1-1-2015

Translation Of The Cdc Food Allergy Guidelines Using The Knowledge To Action Framework

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TRANSLATION OF THE CDC FOOD ALLERGY GUIDELINES USING THE KNOWLEDGE TO ACTION FRAMEWORK

Submitted to the Faculty
Yale University School of Nursing

In Partial Fulfillment
of the Requirements for the Degree
Doctor of Nursing Practice

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May 15, 2105

The capstone is accepted in partial fulfillment of the requirements for the degree Doctor of Nursing Practice.

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Abstract

Managing food allergies in schools has become a critical strategy for ensuring the health and safety of students. The Centers for Disease Control and Prevention's (CDC) *Voluntary Guidelines for Managing Food Allergies in Schools and Early Care and Education Programs* (CDC, 2013) provides schools with important guidance for this complicated task. The CDC developed a food allergy guidelines toolkit for schools to bring the contents of the guidelines to priority school audiences in easily accessible and relevant formats. This manuscript outlines the development process of the toolkit using the CDC's National Center for Chronic Disease Prevention and Health Promotion's (NCCDPHP) Knowledge to Action Framework (K2A Framework). The implementation of this process included the decision to translate, identification of priority audiences, inquiries and discussion with key stakeholders, resource development and the final process of planning for dissemination of the toolkit contents. The value and effectiveness of the collaborative process used in the "Knowledge into Products" phase of the framework is shared. The K2A Framework may also prove to be an effective model to guide future public health translation projects.

Introduction

Meeting the daily health care needs of children at school is critically important work for school nursing and school health services. This reality is reflected in a report of the National Survey of Children with Special Health Care Needs, in which it was noted that 13.9% of children in this country have special health care needs (U.S. Department of Health and Human Services, 2008). McPherson et al. (1998) describe children with special health care needs as those who have physical, developmental, emotional or behavioral chronic conditions which demand more services than those normally needed by children. The prevalence and needs of children with special health care needs has led to a growing concern for health and education officials alike. As more students come to school with chronic conditions, schools need to be ready to manage these problems and respond to emergencies that may arise while a student is at school (Council on School Health, 2008). Indeed, an Institute on Medicine report noted that better outcomes for people with chronic diseases require an "interface of the public health system, the health care system, and the non-health care sector" (IOM, 2012, p. 7). Schools are an important non-health care sector.

Food allergies are a serious chronic condition, and schools have responsibility in helping students manage them during the school day. A food allergy has been defined as "an adverse health effect arising from a specific immune response that occurs reproducibly on exposure to a given food" (Boyce, et al., 2010, p. S8). It is estimated that approximately 4% of children under the age of 18 in the U.S. have a food allergy, and the prevalence of food allergies appears to be increasing (Branum & Lukacs, 2008). Food allergy reactions can range from mild to very serious, including the potential for anaphylaxis, a life-threatening reaction that can affect the respiratory system, gastrointestinal tract, skin and cardiovascular systems (CDC, 2013; Burks,

Jones, Boyce, Sicherer, Wood, Assa'ad & Sampson, 2010). It is critical for school personnel to be aware of how to prevent food allergy reactions and how to respond to anaphylaxis emergencies in order to help keep students with food allergies healthy and safe at school.

In 2013, the Centers for Disease Control and Prevention (CDC) published the *Voluntary Guidelines for Managing Food Allergies in Schools and Early Care and Education Programs* (CDC, 2013). The guidelines were created in compliance with Section 112 of the Food and Drug Administration (FDA) Food Safety Modernization Act, which called for the Secretary of Health and Human Services to "develop guidelines to be used on a voluntary basis to develop plans for individuals to manage the risk of food allergy and anaphylaxis in schools and early childhood education programs" (U.S. Food and Drug Administration, 2011). The FDA also directed that the guidelines be made "available to local educational agencies, schools, early childhood education programs, and other interested entities and individuals to be implemented on a voluntary basis only" (U.S. Food and Drug Administration, 2011). The CDC's National Center for Chronic Disease Prevention and Health Promotion (NCCDPHP) developed the guidelines in collaboration with the U.S. Departments of Education, Agriculture, and Justice, as well as other divisions in the U.S. Department of Health and Human Services. Other subject matter experts also contributed to the creation of the guidelines. These included representatives from organizations with experience in food allergy management and national organizations representing school professionals. "A systematic process to collect, review, and compile expert advice, scientific literature, state guidelines, best practice documents, and position statements from individuals, agencies and organizations" was used under the guidance of a panel of subject matter experts (CDC, 2013, p. 12). The outcome of this collaborative work led to the

identification of these five priority recommendations for schools to address in their Food Allergy Management Prevention Plans:

1. Ensure the daily management of food allergies in individual children.
2. Prepare for food allergy emergencies.
3. Provide professional development on food allergies for staff members.
4. Educate children and family members about food allergies.
5. Create and maintain a healthy and safe educational environment. (CDC, 2013, p. 15)

The CDC food allergy guidelines are comprehensive and provide content required by the FDA Food Safety Modernization Act. This document represents the first time that comprehensive national guidelines have been identified for managing food allergies in the school setting (CDC, 2013). Table 1 outlines the essential elements of the guidelines. The purpose of this manuscript is to provide a description of the development of the CDC food allergy guidelines toolkit for schools using the Knowledge to Action Framework (Wilson, 2011).

Background – Knowledge to Action Framework

It has been noted that the act of knowledge translation is dependent on trusted relationships, collaboration and communication between research scientists and the users of research (Bennett & Jessani, 2011). The translation of scientific knowledge about chronic disease management into public health practices has been identified as a priority by the CDC (Wilson, Brady & Lesesne, 2011). To this end, the CDC convened a Workgroup on Translation to develop definitions and a framework to guide the process of research translation at the agency. One of the findings of the work group was the need to create translation of scientific interventions such as guidelines (Wilson & Fridinger, 2008). The outcome of this work led to the development of the Knowledge to Action Framework (Figure 1), which outlines three phases of the translation process: research, translation, and institutionalization. The K2A framework also identifies "the

decision points, interactions, and supporting structures within phases that are necessary to move knowledge to sustainable action" (Wilson, Brady & Lesesne, 2011, p. 1).

The first phase of the K2A Framework is the research phase, when the scientific evidence for practice is discovered. In the framework, research then leads to a decision to translate the findings to promote widespread adoption of evidence-based practices. The Workgroup on Translation defined translation as "the process and steps needed and taken to ensure effective and widespread use of evidence-based programs, practices and policies" (Wilson, Brady & Lesesne, 2011, p. 1). The translation phase of the framework includes the decision to translate, transforming knowledge into products, developing supporting structures, and disseminating programs, practices, or policies to potential users of the research. "Knowledge into products" refers to the process of systematically addressing the needs of specific audiences by creating products to assist putting evidence into practice. The ultimate goal of the work of the translation phase is the institutionalization of practices, policies and programs that will support public health. The framework also points to the need for "supporting structures" in each phase. These can include general and specific structures. Examples of supporting structures in the translation phase of the framework include accessible training, the provision of technical assistance and creating carefully researched products and materials. Finally, a crucial component of the framework is evaluation, which spans all of the phases of the process (Wilson, Brady & Lesesne, 2011)

Challenges of Translation for the Education Sector

The translation of science for the public health sector can be challenging. For health scientists, one of the more frustrating challenges is the length of time it has traditionally taken for

adoption of scientific evidence into widespread practice. It has been estimated that it can take up to two decades for new scientific knowledge to be widely adopted into practice (Balas & Boren, 2000; Sussman, Valente, Rohrbach, Skara & Pentz, 2006; Colditz, 2012). Creating pathways to quicker adoption of evidenced-based practice is key to achieving public health (Wilson& Fridinger, 2008). Sussman et al. (2006) note, "Without effective translation, the fundamental aspects of quality health care – effective, efficient, current, and timely care that could save many lives – cannot be achieved" (p. 8). Other common barriers in the translation of science include the need for collaboration, conflict of interest between stakeholders, concern with costs and time, the need for communication between basic and applied scientists, and a lack of awareness by practitioners who could implement the innovation.

In a review of translational research funded by the Agency for Healthcare Research and Quality, some of the challenges in translating research into clinical practice in healthcare settings were outlined (Feifer et al., 2004). These findings and observations are likely also relevant in the educational setting. In this review, the authors identified barriers to the implementation of guidelines which can include not knowing that the guidelines exist, feeling that there is not time to implement them, distrust, or not having the information that is needed when one needs it. Recognizing potential barriers and gaining feedback from the target groups is essential in the development of translational materials.

