



Protocols for Managing Food Allergies in Elementary and Secondary Schools

Katherine Heideman & Cathlin Buckingham Poronsky

To cite this article: Katherine Heideman & Cathlin Buckingham Poronsky (2021): Protocols for Managing Food Allergies in Elementary and Secondary Schools, Comprehensive Child and Adolescent Nursing, DOI: [10.1080/24694193.2021.1883771](https://doi.org/10.1080/24694193.2021.1883771)

To link to this article: <https://doi.org/10.1080/24694193.2021.1883771>



Published online: 01 Apr 2021.



Submit your article to this journal [↗](#)



View related articles [↗](#)



View Crossmark data [↗](#)



Protocols for Managing Food Allergies in Elementary and Secondary Schools

Katherine Heideman, MSN, APRN, FNP-BC and Cathlin Buckingham Poronsky, PhD,
APRN, FNP-BC 

Marcella Niehoff School of Nursing, Loyola University Chicago, Chicago, Illinois, USA

ABSTRACT

The prevalence of food allergies is on the rise; nearly 8% of children worldwide are affected. The most common allergens—milk, eggs, peanuts, tree nuts, shellfish, fish, and wheat—account for 90% of serious allergic reactions. A literature review of online databases in CINAHL, PubMed Central, Education Resources Information Center (ERIC), Google Scholar, Health Resource Center Academic, and archival searching was performed to identify evidenced-based practices for managing food allergies in schools. There is no cure for food allergies. The current management standard is to avoid the allergen, treat a mild reaction with antihistamine and observation, and treat anaphylaxis with an intramuscular injection of epinephrine. Due to COVID-19 social distancing recommendations, food consumption in schools has moved from cafeterias and lunchrooms into classrooms and other spaces. This in turn necessitates strict adherence to hand washing and disinfecting all surfaces that come in contact with food. Managing food allergies in schools requires cooperation among school administrators, nurses, teachers, staff, families, and health care providers. Resources for managing food allergies in schools are presented offering information for parents, school administrators, nurses, teachers, and staff for planning and implementing strategies for preventing and reducing allergic reactions and treating life-threatening food allergy reactions.

ARTICLE HISTORY

Received 24 November 2020
Accepted 27 January 2021

KEYWORDS

Food; allergies; school;
children; COVID-19;
management

Background

The prevalence of immunoglobulin E (IgE) food allergies, a negative reaction to ingestion of food leading to an adverse reaction, is on the rise worldwide, with an overall higher rate among children than adults (Abrams & Sicherer, 2016). It is estimated that between 3% and 10% of adults and 8% of children worldwide are affected by food allergies (Messina & Venter, 2020). This is a growing public health concern in both Westernized and developing countries (Loh & Tang, 2018). The most commonly identified allergens, proteins in milk, eggs, peanuts, tree nuts, shellfish, fish, wheat, and soy beans, are commonly referred as the “Big 8” and account for 90% of serious allergic reactions (Grief, 2016; Messina & Venter, 2020).

Cultural variations in eating habits have created variances in food allergies. For example, in Mexico, school-aged children have greater hypersensitivity reactions to chocolate, strawberries, crustaceans, and eggs, whereas in Chile, nuts and peanuts are more common

offenders. In El Salvador, prawns, milk, walnuts, and chocolate are known to cause hypersensitivity reactions and in Colombia seafood, and some fruits and vegetables are offending agents (De Martinis et al., 2020).

Food allergy prevalence was once thought to be uncommon in the developing world. However, more recent data show incidence rates of food allergies in China and Africa are more similar to those of Western countries (De Martinis et al., 2020). Food allergy prevalence in children ranges from 3.4% to 7.0% in Asia and varies in Africa from 5% to 19% (Loh & Tang, 2018).

Exposure to an allergen may occur by contact, ingestion, or inhalation. Although cutaneous reactions are a common presentation of food allergy response, severe reactions are most often due to ingestion of an allergen. The most serious reaction is anaphylaxis, a hypersensitivity response involving IgE-mediated release of histamine and other mediators from mast cells and basophils.

An anaphylactic reaction is an immediate life-threatening allergic reaction with a rapid onset and potential to cause death (Egan & Sicherer, 2016). Anaphylaxis rates are on the rise, notably food-related anaphylaxis in children aged 5 to 17 years (Hayden, 2018; McBride, 2019). This reaction typically manifests as a combination of symptoms from multiple organ systems, including itching, hives, swelling of the lips or tongue, throat tightness, hoarseness, cough, wheeze, abdominal cramping, vomiting, weak pulse, fainting, and dizziness.

Approximately 5.6 million children in the United States are affected by food allergies (Food Allergy Research & Education [FARE], 2016). In the school setting, this is one in 13 children, or about two students per classroom (Centers for Disease Control and Prevention. National Center for Chronic Disease Prevention and Health Promotion. Division of Population Health, 2013). And not all anaphylactic reactions occur in children known to have a food allergy. Severe and potentially life-threatening anaphylactic reactions occur at schools in up to 25% of students who have no known previous food allergy (Centers for Disease Control and Prevention (Host), 2017–present).

