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Clinical Care Update

Food Allergy Management in Elementary School: Collaborating to Maximize Student Safety

Anne F. Russell, BSN, RN, AE-C, and Mary M. Huber, RN, BSN, MS

Abstract: *The prevalence of food allergies, with associated risk for anaphylaxis, has increasingly become a significant public health concern with copious and pervasive implications for patients, families, clinical health care professionals, researchers, and society at large. While potential treatments for food allergy are being explored through clinical research trials, there is currently no widespread scientifically proven cure available. Daily management of this atopic disorder consists of strict avoidance of the offending allergen. Subsequently, many families make concerted, burdensome efforts to create an allergen-controlled home environment. When children with food allergies start elementary school, this transition can be quite anxiety provoking for parents/caregivers. Schools may be perceived as allergen ubiquitous settings coupled with staff having varying awareness and training regarding food allergy and anaphylaxis. Clinical nurse educators, clinical nurse case managers, and other members of the primary care and/or specialty clinic teams can play a critical role in spanning the informational gap between clinic and school community. Ongoing collaboration between clinic team members with school nurse coordinators, school administrators, and other members of the school health services team may serve to minimize fragmentation of patient care, maximize ease of the child's school entry transition, expand food allergy/anaphylaxis educational opportunities, and provide support to school nurse colleagues.*

Keywords: food allergy; anaphylaxis; avoidance strategies; injectable epinephrine; school training; collaboration

This article describes a collaborative working model between the clinical nurse food allergy educator and school nurse with the common goal of creating a food allergy-safe elementary school environment that is also well prepared to manage anaphylactic medical emergencies. The primary author has extensive experience as clinical nurse food allergy/anaphylaxis educator in primary pediatric and specialty allergy clinics, as school health director, and as president of a state-wide nonprofit organization that provided food allergy seminars to schools, health care professionals, and patients/families. The secondary author has decades of experience as school nurse in a public school district encompassing 2 cities. This article is not intended to provide detailed recommendations on content for food allergy school training as multiple resources exist fulfilling that purpose. This article highlights useful resources and strategies related to major themes we encountered during years of collaboration on behalf of food allergic children entering elementary school.

Adverse Food Reaction: Allergy Versus Intolerance

Adverse reactions to food includes a broad range of conditions and may result from immunologic or nonimmunologic responses.¹ In 2010, Guidelines for Diagnosis and Management of Food Allergy in the United States was published.² Subsequently, food allergy was defined as an adverse health effect arising from a specific immune response that occurs reproducibly on exposure to a given food.² Food allergens are specific components of food or ingredients within food that are recognized by allergen-specific immune cells and elicit specific immunologic reactions resulting in characteristic symptoms. An allergen-specific immunoglobulin

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E (IgE)-mediated food allergy necessitates both presence of sensitization and development of specific signs and symptoms on exposure to that food.²

In contrast, adverse food reactions may be nonimmune such as food intolerance, which is not a true allergy. An example is lactose intolerance, which is a nonimmune reaction caused by lactase insufficiency.³ The term *food allergy* is often misused among the public, including school communities; therefore, confusion is common as to myths, spectrum of severity, and differences related to true food allergies versus other forms of adverse food reactions. This article focuses on IgE-mediated food hypersensitivities.

Common Food Allergens in School-Age Children

Any food protein has potential of generating IgE sensitization with subsequent allergic reaction, but the most common 8 food allergens are peanuts, milk, shellfish (eg, shrimp, lobster), tree nuts (eg, walnuts, hazelnuts), fish, wheat, eggs, and soy.² Sesame and other seeds (eg, mustard) are also increasingly important potent food allergens.^{4,5}

Common food allergies in children include egg, cow's milk, wheat, and soy, which often, but not always, resolve. Peanut, tree nut, fish, and shellfish allergies may develop in childhood as well and are more likely to persist lifelong. Tree nut and shellfish allergies commonly present in young adulthood.³

Since common food allergens are often considered staples in American diets, it poses challenges for schools striving to balance serious medical needs of food allergic students with nonallergic classmates.

Troubling Trend in Prevalence Rates

In 2011, Gupta et al reported that nearly 6 million US children, 1 of every 13, have some form of IgE-mediated food allergy.⁶ Surveying more than 38,000 participants, they found 40% of those food allergic had histories of severe reactions and 30% reported an allergy to more than 1 food. Peanut was the culprit for 25%, cow's milk for 21%, and shellfish for 17%.⁶

In 2010, Sicherer et al reported on a US survey documenting a greater than 3-fold rise in prevalence of peanut and tree nut allergy between 1997 and 2008—primarily in children younger than 18 years.^{7,8} While food allergy is more common in children than adults, it appears to be increasing in prevalence, varying widely in rate and specific triggers worldwide.⁹

Given the continued rise in pediatric food allergy rates and concomitant risk for anaphylaxis, it is incumbent on clinic teams and school staff to receive ongoing evidence-based education on this diagnosis by knowledgeable, licensed medical professionals. Additionally, the authors suggest school nurses be primary coordinators and overseers of the implementation of comprehensive school food allergy management programs.

Why Are Food Allergies More Prevalent?

This is a common question among patients, parents, and school community members. Unfortunately, at present it

is unknown exactly why food allergy and other atopic disorders continue to increase. Concepts have been postulated regarding immune system susceptibility and linkage to modern environmental changes including decreased microbial exposure, increasing pro-inflammatory dietary patterns, changing intestinal commensal bacteria, and inhaled pollutants related to vehicular pollution.⁸ It has been suggested that such environmental factors can produce epigenetic changes in gene expression and disease risk that may be potentially inherited across generations.⁸ Rising rates of maternal allergy has also been cited as a strong determinant of allergic risk.⁸ Additional environmental drivers include alterations in vitamin use, amount of sunlight exposure with regard to vitamin D, maternal diet, infant diet (eg, timing of food introduction), changes in food processing, and immune dysregulation related to decrease in farm living and increased infection control (eg, hygiene hypothesis).^{3,10} Hopefully, continued research will definitively reveal root causative factor(s) responsible for increasing atopic disorders with associated means of modifying or altering this alarming trend.

