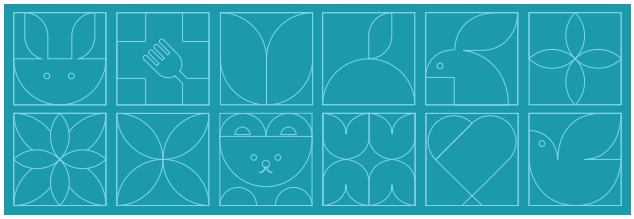
NATIONAL INDICATOR REPORT ON FOOD ALLERGY: EXECUTIVE SUMMARY



The *National Indicator Report on Food Allergy* synthesizes the most current epidemiologic, clinical, and health systems–level data on food allergy in the United States (U.S.), with the goal of informing the public, clinicians, researchers, policymakers, and other stakeholders about the burden, prevention, and evolving management of this severe and chronic disease of the immune system, which can cause life-threatening anaphylaxis.

Prevalence of Food Allergy in the United States

Food allergy affects millions of individuals in the U.S. and represents a substantial and evolving public health burden. Understanding how common food allergy is—and how prevalence varies by age, allergen type, and population subgroup—is essential for interpreting trends over time, identifying disparities, and informing health care planning and policy. Population-based data points illustrate both the scale of food allergy in the U.S. and the methodological challenges inherent in measuring its true burden.

- Overall, an estimated **1 in 13 children (7.6%)** and **1 in 10 adults (10.8%)** have at least one current IgE-mediated food allergy, equating to **33 million people in the U.S.** with convincing food allergy.[1,2]

Table 1. Food allergy prevalence (95% CI) by three case definitions in a 2015–2016 cross-sectional survey of the U.S. population.[1,2]

Food allergy definition	Food allergy in children (n = 38,408)	Food allergy in adults (n = 40,443)
Self- or caregiver-reported	**11.4%** (10.8%-12.0%)	**19.8%** (18.5%-19.5%)
Convincing food allergy[a]	**7.6%** (7.1%-8.1%)	**10.8%** (10.4%-11.1%)
Clinician-diagnosed, convincing food allergy	**4.7%** (4.3%-5.0%)	**5.1%** (4.9%-5.4%)

CI, confidence interval.
[a] Considered the best estimate of the true burden of food allergy in the general U.S. population.

- Researchers estimated prevalence of convincing food allergy to each of the **top nine food allergens** among children and adults.[1.2]

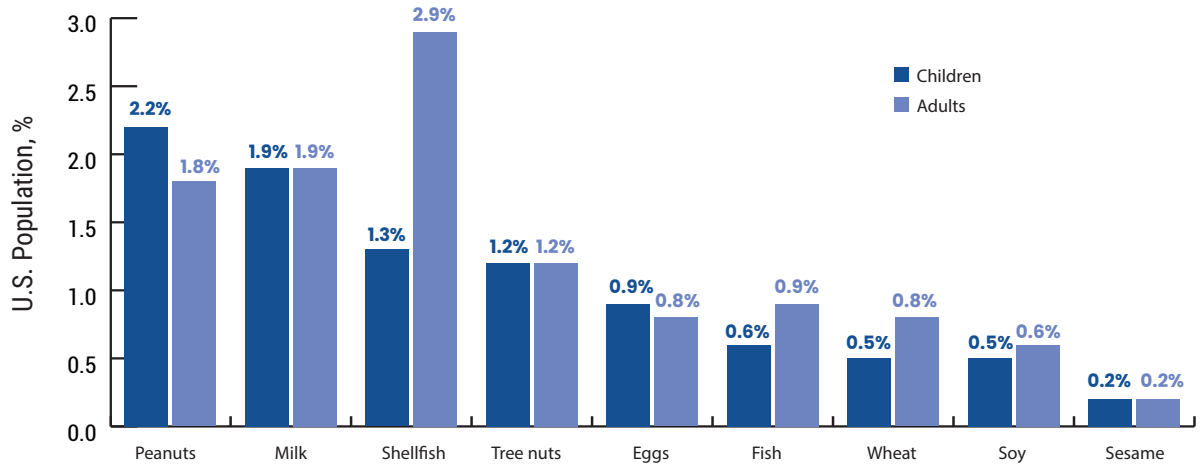


Figure 1. Prevalence of convincing food allergy, by allergen type, in a 2015–2016 cross-sectional survey of the U.S. population.[1,2]

- Given the socioeconomic, environmental, and cultural factors that likely play a role in the development of food allergy, it is unsurprising that surveys have also revealed differences in types and prevalence of food allergy by race and ethnicity.[3]

