

Practice patterns among allergists on the early introduction of peanut

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Clinical Implications

- Increased documentation regarding peanut exposure and recommendations for introduction was observed at a tertiary care center after publication of the National Institute of Allergy and Infectious Diseases guidelines for peanut introduction. Continued efforts focused on creation of templates for documentation with recommendations for introduction are needed.

TO THE EDITOR:

Peanut allergy (PA) is the most common cause of food anaphylaxis in the United States.¹ This condition has both clinical implications and can cause significant psychosocial stress for patients and families.^{2,3} Promising treatment options are under investigation; however, the only currently approved management of PA involves strict dietary avoidance with the use of emergency medications in case of accidental exposure.

The pivotal Learning Early About Peanut Allergy (LEAP) trial demonstrated that PA can be prevented in select individuals via the early introduction of peanut in high-risk children.⁴ The National Institute of Allergy and Infectious Diseases (NIAID) published guidelines for the early introduction of peanut in January 2017 to provide recommendations for the introduction of peanut to children.⁵ Periodic assessment of practitioner knowledge and adherence to these guidelines is necessary to identify barriers and develop solutions to improve the application in clinical practice.

A retrospective chart review was performed of all new patients under the age of 12 months who presented to The Cleveland Clinic allergy offices from April to December 2016 and from January to September 2017. Practices before and after the NIAID publication were compared. The demographics of each patient were recorded along with specific parameters regarding peanut introduction. This review was approved by the Cleveland Clinic Pediatric Institute Research Council and Institutional Review Board.

All data analyses were 2-tailed and were performed at a significance level of 0.05. SAS 9.4 software (SAS Institute, Cary, NC) was used for all analyses.

A total of 128 new patients <12 months of age were seen from April to December 2016, and a total of 145 new patients were seen from January to September 2017. Demographics are outlined in Table I. Visits in both groups were conducted in nearly equal numbers by the same physicians. Physicians who were found to be unique in either group accounted for only 10% of all visits.

There were a significantly higher proportion of the post-guidelines patients seen with a diagnosis of eczema ($P < .001$). Other risk factors for PA were similar between the groups (Table I).

TABLE I. Characteristics of study subjects at the time of allergy clinic visit

Characteristics	Pre-guidelines	Post-guidelines	P value
Total patients	128	145	
Age, mean (SD)	7.6 mo (2.4)	7.3 mo (2.6)	.290
Gender			.520
Male	79 (61%)	84 (58%)	
Female	49 (39%)	61 (42%)	
Risk factors			
Eczema	70 (55%)	107 (74%)	<.001
Topical corticosteroid use	43 (34%)	65 (45%)	.058
Egg allergy (confirmed)	28 (22%)	38 (26%)	.400
Egg allergy (suspected)	12 (9%)	6 (4%)	.082
Reason for visit			
Peanut introduction or possible peanut allergy	12 (9%)	13 (9%)	
Eczema or skin rash	25 (20%)	25 (17%)	
Possible food allergies	38 (30%)	51 (35%)	
Eczema and possible food allergies	28 (22%)	41 (28%)	
Non-IgE-mediated food allergy	10 (8%)	6 (4%)	
Asthma and/or allergic rhinitis	8 (6%)	5 (3%)	
Drug allergy	2 (1.5%)	2 (1.5%)	
Immunodeficiency	4 (3%)	2 (1.5%)	
Eosinophilia	1 (0.5%)	0	

Confirmed egg allergy refers to patients instructed by the allergist to continue egg avoidance based on history and/or positive testing. Suspected egg allergy when labeled as egg allergic by either family or primary care physician (PCP) but ultimately cleared by the allergist.

SD, Standard deviation.

There was a statistically significant increase in the number of patients recorded to have no prior exposure to peanut from 55 (43%) pre-guidelines to 102 (70%) post-guidelines ($P < .001$). This could simply represent an increase in the documentation of peanut exposure status rather than a decrease in exposure but cannot be specifically determined by the data collected. There was a statistically significant decrease in the number of patients with no documentation of peanut exposure status after guideline publication from 54 (42%) pre-guidelines to only 19 (13%) of the patients post-guidelines ($P < .001$).

