Food Allergy: What was served over the last year?

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The Menu

- Appetizer – Early life exposures and food allergy
- First Course – Prevention
- Second Course – IgE-mediated food allergy
- Third Course- Non-IgE-mediated food allergy

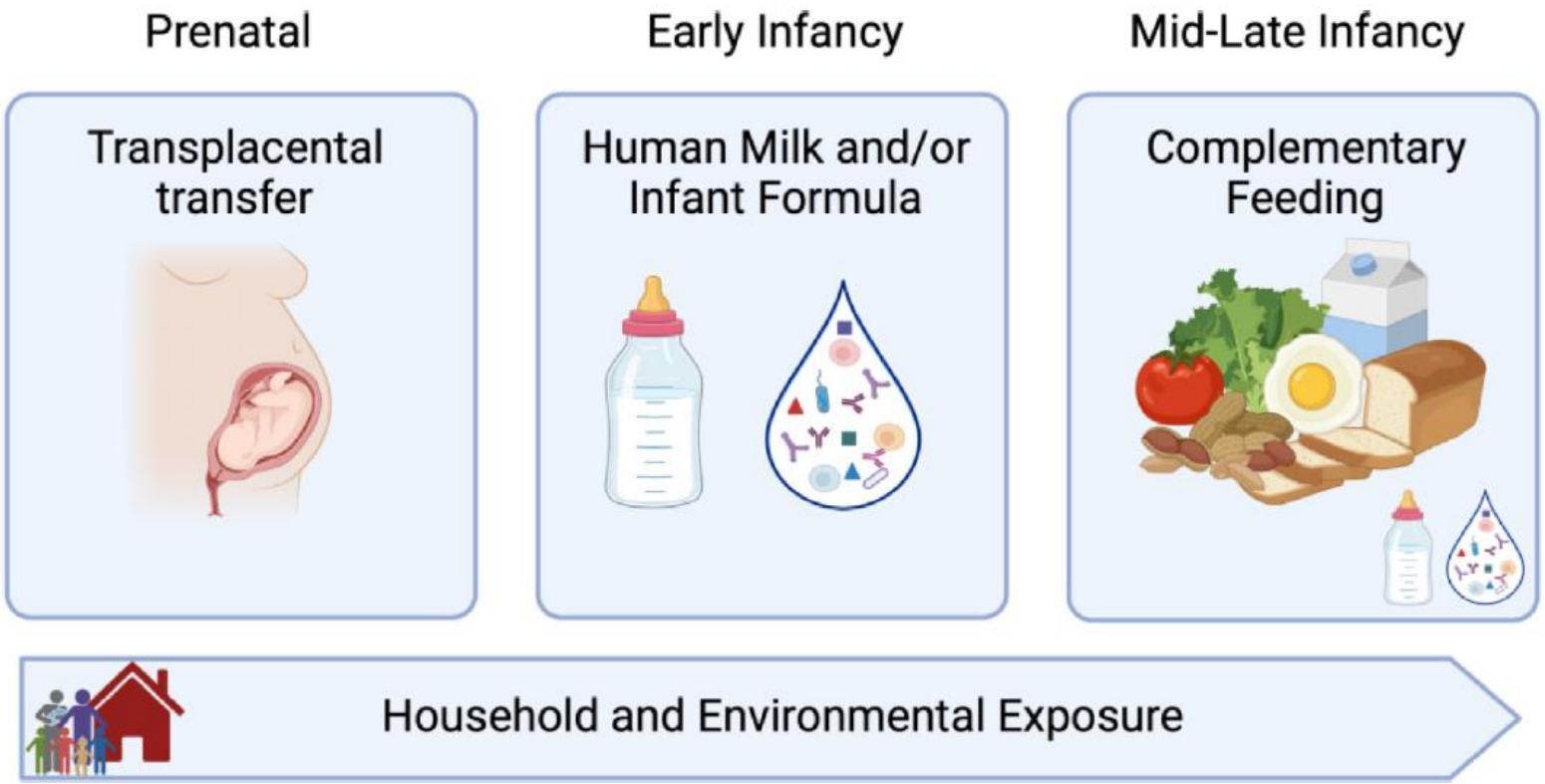


Figure 1. Routes of infant allergen exposure. In utero, food antigens may be transplacentally delivered to the fetus. After birth, infants can be exposed to food allergens throug human milk or infant formula and eventually through their diet. Throughout these periods, individuals may also be exposed to allergens through their environment.

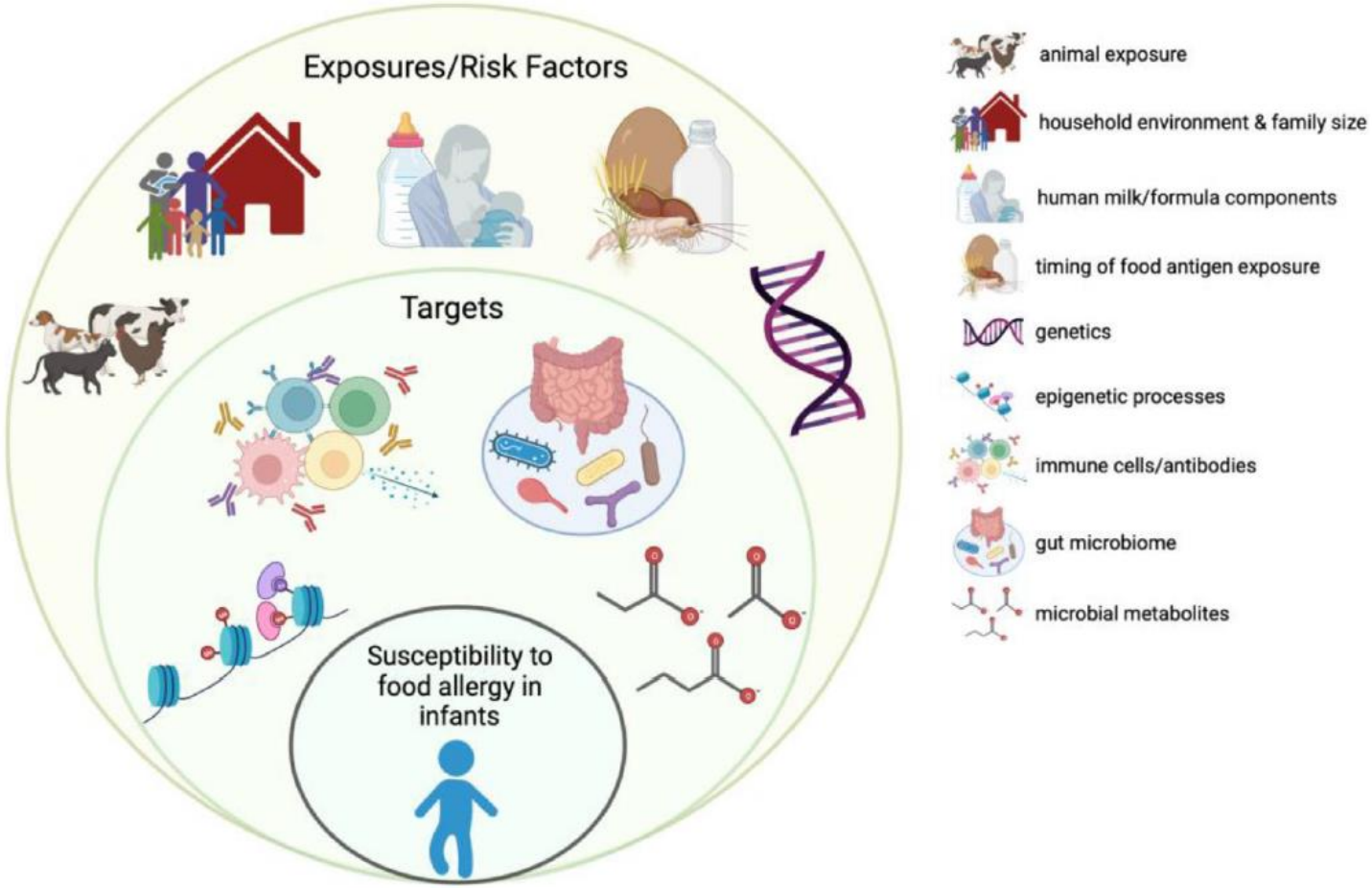
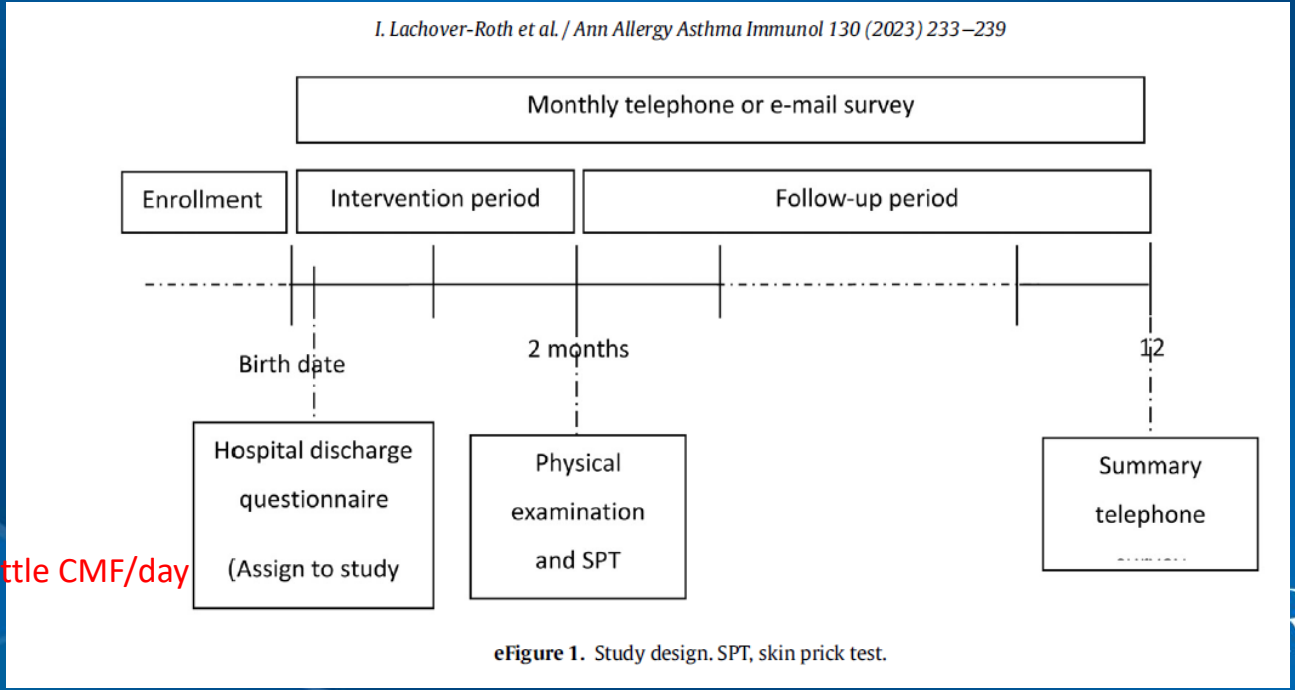


Figure 2. Early life risk factors and targets that influence susceptibility to food allergy. Genetics, animal exposures, family size, breastfeeding, and early allergen exposure are associated with food allergy risk. These factors are hypothesized to influence risk through effects on the microbiome, metabolome, and the developing immune system, potentially through epigenetic mechanisms.

E.C. Davis et al. / Ann Allergy Asthma Immunol 129 (2022) 292–300

Cow's Milk Early Exposure Trial (COMEET)

Goal: Prospectively evaluate whether continuing exposure to CMF from birth is associated with decreased occurrence of IgE-mediated CMA.



eFigure 1. Study design. SPT, skin prick test.