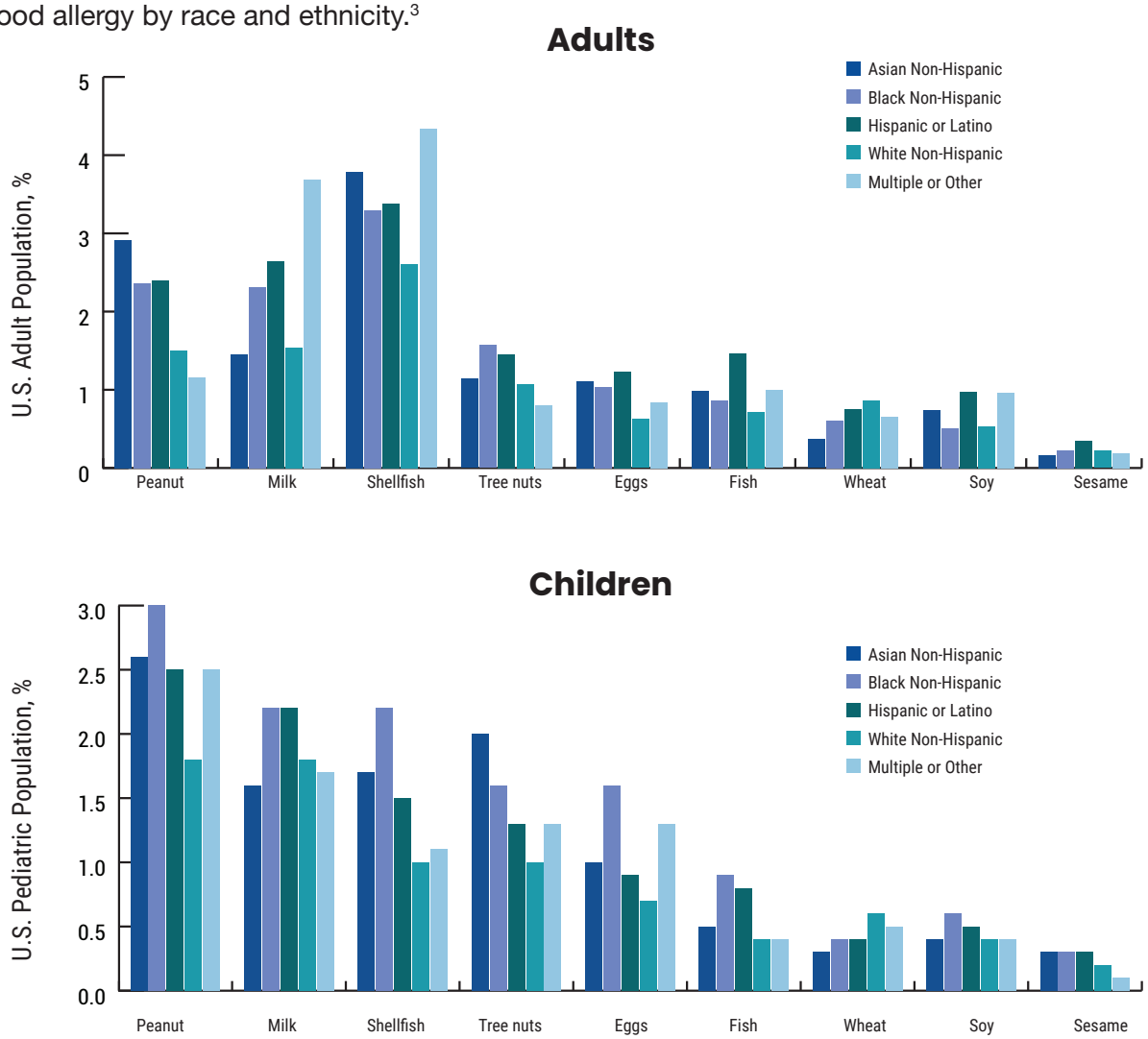


Figure 2. Prevalence of convincing food allergy, by allergen and by race and ethnicity, in a 2015–2016 cross-sectional survey of the U.S. pediatric and adult populations.[4]

[a] When noted as "shellfish," data include both crustaceans and mollusks.

Adult-Onset Food Allergy

- Although food allergy often begins in childhood, more and more U.S. adults are developing new food allergy later in life. Among the **27+ million U.S. adults** with food allergy, nearly **half** (about **13.5 million people**) developed at least one food allergy during adulthood, and **21%** (about **5.7 million people**) say that all of their food allergies began after age 18 years.[2]
- Shellfish and wheat are the most commonly reported allergens in adult-onset food allergy; however, adult-onset food allergy can occur with any allergen.

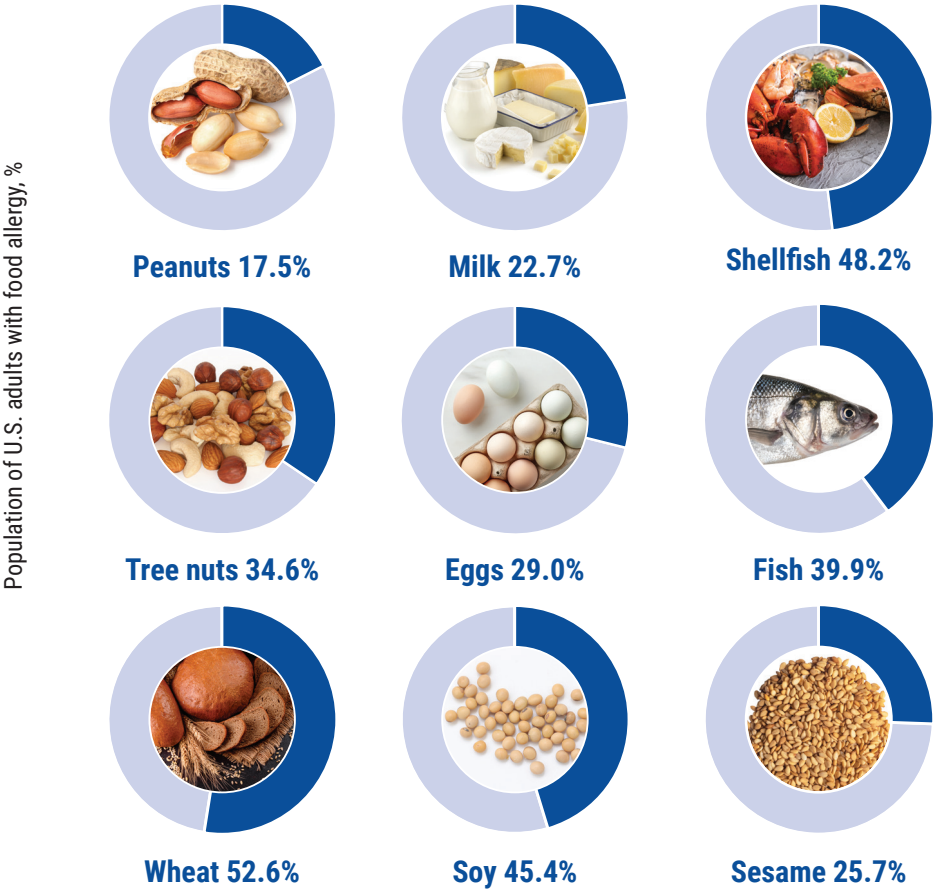


Figure 3. Prevalence of adult-onset food allergy among adults with convincing food allergy, by allergen type, in a 2015–2016 cross-sectional survey of the U.S. population.[2]

Burden of Food Allergy

Food allergy imposes a substantial burden that extends beyond prevalence alone, affecting health care utilization, quality of life, and economic productivity across the lifespan. The impact of food allergy reflects not only the risk of acute reactions and anaphylaxis, but also the cumulative effects of ongoing avoidance, emergency preparedness, psychosocial stress, and disparities in access to care. Population-based studies and real-world data illustrate how disease severity, number of food allergies, and comorbid conditions contribute to wide variation in individual and societal burden.

- Over the past several decades, rates of **food-induced anaphylaxis** and related **healthcare use** have steadily increased.