Although there is still little research on the implementation of public health initiatives in school settings, it is known that schools can present specific challenges for implementing and sustaining change. Many schools, dependent on local funding, experience economic challenges, and schools can differ significantly in available resources and program quality. Another consideration is the political and policy environment at the national, state, and district levels that

affect health promotion. Interventions that use existing resources are more likely to be successful in the school setting, and creating partnerships with teachers and school administrators is more likely to affect sustained change (Lee & Gortmaker, 2012; Israel, Leung & Wiecha, 1998). A study of schools in Australia found that barriers to sustained health promotion in schools included the complexity and diversity of schools, poor communication between schools, ineffective interactions between the health and education sectors, lack of evaluation of health programs in schools and a lack of health promotion mandates and recognition (Keshavarz, Nutbeam, Rowling & Khavarpour, 2010).

Methods/Strategies/Intervention Applications

Project Goals

The strength of the *Voluntary Guidelines for Managing Food Allergies in Schools and Early Care and Education Programs* lies in the comprehensive and evidenced-based recommendations. Making the content of this 103-page document easily accessible and understandable for schools is a critical translation strategy for CDC. The focus of this project was to develop translation materials based on the guidelines' content that could reach priority school audiences in formats that are relevant and effective. The goals of this project were:

- To develop research translation tools and resources for key stakeholders to support greater dissemination of the *Voluntary Guidelines for Managing Food Allergies in Schools and Early Care and Educational Programs*.
- To inform technical assistance that is provided to CDC-funded partners about food allergy management in schools.

- To demonstrate the application of the K2A Framework in research translation for schools.

Project Methodology

This project focused primarily on the translation phase of "transforming scientific knowledge into actionable products, developing appropriate supporting structures, and disseminating evidence-based programs, practices, or policies to potential adopters" (Wilson, Brady & Lesesne, 2011, p. 2). The K2A framework guided the following steps of the translation project: the decision to translate, inquiries and discussions with key stakeholders, target audience identification, resource development process and final processes and dissemination planning.

Decision to Translate: The decision to translate occurred after publication of the guidelines. Although the research phase was completed during the development of the guideline document, an updated environmental scan of existing food allergy resources for schools was conducted at the onset of this translation project in order to help identify and evaluate existing food allergy resources for schools. Additionally, inquiries from school health partners informed the decision to translate, indicating a need for streamlined information for specific audiences.

Priority Audiences Identified/Defined: The environmental scan helped inform what audiences to target in the translation project. Based on this information and consultation with collaborating partners, the following priority audiences were chosen for the focus of the translation project: School superintendents, school administrators, teachers and paraeducators, school nutrition professionals, school mental health professionals and school transportation staff. These school personnel each have an important and specific role to play in assisting with the management of food allergies in schools. Since there were resources already available that

address the CDC guidelines for school nurses, they were not considered a priority audience for resource development. However, engaging school nurses and raising their awareness of the toolkit will be essential to the success of the translation project. A list of the toolkit products created and their intended audiences can be found in Table 2.

Inquiries and Discussions with Key Stakeholders: The collaborative process in this translation project included obtaining consultation and input from CDC experts as well as national organizations and individuals representing school health professionals (e.g., school nurses, school transportation experts, school psychological and counseling professionals). This feedback was obtained through an environmental scan of existing resources, a series of informal discussions with individuals from the professional organizations, a semi-structured discussion with a small group of 7 school nurses, and a final review of the translation materials by key stakeholder audiences. Potential barriers were addressed in this project by eliciting feedback from these diverse sources throughout the process of resource development. These contacts provided information about what the organizations and individuals were already doing to address food allergy management in schools and shared suggestions for how CDC resources could augment the support provided to schools. The discussions with professionals in education and educational support services also helped the CDC better understand the concerns of these priority groups, as well as the most effective modes of delivery of health information. For example, experts in the field helped to refine the language used in the materials to reflect the appropriate language for specific audiences. This formative process ensured that diverse interests were engaged and helped to make the final products stronger resources that are supported by a wide range of organizations and experts. The process of developing these relationships took significant time during the project. During final review of the tip sheets and PowerPoint

presentations, 112 comments and suggestions from stakeholder reviewers were provided. Another important outcome of this collaboration was the development of working relationships with several experts in the field who provided ongoing feedback throughout the entire resource development process.

Document and PowerPoint Development Process: The procedures established at the CDC to review and approve materials produced by the agency provided valuable oversight of the development of the toolkit's contents. Every item created (resource list, tip sheets, presentations, and podcasts) underwent review by health scientists, branch and division leadership, and CDC editors. The "Clear Communication Index", a tool which provides content developers with criteria to ensure that communications for the public are clearly understandable, was also implemented during the toolkit development and helped to ensure clarity of written products (CDC, July 2014). Graphic designers at the CDC helped to ensure that the tool kit contents were visually appealing, consistent and appropriate for each of the audiences. For example, the CDC uses graphic visuals to convey important health information for the public, and this tool kit also includes relevant simple graphics to display specific data and content and convey the importance of the issue of managing food allergies in the school setting.