EBF Exposure

-BF and 1 bottle CMF/day

-CMF only

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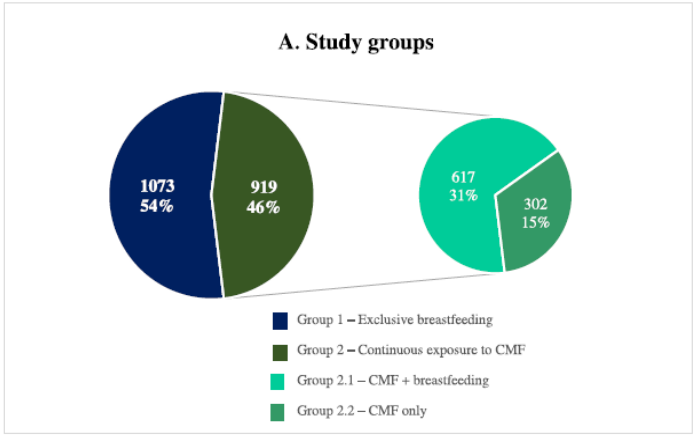


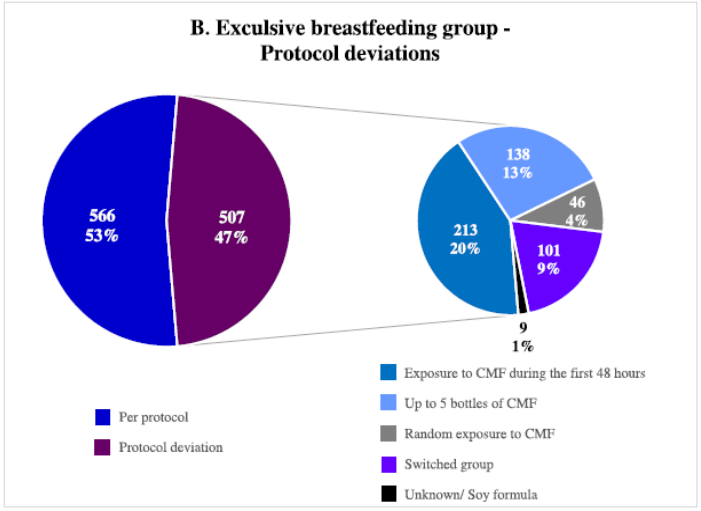


Figure 2. Study groups. (A) Major study groups. (B) Exclusive breastfeeding group per protocol vs protocol deviation. CMF, cow's milk formula.

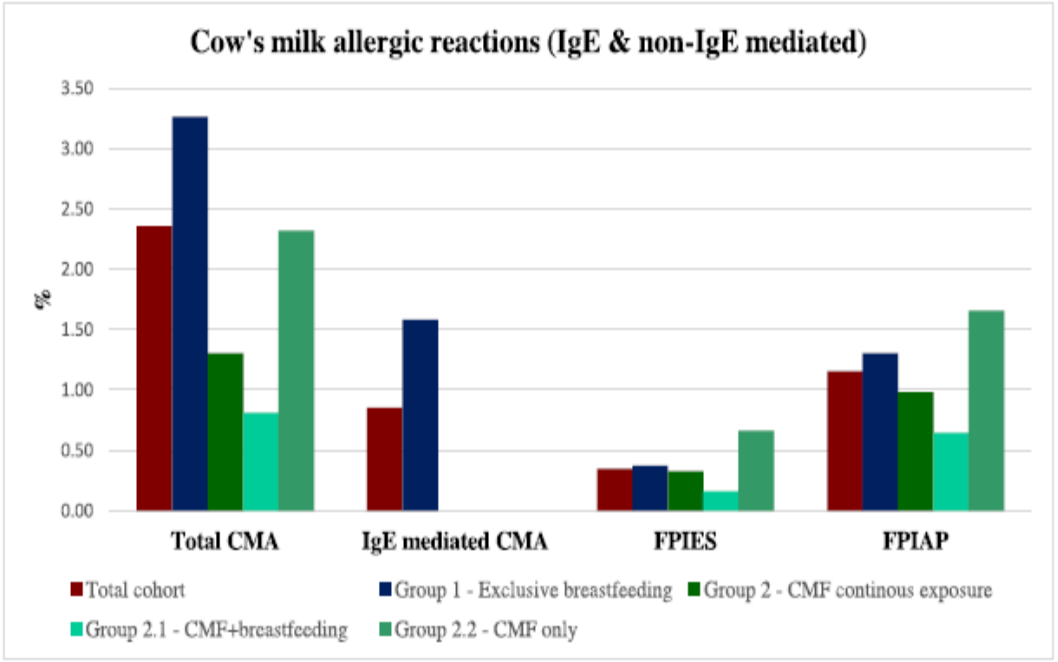
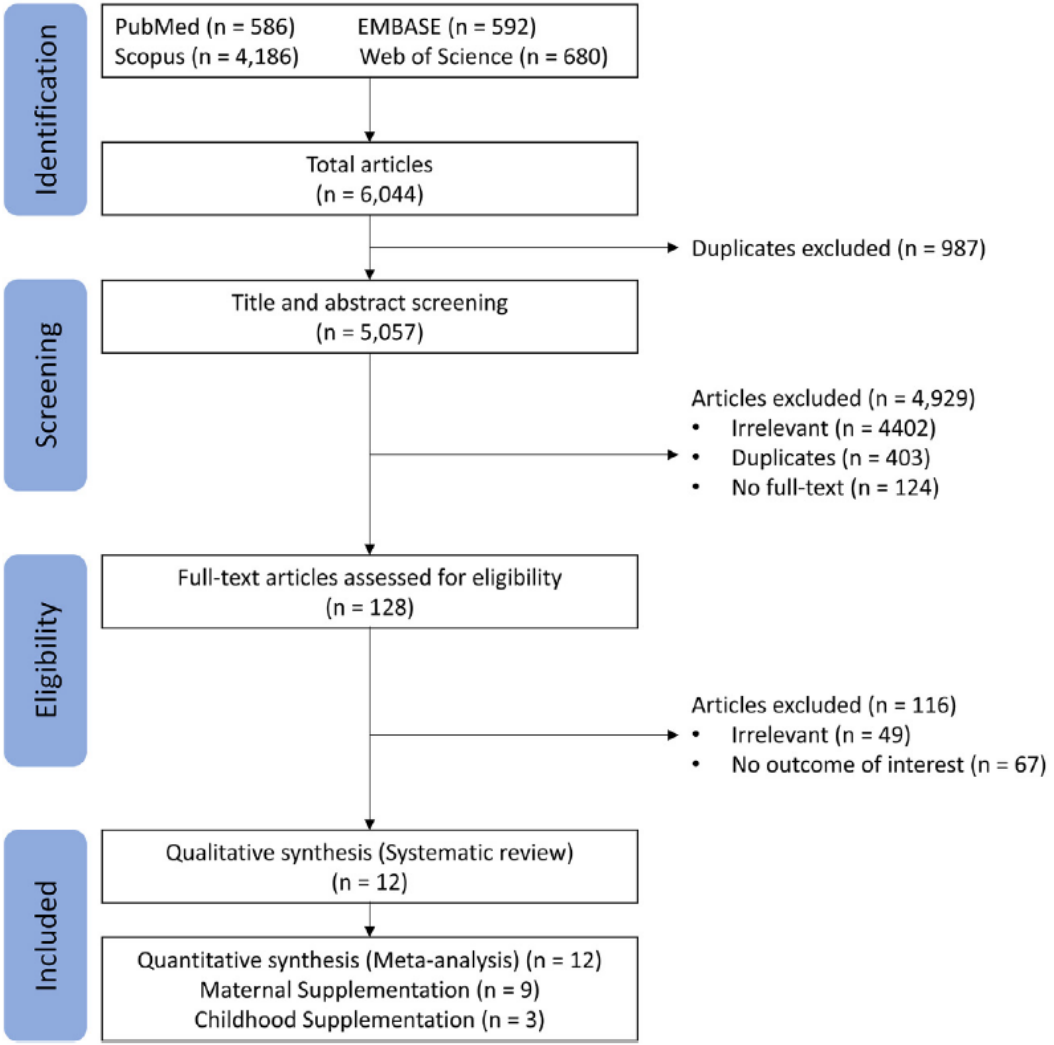
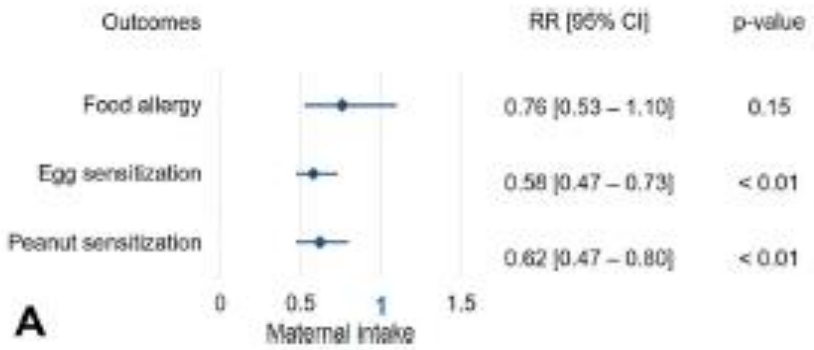


Figure 3. Type of allergic reaction according to study group. Significant differences were found only for IgE-mediated CMA between the exclusive breastfeeding group (group 1) and the CMF continuing exposure group (Group 2), $P < .001$. CMA, cow's milk allergy; CMF, cow's milk formula; FPIAP, food protein-induced allergic proctocolitis; FPIES, food protein-induced enteropathy; IgE, immunoglobulin E.

Can omega-3 fatty acid supplementation during pregnancy and childhood reduce the risk of food allergy in offspring?



Huynh JACI IP 2023;11:2862-71



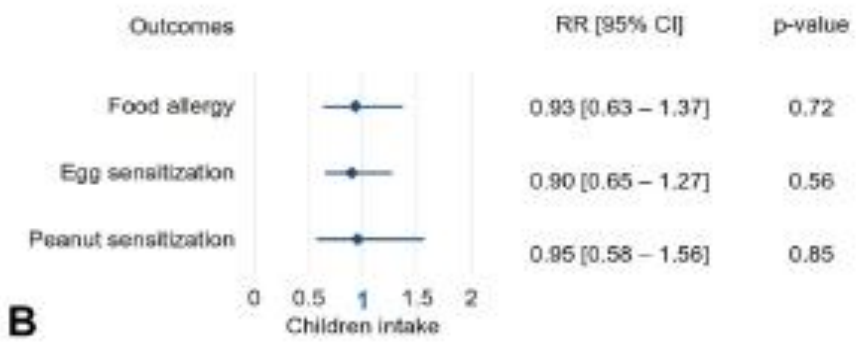
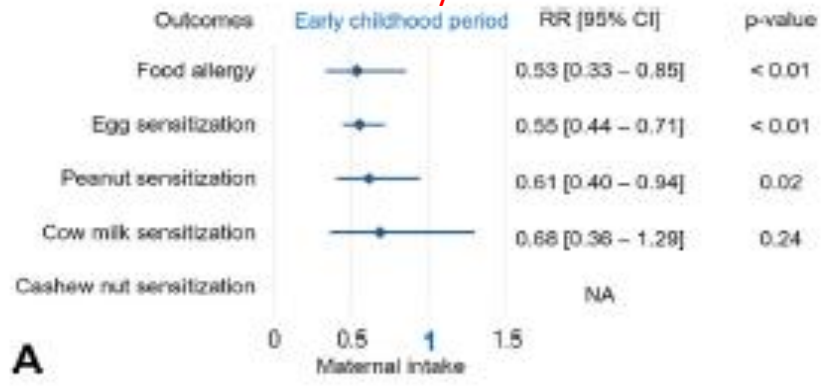


FIGURE 2. Effects of (**A**) maternal intake and (**B**) childhood intake of omega-3 PUFA on risk of infant food allergy or sensitization. *CI*, Confidence interval; *PUFA*, polyunsaturated fatty acid; *RR*, risk ratio.

Birth to 3 years



Beyond 3 years

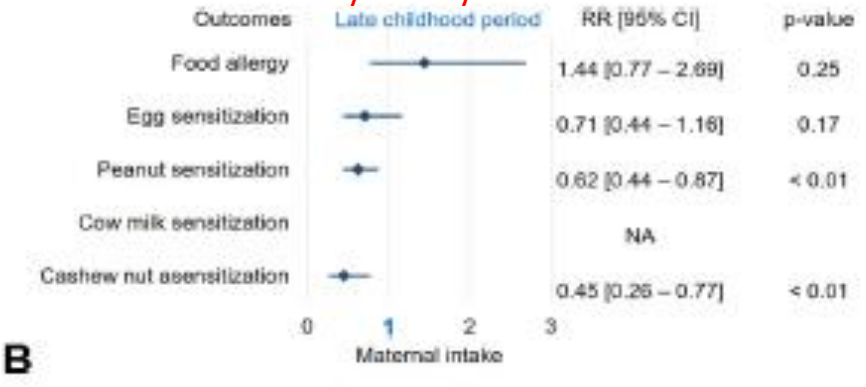


FIGURE 3. Effects of maternal intake of omega-3 PUFA on infant food allergies during (**A**) early and (**B**) late child development periods. *CI*, Confidence interval; *PUFA*, polyunsaturated fatty acid; *RR*, risk ratio.