Economic Burden

- A 2013 study estimated that childhood food allergy alone costs families and society $24.8 billion per year, or about $4,184 per child.[4]
- A more recent study estimated the societal costs of food allergy in the U.S. to be **$370.8 billion;** 15 times greater than the $24.8 billion estimate for children reported by the same author over a decade ago, with an annual cost per patient of about **$22,000.**[5]

Psychosocial Burden

- Data from the FARE Patient Registry indicate that **62% of patients** reported food allergy–related mental health concerns, with **anxiety (54%)** and **panic (32%)** being the most commonly reported emotions following accidental allergen exposure.[6]
- Despite high levels of food allergy–related distress, an international survey showed that only **35% of adult patients, 54% of pediatric patients,** and **27% of caregivers** had ever consulted a mental health professional for food allergy–related distress.[7]

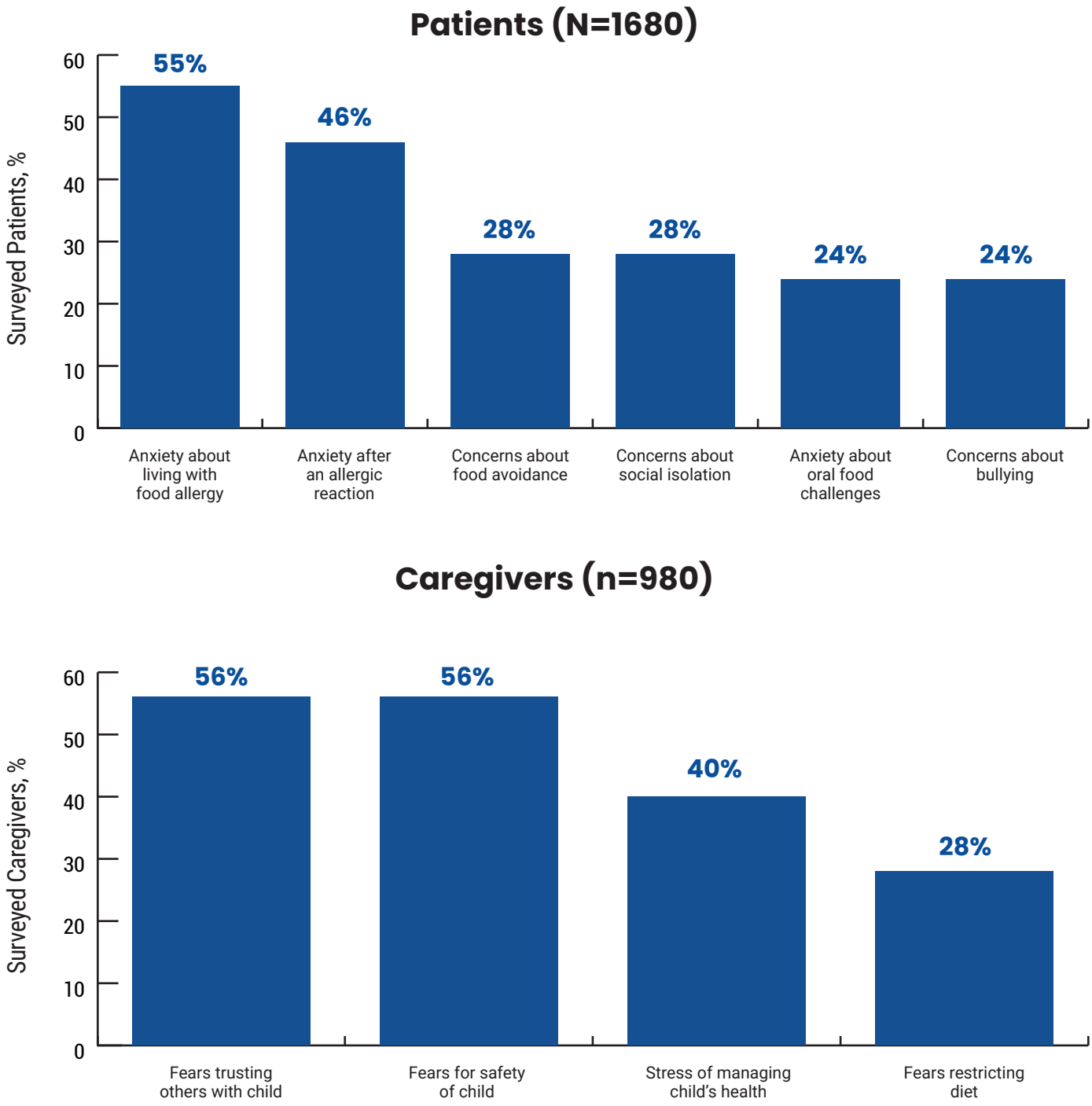


Figure 4. Food allergy–related mental health concerns among patients with food allergy and their caregivers.[7]

Allergic Comorbidities

Many people with food allergy also have related issues like eczema, asthma, or seasonal allergies. One way to understand this pattern is through a concept known as the "allergic march" or "atopic march."

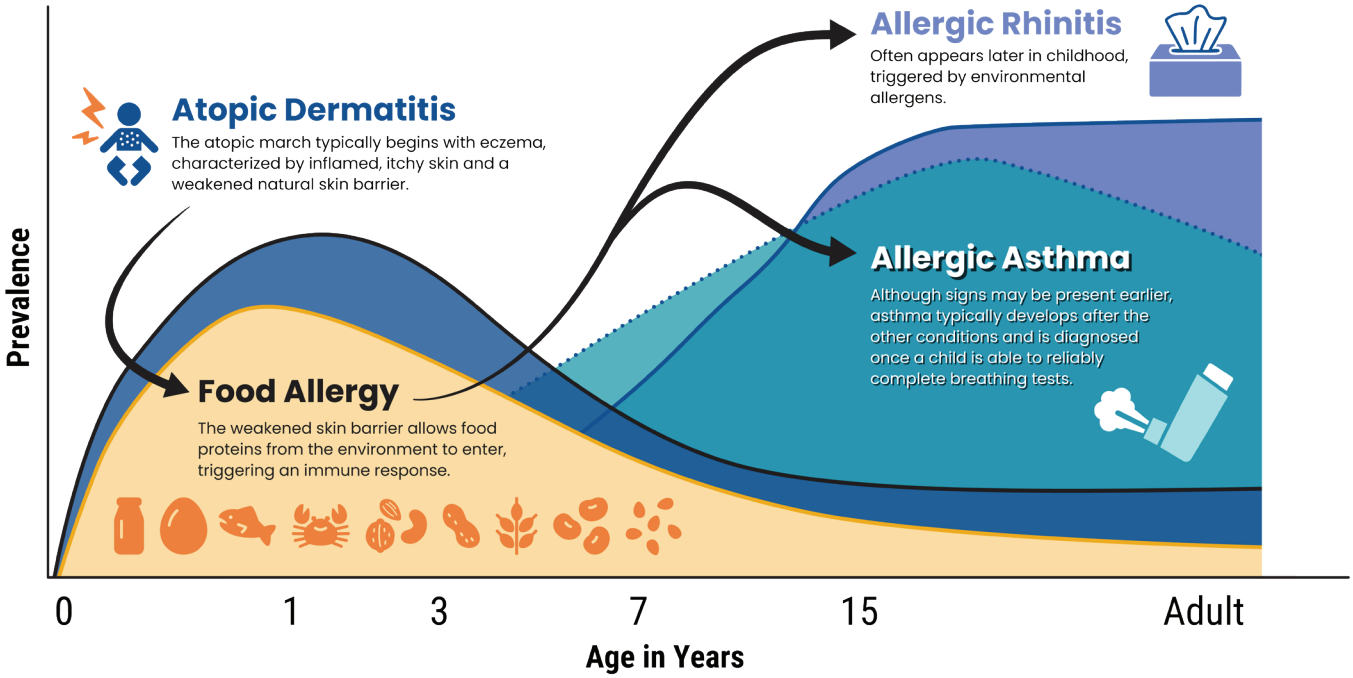


Figure 5. Schematic of the atopic or allergic march.