Food-Induced Anaphylaxis Is Life-Threatening: Reason for Trepidation

Anaphylaxis is defined as a serious allergic reaction that is rapid in onset and may cause death.² In IgE-mediated food-induced anaphylaxis (FIA), systemic mediators are released from sensitized mast cells and basophils. Frequently with FIA, there will be a rapid onset and progression of symptoms over minutes to hours after food allergen exposure. FIA can be uniphasic, biphasic (eg, severe symptoms recur 1-2 hours later, or longer, after acute initial symptoms appear to have subsided), or protracted in development. Fatalities from FIA have been reported within 30 minutes to 2 hours after food allergen exposure.^{2,3,11-13}

While food is a leading cause of anaphylaxis treated in US emergency departments, anaphylaxis may also be idiopathic in origin or triggered by sources such as insect venoms, natural rubber latex, medications, biologic agents (eg, vaccines), food additives (eg, carmine, spices), inhalants (eg, horse dander), exercise, cold, and heat.¹²⁻¹⁵

Anaphylaxis Signs and Symptoms: Early Recognition Vital

Irrespective of the trigger, signs and symptoms of anaphylaxis can vary and may affect combinations of organ systems including *cutaneous* (eg, flushing, urticaria, pruritus, rash, edema of lips, face tongue), *respiratory* tract (eg, nasal congestion, rhinorrhea, laryngeal edema, choking, repetitive coughing, throat tightness, hoarseness, chest tightness, bronchospasm, wheezing, stridor, dyspnea, retractions), *gastrointestinal* tract (eg, abdominal discomfort, cramping, nausea, emesis, incontinence, diarrhea), and *cardiovascular* system (eg, dizziness, syncope, tachycardia, chest pain, hypotonia, hypotension, bradycardia, dysrhythmia).

Anaphylaxis may still occur without cutaneous symptoms, such as urticaria, in 10% to 20% of cases.^{2,12} Symptoms may also include a sense of “impending doom.” Timing of anaphylaxis onset, its severity, and symptom progression may vary among individuals and may differ within the same individual with repeated episodes. Other symptoms include anxiety, confusion, lethargy, and/or seizures.^{2,3,12,14,15}

Treatment of Anaphylaxis in Home and Community Settings

The 2010 US Guidelines for Diagnosis and Management of Food Allergy maintains that epinephrine is the first line of defense against anaphylaxis.² Epinephrine, as bronchodilator and vasoconstrictor, counteracts inflammatory aspects of anaphylaxis. In home and community settings, the guidelines recommend are the following:

- Elimination of further allergen exposure²
- Intramuscular (IM) injection of epinephrine into an anterior-lateral thigh²
- Call to 911 for ambulance transport to emergency room (ER)²
- If symptoms return after first epinephrine injection and ambulance has not arrived, a second injection may be given in 5 to 15 minutes²
- Dosing: Weight 10 to 25 kg: 0.15 mg epinephrine auto-injector, IM²
- Dosing: Weight >25 kg: 0.3 mg epinephrine auto-injector, IM²

Delayed administration of epinephrine has been associated with fatalities.² This is vital to emphasize to all caregivers of children at risk of anaphylaxis. It is also essential they understand that at appropriate doses, common transient side effects of epinephrine include anxiety, fear, restlessness, headache, dizziness, palpitations, pallor, and tremor.² Caregivers may need reassurance that side effects typically subside quickly with rest and are not a reason to fear administering epinephrine during anaphylaxis.

Can Biphasic Anaphylactic Reactions Be Predicted?

In reviewing incidence, characteristics, and predictors of biphasic anaphylaxis, Ellis found this secondary phase of reactivity varies in severity.¹³ Most biphasic reactions are equivalent to, or milder than, the initial phase of reactivity, but a significant minority still present with life-threatening features and/or require more aggressive therapy than the original phase.¹³ This assertion supports findings of the Sampson et al's 1992 study, which investigated a case series of fatal and near-fatal FIA in which all 3 of the biphasic reactions were fatal.¹⁶

No single distinct clinical feature has been identified as universal predictor for biphasic reactivity.¹³ Ellis did report emerging themes suggesting identification of those at higher risk for secondary reactions¹³:

- Those presenting during first phase with severe, life-threatening symptoms requiring more than 1 dose and/or higher doses of epinephrine to control symptoms
- Those taking longer to stabilize regardless of selected management options
- Those receiving suboptimal management (eg, delayed epinephrine administration after initial symptoms)

Ellis suggests the findings highlight benefits of immediate appropriate epinephrine administration, which may prevent a biphasic reaction and/or need for prolonged observation time in the ER. Ellis also found biphasic reactions may occur up to and beyond 24 hours of a symptom-free interval.¹³

Daily Strict Avoidance of Food Allergens at Home and School: Packed With Pitfalls

Individuals with physician-diagnosed food allergies must know all ingredients of food prior to safe consumption and therefore spend ample time scouring ingredient labels. If product ingredients are unknown or in doubt, even after contacting manufacturers for confirmation, it should not be consumed. Patients and caregivers must learn how allergens may be described on a label (eg, cow's milk listed as casein).

Compounding rigors of daily food allergen avoidance are issues related to unanticipated hidden allergens in foods, medications, cosmetics, art/school supplies, and other products. A substance is a hidden allergen when it is unrecognized or not declared on a product ingredient label.¹⁷ Hidden food allergens can be a source for accidental exposures and may occur due to many factors including misleading ingredient labels, careless food handling, ingredient switching, formulation errors, packaging mistakes, and use of shared manufacturing equipment or facilities.^{11,17-19}

Is There Legislation Mandating Food Allergen Ingredient Labeling Practices?

The US Food Allergen Labeling and Consumer Protection Act (FALCPA), implemented in 2006, mandates food manufacturers improve product labeling with detailed, simple allergen information for the top 8 food allergens (eg, delineate type of tree nut).²⁰ It does not cover less common food allergens (eg, sesame, mustard) and does not apply to nonfood products (eg, medications, art supplies). Food manufacturers may only voluntarily disclose if products are produced in a facility containing certain allergens—a potential source of cross-contamination (eg, allergen safe foods come into contact with allergen). Manufacturers only voluntarily use provisional labeling (eg, “may contain soy”). Complete contents of FALCPA is accessible at www.fda.gov.²⁰

At the time of this writing, the US Food & Drug Administration is exploring whether it can safely establish threshold levels for major food allergens and concomitantly investigating preventive controls, including those for food allergens, through the Food Safety Modernization Act.^{21,22}

Startling Sources of Hidden Food Allergens: A “Must Know” at Home and School

Cross-contact is a reason allergens may be hidden in foods and other products. It may occur directly or indirectly between food allergens and allergen-safe foods during manufacturing, cooking (eg, shared utensils), and serving of foods (eg, mixing of foods on platter). It may occur during growing, crop harvesting, or use of shared storage, transportation, or production equipment.^{23,24}

Caregivers must be aware of potential for cross-contact when reading ingredient labels, calling manufacturers, preparing food, and organizing classroom celebrations, game concession stands, and lesson plans. Avoidance of buffet tables and bulk food bins are examples of potential for allergen cross-contact, which should be considered during social outings (eg, field trips).

