Food Allergy

Cecelia Damask, DO
Matthew Ryan, MD

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Disclosures

Cecelia Damask – no conflicts relevant to this presentation

Matthew Ryan- no conflicts relevant to this presentation

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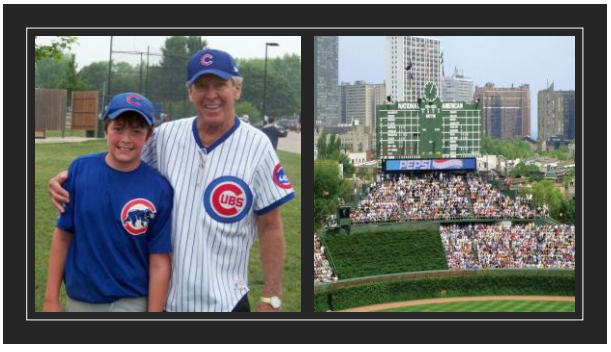

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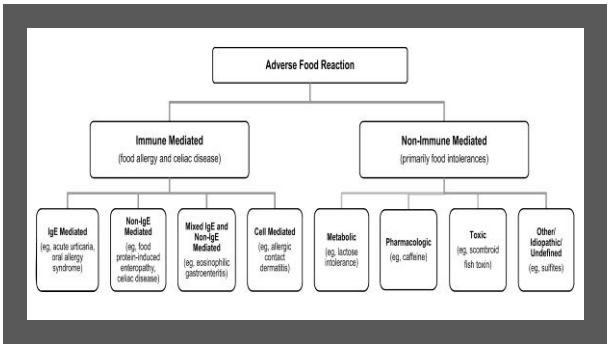

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Prevalence Food Allergy in US Adults

Variable	Prevalence of Current FA, % (95% CI)
Overall	10.8 (10.4-11.1)
Race/ethnicity	
Asian, non-Hispanic	11.4 (9.8-13.3)
Black, non-Hispanic	11.2 (10.2-12.3)
White, non-Hispanic	10.1 (9.7-10.6)
Hispanic	11.6 (10.5-12.8)
Multiple or other	15.9 (13.6-18.6)
Sex	
Male	7.5 (7.0-7.9)
Female	13.8 (13.3-14.4)
Age, y	
18-29	11.3 (10.5-12.2)
30-39	12.7 (11.8-13.7)
40-49	10.0 (9.2-10.9)
50-59	11.9 (11.0-12.8)
≥60	8.8 (8.2-9.4)

Gupta RS et al. JAMA Netw Open. 2019;2(1):e185630.

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Of children with FA, 40% are allergic to multiple foods

42% have experienced a severe reaction

Prevalence Food Allergy US Children

8% of US children have a food allergy

Approximately 2 children per classroom

Gupta RS et al. Pediatrics. 2018;Dec;142(6):e20181235

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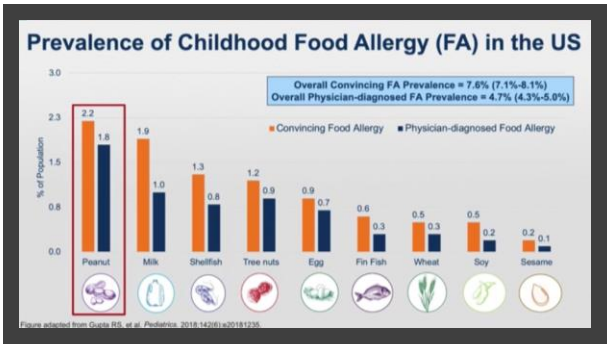

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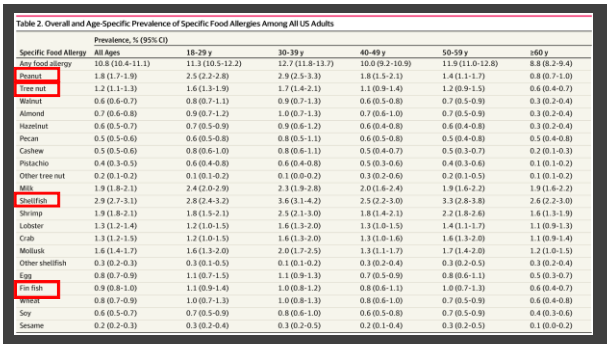

