

Food Introduction and Allergy Prevention



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Speaker Disclosure Information

I have the following financial relationships with the manufacturer(s) of any commercial product(s) and/or provider(s) of commercial services discussed in this training:

- Research Support from: USDA/National Peanut Board, USDA/Egg Nutrition Center and Kaleo
- Consultant for: AAFA National
- Program Support: DBV Technologies
- Advisory Board: Novartis, Bryn, kaleo, Anjo, Food Graph
- Co-Founder and Content Creator: Allergy Home and Allergy Certified Training

I will give a balanced presentation using the best available evidence to support my conclusions and recommendations.

I **do not** intend to discuss an unapproved/investigative use of a commercial product/device in my presentation.

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AAP Committee on Nutrition: 2000 Policy Statement

“Solid foods should not be introduced into the diet of high-risk infants until 6 months of age, with dairy products delayed until 1 year, eggs until 2 years, and peanuts, nuts, and fish until 3 years of age.”



American Academy of Pediatrics, Committee on Nutrition. Hypoallergenic infant formulas. Pediatrics. 2000;106:346-349

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Food Allergy Myth



“Delay the introduction of highly allergenic foods”



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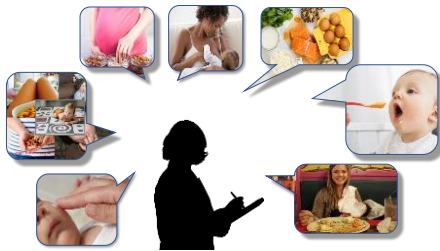
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Goals of this Talk:

At the conclusion of the presentation, participants should be able to:

1. Advise against delaying introduction of highly allergenic foods
2. Engage in shared decision making conversations with the families of your patients
3. Understand and communicate the available Guidance pertaining to the prevention of atopic disease

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2008 AAP withdrew recommendations to delay allergen introduction

2015 LEAP Trial Published

2017 Addendum NIAID Guidelines

2019 AAP Clinical Report

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2021 Consensus Approach AAAAI/ACAAI/CSACI

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Guidelines, Reports, and Statements; oh my...

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Guidelines, Reports, and Statements; oh my...

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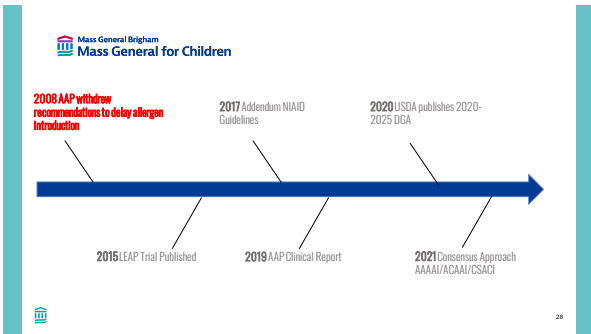
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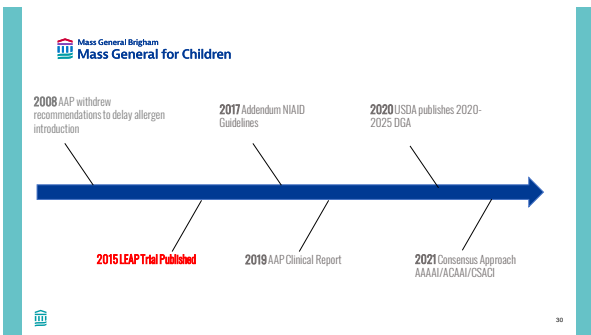
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AAP Committee on Nutrition and Section on Allergy and Immunology: 2008 Clinical Report

- “Although solid foods should not be introduced before 4 to 6 months of age, there is no current convincing evidence that delaying their introduction beyond this period has a significant protective effect on the development of atopic disease.”
- “This includes delaying the introduction of foods that are considered to be highly allergic, such as fish, eggs, and foods containing peanut protein.”

