutrition programs. The objective of this study was to update the 2006 Competencies, Knowledge, and Skills (CKS) needed by effective SN assistants/technicians. Changes in SN programs since 2006, including the implementation of Professional Standards for School Nutrition professionals, necessitated the research process and updates to this essential piece of information used by SN professionals.

### METHODS

Research was conducted in three phases with a diverse group of SN directors and supervisors (n= 41) from all seven United States Department of Agriculture (USDA) Food and Nutrition Service regions as follows: Phase I included a literature review, four case study site visits, collection and review of job descriptions, and an expert work group of SN directors (via email) whose members identified functional areas for SN assistants/technicians. Phase II included a face-to-face, expert work group tasked with developing CKS statements for the identified functional areas. Phase III included a review panel who evaluated a CKS draft resource (via email), a face-to-face expert work group who identified content for instructing users on how to best utilize the CKS resource, and a review panel who evaluated a nationwide, web-based survey for training needs.

### RESULTS

The expert work group recommended six functional areas: Equipment Care & Use, Food Production, Food Safety & Sanitation, Personal Characteristics, USDA Meal Program Requirements, and Workplace & Employee Safety. The expert work group reached a consensus to include 15 competencies and 36 knowledge and skill statements within the functional areas.

### APPLICATION TO CHILD NUTRITION PROFESSIONALS



The updated CKS resource developed from this project is available on the Institute of Child Nutrition (ICN) website and is useful to SN directors and managers in interviewing, training, mentoring, and evaluating SN assistants/technicians. The customizable tools within the updated CKS resource include a job description template, job interview template, individual mentoring plan form for use by SN managers, and competency-based performance appraisal.

**INTRODUCTION:** Since its inception, the Institute of Child Nutrition (formerly the National Food Service Management Institute) has been the leading authority in the identification of the competencies, knowledge, and skills (CKS) needed by professionals working in child nutrition (CN) programs. The most recent research studies for CKS have been focused on State agency CN personnel (Cross & Nettles, 2014), School Nutrition (SN) directors and supervisors (Nettles et al., 2010), SN managers (Cater et al., 2017; Lewis & Lartey-Rowser, 2018), and childcare providers (Lartey-Rowser, 2016). With rapid changes in the SN industry, the SN assistants and technicians CKS, published in 2006, needed an update (Nettles & Carr, 2006).

There is limited research on the specific duties and training needs of SN assistants/ technicians. A literature review for this study revealed only four recent studies that are discussed here.

Stephens and Byker Shanks (2015) reviewed 14 peer-reviewed research articles published between January 1990 and February 2014 on SN staff training interventions. These authors reported a lack of knowledge regarding effective SN training as well as a lack of accessible and validated evaluation tools for SN training. They concluded that appropriate training could lead to increased participation in school meal programs, decreased food waste, and ultimately, better nutrition for students.

Some researchers have conducted studies on the food safety practices of SN assistants and technicians. Alcorn and colleagues (2019) explored SN employees' (n=43) beliefs about handwashing, thermometer use, and safe handling of food and work surfaces. The research team hosted four focus groups with employees from four districts in three states. The topic of handwashing was most frequently discussed by employees in all groups, and proper training was a theme in two of the four focus groups. Employees felt a sense of pride in their efforts to keep foods safe.

Stokes and Arendt (2017) interviewed hourly SN employees from six schools regarding farm-to-school barriers and keys to success. Appearance of produce, shelf life, students' preferences, and product availability were identified as barriers to using local produce. Notham and Stokes (2018) found that SN assistants/technicians who received training about promoting and processing local produce items were significantly more confident ( $p < .001$ ) in their ability to know where the produced product was from, how to prepare the item, and how to incorporate the produce into recipes.