Table 2. Overall and Age-Specific Prevalence of Specific Food Allergies Among All US Adults

Specific Food Allergy	Prevalence, % (95% CI) All Ages	18-29 y	30-39 y	40-49 y	50-59 y	≥60 y
Any food allergy	10.8 (10.4-11.1)	11.3 (10.5-12.2)	12.7 (11.8-13.7)	10.0 (9.2-10.9)	11.9 (11.0-12.8)	8.8 (8.2-9.4)
Peanut	1.8 (1.7-1.9)	2.5 (2.2-2.8)	2.9 (2.5-3.3)	1.8 (1.5-2.1)	1.4 (1.1-1.7)	0.8 (0.7-1.0)
Tree nut	1.2 (1.1-1.3)	1.6 (1.3-1.9)	1.7 (1.4-2.1)	1.1 (0.9-1.4)	1.2 (0.9-1.5)	0.6 (0.4-0.7)
Walnut	0.6 (0.6-0.7)	0.8 (0.7-1.1)	0.9 (0.7-1.3)	0.6 (0.5-0.8)	0.7 (0.5-0.9)	0.3 (0.2-0.4)
Almond	0.7 (0.6-0.8)	0.9 (0.7-1.2)	1.0 (0.7-1.3)	0.7 (0.6-1.0)	0.7 (0.5-0.9)	0.3 (0.2-0.4)
Hazelnut	0.6 (0.5-0.7)	0.7 (0.5-0.9)	0.9 (0.6-1.2)	0.6 (0.4-0.8)	0.6 (0.4-0.8)	0.3 (0.2-0.4)
Pecan	0.5 (0.5-0.6)	0.6 (0.5-0.8)	0.8 (0.5-1.1)	0.6 (0.5-0.8)	0.5 (0.4-0.8)	0.5 (0.4-0.8)
Cashew	0.5 (0.5-0.6)	0.8 (0.6-1.0)	0.8 (0.6-1.1)	0.5 (0.4-0.7)	0.5 (0.3-0.7)	0.2 (0.1-0.3)
Pistachio	0.4 (0.3-0.5)	0.6 (0.4-0.8)	0.6 (0.4-0.8)	0.5 (0.3-0.6)	0.4 (0.3-0.6)	0.1 (0.1-0.2)
Other tree nut	0.2 (0.1-0.2)	0.1 (0.1-0.2)	0.1 (0.0-0.2)	0.3 (0.2-0.6)	0.2 (0.1-0.5)	0.1 (0.1-0.2)
Milk	1.9 (1.8-2.1)	2.4 (2.0-2.9)	2.3 (1.9-2.8)	2.0 (1.6-2.4)	1.9 (1.6-2.2)	1.9 (1.6-2.2)
Shellfish	2.9 (2.7-3.1)	2.8 (2.4-3.2)	3.6 (3.1-4.2)	2.5 (2.2-3.0)	3.3 (2.8-3.8)	2.6 (2.2-3.0)
Shrimp	1.9 (1.8-2.1)	1.8 (1.5-2.1)	2.5 (2.1-3.0)	1.8 (1.4-2.1)	2.2 (1.8-2.6)	1.6 (1.3-1.9)
Lobster	1.3 (1.2-1.4)	1.2 (1.0-1.5)	1.6 (1.3-2.0)	1.3 (1.0-1.5)	1.4 (1.1-1.7)	1.1 (0.9-1.3)
Crab	1.3 (1.2-1.5)	1.2 (1.0-1.5)	1.6 (1.3-2.0)	1.3 (1.0-1.6)	1.6 (1.3-2.0)	1.1 (0.9-1.4)
Mollusk	1.6 (1.4-1.7)	1.6 (1.3-2.0)	2.0 (1.7-2.5)	1.3 (1.1-1.7)	1.7 (1.4-2.0)	1.2 (1.0-1.5)
Other shellfish	0.3 (0.2-0.3)	0.3 (0.1-0.5)	0.1 (0.1-0.2)	0.3 (0.2-0.4)	0.3 (0.2-0.5)	0.3 (0.2-0.4)
Egg	0.8 (0.7-0.9)	1.1 (0.7-1.5)	1.1 (0.9-1.3)	0.7 (0.5-0.9)	0.8 (0.6-1.1)	0.5 (0.3-0.7)
Fin fish	0.9 (0.8-1.0)	1.1 (0.9-1.4)	1.0 (0.8-1.2)	0.8 (0.6-1.1)	1.0 (0.7-1.3)	0.6 (0.4-0.7)
Wheat	0.8 (0.7-0.9)	1.0 (0.7-1.3)	1.0 (0.8-1.3)	0.8 (0.6-1.0)	0.7 (0.5-0.9)	0.6 (0.4-0.8)
Soy	0.6 (0.5-0.7)	0.7 (0.5-0.9)	0.8 (0.6-1.0)	0.6 (0.5-0.8)	0.7 (0.5-0.9)	0.4 (0.3-0.6)
Sesame	0.2 (0.2-0.3)	0.3 (0.2-0.4)	0.3 (0.2-0.5)	0.2 (0.1-0.4)	0.3 (0.2-0.5)	0.1 (0.0-0.2)