[Thumbnail of the 2008 Clinical Report](#)

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Learning Early About Peanut (LEAP) Study

[Thumbnail of the NEJM article: Randomized Trial of Peanut Consumption in Infants at Risk for Peanut Allergy](#)

<https://www.nejm.org/doi/full/10.1056/NEJMoa1414850>

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Learning Early About Peanut (LEAP) Study

<https://www.nejm.org/doi/full/10.1016/NEJMoa1414850>

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Enquiring About Tolerance (EAT): Randomized Trial of Introduction of Allergenic Foods in Breast-Fed Infants

- Infants from **general population**
- 1303 exclusively breast fed 3 month olds (67 early introduction vs. 955 standard (no allergens before 5 mo))
- Introduced **6 allergenic foods (2g/wk)**, sequentially at enrollment (**pn, egg, CM, sesame, white fish, wheat**)
- Out come was food allergy to one or more of foods between 1 and 3 yrs
- Poor compliance with feeding recommendations
- Intention-to-treat group no significant difference
- Per-protocol group did have significant reduction in **peanut** (0 vs. 2.5%, p=0.003) and **egg** (1.4 vs 5.5%, p=0.009) allergy at age 3

Perkin, M.R., Logan, K., Tseng, A., Raji, B., Ayis, S., Peacock, J. et al. Randomized trial of introduction of allergenic foods in breast-fed infants. *N Engl J Med.* 2016; 374: 1733-1743

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Koplin JJ, et al. *JACI* 2010;126:807-13
Palmer DJ, et al. *JACI* 2017 May; 139(5):1600-1607.e2
Perkin, M.R., et al. *N Engl J Med.* 2016; 374: 1733-1743
Natsume et al. *Lancet* 2017; 389:276-286.
Lerodakonou, et al. *JAMA* 2016

Bellach J, et al. *JACI* 2017;139(5): 1591-1599
Palmer DJ et al. *JACI.* 2013 Aug; 132(2):387-92.e1
Wei-Liang Tan, *JACI.* 2017 May; 139(5):1621-1628.e8
Greer FR, Sicherer SH, et al. *Pediatrics.* 2019 Apr 1;143(4).

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Schroer B, Groeth M, Mack DP, Venter C. Practical Challenges and Considerations for Early Introduction of Potential Food Allergens for Prevention of Food Allergy. *J Allergy Clin Immunol Pract.* 2021 Jan;9(1):44-56.e1. doi: 10.1016/j.jaip.2020.10.031.

Sakihara T, Otsuji K, Arakaki Y, Hamada K, Sugiura S, Ito K. Randomized trial of early infant formula introduction to prevent cow's milk allergy. *J Allergy Clin Immunol* 2021; 147: pp. 224-232.

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Addendum Guidelines for the Prevention of Peanut Allergy in the United States

Addendum Guidelines for the Prevention of Peanut Allergy in the United States
Report of the NIAID-Sponsored Expert Panel

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Addendum Guidelines for Introduction of Peanut Allergy in the United States

Guidelines for the Introduction of Peanut Allergy in the United States

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Summary of Addendum Guidelines

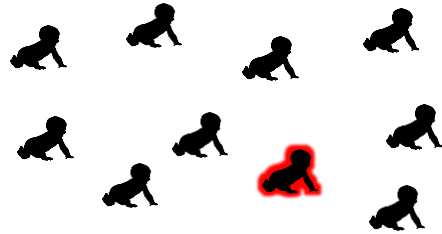
Addendum guideline	Infant criteria	Recommendations	Earliest age of peanut introduction
1	Severe eczema, egg allergy, or both	Strongly consider evaluation by sIgE measurement and/or SPT and, if necessary, an OFC. Based on test results, introduce peanut-containing foods.	4-6 months
2	Mild-to-moderate eczema	Introduce peanut-containing foods	Around 6 months
3	No eczema or any food allergy	Introduce peanut-containing foods	Age appropriate and in accordance with family preferences and cultural practices

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Summary of Addendum Guidelines

