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Hiring Requirements and Qualifications of School Food Authority Directors Changed in Some Districts After Implementation of US Department of Agriculture Professional Standards

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Abstract

Background—In 2015, the US Department of Agriculture set minimum education and training requirements (ie, professional standards) to ensure that school nutrition professionals have the knowledge and experience to operate school meal programs. No study to date has examined whether hiring requirements and qualifications of school food authority (SFA) directors have changed since 2015.

Objective—To assess changes in hiring requirements and qualifications of SFA directors since the US Department of Agriculture professional standards were established, overall and by district size.

Design—Cross-sectional analysis of nationally representative district-level data from the 2012 and 2016 cycles of the School Health Policies and Practices Study.

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AUTHOR CONTRIBUTIONS

C. L. Merlo developed the concept for the manuscript with input from G. Tiu, D. Wallace-Williams, N. D. Brener, and H. Figueroa. G. Tiu conducted the analysis with input from all other authors. All authors contributed to writing various sections of the paper and reviewing subsequent versions of the paper. C. L. Merlo led the revision process with input from all other authors.

STATEMENT OF POTENTIAL CONFLICT OF INTEREST

No potential conflict of interest was reported by the authors.

AUTHOR DISCLAIMER

The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.

Participants/setting—In 2012, 660 sampled districts completed the School Health Policies and Practices Study Nutrition Services questionnaire. In 2016, 599 sampled districts completed the questionnaire.

Main outcome measures—Hiring requirements for newly hired SFA directors and reported qualifications of SFA directors.

Statistical analyses performed—Differences in prevalence estimates from 2012 to 2016 for all districts and by district size were assessed with χ^2 tests.

Results—Significant increases were found for 3 hiring requirements: degree in nutrition or related field, registered dietitian credential, and food safety certification. Significant changes in 4 of the 5 reported qualifications were found including an increase in the percentage of district directors with a degree in nutrition or a related field and decreases in the percentage of directors with a School Nutrition Specialist credential from the School Nutrition Association, School Nutrition Association certifications, and certified dietary managers. Changes were found in small and medium districts, but not large districts.

Conclusions—District hiring requirements and SFA director qualifications have changed since the implementation of the US Department of Agriculture professional standards, including some differences by district size. Future research could identify challenges facing districts in hiring directors who have a degree in nutrition or related fields or who have specialized nutrition credentials or certificates (eg, registered dietitians).

Keywords

School food service; Professional standards; Qualifications; School meals; Training

IN MARCH 2015, THE FOOD AND NUTRITION SERVICE OF the US Department of Agriculture (USDA) established professional standards for all state and local school nutrition program personnel.¹ The USDA professional standards are required by the Healthy, Hunger-Free Kids Act of 2010.² They are intended to improve the management and integrity of child nutrition programs, including the National School Lunch and School Breakfast Programs, by ensuring that school nutrition professionals have the knowledge, training, and experience needed to manage and operate these programs. The part of the rule that took effect at the beginning of school year 2015–2016 set minimum annual training requirements for all school nutrition professionals and introduced minimum hiring standards for all new state and local school food authority (SFA) program directors hired on or after July 1, 2015.

In the professional standards, newly hired SFA directors must have a minimum level of education and food safety training. The education requirements vary according to school district (or local education agency) size, with more flexibility allowed in small (<2,500 students) and medium (2,500–9,999 students) districts than in large (≥10,000 students) districts.^{1,3} For example, a newly hired SFA director in a small district could have an associate's degree in nutrition or a related field and 1 year of school nutrition experience, whereas a newly hired SFA director in a large SFA would need to have a bachelor's degree. New SFA directors are also required to complete at least 8 hours of food safety training, either within the 5 years before or the 30 days after their initial date of employment.^{1,3}