A comprehensive review of up-to-date evidence on food allergy management for U. S. schools is presented here to help guide schools, parents, and key stakeholders in implementing measures to keep their student population healthy and safe. In May 2020, in response to the COVID-19 pandemic, the CDC released new recommendations to guide schools on how to reduce the risk of risk of spreading the SARS-CoV-2 (Centers for Disease Control and Prevention, 2020b). The recommendations included in this paper applicable to the management of food allergies are universal and applicable to schools outside the U. S.

Methods

Using the keywords *food*, *allergies*, *school*, *children*, *bullying*, *management*, and *COVID-19*, sources from nursing, medicine, and education disciplines were reviewed for guidelines on management of food allergies in schools. In addition to archival searching, several online databases were searched, including CINAHL, PubMed Central, Education Resources Information Center (ERIC), Google Scholar, and Health Resource Center Academic.

Inclusion criteria were English language and peer-reviewed journals published between 2014 and 2020. An exception was made for the CDC document *Voluntary Guidelines for Managing Food Allergies in Schools and Early Care and Education Programs* published in

2013. Nearly 60 articles were reviewed for relevancy to the topic of managing food allergies of children, ages 3–18 years in school settings; ultimately 28 articles were included in the manuscript. After the onset of COVID-19, an additional review of the literature was conducted using the key same words plus COVID-19 which yielded another 13 articles; 5 articles were included in the manuscript. **Figure 1** Food Allergy Literature Review Flow Chart depicts the literature review process.

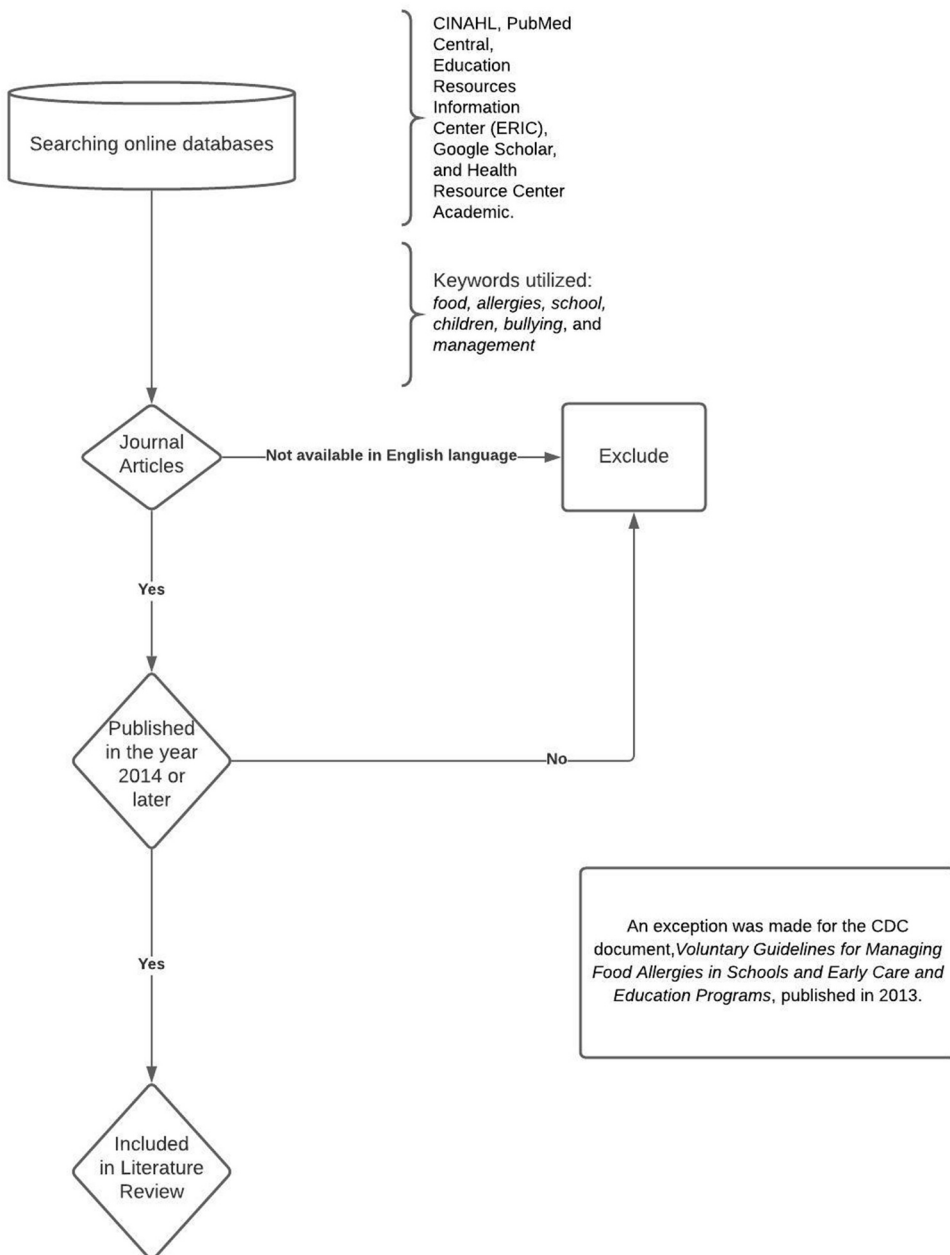


Figure 1. Food Allergy Literature Review Flow Chart.