The frequency and modality of PA testing did not change significantly after NIAID guideline publication. A total of 83 (65%) patients underwent evaluation for peanut sensitization via skin prick test and/or peanut specific IgE (sIgE) pre-guidelines compared with 102 (70%) of patients post-guidelines. This finding may reflect awareness of the LEAP trial data among allergists before the NIAID guidelines. Alternatively, this could represent alignment of the guideline recommendations with the established practices of our institution's allergists.

Initial evaluation for PA was rarely performed by the primary care physician (PCP) before or after the guidelines with no statistically significant change ($P = .27$). Many PCPs who did initiate an evaluation for food allergy ordered ImmunoCap food

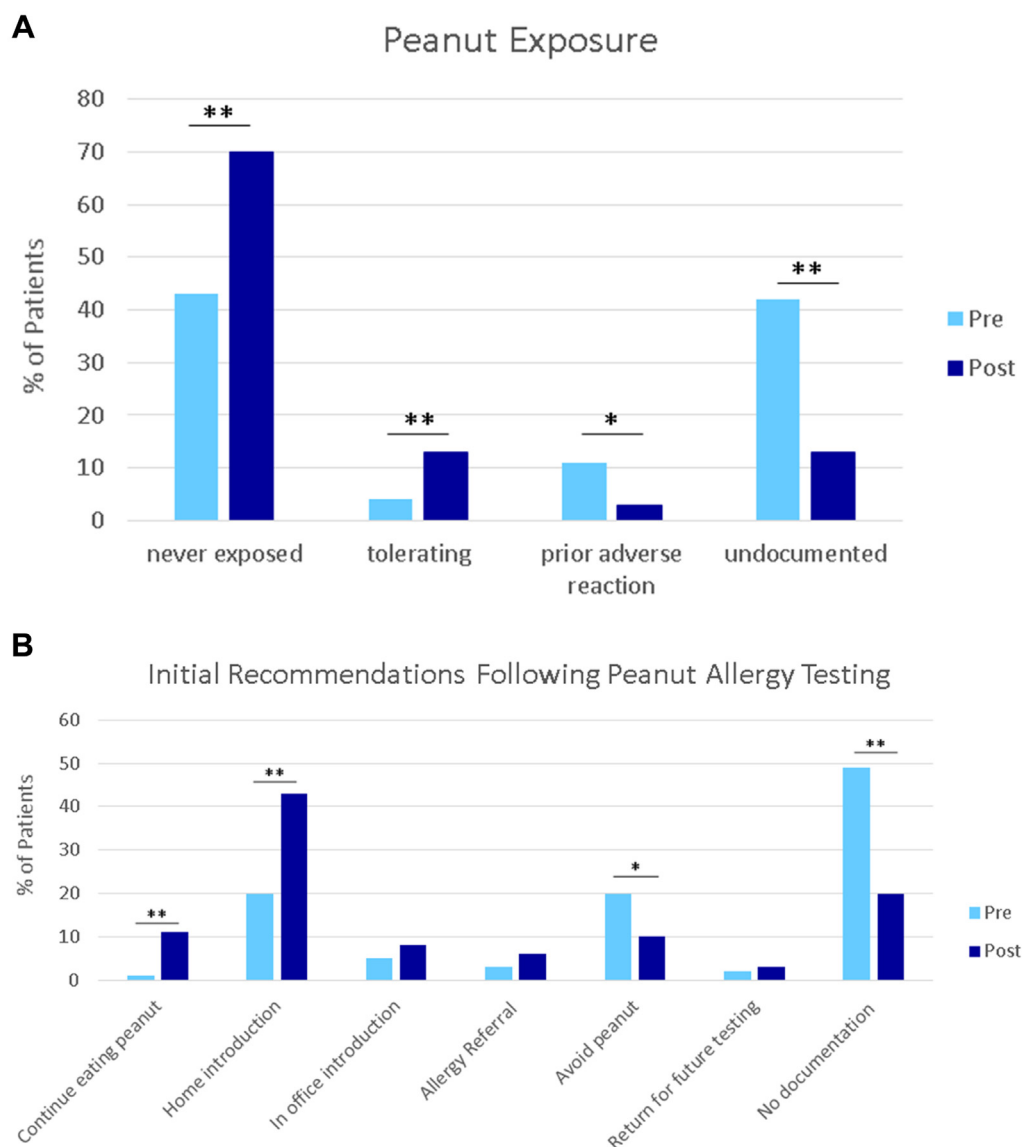


FIGURE 1. Recent practice patterns on the early introduction of peanut. **A**, Status of peanut exposure at the time of initial allergy clinic visit. **B**, Initial recommendations from the provider ordering peanut allergy testing after evaluation and testing results. * $P < .05$; ** $P < .01$.