- Data from the FARE Patient Registry showed that, among individuals with food allergy, **39% had allergic rhinitis**, **46% had asthma**, and **48% had atopic dermatitis**.[7]
- In a 2015–2016 national survey, the presence of comorbid asthma increased the odds of severe food allergy by **40%,** and allergic rhinitis increased the odds by **30%,** reinforcing the relationship between comorbidity burden and reaction severity.[2]

Anaphylaxis and Fatalities

- Fatalities from food allergy are uncommon, with an annual incidence of around **one in 1 million**.[8]
- While overall rates of fatal food-induced anaphylaxis in the U.S. remained relatively stable from 1999 to 2010, national data show that mortality increased more than **threefold among African American males** during that time.[9]

Diagnosis and Management of Food Allergy

Accurate diagnosis and effective management of food allergy are central to reducing morbidity, preventing severe reactions, and improving quality of life. However, real-world data highlight persistent challenges related to diagnostic uncertainty, limited access to specialty care, underuse of evidence-based management strategies, and uneven adoption of emerging therapies. Understanding how food allergy is currently diagnosed and managed—and where gaps remain—is essential for improving outcomes across diverse patient populations.

Access to Allergy Care

- Conservative estimates from the Association of American Medical Colleges suggest that, in 2023, there were **5,219 practicing allergists** in the U.S., equating to roughly **1.6 allergists per 100,000 people**.[10, 11]
- A 2019 study using data from **3,527 physician members** of the American Academy of Allergy, Asthma & Immunology (AAAAI) found that **81.5% of U.S. counties** had no allergists at all.[12]
- A recent national study found that only **55.5% of U.S. allergists** accept Medicaid, with significant variation across states—from just **13% in New York** to **90% in New Mexico**.[13]

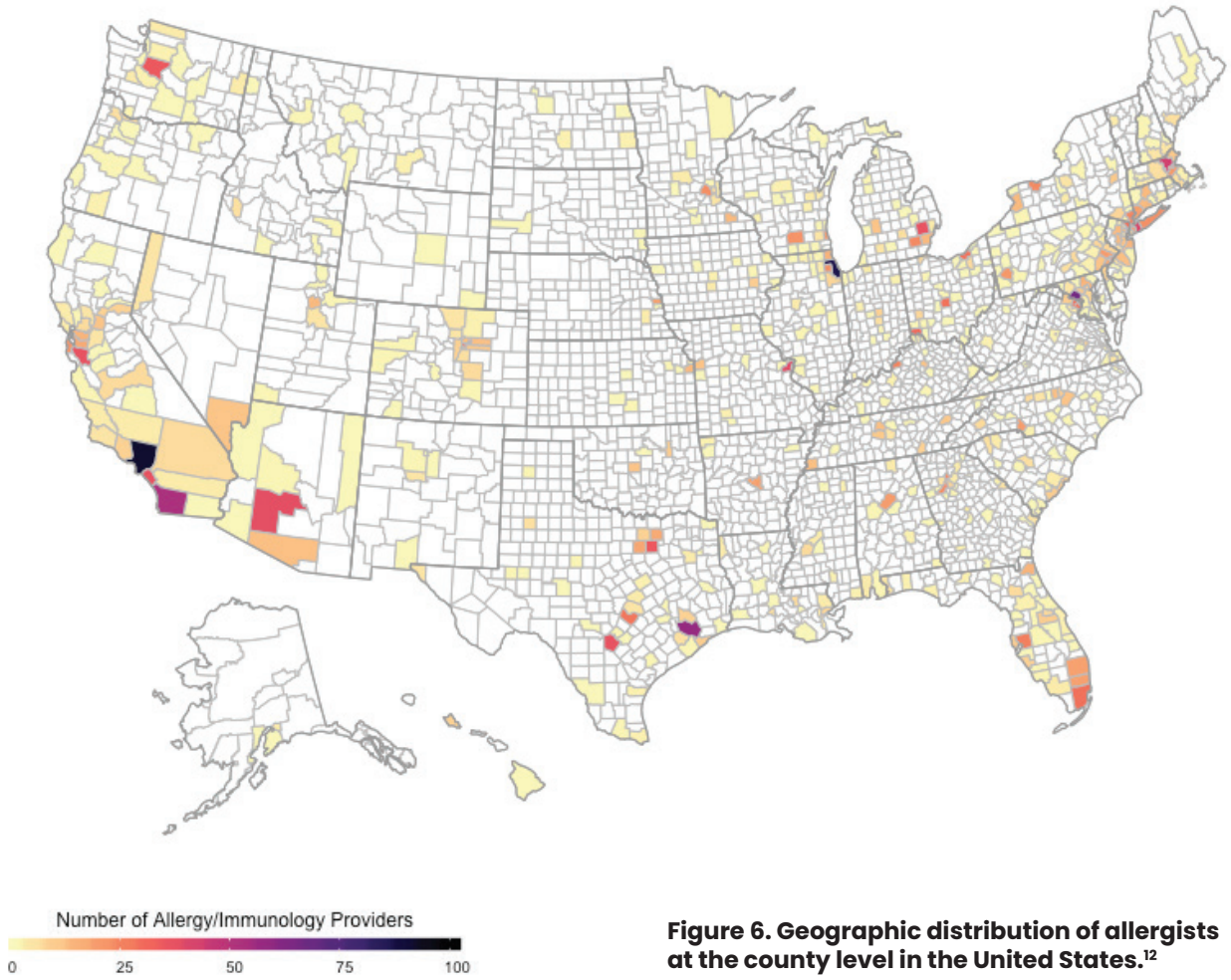


Figure 6. Geographic distribution of allergists at the county level in the United States.[12]

Diagnosing Food Allergy

Accurate diagnosis and effective management of food allergy are central to reducing morbidity, preventing severe reactions, and improving quality of life. Understanding how food allergy is currently diagnosed and managed—and where gaps remain—is essential for improving outcomes across diverse patient populations.