Examples of foods that may contain certain allergens are the following^{17,23–25}:

- Egg: bagels, pretzels, baked goods, cereals, chocolate, custard, pies, breads
- Fish: anchovies, Caesar salads, hot dogs, Worcestershire sauce
- Peanut: beer nuts, baked goods, ice cream, cereal, candy, egg rolls, chili
- Shellfish: shrimp, fish stock, scallops, oysters, fish stock, bouillabaisse
- Soy: tofu, soy nuts, Asian cuisine, vegetable starch, soy flour, boiled ham
- Tree nuts: pesto sauce, popcorn, donuts, desserts, baked goods, candy, cereal
- Wheat: baked goods, bread, pastries, pasta, cereal, processed meat, farina

Free handouts listing ways food allergens may be described on labels and other educational materials are available from Food Allergy Research and Education (FARE) at www.foodallergy.org and Consortium of Food Allergy Research at www.cofargroup.org.^{26,27} Tables 1, 2, and 3 list resources for inquiry into food allergies and allergen-free products. Table 4 lists food allergy cookbooks to assist those learning allergy-free cooking and for teachers' use in lesson plans (eg, baking class projects).

Comorbidities Can Make Matters Worse

In children, food allergy often coexists with asthma, atopic dermatitis, eosinophilic esophagitis, and exercise-induced anaphylaxis.² The presence of asthma puts those with food allergy at higher risk of anaphylaxis, especially if asthma is poorly controlled.² Those with food allergy that develop asthma may be at higher risk for severe asthma.²⁸ An individual with coexisting asthma and food allergy may have higher rates of morbidity and mortality associated with asthma.^{2,29} The presence of asthma has also been shown to be a risk factor in fatal FIA.¹⁰

Closer Look at Peanut Allergy

Peanut allergy (PNA) has been a topic of much scrutiny by researchers, clinicians, and media. PNA is common, often severe, affects young children, is typically lifelong, and potentially fatal.¹⁰ Those with PNA may react to minuscule doses, and since it is an ever-present food, especially among children, it can be an arduous challenge to maintain avoidance. Accidental ingestion of peanut is common with yearly incidence rate of 14.3% reported among school children in Montreal, Quebec, Canada.¹⁰ Deaths due to FIA are most often associated with peanut or tree nut ingestion and often involve delayed use of epinephrine or improper dosing of this medication.²

Sicherer and Sampson reported on PNA in relation to emerging concepts and approaches for an apparent epidemic, sharing the following clarifying observations¹⁰:

- PNA may resolve in only 20% of young children
- About 7% of younger siblings of a child with PNA will also have PNA
- Reactions can occur to trace amounts (0.1 to 10 mg), though typically it takes about 1 peanut kernel to trigger an objective reaction; foods must be peanut-free
- Significant peanut contamination is sometimes found in products with provisional labeling and therefore such products should be avoided
- Modest skin or inhalation exposure to peanut butter is not likely to trigger systemic reactions; however, skin contact could be a problem if the allergen is transferred to ingestion (eg, hand to mouth)
- Aerosolized peanut (eg, flour) is presumed to be more likely to trigger a reaction
- PNA is potentially severe especially for teens and/or those with asthma
- PNA is an immunologic disease and it is prudent to screen for PNA when blood and tissue products are given
- Children with PNA have increased rate of tree nut allergy (25% to 50%)¹⁰

Anaphylaxis Emergency Action Plan: Essential to Update Each School Year

Those with diagnosed food allergy should receive a written anaphylaxis emergency action plan (AEAP), with related instruction, prior to leaving the clinic evaluation visit, discharge from hospital or ER.² AEAPs should include information on diagnosed food allergies, existence of asthma, and self-injection of epinephrine. It is helpful if AEAPs clearly state recommended steps for mild versus severe allergic reactions. AEAPs should be updated yearly with ongoing patient education for evaluation and reinforcement of content. Table 5 lists resources for free templates of AEAPs. Such forms have also been developed by other groups (eg, federal agencies, school districts).^{30,31}

The AEAP is a crucial piece of information for schools. Typically, schools expect an updated AEAP at the start of

Table 1. Selected Web Resources for School Management of Food Allergy and Anaphylaxis

ADVOCACY NONPROFIT ORGANIZATIONS
American Partnership for Eosinophilic Disorders: http://apfed.org
Asthma and Allergy Foundation of America (AAFA): www.aaafa.org
Food Allergy Research and Education (FARE): www.foodallergy.org
ALLERGY AND IMMUNOLOGY PROFESSIONAL ORGANIZATIONS
American Academy of Allergy, Asthma & Immunology (AAAAI): www.aaaai.org
American College of Asthma, Allergy & Immunology (ACAAI): www.acaaai.org
Consortium of Food Allergy Research: www.cofargroup.org
National Institute of Allergy & Infectious Diseases: www.niaid.nih.gov
CLASSROOM FOOD ALLERGY POSTERS AND RESOURCES
AllergicChild.com: http://home.allergicchild.com
Allergy Free Table: www.allergyfreetable.com
FOOD ALLERGY AND ANAPHYLAXIS SCHOOL TRAINING TOOLS
Allergy Home: www.allergyhome.org
Allergy Ready: http://allergyready.com
Food Allergy Book: What School Employees Need to Know: www.neahin.org/educator-resources/foodallergybook.html
Food Allergy Management & Education by St Louis Children's Hospital: www.stlouischildrens.org
Get Schooled in Anaphylaxis: www.anaphylaxis101.com
National Association of School Nurses (NASN): www.nasn.org
School Nutrition Association-Food Allergy Resources: www.schoolnutrition.org
FOOD ALLERGY CLINICAL PRACTICE GUIDELINES
Guidelines for the Diagnosis and Management of Food Allergy in the United States: Report of the NIAID-Sponsored Expert Panel: www.jacionline.org/article/S0091-6749%2810%2901566-6/fulltext
NATIONAL SCHOOL BOARD ASSOCIATION (NSBA)
Safe at School & Ready to Learn: Comprehensive Policy Guide for Protecting Students with Life-Threatening Food Allergies: www.nsba.org
SECTION 504 AND THE EDUCATION OF CHILDREN WITH DISABILITIES
Office for Civil Rights: Protecting Children with Disabilities: www2.ed.gov/about/offices/list/ocr/504faq.html
Education & Advocacy Solutions: Section 504 Plan Outline: http://foodallergyadvocate.com
Educating for Food Allergies, LLC: www.foodallergyed.com
United States Department of Justice: Americans with Disabilities Act: www.ada.gov/
WEBINAR VIDEOS
Managing Food Allergies in the School Setting by FARE, NASN, NSBA & Centers for Disease Control (CDC): www.youtube.com/watch?v=zvM8EaQpckw&feature=related
NASN Video Series on School Nurses Partnering to Avoid & Respond to Anaphylaxis: www.nasn.org

every academic year as it represents verification of diagnosis and guidelines for medication administration (eg, epinephrine, antihistamines) from the clinic team.