Before 2015, there were no federal standards for SFA directors, and as a result, their levels of education and experience varied widely. SFA directors who are not credentialed or well trained may not be prepared to meet children's nutritional needs or respond to an increasingly complex food service environment.⁴ SFA directors' job responsibilities include planning meals; procuring food; hiring and managing staff; managing issues related to budgetary and cost concerns, food safety, and multicultural student populations; and maintaining student participation in school meal programs. Professional standards ensure that SFA directors are equipped to respond to multiple challenges; appropriately manage time, money, and human capital resources; and serve nutritious meals that meet all the applicable local, state, and federal regulations.^{4,5}

All children who participate in school meal programs benefit from meals that are of higher nutritional quality.^{6,7} Furthermore, the benefits of nutritious school meals are likely greatest for students who qualify for free or reduced-price meals and participate at higher rates than students who pay full price, as these students are more likely to be food insecure and therefore school meals may comprise a larger percentage of their daily food intake.⁸ Professional credentials and training for school nutrition professionals can improve nutrition policies and practices and ensure students receive healthy and appealing meals. For example, more health and nutrition promotion strategies were present in districts that had credentialed SFA directors.⁴ Nutrition-related education and training programs, such as USDA's Team Nutrition,⁹ contribute to the ability of school nutrition professionals to provide more healthy offerings in school meal programs.¹⁰ One intervention demonstrated that school districts that had cafeteria managers partner with registered dietitians improved school lunches by moving to scratch cooking, offering more fresh fruits and vegetables, and switching to breads with a higher percentage of whole grains.¹¹ Recent research also found that when a professional training intervention helped schools improve the palatability of the foods they served, students consumed more—and wasted fewer—vegetables relative to a control group.¹²

Although previous studies have described district requirements for SFA directors,^{13–15} the purpose of this study was to examine whether hiring requirements and qualifications (ie, reported education, certifications, and credentials) of SFA directors have changed since the USDA's professional standards were established, for all districts and by district size. This study examined select hiring requirements that align with the USDA professional standards (eg, degree in nutrition or related field) as well as other related credentials and certificates (eg, registered dietitian [RD] or registered dietitian nutritionist [RDN] credential) that are not required in the professional standards. These analyses could show whether districts have strengthened their hiring requirements and if SFA director qualifications have changed over time. This could also help state agencies understand which types of school districts may benefit from additional trainings for SFA directors.

MATERIALS AND METHODS

The current study analyzed district-level data from the 2012 and 2016 cycles of the School Health Policies and Practices Study (SHPPS). SHPPS is a national survey periodically conducted by the Centers for Disease Control and Prevention to assess school health policies

and practices at state, district, school, and classroom levels. Detailed information about SHPPS methods has been published previously,^{13,14} but a brief description is provided here. SHPPS was reviewed by an institutional review board at Centers for Disease Control and Prevention and determined to be exempt research under federal regulation 45 CFR 46.101 (b).

Both SHPPS 2012 and SHPPS 2016 drew nationally representative samples of public school districts. Between January and June of each study year, 5 to 7 questionnaires, each assessing a different component of school health, were administered in each sampled district. Districts identified respondents who were responsible for or most knowledgeable about the content of each questionnaire. Respondents completed questionnaires primarily using a secure Web-based data collection system, but during follow-up, they were also given the option of completing mailed paper-and-pencil questionnaires. This study used data from the Nutrition Services questionnaire. In 2012, 660 sampled districts completed this questionnaire (<https://www.cdc.gov/healthyouth/data/shpps/files/questionnaires/nutrd2012questionnaire.pdf>); and in 2016, 599 sampled districts completed this questionnaire (https://www.cdc.gov/healthyouth/data/shpps/files/questionnaires/2016/SHPPS_Nutrition_Services_District.pdf). The response rate was 63% in both years. In both 2012 and 2016, 77% of districts had a food service director who served as the survey respondent.