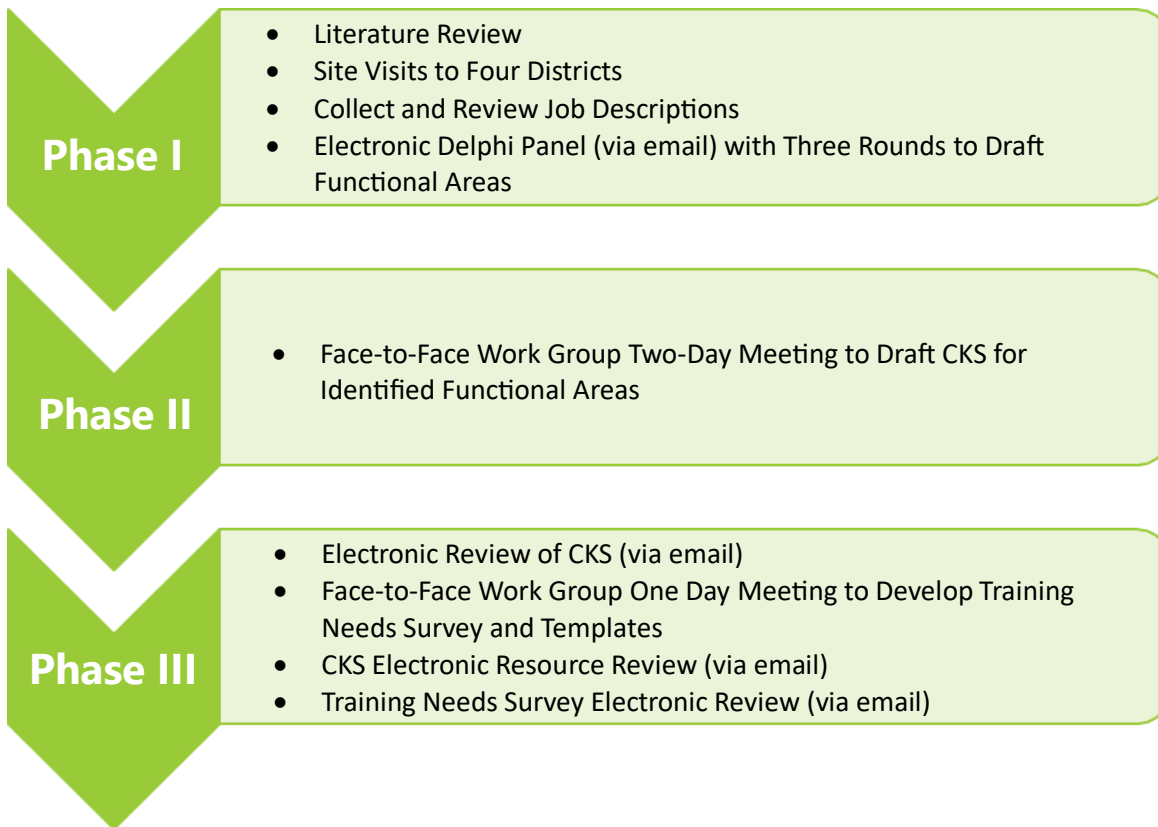


The above studies provided insight into the training needs, food safety practices, and food production (related to local produce). The research findings are applicable to the CKS because they support the need for training of SN assistants/ technicians. The Standards require six hours of annual training for full-time SN assistants/technicians and four hours of annual training for part-time SN assistants/ technicians.

Regulations for SN programs are continuously changing and periodic updates of the CKS are needed. An additional use of CKS is to identify gaps in training needs.

School nutrition assistants/technicians are vital to the operation of successful SN programs and effective training is essential to ensure the work is completed properly. This study focused on SN assistants/technicians who work at local school cafeterias under the direction of an SN manager. The objective of this study was to update the 2006 CKS (Nettles & Carr, 2006) and make them appropriate in the current SN environment. An important change since the CKS was last updated was the implementation of Professional Standards for School Nutrition professionals (USDA, 2020).

**METHODS:** The update to the CKS began in 2019, and data collection was completed in 2020. Researchers conducted the project in three phases. (See Figure 1.) Phase I included a literature review, site visits to four school districts, collection of job descriptions, and an electronic Delphi panel to draft functional areas. Phase II included face-to-face work groups to identify CKS statements. Phase III included an electronic review of the CKS draft, a face-to-face meeting to develop a training needs survey and templates for the resource, and electronic reviews of the survey and the resource.



**Figure 1.** *Phases for ICN Update of Competencies, Knowledge, and Skills (CKS) for Effective School Nutrition Assistants and Technicians*

### **Recruitment of School Nutrition Directors for All Phases**

Researchers contacted State Agency CN directors in 50 states via email and asked each to provide recommendations of three to five SN directors for potential participation in this study. Specifically, researchers requested recommendations for SN directors who operate exemplary SN programs as indicated by high student meal participation, good financial status, and documented compliance with USDA nutrition standards. Researchers obtained approval and followed informed consent procedures established by the Institutional Review Board at The University of Southern Mississippi for all three phases of this study.

