

Preface

Food Allergy Guidelines and Beyond



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Guest Editor

Allergic reactions to milk were first described by Hippocrates more than two thousand years ago; however, it is only in the past two decades that food allergy has emerged as an important public health problem affecting people of all ages in societies with a western lifestyle, such as US, Canada, UK, Australia, and Western Europe.^{1,2} The overall prevalence of food allergy increased by 18% from 1997 to 2007 in US children. In particular, peanut allergy tripled over the similar period in the US, Canada, UK, and Australia. Eosinophilic esophagitis (EoE) epidemics have been recognized in children and adults in the past decade; diagnosis of food allergy in EoE is especially challenging due to the lack of a noninvasive diagnostic test.³ Food allergy is the most common cause of the anaphylaxis in the outpatient setting for all ages and may lead to fatalities.^{4–6} The diagnosis of food allergy requires labor-intensive, medically supervised oral food challenges that carry a risk for anaphylaxis and are not readily available to all patients.⁷ Finally, there is no cure for food allergy; management relies on food avoidance and timely treatment of acute reactions. Food avoidance is difficult to adhere to; it affects the quality of life and may result in nutritional deficiencies. The growing recognition of the burden of food allergies and challenges in diagnosis and management are driving multifaceted research approaches. This special issue of the *Immunology and Allergy Clinics of North America* gives an overview of the relevant recent advances in food allergy.

Diagnosis and management of food allergy can vary between clinical practice settings. To promote the best clinical practices, the National Institute of Allergy and Infectious Diseases (NIAID) sponsored clinical guidelines for the diagnosis and management of food allergy in the United States.⁸ An expert panel and coordinating committee representing 34 professional organizations, federal agencies, and patient advocacy groups developed the guidelines during a 2-year period. The 43 guidelines were based on an independent literature review and expert clinical opinion. The guidelines provide concise recommendations on how to diagnose and manage food allergy and treat acute food allergy reactions. They also identify gaps in the current scientific knowledge and

Table 1 Guidelines for the diagnosis and management of food allergy in the United States: Report of the NIAID-sponsored expert panel ⁸ : The key points ^a	
Definitions	Food allergy (FA) is an adverse health effect arising from a specific immune response. FA results in IgE-mediated, immediate reactions (anaphylaxis) as well as a variety of chronic diseases (eg, eosinophilic esophagitis, food protein-induced enterocolitis syndrome) in which IgE may not play an important role.
Epidemiology and Natural History	
Children	FA is more common in children than adults. Among the most common food allergies in children, milk, egg, wheat and soy allergies often resolve in childhood; peanut, tree nut, fish, and shellfish allergies can resolve, but are more likely to persist. Peanut allergy prevalence has increased during recent decades and now affects 1%–2% of young children.
Adults	Adult FA can reflect persistence of childhood allergies or de novo sensitization to food allergens encountered after childhood. FA that starts in adult life tends to persist. In adults, shellfish allergy (2.5%), fish allergy (0.5%), peanut (0.6%), and tree nut (0.5%) allergy are the most common. Adults and some children also experience “cross-reactivity” between certain aeroallergens and certain foods (oral allergy/pollen food allergy syndrome) detailed in the guidelines. Milk, egg, wheat, and soy allergies often resolve in childhood; peanut, tree nut, fish, and shellfish allergies can resolve, but more likely persist.
Comorbidities	FA may coexist with asthma, atopic dermatitis, eosinophilic esophagitis (EoE), and exercise-induced anaphylaxis. FA is associated with severe asthma, increased risk of severe exacerbations, and hospitalization. FA disrupts quality of life. FA is not a common trigger of eczema in adults. EoE is a chronic remitting/relapsing condition that is commonly associated with sensitization to foods. EoE involves localized eosinophilic inflammation of the esophagus. In some patients, avoidance of specific foods will result in normalization of histopathology. In children, EoE presents with feeding disorders, vomiting, reflux symptoms, and abdominal pain. In adolescents and adults, EoE most often presents with dysphagia and esophageal food impactions. One third of patients with <i>exercise-induced anaphylaxis</i> report reactions triggered by foods; exercise-induced anaphylaxis has a natural history marked by frequent recurrence of episodes.
Risk Factors for Severe Anaphylaxis	Fatal food allergic reactions are usually caused by <i>peanut, tree nuts, and seafood</i>, but have also occurred from milk, egg, seeds, and other foods. Fatalities have been associated with: age (teenagers and young adults), delayed treatment with epinephrine, and comorbid asthma. Severity of future allergic reactions is not accurately predicted by past history. There are no laboratory tests to predict severity of future reactions. Food taken on an empty stomach, exercise, alcohol, NSAIDs, and anti-acid agents may increase severity of an allergic reaction. Therapy with beta-blockers may decrease effectiveness of epinephrine in anaphylaxis.
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Table 1 (continued)	
Diagnosis	FA is suspected when typical symptoms (eg, urticaria, edema, wheezing, mouth itch, cough, nausea/vomiting, anaphylaxis, etc) occur within minutes to hours of food ingestion. A detailed history of the reaction to each incriminated food is essential for proper diagnosis. Children less than 5 years old with moderate to severe atopic dermatitis should be considered for FA evaluation for milk, egg, peanut, wheat, and soy, if one or more of the following conditions are present: Persistent AD despite optimized management and topical therapy, or Reliable history of an immediate reaction after ingestion of a specific food. A medically supervised food challenge is considered the most specific test for food allergy. Tests for food-specific IgE assist in diagnosis, but should not be relied on as a sole means to diagnose food allergy. The medical history and exam are recommended to aid in diagnosis. Limitations of food-specific IgE testing: Positive tests are not intrinsically diagnostic and reactions sometimes occur with negative tests. Testing "food panels" without considering history is often misleading. Several tests are <i>not recommended</i>, including food-IgG/IgG₄, total IgE, applied kinesiology, and electrodermal testing.
Prevention	The recommendations follow the 2008 AAP Clinical Report.¹⁰ Breastfeeding is encouraged for all infants; hydrolyzed infant formulas are suggested for infants "at risk,"^b and complementary foods, including potential allergens, are not restricted after 4–6 months of age (not applicable for infants experiencing allergic reactions). Maternal diet during pregnancy should be healthy and balanced; avoidance of potential food allergens is not recommended.
Management	
<i>Avoidance</i>	Education about food avoidance is critical to prevent reactions.
<i>Immunizations</i>	Patients with egg allergy can be immunized with influenza vaccines containing a low dose of egg protein. Yellow fever and rabies vaccines are contraindicated in persons with a history of urticaria, angioedema, asthma, or anaphylaxis to egg proteins. Allergy evaluation and testing can provide insight into the potential for risk to an individual.
<i>Anaphylaxis</i>	Management of anaphylaxis relies on prompt administration of epinephrine, observation for 4–6 hours or longer following treatment, education on avoidance, early recognition, treatment, medical identification jewelry, and follow-up with a primary health care provider and consideration for consultation with an allergist-immunologist. Prescription for epinephrine autoinjectors and patient education advice includes having two doses available, switching from 0.15 to 0.3 mg fixed-dose autoinjectors at approximately 25 kg (55 lbs) in context of patient-specific circumstances, having a written emergency plan, and providing supporting educational material.^{11,12}