Literature review findings

There is no known cure for food allergies. There are substantial differences in schools' preparedness for managing food allergies, anaphylaxis, and treatment of children on site (Hogue et al., 2016). Namely, not all students with food allergies have an allergy management plan in place and not all schools stock epinephrine for treating anaphylaxis, although both are recommendations (Centers for Disease Control and Prevention. National Center for Chronic Disease Prevention and Health Promotion. Division of Population Health, 2013; Food Allergy Research & Education, 2016). Some schools ban a particular allergen in the classroom or school, although evidence is lacking that food bans are effective in reducing allergic reactions or epinephrine use (Greenhawt et al., 2020).

Due to COVID-19 social distancing recommendations, students may be eating in classrooms and other spaces that maintain physical distancing, rather than in large groups in a lunchroom or cafeteria. A renewed effort for food safety, including training school personnel on preventing food allergy reactions and responding to anaphylaxis is essential. The availability of epinephrine for prompt injection to treat anaphylaxis remains a top priority (American Academy of Allergy, Asthma and Immunology [AAAAI], 2020c; Greenhawt et al., 2018). In order to manage food allergies in schools a coordinated partnership approach among school administrators, school nurses, teachers, school staff, families, and health care providers is necessary (Centers for Disease Control and Prevention (Host), 2017–present).

Existing recommendations

The current standard for treating food allergy is to avoid the allergen, treat a mild reaction with antihistamine and observation and, for symptoms of severe allergy or anaphylaxis, administer an intramuscular injection of epinephrine, preferably using an autoinjectable device (AAAAI, 2020a). In 2013, the CDC developed a voluntary guideline for managing food allergies in schools (Centers for Disease Control and Prevention. National Center for Chronic Disease Prevention and Health Promotion. Division of Population Health, 2013). Some states and school districts have developed guidelines or policies to address food allergies and procedures for responding to life-threatening allergic reactions to food. Several professional organizations have also developed guidelines. Table 1 summarizes the guidelines presented here.

U. S. Federal agency guidelines

Voluntary Guidelines for Managing Food Allergies in Schools and Early Care and Education Programs (Centers for Disease Control and Prevention. National Center for Chronic Disease Prevention and Health Promotion. Division of Population Health, 2013) was the first U. S. national initiative to address the needs of the growing number of children with food allergies in schools and early childhood programs. These voluntary guidelines offer information for parents, district administrators, school administrators, and staff for planning and implementing strategies for preventing and reducing allergic reactions as well as how to respond to life-threatening food allergy reactions.

Table 1. Recommendations for Managing Food Allergies in Schools.

Recommendation	Actions
Reduce risks in school ^{1,2,3,4}	Develop policies to protect students and school personnel from food allergies and anaphylaxis. Hand washing for all students and staff with soap and water before handling food or eating and after eating to cleanse any residue of potential allergens. Hand sanitizers and wipes are not effective for removing allergens.³ Care of surfaces that come into contact with food. Clean and sanitize with soap and water, or all-purpose cleaning agents and sanitizers, all surfaces that come into contact with food in kitchens, classrooms, and locations where food is prepared or eaten. Clean and sanitize food preparation equipment. Avoid using allergens in class projects, parties, holidays and celebrations, arts, crafts, science experiments, cooking, snacks, or rewards. Use non-food incentives for prizes, gifts, and awards. Consult with parent/caregiver of allergic students to provide allergen-free snacks from home.
Education Teachers and Staff ^{2,3,4}	Demonstrate respect of students with food allergies. Reinforce the school's rules against discrimination and bullying. Prepare for substitute teachers in classrooms by providing information about children with known food allergies. Determine safety of field trip sites in advance for students with food allergies. Train staff to use epinephrine autoinjectors. Inform students about the serious nature of food allergies. Advise students not to share foods. Educate students about common signs of food allergy reactions: hives, rash, stomach pain, itchy mouth. Teach students to inform an adult when a classmate exhibits signs of an allergic reaction, or when they have eaten something by mistake that may trigger a reaction.
Parents ¹	Teach parents and students how to read food labels. Inform parents and students about the need to inquire about food preparation and ingredients when eating at a restaurant or away from home. Teach family members and those close to a child with allergens when and how to use epinephrine. An emergency action plan should be available for each child with a diagnosed food allergy. The plan should be readily accessible and updated at least annually. In addition to the school nurse, other school personnel need to be educated and authorized to administer epinephrine.
Allergic reaction preparedness ^{1, 2, 3, 4}	Ensure rapid accessibility to epinephrine auto-injectors. Self-carry: Individuals with food allergy should always carry auto-injectable epinephrine to be used in the event of an anaphylactic reaction. Undesignated epinephrine should be stocked on site to use when needed for an anaphylactic reaction.
Address emotional needs ^{3, 4}	Maintain the student's medical privacy. Avoid labeling a student with a food allergy. Refrain from asking questions in front of other students, i.e. "Who here has a food allergy?" Or questions that would label someone as "allergy kid" or "peanut boy or girl".

