FOOD ALLERGIES:

GETTING PATIENTS ON TRACK

AAE Annual Conference 2022

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DISCLOSURES

Dee Mallam – No disclosures

Stefanie Rollins – No disclosures

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OBJECTIVES:

- Understand food allergy versus intolerance / sensitivity
- Review current recommended practice parameters
- Recognize the role of the asthma educator in providing food allergy education.

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Affects up to 8% of children and up to 4% of the general population in the United States[1,2]

- Most food allergy acquired in the first or second year[1]
- Varies – Physician/NP/PA/ OFC confirmed vs Parent or Self-reported (3% vs 13%)
- Sensitivity vs Reactivity
- Sensitization does not equal clinical allergy (reactivity)[3]: not all sensitized children will develop symptoms upon ingestion

Approximately 15% develop initial diagnosis as an adult[2]

- Usually in the early 30's but up to 91years old
- Older age was associated with higher risk for severe reactions

1.2017 Addendum guidelines for the prevention of peanut allergy in the United States: Report of the National Institute of Allergy and Infectious Diseases-sponsored expert panel - PubMed (nih.gov)
2.Sicherer SH, Sampson HA. J Allergy Clin Immunol 2018; 141:41.
3.Nicolaou N, Poorafshar M, Murray C, et al.J Allergy Clin Immunol 2010; 125:191.

PREVALENCE OF FOOD ALLERGIES

4

- The leading cause of anaphylactic reactions outside of the hospital setting[1]
- About 125,000 ED visits for food-induced reactions,14,000 for food-induced anaphylaxis per year and 3,100 hospitalizations in the United States[2]
- Deaths are rare, 0.7-2% of cases. 25 - 200 per year in the U.S.[6]
  - Most common induced by peanuts, tree nuts, seafood, cow's milk[1,3,4,5,6]

1. Brown AF, McKinnon D, Chu K. J Allergy Clin Immunol 2001; 108:861.
2. Wang J, Sampson HA. Clin Exp Allergy 2007; 37:651.
3. Rudders SA, Banerji A, Vassallo MF, et al. J Allergy Clin Immunol 2010; 126:385.
4. Moneret-Vautrin DA, Morisset M, Flabbee J, et al.Allergy 2005; 60:443.
5. Turner PJ, Jerschow E, Umasunthar T, et al.J Allergy Clin Immunol Pract 2017; 5:1169.
6. Umasunthar T, Leonardi-Bee J, Hodes M, et al.Clin Exp Allergy 2013; 43:1333.

IMPACT OF FOOD ALLERGIES

5

ETIOLOGY OF FOOD ALLERGIES

The Hygiene Hypothesis

Microflora / Microbiome Depletion Hypothesis

The ecosystem of the human body (the human biome) can influence immune function.

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Asthma and Food Allergy Connection

- Increased risk for developing asthma and often severe[1]
- Family history of atopy[2]
- Sensitization to food proteins (egg) in early infancy[2]
- Children with food allergy developed asthma earlier and at a higher prevalence than children without food allergy[3]
- Children sensitized to foods had higher rates of ED and hospitalization for asthma exacerbations and required more treatment with glucocorticoids.[4]

1.Peroni DG, Chatzimichail A, Boner AL. Ann Allergy Asthma Immunol 2002; 89:44.
2.Tariq SM, Matthews SM, Hakim EA, Arshad SH. Pediatr Allergy Immunol 2000; 11:162.
3.Schroeder A, Kumar R, Pongracic JA, et al. Clin Exp Allergy 2009; 39:261.
4.Berns SH, Halm EA, Sampson HA, et al. J Asthma 2007; 44:377.

PREVALENCE OF FOOD ALLERGIES

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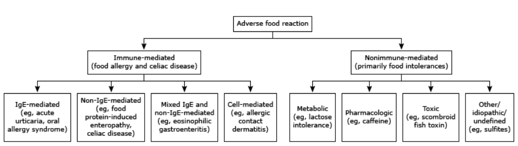
FOOD ALLERGY OR FOOD INTOLERANCE?

8

Types of adverse reactions to food



IgE: immunoglobulin E.

Reproduced from: Boyce JA, Assa'ad A, Burks AW, et al. Guidelines for the diagnosis and management of food allergy in the United States: Report of the NIAID-sponsored expert panel. J Allergy Clin Immunol 2010; 126:S1. Illustration used with the permission of Elsevier Inc. All rights reserved.