It is also prudent for students with food allergy to wear medical identification jewelry describing their triggers and potential for FIA.^{2,31} Table 6 lists resources related to

Table 2. Selected Web Resources for Allergy Friendly Food and Restaurants

Allergy Eats
www.allergyeats.com
Cherrybrook Kitchen
www.cherrybrookkitchen.com
Divvies
www.divvies.com
Ener-G Foods, Inc
www.ener-g.com
Enjoy Life Foods
www.enjoylifefoods.com
Go Dairy Free
www.godairyfree.org
Lucy's
www.drlucys.com
Sunbutter: Sunflower seed spread
www.sunbutter.com
Vermont Nut Free Chocolates
www.vermontnutfree.com

epinephrine auto-injectors (EAI) that the clinic nurse educator and school nurse may find useful to share with families.

Schools Are High-Risk Settings for FIA: But Unsafe Discrepancies Exist

Schools are high-risk settings for food-allergic children to be exposed to their triggers and subsequently experience reactions. In schools, food may be extensively used for multiple purposes (eg, lesson plans, treats, parties, projects, athletic events, fundraisers, gifts) creating abundant challenges to avoidance recommendations. Up to 50% of anaphylactic reactions in children are caused by food allergies and many times these occur at school.^{30,32-34} Twenty-five percent of undiagnosed food allergic children have their first reaction to food at a school or day care center.^{30,31,35} Such data underscore the importance of ongoing food allergy/anaphylaxis training and implementation of school management guidelines.

Pulcini et al reported on disparity between presence and absence of food allergy action plans in 1 school district.³⁰ Their study of 43 public schools, each with a school nurse, revealed other variations within the same district, with examples summarized as follows³⁰:

- In 42% of schools, half or less of identified food allergic students had an AEAP

Table 3. Selected Web Resources for Allergy Friendly Products

American Latex Allergy Association
Latex free products: www.latexallergyresources.org/latex-free-products
Asthma & Allergy Foundation of America
Asthma and allergy friendly certified products: www.asthmaandallergyfriendly.com/find-certified-products.html
Discount School Supply
Food allergy free products: www.discountschoolsupply.com
IKEA DUKTIG Series
Educational toys for school training (eg, felt foods): www.ikea.com
Medpax
Personalized medication storage containers: www.mymedpax.com/allergy-asthma
National Allergy Supply
www.natallergy.com
SafeKeepers
Specialty containers to separate allergenic food safely: www.safekeepers.us
School Health
Food allergy: www.schoolhealth.com
School Kids Healthcare
Allergy: www.schoolkidshealthcare.com
School Nurse Supply
Allergy: www.schoolnursesupplyinc.com
Select Wisely
Food allergy travel translation cards: www.selectwisely.com

- 30% of schools made no accommodations while 70% made at least 1
- 25% of schools with identified peanut allergic students made no accommodations; over 50% of remaining schools had peanut-specific restrictions
- In 5% of schools, no other adult beside the school nurse was trained to give rescue medications; 86% had at least 3 additional trained school staff
- 60% of schools exclusively stored rescue medications in school nurse offices
- 35% of schools stored rescue medications in multiple locations within the school building

This study highlights unsafe variations that can occur between schools even within the same district. The startling differences in approaches to food allergy management may increase risks for these students. Concomitantly, school staff

Table 4. Selected Food Allergy Cookbooks

Allergen-Free Baker's Handbook , by Cybele Pascal (http://cybelepascal.com/books)
Divvies Bakery Cookbook: No Nuts. No Eggs. No Dairy. Just Delicious! , by Lori Sandler (www.divvies.com/cookbook.php)
Food Allergy Mama's Baking Book , by Kelly Rudnicki (www.foodallergymama.com)
Food Allergy Survival Guide , by Vesanto Melina, Jo Stepaniak, and Dina Aronson
Go Dairy Free , by Alisa Marie Fleming (www.godairyfree.org)
Learning to Bake Allergen-Free , by Colette Martin (www.learningtoeatallergyfree.com)
Neocate Food Allergy Cookbook (www.neocate.com)
What's to Eat? The Milk-Free, Egg-Free, Nut-Free Food Allergy Cookbook , by Linda Coss (www.foodallergybooks.com)

Table 5. Selected Food Allergy and Anaphylaxis Emergency Action Plan Templates

AAFA Allergy & Asthma Emergency Action Plan: http://aafa.org/pdfs/asthmaactioncardchildcare.pdf
AAAAI Anaphylaxis Emergency Action Plan: www.aaaai.org/Aaaai/media/MediaLibrary/PDF%20Documents/Libraries/Anaphylaxis-Emergency-Action-Plan.pdf
Sanofi U.S. Anaphylaxis Action Plan using Auvi-Q: www.auvi-q.com/media/pdf/Action-Plan.pdf
FARE Food Allergy Action Plan: http://www.foodallergy.org/faap? (Available in English and Spanish)

are confronted by parents with differing degrees of knowledge and anxieties regarding food allergy as well as students with dissimilar treatment plans and risk factors.³¹ Balancing such needs can be challenging and yet school settings provide great opportunity for food allergy/anaphylaxis outreach education by clinical nurse educators and school nurses.

Statewide Guidelines for School Food Allergy Management: Not in Every State

In 2004, Massachusetts became the first state to develop statewide guidelines on managing life-threatening food allergies in schools.³⁶ The Massachusetts document is accessible at www.doe.mass.edu/cnp/allergy.pdf.³⁷ Since then, other states developed policy statements as they acknowledged the food allergy crisis in schools.³¹ At the time of this writing, 15 other states have published statewide guidelines for school food allergy management. This state listing with documents is accessible at FARE's Web site: <http://www.foodallergy.org/laws-and-regulations/statewide-guidelines-for-schools>.³⁸

