

November 2016

## Finding a Path to Safety in Food Allergy

### Assessment of the Global Burden, Causes, Prevention, Management, and Public Policy

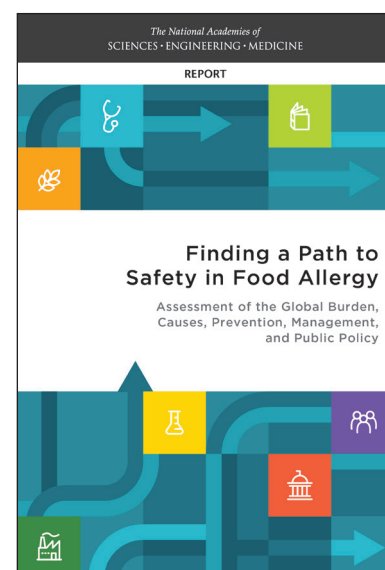
Food allergy—an adverse health effect arising from a specific immune response that occurs, reproducibly, on exposure to a given food—can affect people’s lives in a number of ways, impacting routine life activities and sometimes diminishing social interactions and potentially causing severe health effects. Food allergies typically develop within the first year of life, but they can also develop later. The eight food groups considered to be major allergens are milk, egg, peanut, tree nuts, wheat, soy, fish, and crustacean shellfish.

Although much is known about this complex disease, many fundamental questions remain, and recommendations by public health authorities may be limited by scarce or inconsistent research findings. Furthermore, no approved treatments currently exist for people with food allergies, so patients are advised to avoid the allergen, which can be difficult given cross-contamination concerns, confusing food allergen ingredient labels, and lack of knowledge in the community about food allergies as a whole.

The National Academies of Sciences, Engineering, and Medicine convened an expert, ad hoc committee to examine critical issues related to food allergy. The resulting report, *Finding a Path to Safety in Food Allergy*, collects and evaluates the scientific evidence on the prevalence, origins, diagnosis, prevention, and management of food allergy and makes recommendations to policy makers, industry leaders, and others to bring about a safe environment for those with food allergy.

#### THE ROADMAP TO FOOD SAFETY

In general, the committee supports current guidelines and U.S. practice parameters for food allergy management, and many of the committee’s recommendations emphasize those areas where improvements would lead to significant changes in the quality of life of patients and their caregivers, such as in education and training. A concerted effort by a variety of stakeholders is needed to maximize safety and increase research activities related to food allergy in a variety of settings—including the health care system, food establishments, and schools and higher education institutions—that vary in policies and practice.



**A concerted effort by a variety of stakeholders is needed to maximize safety and increase research activities related to food allergy in a variety of settings that vary in policies and practice.**

The committee created a multifaceted roadmap (see figure) to greater public safety that lays out the roles of many stakeholders working to: 1) obtain accurate prevalence estimates, 2) use proper diagnostic methods and provide evidence-based health care, 3) identify evidence-based prevention approaches, 4) improve education and training, 5) implement improved policies and practices to prevent the occurrence of severe reactions, and 6) expand research programs.

### The need for accurate prevalence estimates

Although many health care experts who care for patients agree that a real increase in food allergy has occurred, no U.S. study has been conducted in a systematic manner, with sufficient sample size, and in various populations to determine the true prevalence of food allergy. To prioritize food allergy as a public health concern and ensure that enough resources are directed at the issue, the committee recommends that the Centers for Disease Control and Prevention (CDC) obtain prevalence estimates in a systematic and statistically sound manner, as outlined in the report.