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Guidelines 2 + 3: Non-High Risk

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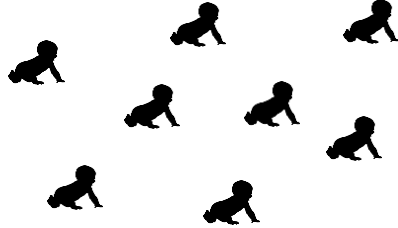
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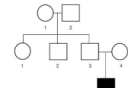
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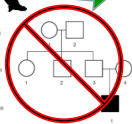
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Counseling about peanut introduction

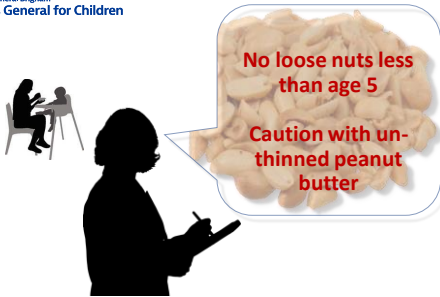
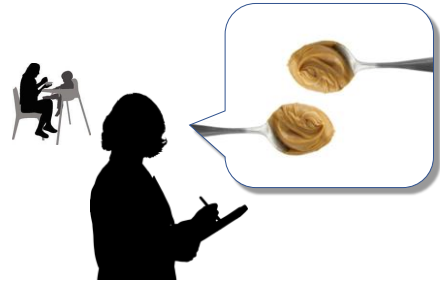


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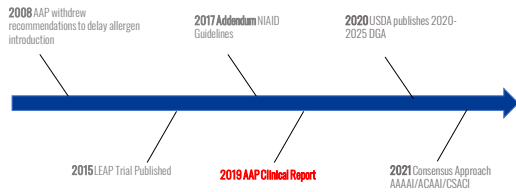
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goal is 2 grams
peanut protein
3 times a week



What if there is a reaction?



AAP2019 Clinical report: Overview

The Effects of Early Nutritional Interventions on the Development of Atopic Disease in Infants and Children: The Role of Maternal Dietary Restriction, Breastfeeding, Hydrolyzed Formulas, and Timing of Introduction of Allergenic Complementary Foods

- There is evidence that early introduction of peanuts may prevent peanut allergy
- No evidence supporting maternal dietary restrictions during pregnancy or lactation
- There is a lack of evidence that hydrolyzed formula prevents atopic disease
- There is no evidence that delaying the introduction of allergenic foods, including peanuts, eggs, and fish, beyond 4 to 6 months prevents atopic disease



Greer FR, Sicherer SH, et al. Pediatrics. 2019 Apr 1;143(4).

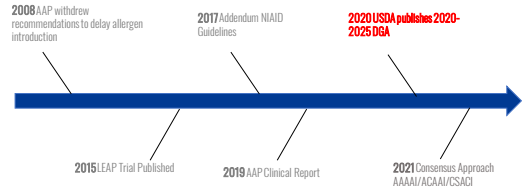
AAP2019 Clinical report: Overview

The Effects of Early Nutritional Interventions on the Development of Atopic Disease in Infants and Children: The Role of Maternal Dietary Restriction, Breastfeeding, Hydrolyzed Formulas, and Timing of Introduction of Allergenic Complementary Foods

- Exclusive breastfeeding for 3 -4 mo decreases the incidence of eczema in the first 2 years of life, but there is no evidence that supports short- or long-term advantages for exclusive breastfeeding beyond 3 to 4 months for atopy prevention
- Any duration of breastfeeding ≥3 -4 months protects against wheezing in the first 2 years, and some evidence suggests that longer duration of any breastfeeding protects against asthma after 5 years
- No conclusions can be made about the role of breastfeeding in either preventing or delaying the onset of specific food allergies



Greer FR, Sicherer SH, et al. Pediatrics. 2019 Apr 1;143(4).



