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| Body System: Pediatrics | | |
| Session Topic: Diagnosis and Treatment of Food Allergies in Children and Adolescents | | |
| Educational Format | | Faculty Expertise Required |
| REQUIRED | Interactive Lecture | Expertise in the field of study. Experience teaching in the field of study is desired. Preferred experience with audience response systems (ARS). Utilizing polling questions and engaging the learners in Q&A during the final 15 minutes of the session are required. |
| OPTIONAL | Problem-Based Learning (PBL) | Expertise teaching highly interactive, small group learning environments. Case-based, with experience developing and teaching case scenarios for simulation labs preferred. Other workshop-oriented designs may be accommodated. A typical PBL room is set for 50-100 participants, with 7-8 each per round table. <u>Please describe your interest and plan for teaching a PBL on your proposal form.</u> |
| Professional Practice Gap | Learning Objective(s) that will close the gap and meet the need | Outcome Being Measured |
| <ul style="list-style-type: none"> • Knowledge and practice gaps differentiating between food allergy versus food intolerance • Knowledge and practice gaps identifying available diagnostic testing modalities for food allergy • Knowledge and practice gaps counseling patients and families on methods to reduce risk of acute allergic response, including the use of food challenges. • Knowledge and practice gaps identifying prevention strategies surrounding the timing and introduction of solid and high risk foods for children. • Knowledge and practice gaps counseling patients about egg allergies, and their families on the evidence based recommendations for routine immunizations. | <ol style="list-style-type: none"> 1. Differentiate between food allergy versus food intolerance. 2. Identify available diagnostic testing modalities for food allergy. 3. Counsel patients and families on methods to reduce risk of acute allergic response, including the use of food challenges. 4. Identify prevention strategies surrounding the timing and introduction of solid and high risk foods for children. 5. Educate patients with egg allergies, and their families on the evidence based recommendations for routine immunizations. | Learners will submit written commitment to change statements on the session evaluation, indicating how they plan to implement presented practice recommendations. |
| ACGME Core Competencies Addressed (select all that apply) | | |



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| X | Medical Knowledge | Patient Care |
| X | Interpersonal and Communication Skills | Practice-Based Learning and Improvement |
| | Professionalism | Systems-Based Practice |

Faculty Instructional Goals

Faculty play a vital role in assisting the AAFP to achieve its mission by providing high-quality, innovative education for physicians, residents and medical students that will encompass the art, science, evidence and socio-economics of family medicine and to support the pursuit of lifelong learning. By achieving the instructional goals provided, faculty will facilitate the application of new knowledge and skills gained by learners to practice, so that they may optimize care provided to their patients.

- Provide up to 3 evidence-based recommended practice changes that can be immediately implemented, at the conclusion of the session; including SORT taxonomy & reference citations
- Facilitate learner engagement during the session
- Address related practice barriers to foster optimal patient management
- Provide recommended journal resources and tools, during the session, from the American Family Physician (AFP), Family Practice Management (FPM), and Familydoctor.org patient resources; those listed in the References section below are a good place to start
 - Visit <http://www.aafp.org/journals> for additional resources
 - Visit <http://familydoctor.org> for patient education and resources
- Provide recommendations for differentiating between food allergy versus food intolerance
- Provide recommendations for identifying available diagnostic testing modalities for food allergy
- Provide strategies and resources for counseling patients and families on methods to reduce risk of acute allergic response, including the use of food challenges.
- Provide recommendations for identifying prevention strategies surrounding the timing and introduction of solid and high risk foods for children.
- Provide strategies and resources for educating patients with egg allergies, and their families on the evidence based recommendations for routine immunizations.

*Note – the scope of this topic is to include new oral treatments available and new guidelines on peanut allergy/food allergies

Needs Assessment

Key findings from Centers for Disease Control and Prevention (CDC) study suggest that food allergy among U.S. children is on the rise:¹

- In 2007, approximately 3 million children under age 18 years (3.9%) were reported to have a food or digestive allergy in the previous 12 months.
- From 1997 to 2007, the prevalence of reported food allergy increased 18% among children under age 18 years.
- Children with food allergy are two to four times more likely to have other related conditions such as asthma and other allergies, compared with children without food allergies.



- From 2004 to 2006, there were approximately 9,500 hospital discharges per year with a diagnosis related to food allergy among children under age 18 years.

Findings from a more recent study (2009-1010), suggest that food allergies among children are even more common:²

- 8% (among 38,480 children in the study) have a food allergy
 - Approximately 6% aged 0-2 years have a food allergy
 - About 9% aged 3-5 years have a food allergy
 - Nearly 8% aged 6-10 years have a food allergy
 - Approximately 8% aged 11-13 years have a food allergy
 - More than 8.5% aged 14-18 years have a food allergy
- 38.7% of food allergic children have a history of severe reactions
- 30.4% of food allergic children have multiple food allergies
- Of food allergic children, peanut is the most prevalent allergen, followed by milk and then shellfish
- In 2012, 5.6% or 4.1 million children reported food allergies in the past 12 months.