Figure 1 includes question wording and analytic coding for each of the district hiring requirements and SFA director qualifications variables used in this study. This analysis examined 8 variables related to hiring requirements for a newly hired SFA director including requirements for minimum level of education; whether the new director was required to have specific credentials and certifications; and whether the district had adopted a policy requiring new directors to be certified, licensed, or endorsed by the state. Response options for the question about minimum level of education were collapsed into 3 categories: (1) high school or General Education Development diploma, (2) degree in nutrition or related field, and (3) specific education requirements not described (results not shown). The degree in nutrition or related category included associate's degree in nutrition or a related field, undergraduate degree in nutrition or a related field (major or minor), or graduate degree in nutrition or a related field (Figure 1).

This analysis also examined 5 variables related to the educational background, credentials, and certifications (ie, qualifications) of the survey respondents who served as their district's SFA director. An SFA director was considered to have a degree in nutrition or a related field if he or she had a major, minor, or graduate degree in any of the fields listed in Figure 2. This list was developed with input from subject matter experts in school nutrition and guidance from USDA, which states that degrees in food and nutrition, food service management, dietetics, family and consumer sciences, nutrition education, culinary arts, and business meet the education criteria for the professional standards.³ Responses written in the "Other (specify)" open-ended response option were reviewed by study authors and recoded as degrees in nutrition or related field as appropriate.

District size was obtained from the commercially available Market Data Retrieval database and linked to the SHPPS data set.¹⁶ District size was categorized as small (< 2,499 students), medium (2,500–9,999 students), and large (≥ 10,000 students) to align with the district size definitions in the professional standards.

Analyses were conducted with SAS-callable SUDAAN software (version 11.0.3, release 11.0.3, Research Triangle Institute, Research Triangle Park, NC; 2018). SUDAAN accounted for the complex survey design, and data were weighted to provide national estimates. Weighted prevalence estimates of 8 district hiring requirements for new SFA directors and 5 qualifications of SFA directors before (2012) and after (2016) the implementation of the professional standards were calculated for all districts and by district size (ie, small, medium, and large). χ^2 Tests were conducted to assess differences.

RESULTS

District Hiring Requirements

Among all districts, there were significant increases in 3 of the 8 district hiring requirements related to specialized training in nutrition: degree in nutrition or related field, RD or RDN credential, and ServSafe or food safety certification (Table). The percentage of small and medium districts that required a degree in nutrition or a related field increased in 2016 relative to 2012. From 2012 to 2016, the percentage of districts that required ServSafe or other food safety certification increased in medium districts.

SFA Director Qualifications

From 2012 to 2016, there were changes in 4 of the 5 qualifications of SFA directors. Among all districts, the percentage of SFA directors with a degree in nutrition or a related field increased. However, the percentage of SFA directors with a School Nutrition Specialist (SNS) credential from the School Nutrition Association (SNA) decreased. This change was driven by the decrease in the percentage of small districts with an SFA director who had an SNS credential in 2016 compared to 2012. Among all districts, the percentage of food service directors who had an SNA certification or who were certified dietary managers also decreased. The percentage of medium districts with food service directors who were certified dietary managers decreased in 2016 compared to 2012.

DISCUSSION

Across the 8 district hiring requirements examined in this study, there were significant increases in 3 of the requirements including degree in nutrition or related field, RD or RDN credential, and food safety certification. Interestingly, analyses by district size showed no changes over time in any of the hiring requirements among large districts. At the same time, there were changes in 1 of the requirements among small districts and in 3 of the requirements among medium districts. Our results suggest that large districts already had state or local hiring requirements in place prior to the USDA professional standards and therefore did not show changes between 2012 and 2016.

From 2012 to 2016, a significant increase was found in food safety certification requirements among medium districts and across all districts combined. In 2016, about 60% of large districts required ServSafe or other food safety certification, compared with more than 75% of small and medium districts. The professional standards require all newly hired SFA directors to have at least 8 hours of food safety training either within 5 years prior to their start date or completed within 30 days their start date.¹ Since a higher percentage of large than medium or small districts have directors who are RDs or RDNs and already have food safety training as part of this credential, some large districts may not explicitly have a separate requirement for food safety certification.