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Dietary Guidelines for Americans 2020-2025

- Updated jointly by the U.S. Departments of Agriculture (USDA) and Health and Human Services (HHS) every five years
- 1st set of guidelines that provide guidance for healthy dietary patterns by life stage (including infants)
- Include recommendations consistent with Addendum NIAID Guidelines and AAP 2019 Clinical Report



U.S. Department of Agriculture and U.S. Department of Health and Human Services. Dietary Guidelines for Americans, 2020-2025. 9th Edition. December 2020. Available at DietaryGuidelines.gov.

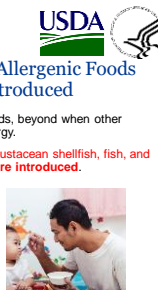
DGA 2020-2025: Introduce Nutrient-Dense Complementary Foods at About 6 Months

- Complementary foods, as a supplement to human milk or infant formula feedings, are necessary to ensure adequate nutrition and exposure to flavors, textures, and different types of foods.
- Some infants may show developmental signs of readiness before age 6 months, **but introducing complementary foods before age 4 months – or waiting until after 6 months - is not recommended.**
- For infants fed human milk, it is particularly important to include complementary foods that are rich in iron and zinc.
- Provide age and developmentally appropriate foods to help prevent choking

U.S. Department of Agriculture and U.S. Department of Health and Human Services. Dietary Guidelines for Americans, 2020-2025. 9th Edition. December 2020. Available at DietaryGuidelines.gov.

DGA 2020-2025: Introduce Potentially Allergenic Foods When Other Complementary Foods are Introduced

- There is no evidence that delaying introduction of allergenic foods, beyond when other complementary foods are introduced, helps to prevent food allergy.
- Foods like peanuts, egg, cow milk products, tree nuts, wheat, crustacean shellfish, fish, and soy should be introduced **when other complementary foods are introduced.**
 - » Introducing peanut-containing foods in the first year reduces the risk that an infant will develop a food allergy to peanuts.
 - » Cow milk, as a beverage, should be introduced at age 12 months or later.



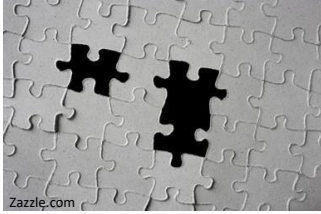
U.S. Department of Agriculture and U.S. Department of Health and Human Services. Dietary Guidelines for Americans, 2020-2025. 9th Edition. December 2020. Available at DietaryGuidelines.gov.

DGA 2020-2025: Infants at High Risk for Peanut Allergy

- If an infant has severe eczema, egg allergy, or both, age-appropriate, peanut-containing foods should be introduced into the diet as early as age 4 to 6 months – this helps reduce the risk of developing a peanut allergy.
- Caregivers of infants at high risk should check with the infant's healthcare provider before feeding the infant peanut-containing foods.
 - "A blood test or skin prick **may** be recommended to determine whether peanut should be introduced to the infant, and, if so, the safest way to introduce it. More information is available in the Addendum Guidelines for the Prevention of Peanut Allergy in the United States."

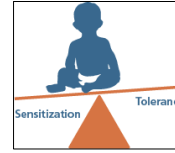
U.S. Department of Agriculture and U.S. Department of Health and Human Services. Dietary Guidelines for Americans, 2020-2025. 9th Edition. December 2020. Available at DietaryGuidelines.gov.

There are still some missing pieces to the puzzle.....



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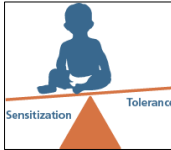
Dual Exposure Hypothesis



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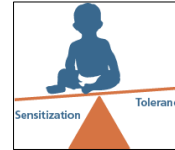
Dual Exposure Hypothesis



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Dual Exposure Hypothesis

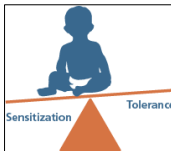


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Dual Exposure Hypothesis



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Age and eczema severity, but not family history, are major risk factors for peanut allergy in infancy

Population: 100 (ages 0-17 months of age with no history of peanut exposure or allergy testing or food use risk factor)

Prevalence: 16% (age only), 11% (eczema only), 50% (family history only)

Risk Factor: 24% (age and eczema severity), 11% (age and family history), 8% (eczema severity and family history), 1% (all three)

Notes: In the absence of eczema being history confers very little risk. Among those with eczema, food allergy often has associated eczema risk.