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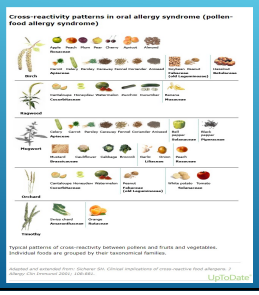
POLLEN - FOOD ALLERGY SYNDROME (PFAS)
ORAL ALLERGY SYNDROME (OAS)



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Food intolerance —

- Accounts for the bulk of adverse food reactions.
- Food intolerances are not immunologic and do not carry the same risk
- Generally involves the digestive system
- Amount of food ingested is directly related to the severity of symptoms
- Similar symptoms with each exposure.

Lomer MC. Aliment Pharmacol Ther 2015; 41:262.

FOOD ALLERGY OR FOOD INTOLERANCE

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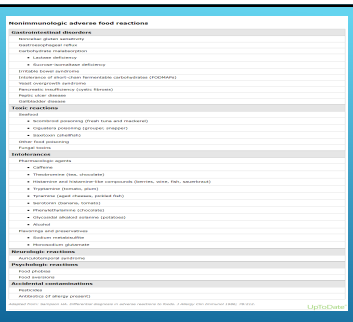

NON-IMMUNOLOGIC ADVERSE FOOD REACTIONS

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WHAT IS A FOOD ALLERGY?

As defined by the NIAID expert panel:

Food allergy is ''an adverse health effect arising from a specific immune response (IgE mediated)that occurs reproducibly on exposure to a given food."

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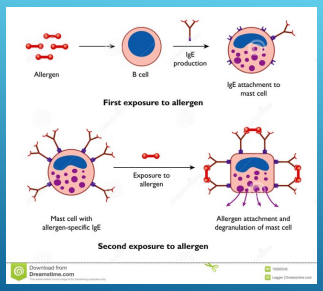

MECHANISM OF IGE MEDIATED REACTION

T helper type 2

Basophils

Mast Cells

Eosinophils

Inflammatory mediators

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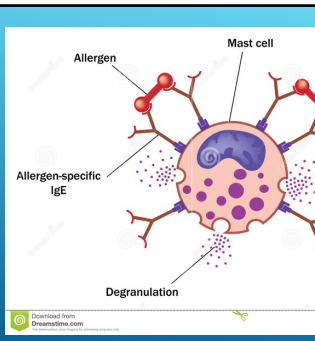

MAST CELL ACTIVATION

Proinflammatory mediators:

- Histamines
- Tryptase
- Tumor Necrosis Factor (TNF)
- Heparin
- Prostaglandin D2 (PGD2)
- Platelet-activating factor (PAF)
- Leukotrienes

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FOOD ALLERGY

IGE-MEDIATED

Clinical manifestations of IgE-mediated reactions

Clinical features
Dermatologic - Pruritus, flushing, urticaria/angioedema, diaphoresis
Eyes - Conjunctival injection, lacrimation, periorbital edema, pruritus
Respiratory tract - Nose/oropharynx (sneezing, rhinorrhea, nasal congestion, oral pruritus, metallic taste), upper airway (hoarseness, stridor, sense of choking, laryngeal edema), lower airway (dyspnea, tachypnea, wheezing, cough, cyanosis)
Cardiovascular - Conduction disturbances, tachycardia, bradycardia (if severe), arrhythmias, hypotension, cardiac arrest
Gastrointestinal - Nausea/vomiting, abdominal cramping, bloating, diarrhea
Neurologic - Sense of impending doom, syncope, dizziness, seizures

IgE: immunoglobulin E.

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THE BIG EIGHT – MOST COMMON ALLERGENIC FOODS

Milk*
Egg*
Soy*
Wheat*
Peanut
Tree nuts
Fish
Shellfish

Sicherer SH, Sampson HA. J Allergy Clin Immunol 2018; 141:41.

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NOW - THE BIG NINE

SESAME

Declared an allergen April 2021
Labeling required January 2023

Affects 0.1 – 0.2% general population

Estimated to affect 17% of children with IgE-mediated food allergy

Often co-occurs with peanut/tree nut sensitization and allergy

Only 20-30% resolve

Tahini - paste made with ground sesame seeds (hummus)

K Sokol et al. Pediatric Allergy and Immunology 10.1111/pai.13143 (2019)
Food Allergy Safety, Treatment, Education and Research (FASTER) Act of 2021

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- Cow's Milk
- Egg
- Wheat
- Soy

MORE COMMON IN KIDS

Sicherer SH, Sampson HA. J Allergy Clin Immunol 2018; 141:41.