## **Phase I**

### **Site Visits**

Site visits, each lasting one day, were made to four school district directors recommended by State Agency CN directors in the Mid-Atlantic, Southeast, Southwest, and Western USDA regions. The site visits were completed by the same researcher and included collection of job descriptions, informal interviews and/or group meetings with directors, managers, and SN assistants/ technicians as well as observations of SN assistant/technician activities (throughout the day) to familiarize the researcher with the position and its respective duties. The interviews, meetings, and observations were completed in all four districts.

### **Job Descriptions**

Researchers contacted all SN directors (n=67) recommended by State Agency directors and asked them to provide job descriptions for all positions at their local school cafeteria in which staff report to an SN manager. A total of 81 job descriptions from all seven USDA regions were analyzed by researchers with the competency, knowledge, and skill statements in the descriptions compiled and compared to the 2006 version of the CKS. Following the comparison, a list of 150 possible knowledge and skill statements was created.

## **Electronic Delphi Panel**

### **Round 1**

A modified Delphi Technique was used for the three rounds of review in Phase I. Invitations were sent to 30 SN directors from all USDA regions, inviting them to be part of the expert panel. The Round 1 invitation and questionnaire included open-ended questions asked of 14 expert panel members who agreed to participate and were asked to list the functional areas/broad groupings that they thought best summarized responsibilities of SN assistants/technicians.

### **Round 2**

The results of Round 1 were used to create the questionnaire sent in Round 2. The Round 2 questionnaire listed the 40 functional areas identified in Round 1. The researchers emailed the Round 2 questionnaire along with instructions outlining steps to use in the completion of the questionnaire to each of the 14 expert panel members, of whom only 9 participated. Panel members were instructed to rate their agreement with each functional area using a 4-point scale, ranging from 1 (strongly disagree) to 4 (strongly agree). Next, panel members indicated if each functional area was appropriately categorized and, if it was not, to describe the reason.

Panel members were then asked to consider the possibility of combining functional areas. They were instructed to reflect on each functional area definition, decide if it could be combined with another functional area(s), and

if so, suggest the functional area(s) with which it might be combined. Lastly, they were asked to propose suggestions for re-wording the functional areas or new functional areas, if combined with another area.

### **Round 3**

In the final round of the Delphi Panel, the same expert panel members reviewed the Round 2 summary and completed the Round 3 questionnaire which asked panelists whether the 40 functional areas from Round 2 should be combined or stand alone, and if combined, to propose a name for the combined functional areas.

### **Phase II**

Directors were invited to a two-day face-to-face meeting to review CKS statements and categorize them into the functional areas from Phase I.

### **Phase III**

A review of the Phase II results was conducted via email and a face-to-face work group meeting was held to develop an online survey of training needs for SN assistants/technicians. Also, the SN directors identified a framework for online competency-based templates that would support SN managerial staff in human resources-related activities.

## **RESULTS:**

### **Phase I: Site Visits**

One of the researchers completed the four, one-day site visits to four school districts in the Mid- Atlantic, Southeast, Southwest, and Western USDA regions. Informal interviews and group meetings with directors, managers, and SN assistants/technicians, and observations of SN assistant/technician activities (throughout the day) familiarized the researcher with the SN assistant/technician position and duties. The researcher analyzed the observational data, interview data, and meeting data to gain an understanding of the SN assistant/technician roles and responsibilities. Also, job descriptions for SN assistants/technicians were collected from directors and managers.

## **Phase II: Job Descriptions**

Eighty-one job descriptions from all seven USDA regions, including those job descriptions from the site visits, were collected by the researcher and CKS statements from the job descriptions were compiled. All of the knowledge and skill statements from the 2006 CKS were added, and duplicate statements were combined. A total of 150 unique knowledge and skill statements were identified.

