

A Focus Group Study of Child Nutrition Professionals' Attitudes about Food Allergies and Current Training Practices

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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 Act of 2010. As such, certain research relating to food in schools may not be relevant today.

ABSTRACT

Purpose/Objectives

The purpose of this study was to explore child nutrition professionals' (CNP) attitudes about food allergies, current practices of food allergy training, and operational issues related to food allergy training in school foodservice operations.

Methods

Three focus groups were conducted with 21 CNPs with managerial responsibilities from a midwestern state. Responses to guided, open-ended questions were audio-recorded, transcribed verbatim, and analyzed to identify common themes.

Results

Participants felt that the prevalence and types of food allergies affecting school nutrition programs have increased in recent years. They also felt that communicating with other stakeholders and verifying physicians' recommendations regarding food allergies can be difficult. Participants agreed that training could improve food allergy knowledge and awareness of their employees and improve safety of children with food allergies. However, only a few reported providing specific food allergy training for employees. Cost, scheduling difficulties, and time constraints were identified as barriers to providing food allergy training. Participants preferred having credentialed professionals to conduct employee food allergy training. Support from school administrators and witnessing a food allergic reaction in the cafeteria would trigger a decision to initiate food allergy training.

Applications to Child Nutrition Professionals

Improved communication between school foodservice staff and other stakeholders is crucial to better serve students with food allergies. A well-planned, structured training program could better prepare school foodservice employees serving students with food allergies. CNPs might need continuous guidance and assistance regarding employee food allergy training. State agencies and professional organizations should work with CNPs to develop and communicate best practices for prevention and management of food allergic reactions.

Keywords: child nutrition professionals, food allergies, training, attitudes, barriers, triggers

INTRODUCTION

Through several federally funded school nutrition programs, millions of students receive meals daily at an affordable price (U.S. Department of Agriculture [USDA], 2011). Providing allergen-free food to the seemingly increasing number of students with food allergies has become challenging for school foodservice personnel. Research has indicated that there are approximately 6 million children under the age of 18 years with food allergies in the U.S. (Gupta et al., 2011). The number of emergency room visits and hospitalizations due to food allergic reactions has also increased in recent years (Branum & Lukacs, 2008, 2009).

In the U.S., eight major food allergens (i.e., eggs, fish, milk, peanuts, shellfish, soy, tree nuts, and wheat) cause 90% of food allergic reactions (Food Allergy Research and Education [FARE], 2013). Skin contact, inhalation, or ingestion of food allergens in small amounts could lead to allergic reactions, including anaphylaxis, the most serious form of allergic reaction (Mayo Clinic, 2013). There is no cure for food allergies; stringent avoidance of the food allergen is the only preventative measure (FARE, 2013).

School-age children spend approximately 30 hours per week at school (National Institute of Health [NIH], 2000). Therefore, the importance of providing allergen-free food to children with food allergies cannot be overemphasized. A study showed that more than 60% of the 4,586 children registered with the Peanut and Tree Nut Allergy Registry experienced allergic reactions either at schools or childcare centers (Munoz-Furlong & Weiss, 2009). Furthermore, 10 of 32 (1994-1999) and 3 of 31 (2001-2006) fatalities due to food allergic reactions occurred in education institutions, such as school, college and university (Bock, Muñoz-Furlong, & Sampson, 2001, 2007). Numerous causes of food allergic reactions in school settings have been identified in previous studies, including the existence of hidden food allergens and cross-contacts (Sicherer, Furlong, DeSimone, & Sampson, 2001). Cross-contact between food allergens and other food items, as well as food trading, can also cause food allergic reactions, as both practices can lead to unintentional ingestion of food allergens (Leo & Clark, 2007). In addition to a lack of awareness about food allergies among school staff, their inability to respond promptly during an allergic reaction has resulted in deadly outcomes (Yunginger, Squillace, Richard, Jones, & Helm, 1989).