Final Processes and Dissemination Planning: Although the translation phase of this project did not include dissemination, planning for the future dissemination of the resources was an ongoing objective throughout the tool kit development. The CDC K2A Framework developers define dissemination as, "a purposeful and facilitated process of distributing information and materials to organizations and individuals who can use them to improve health" (CDC, 2014a, p. 11). With this in mind, plans were developed to work with national organization partners to support dissemination of the tool kit to key audiences. Key collaborators will be engaged from

the relationships developed during the tool kit development. Additionally, CDC evaluators will follow web metrics to evaluate and assess views of the tool kit contents. A webinar is planned with a CDC partner, which will also help to begin dissemination of the resources to priority audiences. Finally, working with partners who represent school nurses to disseminate the tool kit to school health professionals will be key in ensuring wide dissemination and use of the food allergy resources.

Discussion

The focus of this project was the creation of translation materials to bring the content of the CDC food allergy guidelines for schools to priority audiences. The K2A Framework helped to inform the decision to translate and identify and define priority audiences. The collaboration, inquiries and discussions with key stakeholders were key methods used to ensure that the project would be successful. Also important was the involvement of CDC oversight in the resource development process. Planning for dissemination was an important action as well.

In a study of providing a food allergy education professional learning opportunity for school nurses, which included a presentation and handout, researchers in Texas noted that this effort was an effective way to change food allergy management practices in schools (Chokshi, Patel & Davis, 2014). Likewise, the decision to develop tip sheets, PowerPoint presentations, and podcasts in this project will address the need to provide resources for the education sector that are accessible, available at no cost to the school, and potentially impactful on key audience knowledge and on school environments and policies.

In a cross-sectional study of researchers, the majority reported spending less than 10% of their time in the dissemination of their research priorities. Some of the dissemination planning gaps identified in the study included a failure of many researchers to use a theory or framework

to guide dissemination planning. Another common gap was the failure to involve and engage key stakeholders and use appropriate dissemination messaging (Brownsen, Jacobs, Tabak, Hoehner & Stamatakis, 2013). Working directly with practitioners in the field who will be implementing research is one important way to ensure that translation will be relevant and useful (Sofaer, Talis, Edmunds, Papa, 2013). Previous translation projects have demonstrated this importance including the Not on Tobacco Program, which involved school audience stakeholders in the planning of the design of the intervention (CDC, 2014b; Noonan & Emshoff, 2011). Similarly, perhaps the most effective strategy employed in this research translation project was the development of active partnerships with key stakeholders. Building trusted relationships with representatives from important stakeholder organizations and with individuals active in the field of food allergy management in schools was critical. Maintaining these contacts allowed for careful planning and ongoing evaluation during the development of the resources in the toolkit. In addition to providing input during the environmental scan of resources, key stakeholders reviewed tool kit content throughout the process of development and provided ongoing critique and input. One way of evaluating this input was to use a comment table to identify the concern and address each comment and respond appropriately. An excerpt from this table can be found in Table 3. A second valuable activity in the formative process was engaging in a discussion with a group of eight practicing school nurses to ascertain their suggestions for strengthening the content of the tip sheets for specific school audiences. This input from school nurses allowed the content of the resources to reflect real practice concerns of these school health professionals. One example of this was the addition of language to specific tip sheets which addressed not leaving a student alone who is experiencing an allergic reaction. Taking into consideration varying view points and priorities also helped to ensure that the resources would be well received by their

intended audiences. As this project moves into the institutionalization phase of the K2A Framework, these stakeholder relationships will assist with ensuring that the toolkit impacts practice in a meaningful and sustained manner. The resulting final changes to the content helped to make the resources more relevant and responsive to the priority audience concerns and needs.