## **Phase I: Delphi Panel**

### **Round 1**

Ten of the invited 14 Delphi panelists participated in identifying functional areas and providing definitions in Phase I of the study. All of the expert panel members were SN directors. Panelists generated a list of 40 functional areas that they perceived to describe the job tasks or duties performed by SN assistants/technicians. Next, the researchers arranged 32 of the 40 proposed functional areas into nine groupings identified by two or more panelists for the next round of review. These nine categories included: sanitation, safety, and security; food production; service of food; cash handling/computer skills/technology; customer service; program regulations and accountability; receiving and storage; record keeping; and communications. Eight additional functional areas including teamwork, quality control, and training/self-improvement were proposed for a total of 17 groups. These 17 groups organized the 40 functional areas to make it easier for panelists to review them.

### **Round 2**

In Round 2, the Delphi panelists were asked to rate their level of agreement with the identification of each of the 40 proposed functional areas for SN assistants/technicians from Round 1, using a 4-point scale (4 = Strongly Agree; 3 = Agree; 2 = Disagree; 1 = Strongly Disagree) and recommend combinations as well as suggest names for these groupings. The scores and name suggestions were used to categorize the functional areas for Round 3.

### **Round 3**

Using results and recommendations from the Delphi expert panel review of the 40 proposed functional areas in Rounds 2 and 3, the researchers combined the areas into seven functional areas and titled as follows: Food Safety and Sanitation, Workplace and Employee Safety, Equipment Use and Care, Food Production, Program Regulations, and Accountability or USDA Meal Program Requirements, Teamwork and Communication, and Personal Characteristics.

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## **Phase II: Face-to-Face Work Groups**

Over a period of two days, expert work group participants (n=17) reviewed the wording of draft knowledge and skill statements and 1) classified the statements into one of the seven functional areas, 2) came to an agreement on the knowledge and skill statements for each functional area, 3) identified gaps that needed to be addressed, and 4) grouped similar statements within each functional area to create competencies. The participants decided to combine the Teamwork & Communication functional area with the Personal Characteristics functional area.

After the face-to-face work groups categorized and discussed the CKS statements, expert work group participants deliberated and decided to generalize the knowledge and skill statements, thus reducing the number from 150 to 36, with the rationale that the final version would be easier to use at the local level. The participants chose the most important knowledge and skill statements that represented the SN assistant/technicians' job responsibilities.

## **Phase III: Electronic Review of CKS Draft**

As a final check of the draft, all five of the invited SN directors from four USDA regions independently reviewed an electronic draft of the CKS via email. Directors commented on the wording and placement of the competency, knowledge, and skill statements and recommended minor revisions for these, with the statements revised accordingly.

## **Phase III: Face-to-Face Work Group Meeting**

Seven SN directors from four USDA regions who had not participated in previous phases attended the work group meeting. These directors developed a national survey, to be delivered online, based on the revised CKS to determine the current training and professional development needs of SN assistants/technicians at district and national levels. They also identified a framework for needed interactive online competency-based templates to support SN managerial staff in human resources-related activities as they pertain to SN assistants/technicians. The templates include job descriptions, job interviews, mentoring guides, and performance appraisals. These templates were developed by Applied Research Division staff using recommendations from the work group and are included in the CKS resource.



**Phase III: Review of CKS Draft Resource**

The draft CKS resource was formatted and sent via email to 25 of the Delphi and expert panel members from Phases I and II. Ten SN professionals (nine directors and one supervisor) responded with their comments and suggestions. All respondents agreed that the resource was organized well and easy to read, yet they had additional comments and suggestions for minor revisions. The resource was revised according to suggestions.

**Phase III: Review by Researchers**

Researchers compared the 2021 CKS resource to the 2006 CKS resource (See Table 1). Both have six functional areas, but the 2021 CKS has 36 knowledge and skill statements, while the 2006 resource has 150. The 2006 resource categorized the knowledge and skill statements by “when hired” and “after training,” with only 37 categorized as “when hired.” The 2022 CKS does not categorize the knowledge and skill statements. The consensus was that the 2022 resource would be more user-friendly due to having fewer knowledge and skill statements.