Keel C, Pislner M, Pleasa M, Szilag D, Shreffler W, Wood R, Dunlop J, Peng R, Dantzer J, Togias A. Age and eczema severity, but not family history, are major risk factors for peanut allergy in infancy. *Journal of Allergy and Clinical Immunology*. 2021.

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Age and eczema severity, but not family history, are major risk factors for peanut allergy in infancy

- Among infants with moderate-severe eczema
 - Older age was strongly associated with increased risk of peanut allergy
 - Eczema severity associated with increased risks

Keel C, Pislner M, Pleasa M, Szilag D, Shreffler W, Wood R, Dunlop J, Peng R, Dantzer J, Togias A. Age and eczema severity, but not family history, are major risk factors for peanut allergy in infancy. *Journal of Allergy and Clinical Immunology*. 2021.

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There are some work arounds.....

<https://currently.att.yahoo.com/att/9-life-lessons-learned-from-jigsaw-puzzles-otk-jp-210916-013111508.html>

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A Consensus Approach to the Primary Prevention of Food Allergy Through Nutrition



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A Consensus Approach to the Primary Prevention of Food Allergy Through Nutrition

Eczema is considered the highest risk factor for developing IgE-mediated food allergy, but children without risk factors still develop food allergy

Screening before introduction is not required, but may be preferred by some families



Fleischer DM, Chan ES, Venter C, Spergel JM, Abrams EM, Stokus D, Groetch M, Shaker M, Greenhawt M. The Journal of Allergy and Clinical Immunology: In Practice. 2021 Jan 1;9(1):22-43.

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A Consensus Approach to the Primary Prevention of Food Allergy Through Nutrition

- To prevent peanut and/or egg allergy, both peanut and egg should be introduced around 6 months of life, but not before 4 months
- Other allergens should be introduced around this time as well
- Upon introducing complementary foods, infants should be fed a diverse diet, because this may help foster prevention of food allergy



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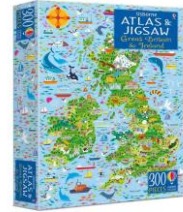
Fleischer DM, Chan ES, Venter C, Spergel JM, Abrams EM, Stokus D, Groetch M, Shaker M, Greenhawt M. The Journal of Allergy and Clinical Immunology: In Practice. 2021 Jan 1;9(1):22-43.

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Other countries approaches....



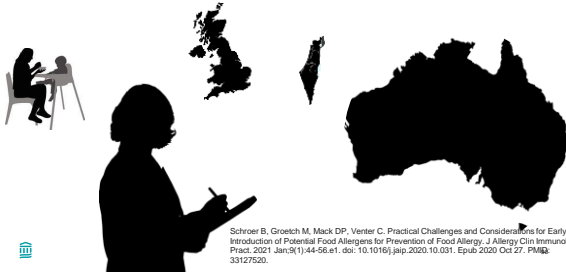
<https://www.walmart.com/ip/Map-of-the-USA-1000-Piece-Puzzle/47381976>



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Other Countries



Schroer B, Groetch M, Mack DP, Venter C. Practical Challenges and Considerations for Early Introduction of Potential Food Allergens for Prevention of Food Allergy. J Allergy Clin Immunol Pract. 2021; Jan;9(1):44-56.e1. doi: 10.1016/j.jaip.2020.10.021. Epub 2020 Oct 27. PMID: 33127520.

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Another piece in the puzzle....