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The risk of egg sensitization is decreased by 3.2% with every 100 mg/d of standard supplementation during the early period.

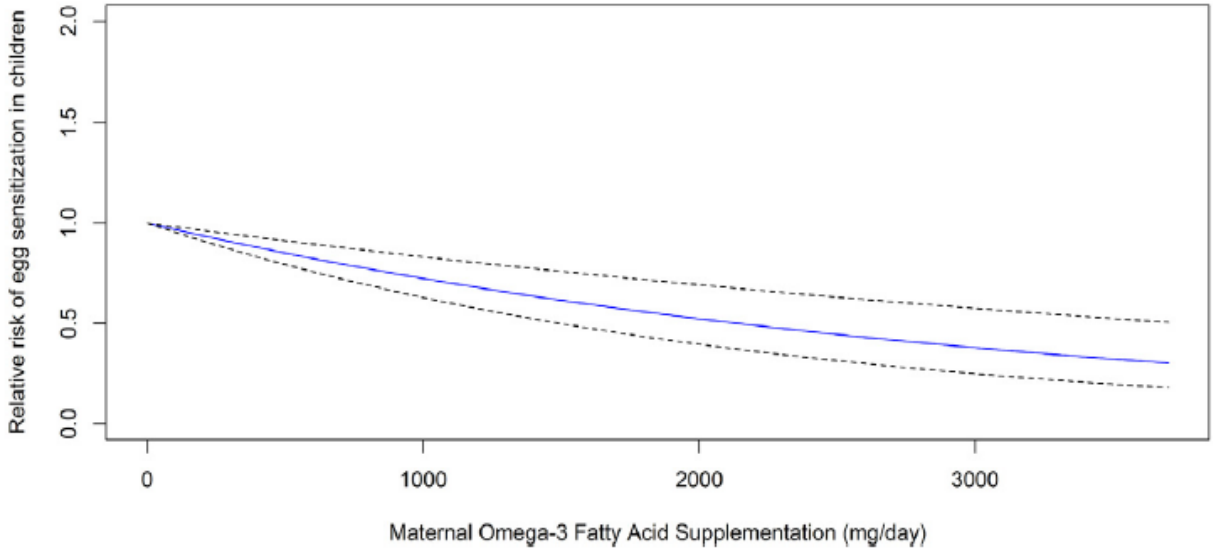

FIGURE 5. Dose-response relationship between omega-3 supplementation during pregnancy and risk of egg sensitization in the early period of child development. The solid and dashed lines represent estimated relative risks and corresponding 95% confidence intervals, respectively. Omega-3 PUFA intake is modeled with a linear trend in a fixed-effects model. *PUFA*, Polyunsaturated fatty acid.

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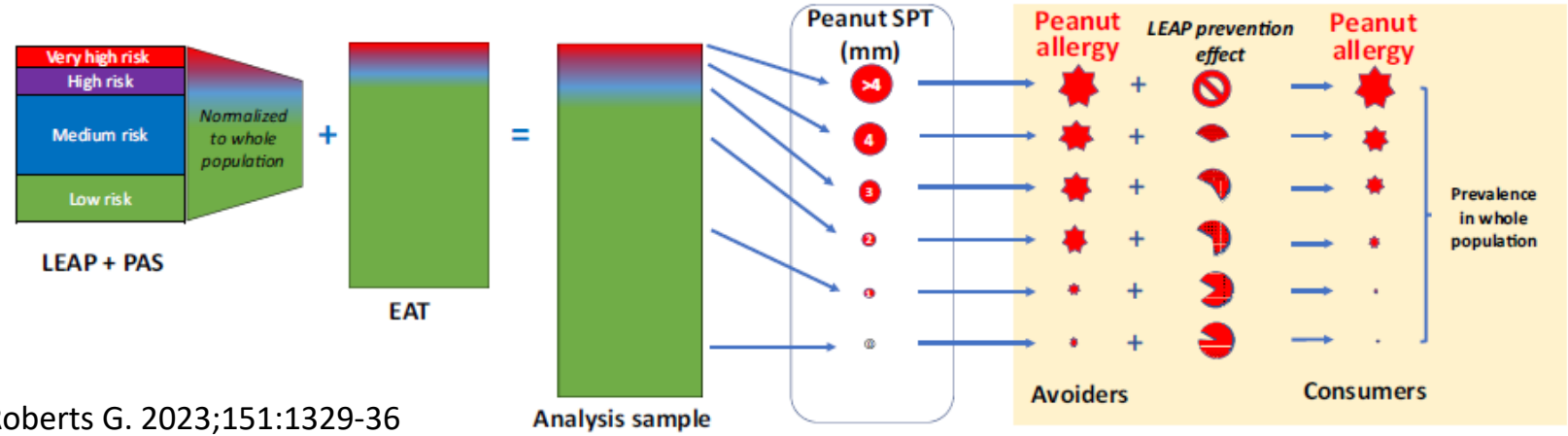
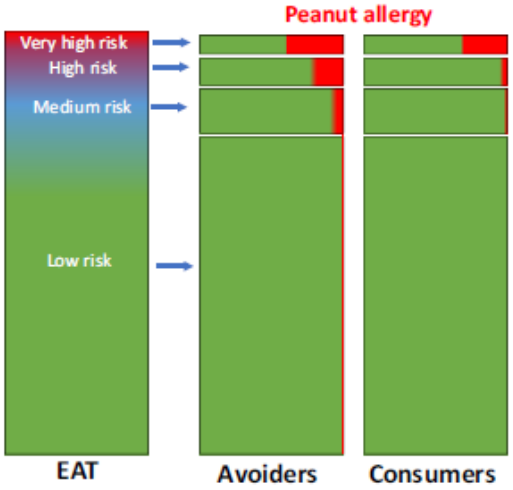
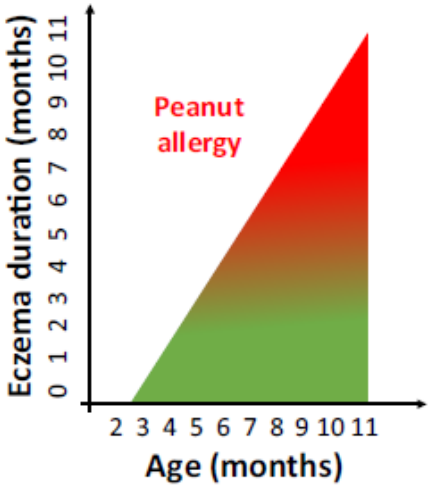
Defining the window of opportunity and the target populations to prevent peanut allergy



Roberts G. 2023;151:1329-36





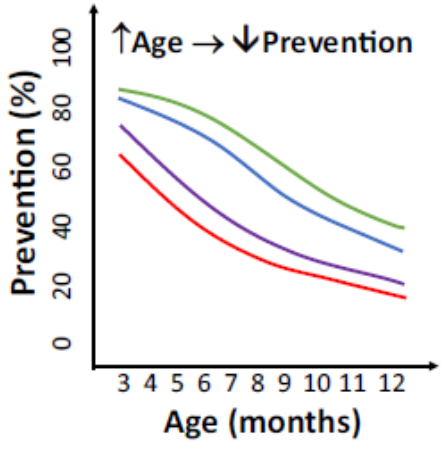


TABLE I. Impact of early peanut introduction on allergy in the LEAP screening cohort

LEAP screening study group	Sample size	Peanut allergy in avoidance group at 60 months of age	Peanut allergy in early introduction group at 60 months of age	Reduction in each group	ITT Reduction in LEAP trial participants
I (low risk)	118	0.8%*	NA	NA†	
II (high risk)	542	13.7%	1.9%	86.1%	81.0%
III (high risk sensitized)	98	35.3%	10.6%	70.0%	
IV (likely peanut allergic)	76	81.4%	NA	NA‡	
All groups	834	20.4%			

The LEAP screening cohort includes 2 groups (groups II and III), and 2 other groups, a high-risk and a low-risk group, which were not included in the RCT. Group IV (n = 76) was considered already allergic (peanut SPT wheal of >4 mm). Group I (n = 118) had mild eczema and no egg allergy, and was considered too low risk to be entered into the trial. Groups II and III were randomized to early introduction or avoidance of peanut. All groups were assessed for peanut allergy by the same method at 60 months. *NA,* Not applicable.

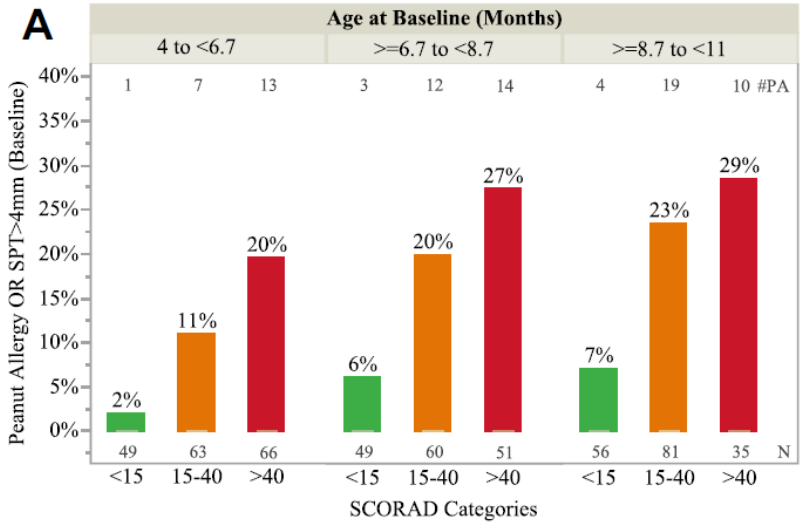
*Participants in group I not assessed at 60 months were assumed to be not peanut allergic.

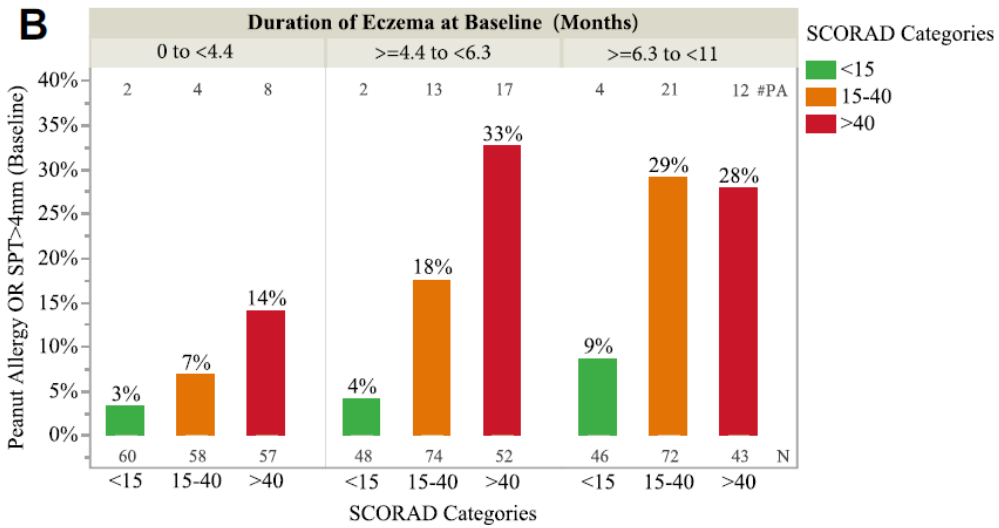
†Intervention not applied.

‡Intervention not applicable because subjects were assumed to already be allergic. If groups I and IV had received the intervention (and if we assume complete benefit in group I and no benefit in group IV), then the reduction in peanut allergy across the LEAP screening cohort (groups I-IV) would be 52% ([(0.019 × 542) + (0.106 × 98) + (1 × 76)]/[118 + 542 + 98 + 76]/ [(0.137 × 542) + (0.353 × 98) + 1.000 × 76]/[118 + 542 + 98 + 76]), rather than the 81% seen in the LEAP trial.