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- Shellfish
- Fish
- Peanuts
- Tree nuts

MORE COMMON IN ADULTS

Sicherer SH, Sampson HA. J Allergy Clin Immunol 2018; 141:41.

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- **Oral Ingestion - Primary route**
- **Inhalation of airborne food allergens**
  - During aerosolization, food proteins may become airborne. Inhalation contact has been shown to induce asthmatic or respiratory reactions in highly sensitive individuals[3]
  - Prolonged exposure increases the risk of sensitization (occupational and nonoccupational settings[1])
  - Asthma symptoms can occur in sensitized children in a confined area (fish, shellfish, eggs, chickpeas, buckwheat)[2,3]
  - Peanut butter is an oily substance, and the aroma does not appear to contain sufficient protein to induce respiratory reactions[5]
- **Skin Exposure**
  - Even in the most highly sensitive individuals, appear to cause very limited reactions[3,4]
  - Problematic with inadvertent oral contact with the food and subsequent transfer of allergen from the hands to the mouth or other mucosal tissues[6]

1. Kalogeromitros D, Makris M, Gregoriou S, et al. Allergy Asthma Proc 2006; 27:389.
2. Sicherer SH. J Pediatr Gastroenterol Nutr 2000;31:S172.
3. Roberts G, Golder N, Lack G. Allergy 2002; 57:713.
4. Fleischer DM, Perry TT, Atkins D, et al. Pediatrics 2012; 130:e25.
5. Bernhisel-Broadbent J, Sampson HA. J Allergy Clin Immunol 1989; 83:435.
6. Wainstein BK, Kashef S, Ziegler M, et al. Clin Exp Allergy 2007; 37:833.

ROUTES OF EXPOSURE

21

A (NOT SO) BRIEF HISTORY

- 1990's, Food allergies, specifically peanut allergy, prevalence began to rise
- 2000, The American Academy of Pediatrics recommended high-risk children **avoid** peanuts until they reached 3-years-old. This included pregnancy and lactation
- 2008, The Journal of Allergy & Clinical Immunology published the initial findings of the high prevalence of peanut allergy in Jewish children in the UK compared to Israeli children (observation by Dr. Gideon Lack)
- 2008, Recommendations for the avoidance of allergens were **withdrawn**

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HISTORY

- 2010 Guidelines for the Diagnosis and Management of Food Allergy in the United States
  - Extensive literature review over two years by Expert Panel and Coordinating Committee.
  - Met a long-standing need to establish best clinical practices across medical specialties, consensus of definitions and diagnostic criteria and provide guidance on addressing points of controversy in patient management BUT did not offer strategies for prevention (lack of definitive studies)
- 2010, The National Institute of Allergy and Infectious Disease (NIAID) a component of NIH, reported that there was not enough evidence to support the idea that waiting to feed children certain foods prevents food allergy.
- NOTE: Guidelines then changed to suggest feeding infants solid foods (including allergenic foods) no later than 4- to 6-months. However, most pediatricians continued to recommend avoidance of peanuts and other common allergens at that time.

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HISTORY

- 2013, DEVIL TRIAL – Determining the Efficacy and Value of Immunotherapy on the likelihood of peanut tolerance
- 2014, Food Allergy: A Practice Parameter Update 2014 published
  - Developed to address recent advances and optimal methods of diagnosis and management based on the most current literature
  - Summary Statements
- **2015, LEAP (Learning Early About Peanut Allergy)** trial results were published in the New England Journal of Medicine
  - The first randomized trial to study early allergen introduction as a preventive strategy. A revolutionary study.