Across the 5 SFA director qualifications examined in our study, a significant increase was found in the percentage of district directors with a degree in nutrition or a related field, whereas decreases were found in 3 qualifications: SNS credential, SNA certification, and certified dietary manager. There may be multiple reasons for this decline. As districts strengthen requirements for specialized nutrition experience (ie, degree in nutrition or related field and RD or RDN credential), SFA directors may not feel that the SNS credential or SNA certification, which are not required by the USDA professional standards, are needed. Additionally, during this time frame, SFA directors were working to adjust to the new meal requirements and may not have had time to pursue additional credentials and certifications. Among small districts, the significant decrease in district directors with the SNS credential could indicate that directors have fewer resources to take the credentialing examination and attend required trainings to maintain the credential. The SNS credential has an examination fee, and the SNA certification program has an application fee. Both also have annual maintenance fees, which typically increase every 2 years and are lower for association members than nonmembers.¹⁷ Organizations that offer school nutrition certification and credential programs could consider changing fee structures to account for school district size or provide discounts to districts with fewer resources for professional development and training.

From 2012 to 2016, there were no changes in the percentage of district directors who were RDs or RDNs, overall or by district size. RDs or RDNs are trained in a diverse skill set that makes them well suited to operate school nutrition programs.⁵ However, SHPPS data indicate that in 2016, less than 10% of all districts had an SFA director who was an RD or RDN. In addition, there were differences by district size with 30% of large districts, approximately 12% of medium districts, and less than 4% of small districts having a director who was an RD or RDN. It is not clear why this difference exists. It is possible that large districts are able to offer higher salaries that would attract applicants who are RDs or RDNs. However, this study was not able to examine this hypothesis as information about salaries of SFA directors is not collected through SHPPS. Universities that oversee dietetics programs could help elevate school nutrition as a viable career path for RDs or RDNs by exposing students to the importance of school meal programs through curriculum and internship opportunities.⁵

To our knowledge, this is the first nationally representative study to examine changes in district hiring requirements and qualifications of SFA directors after the USDA professional standards went into effect in 2015. However, this study has several limitations. First, the

professional standards include multiple ways for districts in each size category to meet the requirements, and SHPPS questions do not measure all aspects of the requirements (eg, years of experience). Therefore, this study does not quantify the percentage of districts in compliance with the professional standards. Second, SHPPS data are self-reported; district hiring requirements and qualifications of SFA directors were not verified through other sources. Third, we do not know whether the changes identified from 2012 to 2016 were a result of the implementation of the professional standards. The 2016 SHPPS data were collected immediately following required implementation of these standards and the impact of the standards on hiring requirements and SFA director qualifications may take additional time to emerge. In addition, other factors not measured by SHPPS may have contributed to these changes over time. Fourth, approximately one-fourth of the questionnaires in the 2012 and 2016 SHPPS samples were completed by someone other than the SFA director. Therefore, information about the qualifications of the SFA directors for these districts is not available.

CONCLUSION

District hiring requirements and SFA director qualifications have changed since the implementation of USDA's professional standards, overall and in small and medium school districts, but they have not changed significantly in large districts. However, the underlying reasons for these differences are not well understood. Future research could focus on identifying the challenges facing districts in hiring directors who are RDs or RDNs, who have a degree in nutrition or related fields, or who have specialized school nutrition certificates or credentials and whether differences in resources for professional development differ by district size. Future research could also examine how well districts are meeting the professional standards after districts have had more time to implement the requirements, as well as associations between SFA director qualifications and efforts to make school meals healthier, reduce waste, and use other best practices (eg, farm to school programs).

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RESEARCH SNAPSHOT

Research Question:

Have hiring requirements and qualifications of school food authority (SFA) directors changed following the implementation of the US Department of Agriculture professional standards?

