

Food Allergy Facts and Statistics for the U.S.

(Last updated April 18, 2024)



What Is a Food Allergy?

- A food allergy is “an adverse health effect resulting from a specific immune response that occurs reproducibly on exposure to a given food.”¹
- In plain language, a food allergy is when a person’s immune system overreacts to something in a certain food. This part of the food that the body reacts is usually a protein and is called an **allergen**. The immune system thinks the allergen is a threat and tries to attack it. This response can cause a range of symptoms, which are called an **allergic reaction**.

To Which Foods Are People Allergic?

- More than 170 foods have been reported to cause food allergy reactions in the U.S.¹
- In 2004, **eight major food allergens**—milk, egg, peanut, tree nuts, wheat, soy, fish and crustacean shellfish—were identified as responsible for at least 90 percent of the serious food allergy reactions in the U.S.¹
- In 2021, the U.S. added sesame as the **ninth major food allergen**.⁷⁰
- The most common food allergies in children are allergies to peanut, milk, shellfish, and tree nut.⁹
- The most common food allergies in adults are allergies to shellfish, milk, peanut, and tree nut.⁷

How Many People Have Food Allergies?

- Approximately 33 million people in the United States have at least one food allergy.^{7,8,9}
- Nearly 11 percent of adults aged 18 or older have at least one food allergy. This is more than 27 million adults.^{7,8}
- Results from a 2015–2016 survey of more than 38,000 children indicate that 5.6 million children, or nearly 8 percent of children, have food allergies.^{8,9} That’s one in 13 children, or roughly two in every classroom.
- Studies published in 2018 and 2019 can be used to estimate the current number of U.S. children and adults who are allergic to specific foods.^{2,7,8,9}
 - shellfish: 8.4 million
 - milk: 6.2 million
 - peanut: 6.2 million
 - tree nuts: 3.9 million
 - egg: 2.7 million
 - fin fish: 2.7 million
 - wheat: 2.4 million
 - soy: 1.9 million
 - sesame: 0.7 million

- Based on a 2015–2016 survey an estimated 4.7 percent of U.S. children have a physician-diagnosed food allergy. However, a follow-up analysis of health care claims data found that among children insured through Medicaid, only 0.6 percent have a documented food allergy diagnosis, raising concerns about equitable awareness of and access to food allergy specialists.⁴
- According to a 2021 National Health Interview Survey (NHIS) conducted by the National Center for Health Statistics (NCHS), a division of the Centers for Disease Control and Prevention (CDC), **5.8% of children aged 0–17** are diagnosed with a food allergy.¹⁰
- About 40 percent of children with food allergies have multiple food allergies (more than one food to which they're allergic).⁹

Food Allergies Are on the Rise

- Food allergy prevalence among children has been increasing for decades, up by 50 percent between 1997 and 2011, and again up by 50 percent between 2007 and 2021.^{11,73}
- In the United States, the prevalence of self-reported peanut or tree nut allergy in children more than tripled between 1997 and 2008.¹²
- An analysis of health insurance claims data found that annual incidence of peanut allergy in one-year-olds tripled between 2001 and 2017.⁷⁵
- The percentage of the U.S. adult population living with peanut allergy has been estimated at 3 percent in 2015–2016, compared to less than 1 percent in 1999.⁵
- In the U.S., childhood food allergy prevalence has increased at faster rates among Black Americans (2.1 percent per decade) and Hispanic Americans (1.2 percent per decade) than among White Americans (1 percent per decade), according to a study of self-reported allergy.¹³

Food Allergy Is a Serious Public Health and Economic Issue

- A food allergy is an impairment that limits a major life activity and may qualify an individual for protection under the Americans with Disabilities Act of 1990 (ADA) and Section 504 of the Rehabilitation Act of 1973.¹⁴
- According to a 2011–2012 analysis, caring for children with food allergies cost U.S. families nearly \$25 billion annually. In CPI-adjusted dollars, this equates to \$33 billion in 2024.¹⁵
- Emergency department visits and hospitalizations to treat food allergy reactions result in costs that are 2.5 times higher for low-income children than for children of families with higher incomes.⁷²

Food Allergy Reactions Are Serious and Can Be Life-Threatening

- Each year in the U.S., 3.4 million patients (about the population of Oklahoma) have a food allergy related emergency room visit. This means that every 10 seconds a food allergy reaction sends a patient to the emergency room.^{7,8,9}
- More than 40 percent of children with food allergies have experienced a severe allergic reaction such as anaphylaxis.⁹
- Anaphylaxis (a-nuh-fuh-LAK-suhs) is a serious allergic response that often involves swelling, hives, lowered blood pressure and in severe cases, shock. If anaphylactic shock isn't treated immediately, it can be fatal. A major difference between anaphylaxis and other allergic reactions is that anaphylaxis typically involves more than one system of the body (e.g., cutaneous/skin, gastrointestinal system, respiratory tract and/or cardiovascular system).⁷¹