School policies for preventing food allergic reactions include accommodating special meal requests, designating allergen awareness areas, and restricting the sale of allergen-containing foods (Butler, 2005; Nowak-Wegrzyn, Conover-Walker, & Wood, 2001; Rhim & McMorris, 2001). The federal government has outlined special provisions for individuals with food allergies. The Americans with Disabilities Act 1990 (ADA) and the Rehabilitation Act of 1973 (Section 504) mandate that schools receiving federal funding provide accommodations for children with severe food allergies (Asthma and Allergies Foundation of America, 2005). Guidelines require school nutrition programs to provide meal substitutions for children with food allergies if their conditions are certified by a physician (USDA, 2001). In addition, the School Access to Emergency Epinephrine Act of 2013 passed on November 13, 2013 allows schools in some states to maintain a supply of epinephrine for emergency and also signifies the importance of prevention and management of food allergic reactions (School Access to Emergency Epinephrine Act of 2013).

A task force with the National Foodservice Management Institute (NFSMI) identified food allergies as a future challenge for school foodservice (Cross & Meyer, 2000). There is also evidence that school foodservice employees lack experience in serving students with special needs (Conklin & Nettles, 1994). However, employee training could improve their food allergy knowledge. Even so, factors that affect managerial decisions regarding such training remain unknown. By exploring these underlying factors, appropriate strategies can be aimed at overcoming managerial barriers and implementing food allergy training specifically designed for school foodservice employees. Therefore, the purpose of this study was to explore CNPs attitudes about food allergies, current practices regarding food allergy training, and operational issues related to food allergy training.

METHODOLOGY

This study used focus groups, a qualitative research method that allows open dialog (Hennink, Hutter, & Bailey, 2011) and serves as a platform to collect a wide spectrum of opinions related to a topic. Prior to data collection, the study protocol was approved by the Institutional Review Board of Kansas State University.

Recruiting Participants

Participants were recruited from CNPs such as directors, managers, and supervisors who were attending a state-sponsored orientation program or School Nutrition Association of Kansas conference. Program organizers distributed recruitment emails to all attendees, asking those

interested to contact the investigators for scheduling. Confirmation and reminder emails were sent to the participants before each session.

Developing Instrument

A structured discussion guide consisting of an introduction, opening questions, key questions, and closing questions was developed by investigators using guidelines suggested by Krueger and Casey (2009) (Table 1). These questions were based on the investigators' previous food allergy research experience, as well as other food allergy qualitative research (Gupta et al., 2008; Leftwich et al., 2010). Next, the questions were reviewed by two school nutrition experts and then pilot-tested by three graduate students who had working experience in foodservice to ensure their clarity and understandability. No revision was made after the pilot study.

Table 1. Focus Group Questions	
Topics	Questions
Introductory question	Would you share some of the thoughts regarding food allergies with us?
Key questions	
Attitudes	What have been your experiences serving students with food allergies?
Challenges to providing employee food allergy training	What are some factors that affect your decision about providing or not providing food allergy training?
Current food allergy training	How is food allergy training conducted?
Self-efficacy	How confident are you about providing food allergy training to the employees?
Triggers for food allergy training	Are there certain situations that influence the decision about providing food allergy training? Please share with us.
Closing question	Do you have personal experience (yourself, family members, or friends) dealing with food allergies?

Conducting Focus Groups

Three focus groups were conducted by two researchers during September and October of 2011. Each focus group consisted of six to eight participants. Prior to focus group discussions, participants were briefed about the purpose of the study and their rights as human subjects in this research. They also completed a demographic questionnaire and signed a consent form. A probing technique was used to stimulate and generate ideas, elaborate upon comments, and clarify points (Krueger & Casey, 2009). Each focus group session lasted approximately one hour and was audio-recorded for transcription. Each participant received a participant payment of \$20 cash as an incentive.

Analyzing Data

The transcribed scripts were coded independently by two investigators. A new code emerged "each time the subtopic shifted" (Saldaña, 2011, p. 96), and the process continued until the "saturation point" when no new subtopics were identified (Hennick et al., 2011). The codes were then compared repeatedly and reconciled to reduce redundancy.