Legend:

¹American Academy of Allergy, Asthma, and Immunology (AAAAI)

²Centers for Disease Control and Prevention (CDC)

³Food Allergy Research & Education (FARE)

⁴National Association of School Nurses (NASN)

The CDC's 2013 guidelines emphasize a collaborative approach among parents of children with food allergies, school staff, and health care providers in the development of a food allergy management plan tailored to each affected child. These guidelines identify five priorities for managing food allergies in the school setting: Create and maintain a safe academic environment, provide food allergy education for school staff, educate students and families, implement protocols for the daily management of food allergies, and implement plans to treat food allergy anaphylaxis (Centers for Disease Control and Prevention. National Center for Chronic Disease Prevention and Health Promotion. Division of Population Health, 2013). The Centers for Disease Control and Prevention (2020a) developed a toolkit for managing food allergies in schools, available at <https://www.cdc.gov/healthyschools/foodallergies/toolkit.htm>.

In response to COVID-19, the CDC issued guidelines for operating schools during COVID-19 (Centers for Disease Control and Prevention, 2020b). The CDC 2020 guidelines recommend that all meals should be eaten in the classroom where desks have been physically spaced at least 6 feet apart to avoid large gatherings in lunchrooms and to ensure physical distancing (Centers for Disease Control and Prevention, 2020b). These 2020 recommendations reiterate the 2013 CDC Guidelines for managing food allergies in schools which have shown to be effective (Greenhawt et al., 2020). The 2020 guidelines emphasize personal prevention practices of hand washing and maintaining a clean environment. Strict handwashing with soap and water, not gel sanitizer which does not remove allergens, should be enforced before and after meals. All surfaces where food is consumed should be thoroughly cleaned before and after meals with a detergent agent to remove any remaining food particles.

COVID-19 recommendations for children to eat in classrooms potentially increases the risk for an allergic reaction. This may be due to residue from an allergen that remains on a table surface that is not properly cleaned with soap and water, notably peanut residue. Or from children sharing foods. Preventive measures include the cleaning methods discussed above and enforcing a firm no sharing food policy (AAAAI, 2020c).

Professional organization guidelines

Several professional organizations have developed school management guidelines and recommendations for students with food allergies. Recommendations from the AAAAI, FARE, and National Association of School Nurses (NASN) are discussed here.

The AAAAI School Tools Library has web-based resources for school nurses, teachers, administrators, and families (AAAAI, 2020a). Its recommendations center around avoiding the allergen, education about the allergen and treatment, and preparedness for dealing with an allergic reaction. Avoidance measures include carefully reading food labels and asking questions about ingredients and food preparation when eating at a restaurant or away from home. Education for the allergic patient should also include family, friends, and others regarding the symptoms of anaphylaxis and how to use autoinjectable epinephrine and antihistamines to treat serious reactions.

Preparedness for treating an allergic reaction necessitates the availability of at least one and preferably two autoinjectable epinephrine syringes to promptly treat a systemic allergic reaction. AAAAI resources on the management of food allergy in the school setting and anaphylaxis tools are available for free at <https://www.aaaai.org/conditions-and-treatments/school-tools>.

FARE supports the CDC 2013 guidelines and offers further recommendations for managing allergies in schools. A team approach comprising key people including the school nurse, teachers, administrators, staff, coaches, and parents of classmates is recommended. Reducing exposure to food allergens at school meals and in the classroom, helping the student with self-management skills, and safe, readily accessible storage of epinephrine for emergency use are all important for maintaining the health of a child with food allergies in the school environment.

NASN provides a wealth of free resources for nurses to educate school administrators, staff, and parents about food allergy management in schools (<https://www.nasn.org/nasn-resources/practice-topics/allergies-anaphylaxis>), including planning guides, an anaphylaxis policy sample, forms for practice, and training for school personnel. A free one-page checklist based on the CDC 2013 guidelines is a helpful blueprint for school nurses seeking to institute a Food Allergy Management and Prevention Plan in their district (FAMPP) (<https://bit.ly/3gh0tto>).

Food allergy management plans

A written allergy management plan, individualized to each child, is strongly supported by governmental agencies and professional organizations. In fact, AAAAI's considerations for school nurses for food allergy and anaphylaxis protocols during COVID-19 (AAAAI, 2020c) state that "Every effort should be made to ensure that all students with food allergy have an updated Allergy and Anaphylaxis Action Plan" (p. 2). Creating an individual student plan is a collaborative effort between parents and the school. Although not all students with food allergies have a written plan (Greenhawt et al., 2020), according to FARE (2016) section 504 plans for managing food allergies have become more common and range in length and detail from a one-page handwritten plan to 20 pages with sections that address multiple components.