**Table 1.** Comparison of the 2022 CKS Resource with the 2006 CKS Resource

	<b>2022 Version</b>	<b>2006 Version</b>
<b>Functional Areas</b>		
	Equipment Use and Care	Equipment Use and Care
	Food Production	Food Production
	Food Safety and Sanitation	Sanitation, Safety, and Security
	Personal Characteristics	Professional Excellence
	USDA Meal Program Requirements	Program Regulations and Accountability
	Workplace and Employee Safety	Customer Service
<b>Number of Competencies</b>		
	15	12
<b>Number of Knowledge and Skill Statements</b>		
	36	150

**Phase III: Training Needs Survey**

The training needs survey based on the updated CKS resource was pilot tested and reviewed by 13 SN directors, some of whom were participants in previous phases. Respondents recommended formatting and wording changes. The survey asked respondents to rate the need for training in each functional area, the preferred format (online, self-paced, face to face) and the length of time (less than 15 minutes up to one hour) for training. The survey is currently available through Qualtrics software and ready for use once ICN is given



authorization from USDA. Due to the COVID-19 pandemic, USDA directed ICN to delay distribution so that SN professionals would not be burdened with additional time-consuming responsibilities.

**CONCLUSIONS & APPLICATIONS:** Through a rigorous, multi-phased approach, this research project identified the current functional areas, competencies, knowledge, and skills needed by SN assistants/technicians to be effective on the job. This three-phased research was conducted sequentially, with each phase informing the next. School nutrition directors (n=41) from all seven USDA regions representing districts of various sizes along with ICN researchers and staff participated in developing and confirming the six functional areas, 15 competencies, and 36 knowledge and skill statements on the updated CKS resource. This update of the 2006 CKS for SN assistants/technicians is streamlined with a reduction in knowledge and skill statements from 150; therefore, it should be more user-friendly for SN professionals.

Two of the functional areas, food production along with food safety and sanitation, are aligned with previous research with SN assistants/technicians that shows effective training increases confidence. Notham and Stokes (2018) reported that SN assistants/technicians were more confident ( $p < .001$ ) in their abilities to utilize fresh product after receiving training. Another study used the Theory of Planned Behavior and identified the importance of using employee beliefs when training about food safety practices, including proper handwashing and checking foods with thermometers (Alcorn et al., 2019). Stephens and Byker Shanks (2015) found a lack of knowledge regarding effective SN training as well as a lack of accessible and validated evaluation tools. Their conclusions can be directly applied to training for SN assistants and technicians with recommendations that future research explores time-efficient and cost-effective training techniques and strategies for SN personnel.

The updated CKS resource developed from this project (citation redacted for peer review) is available on the ICN website and can be useful to SN directors and managers in interviewing, training, mentoring, and evaluating SN assistants and technicians. The customizable tools within the CKS resource that were developed as part of this project include a job description template (as a fillable form), a job interview template, an individual mentoring plan form for use by SN managers, and a competency-based performance appraisal (as a fillable form). These tools were developed by ARD researchers based on recommendations from the expert panel. We asked participants which tools were needed, how they should be structured, and made available. Each tool has detailed instructions on its use and on how to complete the document.

The findings of this research project will assist ICN, USDA, State agencies, and training professionals in developing additional resources for SN assistants/technicians. These results can provide the structure for competency-based training modules that focus on the identified six functional areas. School nutrition



professionals can use the knowledge and skill statements to guide the development of initial training customized for their operational needs, as well as for later in-service training for SN assistants/technicians.

A well-trained SN staff is the foundation for a successful SN program. Training should address gaps in the necessary knowledge, skills, and abilities of the staff. Although job requirements for an SN assistant/technician may differ from state to state, and even from school district to school district, the findings from this research project provide needed information for defining the role an effective SN assistant/technician plays in the operation of an excellent SN program.

The ICN has many training resources at no cost, to support SN assistants/technicians in meeting identified competencies, knowledge, and skills. Some of these resources are developed for persons providing training, such as directors or managers, while others are for self-taught SN professionals. The ICN also has an extensive library of free, self-paced online courses that provide an excellent method of meeting the identified competencies, knowledge, and skills. The courses are available at <https://theicn.docebos.com/learn>. In addition, these are coded to meet School Nutrition Association and USDA Professional Standard requirements.

### **Education and Training Implications for School Nutrition Assistants/Technicians**

This research project updated the competencies, knowledge, and skills needed for effective SN assistants/technicians. The researchers recommend the following:

- Develop additional training modules to address gaps in each of the six functional areas: equipment cares and use, food production, food safety and sanitation, personal characteristics, USDA meal program requirements, and workplace and employee safety.
- Explore the development of training materials that are cost-effective, time-efficient, and at appropriate literacy levels that address the current needs of SN assistants/technicians.
- Develop accessible and validated evaluation tools for documenting the training effectiveness of SN assistants/technicians.

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