Table 6. Selected Web Resources Related to Epinephrine Auto-Injectors

Auvi-Q
Auvi-Q: www.auvi-q.com , includes trainer tips, demonstration video
Sanofi US: www.sanofi.us , for information on obtaining Auvi-Q trainers
Be S.A.F.E. Managing Allergic Emergencies—Anaphylaxis
Brochure by American College of Allergy, Asthma & Immunology: www.acaai.org
Carriers for Epinephrine Auto-injectors
Allergy Essentials USA: www.allergyessentialsusa.com
Epi-Essentials: www.epi-essentials.com
EpiMate: www.epipenpouch.com —latex free
Epi-Ready: www.epi-ready.com
Onespot Allergy: www.onespotallergy.com
EpiPen
EpiPen: www.epipen.com
Free EpiPen4Schools Program: www.epipen4schools.com
Medical Identification and Labels
Allerbling: www.allerbling.com
AllerMates: www.allermates.com
Lauren's Hope: www.laurenshope.com
Medic Alert: www.medicalert.org
Twinject
Twinject: www.twinject.com
Videos
Epi Everywhere! Everyday! School Based Anaphylaxis Preparedness by Allergy and Asthma Network Mothers of Asthmatics: www.aanma.org
Food Allergy: Recognition & Treatment of Food Allergic Reactions Video by Jaffe Food Allergy Institute, Mount Sinai School of Medicine: www.youtube.com/watch?feature=player_embedded&v=ROlsy3gz42A
How to Use an Epinephrine Auto-injector—Video by MassGen Hospital for Children, Food Allergy Center: www.youtube.com/playlist?list=PL08900CC9672AFF83

Federal Laws Protect Food Allergic Students: Disability Status

Students with food allergies are protected by US Rehabilitation Act of 1973, Section 504, and Individuals with Disabilities Education Act.³⁰ Legally, students with life-threatening food allergies are considered disabled and cannot be discriminated against based on their disability, requiring children receive all necessary services to attend school.^{30,39} Content of the Americans with Disabilities Act is accessible at www.ada.gov.³⁹

The US Department of Education's Office for Civil Rights at www2.ed.gov and US Department of Agriculture's Office for Civil Rights, at www.ascr.usda.gov, supervise Section 504 of the Rehabilitation Act.^{40,41}

The clinical nurse educator/case manager and school nurse can work in tandem to be sure families and school staff understand federal regulations that address and protect special needs of food allergic students. Section 504 is used by many families to create a detailed customized food allergy management school plan that delineates responsibilities, expectations, and specific needs of the child. Table 1 lists resources and examples of a completed 504 plan for a food allergic student. Other families use an Individualized Health Plan (IHP), which also addresses individualized needs of a child but is less formal. In both cases, a team approach is typically taken to ensure multiple aspects of the child's needs are identified, discussed, and documented. Team members involved with such meetings may include school nurses, administrators, teachers, parents, pre/after school care workers, cafeteria director, counselor, social worker, bus driver, maintenance leader, and specialty teachers (eg, art, music). The school nurse is often the leader and coordinator of this meeting and 504 or IHP process. The clinical nurse educator/case manager may also attend to facilitate continuity of care. Health care providers may attend the meeting or offer input via other means of communication to verify diagnosis and share recommendations for accommodations.

H.R. 2063 Food Allergy and Anaphylaxis Management Act of 2008: Law in January 2011

The Food Allergy and Anaphylaxis Management Act (FAAMA) calls for development of national guidelines to be used on a voluntary basis to develop school plans to manage risks of food allergy and anaphylaxis.⁴² FAAMA establishes incentive grants to support implementation of such guidelines.⁴²

FAAMA includes elements that should be addressed including parental obligation to provide schools with documentation from the child's physician or nurse which⁴²:

- Supports diagnosis of food allergy and risk of anaphylaxis
- Identifies food to which the student is allergic
- Describes, if appropriate, any prior history of anaphylaxis
- Lists any prescribed medications for treatment of anaphylaxis
- Detailed emergency treatment procedure should a reaction occur
- Listing of signs and symptoms of a reaction
- Assessment of student's readiness for self-administration of prescribed medication

FAAMA recommends creation and maintenance of an IHP customized to needs of each student with documented risk of anaphylaxis, including steps for self-administration of medication by the student in cases where they are deemed capable to do so and if allowed by state law.⁴² FAAMA also

approves school strategies to reduce risk of exposure to anaphylactic causative agents. Staff authorization and training to administer epinephrine if a school nurse is not immediately available is recommended.⁴²

At the time of this writing, national voluntary guidelines described in FAAMA are expected to be announced in 2013. It is a milestone phase with potential to markedly increase school safety for many children at risk of anaphylaxis. Complete content of FAAMA can be accessed at www.thomas.gov.⁴²

State Legislation Allowing Students to Self-Carry Epinephrine: Increasing Immediate Access

Since 1993 in Massachusetts, states have steadily enacted laws allowing students to self-carry epinephrine. A listing of states instituting such law is available at www.foodallergy.org.⁴³ The clinic nurse educator and school nurse can collaborate to share decision making about a child's age-appropriate, developmental ability to self-carry. Health care providers, parents, and teachers also contribute to this consensus decision.

Even in schools with full-time school nurses, self-carry of epinephrine by the student increases immediate access to the medication when minutes count as a reaction begins. In schools without nurses and/or when the nurse is not immediately available, having students legally covered to self-carry can help quickly procure epinephrine and administer it.

Anecdotally, students typically self-carry 2 EAI's with additional unlocked student-specific EAI's located elsewhere in the school (eg, health office, front desk, cafeteria). By carrying 2 EAI's, a second dose is available if needed (eg, protracted symptoms while awaiting ambulance) or if error occurs during initial administration (eg, injector fails to operate, rescuer injects self versus child). Staff should understand that a child who self-carries an EAI may not necessarily be able to self-administer during anaphylaxis given progression of symptoms or distress.

Nonstudent-Specific Epinephrine in Schools: Positive Developing National Movement

The topic of school access to emergency stock epinephrine, or nonstudent-specific epinephrine, has reemerged along with increasing prevalence of children at risk for life-threatening allergies. Data also indicate schools may be a setting where previously undiagnosed children or staff endure their first episode of anaphylaxis with no prescribed epinephrine readily available, rendering risk of poor outcome.^{30,31,35,44-46}

In 2009, Kansas approved legislation for physician-prescribed, school-based, nonstudent-specific epinephrine and authorized any person to administer epinephrine in emergency situations to students or staff for treatment of anaphylaxis. Legislation content is accessible at <http://www.kdheks.gov>.⁴⁷ Several other states, including Virginia and Illinois, have approved related legislation.^{45,48,49}

In 2011, School Access to Emergency Epinephrine Act (SAEEA) was introduced. SAEEA encourages states to

create laws requiring schools to have physician-prescribed, nonstudent-specific epinephrine availability to render prompt treatment of anaphylaxis by trained personnel.⁴⁵ SAEAA is endorsed by multiple organizations including the American Academy of Pediatrics and FARE.⁴⁵ SAEAA content and status is accessible at <http://thomas.loc.gov>.⁵⁰

As legislative developments unfold, it offers opportunities for clinical nurse educators and school nurses to collaborate together and with state/local entities in supporting legislative efforts and in providing food allergy school training. Table 6 lists resources to assist in such endeavors, including a program for free EpiPens for qualified schools, introduced in 2012.