Key Findings:

Between 2012 and 2016, there were significant increases for 3 hiring requirements among all school districts including degree in nutrition or related field, registered dietitian credential, and food safety certification. There also were changes in 4 of the 5 reported qualifications of SFA directors including an increase in the percentage of SFA directors with a degree in nutrition or a related field and decreases in the percentage of directors with a School Nutrition Specialist credential from the School Nutrition Association (SNA), SNA certifications, and certified dietary managers. Although changes in hiring requirements and reported qualifications were found in small and medium districts, no significant changes were found for large districts.

Variable	Question	Analytic coding
District Hiring Requirements		
Minimum level of education required: high school diploma or GED ^a	Based on policies adopted by your district, what is the minimum level of education required for a newly hired district food service director (school food authority director)?	High school diploma or GED vs Associate's degree in nutrition or a related field or Undergraduate degree in nutrition or a related field (major or minor) or Graduate degree in nutrition or a related field or Specific education requirements are not described
Minimum level of education required: degree in nutrition or a related field	Same as above	Associate's degree in nutrition or a related field or Undergraduate degree in nutrition or a related field (major or minor) or Graduate degree in nutrition or a related field vs High school diploma or GED or Specific education requirements are not described
RD ^b or RDN ^c credential	Based on policies adopted by your district, is a newly hired district food service director (school food authority director) required to have . . .	An RD credential from the American Dietetic Association vs No RD credential
School Nutrition Specialist credential from the SNA ^d	Based on policies adopted by your district, is a newly hired district food service director (school food authority director) required to have . . .	A School Nutrition Specialist credential from the SNA vs No School Nutrition Specialist credential
SNA certification	Based on policies adopted by your district, is a newly hired district food service director (school food authority director) required to have . . .	An SNA certification (certification could include level 1, level 2, level 3, or trainer) vs No SNA certification
Completion of a state school nutrition services training program	Based on policies adopted by your district, is a newly hired district food service director (school food authority director) required to have . . .	Successfully completed a school nutrition services training program provided or sponsored by the state vs

		Did not complete a school nutrition services training program provided or sponsored by the state
ServSafe or other food safety certification	Based on policies adopted by your district, is a newly hired district food service director (school food authority director) required to have . . .	ServSafe or other food safety certification vs No ServSafe or other food safety certification
State certification, licensure, or endorsement	Has your district adopted a policy stating that a newly hired district food service director (school food authority director) will be certified, licensed, or endorsed by the state?	Yes vs No or State does not certify, license, or endorse district food service directors (school food authority directors)
Reported Qualifications of SFA® Directors		
Degree in nutrition or a related field	Do you have a degree (associate's degree, undergraduate major or minor, or graduate degree) in the following areas? Mark all that apply.	Food and nutrition or Family and consumer sciences or Nutrition education or Food service management or Culinary arts or Business or public/school administration Or Other (specify) ^f vs None of these
School Nutrition Specialist credential from the SNA	Which of the following credentials do you hold? Mark all that apply.	An School Nutrition Specialist credential from the SNA vs No School Nutrition Specialist credential from the SNA
SNA certification	Which of the following credentials do you hold? Mark all that apply.	An SNA certification (certification could include level 1, level 2, level 3, or trainer) vs No SNA certification
RD/RDN credential	Which of the following credentials do you hold? Mark all that apply.	RD or RDN credential from the Commission on Dietetic Registration vs No RD or RDN credential
Certified dietary manager	Which of the following credentials do you hold? Mark all that apply.	Certified dietary manager vs No certified dietary manager
^a GED = General Educational Development. ^b RD = registered dietitian. ^c RDN = registered dietitian nutritionist. ^d SNA = School Nutrition Association. ^e SFA = School Food Authority. ^f See Figure 2 for list of degrees from the write-in responses from "Other (specify)" considered to be nutrition or related field.		

Figure 1.

Question wording and analytic coding for variables about district hiring requirements for School Food Authority directors and reported qualifications of School Food Authority directors, School Health Policies and Practices Study 2012 and 2016.