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HISTORY

- June, 2015, The NIAID established Coordinating Committee (CC) to oversee the development of the addendum to the 2010 guidelines and broad utility of the recommendations in clinical practice and disseminate the addendum.
  - The CC members represented 26 professional organizations, advocacy groups, and federal agencies
- September, 2015, Implications of the "Consensus Communication on Early Peanut Introduction in the Prevention of Peanut Allergy in High-Risk Infants" for Allergists, Primary Care Physicians, Patients, and Society was published
- Early 2017, NIAID officially changed its guidelines to support early introduction to greatly reduce the risk of developing a peanut allergy
- 2017, Addendum to the 2010 Guidelines – modified Section "Prevention of Food Allergies"

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HISTORY

- 2018, PALISADE – First FDA approved peanut flour product (arachis hypogaea)
  - OIT Study of AR101 for Desensitization, an international, randomized, double-blind, placebo-controlled, phase 3 trial; Evaluated the efficacy and safety of AR101 in children and adults with peanut allergy
  - Conclusion: AR101 was an immunomodulatory treatment that resulted in desensitization in children and adolescents who were highly allergic to peanut
  - Beyond PALISADES: Ongoing immunomodulation was observed during the second year of treatment.
- 2020, Peanut Allergy Diagnosis: A 2020 Practice Parameter Update
  - Systematic review, and grade analysis
- **2022, IMPACT – First placebo-controlled study to investigate efficacy and safety of OIT in peanut allergic 1-3 year-olds**

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A child with peanut allergy has about a 20% chance of outgrowing peanut allergy.

True

False

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True

- In about 20% of children with peanut allergy, it resolves with time.

- Affects approximately 2% of children in the US
- Approximately 35% of children with PN allergy also have a tree nut allergy.
- In children allergic to tree nuts, the resolution rate is about 10%

Skolnick HS, Conover-Walker MK, Koerner CB, Sampson HA, Burks W, Wood RA. J Allergy Clin Immunol. 2001 Feb;107(2):367-74.
Fleischer DM, Conover-Walker MK, Christie L, Burks AW, Wood RA. J Allergy Clin Immunol. 2003 Jul;112(1):183-9.
Fleischer DM, Conover-Walker MK, Matsui EC, Wood RA. J Allergy Clin Immunol. 2005 Nov;116(5):1087-93.
Savage JH, Limb SL, Brereton NH, Wood RA. J Allergy Clin Immunol. 2007 Sep;120(3):717-9
Savage,J.Sicherer ,S.Wood R. The natural history of food allergy.J Allergy Clin Immunol Pract. 2016; 4: 196-203

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Learning Early About Peanut Allergy

- Based on 2008 observation. The rate of peanut allergy in Israeli children was about one-tenth the rate among Jewish kids in Great Britain
- Likely because Israeli babies ate high amounts of peanut protein, while British parents avoided it
- Hypothesis: Regular eating of peanut-containing products, when started during infancy, will elicit a protective immune response instead of an allergic immune reaction

2015 - LEAP – LANDMARK TRIAL - PREVENTION

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Learning Early About Peanut Allergy

- First randomized trial to study early allergen introduction as a preventive strategy
- More than 600 High-Risk kids 4-11 months with severe AD and/or egg allergy
- Consumed or avoided peanuts until age 5
- The risk of developing PA was reduced by 81%

Conclusion: The early introduction of peanuts significantly decreased the frequency of the development of peanut allergy among children at high risk for this allergy and modulated immune responses to peanuts.

Du Toit G, Roberts G, Sayre PH, Bahnson HT, Radulovic S, Santos AF, et al. Randomized trial of peanut consumption in infants at risk for peanut allergy. N Engl J Med 2015;372:803-13 (Funded by the National Institute of Allergy and Infectious Diseases and others)

2015 - LEAP – LANDMARK TRIAL - PREVENTION

30

Is Peanut Oral Immunotherapy Useful for Young toddlers?

- Most such children remain allergic throughout their lifetime, at substantial risk for anaphylaxis from accidental exposure
- Large, blinded study of peanut-allergic toddlers (ages 1-3)
- After 2.5 years receiving oral immunotherapy, 71% of treated participants could safely consume 5000 mg of peanut protein, equivalent to nearly 17 peanuts
- Even after stopping maintenance dosing for the next 6 months, more than 1 in 5 patients maintained that level of protection,
- AND nearly 3 in 5 still met the 600-mg benchmark (about 2 peanuts)

Stacie M. Jones, MD, Edwin H Kim, MD, Kari C Nadeau, MD, Anna Nowak-Wegrzyn, MD, Robert A Wood, MD, Hugh A Sampson, MD, et al. Lancet 2022;Vol 399:359-371

IMPACT – 2022 - TOLERANCE

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Implications for the Health Care Team

- In children with peanut allergy, starting peanut OIT before age 4 years offers long-term clinical efficacy and safety.
- Younger age and lower baseline peanut-specific IgE predicted remission.
- The findings suggest a therapeutic window of opportunity to intervene in earliest childhood to induce remission of peanut allergy.