Roberts G. 2023;151:1329-36

Relationship between age at baseline and reported duration and eczema severity on the likelihood of peanut allergy at baseline in the first year of life





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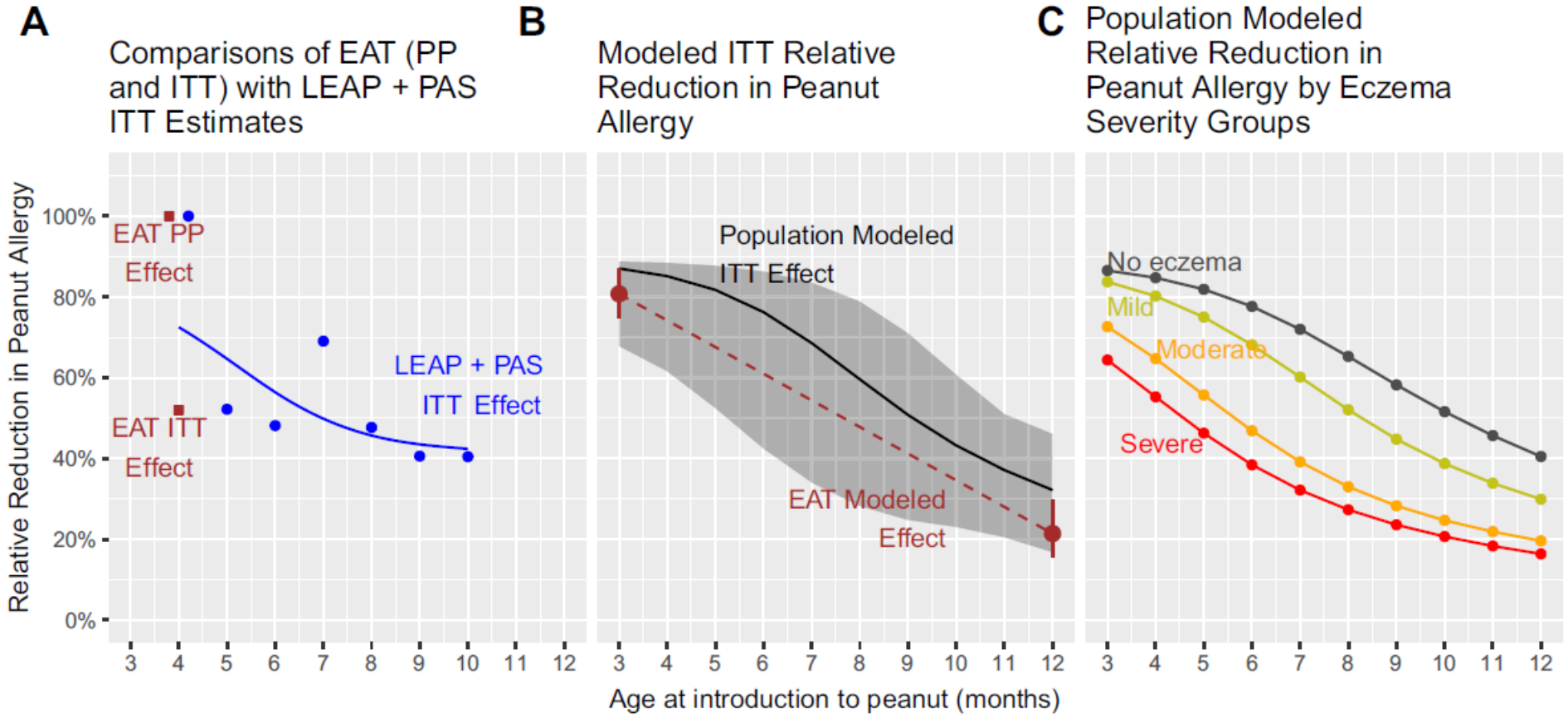

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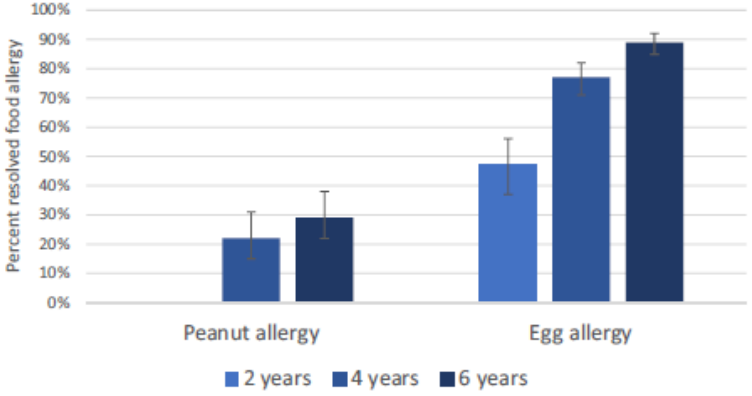
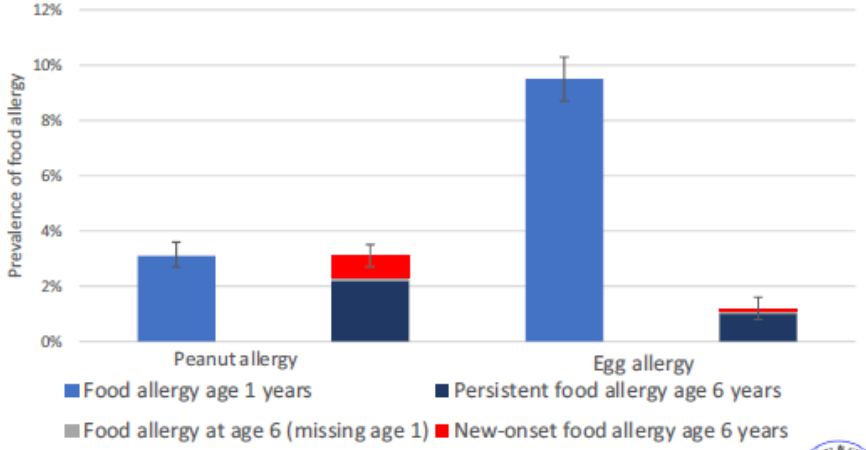
The natural history of peanut and egg allergy up to age 6 years in the HealthNuts population-based longitudinal study.

The Natural History of Peanut and Raw Egg Allergy
Among infants with OFC-confirmed food allergy at age 1 year, most egg allergy (90%) and nearly one third of peanut allergy (29%) naturally resolves by age 6 years.



The Prevalence of Peanut and Raw Egg Allergy at Age 1 and 6y
The prevalence of peanut allergy at age 6 years remained similar to age 1, largely driven by new-onset peanut allergy after age 1. The prevalence of egg allergy substantially reduced and new-onset egg allergy after age 1 was rare.



Peters RL. JACI 2022;150:657-65

HealthNuts recruitment: Age 1 year
n=5276

Egg allergy sub-study:
age 1 and 2 years
N=264

HealthNuts wave 2: Age 4 years
Participated n=4291 (81%)
Did not participate n=985 (19%)

HealthNuts wave 3: Age 6 years
Health assessment and full questionnaire n=3233 (61%)
Full questionnaire only n=430 (8%)
Short questionniare only n=778 (15%)
Did not participate n=835 (26%)

FIG 1. Longitudinal follow-ups of the HealthNuts study.

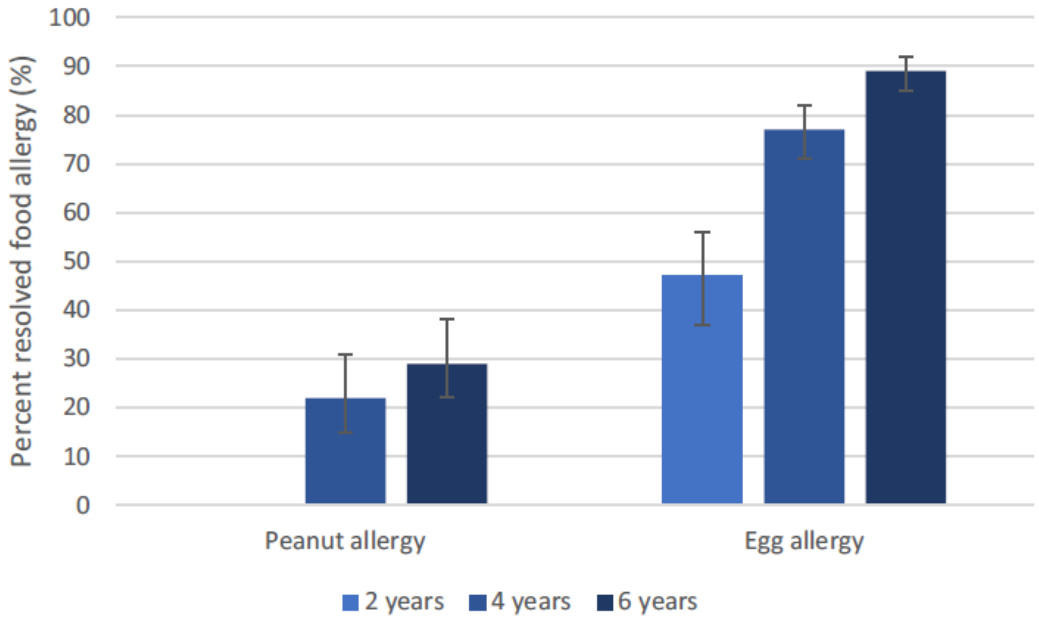
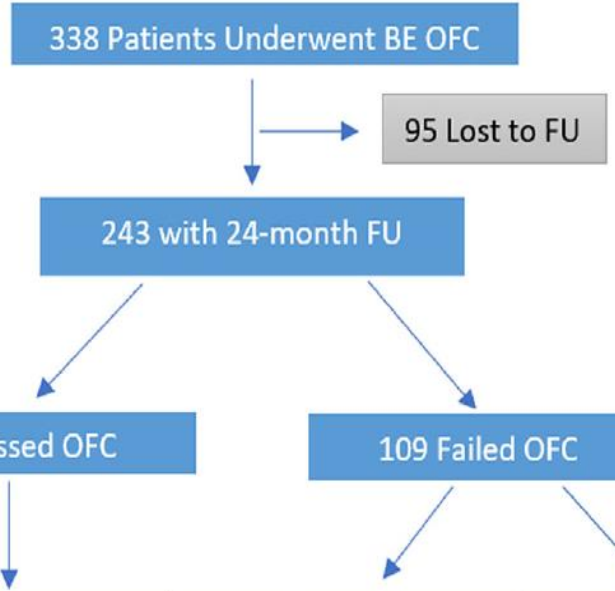


FIG 2. Proportion of definite food allergy present at age 1 year that resolves at ages of follow-up. (Some figures extracted from Savage J et al,[9] Peters et al,[10] and DunnGalvin et al.[11])

TABLE V. Risk factors present at age 1 year for persistent food allergy at age 6 years

Risk Factor	Persistent peanut allergy, aOR (95% CI)	*P* value	Persistent egg allergy, aOR (95% CI)	*P* value
Female	0.97 (0.43-2.16)	.94	0.53 (0.24-1.14)	.10
Parents; country of birth	1.0		1.0	
Both Australian				
≥1 Asian	1.74 (0.27-4.53)	.25	0.62 (0.25-1.52)	.30
Other	0.69 (0.27-1.78)	.45	0.66 (0.27-1.62)	.36
Family history of allergic disease*	0.42 (0.15-1.21)	.11	0.74 (0.31-1.75)	.49
Family history of food allergy*	0.44 (0.10-1.90)	.28	0.54 (0.16-1.85)	.33
Peanut SPT result ≥ 8 mm	2.35 (1.08-5.12)	.03	—	—
Egg SPT result ≥ 4 mm	—	—	2.98 (1.35-6.36)	.007
No eczema	1.0		1.0	
Eczema, other	1.35 (0.44-4.19)	.6	2.53 (0.77-8.27)	.12
Eczema, early-onset severe	3.23 (1.17-8.88)	.02	3.77 (1.35-10.52)	.01
Other food allergy†	1.39 (0.59-3.29)	.45	1.82 (0.84-3.93)	.13
Tree nut–sensitized‡	2.51 (1.00-6.35)	.05	1.43 (0.63-3.22)	.39
House dust–mite sensitized‡	2.77 (0.55-14.2)	.22	1.05 (0.38-2.89)	.92
Other food–sensitized‡	1.34 (0.50-3.62)	.56	2.80 (1.11-7.03)	.03
OFC reaction (GIT/respiratory vs skin only)§	2.21 (0.50-9.83)	.30	2.58 (0.75-8.82)	.13
Cumulative dose on OFC (mL [per unit dose increase])§	0.94 (0.82-1.07)	.34	0.97 (0.81-1.18)	.79
Baked egg allergy‖	—	—	6.46 (1.88-22.19)	.003

What happens with home dietary advancement when you do a partial baked egg challenge in clinic and patients are given specific guidance on how to proceed with dietary advancement?