RESULTS AND DISCUSSION

A total of 21 CNPs, representing 21 different schools from 20 school districts participated in one of three focus groups. Age of the participants ranged from 30 to 69 years ($M = 49.8$ years). Eight participants were School Nutrition Specialists (SNS), five were Registered Dietitians (RD) and another three were Certified Dietary Managers (CDM). The majority of the participants were

Demographic Characteristics	n
Gender	
Male	
Female	2
Highest educational level	19
High school or GED	
Some college or Associate degree	3
Bachelor's degree	7
Master's degree	8
Other	2
Job title^a	1
Foodservice director	
Foodservice manager	15
Other	3
Types of credentials^b	5
School Nutrition Specialist (SNS)	
Registered Dietitian (RD)	8
Certified Dietary Manager (CDM)	5
	3

^a Total exceeds N=21 since respondents could select more than one response.

^b n=16 since some respondents did not hold any credentials.

foodservice directors (n=15), and the rest were foodservice managers, district child nutrition coordinators, supervisors, and head cook. Years of experience in a school foodservice management position ranged from three months to 24 years ($M = 11.5$ years) (Table 2).

Participants worked in school districts of various sizes (range 160–50,100 students; $M = 11,860$). The average daily participation in National School Lunch Program (NSLP) was 78% (range 50-100%). Average number of daily reimbursable meal for lunch ($M = 4,192$; range 160-32,000) was almost three times greater than breakfast ($M = 1,134$; range 75-9,500). Sixteen participants reported having students with documented food allergies in their school districts (Table 3).

Characteristics of Schools or School Districts	Mean	Range
Number of foodservice employees in the district	75	3 – 450
Number of students enrolled in the district	11,806	160 – 50,100
Average daily participation in National School Lunch Program, %	78	50 – 100
Average number of daily reimbursable meals, meals		75 – 9,500
Breakfast	1,134	160 – 32,000
Lunch	4,192	7 – 500
Students documented having food allergies ^a	62	

^a For this question n=16 as five participants indicated "I don't know".

Attitudes about Food Allergies

Major topics and themes and selected quotes from focus groups are presented in Table 4. Most participants felt that food allergies have become more prevalent in school foodservice. One CNP stated, "Food allergy has become more common, and more accommodations from school foodservice are expected." This finding supported the 2010 Back to School Trends Report, which showed that approximately 79% of schools nationwide have indicated an increase in requests for special diets, particularly allergen-free foods (SNA, 2010).

The types of food allergens reported by the students have also increased, including some uncommon allergens such as tomatoes. This phenomenon is also consistent with a previous finding that food allergens such as fruits, chocolate, red dye, tomatoes, orange juice, and spices have become more common among children (Rhim & McMorris, 2001). The participants were comfortable handling common food allergens, but were not confident handling these uncommon allergens. In addition, the participants reported that many students were also allergic to multiple food items, which was consistent with a previous finding that more people are allergic to multiple food items than are allergic to one food item (Nowak-Wegrzyn, Isenberg, & Wood, 2000; Park, Ahn, & Sicherer, 2010). These findings suggest that more vigilance is needed in reviewing food labels and developing allergen-free recipes.

CNP participants in this study felt that food allergic reactions could occur even if foodservice employees try to be vigilant in providing allergen-free meals. Three participants expressed a lack of control over what other students might bring to school, with one stating, "You don't know what another kid brings in his sack lunch." Conversely, a study reported that scrutinizing food brought from home was not a critical problem when accommodating special dietary needs (Molaison & Nettles, 2010).

Major Topics	Themes	Quoted Responses
Attitudes about Food Allergies	Increase in prevalence	<i>"It's becoming a lot more prevalent and accommodations are being expected."</i>
	Increase in types of allergies	<i>"I want to say more and more variety in this year, and it's more specific too."</i>
	Lack of control	<i>"You don't know what a kid brings in his sack lunch."</i>
Issues in Dealing with Food Allergies	Inconsistency of information	<i>"A parent tells me one thing but the form signed by a physician says something different."</i>
	Employees' lack of skills	<i>"Someone that does not have any food service experience is not going to know to look for eggs in the 50th ingredient down the line."</i>
Perceived Barriers to Providing Employee Food Allergy Training	Employees' time constraints and lack of funding	<i>"The challenges would be getting the staff together and just relying on the budget."</i>