Stacie M. Jones, MD, Edwin H Kim, MD, Kari C Nadeau, MD, Anna Nowak-Wegrzyn, MD, Robert A Wood, MD, Hugh A Sampson, MD, et al. Lancet 2022;Vol 399:359-371

IMPACT – 2022 - TOLERANCE

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We've come a long way…

- Prevention: Early introduction of solid foods to elicit a protective immune response
- Tolerance: Oral Immunotherapy to lower the risk of anaphylaxis
  - Desensitization vs sustained unresponsiveness (SU)

PREVENTION / TOLERANCE

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Joint task force led by Dr. Hugh Sampson

Developed to address recent advances and optimal methods of diagnosis and management

Most current, compete and comprehensive literature review at that time

Provided 64 Summary Statements including Strength of recommendation and Class of evidence

www.jacionline.org, www. jcaai.org, or www.allergyparameters.org
2014 American Academy of Allergy, Asthma & Immunology http://dx.doi.org/10.1016.jaci.2014.05.013

FOOD ALLERGY: A PRACTICE PARAMETER UPDATE - 2014

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Initial Consultation

Summary Statement 22:

Obtain a detailed medical history and physical examination to aid in the diagnosis of food allergy. [Strength of recommendation: Strong; D Evidence]

- Detailed medical history
  - Detailed description of symptoms
  - Onset of reaction – within minutes to hours
  - Historical aspects of reactions
    - Consistent? How much ingested, how prepared?
- Review of labels for hidden allergens
- Related to alcohol consumption, medication dosing, exercise?
- Physical exam – evidence of allergic disease?
- Rule out other clinical entities

SECTION VI: DIAGNOSING FOOD ALLERGY

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Allergy Testing

Summary Statement 23:

Use specific IgE tests (SPTs, serum tests, or both) to foods as diagnostic tools; however, testing should be focused on foods suspected of provoking the reaction, and test results alone should not be considered diagnostic of food allergy. [Strength of recommendation: Strong; B Evidence]

- Prick skin tests
- Serum IgE testing
- Panel testing not recommended
- OFC or food introduction
- No evidence to support use of serum IgE testing in children who are not at high risk

SECTION VI: DIAGNOSING FOOD ALLERGY

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Allergy Testing

Summary Statement 34:
Unproved tests, including allergen specific IgG measurement, cytotoxicity assays, applied kinesiology, provocation neutralization, and hair analysis, should not be used for the evaluation of food allergy. [Strength of recommendation: Strong; C Evidence]

SECTION VI: DIAGNOSING FOOD ALLERGY

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The results of food-specific IgE tests (skin prick test, serum levels) reliably predict the severity of future reactions to the food.

True

False

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False

There is **no current diagnostic test that can predict the severity of future reactions.**

Wheal size has not been correlated with disease severity but can aid in medical decision making. Can be used as predictor for oral tolerance (select foods)

Pumphrey RS, Gowland MH. J Allergy Clin Immunol. 2007 Apr;119(4):1018.
Spergel JM, Beausoleil JL, Fiedler JM, Ginsberg J, Wagner K, Pawlowski NA. Ann Allergy Asthma Immunol. 2004 Feb;92(2):217-24.
Atkins . *Current Allergy and Asthma Reports.* 2009 May;9(3):179-85.

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Oral Food Challenge: The Gold Standard

Summary Statement 25:

The clinician should consider OFCs to aid in the diagnosis of IgE-mediated food allergy. [Strength of recommendation: Strong; A Evidence]

- DBPCFC is the gold standard
- Single-blind and open frequently for clinical use, graded dosing

Summary Statement 26:

If clinical history is not consistent with anaphylaxis, perform a graded OFC to rule out food allergy.