Emergency action plans

School personnel, parents, and the health care provider of each child with food allergies should work together to develop a comprehensive FAMPP to protect the well-being of that child (Centers for Disease Control and Prevention. National Center for Chronic Disease Prevention and Health Promotion. Division of Population Health, 2013). Several free emergency action plan forms can be downloaded and customized for each student from these sources:

- (1) AAAAI Anaphylaxis Emergency Action Plan (<https://bit.ly/2VNOV8X>)
- (2) American Academy of Pediatrics Allergy and Anaphylaxis Emergency Plan (www.aap.org/aaep)
- (3) FARE Food Allergy & Anaphylaxis Emergency Care Plan (<https://bit.ly/2ZITTFo>)

These forms include symptoms of allergy and anaphylaxis. All advise administration of epinephrine as the first step in treatment, with administration of a second dose as needed for worsening symptoms or delayed EMS response. Each plan should be kept up to date and stored in a place that is readily accessible for those who need to see it and administer treatment. COVID-19 recommendations for eating in classrooms, means that teachers and

staff need a copy of the emergency action plan in their classrooms, with quick access to epinephrine, in order to treat a reaction (Greenhawt et al., 2020).

The current (2010) recommendation from the National Institute of Health is for patients to carry two epinephrine autoinjectors (EAI) (National Institute of Health, National Institute of Allergy and Infectious Diseases, 2010). For children with milk allergy, having two doses available is essential because the likelihood of needing a second dose to treat an anaphylactic reaction is three times higher than for children with other food allergy reactions (Tsuang & Wang, 2016).

The management plan should consider whether or not students are able to self-carry and self-administer their own epinephrine. If the student is not able to self-carry, other arrangements must be made in order to have epinephrine on hand to treat an emergency.

Undesignated stock EAI

Federal legislation, Public Law 113–48, the School Access to Emergency Epinephrine Act, was enacted in 2013 to allow schools to stock unassigned epinephrine. Yet, the availability of EAI in schools is limited (Tarr Cooke & Meize-Grochowski, 2019). While some states require Kindergarten through High Schools (K–12, ages 5–18) schools to stock epinephrine, other states merely allow schools to stock it (FARE, 2016). Thus, not all U. S. schools are obligated to have unassigned epinephrine on hand to use for an anaphylactic reaction. This may vary in other countries.

Epinephrine is the only medication that can treat a severe allergic anaphylactic reaction and is the only medication that reduces the likelihood of hospitalization or death (Simons et al., 2015). For students who are not reliable self-carriers of their own epinephrine, undesignated stock EAI can be lifesaving. In addition, almost one-quarter of all reactions requiring epinephrine injections in the K–12 school setting are for students whose allergy was unknown at the time of the allergic reaction; for these students, the availability of undesignated stock EAI would also be lifesaving.

There is a pressing need for all schools to stock undesignated epinephrine. The prompt administration of epinephrine to treat anaphylaxis is a priority. This includes giving a second dose in 5–10 minutes for a student who remains symptomatic or worsens after the first dose, or in locations where the EMS response time is extended for delayed (AAAAI, 2020c).

Psychosocial impact of food allergies

Dealing with the impact of a child with food allergies has a significant effect on family life. Daily activities such as grocery shopping, food preparation, dining out, or visiting friends' and relatives' homes can potentially trigger an acute anaphylactic reaction. Children and parents may develop depression and anxiety. In addition, parents may experience emotional stress and hypervigilance about their child's food consumption (Feng & Kim, 2019).

Bullying in school is a serious problem for students with food allergies. French (2018) found that nearly one-third of children and adolescents with food allergies are bullied in school simply because of their food allergy. Bullying can be directed against a food-allergic student by taunting, forcing or threatening to force ingestion of an allergic food, throwing food at the student, or secretly contaminating the student's lunch (Feng & Kim, 2019).

FARE (2016) addresses the need to prevent bullying of children with food allergies in their recommendations for managing allergies in schools. Because of the potential for a fatal allergic reaction, all school plans should take bullying into account and institute a prevention program to protect food-allergic students and safeguard the school environment.

Students eating in classrooms in compliance with COVID-19 distancing recommendations may create the potential for bullying and the need for enforcing a strong anti-bullying policy. Having a teacher or an adult staff member present in the classroom could reduce the potential for bullying (Greenhawt et al., 2020).

Emerging trends for prevention and management

Early introduction of food

New evidence demonstrates that an early introduction of potentially allergenic foods is associated with a decreased risk of developing an allergy, particularly with peanuts and eggs (Schroer et al., 2017). In fact, food avoidance may increase the risk of developing an allergy to that food. The National Institute of Health, National Institute of Allergy and Infectious Diseases (NIAID) 2017 addendum guidelines advise introducing peanut sources of food to infants between the ages of 4–11 months who are at risk of developing peanut allergy. The defined risks are atopic dermatitis, egg allergy (diagnosed by skin prick tests), or IgE serum-specific peanut allergy (Togias et al., 2017).

Desensitization

Oral immunotherapy (OIT) for desensitizing food allergy consists of supervised feeding an increasing amount of an allergenic food to a child who is allergic to that food with the goal of increasing the threshold that triggers a reaction (AAAAI, 2020b). Clinical trials with OIT for peanut, egg, and cow's milk allergy have demonstrated desensitization in approximately 60 to 80% of patients (AAAAI, 2020b). Recently (January 2020) the U.S. Food and Drug Administration (FDA) approved a standardized oral immunotherapy (OIT) product for peanut allergy (PALFORZIA™ [Peanut (Arachis hypogaea) Allergen Powder-dnfp]). It is indicated for clinical trial in patients aged 4 to 17 years with a confirmed diagnosis of peanut allergy (AAAAI, 2020b).