Table 4. Major Topics and Themes, and Selected Quotes from Focus Groups

CNPs' time constraints	<i>"It's the director doing it in the midst of everything else they're doing so they can't focus on that."</i>
Difficult to locate training resources	<i>"I know there are a lot of resources out there but they are not in one place."</i>

Participants, in general, showed their commitment to serving students with food allergies. Examples of such commitment were shown in statements such as *"The school foodservice employees care about the kids, and they don't want to make them sick,"* and *"The successful lunch ladies are Good Samaritans. They extend themselves and they care."* Despite their commitment to serving children with food allergies, participants felt that these students need to be more independent as they grow up. *"They can't expect the world to take care of them on every little thing,"* one participant stated, *"When they're in first, second, third, and fourth grade, we have a big responsibility to take care of them, but as they get a little bit older, they need to be responsible."* A study indicated that adults with food allergies took different precautions to ensure their own safety, such as proactively and persistently requesting information about a specific food item (Kwon & Lee, 2012). However, children with food allergies might be too young to communicate their needs with authority (Sampson, Munoz-Furlong, & Sicherer, 2006) and may need more supervision.

Issues Dealing with Food Allergies

Focus group participants stated that they faced challenges with acquiring the necessary documentation and with the accuracy of such documents. A few questioned whether physicians actually performed food allergy diagnostic tests. *"Are they (physicians) actually performing valid tests, or are they going by verbal requests from the parents?"* one CNP asked. Participants felt that some physicians might simply follow instructions provided by the parents *"to be on the safe side"* and *"get the parents out of their offices."* In addition, they questioned the clarity of some physicians' notes, such as "no dairy." They wondered whether this implied no milk and/or eggs, because the term "dairy" could mean different things to different people. Some participants further voiced concerns related to the discrepancy between the information provided by the parents and by the physicians. Some suspected cases where parents might have modified the physicians' prescriptions stating, *"There was different ink written on that form."*

Communication about food allergies among school stakeholders was another concern. One participant stated, *"Direct communication between the families and doctors, nursing staff, teachers, and school foodservice employees usually would not happen at school, unless there was ‘a major issue' (that) happened."* Other participants worked closely with school nurses because the nurses have more contact with the parents and students. Conversely, one participant stated, *"A nurse from a school called me and said two children were allergic to peanuts. I had no documentation in my office, but they (parents) didn't notify the foodservice department because it's a separate set of forms they needed to fill out."* This finding was consistent with another study that emphasized the role of effective communication between parents and school healthcare professionals in protecting children with food allergies (Molaison & Nettles, 2010).

Maintaining the confidentiality of student information is important, so some parents might not report their children's food allergies to the school (Molaison & Nettles, 2010). Even so, participants felt that they needed information about students' food allergies in a *"timely manner."* A participant commented, *"It is a HIPAA (Health Insurance Portability and Accountability Act) thing, and they can't share that information with any others. But if I were the teacher, I would want to know that. It is the same for foodservice staff."*

Generally, meeting the various demands of the parents of students with food allergies was very challenging. Some CNPs felt that parents did not want their children to be *"singled out,"* while others did not want their children to *"be around anyone who may bring foods that contain allergens."* Some

parents also questioned school foodservice staff if the allergen-free menus appeared different from the regular menu items.

Some parents had high expectations of school foodservice personnel. One participant stated, *"There is an inconsistency between the demands that the families ask from us versus what the families are willing to do themselves at home."* Another stated, *"I have parents who said 'You need to do this, this, and this...'"* That participant seemed frustrated by parents who expect more from school foodservice personnel than they do of themselves and wished the parents had *"realistic expectations"* of school foodservice personnel. A previous study indicated that children could be exposed to food allergens and suffers allergic reactions even in an environment perceived to be safe and educated, such as a school (Bollinger et al., 2006). This might explain why parents set a high standard for allergen-free food provision in the schools.

Food Allergy Training at School Foodservice Operations

None of the CNPs in this study indicated that formal food allergy training had been provided to employees in their school districts. Typically, informal training such as *"one-on-one training"* with those who might serve food to allergic children or *"talking about food allergies in Back-to-School meetings"* was provided. Two participants said that they *"delegated the responsibility to cafeteria managers who oversee the operation"*.