Auvi-Q: Newest Epinephrine Auto-Injector

In early 2013, Auvi-Q, a new EAI, was introduced by Sanofi-Aventis US.⁵¹ It has many appealing features, including compact size and technological ability to provide audible voice instructions on administration steps.⁵¹ Dosing is identical between Auvi-Q and the EpiPen and both are intended for IM injection into an anterior-lateral thigh.^{51,52} School nurses need to be aware of which type of EAI a student is bringing to school.⁵²

At the time of this writing, Auvi-Q has only been available in pharmacies for several weeks. For health care providers and families, Auvi-Q represents a new EAI option. The Web site for Auvi-Q, <http://www.auvi-q.com>, provides ample information including video demonstration and free, downloadable mobile phone Companion App.⁵¹

The effect of Auvi-Q on numbers of prescriptions remains to be seen. Implications for clinic nurse educators and school nurses include addition of a new EAI requiring dedicated time for patient/school training on its use, adaptation to AEAPs, and vital data collection related to effect on adherence, usability, and outcomes in home and community settings.

Disproportionate Numbers of School Nurses Among States: Parity Sorely Needed

In 2009, Maughan reported on factors associated with school nurse ratios per state and collected data reviewing nurse-to-student ratios within states.⁵³ The National Association of School Nurses (NASN) endorses a nurse to student ratio of 1:750.⁵⁴ In Maughan's review, 13 states met NASN recommendations.⁵³ The state with the top ratio had 1 nurse to 500 students. The state with the worst ratio had 1 nurse to 5822 students.⁵³ According to NASN, more than 50% of US public schools do not have a full-time registered nurse (RN) with widespread inequalities from state to state, within states and school districts, and between urban and rural schools.⁵⁵

Maughan found factors influencing state school nurse ratios included amount of funding per pupil, per capita income, region of country, and presence of state laws mandating school nurse ratios.⁵³ Other mandated services correlated with ratios including immunization requirements for seniors in high school, identification of acute conditions, and tracking and managing chronic disease.⁵³

Behind the Scenes: Misperceptions Related to School Nurse Role

The American Academy of Pediatrics (AAP) describes the role of school nurse as crucial in provision of school health services.⁵⁶ The AAP acknowledges need to develop new paradigms and programs to address multifaceted health problems of today's students. The AAP describes the school nurse as collaborator with health care professionals and chief coordinator of school-based care.⁵⁶ Additionally, the school nurse provides acute, chronic, episodic, and emergency health care within the school in accordance with state laws and nurse practice act. A school nurse is expected to coordinate and collaborate to ensure student services from local public health and social service agencies.⁵⁶ Despite this clear description, school nurses often face challenges in working alongside nonmedical school staff who have misperceptions and are ill-informed about the nursing profession, including scope of practice and extensive abilities of school nurses.

Green and Reffel compared school administrators' and school nurses' perception of the school nurse role.⁵⁷ They surveyed 25 administrators from a K-12 school system where each school had a full-time RN. Nine school nurses were also surveyed. They found administrators were blinded to many services the RN provided, influencing role perception. Administrators commonly viewed the main function of the RN as providing student care, when they were also providing regular care to staff.⁵⁷

Green and Reffel found administrators underrated services RNs provided in supervising management and treatment of chronic health conditions.⁵⁷ In actuality, case management and health services to children with chronic health conditions can be quite time consuming, demanding high levels of expertise and training by the nurse. Administrators also underestimated the RNs' expertise in developing and implementing IHPs and misjudged their function as liaison between students/families and clinic teams.⁵⁷ Notably, administrators did not recognize the traditional role of RNs as health educator to students, families, and staff.⁵⁷

In the authors' experience, barriers and difficulties exist when carving out a school nurse role surrounded by nonmedical personnel. It becomes more perplexing when nonmedical administrators perceive school nurses as "support staff" versus individuals from a distinct profession with its own body of science and research. Stunning findings by Green and Reffel highlight erroneous misperceptions that create major barriers to a RN's ability to provide health services in the manner he/she is capable. A clinical nurse educator/case manager can be a key colleague to offer support to school nurses as they partner to provide continuity of care to food allergic patients.

Rallying to Clarify School Nurse Role and Improve Nurse-to-Student Ratios

Schools consist of groups of individuals with different roles in securing safe education to students. All staff should be educated

on anaphylaxis as well as factors specific to the child. Strategies to reduce risk of exposure to offending allergen(s), signs/symptoms of anaphylaxis, and creation of an individualized emergency protocol are examples of training steps that should occur prior to students entering school. School nurses can be invaluable aids to families and clinic teams in this endeavor. School nurses have necessary expertise to create, implement, and supervise a school food allergy program.

At the time of this writing, NASN has indicated a 2013 legislative priority includes urging Congress to reintroduce the Student-to-School Nurse Ratio Improvement Act (SSNRIA), recognizing the essential role school nurses serve in providing access to quality care.⁵⁸ SSNRIA would provide demonstration grants to local education agencies to lower the ratio of students to school nurses and subsequently evaluate its effectiveness in improving health and learning outcomes.⁵⁸

It is a sad commentary on value systems and subsequent decision making surrounding school budgets that entire US school districts have no school nurses, not enough school nurses, or perhaps only fragmented oversight by community health departments. Anecdotally, both authors live in a state with scarce school nurse coverage, which has created notable gaps, serious challenges, and threats to quality and continuity in care of children. In the authors' experience, lack of school nurses is an intense source of frustration and distress for many families with food allergic children. The authors support NASN in efforts to promote SSNRIA to rectify this unsafe and disturbing disparity in access to school health services provided by RNs for our country's children.

Implications of Unequal School Nurse Coverage on Food Allergy Training

In the authors' experience, within schools lacking school nurses, parents often take on the daunting task of presenting educational information to staff. To expect parents to provide training is unrealistic and unsafe as it increases probability of delivering inaccurate, inconsistent information. This suboptimal choice also has inherent legal complications and resulting danger that information will be ignored or undermined by its delivery and concurrent staff assumptions regarding knowledge and credibility of the presenter. To expect clinics to provide direct education to schools involves time of the child's nurse educator or physician—an option that also includes potential legal and budgetary complications.

Clinic's Perception and Knowledge of School Community: Clarify Assumptions!

The authors have noted disparity among clinic teams in their understanding of school settings, structure, hierarchy, and types of services offered to students/families. It would behoove clinic teams to better understand the school setting of a patient. Because clinics may service patients from diverse school districts, adding that information to the patient's medical record may prove helpful. A clinic may serve patients from a state where 1 school nurse is mandated for every 750 pupils.

