Monitoring changes in infant feeding practices after changes to guidelines for food allergy prevention

Rachel L Peters[1,2], Kirsten P Perrett[1,2,3]

It may soon be possible to reverse the increase in food allergy of the past few decades

IgE-mediated food allergy is a significant public health problem in many countries, and its prevalence in Australia is the highest of any country.[1] As no curative treatments are available in routine practice, effective prevention strategies are essential for managing the increasing burden. Modifying infant feeding practices has emerged as a key approach.

Historically, it was recommended that introducing allergenic foods to infants be delayed until after 1–3 years of age.[2] However, evidence challenging this approach has emerged and it is hypothesised that immune-mediated sensitisation to foods may follow cutaneous exposure to allergens, and that timely introduction of allergenic food by the oral route induces tolerance.[3] Observational data suggested that delaying the introduction of allergenic foods was associated with increased risk of food allergy, prompting several randomised controlled trials. These have recently been consolidated in a meta-analysis which concluded that introducing peanut and egg early reduces the risk of the corresponding allergies.[4] A major paradigm shift in infant feeding guidelines has ensued. The current Australian infant guidelines, published in 2016, recommend that allergenic foods such as peanut and egg be introduced into the infant's diet during the first year of life.[2] Monitoring how the population responds to changes in infant feeding guidelines, and their impact on food allergy prevalence, is essential.

In this issue of *MJA*, O'Sullivan and colleagues[5] report on the development of SmartStartAllergy, a tool for promoting and monitoring community uptake of the updated infant feeding guidelines in Australia. The tool builds upon the existing SmartVax program and infrastructure, using SMS messaging to collect data about food introduction and to invite participation in a questionnaire about parent-reported food-related reactions. The authors report that 86% of infants (1673 of 1940) had consumed peanut by 12 months of age, and the proportion was similar across the three Australian states with most participants (Western Australia, New South Wales, Queensland). A smaller number of parents completed the questionnaire about perceived allergic reactions; 1.6% of children exposed to peanut (12 of 764) had responses suggestive of IgE-mediated peanut allergy.[5]

Infant feeding practices in Australia had previously been investigated in the HealthNuts study, a population-based Melbourne sample of 5276 12-month-old infants recruited between 2007 and

2011. At this time, early introduction of peanut was not actively recommended and only 28% of infants had consumed it by 12 months of age.[6] The first evaluation of infant feeding practices after publication of the new Australian guidelines was the EarlyNuts study (2017–2018), which replicated the HealthNuts sampling frame, recruitment methods, and food allergy assessments, allowing direct comparison with the earlier study. The EarlyNuts investigators found a striking shift to earlier peanut introduction: 89% of infants had consumed peanut by 12 months of age, three times as many as in 2007–2011.[7] Together, the SmartStartAllergy and EarlyNuts results indicate a major shift in infant feeding practices at the national level.

The next question that urgently needs investigating is whether this early exposure to common food allergens leads to reduced rates of food allergy. Although the SmartStartAllergy program collected data on parent-reported allergic reactions, the lack of objective measures of food allergy limits extrapolation to the population prevalence of food allergy. The EarlyNuts study includes the gold standard measure of food allergy, oral food challenges, and its results, which will indicate whether the prevalence of food allergy has indeed been reduced, are eagerly anticipated.

O'Sullivan and colleagues[5] found that infants with a family history of allergy were less likely to have consumed peanut by the age of 12 months. SmartStartAllergy, as well as gathering large scale, real time data on infant feeding, could facilitate the targeting of families who are yet to introduce peanut and prompt discussions with their general practitioners about the timely introduction of allergenic foods. In addition, this tool could help identify adverse food reactions and facilitate engagement with health care professionals for food allergy testing and education about appropriate management.

The rapid shift in infant feeding practices in Australia after the relevant guidelines were updated is surprising, as there is often a lag in response to new guidelines, particularly if they include recommendations contrary to those of earlier guidelines.

[1] Murdoch Children's Research Institute, Melbourne, VIC. [2] The University of Melbourne, Melbourne, VIC. [3] Royal Children's Hospital, Melbourne, VIC. rachel.peters@mcri.edu.au
• doi: 10.5694/mja2.50535 • See Research (O'Sullivan).

Ongoing monitoring of infant feeding practices will determine whether this momentum is maintained. Finally, early introduction of allergens is unlikely to prevent all food allergy,[8] and clinical trials currently underway are assessing the benefit of adding other strategies, including eczema prevention, vitamin D supplementation, and modification of maternal diet during pregnancy and breastfeeding.[9,10] It may well be possible to soon reverse the increase in food allergy of the past few decades.

Competing interests: No relevant disclosures.

Provenance: Commissioned; externally peer reviewed. ■

© 2020 AMPCo Pty Ltd

1 Peters RL, Koplin JJ, Gurrin LC, et al; HealthNuts Study. The prevalence of food allergy and other allergic diseases in early childhood in a population-based study: HealthNuts age 4-year follow-up. *J Allergy Clin Immunol* 2017; 140: 145–153.e8.

2 Netting MJ, Campbell DE, Koplin JJ, et al. An Australian consensus on infant feeding guidelines to prevent food allergy: outcomes from the Australian Infant Feeding Summit. *J Allergy Clin Immunol Pract* 2017; 5: 1617–1624.

3 Lack G. Epidemiologic risks for food allergy. *J Allergy Clin Immunol* 2008; 121: 1331–1336.

4 Ierodiakonou D, Garcia-Larsen V, Logan A, et al. Timing of allergenic food introduction to the infant diet and risk of allergic or autoimmune disease: a systematic review and meta-analysis. *JAMA* 2016; 316: 1181–1192.

5 O'Sullivan M, Vale S, Loh RKS, et al. SmartStartAllergy: a novel tool for monitoring food allergen introduction in infants. *Med J Aust* 2020; 212: 271–275.

6 Tey D, Allen KJ, Peters RL, et al; HealthNuts study investigators. Population response to change in infant feeding guidelines for allergy prevention. *J Allergy Clin Immunol* 2014; 133: 476–484.

7 Soriano VX, Peters RL, Ponsonby AL, et al. Earlier ingestion of peanut following changes to infant feeding guidelines: the EarlyNuts Study. *J Allergy Clin Immunol* 2019; 144: 1327–1335.e5.

8 Koplin JJ, Peters RL, Dharmage SC, et al; HealthNuts study investigators. Understanding the feasibility and implications of implementing early peanut introduction for prevention of peanut allergy. *J Allergy Clin Immunol* 2016; 138: 1131–1141 e2.

9 Allen KJ, Panjari M, Koplin JJ, et al. VITALITY trial: protocol for a randomised controlled trial to establish the role of postnatal vitamin D supplementation in infant immune health. *BMJ Open* 2015; 5: e009377.

10 Lowe AJ, Su JC, Allen KJ, et al. A randomized trial of a barrier lipid replacement strategy for the prevention of atopic dermatitis and allergic sensitization: the PEBBLES pilot study. *Br J Dermatol* 2018; 178: e19–e21. ■