When asked about their level of confidence in providing food allergy training, most preferred that *"individuals with credentials"* provide food allergy training. One participant stated, *"I would like to see some professionals do the training because it is more in-depth. They have done the research."*

Specific topics that participants would like to see included in future food allergy training are identifying different types of food allergens, recognizing the symptoms of food allergic reactions, handling food allergens, and reading food labels. These findings are consistent with previous research that found label reading (66%), menu or recipe substitution (56%), and cross-contact prevention (50%) were among the important training topics related to food allergies (Verduin & Corbett, 2009). Another study indicated that school foodservice employees needed assistance from their school districts in planning menus for students who required dietary modifications (O'Toole, Anderson, Miller, & Guthrie, 2007). Allergen-free meals were not considered appealing to students, because the school foodservice personnel lacked either knowledge or genuine interest in preparing more palatable allergen-free foods (Marklund, Wilde-Larsson, Ahlstedt, & Nordstrom, 2007).

Perceived Barriers to Providing Employee Food Allergy Training

CNP participants agreed that food allergy training would inform school foodservice employees regarding proper food allergen handling practices and improve their food allergy knowledge and level of concern. Even so, participants recognized many challenges, including the extra costs associated with training and overtime compensation for the attendees. *"I think we will benefit from the food allergy training, but it's very difficult to justify,"* one participant stated. *"If we paid \$10 an hour for everybody (to go to training), although I don't think there's a person here getting paid only \$10 an hour... I have 55 employees!"* The problem was more evident during budget constraints; one participant stated, *"The mechanics of it are phenomenal, and in a shrinking budget year, it's tough to decide what to do."*

Focus group participants also pointed out scheduling difficulties and time constraints as barriers to providing food allergy training. *"The challenges would be getting the staff together,"* one participant commented. *"Employees are overloaded with their assigned tasks and they don't need one more thing to do."* Furthermore, the existence of employee unions also limited the time available for training. *"My employees are members of the union. There's a negotiated agreement, and so I cannot require more time than what was negotiated for training,"* stated one participant. Participants also mentioned that they did not have an adequate amount of time to provide training to their employees themselves. One stated, *"It's the director doing it in the midst of everything else they're doing, so they can't focus on that."* Another said that it was difficult to find the training resources because *"they are not in one place."* Some of these barriers to providing food allergy training are similar to those identified in previous studies related to food safety program implementation in school foodservice, including time and financial constraints and lack of resources (Giampaoli, Sneed, Cluskey, & Koenig, 2002; Youn & Sneed, 2003).

Triggers for Food Allergy Training

Participants discussed different events or circumstances that might trigger their decision to provide employee food allergy training. A few mentioned that having family members and close friends with food allergies made them more aware of preventive measures. Three commented that past student experiences, such as an anaphylactic shock episode at the school, was "*monumental*," and prompted them to provide training. Others were inspired by messages they heard in professional meetings or conferences. One participant said, "*It was the students' need!*" stating another trigger for food allergy training, "*When we get those prescription forms and we're looking at them, how is my staff going to handle this (if they are not trained)?*"

Previous research has revealed that food handlers who have experienced foodborne illness or who have a family member who has such an experience, are more likely to conform to safe food handling practices than others (Lum, 2011). This study also indicated that past experience encouraged the participants to take preventive action. Other studies on school foodservice have concluded that mandated policies in school nutrition programs, such as Hazard Analysis Critical Control Point (HACCP) implementation and new meal pattern guidelines would also bring positive changes to the school foodservice environment (Food Research and Action Center, 2006; Lambert, Raidl, Carr, Safaii, & Tidwell, 2007).

CONCLUSIONS AND APPLICATION

Qualitative research, such as focus groups, does not seek generalizability in data, but rather aims to describe the participants' experiences and attitudes in depth. Demographic characteristics of participants in this study reflect a diverse group of CNPs, and therefore the study captured an array of opinions about food allergies as an emerging issue in school foodservice operations. Even so, it is important to confirm the results of the study using a quantitative approach with a larger number of participants.