Another clinic may see patients from states lacking a mandate for school nurses and, consequently, no RN-directed services are available. An assumption that school nurses will handle all school health services may be entirely untrue. Conversely, assuming clinic teams will have final say in all school accommodations and staff training may be equally untrue.

Given the disparity in US school nurse coverage, the authors suggest clinic teams consider asking questions on patient registration forms that may assist in gathering/documenting essential school district information. Query examples include the following:

- Does the patient attend school and where?
- Is there a school nurse on the premises? If so, how many hours per day/week?
- Does a school nurse coordinate health services to the student's school?
- Does a school nurse prepare/coordinate anaphylaxis health plans and related staff training?
- Is there a school Web site where medication forms can be obtained?
- Is there a food allergy/anaphylaxis policy in place at the student's school?

If no RNs are on site in the school district, the authors suggest clinic teams investigate and also encourage parents to query schools on matters such as the following:

- Who provides health education and training to staff?
- Are all staff trained in first aid and CPR, and if so, by whom and how often?
- Who develops the school's disease prevention/health promotion programs?
- Who determines what accommodations and restrictions are in place for food allergic students?
- How are required medication forms obtained?
- Who is administering routine medications and what are their qualifications?
- If unlicensed, nonmedical staff administer medications, who provides training and oversight?
- Who is educating staff on understanding student-specific health needs?
- Who provides daily oversight on school premises of food allergy management policy?
- Who is coordinating creation/implementation of 504s or IHPs?
- Who is collecting/maintaining school data related to rates/description of anaphylaxis and epinephrine administration?

Clinic Teams and School Nurses Collaborating to Close Gaps in Anaphylaxis Awareness

In the authors' experience, there continues to be lack of awareness and accurate knowledge regarding the seriousness of food allergies. Clinical nurse educators providing community

education and school nurses training staff need to be aware of common voids in knowledge.

Kastner et al studied gaps in anaphylaxis management among physicians, patients, and community.⁵⁹ They acknowledged diagnosis and management of anaphylaxis can be challenging because it is often severe, unexpected, and progresses quickly. Still, they suggest both immediate and long-term anaphylaxis management is inadequate in a variety of settings (eg, clinic, schools).⁵⁹ Identified contributing factors included poor training of health care providers, lack of access to EAI and specialist advice, problems in school management, and lack of anaphylaxis prevention strategies for patients and caregivers.⁵⁹

Gupta et al examined US food allergy knowledge, attitudes, and beliefs.⁶⁰ They surveyed 2148 adults and found variability with knowledge strengths in areas related to symptom/severity and triggers/environmental risks (eg, most identified peanut as common allergen). Weaknesses were found in areas of food allergy treatments (eg, almost 50% thought cure available) and distinction between food allergy and intolerances. Parents without food allergic children were more likely to oppose certain food allergy school policies even though many believed it important to implement such protocols. Most respondents opposed banning peanut products and did not feel schools should have special tables for food allergic children. Researchers determined there is public recognition of need for school food allergy policy but reluctance to see it implemented.⁶⁰ Participants also preferred varied methods to learn about food allergy (eg, television, handouts, presentations by physician or RN, Internet/email).⁶⁰ The team concluded increased food allergy knowledge by the public is needed including information on challenges confronting children/families coping with food allergies.⁶⁰

In the authors' experience, concerted efforts between clinical nurse food allergy educators and school nurses in providing outreach education can make considerable difference in priming the public to better accept and prepare for inclusion of food allergic children. Using varied educational methods to address different learning styles may increase effectiveness. Table 1 lists helpful resources for training. National school food allergy management guidelines would also be an important tool.

Understanding Teacher Viewpoints: Educating and Supporting Educators

For optimal food allergy school management, teachers are a key group to educate and support. Clinic teams may only see certain patients once or several times per year, while teachers spend hours with children. Their understanding of the seriousness of true food allergies, necessary risk reduction strategies, and ability to recognize/treat anaphylaxis is imperative to the child's safety. Notably, the classroom has also been shown to be a high-risk location for allergic reactions to occur.^{41,61,62}

Barriers for teachers have been identified that are helpful for school nurses and clinic teams to understand when gauging their approach in educating/supporting these professionals⁶³:

- Parents who do not completely understand the diagnosis/management of PNA
- Parents who do not provide teachers with details about their child's needs
- School lacks full-time nurse
- Anxiety due to lack of information/education about food allergies/anaphylaxis
- Lack of comprehensive educational module for teaching unlicensed staff on recognition of an allergic reaction

Further illuminating teacher views are responses to informal surveys done by the primary author after providing food allergy community outreach presentations to a set of 7 elementary schools and preschools with 54 teachers responding.⁶⁴ None of the schools had full-time RNs. Teachers identified the following challenges in accommodating food allergic students:

- Lacking sense of control over school environment
- Frustration regarding lack of desired outcomes by other parents despite sharing food allergy and anaphylaxis information
- Anxiety related to potential for anaphylaxis and need to be hypervigilant
- Desire to have requested restrictive school strategies endorsed by child's clinic team
- Concern over inadequate, inaccurate, and/or incomplete information regarding ingredients of processed foods

Notably, many teacher responses mimic those of parents of newly diagnosed food allergic children.²⁴ In the experience of the primary author, providing several phases of food allergy training and refresher sessions allowed nonmedical school staff time to process initial information with the second phase as follow-up and reinforcement. Phase 2 sessions allowed time to evaluate comprehension of material from the first presentation and included more questions from staff as their understanding deepened. Each session was 45 to 90 minutes in length. Training on EAI was most effective when done on an individual or small group basis with adequate time for teaching, demonstration, and teach-back evaluation. As with parents, the more supervised practice time staff had, the greater their comfort and confidence grew. During this transitional staff education time, parental anxiety remained high and trust low, until parents perceived staff were fully prepared to implement anaphylaxis risk reduction measures and demonstrated understanding on identification/treatment of anaphylaxis.⁶⁴

Understanding Cognitive Tasks of Caregivers and Investing in Training/Practice Time

Understanding types of cognitive tasks caregivers of food allergic children face assists in providing them with optimal services and resources. Gosbee's cognitive analysis identifies and characterizes such decision-making tasks.⁶⁵ Findings include ongoing proactive risk assessment, including the following:

- *Evaluating target of risk assessment:* identifying products posing risk with varying degrees of visibility (eg, medications). Factors influencing correct identification include social factors, cognitive abilities, amount of accurate ingredient information, and level of training.
- *Depth of risk assessment:* learning to assess level of risk (eg, knowing labeling regulations differ among countries). Correctly determining depth of risk dependent on design of label, product Web sites, level of training/knowledge of service representative, time limits.
- *Frequency of risk assessment:* realizing risk assessment is required multiple times daily (eg, baking, school events). Mental burden, complacency, time limits, and knowledge may affect frequency.
- *Symptom assessment:* learning signs/symptoms of mild versus anaphylactic reaction and related treatment plans with limited opportunity to rehearse skills due to its episodic nature. Training secondary caregivers can become burdensome and knowledge transfer is not always successful.
- *Emergency preparedness:* learning to react appropriately should anaphylaxis occur demands multiple cognitive tasks (eg, identify location of EAI, correctly use it). Ability to perform tasks influenced by cognitive capacities, practice opportunities, and medication delivery system usability issues.