Conclusion

In conclusion, the value of using the K2A Framework to guide the translation process is evident. First, paying attention to the supporting structure of stakeholder involvement was valuable. Weighing the opinions and priorities of multiple stakeholders was challenging, but key to the success of the project. The collaborative process ensured that each of the targeted school audiences would have discipline-specific translation materials that are relevant and accessible. Communicating and collaborating with key stakeholders helped to develop support for the dissemination of the tool kit contents to constituents. Finally, the collaborative process used in this project served to help strengthen relationships with School Health Branch partners, and it will help to facilitate future collaborations to promote public health in schools. Future work will include developing evaluation structures for the implementation and institutionalization of the use of the food allergy tool kit. The success of this phase will help to inform future efforts to change public health practices in educational settings. Lessons learned from this project suggest that developing trusting collaborative relationships with key stakeholders is very important when bridging the gap between public health and health promotion practice in schools. Disseminating evidenced-based health information and recommendations to educators and schools will continue to be important. This project suggests that the K2A Framework could provide an effective guide for the movement of research to practice in schools and other public health venues.

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Table 1.

Elements included in the Voluntary Guidelines for Managing Food Allergies in Schools and Early Care and Education Programs (CDC, 2013)

Section 1 Food Allergy Management in Schools and Early Care and Education Programs
• The role of parents in providing medical documentation and medication to schools
• The creation of individual food allergy management plans
• Strategies for communicating between schools and emergency medical providers,
• The need to educate schools staff, parents and children about food allergies,
• Having accessible emergency epinephrine,
• Ensuring that food allergy management plans address extracurricular and after school programs,
• Record keeping of medication administration and emergency responses.
Section 2 Actions for School Boards and District Staff
Section 3 Actions for School Administrators and Staff
Section 4 Actions for Early Care and Education Administrators and Staff
Section 5 Federal Laws and Regulations that Govern Food Allergies in Schools and Early Care and Education Programs
Section 6 Food Allergy Resources

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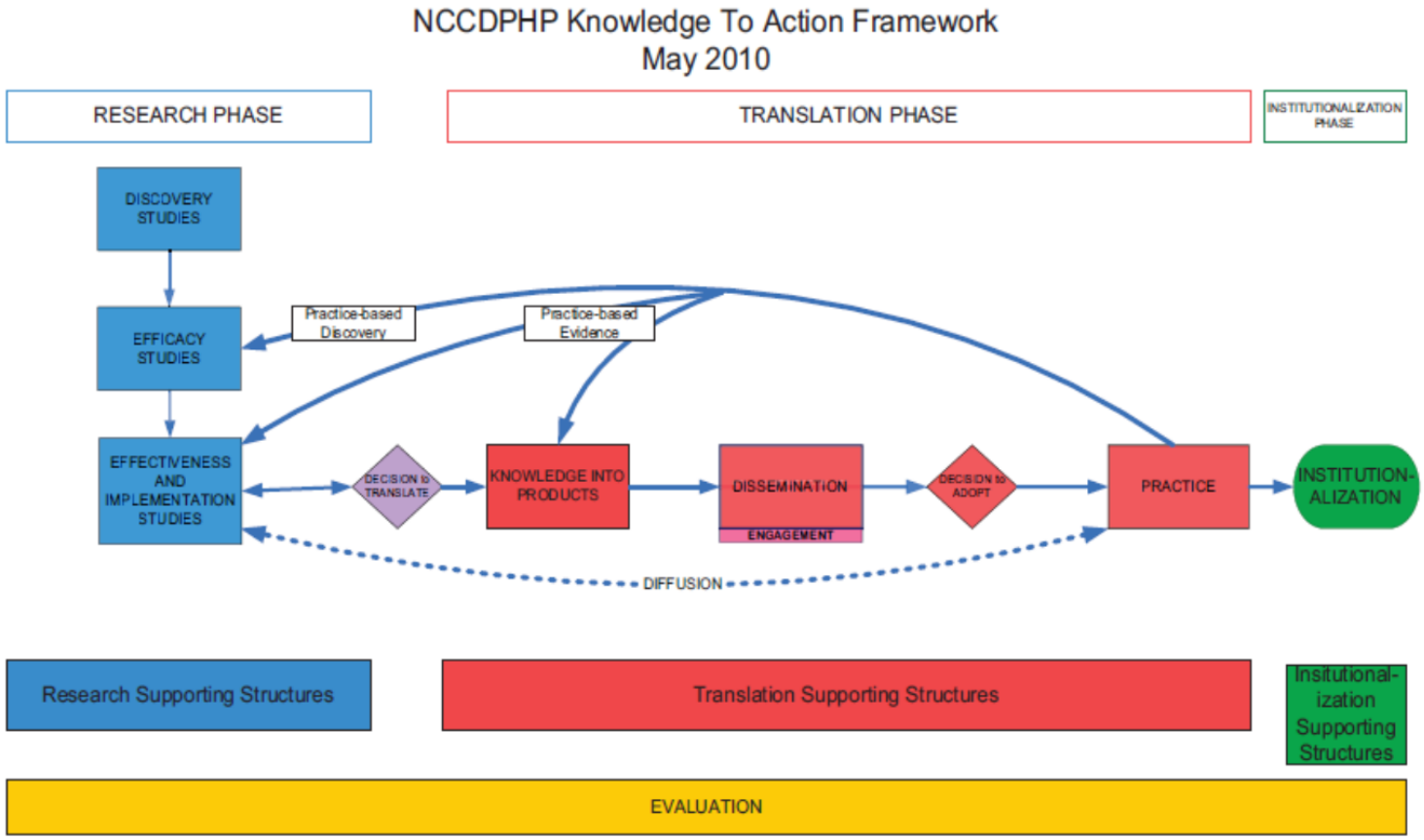
Figure 1 – NCCDPHP Knowledge to Action Framework