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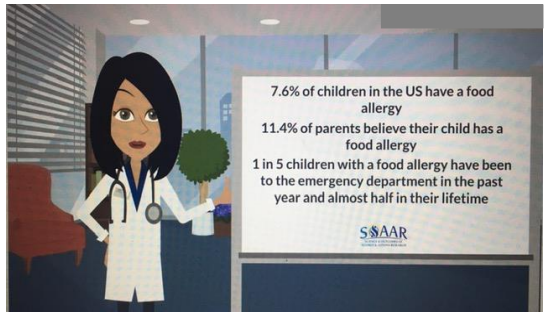

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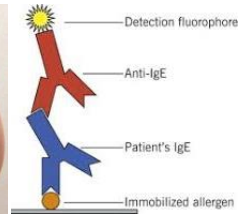
Skin Prick



In Vitro

Allergy testing

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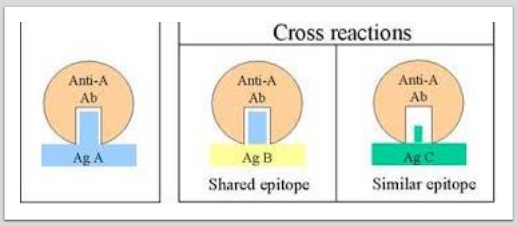

Cross-reactivity

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Oral Food Challenge

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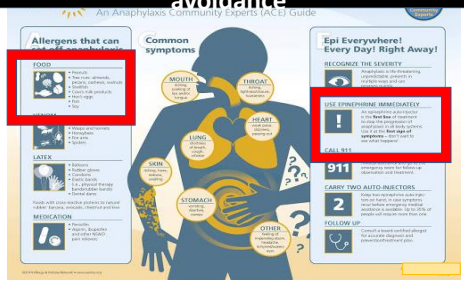
Treatment of Food Allergy has relied on avoidance



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Peanut Allergy

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Why are we seeing such an increase in rates of peanut allergy?

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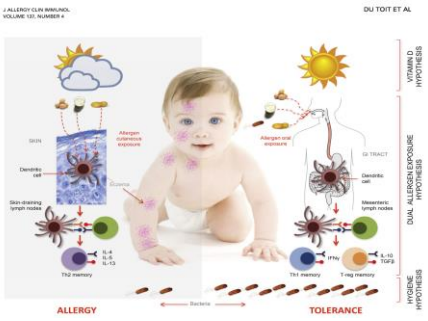

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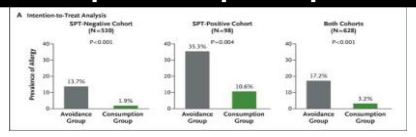
The LEAP Study demonstrated that early introduction of peanut can prevent peanut allergy