In the authors' experience, students/families present to schools with varying levels of food allergy education. Many clinics do not have dedicated clinical nurse educators, and health care providers often do not have time or training to provide effective or comprehensive patient education.^{11,24} Health care professionals should make resolute efforts to create clinic models whereby ample individualized patient education is provided for the newly diagnosed and on a regular follow-up basis with consideration of health literacy levels and child's developmental level.^{11,24} Schools should have ongoing food allergy training and opportunity for practice. The authors suggest a frequency of every 4 to 6 months with refresher training after holiday breaks and prior to field trips versus only on annual basis at start of school year when teachers are overwhelmed with demands. School-wide anaphylaxis drills, including case scenarios, are encouraged and provide opportunity to critique emergency preparedness and identify areas for improvement. School nurses should also be accessible to staff desiring one-on-one training/practice throughout the academic year.

Bullying by Peers and Staff: Children With Food Allergy at Risk

A diagnosis of life-threatening food allergy has been linked with a decrease in health-related quality of life, especially with multiple food allergies, a history of anaphylaxis, and the type of food allergen involved.⁶⁶ Adding to the burden is the social vulnerability associated with food allergy, which predisposes

children to repetitive bullying, teasing, and harassment by peers and staff with subsequent distress in child and parents.^{67,68} Such adverse behavior can result in emotional and physical risks (eg, offending food allergen used as physical threat), which should be addressed within school food allergy management programs.⁶⁸

Screening for signs of bullying (eg, anxiety, depression, school phobia) should occur by clinic teams and school nurses.²⁴ Food allergy school training should include discussion on bullying identification and prevention with importance of reporting it and enforcing associated school policies. Firm guidelines supported by a strong administration are crucial. A teaching point to emphasize is that a bullied child may become so humiliated they hesitate to communicate signs of anaphylaxis, delaying treatment.

No child should develop a sense of shame over any diagnosis. School and clinic staff should be aware even casual comments like "you're the peanut girl" may be hurtful and does not role-model professional behavior. A child may feel singled out or made to feel blamed for requests to not bring certain food allergens into classrooms. The restriction may be a necessary medical accommodation but it may target them for abuse by bullies. Increasing school staff awareness of such possibilities is imperative.

Fostering a school tone of empathy, kindness, and compassion is incumbent on staff. Clinical nurse educators and school nurses may collaborate on methods to "bully-proof" and empower the child (eg, teaching self-advocacy, role-play scenarios). Children should be taught how to identify and report bullying, to whom, and supported for doing so.⁶⁷ Table 7 offers resources on bullying prevention. Table 8 lists children's books for families and as teacher aids in helping classmates understand the diagnosis.

Medical Accommodation Needs May Collide With Contrasting Value Systems

Food allergen avoidance strategies vary depending on the nature of the allergy, circumstances unique to the school, and child's age (eg, younger age requires increased supervision, cleaning, allergen containment), temperament, and developmental level.⁵ This variability may puzzle school communities and result in stressful conflict (eg, requesting no peanuts brought into classrooms). School staff, parents, and clinic teams may or may not arrive at consensus regarding practical accommodations. To ameliorate such circumstances, it is helpful if clinic teams clearly delineate and document diagnosis and treatment.

The tone, culture, traditions, and value system of each school may vary. When providing food allergy school training, it is helpful to gauge an approach with advanced knowledge of such school characteristics. Pistiner and Lee described need for a school community of support for students with food allergies.⁶⁹ Their work addresses challenges and potential solutions for achieving this goal. For example, if individuals ignore food allergy policies, they suggest the following:

Table 7. Selected Web Resources on Bullying

Be A Pal Program: www.foodallergy.org/section/be-a-pal-program
Bullying & Food Allergies For Schools: www.allergyfreetable.com/bullying-food-allergies.php
Bullying and Youth with Disabilities & Special Health Needs: www.stopbullying.gov/at-risk/groups/special-needs/index.html
Bullying: It's Not OK by the American Academy of Pediatrics: www.healthychildren.org
Childhood Bullying by the American Academy of Family Physicians: www.aafp.org/afp/2004/1101/p1723.html
Misdirections in Bullying Prevention & Response Video: www.stopbullying.gov/videos/2012/08/misdirections.html
Teasing, Bullying and Harassment by FARE: http://www.foodallergy.org/tools-and-resources/emotional-and-social-issues/bullying?

Table 8. Selected Food Allergy Children's Books for Teachers and Caregivers

Allergic Child—Children's Books: by Nicole Smith (http://home.allergicchild.com/products)
One of the Gang: Nurturing the Souls of Children with Food Allergies, by Gina Clowes (www.amazon.com)
Starting School with a Food Allergy, by Christina Black (www.amazon.com)
Taking Food Allergies to School, by Ellen Weiner (www.childsworld.com)
The Bugabees: Friends with Food Allergies, by Amy Recob (http://thebugabees.com/index.html)
The No Biggie Bunch Everyday Cool with Food Allergies, by Michael Pistiner, MD (http://nobiggiebunch.com/launch.php)
The Princess and the Peanut: A Royally Allergic Tale, by Sue Ganz-Schmitt (www.royallyallergic.com)

- Being consistent with expectations
- Using federal, state, and local guidelines as basis for rationale of safe practice
- Enlisting assistance of administration and nursing leadership

Pistiner and Lee have developed extensive, free school food allergy training modules available at www.AllergyHome.org, which can be used in conjunction with federal, state, and/or local guidelines.⁷⁰

Conclusion

As diagnosis of food allergy increases with associated risk for anaphylaxis, and definitive cure remains elusive, it is obligatory that school communities are prepared to safely accommodate these students. It is also incumbent on health care professionals

to create progressive clinic models that provide comprehensive food allergy/anaphylaxis educational services. Collaboration of clinical nurse educators/case managers and school nurses can provide a rich source of pooled knowledge, expertise, resources, mentoring, and support. Sharing evidence-based strategies and best practices and keeping open lines of communication can increase potential for continuity of care between clinic and school. These children deserve such a unified approach to maximize their health and safety as they venture into elementary school and beyond.

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