Egg Intake at FU	BE Introduction	70 BE Introduction	39 Strict Avoidance
Direct Egg	69 (51.5%)	20 (28.6%)	1 (2.6%)
Lesser Cooked Egg	19 (14.2%)	7 (10%)	0 (0%)
Baked Egg	20 (14.9%)	14 (20%)	5 (12.8%)
Strict Avoidance	26 (19.4%)	29 (41.4%)	33 (84.6%)

FIGURE 2. Challenge outcome and egg intake at the last follow-up. Flowchart showing total population, those lost to follow-up, those with follow-up, and breakdowns of level of egg advancement at time of follow-up. *FU*, Follow-up.

Kotwal, M. JACI IP 2023;11:274-80

TABLE II. Predictors of OFC outcome

Predictor	Passed OFC	Failed OFC
IgE (kU/L), median (IQR)*	4.86 (2.10-11.42)	7.29 (3.55-14.51)
Age (y), median (IQR)†	4.0 (2.0-9.0)	7.0 (4.0-11.0)

Predictor	Instructed to introduce BE	Instructed to avoid BE
IgE (kU/L), median (IQR)*	5.86 (2.27-15.05)	8.74 (5.47-116.5)
Age (y), median (IQR)	5.0 (2.0-9.1)	6.0 (4.0-8.0)

IQR, Interquartile range.
*$P < .01$.
†$P < .001$.

GI symptoms were the most common barrier to advancement

TABLE IV. Relationship between predictors of progression and status at follow-up for those sent home with egg in their diet

Progress Characteristic	Lesser cooked/direct egg consumption		Any egg consumption	
	Crude OR (95% CI)	Adjusted OR (95% CI)	Crude OR (95%CI)	Adjusted OR (95% CI)
Log-transformed egg white IgE	0.78 (0.63-0.97)*	0.83 (0.64-1.06)	0.85 (0.66-1.08)	0.88 (0.67-1.16)
Passed OFC	3.05 (1.67-5.55)†	4.60 (2.32-9.14)†	2.94 (1.55-5.57)‡	1.98 (0.97-4.01)
Age at OFC (y)	0.87 (0.81-0.93)†	0.95 (0.86-1.03)	0.83 (0.77-0.90)†	0.87 (0.80-0.95)‡
History of eczema	1.36 (0.65-2.85)	0.98 (0.39-2.49)	1.16 (0.51-2.61)	0.68 (0.26-1.78)
History of asthma	0.45 (0.26-0.79)‡	0.66 (0.32-1.39)	0.39 (0.21-0.74)‡	0.80 (0.38-1.69)
History of rhinitis	0.37 (0.22-0.65)†	0.54 (0.25-1.14)	0.31 (0.16-0.59)†	0.51 (0.24-1.07)
Other food allergy	0.85 (0.23-3.13)	0.98 (0.19-4.88)	0.67 (0.14-3.23)	1.33 (0.22-8.24)

*$P < .05$.
†$P < .001$, adjusted for egg white IgE, age at OFC, and other atopic histories.
‡$P < .01$.

Kotwal, M. JACI IP 2023;11:274-80

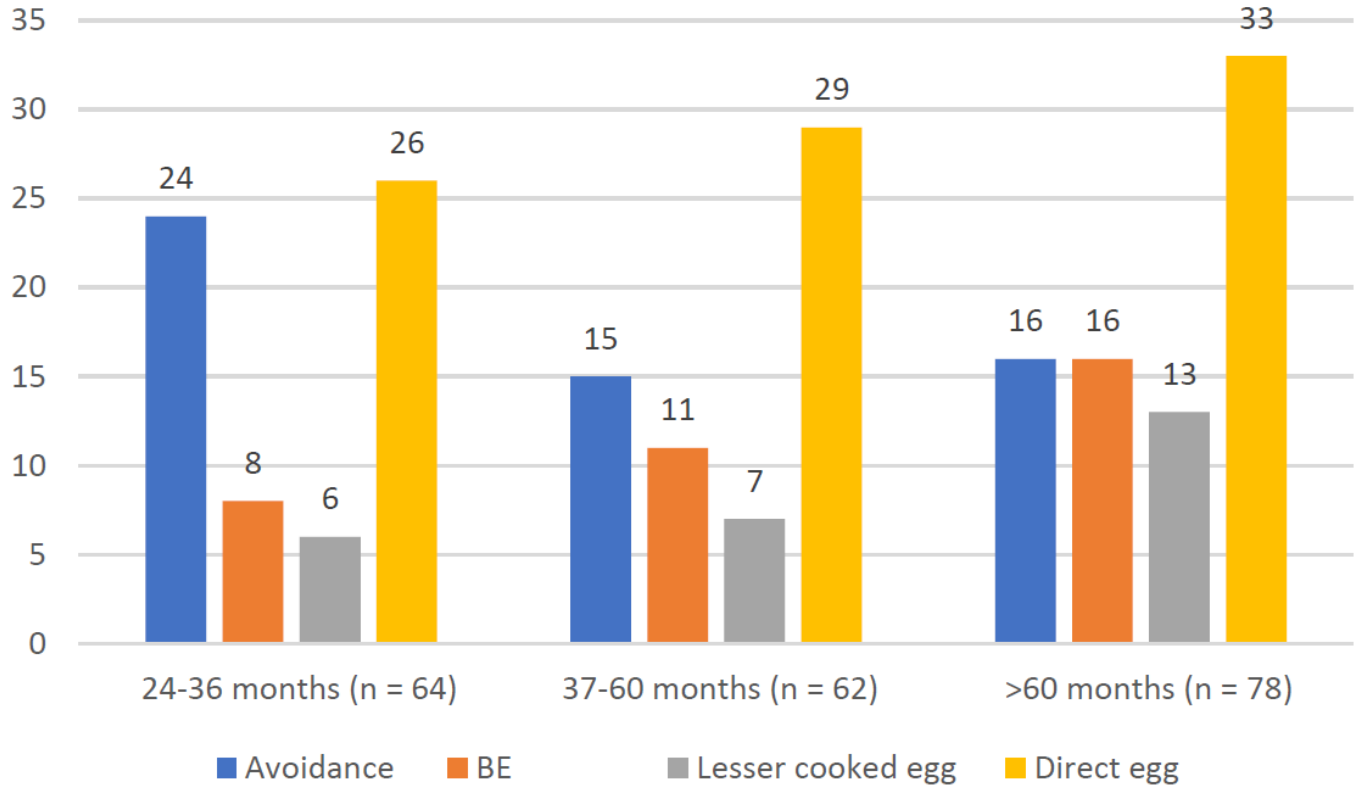


FIGURE 3. Relationship of egg advancement to length of follow-up. Among those with the shortest follow-up period, 40.6% had advanced to direct egg and 37.5% were practicing strict avoidance. Of those with the longest follow-up period, 42.3% had advanced to direct egg and 20.5% were practicing strict avoidance.

Kotwal, M. JACI IP 2023;11:274-80

What about food allergy in adults?

- IgE-mediated food allergy (IgE-FA) affects an estimated 10.8% of adults in the United States.
- Adult IgE-FA is an emerging public health concern

- Half report experiencing a severe reaction
- Nearly 1 in 10 adults reported going to the emergency department (ED) in the past year for IgE FA– related reactions

Hultquist. JACI Global 2022;1:257-64

Timing of FA Development

Adults with Food Allergy

Childhood-onset FA

- **Severity:** most severe reaction symptoms reported
- **Healthcare utilization:** highest use of healthcare (EAI prescriptions, ED visits)
- **Comorbidities:** asthma and eczema
- **Quality of Life:** mid-level of reported burden

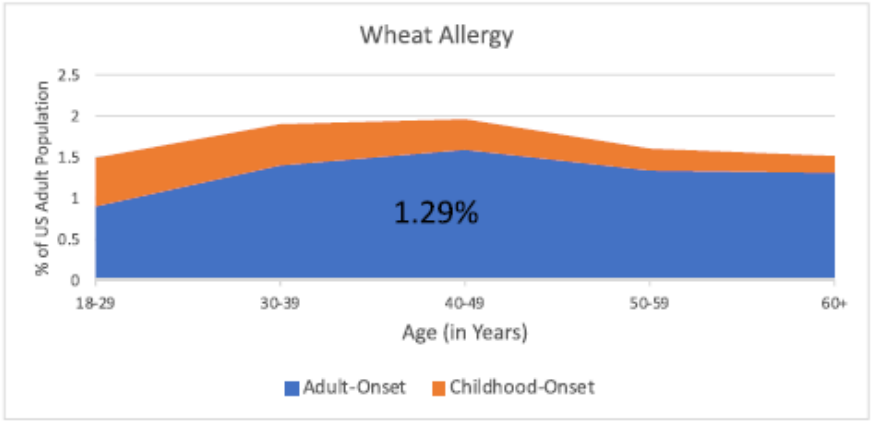
Adult-onset FA

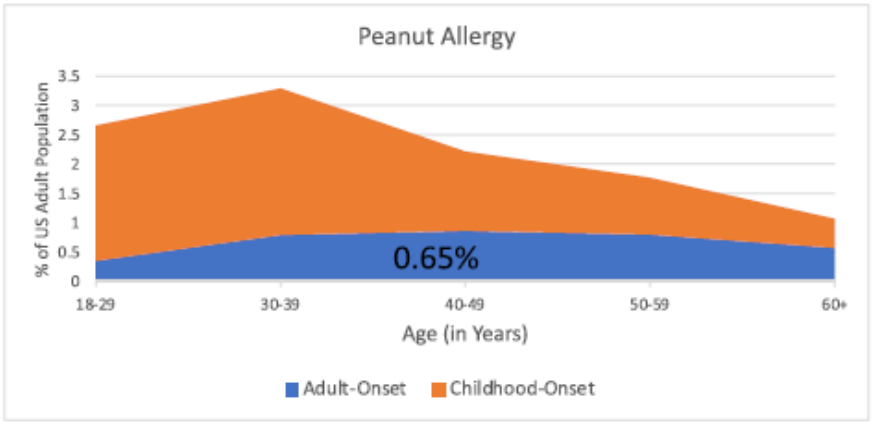
- **Severity:** least severe reaction symptoms reported
- **Healthcare utilization:** lowest use of healthcare
- **Comorbidities:** environmental allergies, medication allergy
- **Quality of Life:** lowest level of reported burden

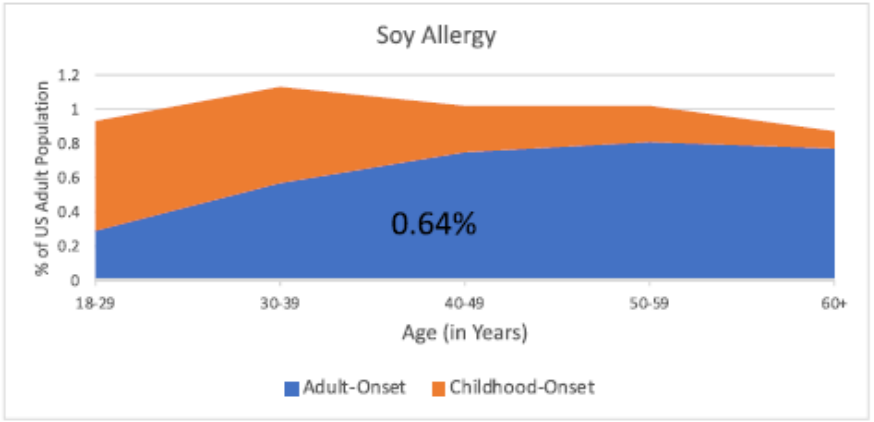
Both Childhood- and Adult-onset FA

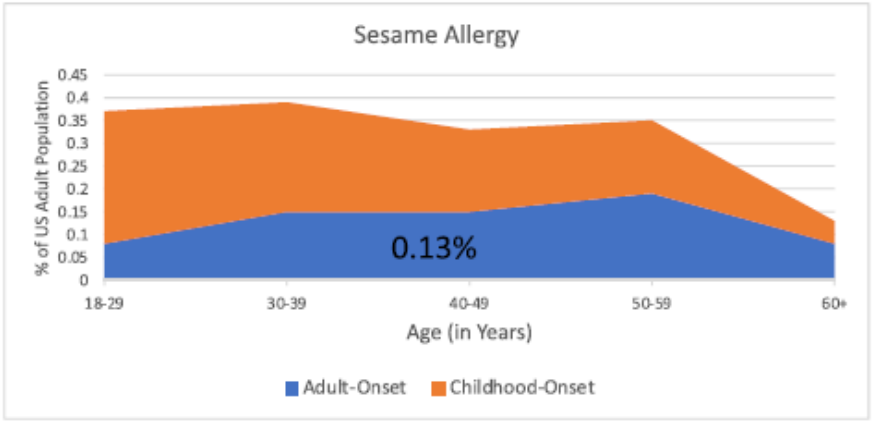
- **Severity:** highest level of history of 1+ reactions and multiple FA
- **Healthcare utilization:** highest level of physician-diagnosed FA
- **Comorbidities:** highest levels of all reported comorbidities
- **Quality of Life:** highest level of reported burden

Hultquist. JACI Global 2022;1:257-64









Hultquist. JACI Global 2022;1:257-64

FIG 2. Prevalence of wheat, peanut, soy, and sesame among US adults by timing of FA onset. *Orange shading* represents prevalence of adults with childhood-onset of specific FA at each given age range; *blue shading,* prevalence of adults with adult-onset of specific FA at each given age range.