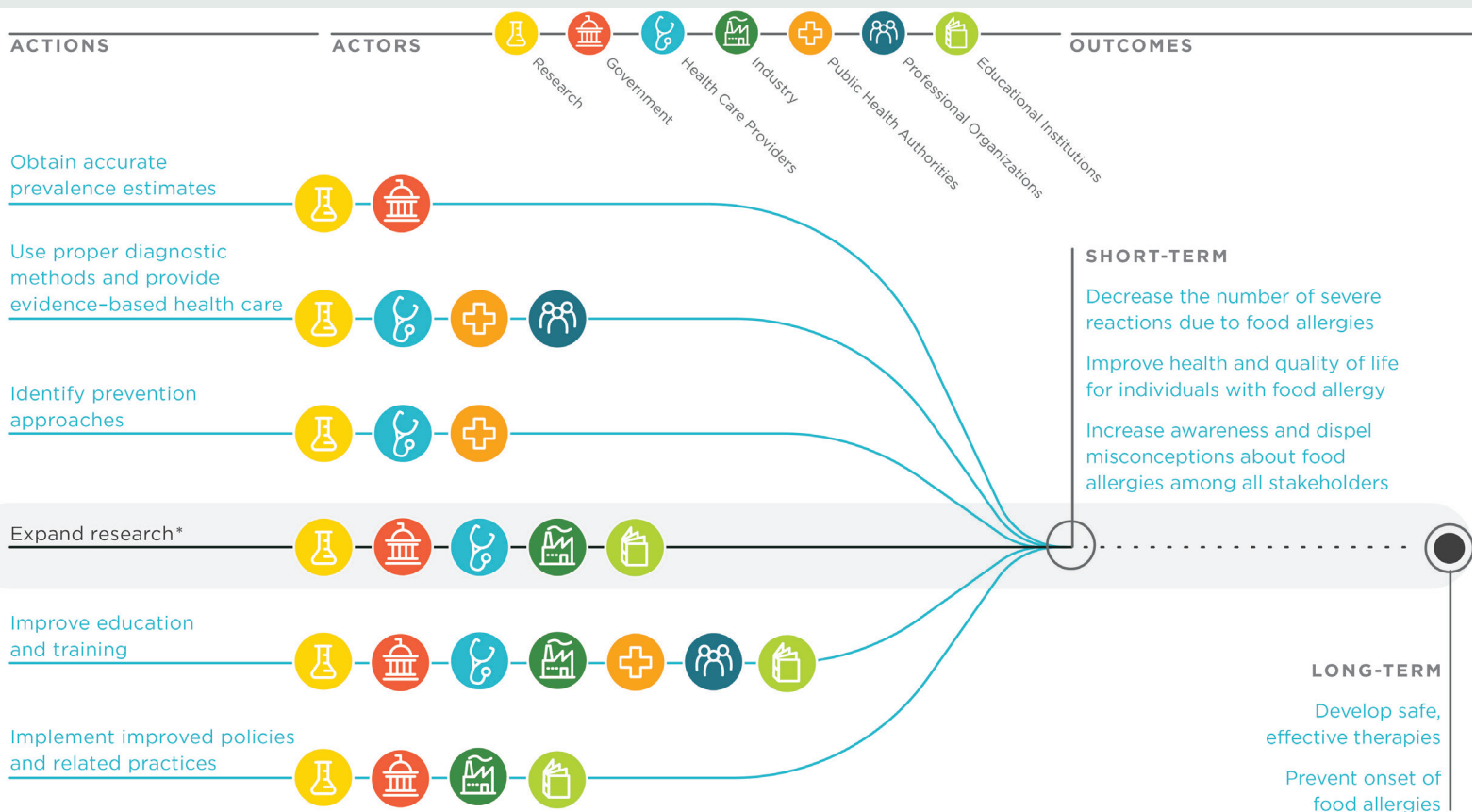
### Evidence-based approaches to diagnosis and prevention

No simple diagnostic tests exist for food allergy. Diagnosis currently requires expertise in assessing the medical history and interpreting imperfect tests, and possibly conducting a medically supervised oral food challenge. Though oral food challenge is the current gold standard for diagnosis, it carries risks and expense and is underused. Other tests, like the skin prick test, may suggest the likelihood of food allergy but may require other testing for confirmation.

The committee recommends that physicians use evidence-based, standardized procedures as the basis for food allergy diagnosis. It is important that diagnosis be accurate, and so referral to a physician specialist who can diagnose, comprehensively evaluate, and manage the food allergy is appropriate when a food allergy is suspected.

In terms of prevention, many factors have been postulated as contributing to the onset of food allergy, but strong evidence is lacking. Public health authorities should provide families

**FIGURE: ROADMAP TO FOOD ALLERGY SAFETY IN SIX ACTIONS**



**Research is needed to achieve all other actions and to reach the short- and long-term goals. The actors represent the primary stakeholders that will be involved in implementing the actions.**

**The committee envisions that this report will reach many stakeholders—consumers, patients, health care providers, school leaders, food manufacturers, and food establishment managers—and serve as guidance for future understanding and management of food allergies.**

and health care providers with consistent, clear, and evidence-based advice about the benefits of introducing allergenic foods in the first year of life to infants when a child is developmentally ready: around 6 months of age, and not before 4 months.

### **Education and training**

Misconceptions—some of which are potentially dangerous—about the identification, prevention, and management of food allergies persist among doctors, patients with allergies, and the general public. The committee made several recommendations in the area of education and training. For example, the committee recommends that CDC spearhead a public health campaign for the general public to increase awareness and dispel misconceptions about food allergy.