- Pediatric hospitalizations for food allergy tripled between the late 1990s and the mid-2000s.¹⁰
- Emergency treatment for anaphylaxis resulting from food increased by 377 percent between 2007 and 2016.⁶⁸

Serious Allergic Reactions (Anaphylaxis) Require Immediate Treatment

- An allergic reaction to food can have many symptoms. You can have different symptoms from one reaction to the next. Some may start with skin symptoms, like a rash. Serious symptoms, like a drop in blood pressure or trouble breathing, can put your life in danger. See a full list of food allergy reaction symptoms at: foodallergy.org/symptoms.
- Rapid treatment with epinephrine (adrenaline) within minutes of the onset of anaphylaxis symptoms is necessary and crucial to successfully treating an anaphylactic reaction. A self-injectable epinephrine device is available by prescription.¹⁷
- Not recognizing the presence or severity of an anaphylactic reaction and/or a delay in treatment with epinephrine (i.e., greater than a few minutes) are risk factors for fatalities.^{18,19,20}
- More than one dose of epinephrine may be required to effectively treat a severe food allergy reaction.²¹
- It is possible to have anaphylaxis without any skin symptoms, such as rash or hives.²²
- Symptoms of anaphylaxis may recur a few hours after initially subsiding (known as a biphasic reaction). Experts recommend an observation period of 4 to 6 hours to monitor that the reaction has fully resolved.^{21,23}

Food Allergy Impacts Quality of Life

- About one in three children with food allergy reports being bullied due to food allergy. Moreover, among children with allergies to more than two foods, over half report being bullied due to food allergy.²⁴
- Compared to children who do not have a medical condition, children with food allergy are twice as likely to be bullied.²⁵
- More than one-quarter of parents surveyed during food allergy appointments report that their children do not participate in camp or sleepovers because of food allergy. More than 15 percent of the parents participating in this survey do not go to restaurants, and more than 10 percent avoid child care settings or playdates at friends' houses. Ten percent of the parents home-school their children to prevent food allergen exposure.²⁶
- In another report, among parents of young children in the first year after food allergy diagnosis, most avoid restaurants and about half restrict social activities or travel.²⁵
- Mothers of food-allergic children under age five have significantly higher blood-pressure measurements and report significantly greater levels of psychosocial stress than mothers whose preschool-aged children do not have food allergies.²⁷

Who Is at Highest Risk for Developing Food Allergy?

- Compared to non-Hispanic White children, African American children are at significantly elevated risk of developing food allergy.⁹
- Among children on Medicaid, Black children are 7 percent more likely to develop food allergies than White children.¹⁶

- In a cohort of predominantly Black (69 percent) and Hispanic (21 percent) children born in urban centers, 10 percent of the children who had a family history of hay fever, eczema or asthma were allergic to eggs, milk, or peanuts.²⁹
- Children from rural communities are less likely to have food allergies than children from urban centers.²⁸
- Compared to children without food allergy, children with food allergy are more than twice as likely to have asthma and more than three times as likely to have respiratory allergy or eczema.¹⁰
- Food allergies may trigger or be linked to eosinophilic gastrointestinal diseases. These are a set of chronic diseases that can affect the entire digestive system from the esophagus to the colon. They happen when a person develops too many white blood cells called eosinophils, which can lead to increased inflammation and damage to the gastrointestinal lining or mucosal. Medication or dietary changes can help ease symptoms such as nausea or stomach pain.³⁰
- While most food allergies develop during childhood, medical records data suggest that at least 15 percent of patients with food allergies are first diagnosed in adulthood.³¹ More than one in four adults with food allergies report that all of their food allergies developed during adulthood, and nearly half of adults with food allergy report developing at least one food allergy during adulthood.⁷

Who Is at Highest Risk for Severe or Fatal Anaphylaxis?

- Although a severe or fatal reaction can happen at any age, teenagers and young adults with food allergies are at the highest risk of fatal food-induced anaphylaxis.^{18,19,20}
- Black children are two to three times more likely than White children to suffer a fatal allergic reaction to food.⁷⁴
- Compared to White children, Black and Hispanic children are twice as likely to have a severe food allergy reaction and to visit the emergency department.⁴
- Individuals with food allergies who also have asthma may be at increased risk for severe or fatal food allergy reactions.^{18,20}

Under What Circumstances Do Reactions Occur?