An increase in the numbers of students with food allergies as reported by participants of this study indicates that food allergies should be taken seriously. Participants felt comfortable serving students with common food allergies (i.e., milk and eggs), but they faced greater challenges preparing food that contained allergens with which they were unfamiliar, such as tomatoes and food colorings. Because these food allergens could present in many food items, CNPs should take extra precautions when working with food distributors and manufacturers if they suspect the presence of food allergens in some products.

CNP participants in the study were committed to serving students with food allergies. However, they voiced difficulties in communicating with other stakeholders (i.e., superintendents, principals, teachers, and school nurses) about food allergies. To enhance information sharing, the school foodservice management team needs to be included in care conferences for children with food allergies. School foodservice staff should also be given the authority to access, acquire, and request necessary information, despite the HIPAA law.

Moreover, the school foodservice management team should seek detailed information from the parents, including how their children with food allergies should be accommodated, as parents are the primary source of food allergy education in the school environment (Rhim & McMorris, 2001). With parental approval, the foodservice employees (i.e. cashier) could enter student's allergy information into a computerized database, which could help them to detect these students and food items they purchase at the Point of Sale (POS). All parties involved should cross-check their lists of students with food allergies and the types of allergies to ensure consistency with related documentation. The list of students with food allergies could also be supplemented with photos of the students to accurately identify them in case of emergency.

CNPs who managed programs at larger school districts faced challenges such as lack of proper documentation due to no medical providers being available and a large number of requests for allergen-free food. In small districts in rural areas, where there is not "*even a national chain retailer nearby*," CNPs were concerned about the availability of specialty products when special requests

were made. CNPs from smaller districts might negotiate with their suppliers to provide special products with the regular delivery.

Due to barriers such as limited time and financial resources, none of the study participants provided formal food allergy training. To overcome these barriers, training sessions could be incorporated as part of other food safety training or workshops. A federal or state agency might need to subsidize the training program to make it more affordable. Participants suggested that ideal topics for food allergy training would include food allergens and food allergy symptom identification, food allergen handling practices, and food label interpretation. Future training materials and programs could address these key areas.

The majority of the participants did not feel comfortable providing food allergy training to employees by themselves because many felt they lacked training in this area. It was evident that the participants needed extra guidance from professional organizations and state agencies to assist them with the training sessions. Because some of the participants were not able to locate and retrieve the food allergy information they needed, federal and state agencies and professional organization should publicize available resources through multiple channels (e.g., professional meetings, workshops, publications, and other communication channels).

This study identified several events that prompted the participants to provide food allergy training. Efforts should be made to encourage the participants to take preventive measures, rather than reactive measures when a food allergic reaction occurs or they are "on the television station." Currently, food allergy training is not required for school nutrition programs, and its implementation varies from state to state. The Massachusetts Department of Elementary and Secondary Education (ESE) mandates that school foodservice staff undergo food allergy awareness training in conjunction with the Allergen Awareness Act (ESE, 2011). Other states could also adopt this practice to nurture a safer dining environment in schools.

ACKNOWLEDGEMENTS

This study was made possible by the Academy of Nutrition and Dietetics Allene Vaden Memorial Grant for Foodservice Management Research 2011. The authors would also like to thank the Kansas Department of Education's Child Nutrition and Wellness program in addition to the School Nutrition Association of Kansas for their assistance with recruiting participants.

REFERENCES

- Asthma and Allergies Foundation of America. (2005). *American with Disabilities Act*. Retrieved from <http://www.aafa.org/display.cfm?id=9&sub=19&cont=255>
- Bock, S. A., Munoz-Furlong, A., & Sampson, H. A. (2001). Fatalities due to anaphylactic reactions to foods. *Journal of Allergy and Clinical Immunology*, 107,191-193.
- Bock, S. A., Munoz-Furlong, A., & Sampson, H. A. (2008). Further fatalities caused by anaphylactic reactions to food, 2001-2006. . *Journal of Allergy and Clinical Immunology*, 119, 1016-1018.
- Bollinger, M. E., Dahlquist, L. M., Mudd, K., Sonntag, C., Dillinger, L., & McKenna, K. (2006). The impact of food allergy on the daily activities of children and their families. *Annals of Allergy, Asthma and Immunology*, 96, 415-421.
- Branum, A. M., & Lukacs, S. L. (2008). Food allergy among U.S. children: Trends in prevalence and hospitalizations. *NCHS Data Brief*, 10, 1-8. Retrieved from <http://www.cdc.gov/nchs/data/databriefs/db10.pdf>
- Branum, A. M., & Lukacs, S. L. (2009). Food Allergy among children in the United States. *Pediatrics*, 124, 1549-1555. doi:10.1542/peds.2009-1210
- Butler, J. D. (2005). *Allergy management behaviors and sources of stress for schools and families living with life-threatening food allergies*. Retrieved from ProQuest Digital Dissertations. (AAT MR19349).
- Conklin, M. T., & Nettles, M. F. (1994). *Cost associated with providing school meals for children with special food and nutrition needs*. Retrieved from http://scn.ky.gov/nsls/bp/CD_ROM/Marketing%20and%20Merchandising/SFSEmployees/costs special.pdf