SECTION VI: DIAGNOSING FOOD ALLERGY

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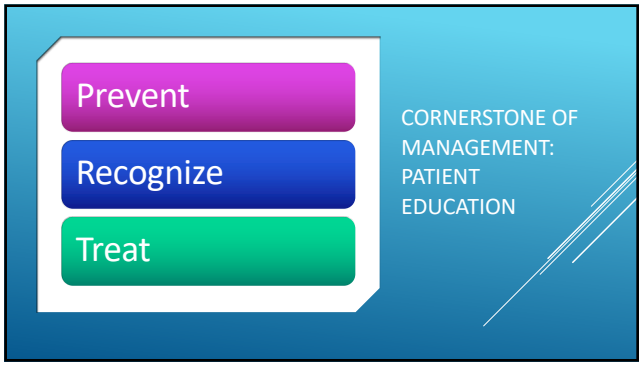

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Patient Education

Summary Statement 45:

Discuss self-care management techniques, especially with high-risk patients, (eg, adolescents, young adults, and asthmatic patients)

Focusing on risk reduction and recognition and treatment of anaphylaxis. [Strength of recommendation: Strong; C Evidence]

PREVENT

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Patient Education

Management of food allergy should include:

- Ongoing clinical assessment to re-evaluate the patient's allergic status
- Monitoring of dietary allergen avoidance
  - Label reading, cross-contact, special settings, nutritional status, accidental ingestion
- QOL and effect on the patient and his or her family
- Assess for comorbidities: asthma, atopic dermatitis, allergic rhinitis
- **Yearly education is needed to reinforce the importance of early recognition and emergency treatment of acute allergic reactions, use of an updated emergency action plan, and repeat training with the epinephrine autoinjector**

PREVENT

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Food Allergy Action Plan / Anaphylaxis Action Plan

Allergy ID Wear

Chef Card

Antigen cards – Read Every Label – Every time!

Auto Injection Trainers

Role playing

Allergy labels

Evidence–based resources

TOOLS OF THE ASTHMA EDUCATOR

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The Food Allergy & Anaphylaxis Plan

- Develop WITH the patient / caregiver
- List of known allergens
- Recognize the symptoms of adverse reaction, SEVERE and MILD
- Know what to do, how to treat, including dose (weight determines dose)
- Epinephrine auto injectors use
  - Instruct patient and caregivers
  - 2 doses available at all time
  - Call 911 with use
  - Review at every visit

THE ROLE OF THE ASTHMA EDUCATOR

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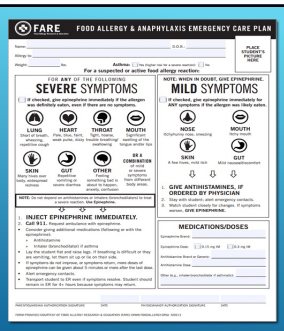
RECOGNIZE



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THE ROLE OF THE ASTHMA EDUCATOR

How do you guide your patients?

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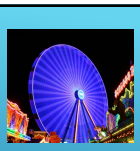
Food Allergy Hot Spots:

- Restaurants, Buffets
- Carnivals
- Amusement Parks
- Bakeries, Ice Cream Shops
- Gatherings

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NIAID:

"Although overall mortality is low, the fear of life-threatening anaphylactic reactions contributes significantly to the medical and psychosocial burden of disease."

Gupta RS, Kim JS, Barnathan JA, et al. Food allergy knowledge, attitudes and beliefs: focus groups of parents, physicians and the general public. BMC Pediatr 2008; 8:36.

ROLE OF THE ASTHMA EDUCATOR

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Physical / Dietary

- Poor Nutrition, Growth

Psychological

- Fear and guilt
- Anaphylaxis Anxiety – unpredictability and frequency
- Marital tension, concern about the possible negative effects of parental/caregiver hypervigilance on their child, family tensions
- Burden of Avoidance

Social

- Social Isolation
- Bullying
- Restriction of activities

Economic Burden: Medical, Cost of foods

Flokstra-de Blok BM, Doriene van Ginkel C, Roerdink EM, et al. Pediatr Allergy Immunol 2011; 22:374.
Cummings AJ, Knibb RC, Erlewyn-Lajeunesse M, et al. Pediatr Allergy Immunol 2010; 21:586.
Warren C, Dyer A, Lombard L, et al. J Allergy Clin Immunol Pract 2021; 9:2452.
Gupta RS, Kim JS, Barnathan JA, et al. BMC Pediatr 2008; 8:36.

ROLE OF THE ASTHMA EDUCATOR

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RECOGNIZE

ANAPHYLAXIS:

Involves multiple organ systems

- Cutaneous (not always seen)
- Gastrointestinal
- Respiratory
- Cardiovascular
- Neurologic: "impending doom"

Occurs within minutes to few hours

Biphasic reactions

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Where do most fatal food reactions occur?