OIT response and desensitization rates for other foods have not been as closely studied as peanuts, eggs and cow's milk; some evidence suggests OIT may not be as effective for other food allergies (Devdas et al., 2018). Desensitization using OIT involves a long-term commitment. Daily dosing over several months to years and possibly indefinitely may be necessary to maintain efficacy (AAAAI, 2020b).

Application to practice

Food is the most common allergy trigger for students, and ingestion of the allergen is the primary route that results in anaphylaxis. The daily management for each child with a diagnosed food allergy should be supported by a comprehensive FAMPP that includes the steps for treating an anaphylactic reaction.

Strategies for avoiding ingestion of allergens should be tailored to each child. Prevention of allergen exposure should include classroom food guidelines; one way to prevent allergen

exposure is to establish a non-food reward policy in the classroom. When students are able to return to a cafeteria setting, those preparing food should follow guidelines aimed at preventing cross-contamination in the kitchen and in student eating areas (AAAAI, 2020a).

Treatment of anaphylaxis is intramuscular injection of epinephrine (White et al., 2016). There is a strong need to have undesignated EAI's available in schools. Health care providers should be encouraged to partner with local schools to prescribe EAI's where permitted by law. Individual schools should be responsible for documenting annual staff training on their use.

Health care providers and school nurses should review and update emergency action plans annually to reflect changes in medication dosages, allergic triggers, and comorbid conditions. Additional responsibilities include reviewing risk reduction techniques focused on avoiding allergen ingestion and reviewing places and scenarios in which exposure to allergens is likely. Health care providers are encouraged to support children and adolescents in the self-management of their food allergies. Screening for bullying should be a part of promoting self-advocacy for students with allergies.

Research implications

Strict avoidance of foods can be difficult for children and families. Accidental ingestions occur despite the best precautions. Until recently there have been few effective therapies for mediating food allergy. Two new therapies, oral immunotherapy (OIT) and sublingual immunotherapy (SLIT), offer potential treatment of IgE-mediated food allergy (Scurlock, 2018).

Both OIT and SLIT involve supervised ingestion of gradually increasing small amounts of food protein that are continued over many weeks until a maintenance dose is reached. The goal is to desensitize the child to the allergen by increasing the threshold of the allergen that triggers an allergic response thus reducing the risk of anaphylactic reactions (Vazquez-Ortiz & Turner, 2016). Success has been demonstrated for peanut, egg, and milk allergies (AAAAI, 2020b). However, OIT can cause significant gastrointestinal side effects, which may limit its use.

Research on effective interventions aimed at mediating bullying of children with food allergies is also needed (Egan & Sicherer, 2016). Health care providers, parents, and educators may be unaware of the increased prevalence of bullying of children with food allergies, and it should be part of a comprehensive approach to treating both the physical and psychological health of this patient population.

More research is needed regarding the relationship between food allergies and mental health. Longitudinal research studies could provide a better understanding of how people with food allergies cope over their lifetime. Limited data are available on the mental health issues associated with food allergies; information on rates of depression, anxiety, and posttraumatic stress disorder in both patients with food allergies and their caregivers is lacking. (Feng & Kim, 2019).

The expansion of globalization and increase in food allergies in countries experiencing economic growth, such as China, are signs of increasing food allergy prevalence outside of Western countries (De Martinis et al., 2020). Research focused on the epidemiology and local, regional, and international occurrence of food allergies would be prudent to enhance understanding food allergy etiology and to aid in planning for preventive interventions (De Martinis et al., 2020).

Limitations

This review was limited to English language published sources of information available in the databases cited in the methods section of this manuscript. The presence or absence of food allergy management guidelines in individual U. S. States or other countries was not assessed. The scope of this review did not include a search for food allergy management guidelines in all 130,930 pre-school (ages 3–4 years old), elementary (5–13 years), or secondary (14–18 years) schools (Riser-Kositsky, 2020), or 34,576 private schools (National Center for Education Statistics, 2016) in the United States.

Conclusion

Guidelines and resources for managing food allergies in schools have been developed by governmental agencies and professional organizations. Guidelines include establishing a FAMPP for a safe academic environment, providing food allergy education, implementing protocols for managing food allergies, and treating food allergy anaphylaxis with on-site EAIs. These guidelines may be helpful for school nurses and administrators seeking to create a culture of food safety in their schools. Some individual schools or school districts have established guidelines for students with food allergies. These include policies for handwashing, rules that prohibit sharing food or eating utensils, and procedures for cleaning surfaces tainted by food allergens.

Implementation of the CDC 2013 guidelines is voluntary. The U.S. Department of Education has not established policy recommendations related to food allergy. There is no consensus on which preventative policies work best for improving food allergy safety in schools (White et al., 2016). Local guidelines and state laws should be incorporated into the development of procedures to reduce food allergy risks and manage food allergy reactions in schools. It is up to school staff, administrators, nurses, and parents to create a safe environment for children with food allergies while they are in school.