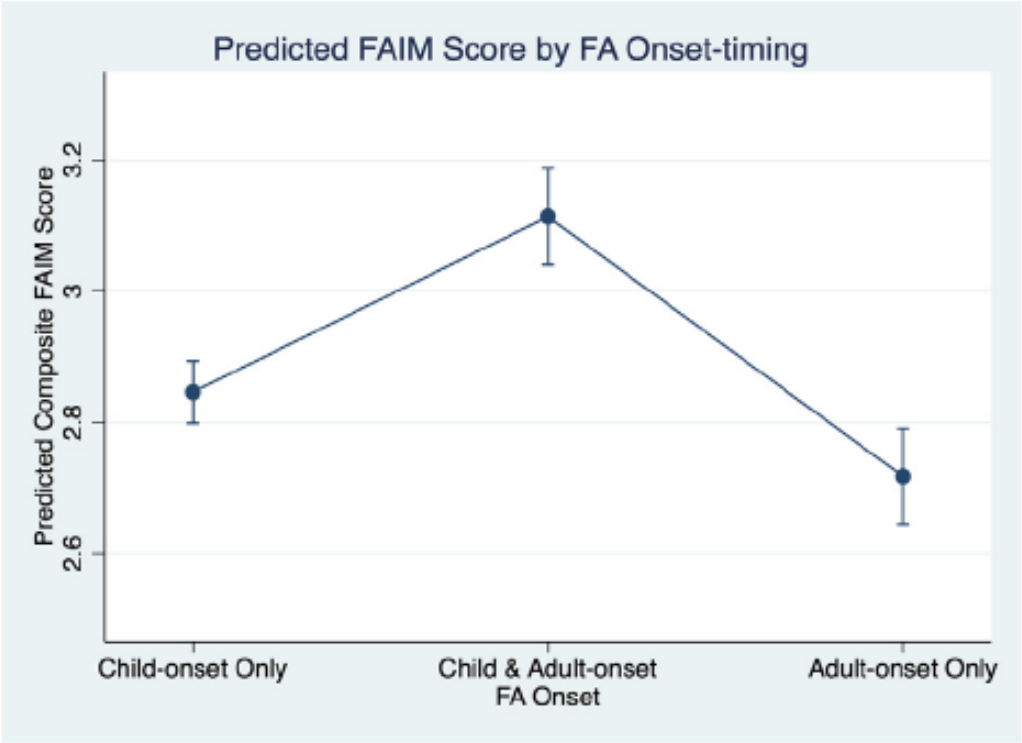


FIG 3. Model-predicted estimated mean Food Allergy Independent Measure (FAIM) scores and corresponding 95% CIs for US adults with only childhood-onset IgE-FA, US adults with both childhood-onset and adult-onset IgE-FAs, and US adults with adult-onset IgE-FA.

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Hultquist. JACI Global 2022;1:257-64

Palate cleanser

Erie Canal

TABLE IV. Diagnostic criteria for patients presenting with possible FPIES

Acute FPIES

Major criterion:

Vomiting in the 1- to 4-h period after ingestion of the suspect food and absence of classic IgE-mediated allergic skin or respiratory symptoms

Minor criteria:

1. A second (or more) episode of repetitive vomiting after eating the same suspect food
2. Repetitive vomiting episode 1-4 h after eating a different food
3. Extreme lethargy with any suspected reaction
4. Marked pallor with any suspected reaction
5. Need for emergency department visit with any suspected reaction
6. Need for intravenous fluid support with any suspected reaction
7. Diarrhea in 24 h (usually 5-10 h)
8. Hypotension
9. Hypothermia

The diagnosis of FPIES requires that a patient meets the major criterion and ≥3 minor criteria. If only a single episode has occurred, a diagnostic OFC should be strongly considered to confirm the diagnosis, especially because viral gastroenteritis is so common in this age group. Furthermore, although not a criteria for diagnosis, it is important to recognize that acute FPIES reactions will typically completely resolve over a matter of hours compared with the usual several-day time course of gastroenteritis. The patient should be asymptomatic and growing normally when the offending food is eliminated from the diet.

Chronic FPIES

Severe presentation: When the offending food is ingested on a regular basis (eg, infant formula); intermittent but progressive vomiting and diarrhea (occasionally with blood) develop, sometimes with dehydration and metabolic acidosis.

Milder presentation: Lower doses of the problem food (eg, solid foods or food allergens in breast milk) lead to intermittent vomiting and/or diarrhea, usually with poor weight gain/FTT but without dehydration or metabolic acidosis.

The most important criterion for chronic FPIES diagnosis is resolution of the symptoms within days after elimination of the offending food(s) and acute recurrence of symptoms when the food is reintroduced, onset of vomiting in 1-4 h, diarrhea in 24 h (usually 5-10 h). Without confirmatory challenge, the diagnosis of chronic FPIES remains presumptive.

Anna Nowak-Wegrzyn ET AL ACI 2017;139:1111-26

Is it appropriate to diagnose FPIES solely on the basis of clinical history?
Are there any predictors of FPIES OFC outcome?

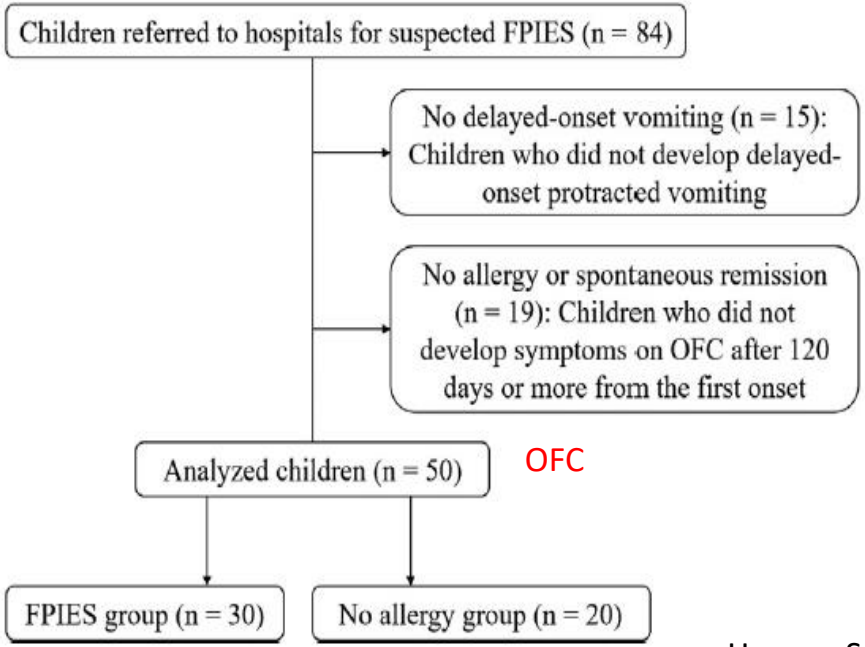

TABLE I. Diagnostic rate of foods suspected as causes for FPIES

	FPIES group (n = 30)	NA group (n = 20)	Diagnostic rate (%)
Hen's egg yolk	9 (31%)	13 (65%)	41
Soy	5 (17%)	2 (10%)	71
Wheat	4 (14%)	1 (5%)	80
Cow's milk	3 (10%)	2 (10%)	60
Quail's egg yolk	2 (7%)	0 (0%)	100
Fish	2 (7%)	0 (0%)	100
Rice	1 (3%)	1 (5%)	50
Buckwheat	1 (3%)	0 (0%)	100
Kiwifruit	1 (3%)	0 (0%)	100
Banana	1 (3%)	0 (0%)	100
Shellfish	1 (3%)	0 (0%)	100
Hen's egg white	0 (0%)	1 (5%)	0

Hayano S. JACI Global Hayano 2022;1:122-7

TABLE II. Clinical factors associated with FPIES

Factor	FPIES group (n = 30)	Missing data (n)	NA group (n = 20)	Missing data (n)	*P* value
Age at the first episode (d), median (IQR)	262 (205-301)	0	221 (211-243)	0	.11
Interval between the last symptomatic episode and OFC (d), median (IQR)	59 (41-117)	1	51 (42-75)	0	.48
History of asymptomatic ingestion (no.)	23 (96%)	6	13 (68%)	1	.03*
Symptomatic episodes (no.), median (IQR)	2.5 (2.0-3.0)	0	2.0 (2.0-2.5)	1	.09
Ingestion to onset interval (h), median (IQR)	2 (2-3)	4	2 (1-2)	0	.10
Vomiting (no.), median (IQR)	3 (1-5)	1	3.0 (1.8-4.3)	0	.73
Accompanied by diarrhea (no.)	6 of 29 (21%)	1	4 of 20 (20%)	0	1.00
Accompanied by bloody stool (no.)	1 of 29 (3%)	1	0 of 17 (0%)	3	1.00
IgE-mediated allergy to other than the culprit food (no.)	5 of 29 (17%)	1	1 of 20 (5%)	0	.38
Atopic dermatitis (no.)	12 of 29 (41%)	1	8 of 20 (40%)	0	1.00
Family history					
Atopic dermatitis (no.)	4 of 28 (17%)	2	8 of 20 (67%)	0	.09
Bronchial asthma (no.)	9 of 28 (32%)	2	5 of 20 (25%)	0	.75
Total IgE level (IU/mL), median (IQR)	18.0 (7.8-41.8)	6	29.5 (9.5-86.3)	4	.43
Positive SPT result (no.)	0 of 15 (0%)	15	0 of 7 (0%)	13	1.00

Factors were investigated at the first hospital visit, whereas SPT was performed at the time of OFC.
IQR, Interquartile range.
*Statistically significant.

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TABLE III. Diagnostic rate based on number of symptomatic episodes

No. of episodes	FPIES group (n = 30)	NA group (n = 20)	Diagnostic rate (%)
1	2	3	40
2	13	11	54
3	9	3	75
≥4	6	2	75
Missing data	0	1	

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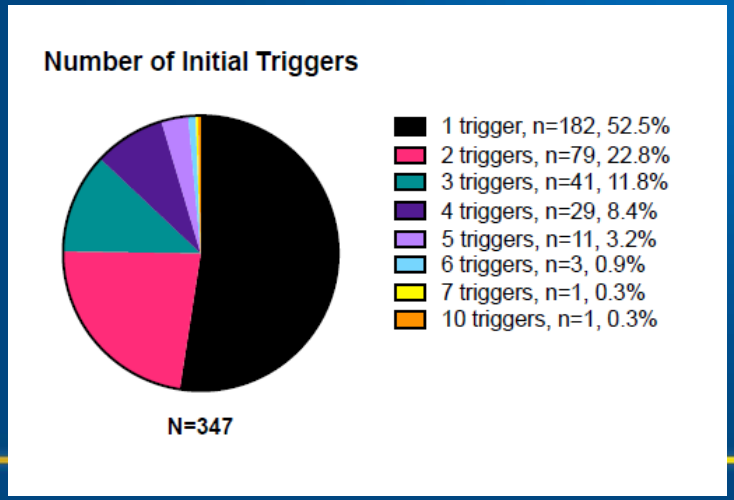
How have FPIES trigger foods changed over time? What's the rate and nature of subsequent reactions after diagnosis?