11.8% difference **24.7% difference** **14% difference**

The study effect, in plain English…	Negative skin test	Positive skin test	Total
Feed this many infants peanuts to prevent one case of peanut allergy	8.5	4	7.1

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Allergen Immunotherapy (AIT) for IgE-Mediated Food Allergy

Systematic review and meta-analysis

- 1814 potentially relevant papers
- selected 31 eligible studies, comprising of 25 RCTs and six NRS, studying a total of 1259 patients

- AIT may be effective in raising the threshold of reactivity to a range of foods in patients with IgE-mediated food allergy while receiving (ie. desensitization) and post-discontinuation of AIT
  - This study failed to show that study subjects were able to have prolonged tolerance
  - AIT was associated with an increased risk of local and systemic adverse events

Nurmatov U et al. *Allergy*. 2017;72(8):1133–1147.

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Treatment: Food Immunotherapy

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OIT

(Oral Immuno-therapy)

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SLIT

(Sublingual Immuno-therapy)

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EPIT

(Epicutaneous Immuno-therapy)

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PALISADE: AR101 Oral Immunotherapy for Peanut Allergy

- Randomized 3:1, DBPC Phase 3 trial of the efficacy and safety of AR101 in patients with peanut allergy
- 551 peanut-allergic patients aged 4 to 55 yo at 66 clinical sites in US, Canada, and EU
- Inclusion criteria: dose-limiting symptoms at or before the 100 mg dose of peanut protein in an entry DBPCFC
- Dose escalation period for 22 weeks to reach a maintenance dose of 300 mg per day of AR101 or placebo
- Daily maintenance at 300 mg per day of AR101 or placebo for approximately 6 months
- Exit DBPCFC, which tested consecutive doses of 3, 10, 30, 100, 300, 600, and 1000 mg of peanut protein

PALISADE Group of Clinical Investigators et al. N Engl J Med. 2018;379(21): 1991-2001

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PALISADE: Up-dosing Phase

PALISADE Group of Clinical Investigators et al. N Engl J Med. 2018;379(21): 1991-2001.

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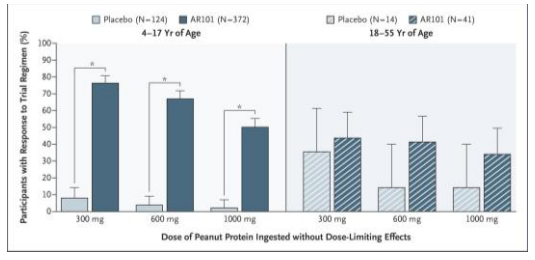

PALISADE Group of Clinical Investigators et al. N Engl J Med. 2018;379(21): 1991-2001.

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PALISADE: Adverse Events

Participants 4 to 17 Years of Age

Adverse Events	Overall number of participants with event (percent)	
	AR101 N=372	Placebo N=124
Abdominal pain	194 (52.2)	30 (24.2)
Vomiting	154 (41.4)	30 (24.2)
Upper abdominal pain	152 (40.9)	26 (21.0)
Nausea	146 (39.2)	29 (23.4)
Withdrew because of adverse events	43 (11.6)	3 (2.4)

PALISADE Group of Clinical Investigators et al. N Engl J Med. 2018;379(21): 1991-2001.

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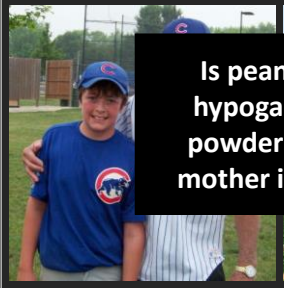

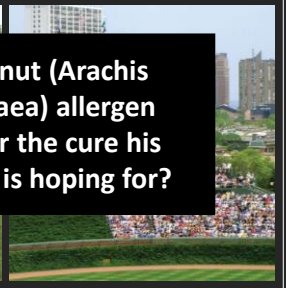

Is peanut (Arachis hypogaea) allergen powder the cure his mother is hoping for?

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