- Although **oral food challenge (OFC)** is the diagnostic gold standard, its use in real-world practice is limited: **90% to 95% of U.S. allergists** report offering OFCs, most use them in only a minority of patients due to logistical constraints such as time, staffing, space, and patient anxiety.[14,15]
- Patient and caregiver fear of triggering reactions during OFCs remains a significant barrier; however, evidence indicates that severe reactions during supervised challenges are uncommon.[16]

Novel Food Allergy Diagnostics

- Limitations of conventional testing have driven development of novel diagnostic tools, including **basophil activation tests (BAT)** and **mast cell activation tests (MAT)**, which aim to determine a person's food allergy status by drawing their blood and exposing their blood to food allergens in the safety of a test tube (instead of forcing them to eat the food, as in an OFC).[17]
- Bead-based epitope assays are also under investigation, offering the potential to identify immune responses to specific allergenic protein components associated with reaction severity and likelihood of tolerance, again, using the patient's drawn blood in a laboratory setting—not by exposing them directly to the allergenic food.
- These emerging diagnostics may improve risk stratification, reduce reliance on OFCs, and provide additional information beyond binary allergic or non-allergic classification, though they are not yet widely available in clinical practice.

Allergen Thresholds

- Individuals with food allergy vary in the amount of allergen required to trigger symptoms, known as the **threshold dose**, which can be quantified through OFCs and summarized at the population level as **eliciting doses (ED values).**
- Population-level analyses estimate that **95% of peanut-allergic individuals** tolerate at least **2 mg of peanut protein (ED05),** and **50%** tolerate up to **165 mg (ED50)** without symptoms, illustrating wide variability in reactivity thresholds from patient-to-patient.[18]
- Thresholds can be temporarily lowered by cofactors, such as illness, exercise, alcohol use, NSAID exposure, stress, or menstruation, complicating real-world risk assessment.
- Understanding threshold concepts has informed discussions around standardizing precautionary allergen labeling, with some experts proposing ED05-based thresholds to better align labeling with actual risk.[19]

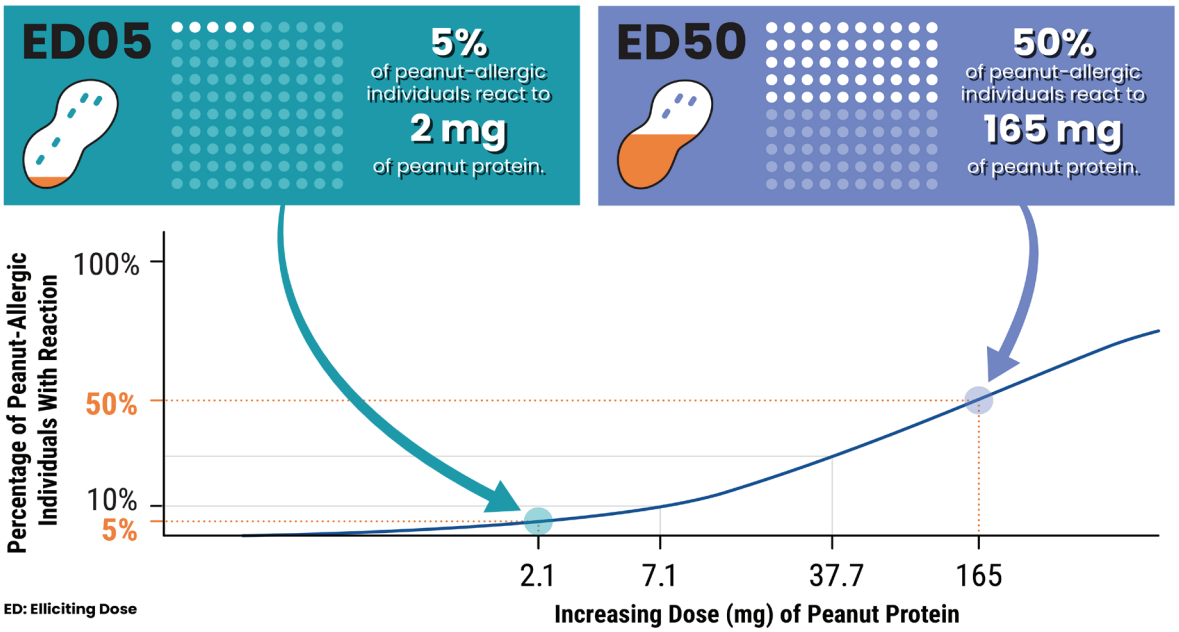


Figure 7. Eliciting dose of peanut protein in a population of peanut-allergic patients based on values from oral food challenges.[18]

ED05, eliciting dose for 5% of a population; ED50, eliciting dose for 50% of a population.

Food Allergy Reaction Management

- **Epinephrine** is the only first-line treatment for **anaphylaxis,** a severe and potentially life-threatening allergic reaction.
- In a 2015–2016 cross-sectional survey of individuals with convincing food allergy, only **24.0% of adults** and **40.7% of children** reported having a current epinephrine prescription.[1,2]
- Although most patients with food allergy and caregivers of children with food allergy who were prescribed epinephrine filled that prescription, about **1 in 10** did not.[19] The most commonly cited reasons for not filling epinephrine prescriptions were **not having a history of reactions (26%), cost (25%),** and **not believing it was needed (23%).**
- In a 2018 survey of **450 adults with food allergy** and **467 caregivers of children with food allergy**, epinephrine carriage and use patterns were evaluated.[20] **Less than 50% of patients** carried an epinephrine autoinjector all of the time, and **only 25%** carried multiple epinephrine devices.
- In addition to traditional autoinjectors, **needle-free intranasal epinephrine** (neffy®) has recently become available, offering an alternative administration route with comparable absorption and potential advantages related to ease of use and acceptability.[21,22]
- Concerns about needle fear, portability, and delayed administration have been cited as reasons for epinephrine underuse, suggesting that alternative delivery formats may improve preparedness.
- Policies supporting **stock (undesignated) epinephrine** have expanded substantially: as of 2025, all U.S. states except Hawaii allow stock epinephrine in schools, and **36 states** permit stocking in other public venues through "entity laws."[23,24]