- Food allergy reactions typically involve foods that are believed to be safe. Allergic reactions can result from mislabeling of or cross-contact with food allergens during food preparation.^{19,32,33,34}
- Limited skin contact with peanut butter or inhaling peanut butter from a short distance is unlikely to elicit a significant allergic reaction. These results cannot be generalized to more extensive contact or to other forms of peanut like peanut butter, peanut puffs or peanut powder.^{35,36} *Note: Limited contact with peanut butter presents a greater risk to young children, who frequently put their hands in their mouths.*
- Food proteins released into the air in vapor or steam from cooked foods (e.g., shellfish) can potentially cause allergic reactions—although these are rare. Reactions from vapor or steam can resemble reactions to inhaled allergens that cause hay fever or asthma symptoms, such as pollen or animal dander.^{37,38}

Where Do Reactions Occur?

- Reports suggest that the majority of fatal food allergy reactions are triggered by food consumed outside the home.^{18,19,20}
- One study looking at peanut and tree nut allergy reactions in restaurants and other food establishments found that reactions were frequently attributed to ice cream shops (14%), bakeries/doughnut shops (13%), food consumed in Asian restaurants (19%). This study also found that patrons with food allergies often did not notify food establishment of a food allergy prior to placing the order.³⁹
- Research on self-reported reactions occurring while traveling on commercial airlines indicates that peanut and tree nut reactions on planes have resulted from ingestion, contact and inhalation. Ingestion of an allergen remains the main concern for severe reactions.^{40,41,42}

Are Food Allergy Reactions Common at School?

- More than 15 percent of school-aged children with food allergies have had a reaction in school.^{43,44}
- In a 2013–2014 survey of over 600 schools participating in a program to provide undesignated (stock) epinephrine for emergency use, more than 10 percent reported at least one case of anaphylaxis.⁴⁵
- Approximately 20–25 percent of epinephrine administrations in schools involve individuals whose allergy was unknown at the time of the reaction.⁴⁶
- In one large school district during the 2012–2013 school year, more than half of the 38 individuals who were treated with district-supplied emergency epinephrine were experiencing their first severe reaction.⁴⁷
- Food allergy reactions can happen in multiple locations throughout the school and are not limited to the cafeteria. Care must be exercised during bake sales, classroom parties and opportunities for snacking.^{20,46}

How Can Food Allergens Be Avoided and Allergic Reactions to Food Be Prevented?

- Even trace amounts of a food allergen can cause an allergic reaction.^{48,49,50,51,52,53}
- Some studies have shown that most individuals with peanut and soy allergies can safely eat highly refined oils made from these ingredients. However, cold-pressed, expeller-pressed, some gourmet oils or extruded oils should be avoided. Talk to your doctor about oils made from ingredients to which you are allergic and safe alternatives.^{54,55,56,57,58,48}
- According to the Food Allergen Labeling and Consumer Protection Act of 2004 (FALCPA), the 8 major allergens (milk, egg, peanut, tree nuts, wheat, soy, fish and crustacean shellfish) must be declared on pre-packaged foods in simple terms, either in the ingredient list or via a separate allergen statement.¹
- The Food Allergy Safety, Treatment, Education and Research Act (FASTER) of 2021, which went into effect on January 1, 2023, requires pre-packaged foods to also include plain-language labeling of sesame.⁷⁰
- The use of advisory/precautionary labeling (e.g., “may contain,” “made in a facility that also processes”) is not regulated in the U.S and therefore should not be relied upon to reliably reflect the true allergen content (or lack thereof) in a given food.⁵⁹

- Advisory/precautionary labeling is voluntary. Random testing of products with advisory/precautionary allergen labeling has found allergen levels ranging from undetectable to substantial amounts that can cause allergic reactions.^{1,32}
- A study showed that peanut protein was detected in 7.3 percent of products bearing advisory/precautionary labeling for peanut.³³
- A study showed that peanut can be cleaned from the hands of adults by using running water and soap or commercial wipes, but not by applying antibacterial gels. In addition, peanut was easily removed from surfaces by using common household cleaning sprays or sanitizing wipes but not by wiping with dishwashing liquid.⁶⁰

Can Food Allergies Be Outgrown?

- Although allergies to milk, egg, wheat, and soy often resolve in childhood, research suggests that children may outgrow at least some of these food sensitivities more slowly than was found in previous decades, with many children still allergic beyond age 5.¹
- Allergies to peanuts, tree nuts and shellfish are generally lifelong.¹

Can Food Allergies Be Prevented?