N=347 patients



MEDICINE *of* THE HIGHEST ORDER

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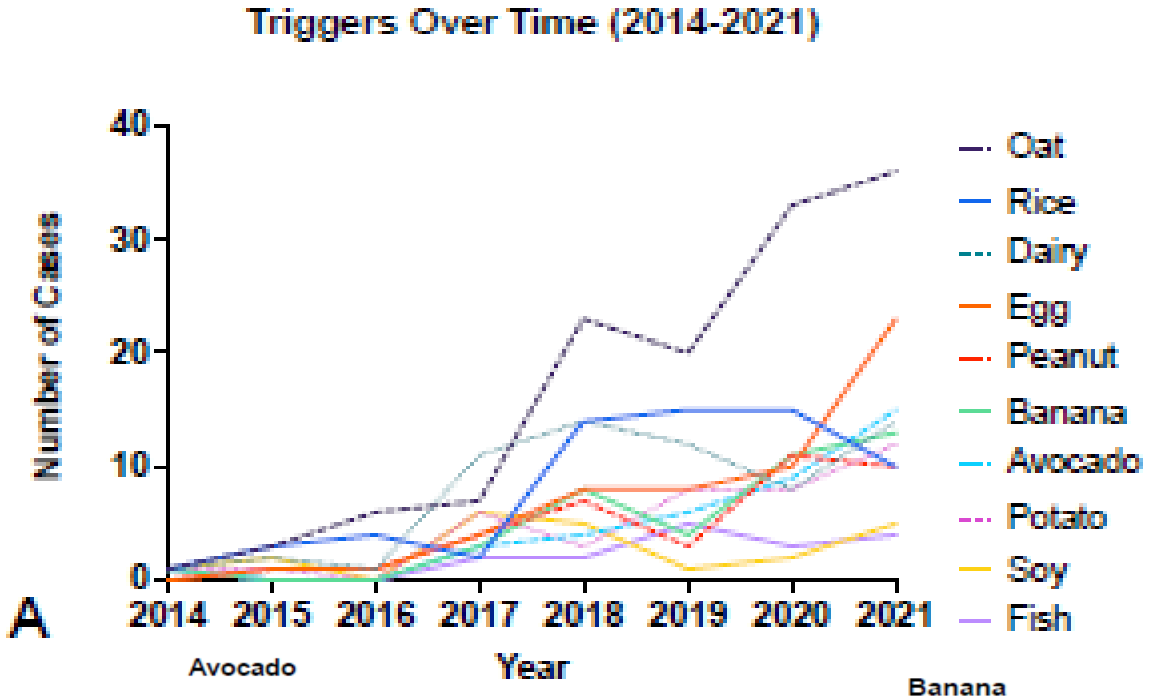
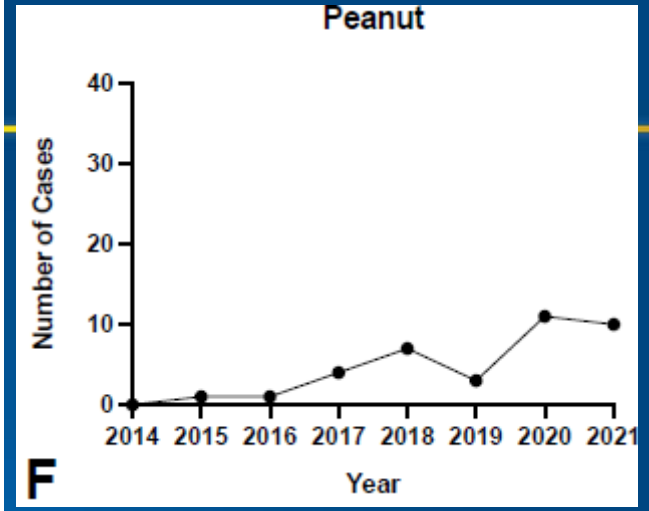
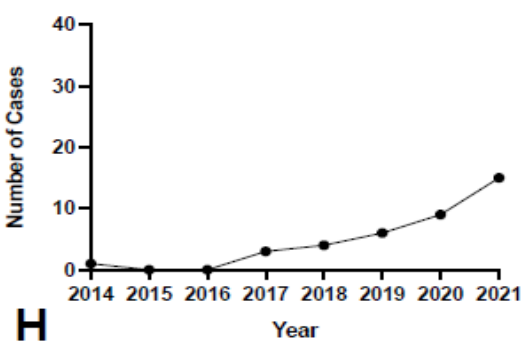
TABLE II. Characteristics of FPIES reactions

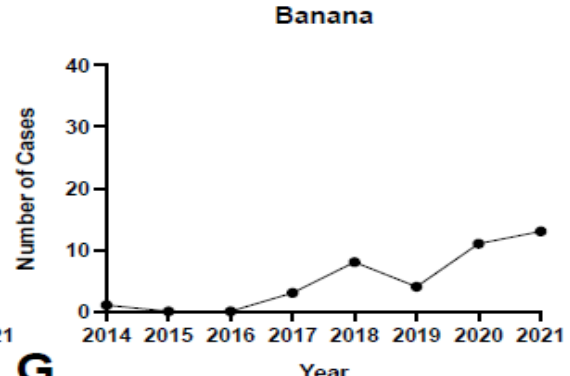
Characteristic	Value
Age at onset, median (range)	6 mo (<1 mo to 8 y)
Age at diagnosis, median (range)	8 mo (1 mo to 10 y)
Type, n (%)	
Acute	337 (97)
Chronic	5 (1.4)
Acute and chronic	5 (1.4)
Severe, n (%)	128 (37)
No. of triggers, median (range)	1 (1-10)
No. of triggers, n (%)	
1	182 (53)
2	79 (23)
3	41 (12)
4	29 (8.4)
5	11 (3.2)
6+	5 (1.4)
Underwent OFC, n (%)	94 (27)
Time between diagnosis and OFC, median (range)	17 mo (<1 mo to 5 y)
Subsequent reaction, n (%)	114 (33)
Severe subsequent reaction, n (%) (N = 114)	32 (28)

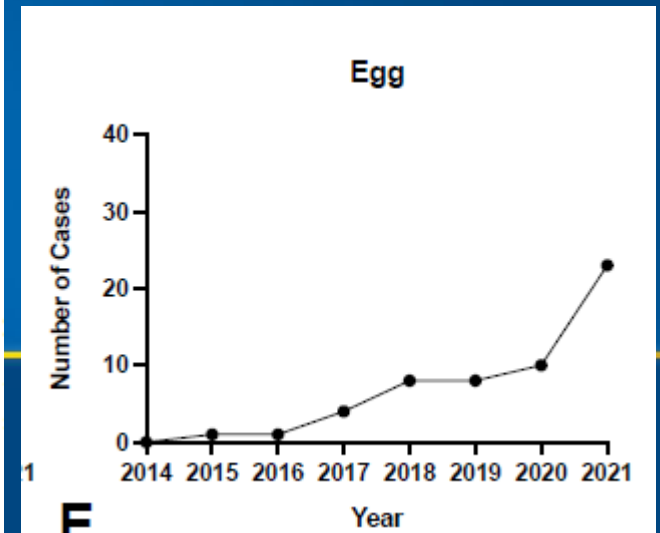
FPIES, Food protein–induced enterocolitis syndrome; *OFC*, oral food challenge.

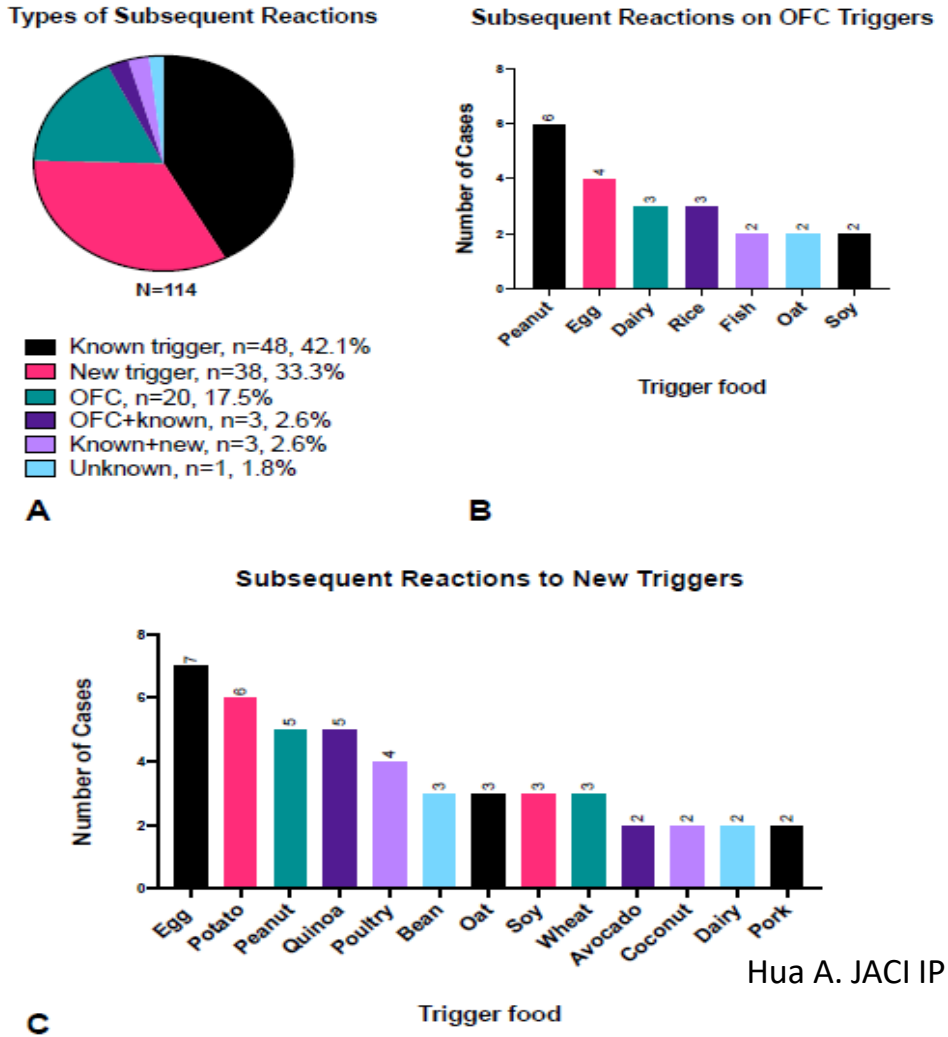

Triggers Over Time (2014-2021)
Number of Cases
Year
Oat
Rice
Dairy
Egg
Peanut
Banana
Avocado
Potato
Soy
Fish
A


Peanut
Number of Cases
Year
F


Avocado
Number of Cases
Year
H


Banana
Number of Cases
Year
G


Egg
Number of Cases
Year
E



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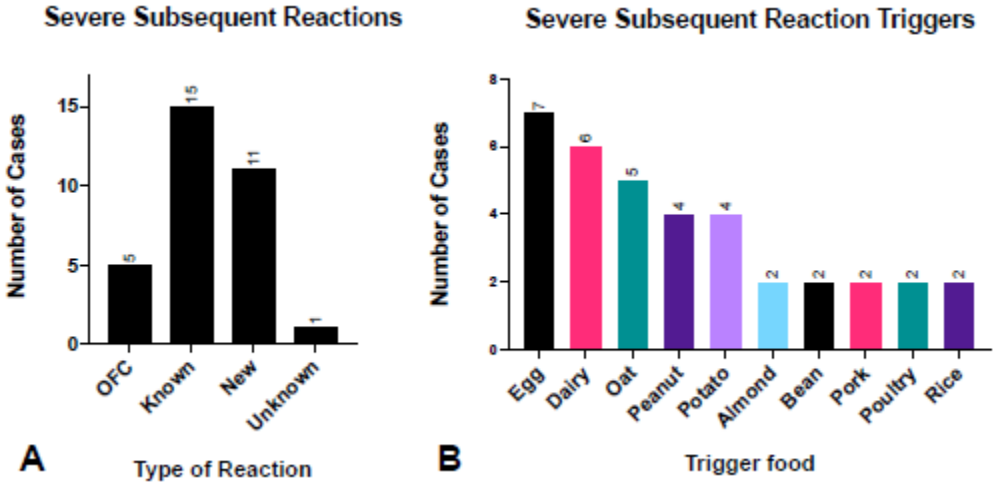