Practice Gaps

Data from a recent American Academy of Family Physicians (AAFP) CME Needs Assessment survey indicate that family physicians have statistically significant and meaningful knowledge and practice gaps in the medical skill necessary to provide optimal care for patients with food intolerance/allergies.³

Food allergy is often a very difficult diagnosis in primary care, with some studies suggesting that only 10% of those who believe they have food allergy can be proven to have one.^{1,4,5}

Patients with suspected food allergies are commonly seen in clinical practice. Although up to 15% of parents believe their children have food allergies, these allergies have only been confirmed in 1 to 3% of all Americans. Multiple studies demonstrate that 50 to 90% of self-reported food allergies are not actually allergies. Diagnosis can include food challenge, elimination diets, skin tests and/or lab tests, and can be confusing. Family physicians must be able to separate true food allergies from food intolerance, food dislikes, and other conditions that mimic food allergy. The National Institute of Allergy and Infectious Diseases (NIAID) sponsored an expert panel to generate a standardized approach to the evaluation, diagnosis and management of food allergies.⁵

Accurate identification of food allergies is important as unnecessary food avoidance can result in inadequate nutrient intake and growth deficits.⁶ Elimination diets may be necessary to prevent potentially life-threatening food allergic reactions.⁷ Allergen elimination can also ease chronic symptoms, such as atopic dermatitis, when a food is proven to trigger symptoms. However, removing a food with proven sensitivity to treat chronic symptoms may increase the risk of an acute reaction upon reintroduction or accidental ingestion.⁸ Oral food challenges have been shown to increase the reactive threshold and improve quality of life, and represent a shift in clinical approach.^{7,9} Additionally, patients frequently believe that a known egg allergy disqualifies them from participating in preventative immunizations for numerous diseases. Measles, mumps, rubella, varicella and influenza are all vaccines that may be given to patients



with a history of egg allergy. At the same time, vaccines for rabies and yellow fever should not be given to certain patients with egg allergy unless an allergy evaluation is performed first.⁵

There is considerable interest in approaches to reduce the risk of developing food allergy. Evidence based recommendations for primary prevention of food allergy include a wide range of antenatal, perinatal, neonatal and childhood strategies have been identified and evaluated.¹⁰ Guidelines are available, but evidence shows their implementation is suboptimal.¹¹ Recent guideline updates from a variety of organizations including the American Academy of Allergy, Asthma, and Immunology; American Academy of Pediatrics; American College of Allergy, Asthma, and Immunology, Australasian Society of Clinical Immunology; European Academy of Allergy and Clinical Immunology; Israel Association of Allergy and Clinical Immunology; Japanese Society For Allergology; Society for Pediatric Dermatology; and World Allergy Organization address a reversal of previous recommendations to abstain from introducing peanuts to high risk infants until after 5 years of age. The evidence supporting this change indicates that infants first consuming peanut products beginning at 4 months of age had an 80% risk reduction for developing peanut allergy compared to children who avoided peanut products until 5 years of age.^{12,13} This guideline changes is a significant one that will require much patient education and guidance to reverse the common thinking among American parents.¹²

In an effort to reduce allergy development, studies have also looked at solid food introduction as early as 4 month (a change from the previous 6 month recommendations.^{14,15} The evidence has led to recommendations from the American Academy of Pediatrics and the American Academy of Allergy, Asthma, and Immunology to start solid foods around four to six months of age.¹⁵

With the significant shifts in recommendations, family physicians require continuing medical education to provide clarification of the newest evidence and accepted guidelines to provide appropriate medical care and teaching to patients and families in their practice.

Physicians may improve their care of pediatric patients with allergies by engaging in continuing medical education that provides practical integration of current evidence-based guidelines and recommendations into their standards of care, including, but not limited to the following:^{4,5,16}

- Immunoglobulin E testing with skin-prick or radioallergosorbent test is appropriate if clinical suspicion for food allergy is high.
- Patients (or caregivers of patients) with known or suspected anaphylactic food allergies should carry injectable epinephrine and be instructed on how to use it.
- Although there is no evidence to support the use of hydrolyzed formula over breastfeeding, there is some evidence that hydrolyzed formulas reduce infant and childhood allergies compared with cow's milk-based formulas.
- Food containing peanuts should be introduced into the diet of infants four to six months of age who have severe eczema and/or egg allergy.
- Peanut-specific immunoglobulin E should be measured or a skin prick test performed before introducing peanuts in high-risk groups.
- If an infant has mild to moderate eczema, foods with peanuts can be given at approximately six months of age.
- A thorough medical history supplemented by oral food challenge tests should be used to establish a diagnosis of food allergy.