- At home
- Homes of friends
- Restaurants
- Work/office settings
- Schools – 16-18% experienced first reaction (peanut/tree nut) in school

Most food-induced anaphylaxis is triggered by food that was *not* prepared by the patients themselves

Pumphrey RS. Clin Exp Allergy 2000; 30:1144.
Bock SA, Muñoz-Furlong A, Sampson HA. J Allergy Clin Immunol 2001; 107:191.
Bock SA, Muñoz-Furlong A, Sampson HA. J Allergy Clin Immunol 2007; 119:1016.

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Who is at the greatest risk for fatal food-induced anaphylaxis?

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Associated with fatal food-induced anaphylaxis:

- History of asthma*
- Adolescent/young adult
- Prior history of reaction, even if not severe
- Absence of cutaneous symptoms
- Peanut and tree nuts allergy - over 90% of cases of fatal food-induced anaphylaxis
- Body posture (empty ventricle, inadequate venous return)
- Delay in the administration of epinephrine
- **Antihistamines do NOT stop an anaphylactic reaction**
- **Asthma inhaler should NOT be considered first line treatment.**

Bock SA, Muñoz-Furlong A, Sampson HA. J Allergy Clin Immunol. 2001 Jan;107(1):191-3.
Vogel NM, Katz HT, Lopez R, Lang DM. The Journal of Asthma. 2008 Dec;45(10):882-6.
Pumphrey RS, Gowland MH. J Allergy Clin Immunol. 2007 Apr;119(4):1018-9.

54

Exercising after ingesting food may increase the severity of the reaction.

True

False

55

True

Exercising, having a related viral illness, ingesting alcohol, or taking drugs such as antacids, aspirin and NSAIDs may increase the severity of an acute reaction to food.

Boyce JA, Assa'ad A, Burks AW, et al. Guidelines for the diagnosis and management of food allergy in the United States: report of the NIAID-sponsored expert panel. *J Allergy Clin Immunol*. 2010 Dec;126(6 Suppl):S1-58.

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Weight-based intramuscular epinephrine dosing and administration for anaphylaxis in health care settings

In patients with severe symptoms or who are rapidly deteriorating, use an autoinjector if drawing up the dose will cause a significant delay.
There are three available autoinjector strengths: 0.1 mg (Auvi-q), 0.15 mg (EpiPen Jr, others), 0.3 mg (EpiPen, others)

Weight	Preferred	Alternative
<10 kg (infants)	Draw up 0.01 mg/kg (0.01 mL/kg of epinephrine 1 mg/mL)	0.1 mg autoinjector If not available, 0.15 mg autoinjector may be given OR draw up 0.1 mg (0.1 mL of epinephrine 1 mg/mL)
10 to 25 kg (infants and children)	0.15 mg autoinjector	Draw up 0.15 mg (0.15 mL of epinephrine 1 mg/mL)
>25 to 50 kg	0.3 mg autoinjector	Draw up 0.3 mg (0.3 mL of epinephrine 1 mg/mL)
>50 kg	Draw up 0.5 mg (0.5 mL of epinephrine 1 mg/mL)	0.3 mg autoinjector

- If the dose is to be drawn up, confirm that the **1 mg/mL** epinephrine solution is being used. Draw up into a 1 mL syringe. The intramuscular injection is given into the mid-outer thigh.
- If using an autoinjector, it should be held in place for three seconds after the injection, which is sufficient to deliver the dose.
- Most patients respond to a single dose of intramuscular epinephrine. However, if there is no response or an inadequate response, then intramuscular epinephrine may be repeated at 5- to 15-minute intervals or sooner, if clinically indicated.

Data From:
1. Sicherer SH, Simons FER. Epinephrine for first-aid management of anaphylaxis. Pediatrics 2017; 139:e20164006.