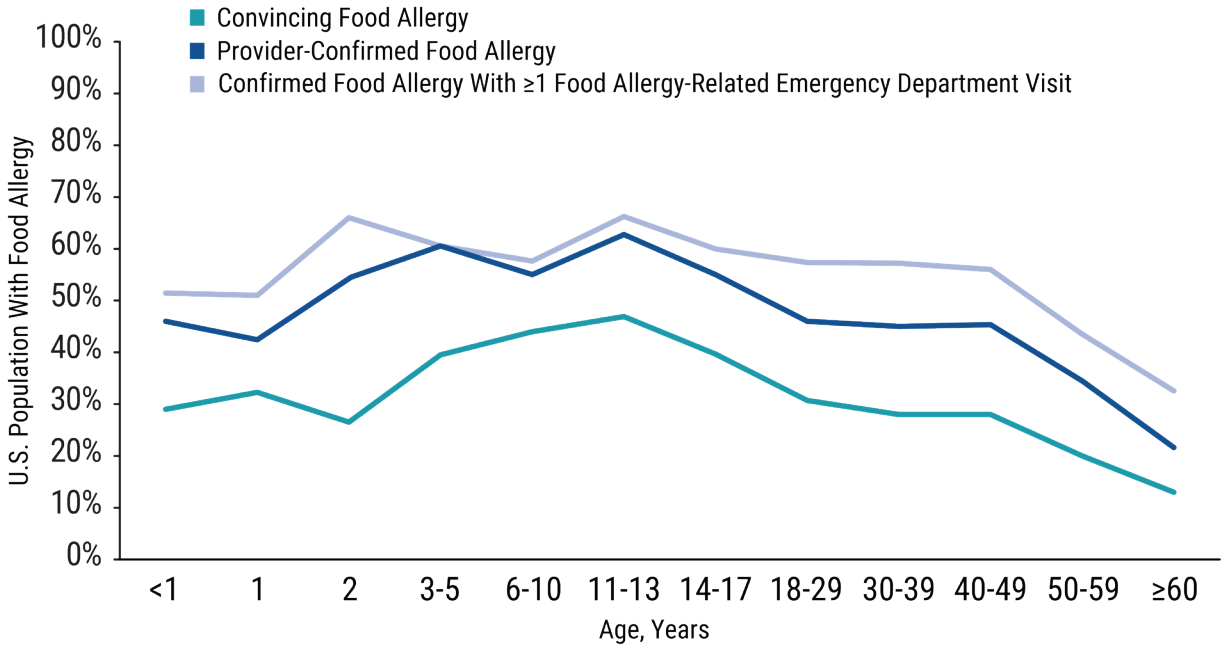


Figure 8. Current epinephrine prescription among patients with food allergy, by age, provider diagnosis, and history of food allergy–related emergency department visit.[1,2]

Therapies for Management of Food Allergy

- **Oral immunotherapy (OIT)** is the most established approach to treating food allergy, with evidence showing that **60% to 80% of patients with peanut, egg, or milk allergy** can achieve meaningful desensitization, reducing risk from accidental exposure.[25-27]

- However, in a 2019 national survey of 781 adult patients and caregivers, **72% of respondents** were unfamiliar with OIT, with less familiarity among people with lower educational attainment or income levels.[28]

- **Omalizumab** (Xolair®) was approved in 2024 for preventing severe allergic reactions in patients at least 1 year of age with food allergy, offering the first non–allergen-specific option that can be used across multiple food allergies to reduce reaction risk from accidental exposures.[29]

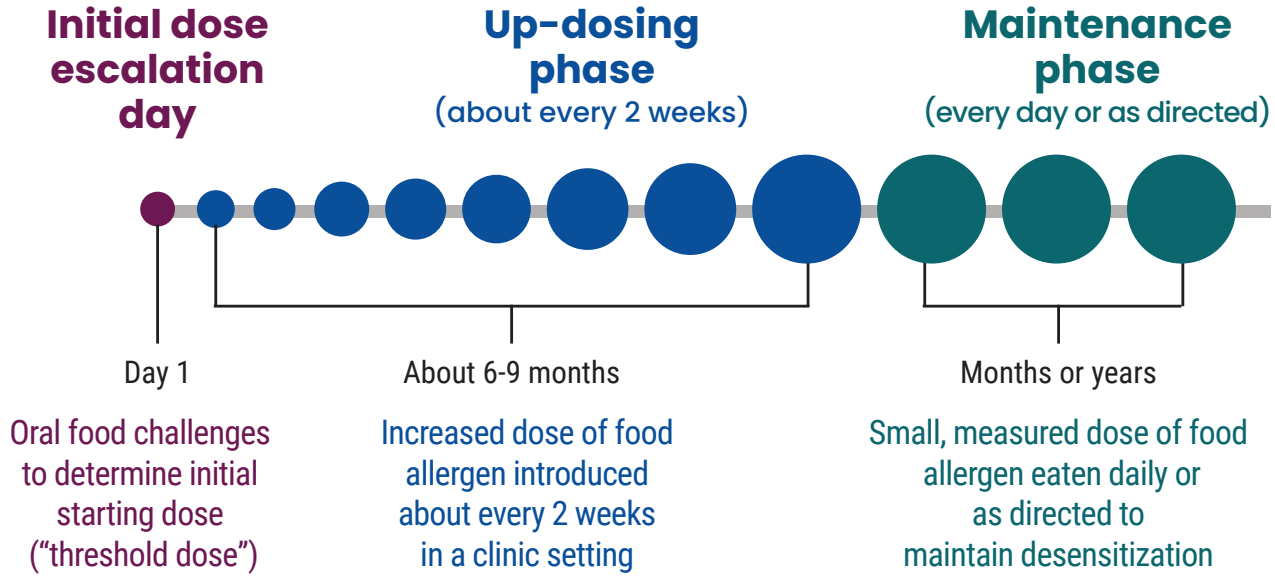


Figure 9. Oral immunotherapy process for patients with food allergy.

Food Allergy Prevention

Advances in understanding the ways in which immune sensitization in early life can lead to food allergy have changed prevention strategies over the past two decades. Evidence now indicates that early and sustained introduction of common food allergens during infancy can significantly reduce the risk of developing food allergy, particularly among high-risk children. Despite strong supporting data and national guidelines, real-world adoption of prevention recommendations remains uneven, contributing to persistent disparities in food allergy incidence.