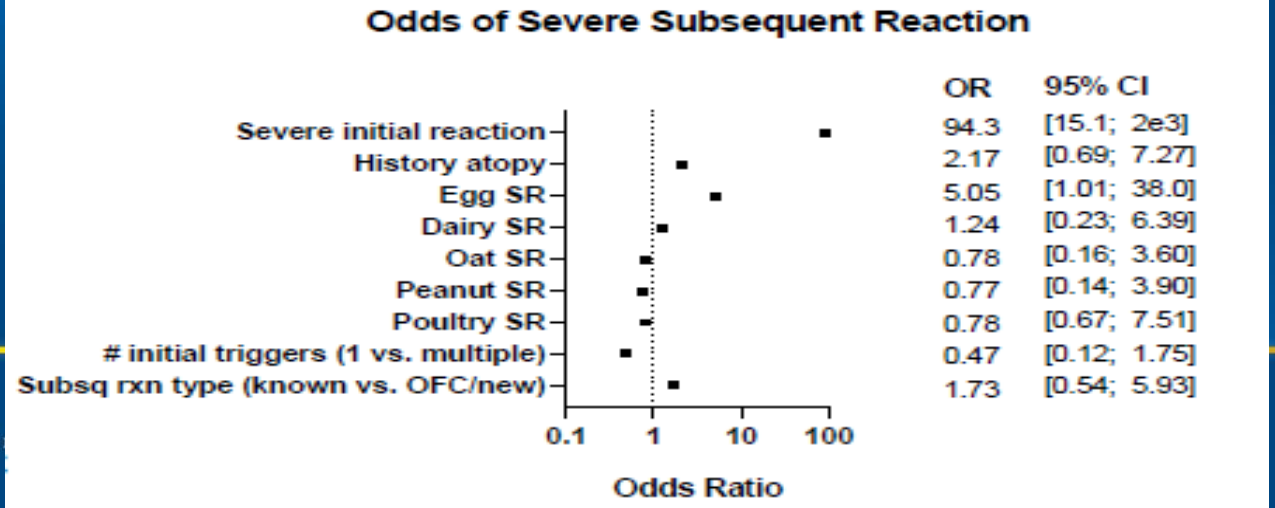

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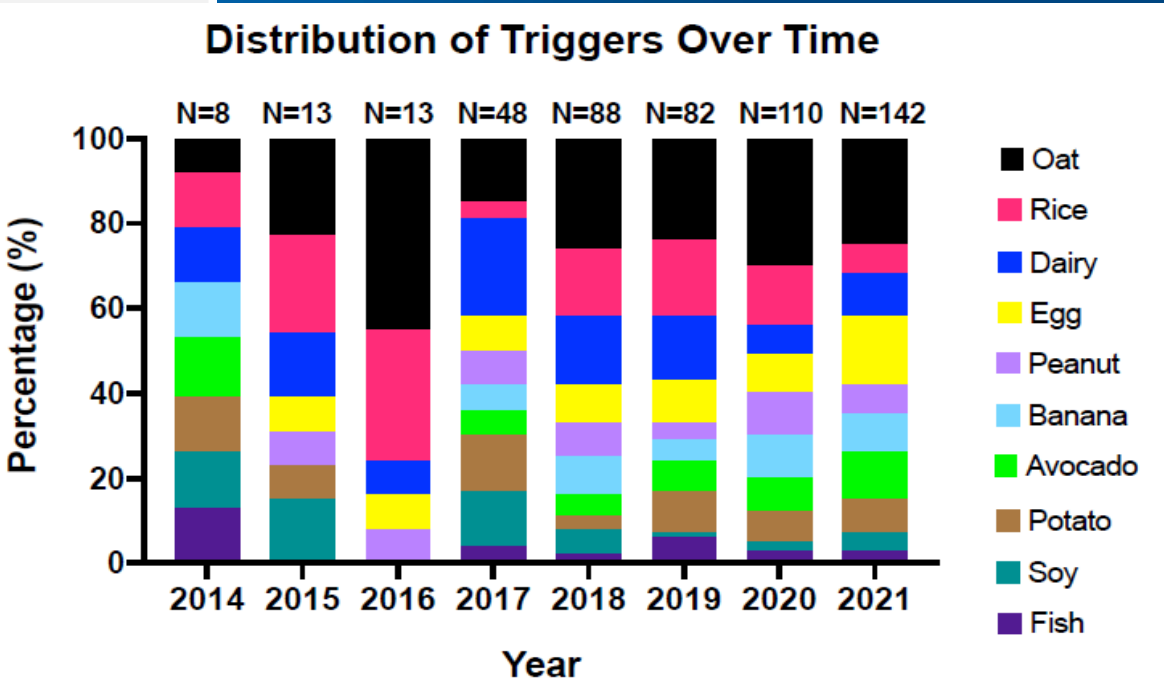
TABLE E1. Severe acute FPIES criteria

Necessitated an emergency department visit and required the bolded symptoms:

- Projectile vomiting
- Altered behavior ranging from decreased activity to lethargy
- Pallor
- Dehydration
- Required intravenous hydration
- Hypotension
- Hypothermia
- Diarrhea
- Hospitalization

FPIES, Food protein–induced enterocolitis syndrome.



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Hua A. JACI IP 2023

Tolerability of baked milk consumption in children with food protein-induced enterocolitis syndrome

Yoram Faitelson, MD[a,b], Siril Yoffe, MD[a,b], Nirit Segal, MD[a,b], Nufar Marcus, MD[a,b], Eris Greenbaum, PhD[a], Keren Shahar-Nissan, MD[c], and Avraham Beigelman, MD[a,b,d]

Prospective study to investigate the tolerability of baked milk ingestion in children with FPIES to milk.

- Children 6-24 months
- Acute FPIES reaction to milk
- No participants had any other food allergies
- Excluded those with severe reactions
- 1.3 g milk protein in the form of a muffin in three equivalent doses administered over 1 hour, followed by 4 hours of observation

TABLE I. Characteristics and allergic reactions of children with food protein–induced enterocolitis syndrome to milk, who participated in oral food challenge (OFC) of baked milk

Sex	Atopic background (atopic dermatitis, IgE-mediated food allergy, recurrent wheezing)	Age at last allergic reaction, mo	Reaction characteristics	Time from milk exposure to reaction, h	Treatment of last allergic reaction	Hospital admission	Age at baked milk OFC, mo	Time from last reaction to baked milk OFC, mo	Results of baked milk OFC
M	—	1	Restlessness, vomiting, diarrhea	1-3	−	−	12	11	Pass
F	—	19	Vomiting, lethargy	3-6	−	−	22	3	Pass
F	—	6	Vomiting, pallor	1-3	−	−	8	2	Fail
F	—	8	Vomiting, pallor	1-3	−	−	14	6	Pass*
M	—	3	Vomiting, lethargy	1-3	+	+	8	5	Fail
F	Atopic dermatitis	10	Vomiting, lethargy	1-3	+	+	12	2	Pass
F	—	6	Vomiting, lethargy	1-3	−	−	11	5	Pass
F	—	9	Vomiting, pallor	1	−	−	12	3	Pass
M	—	3	Vomiting, pallor, ER visit	1-3	+	+	10	7	Pass
M	—	2	Vomiting, pallor, ER visit	1-3	+	+	10	8	Fail
M	—	13	Vomiting, lethargy	1-3	+	−	14	1	Pass
F	—	12	Vomiting, pallor, ER visit	1-3	+	−	18	6	Pass

ER, emergency room.

*The participant failed the first baked milk OFC but passed a second one after 6 months.

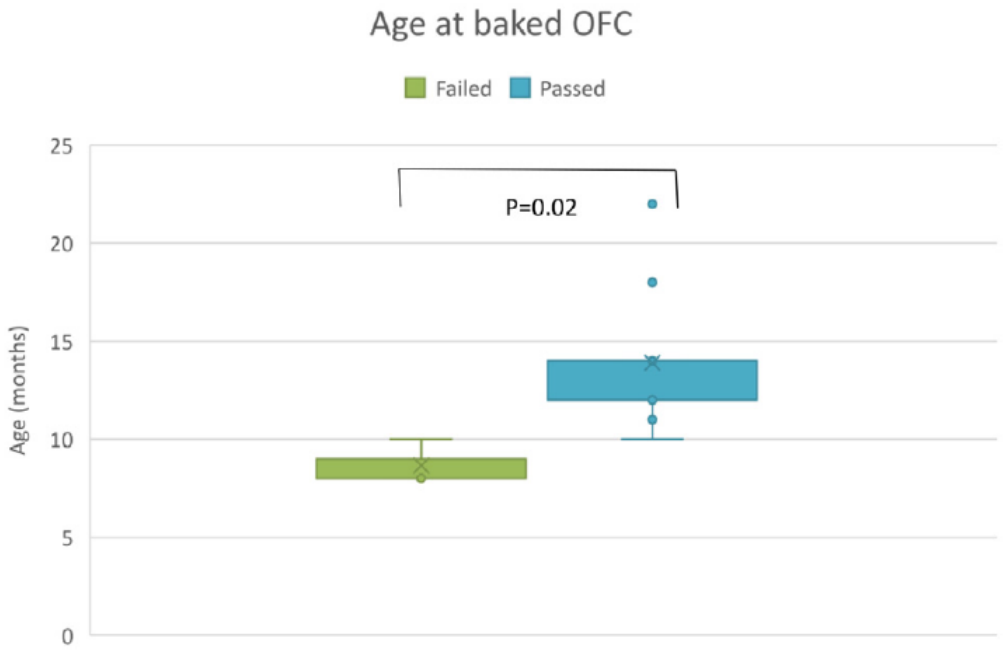

FIGURE 1. Age distribution at time of baked milk oral food challenge (OFC) among participants who passed or failed baked milk OFC. Data are presented as box-and-whisker plots with interquartiles and median values (mean values are shown with *x*'s).

Clinical Communications

Food protein–induced enterocolitis syndrome (FPIES) after multiple tolerant ingestions

Amanda McIntyre, MD[a], Amy Caulum, MD[b], Amanda Cox, MD[c], David Sanchez, MD[c], Hugh Sampson, MD[c], Mary Grace Baker, MD[c], and Anne Marie Singh, MD[d,e,f]

TABLE I. Summary of cases

Case	Implicated food	Amount of implicated food previously tolerated	Previous FPIES diagnosis to implicated food	Skin testing	Serum IgE testing	Age of first reaction	Age of recurrent reaction	Sex	Comorbidities
1	Oat	5 g protein with subsequent daily ingestion × 7 d	Yes	—	—	6 mo	5 y	M	FPIES to mango and green beans; AD; rhinitis
2	Cow's milk	4 y of regular consumption	Yes	—	Casein IgE 1.4 kU/L*; milk IgE 4.5 kU/L*	6 mo	6 y	M	FPIES to milk; IgE-mediated food allergies; AD; allergic rhinitis
3	Turkey	3 oz cooked × 4-5	No	—	Turkey IgE 0.36 kU/L*; chicken IgE 0.66 kU/L*	18 y	—	F	FPIES to dairy; AD
4	Peanut	3.5 g protein × 6 d	No	Peanut— 0 mm†; egg—2 mm†	Peanut 0 kU/L†; egg 0 kU/L†	9 mo	—	F	FPIES to dairy; AD
5	Cashew	~1 g protein × 12 d	No	Cashew—0 mm*/†	Cashew 0 kU/L*	8 mo	—	M	IgE-mediated food allergy to egg, peanut, sesame, and mustard; AD

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Development of FPIES after multiple tolerant ingestions is rare.

- Patients were highly atopic
- Optimal challenge and home reintroduction practices remain to be defined.
- Post- challenge neutrophilia?
- Given the potential risk of recurrent FPIES symptoms after a passed challenge, although rare- perhaps keep ondansetron available
-

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Take- aways

- Breastfeeding should be encouraged, however regular cow's milk(CM) formula supplementation may reduce CM allergy
- Omega 3 FA supplementation during pregnancy is associated with decreased risk of sensitization to peanut and egg
- On a population level, early peanut introduction is beneficial regardless of risk group
- Larger SPT wheal size and severe eczema is associated with persistent peanut and egg allergy

Take- aways

- Adults with FA onset in childhood and as an adult report the worst QoL

- Using history alone, may lead to over diagnosis of FPIES
- Avocado, hen's egg and peanut are increasing as FPIES triggers
- A subset of patients with milk FPIES may tolerate baked milk
- Rarely, FPIES recurs after an asymptomatic food challenge

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