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Policy Statement: Breastfeeding and the use of Human Milk




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Policy Statement: Breastfeeding and the use of Human Milk:

Exclusivity and Duration

Exclusive breastfeeding for approximately 6 months after birth

Appropriate **complementary foods introduced at about 6 months**

Peanut introduction as early as 4 to 6 months of age for infants at high risk of peanut allergy because of the presence of severe eczema and/or egg allergy.



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How does it all fit together for your families?




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Collaborate with Families: Shared Decision Making

- We can share what is known
- We can share an understanding and acceptance of uncertainty
- We can narrow the gap of knowledge between physician and family
- We can empower patients and families
- We can promote trust



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Address Barriers and Concerns



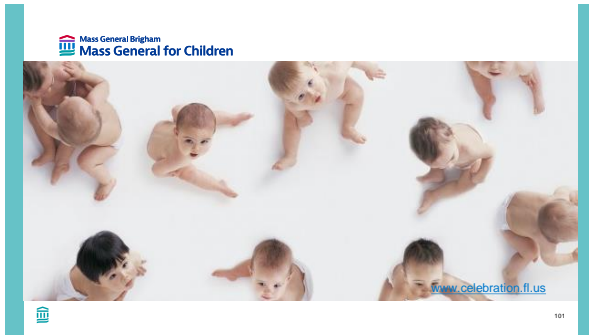

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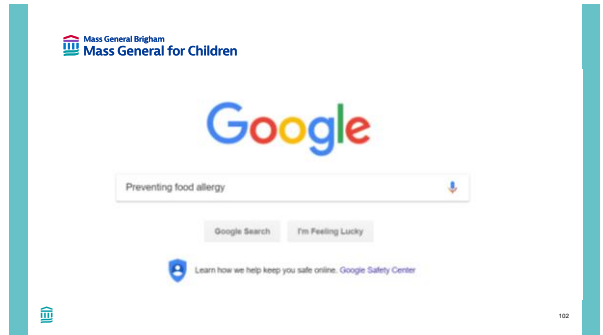
Address Barriers and Concerns




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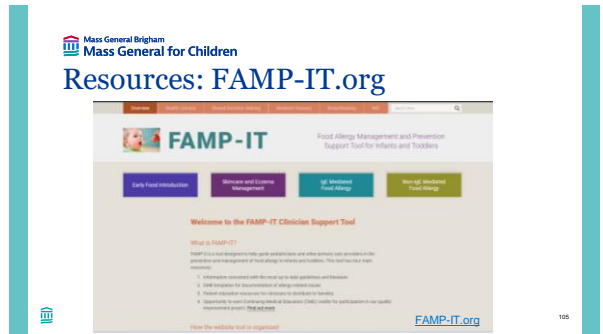
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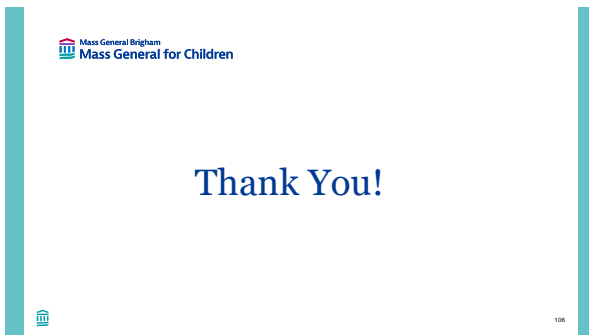
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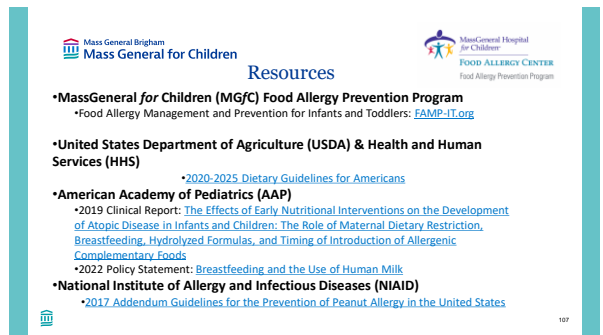
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