Cross, E. C., & Meyer, M. K. (2000). *Identification of the competencies, knowledge, and skills unique to School Nutrition Program*. National Foodservice Management Institute. Retrieved from <http://olemiss.edu/depts/nfsmi/Information/competency-identification.pdf>

Food Allergy Research and Education. (2013). *Food allergens*. Retrieved from <http://www.foodallergy.org/allergens>

Food Research and Action Center. (2006). *The school breakfast scorecard: 2006*. Retrieved from http://www.charityadvantage.com/nmfoodbanks/2006_SBP.pdf

Giampaoli, J., Sneed, J., Cluskey, M., & Koenig, H. F. (2002). School foodservice directors' attitudes and perceived challenges to implementing food safety and HACCP programs. *Journal of Child Nutrition and Management*, 26(2). Retrieved from <http://docs.schoolnutrition.org/newsroom/jcnm/02spring/giampaoli1/>

Gupta, R. S., Kim, J. S., Barnathan, J., Amsden, L. B., Tummala, L., S., & Holl, J. I. (2008). Food allergy knowledge, attitude and belief: Focus groups of parents, physicians, and the general public. *BioMed Central Pediatrics*, 8, 1-10. doi:10.1186/1471-2431-8-36

Gupta, R. S., Springston, E. E., Warriar, M. R., Smith, B., Kumar, R., Pongracic, J., & Holl, J. L. (2011). The prevalence, severity, and distribution of childhood food allergy in the United States. *Pediatrics*, 128, 2011-0204. doi: 10.1542/peds.2011-0204

Hennink, M., Hutter, I., & Bailey, A. (2011). *Qualitative survey methods*. Thousand Oaks, CA: SAGE Publications Inc.

Krueger, R., & Casey, M. (2009). *Focus group: A practical guide for applied research*. Thousand Oaks, CA: Sage Publications Inc.

Kwon, J., & Lee, Y. M. (2012). Exploration of past experiences, attitudes, and preventive behaviors of consumers with food allergies about dining out: A focus group study. *Food Protection Trends*, 32, 736-756.

Lambert, L. G., Raidl, M., Carr, D. H., Safaii, S., & Tidwell, D. K. (2007). School nutrition directors' and teachers' perceptions of the advantages, disadvantages, and barriers, to participation in the School Breakfast Program. *Journal of Child Nutrition and Management*, 27(2). Retrieved from <http://docs.schoolnutrition.org/newsroom/jcnm/07fall/lambert/index.asp>

Leftwich, J., Barnett, J., Muncer, K., Shepherd, R., Raats, M. M., Hazel Gowland, M., Lucas, J. S. (2010). The challenges for nut-allergic consumers of eating out. *Clinical and Experimental Allergy*, 1-7. doi:10.1111/j.1365-2222.2010.03649.x

Leo, H. L., & Clark, N. M. (2007). Managing children with food allergies in childcare and school. *Journal of Current Allergy and Asthma Reports*, 7, 187-191.

Lum, A. (2011). Using the health belief model to examine food handling beliefs, knowledge, and practices among families with young children. *Journal of Nutrition Education*, 43(supp), S9.