panels (80%) rather than peanut sIgE levels (20%). The majority of testing was performed by an allergist, occurring in 76 (92%) patients with allergy testing seen pre-guidelines and 87 (85%) patients with allergy testing seen post-guidelines. Another specialist (gastroenterology or pulmonology) ordered the initial testing for 2 patients seen post-guidelines, both in the form of an ImmunoCap food panel. The results of PA testing are outlined in Table E1, available in this article's Online Repository at www.jaci-inpractice.org.

There was also a significant increase in the proportion of patients with documentation regarding recommendations for the introduction of peanut. Based on the initial evaluation, recommendations were to introduce peanut at home for 25 (20%) of patients seen pre-guidelines and for 62 (43%) of patients seen post-guidelines. The higher rate post-guidelines was likely multifactorial and beyond the scope of this study.

Additional data regarding recommendations for peanut introduction after initial evaluation and/or testing are outlined in Figure 1, B. Of note, there were 26 (20%) patients pre-guidelines as compared with 14 (10%) patients post-guidelines instructed to avoid peanut ($P = .013$). There was a decrease from 63 (49%) patients seen pre-guidelines to 29 (20%) patients seen post-guidelines who did not have any documentation regarding peanut introduction within the electronic medical record (EMR) ($P < .001$).

Including patients instructed to introduce peanut at home, those already tolerating, and those who passed oral food challenge (OFC), 31 (24%) of patients in the pre-guidelines group and 92 (63%) of patients in the post-guidelines group were specifically instructed to include peanut in their diet. Twenty-nine patients (23%) pre-guidelines and 19 patients (13%) post-guidelines were instructed to avoid peanut including

those instructed to avoid based on history and/or testing and those who failed OFC.

Limitations of this review include scarcity of documentation regarding peanut introduction outside allergy office encounters. There was a significant increase in the proportion of patients in the targeted age range who had some documentation in the EMR regarding exposure status to peanut post-guidelines. This was primarily recorded by the allergist. The evaluation and allergy testing was also initiated by the allergist in a vast majority of patients.

However, only patients seen in the allergy clinic were included in this review. Thus, patients evaluated by a PCP with negative peanut testing would not be identified. In addition, some PCPs may discuss peanut introduction without any specific documentation in the EMR. Reliance on clinic notes and PA testing orders would not identify these cases.

Thus, it seems that there is awareness of the new guidelines for early peanut introduction among allergists, yet it is difficult to specifically assess the awareness and adherence among general pediatricians. This suggests that solutions should be aimed at creating time-efficient templates allowing quick documentation of a patient's exposure status to peanut and whether or not PA testing or allergy referral is necessary.

In conclusion, after publication of the NIAID guidelines for early introduction of peanut, there was a significant increase in the proportion of infants seen in the allergy clinic with documentation regarding the status of peanut exposure and recommendations regarding introduction. This was not accompanied by any significant change in frequency or modality of PA testing,

and testing is typically performed by the allergist rather than the PCP.

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TABLE E1. Peanut allergy testing results

	Pre-guidelines				Post-guidelines			
	SPT wheal (mm), mean	SPT wheal (mm), range	Peanut sIgE (kU/L), mean	Peanut sIgE (kU/L), range	SPT wheal (mm), mean	SPT wheal (mm), range	Peanut sIgE (kU/L), mean	Peanut sIgE (kU/L), range
All patients	2.0 (n = 64)	0-20	11.45 (n = 32)	0->100	1.4 (n = 84)	0-15	8.08 (n = 42)	0->100
Passed OFC	3.75 (n = 4)	2-5	1.22 (n = 3)	0-3.14	2.1 (n = 8)	0-5	2.05 (n = 7)	0-6.11
Failed OFC	N/A*	N/A*	3.06 (n = 1)	N/A	5 (n = 3)	4-6	3.61 (n = 3)	0-9.94

OFC, Oral food challenge; sIgE, specific IgE; SPT, skin prick test.

*The single SPT result recorded as 4+ without documentation of wheal and flare measurement.