^a The summary of the Food Allergy Guidelines has been discussed with the members of the Adverse Reactions to Foods Committee, American Academy of Allergy, Asthma & Immunology.

^b Infants at risk are defined as having one or more immediate family member (parent, sibling) with atopic disorder.

identify and provide guidance on points of current controversy in patient management (**Table 1**). Internationally, the World Allergy Organization (WAO) Special Committee on Food Allergy published WAO Diagnosis and Rationale for Action against Cow's Milk Allergy in 2008.⁹ Clinical practice guidelines on food allergy in children and young people were developed by the National Institute for Health and Clinical Excellence.

Table 2 Web-based resources for medical professionals and patients	
Guidelines	
Guidelines for the diagnosis and management of food allergy in the United States	www.niaid.nih.gov/topics/foodAllergy/
a. Complete report	
b. Summary	
c. Summary for the patients, families and caregivers	
National Institute for Health and Clinical Excellence (NICE), published Feb 2011:	http://guidance.nice.org.uk/CG116
Evidence-based clinical guideline on Diagnosis and assessment of food allergy in children and young people in primary care and community settings	
World Allergy Organization (WAO): Diagnosis and Rationale for Action against Cow's Milk Allergy (DRACMA), 2008	http://www.worldallergy.org/publications/WAO_DRACMA_guidelines.pdf
Education Materials	
Food Allergy Education Program on the Consortium for Food Allergy Research (CoFAR) website	https://web.emmes.com/study/cofar/EducationProgram.htm
Patient Organizations	
Food Allergy and Anaphylaxis Network (FAAN)	http://www.foodallergy.org/
Food Allergy Initiative (FAI)	http://www.faiusa.org/
Kids With Food Allergies (KFA)	www.kidswithfoodallergies.org/

These guidelines are intended for use predominantly in primary care within the National Health Service and community settings in England, Wales, and Northern Ireland. The European Academy of Allergy and Clinical Immunology has created a task force that is currently developing guidelines for the diagnosis and management of food allergy that will be complementary with the NIAID US Food Allergy Guidelines. The NIAID Food Allergy Guidelines are available online (<http://www.niaid.nih.gov/topics/foodallergy/>) in a full format, as an executive summary, and a lay-language summary for patients, families, and caregivers. Additional web-based resources are listed in **Table 2**.

The articles in this issue of *Clinics* address many important problem areas identified by the Food Allergy Guidelines and show new horizons in food allergy research. Food allergy is a rapidly developing field of allergy and immunology that is approaching a critical mass necessary for the major breakthrough: finding the cure.

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