Highlights

- Nearly 8% of children worldwide have food allergies, approximately two students per classroom.
- Food allergy management is a team: School nurses, administrators, teachers, staff, and families.
- Due to COVID-19 social distancing recommendations, food consumption in schools has moved from cafeterias and lunchrooms into classrooms and other spaces.
- Autoinjectable epinephrine syringes should be stocked onsite in schools to treat anaphylactic reactions.

ORCID

Cathlin Buckingham Poronsky ,PhD, APRN, FNP-BC  <http://orcid.org/0000-0002-6479-0609>

References

Abrams, E. M., & Sicherer, S. H. (2016). Diagnosis and management of food allergy. *Canadian Medical Association Journal*, 188(15), 1087–1093. <https://doi.org/10.1503/cmaj.160124>

- American Academy of Allergy, Asthma, and Immunology. (2020a). *School tools: Allergy & asthma resources for families, clinicians and school nurses*. Author. <https://www.aaaai.org/conditions-and-treatments/school-tools>
- American Academy of Allergy, Asthma, and Immunology. (2020b). *The current state of oral immunotherapy (OIT) for the treatment of food allergy*. Author. <https://www.aaaai.org/conditions-and-treatments/library/allergy-library/oit>
- American Academy of Allergy, Asthma, and Immunology. (2020c). *Food allergy and anaphylaxis in school during COVID-19: Considerations for school nurses*. Author. https://www.aaaai.org/Aaaai/media/MediaLibrary/PDF%20Documents/Libraries/SchoolAllergiesCovid_Final.pdf
- Centers for Disease Control and Prevention. (2020a, June 8). *Food allergies in schools toolkit*. Division of Population Health, National Center for Chronic Disease Prevention and Health Promotion. <https://www.cdc.gov/healthyschools/foodallergies/toolkit.htm>
- Centers for Disease Control and Prevention. (2020b, October 29). *Operating schools during COVID-19: CDC's considerations*. National Center for Immunization and Respiratory Diseases (NCIRD), Division of Viral Diseases. <https://www.cdc.gov/coronavirus/2019-ncov/community/schools-childcare/schools.html>
- Centers for Disease Control and Prevention (Host). (2017–present). *Managing food allergies at school: School nurses* [Audio podcast]. Office of the Associate Director for Communication (OADC). <https://tools.cdc.gov/medialibrary/index.aspx#/media/id/303132>
- Centers for Disease Control and Prevention. National Center for Chronic Disease Prevention and Health Promotion. Division of Population Health. (2013). *Managing food allergies in schools: Voluntary guidelines for managing food allergies in schools and early care and education programs*. National Center for Chronic Disease Prevention and Health Promotion, Division of Population Health. https://www.cdc.gov/healthyschools/foodallergies/pdf/20_316712-A_FA_guide_508tag.pdf
- De Martinis, M., Sirufo, M. M., Suppa, M., & Ginaldi, L. (2020). New perspectives in food allergy. *International Journal of Molecular Sciences*, 21(4), 1474. <https://doi.org/10.3390/ijms21041474>
- Devdas, J. M., Mckie, C., Fox, A. T., & Ratageri, V. H. (2018). Food allergy in children: An overview. *The Indian Journal of Pediatrics*, 85(5), 369–374. <https://doi.org/10.1007/s12098-017-2535-6>
- Egan, M., & Sicherer, S. (2016). Doctor, my child is bullied: Food allergy management in schools. *Current Opinion in Allergy and Clinical Immunology*, 16(3), 291–296. <https://doi.org/10.1097/ACI.0000000000000269>
- Feng, C., & Kim, J. H. (2019). Beyond avoidance: The psychosocial impact of food allergies. *Clinical Reviews in Allergy & Immunology*, 57(1), 74–82. <https://doi.org/10.1007/s12016-018-8708-x>
- Food Allergy Research & Education. (2016) *Toolkit: Advocating for undesignated stock epinephrine in your school*. Author. <https://www.foodallergy.org/resources/toolkit-epi-schools>
- French, J. (2018, May 15). *Food allergy bullying: How to spot it and actions to take*. *Managing Allergies, Parenting & School*. <https://www.allergicliving.com/2018/05/15/food-allergy-bullying-how-to-spot-if-your-child-is-a-target-and-actions-to-take/>
- Greenhawt, M., Shaker, M., Stukus, D. R., Fleischer, D. M., Hourihane, J., Tang, M., Abrams, E. M., Wang, J., Bingemann, T. A., Chan, E. S., Lieberman, J., Sampson, H. A., Bock, S. A., Young, M. C., Wasserman, S., & Mack, D. P. (2020). Managing food allergy in schools during the COVID-19 pandemic. *The Journal of Allergy and Clinical Immunology in Practice*, 8(9), 2845–2850. <https://doi.org/10.1016/j.jaip.2020.07.016>
- Greenhawt, M., Wallace, D., Sublett, J. W., Maughan, E., Tanner, A., Kelley, K. J., Fineman, S., White, M., Cash, G., Anderson, C., Schoessler, S., Gupta, R., & Pistiner, M. (2018). Current trends in food allergy-induced anaphylaxis management at school. *Annals of Allergy, Asthma & Immunology: Official Publication of the American College of Allergy, Asthma, & Immunology*, 121(2), 174–178. <https://doi.org/10.1016/j.anai.2018.04.015>
- Grief, S. N. (2016). Food allergies. *Primary Care: Clinics in Office Practice*, 43(3), 375–391. <https://doi.org/10.1016/j.pop.2016.04.008>
- Hayden, M. L. (2018). Review of controversial areas in anaphylaxis for the nurse practitioner. *The Journal for Nurse Practitioners*, 14(7), 531–537. <https://doi.org/10.1016/j.nurpra.2018.04.005>