- Based on evidence from large randomized controlled trials, current recommendations from leading allergy organizations advise introducing and continuing to feed foods containing common allergens such as peanut and egg, starting around 4 to 6 months of age, ideally while the infant is still breastfeeding—a strategy often summarized as "**eat early, eat often.**"[30,31]

- However, real-world adoption of these guidelines remains limited: a 2021 nationwide survey of caregivers of **infants aged 7 to 42 months** found that **fewer than 20% of infants** had consumed peanut-containing foods by 6 months of age, and **fewer than 60%** had consumed peanut protein at any point during the first year of life.[32]

- Racial, ethnic, and socioeconomic disparities in early introduction practices were evident: non-Hispanic White caregivers were more likely to introduce peanut protein during infancy and to perceive early introduction as safe and effective compared with non-Hispanic Black caregivers.[33]
- Nonetheless, emerging real-world evidence supports the population-level impact of early introduction guideline adoption: an analysis of electronic health record data from a multi-state pediatric cohort found a **43% reduction in peanut allergy incidence** and a **29% reduction in any IgE-mediated food allergy** in the post–guideline era (2017–2019) compared with the pre-guideline era (2012–2014).[34]

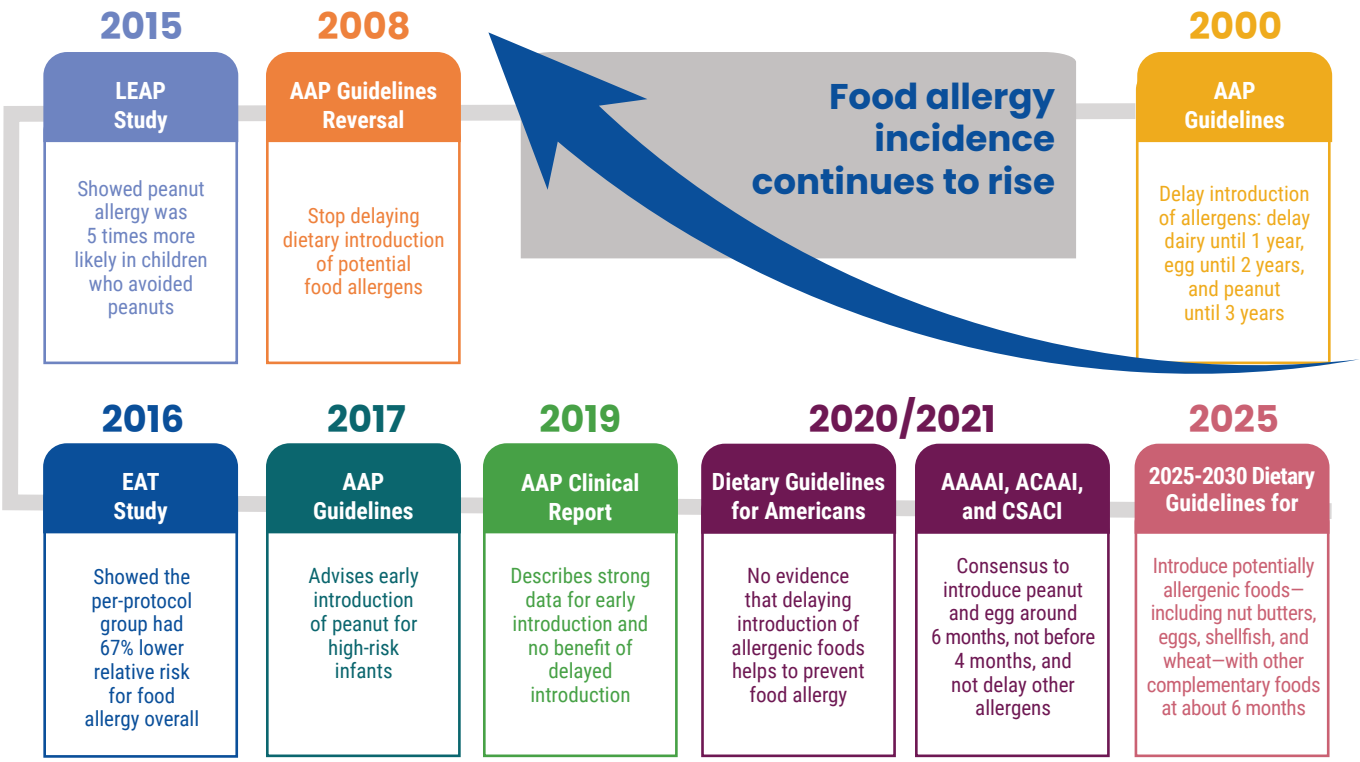


Figure 10. Timeline of "early introduction" guidance and studies for food allergy prevention.

AAAAI, American Academy of Allergy, Asthma & Immunology; AAP, American Academy of Pediatrics; ACAAI, American College of Allergy, Asthma and Immunology; CSACI, Canadian Society of Allergy and Clinical Immunology.

Selected Food Allergy Syndromes

In addition to classic IgE-mediated food allergy, several distinct food allergy–related syndromes present with unique triggers, symptom patterns, diagnostic challenges, and management considerations. These conditions may be less common, but they are nonetheless clinically important, as they are frequently underrecognized and may not follow typical timelines or mechanisms of immediate food allergy reactions. Awareness of these syndromes supports timely diagnosis and appropriate counseling.

Alpha-gal Syndrome

- **Alpha-gal syndrome** is an Ig-E mediated food allergy which marks a growing public health concern in the United States.
- Patients with alpha-gal syndrome have immune reactions to a sugar molecule called *galactose-α-1,3-galactose* ("alpha-gal"). It is initially caused by being bit by specific ticks that sensitize to alpha-gal.
- The alpha-gal molecule is found in mammalian meats such as beef, pork, and lamb, as well as their derivatives (e.g. milk, cheese, gelatin).

- From 2017 to 2022, between **90,018 and 450,000 estimated cases** of alpha-gal syndrome were identified in the United States through laboratory testing and clinical suspicion, with the highest prevalence in areas where the lone star tick is most abundant—particularly the southeastern, mid-Atlantic, and south-central United States.[35,36]

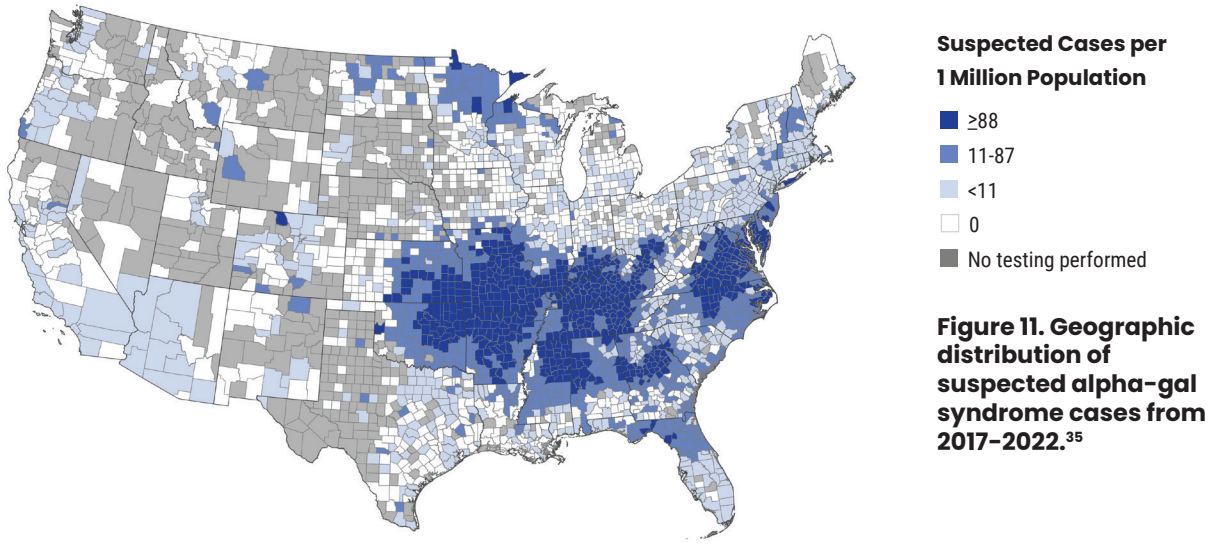


Figure 11. Geographic distribution of suspected alpha-gal syndrome cases from 2017–2022.[35]