Training-related efforts can be carried out by multiple stakeholders. Because food anaphylaxis can occur anywhere and proper emergency management can save lives, organizations that provide emergency training to the public and to first responders should include response to food allergy in their curricula. Likewise, food industry leaders should provide resources to integrate food allergy training into food service and customer service training. Medical schools and other relevant schools and programs should provide training to health care providers in management of food allergy, as well as in how to counsel patients on food allergy. Providers should urge patients to use the most recent guidelines and should emphasize the need for patients to take age-appropriate responsibility for managing food allergy.

### **Policies and practices to prevent severe reactions**

The list of major allergens to be labeled on food packages, which has been adopted by many countries, has not been reviewed since it was developed by the Codex Alimentarius Commission (CAC) in 1999. Also, some U.S. labeling policies are not effective in informing consumers about the risks from food allergens. Precautionary allergen labels (PALs)—with wording such as “X may be present”—can warn about the

presence of unintentional allergens, but currently, PALs bear no relationship to actual risk.

Scientific evidence—of regional prevalence, severity of food allergy, and allergen potency—and risk assessment principles should underlie the efforts of public health authorities, including the Food and Drug Administration (FDA), to regularly update priority lists and replace PAL with a new, risk-based labeling approach. The FDA also should work with other relevant agencies to develop and implement labeling policies specific to prepared and packaged foods that are distributed through venues like airlines and schools.

Federal agencies, including the FDA and CDC, should convene a special task force to establish policy guidelines to standardize food allergy and anaphylaxis first aid training and response capabilities for staff working in public venues such as schools and airlines.

### **CONCLUSION**

Beyond identifying these and other actions to improve the food allergy safety landscape, the committee pinpointed many areas in need of more research, including better understanding of the underlying biology, better diagnostic tools, effective educational approaches, evidence-based guidelines for all stakeholders, and prospective and clinical trials to support or refute current hypotheses on the development of food allergies. While the committee did not review emerging therapeutic approaches to cure food allergies, it did identify the development of effective and safe therapies as a key long-term goal.

The committee envisions that this report will reach many stakeholders—consumers, patients, health care providers, school leaders, food manufacturers, and food establishment managers—and serve as guidance for future understanding and management of food allergies.

**To read the full report, please visit [nationalacademies.org/FoodAllergies](https://www.nationalacademies.org/FoodAllergies).**

## Committee on Food Allergies: Global Burden, Causes, Treatment, Prevention, and Public Policy

---

### Virginia A. Stallings(Chair)

The Children's Hospital of Philadelphia

### Katrina Allen

Murdoch Children's Research Institute

### A. Wesley Burks

University of North Carolina School Of Medicine

### Nancy R. Cook

Harvard Medical School

### Sharon M. Donovan

University of Illinois Urbana-Champaign

### Stephen J. Galli

Stanford University School of Medicine

### Bernard Guyer

Johns Hopkins University

### Gideon Lack

King's College London Guy's & St. Thomas' NHS Foundation Trust

### Ann S. Masten

University of Minnesota, Minneapolis

### Jose M. Ordovas

Tufts University

### Hugh A. Sampson

Icahn School of Medicine at Mount Sinai

### Scott H. Sicherer

Icahn School of Medicine at Mount Sinai

### Anna Maria Siega-Riz

University of Virginia School of Medicine

### Stephen L. Taylor

University of Nebraska-Lincoln

### Xiaobin Wang

Johns Hopkins University Bloomberg School of Public Health

## Study Sponsors

---

### Federal Sponsors

Food and Drug Administration

Food and Nutrition Service of the U.S. Department of Agriculture

National Institute of Allergy and Infectious Diseases

### Nonfederal Sponsors

Asthma and Allergy Foundation of America

Egg Nutrition Center

Food Allergy Research & Education

International Life Sciences Institute North America

International Tree Nut Council Nutrition Research & Education Foundation

National Dairy Council

National Peanut Board

Seafood Industry Research Fund

## Study Staff

---

### Maria Oria

Study Director

### Alice Vorosmarti

Research Associate

### Anna Bury

Research Assistant (through April 2016)

### Kyra Cappelucci

Senior Program Assistant (through March 2016)

### Noa Nir

Senior Program Assistant (from March 2016)

### Ann Yaktine

Board Director, Food and Nutrition Board

### Kimber Bogard

Board Director (through July 2015), Board on Children, Youth, and Families

### Natacha Blain

Board Director (from November 2015), Board on Children, Youth, and Families

## Health and Medicine Division

*The National Academies of*  
SCIENCES • ENGINEERING • MEDICINE

The nation turns to the National Academies of Sciences, Engineering, and Medicine for independent, objective advice on issues that affect people's lives worldwide.

[www.national-academies.org](http://www.national-academies.org)