Marklund, B., Wilde-Larsson, B., Ahlstedt, S., & Nordstrom, G. (2007). Adolescents' experiences of being food-hypersensitive: A qualitative study. *BMC Nursing*, 6, 8. doi:10.1111/j.1399-3038.2009.00938.x

Massachusetts Department of Elementary and Secondary Education. (2010). *Guidelines for Allergen Awareness Regulation and Exemptions*. Retrieved from <http://www.doe.mass.edu/news/news.aspx?id=5783>

Mayo Clinic. (2013). Food allergy: Causes. Retrieved from <http://www.mayoclinic.com/health/food-allergy/DS00082/DSECTION=causes>

Molaison, E. F., & Nettles, M. F. (2010). Special food and nutrition needs in school nutrition programs. *Journal of Child Nutrition and Management*, 34(1). Retrieved from <http://www.schoolnutrition.org/Content.aspx?id=14037>

Munoz-Furlong, A., & Weiss, C. (2009). Characteristics of food allergic patients put them at risk for a fatal anaphylactic episode. *Current Allergy and Asthma Reports*, 9(1), 57-63.

National Institutes of Health, National Institute of Child Health and Human Development. (2000). *How do children spend their time? Children's activities, school achievement, and well-being*. Retrieved from http://www.nichd.nih.gov/publications/pubs/upload/ti_11.pdf

Nowak-Wegryn, A., Conover-Walker, M. K., & Wood, R. A. (2001). Food-allergic reactions in schools and preschools. *Archive of Pediatric and Adolescent Medicine*, 155, 790-795. doi:10.1001/archpedi.155.7.790

- O'Toole, T. P., Anderson, S., Miller, C., & Guthrie, J. (2007). Nutrition services and foods and beverages available at schools: Results from the School Health Policies and Program Study 2006. *Journal of School Health, 77*, 500-521.
- Park, J. H., Ahn, S. S., & Sicherer, S. H. (2010). Prevalence of allergy to multiple versus single foods in a pediatric food allergy referral practice [abstract]. *Journal of Allergy and Clinical Immunology, 125*, AB216.
- Rhim, G. S., & McMorris, M. S. (2001). School readiness for children with food allergies. *Annals of Allergy, Asthma and Immunology, 86*, 172-176.
- Saldaña, J. (2009). *The coding manual for qualitative researchers*. London, UK: Sage Publications Ltd.
- Sampson, M. A., Munoz-Furlong, A., & Sicherer, S. H. (2006). Risk taking and coping strategies of adolescents and young adults with food allergy. *Journal of Allergy and Clinical Immunology, 117*, 1440-1445.
- School Access to Emergency Epinephrine Act of 2013, Pub. L. 113-48. Retrieved from <http://beta.congress.gov/113/bills/hr2094/BILLS-113hr2094enr.pdf>
- School Nutrition Association. (2010). *2010 Back to school trends report*. National Harbor, MD: School Nutrition Association.
- Sicherer, S. H., Furlong, T. J., DeSimone, J., & Sampson, H. A. (2001). The U.S. peanut and tree nut allergy registry: Characteristics of reactions in schools and day care. *Journal of Pediatrics, 138*, 560-565.
- U. S. Department of Agriculture, Food and Nutrition Service. (2001). *Accommodating student with special dietary needs in the School Nutrition Programs*. Retrieved from http://www.fns.usda.gov/cnd/guidance/special_dietary_needs.pdf
- U. S. Department of Agriculture. (2011). *National School Lunch Program: Participation and lunches served*. Retrieved from <http://www.fns.usda.gov/pd/slsummar.htm>
- Verduin, L., & Corbett, A. (2009). Survey of U.S. school personnel on food allergy management and prevention practices [abstract]. *Journal of Allergy and Clinical Immunology, 123*(Supp), S76.
- Youn, S., & Sneed, J. (2003). Implementation of HACCP and prerequisite programs in school foodservice. *Journal of the American Dietetic Association, 103*, 55-60. Retrieved from <http://www.sciencedirect.com/science/article/pii/S0002822302000068>
- Yunginger, J. W., Squillace, D. L., Richard, B. A., Jones, R. T., & Helm, R. M. (1989). Fatal anaphylaxis reactions induced by peanuts. *Allergy and Asthma Proceedings, 10*, 249-253.

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