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Undergraduate major	Undergraduate minor	Graduate degree
Accounting	Business	Administration
Administration	Culinary Arts	Administration and Supervision
Administration and Supervision	Education	Business
Business	Foods and Nutrition	Education
Culinary Arts	Food Service Administration or Management	Culinary Arts
Education	Home Economics or Family and Consumer Sciences	Educational Leadership
Educational Leadership	Nutrition or Dietetics	Educational Specialist or Supervision
Food Service Administration or Management	Nutrition Education	Food Science
Food Science	Hospitality Management	Food Service Administration or Management
Foods and Nutrition	Hotel, Restaurant, and Institutional Management	Home Economics or Family and Consumer Sciences
Food Science and Technology	Public or School Administration	Human Nutrition
Home Economics or Family and Consumer Sciences		Nutrition
Hotel or Restaurant Management		Public Administration
Human Nutrition		Public Health
Nutrition or Dietetics		Public Health Administration
Nutrition Education		Public Health Education
Organizational Management		Public Policy Administration
Pastry Arts		
Public Health Administration		
Public or School Administration		
Registered Dietitian		
Restaurant Management		
School Administration		

Figure 2.

Categories of undergraduate and graduate degrees considered as a degree in nutrition or related field, School Health Policies and Practices Study, 2012 and 2016. This list of degrees in nutrition or related fields was developed with input from subject matter experts in school nutrition and guidance from US Department of Agriculture, which states that degrees in food and nutrition, food service management, dietetics, family and consumer sciences, nutrition education, culinary arts, and business meet the education criteria for the professional standards (https://fns-prod.azureedge.net/sites/default/files/cn/profstandards_flyer.pdf).

Table.

Percentage of school districts with hiring requirements for SFA^a directors and reported qualifications of SFA directors by district size, School Health Policies and Practices Study, 2012 and 2016

Hiring requirements and qualifications	All Districts		Small Districts (2,499 Students)			Medium Districts (2,500–9,999 Students)			Large Districts (10,000 Students)			
	2012 (n = 660)	2016 (n = 599)	P value ^b	2012 (n = 414)	2016 (n = 401)	P value ^b	2012 (n = 177)	2016 (n = 138)	P value ^b	2012 (n = 69)	2016 (n = 60)	P value ^b
% (95% CI)												
District hiring requirements												
Minimum level of education required												
High school diploma or GED ^c	37.1 (33.5–40.8)	33.1 (29.2–37.3)	.16	46.1 (40.8–51.6)	45.5 (37.4–53.8)	.90	23.5 (17.8–30.3)	12.8 (9.4–17.1)	.02	4.1 (1.0–15.0)	5.2 (2.4–11.1)	.75
Degree in nutrition or a related field ^d	28.5 (25.4–31.9)	43.2 (39.0–47.5)	<.001	17.1 (13.1–22.1)	26.9 (20.1–35.0)	.03	42.9 (35.5–50.6)	69.3 (64.2–74.0)	<.001	80.0 (66.7–88.9)	82.2 (73.9–88.3)	.74
RD ^e or RDN ^f credential	3.4 (2.2–5.3)	6.0 (4.2–8.5)	.05	2.8 (1.5–5.2)	4.9 (2.9–8.1)	.16	2.7 (1.1–6.4)	7.3 (3.9–13.5)	.09	12.3 (5.3–25.8)	9.6 (4.3–20.0)	.67
School Nutrition Specialist credential from the SNA ^g	10.0 (7.7–12.9)	9.8 (7.3–13.0)	.90	9.6 (7.0–13.0)	10.2 (8.4–12.4)	.73	9.0 (5.5–14.4)	6.5 (3.5–12.0)	.44	18.1 (9.4–32.2)	16.2 (7.7–30.7)	.81
SNA certification ^h	21.7 (18.6–25.3)	21.4 (17.9–25.3)	.88	23.3 (19.0–28.4)	22.2 (18.6–25.2)	.71	19.7 (14.1–26.9)	20.0 (14.3–27.2)	.95	15.0 (7.3–28.2)	19.7 (9.6–36.2)	.59
Completion of a state school nutrition services training program	47.4 (43.4–51.5)	50.5 (46.0–54.9)	.32	52.2 (46.7–57.6)	58.9 (52.0–65.5)	.18	41.4 (33.4–49.8)	37.9 (26.9–50.3)	.65	25.2 (14.8–39.4)	27.8 (14.1–47.4)	.81
ServSafe or other food safety certification	70.1 (66.5–73.5)	76.2 (72.3–79.8)	.02	74.0 (68.8–78.6)	77.2 (71.3–82.2)	.38	62.7 (54.7–70.0)	78.7 (69.8–85.5)	.02	62.1 (47.9–74.5)	61.9 (46.4–75.3)	.98
State certification, licensure, or endorsement	20.9 (18.1–24.1)	23.4 (19.7–27.5)	.33	19.9 (15.6–25.0)	24.0 (20.7–27.7)	.20	25.9 (19.3–33.7)	22.7 (12.5–37.7)	.68	12.8 (6.2–24.4)	20.8 (13.1–31.3)	.23
Reported qualifications of SFA directors												
Degree in nutrition or a related field ⁱ	48.5 (44.4–52.6)	56.6 (51.8–61.3)	.01	35.3 (29.4–41.7)	41.3 (34.3–48.7)	.19	65.2 (56.7–72.8)	76.5 (67.6–83.6)	.09	89.8 (77.6–95.7)	89.1 (82.5–93.4)	.90
School Nutrition Specialist credential from the SNA	21.7 (18.1–25.7)	11.0 (8.2–14.7)	<.001	20.1 (16.1–24.7)	6.9 (5.1–9.4)	<.001	22.9 (16.7–30.5)	13.9 (8.2–22.5)	.06	29.1 (17.7–44.0)	28.2 (16.9–43.1)	.93
SNA certification ^h	38.8 (34.5–43.1)	31.8 (27.3–36.6)	.03	36.2 (30.0–42.8)	28.1 (23.4–33.2)	.10	41.3 (33.3–49.8)	38.5 (30.1–47.7)	.67	49.3 (35.2–63.5)	33.5 (24.4–43.9)	.12