- Hogue, S., Goss, D., Hollis, K., Silvia, S., & White, M. V. (2016). Training and administration of epinephrine auto-injectors for anaphylaxis treatment in US schools: Results from the EpiPen4Schools® pilot survey. *Journal of Asthma and Allergy*, 9(9), 109–115. <https://doi.org/10.2147/JAA.S106567>
- Loh, W., & Tang, M. (2018). The epidemiology of food allergy in the global context. *International Journal of Environmental Research and Public Health*, 15(9), 2043. <https://doi.org/10.3390/ijerph15092043>
- McBride, D. L. (2019). Life-threatening allergic reactions increasing among children. *Journal of Pediatric Nursing*, 44(January–February), 127–129. <https://doi.org/10.1016/j.pedn.2018.05.013>
- Messina, M., & Venter, C. (2020). Recent surveys on food allergy prevalence. *Nutrition Today*, 55(1), 22–29. <https://doi.org/10.1097/NT.0000000000000389>
- National Center for Education Statistics. (2016). *Private school universe survey (PSS), Table 14, Number of private schools, students, and teachers (headcount), by school membership in private school associations: United States, 2015–16*. U. S. Department of Education. <https://nces.ed.gov/surveys/pss/tables/TABLE14fl.asp>
- National Institute of Health, National Institute of Allergy and Infectious Diseases (2010). *Guidelines for clinicians and patients for diagnosis and management of food allergy in the United States*. Author. <https://www.niaid.nih.gov/diseases-conditions/guidelines-clinicians-and-patients-food-allergy>
- Riser-Kositsky, M. (2020, June 16). Education statistics: Facts about American schools. *Education Week*. <https://www.edweek.org/ew/issues/education-statistics/index.html>
- Schroer, B., Bjelac, J., & Leonard, M. (2017). What is new in managing patients with food allergy? Almost everything. *Current Opinion in Pediatrics*, 29(5), 578–583. <https://doi.org/10.1097/MOP.0000000000000534>
- Scurlock, A. M. (2018). Oral and sublingual immunotherapy for treatment of IgE-mediated food allergy. *Clinical Reviews in Allergy & Immunology*, 55(3), 139–152. <https://doi.org/10.1007/s12016-018-8677-0>
- Simons, F. E. R., Ebisawa, M., Sanchez-Borges, M., Thong, B. Y., Worm, M., Tanno, L. K., Lockey, R. F., El-Gamal, Y. M., Brown, S. G. A., Park, H. S., & Sheikh, A. (2015). 2015 update of the evidence base: World Allergy Organization anaphylaxis guidelines. *World Allergy Organization Journal*, 8(1), 32. <https://doi.org/10.1186/s40413-015-0080-1>
- Tarr Cooke, A., & Meize-Grochowski, R. (2019). *Epinephrine auto-Injectors for anaphylaxis treatment in the school setting: A discussion paper*. SAGE Open Nursing. <https://doi.org/10.1177/2377960819845246>
- Togias, A., Cooper, S. F., Acebal, M. L., Assa’ad, A., Baker, J. R., Jr, Beck, L. A., Block, J., Byrd-Bredbenner, C., Chan, E. S., Eichenfield, L. F., Fleischer, D. M., Fuchs, G. J., III, Furuta, G. T., Greenhawt, M. J., Gupta, R. S., Habich, M., Jones, S. M., Keaton, K., Muraro, A., Plaut, M., & Boyce, J. A. (2017). Addendum guidelines for the prevention of peanut allergy in the United States: Report of the National Institute of Allergy and Infectious Diseases–sponsored expert panel. *The World Allergy Organization Journal*, 10(1), 1. <https://doi.org/10.1186/s40413-016-0137-9>
- Tsuang, A., & Wang, J. (2016). Childcare and school management issues in food allergy. *Current Allergy and Asthma Reports*, 16(12), 83. <https://doi.org/10.1007/s11882-016-0663-0>
- Vazquez-Ortiz, M., & Turner, P. J. (2016). Improving the safety of oral immunotherapy for food allergy. *Pediatric Allergy and Immunology*, 27(2), 117–125. <https://doi.org/10.1111/pai.12510>
- White, M. V., Hogue, S. L., Odom, D., Cooney, D., Bartsch, J., Goss, D., Hollis, K., Herrem, C., & Silvia, S. (2016). Anaphylaxis in schools: Results of the EPIPEN4SCHOOLS survey combined analysis. *Pediatric Allergy, Immunology, and Pulmonology*, 29(3), 149–154. <https://doi.org/10.1089/ped.2016.0675>