- Delaying introduction of allergenic foods does not provide protection against food allergy.⁷⁷
- The Learning Early About Peanut Allergy (LEAP) study provided evidence that the age at which a child first eats peanut and the frequency of peanut in the diet can influence whether the child develops an allergy to peanut. LEAP findings demonstrate that early, sustained consumption of peanut products is associated with a substantial and significant decrease in the likelihood of developing peanut allergy.⁶¹
- In 2017, findings from LEAP and related studies led to the release of new guidelines for the introduction of peanuts. These guidelines were developed by the National Institute of Allergy and Infectious Diseases (NIAID), a division of the National Institutes of Health (NIH). They call for the introduction of infant-safe peanut containing foods as early as 4 to 6 months to help prevent a peanut allergy later in life.⁶²
- A follow-up to the LEAP trial, Persistence of Oral Tolerance to Peanut (LEAP-On), showed that children who consumed peanuts from infancy through age five followed by one year of peanut avoidance were 74% less likely to have peanut allergy than children who avoided peanuts up until age 6. This suggests that the tolerance to peanuts induced by the early introduction can persist even without repeated exposures.⁶³

Can Food Allergies Be Treated?

- Strict avoidance of relevant food allergens and early recognition and management of allergic reactions to food are important measures to prevent serious health consequences in individuals with food allergies.¹
- In February 2024, the U.S. Food and Drug Administration approved the injectable biologic medication Xolair® (omalizumab) to treat food allergy in certain adults and children 1 year or older to reduce Type I allergic reactions, including reducing the risk of anaphylaxis. The study participants were allergic to peanuts and at least two other foods and they received Xolair treatment for 16 weeks. Two-thirds of the treatment group were able to ingest a significant amount of peanuts compared to only 7% in

the placebo group. This biologic therapy was effective in increasing the allergic reaction threshold for peanut and other common food allergens. Finally, patients who take Xolair must continue to avoid the foods to which they are allergic and carry epinephrine autoinjectors.⁷⁶

- An oral peanut-based treatment for peanut allergy, Palforzia®, was approved in January 2020 by the U.S. Food and Drug Administration, but this treatment is not appropriate for every peanut-allergic patient and is approved only for patients from age 4 through age 17.⁶⁹
- Several immunotherapy approaches are being investigated. Immunotherapy involves intentional exposure to the food allergen, starting with very small amounts and increasing more or less gradually depending on the approach and the protocol including any adverse side effects or problems with the treatment. The goal of immunotherapy is to raise the threshold dose of food protein that results in a food allergy reaction. Successful immunotherapy can result in the ability to eat an increased amount of the problem food without an allergic reaction. This can be lost if the problem food is not consumed on an ongoing basis. Immunotherapy results in sustained unresponsiveness when a patient can discontinue exposure for a period of time and still safely eat the problem food. However, this is typically only for weeks to several months.
- Some therapies under investigation include:
 - Oral immunotherapy (OIT)*—This therapy is used to raise the threshold dose at which food allergy reactions occur. Progressively greater amounts of allergen are eaten (usually every 2 weeks and under medical supervision) until a maintenance dose is reached. The food allergen is then ingested on a regular basis (typically 3 times per week). Reported rates of desensitization leading to increased food allergen tolerance varies widely for OIT, ranging from 30 percent to more than 90 percent of trial participants.^{64,65} Side effects of OIT can be severe, including anaphylaxis and eosinophilic esophagitis.⁶⁵
 - Sublingual immunotherapy (SLIT)*—In SLIT, a food protein is dissolved in liquid and held under the tongue for a brief time period before being spit out or swallowed. As with OIT, the dose of allergen is increased over time until a maintenance dose is reached, although the doses typically used in SLIT are smaller. The desensitization achieved with SLIT can be equivalent to desensitization achieved with OIT, but SLIT is less likely to cause serious allergic reactions.⁶⁶
 - Epicutaneous immunotherapy (EPIT, or skin patch)—EPIT delivers food protein via patches applied to the skin. Clinical trials indicate that EPIT can result in desensitization to peanuts in children aged 4–11. Compared to OIT, EPIT has a better safety profile. To date, this therapy is still under clinical investigation and is not yet approved by the U.S. Food and Drug Administration (FDA).⁶⁷
- In food allergy immunotherapy clinical trials that reported racial demographic data, Black and Hispanic/Latino participants combined made up only 4 percent of total trial participants.³

* Oral immunotherapy and sublingual immunotherapy are being conducted both in clinical trials and in private practice.

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