- When food challenge tests are unavailable, or when the food allergy has resulted in anaphylaxis, a diagnosis should be based on a definitive history and absence of symptoms when the causative food is eliminated from the diet.
- Skin prick tests and tests measuring total serum immunoglobulin E (IgE) or allergen-specific serum IgE levels are not sufficient to make a diagnosis of food allergy.
- Influenza vaccine (not the live attenuated type) can be given to patients with egg allergies whose reactions are limited to urticaria.
- All patients with a history of food allergy–induced anaphylaxis should be given and taught how to use an epinephrine autoinjector and encouraged to wear medical alert jewelry and carry an anaphylaxis wallet card.

These recommendations are provided only as assistance for physicians making clinical decisions regarding the care of their patients. As such, they cannot substitute for the individual judgment brought to each clinical situation by the patient's family physician. As with all clinical reference resources, they reflect the best understanding of the science of medicine at the time of publication, but they should be used with the clear understanding that continued research may result in new knowledge and recommendations. These recommendations are only one element in the complex process of improving the health of America. To be effective, the recommendations must be implemented. As such, physicians require continuing medical education to assist them with making decisions about specific clinical considerations.

Resources: Evidence-Based Practice Recommendations/Guidelines/Performance Measures

- Food Allergies: Detection and Management⁴
- Summary of the NIAID-Sponsored Food Allergy Guidelines⁵
- Addendum guidelines for the prevention of peanut allergy in the United States: Report of the National Institute of Allergy and Infectious Diseases¹⁶
- Familydoctor.org – Food Allergies (patient education)¹⁷

References

1. Branum AM, Lukacs S. *Food allergy among US children: trends in prevalence and hospitalizations*. US Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Health Statistics; 2008.
2. American Academy of Allergy Asthma & Immunology. ALLERGY STATISTICS. 2017;
3. AAFP. 2012 CME Needs Assessment: Clinical Topics. American Academy of Family Physicians; 2012.
4. Kurowski K, Boxer RW. Food allergies: detection and management. *American family physician*. 2008;77(12):1678-1686.
5. Yawn BP, Fenton MJ. Summary of the NIAID-sponsored food allergy guidelines. *American family physician*. 2012;86(1):43-50.



6. Lavine E, Clarke A, Joseph L, et al. Peanut avoidance and peanut allergy diagnosis in siblings of peanut allergic children. *Clinical & Experimental Allergy*. 2015;45(1):249-254.
7. Sicherer SH, Sampson HA. Food allergy: epidemiology, pathogenesis, diagnosis, and treatment. *Journal of Allergy and Clinical Immunology*. 2014;133(2):291-307. e295.
8. Groetch M, Nowak-Wegrzyn A. Practical approach to nutrition and dietary intervention in pediatric food allergy. *Pediatric Allergy and Immunology*. 2013;24(3):212-221.
9. Santos AF, Lack G. Food allergy and anaphylaxis in pediatrics: update 2010-2012. *Pediatric Allergy and Immunology*. 2012;23(8):698-706.
10. Muraro A, Halken S, Arshad S, et al. EAACI food allergy and anaphylaxis guidelines. Primary prevention of food allergy. *Allergy*. 2014;69(5):590-601.
11. Hakimeh D, Tripodi S. Recent advances on diagnosis and management of childhood asthma and food allergies. *Italian journal of pediatrics*. 2013;39(1):80.
12. Hauk L. Early Peanut Introduction and Prevention of Peanut Allergy in High-Risk Infants: Consensus Communication. *American family physician*. 2016;93(1):61-62.
13. Young MC. Taking the leap earlier: the timing of tolerance. *Current opinion in pediatrics*. 2015;27(6):736-740.
14. Agostoni C, Laicini E. Early exposure to allergens: a new window of opportunity for non-communicable disease prevention in complementary feeding? *International journal of food sciences and nutrition*. 2014;65(1):1-2.
15. Lau CH, Gupta RS. The pediatrician's role in the diagnosis and management of food allergy. *Pediatric annals*. 2013;42(7):e126-e131.
16. Togias A, Cooper SF, Acebal ML, et al. Addendum guidelines for the prevention of peanut allergy in the United States: Report of the National Institute of Allergy and Infectious Diseases's sponsored expert panel. *Annals of Allergy, Asthma & Immunology*. 118(2):166-173.e167.
17. FamilyDoctor.org. Food Allergies. 2014;