Eosinophilic Esophagitis

- **Eosinophilic esophagitis (EoE)** is a chronic non-IgE–mediated food allergy characterized by abnormally high levels of specific types of white blood cells called eosinophils within the esophagus, which then leads to inflammation and esophageal dysfunction.

- In a 2015-2016 cross-sectional nationwide survey, EoE was estimated to affect **0.16% of children** and **0.18% of adults** in the U.S. population.[37]

- Another longitudinal analysis of healthcare claims data highlighted rising EoE incidence since 2009.

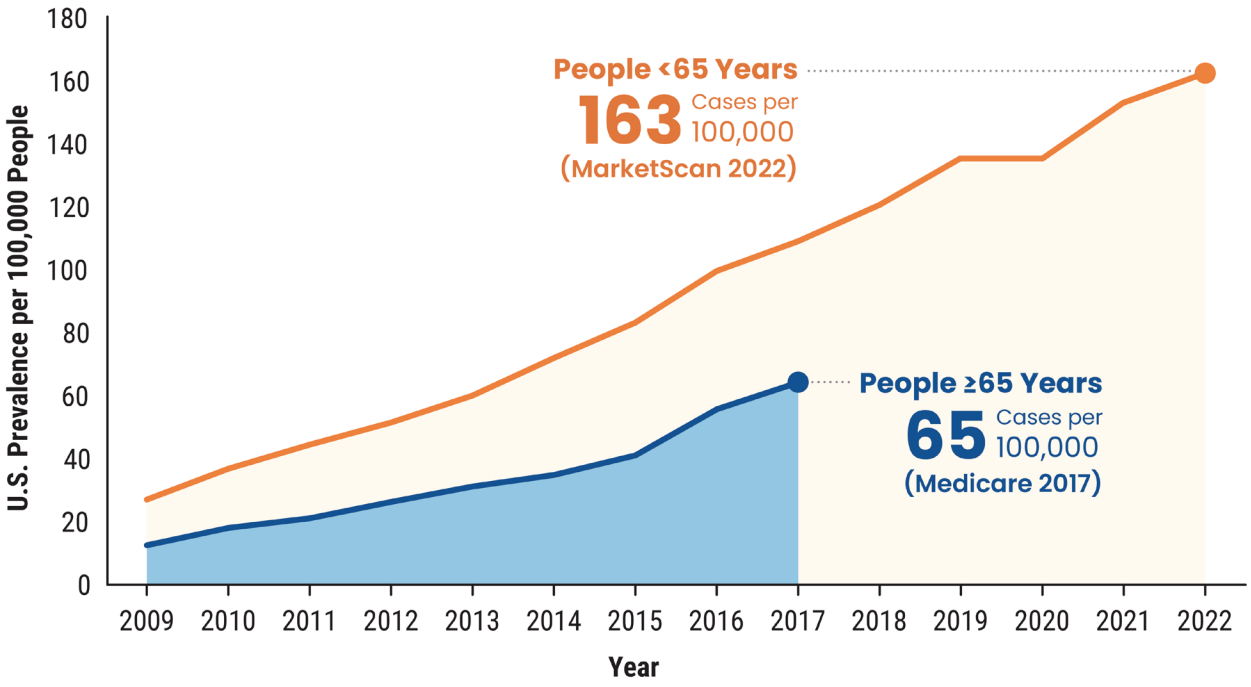


Figure 12. Rising prevalence of eosinophilic esophagitis in two nationwide administrative databases from 2009 to 2017 (Medicare; people 65 years and older) or 2022 (MarketScan; people younger than 65 years).[38]

Food Protein-Induced Enterocolitis Syndrome

- **Food protein–induced enterocolitis syndrome (FPIES)** is a non-IgE food allergy causing delayed gastrointestinal symptoms, mainly severe vomiting, without typical skin or respiratory reactions.
- It is estimated that FPIES affects about **0.5% of children** and **0.2% of adults**—approximately **900,000 people** in the U.S.[39]
- More recent data suggest incidence of physician-diagnosed FPIES may be increasing.[40]

Pollen-Food Allergy Syndrome

- **Pollen-food allergy syndrome (PFAS),** a subtype of **oral allergy syndrome (OAS),** is an IgE-mediated allergy affecting those with immune-responses to pollen. Cross-reactivity between pollens and food proteins results in allergic reactions that typically involve symptoms such as itching, tingling, or mild swelling of the lips, tongue, and throat right after eating a trigger food.
- Despite its clinical relevance, the epidemiology of PFAS in the general U.S. population remains poorly characterized. The most common food triggers often include apples, peaches, melons, carrots, celery, and hazelnuts.
- PFAS represents an important but understudied aspect of food allergy care.

To understand the full impact of food allergy in the United States, read the *National Indicator Report on Food Allergy* at FoodAllergy.org/IndicatorReport

About the Food Allergy AWARE and the Advisory Council

Food Allergy AWARE: Advancing Wellness, Awareness and Resources to Educate is dedicated to increasing awareness and knowledge of the growing prevalence, societal cost, and burden of food allergy as a potentially life-threatening, chronic disease among public health professionals, primary care clinicians, affected patients, caregivers, and the public.

The **Food Allergy AWARE Advisory Council (FAAAC)** is a diverse team of subject matter experts and thought leaders that represent the voices and perspectives of key stakeholders in food allergy, including primary care clinicians, public health professionals, and those living with or impacted by food allergy. The FAAAC provides guidance and input on surveillance and data collection, indicator report generation, education program development, awareness and promotion plan development/execution, and evaluation and monitoring of overall project reach and impact.

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FARE (Food Allergy Research & Education) is the leading nonprofit organization that empowers the food allergy patient across the journey of managing their disease. FARE delivers innovation by focusing on three strategic pillars—research, education, and advocacy. FARE's initiatives strive for a future free from food allergy through effective policies and legislation, novel strategies toward prevention, diagnosis, and treatment, and building awareness and community.