UpToDate®

TREAT: EPI FIRST – EPI FAST

www.uptodate.com

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Auvi-Q www.auvi-q.com

EpiPen® / EpiPen Jr. www.epipen.com

Generic epinephrine autoinjectors

TREAT

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EPIPHAST – AQST-109

- Epinephrine Oral Film - sublingual / swallow whole
- Compared to 0.3mg IM
- Small, portable, weather resistant packaging
- T-max 12 minutes
- FDA press release July, 2022 – Fast tracked in March 2022

Not yet FDA approved?
Further studies?

www.aquestive.com

TREAT – EMERGING THERAPY

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- Peer education
- Safe practices in school
- Cafeteria, classroom, field trips, sports, after school activities
- Food Allergy Plan / Anaphylaxis plans
- The Right to Carry Laws (epinephrine)
- Availability of Epinephrine Autoinjectors
- Staff education

THE ROLE OF THE ASTHMA EDUCATOR: COMMUNITY OUTREACH

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TAKE HOME MESSAGES – FOR PATIENTS / FAMILIES

- Life happens – accidental ingestion happens - Be prepared!
  - Proactive
- Recognize food allergy hotspots – know where to get help
- Always carry 2 epinephrine autoinjectors
  - Know when and how to use
  - Know how to store and when to replace
- Carry your plan; share your plan
- Consider periotic "Drills"

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TAKE HOME MESSAGES – FOR ASTHMA EDUCATORS

- Education is power!
- Individualized educational needs and support – kids, teens, young adults, adults
- Correct diagnosis – appropriate management
- All patients with food allergies should carry 2 epinephrine autoinjectors – multiple caregivers
- Keep up with the current literature

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RESOURCES – PATIENTS AND ASTHMA EDUCATORS

- FARE Food Allergy Research & Education
  www.foodallergy.org
- Allergy and Anaphylaxis Network
  www.allergyasthmanetwork.org
- Asthma and Allergy Foundation of America
  www.aafa.org
- American Academy of Allergy, Asthma, and Immunology
  www.aaaai.org
- American College of Asthma, Allergy, and Immunology
  www.acaai.org

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FOOD ALLERGY GUIDELINES

- American Academy of Pediatrics, Committee on Nutrition. Hypoallergenic infant formulas. Pediatrics 2000;106:346-349
- Boyce JA, Assa'ad A, et al. Guidelines for the diagnosis and management of food allergy in the United States: report of the NIAID-sponsored expert panel. J Allergy Clin Immunol 2010; 126:S1.
- Sampson HA, Aceves S, Bock SA, et al. Food allergy: a practice parameter update-2014. J Allergy Clin Immunol 2014; 134:1016.
- Muraro A, Werfel T, Hoffmann-Sommergruber K, et al. EAACI food allergy and anaphylaxis guidelines: diagnosis and management of food allergy. Allergy 2014; 69:1008.KBJ
- Scott H. Sicherer, MD, S. Allan Bock, MD, Robert S. Zeiger, MD, PhD. Implications of the "Consensus Communication on Early Peanut Introduction in the Prevention of Peanut Allergy in High-Risk Infants" for Allergists, Primary Care Physicians, Patients, and Society. The Journal of Allergy and Clinical Immunology: In Practice (jaci-inpractice.org) Volume 8, Issue 5, p649-651
- 2017 - National Institutes of Allergy and Infectious Disease (NIAID) addendum Addendum guidelines for the prevention of peanut allergy in the United States: Report of the National Institute of Allergy and Infectious Diseases-sponsored expert panel - PubMed (nih.gov).
- Greenhawt M, Shaker M, Wang J, et al. Peanut allergy diagnosis: A 2020 practice parameter update, systematic review, and GRADE analysis. J Allergy Clin Immunol 2020; 146:1302.
- Peanut allergy diagnosis: A 2020 practice parameter update, systematic review, and GRADE analysis - Journal of Allergy and Clinical Immunology (jacionline.org).

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OTHER RESOURCES

- NIH NEWS IN HEALTH -Understanding Food Allergies | NIH News in Health (A monthly newsletter from the National Institutes of Health, part of the U.S. Department of Health and Human Services)
- US Food & Drug Administration – FDA recalls –free e-mail subscription service recall notices
- Food Allergen Labeling and Consumer Protection Act of 2004 Food Allergen Labeling and Consumer Protection Act of 2004 (FALCPA) | FDA
- State Laws | Advocacy with Allergy & Asthma Network (allergyasthmanetwork.org)
  All 50 states now have laws protecting students' rights to carry and use prescribed anaphylaxis medications.
- Up to Date Patient Education www.uptodate.com/home/uptodate-patient-education
- Pubmed.ncbi.nlm.nih.gov
- Continuing education: Jaffe Food Allergy Institute, Icahn School of Medicine at Mount Sinai, New York, New York and other institutions

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THANK YOU!
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