Source: Wilson KM, Brady TJ, Lesesne C, on behalf of the NCCDPHP Work Group on Translation. (2011). An organizing framework for translation in public health: the Knowledge to Action Framework. *Prev Chronic Dis* 2011; 8(2). Retrieved from http://www.cdc.gov/pcd/issues/2011/mar/10_0012.htm.

403 **Table 2 – CDC Food Allergy Guidelines Translation Project Toolkit Products***

Product	Resource Description	Audiences
Tip Sheets	These 2-4 page documents were created to address managing food allergies in schools with particular attention to the role of each of the priority audiences. The tips sheets can be viewed electronically or downloaded and printed from the CDC web site's food allergy toolkit page.	School superintendents, school administrators, teachers and paraeducators, school nutrition professionals, school mental health professionals, school transportation staff
Select Resources for Schools Handout	This resource list provides schools with helpful resources for managing food allergies in schools. Live links are imbedded in the handout for electronic viewing. The Select Resources handout can be viewed electronically or downloaded and printed from the CDC web site's food allergy toolkit page.	School nurses, school superintendents, school administrators
Customizable PowerPoint Presentations	These presentations were created to be used by school nurses and other health educators to introduce priority school audiences to the content specific to their role in managing food allergies in schools. All of the PowerPoint presentations are available for downloading from the CDC web site's food allergy toolkit page.	General school audiences, school administrators, teachers and paraeducators, school nutrition professionals, school mental health professionals, school transportation staff
Podcasts	These short audio files are directed at each priority audience to introduce them to their role in managing food allergies in schools and to guide them to the CDC food allergy toolkit resources. The podcast links were also shared with CDC partners who represent school employees for distribution in their networks.	School nurses, school superintend-dents, school administrators, teachers and paraeducators, school nutrition professionals, school mental health professionals, school transportation staff
Webinar	A webinar was developed in collaboration with CDC partner organizations to introduce the food allergy toolkit to parents, school nurses and school administrators.	Parents, school nurses, school administrators

404 *All Food Allergy Toolkit materials are available at http://www.cdc.gov/healthyyouth/foodallergies/index.htm

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406 **Table 3 – Excerpt from Reviewer Comment Table**

Reviewer	Document	Reviewer Comment	Disposition	Justification
Reviewer 1	Administrator PowerPoint	Slide 8 - Slide title should be: Food Allergy Management and Prevention Plan. To eliminate confusion, can changes be made to Narrative and to other slides throughout all presentations, when referring to a school's food allergy policy, from 'Food Allergy Emergency Plan' to 'Food allergy policy' or 'Food Allergy Management and Prevention Plan'?	Changed narrative on slide to include: *This plan is needed to manage and monitor students with food allergies on a daily basis, whether they are at school or at school-sponsored events.... Your school plan should include developing procedures for identifying children with food allergies and creating individual food allergy emergency plans for these students.*	Clarity of understanding
Reviewer 1	Administrator Tip Sheet	Change prevalence of food allergy from 4% to 4-5% of students	Not making suggested change	Decision to keep 4%, which more accurately reflects prevalence of school age children with food allergies
Reviewer 2	School Nutrition PowerPoint	Page 12 - consider highlighting confidentiality issues here to be sure that this is emphasized	Added to Narrative: *As always when dealing with student information, it is important to be mindful of the federal and state laws that protect the privacy or confidentiality of student information and other legal rights of students with food allergies. More information about federal laws can be found in the guidelines document.*	Emphasis on confidentiality issues

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