Hiring requirements and qualifications	All Districts			Small Districts (2,499 Students)			Medium Districts (2,500–9,999 Students)			Large Districts (10,000 Students)		
	2012 (n = 660)	2016 (n = 599)	P value ^b	2012 (n = 414)	2016 (n = 401)	P value ^b	2012 (n = 177)	2016 (n = 138)	P value ^b	2012 (n = 69)	2016 (n = 60)	P value ^b
RD/RDN credential	6.3 (45–8.8)	8.7 (6.4–11.9)	.17	3.6 (1.8–6.9)	3.8 (1.8–8.0)	.89	5.9 (3.1–11.0)	11.8 (7.2–18.5)	.09	27.1 (16.2–41.6)	30.3 (20.9–41.8)	.70
Certified dietary manager	10.4 (8.0–13.4)	4.6 (2.9–7.2)	<.001	10.9 (7.4–15.7)	6.2 (2.9–12.9)	.18	10.9 (6.6–17.5)	2.7 (0.9–8.4)	.03	4.6 (1.1–16.9)	0	.18

^aSFA = School Food Authority.

^bP-values for χ^2 test to assess differences in prevalence estimates from 2012 to 2016 for all districts, and by district size.

^cGED = General Educational Development.

^dIncludes associate's degree in nutrition or a related field, undergraduate degree in nutrition or a related field (major or minor), or graduate degree in nutrition or a related field.

^eRD = registered dietitian.

^fRDN = registered dietitian nutritionist.

^gSNA = School Nutrition Association.

^hCertification could include level 1, level 2, level 3, or trainer.

ⁱIncludes associate's degree (2016 only), undergraduate degree in nutrition or a related field (major or minor), or graduate degree in nutrition or a related field. as well as survey open-response answers (see Figure 2).