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Citation: EMJ Allergy Immunol. 2026;11[1]:57-60. https://doi.org/10.33590/emjallergyimmunol/052BF5S2

One of the key challenges in connecting evidence with practice is the speed at which research findings can be translated into guidelines

Q1 What initially inspired you to pursue a career in allergy and immunology, and what led you to focus specifically on childhood food allergies and epidemiology?

Back in 2006, I had a conversation with the late Professor Katie Allen, and that started the course of my career in this area. Allen was incredibly passionate about the need to better understand childhood food allergies through high-quality research. She encouraged me to undertake a PhD under her supervision to explore some of the big unanswered questions of the time. I was inspired by the potential to provide answers to questions that were being asked by new parents every day, including "Is it likely that my child will develop a food allergy?" and "How can I prevent them from becoming food allergic?" The potential for research to translate into meaningful, practical guidance for families was a powerful motivator.

Allen was an exceptional mentor to me and to many others and played a huge role in advancing food allergy research in Australia. She passed away in December 2025 and is sorely missed.

Q2 From your perspective, how has the understanding and management of childhood allergic diseases evolved most dramatically over the past decade?

From my perspective, the most dramatic change in childhood food allergy over the past decades has been the shift from a focus on allergen avoidance to a focus on preventing allergy through early exposure and tolerance induction. While this shift began more than a decade ago, the evidence base and resulting changes in clinical practice have accelerated most markedly in the past 10 years.

In the 1990s and early 2000s, avoidance of foods like peanuts in infancy and early life was common, based on the belief that this might reduce the risk of developing food allergy. In Australia, children presenting with food reactions were sometimes 'screened' for a broad range of potential food allergies, and where there was evidence of sensitisation, avoidance was encouraged. Once a food allergy was diagnosed, strict avoidance was essentially the only management option available.

This approach has now changed fundamentally. Parents are advised to introduce a range of common allergenic foods in infancy, soon after the introduction of solid foods, to reduce the risk of food allergy developing. These recommendations are based on robust evidence from large high-quality RCTs and subsequent meta-analyses, most of which have been published within the past decade.

In parallel, management options for children with established food allergy have also evolved. Treatments such as oral immunotherapy, as well as

structured egg and milk 'ladders', may now be considered for some children as alternatives to complete avoidance, reflecting a broader shift toward active management and promotion of immune tolerance rather than strict exclusion alone.

Q3 Your research emphasises population-based studies to inform prevention. How do you see large cohort studies, like HealthNuts and EarlyNuts, shaping public health strategies for allergy prevention?

Large population-based studies have the potential to answer questions that can't be answered through clinical trials alone. They allow us to accurately estimate the population prevalence of food allergy, identify novel risk factors, and generate hypotheses about prevention strategies that can then be tested in RCTs.

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In Australia, prior to the HealthNuts study, there was widespread concern about rising rates of food allergy, but little high-quality population data to quantify the problem. HealthNuts provided some of the first evidence on how common food allergy really was in infants and young children, driving an increased research focus on prevention and improved management.

Population-based cohort data have also been instrumental in identifying potential modifiable risk factors. For example, research led by Allen using HealthNuts identified low vitamin D as a possible risk factor for food allergy. This directly led to the design of the VITALITY trial, a large RCT of vitamin D supplementation involving more than 2,700 infants, with results expected later this year.

Another key strength of large cohort studies is their ability to capture the burden and impact of food allergy in groups that are often underrepresented in clinical trials. When participation is designed to be low burden for families, population-based studies can achieve high participation rates and generate samples that are more representative of the wider community.

Importantly, establishing a robust baseline prevalence of food allergy allows us to evaluate the real-world impact of population-level prevention strategies as they are implemented through public health guidelines. By recruiting a population-based sample a decade after HealthNuts, the EarlyNuts study was able to assess the uptake and impact of guidelines recommending the timely introduction of allergenic foods in infancy, examine changes in feeding practices and allergy outcomes, and identify areas where further improvement is needed. These examples demonstrate how large cohorts can directly inform, refine, and evaluate public health strategies for allergy prevention.

Q4 You've contributed to national and international guidelines on infant feeding to prevent food allergy. What do you see as the most important lessons from these guidelines, and how have they impacted real-world feeding practices?

It has been very encouraging to see the dramatic shift in infant feeding practices in Australia following the introduction of guidelines recommending the timely introduction of peanut and other allergenic foods. After the guidelines were updated, more than 80% of infants were introduced to peanut before 12 months of age, compared with fewer than 30% previously. Introduction of other allergenic foods, such as egg and tree nuts, has also occurred earlier, although the changes have been less pronounced.

We found that advice consistent with the new guidelines was widely received by families. Importantly, receiving accurate advice was associated with the timely introduction of allergenic foods. These experiences have shown that guidelines based on high-quality evidence from RCTs can lead to meaningful changes in real-world practice, provided they are effectively disseminated to healthcare professionals and the broader community.

We are also starting to see these changes in infant feeding practices translate into reductions in food allergy prevalence in Australia. Similar trends have been reported in the USA, where a decline in peanut allergy diagnoses has been observed following the introduction of guidelines recommending peanut introduction during the first year of life.

However, one important lesson has been the importance of culturally

tailored advice and implementation strategies. Families in which one or both parents were born outside Australia were less likely to report receiving advice about timely allergen introduction and were less likely to follow the guidelines in practice. This is particularly significant, because infants of parents born in East Asia are known to be at higher risk of developing food allergy. These findings underscore the need for targeted, culturally appropriate approaches to ensure guideline benefits occur across all populations.

Q5 Through initiatives like the National Allergy Centre of Excellence (NACE) Living Evidence Collection, you aim to connect evidence and practice. What challenges do you encounter when translating complex research findings into actionable recommendations for clinicians and families?

One of the key challenges in connecting evidence with practice is the speed at which research findings can be translated into guidelines and, ultimately, changes in clinical care. Traditional systematic reviews can take years to complete, potentially delaying the incorporation of new evidence into recommendations. The NACE Living Evidence Collection aims to change this by enabling rapid incorporation of newly published studies into living systematic reviews and meta-analyses, making it easier for high-quality evidence to be rapidly incorporated into guidelines.

Another ongoing challenge is how best to communicate uncertainty when translating complex research findings into actionable recommendations for clinicians and families. There are often questions that are highly relevant and important to families, but for which robust, high-quality evidence does not yet exist. In these situations, it can be tempting to issue interim recommendations; however, without a strong evidence base, there is a real risk that well-intentioned guidance could be ineffective or even cause harm. Striking the right balance between providing practical guidance and acknowledging uncertainty remains one of the most difficult aspects of evidence translation.

Q6 Some of your research examines allergic disease among Aboriginal and Torres Strait Islander children. What have you learned about the social, environmental, or genetic factors that contribute to differences in allergy prevalence and outcomes?

There is still a lot to learn about factors that contribute to differences in allergy prevalence and outcomes between populations. One of the most consistent findings across our population-based studies is that children born in Australia to parents born in East Asia have a substantially higher risk of eczema and food allergy compared to children whose parents were born in Australia. In contrast, children born and raised in East Asia, or those who migrate later in childhood, appear to have the lowest risk. Similar patterns have been observed in other Western countries among children born to East Asian-born parents.

These findings suggest an interaction between genetic susceptibility and early-life environmental exposures. Children with East Asian ancestry may carry genetic variants that make them

more likely to develop food allergy when they are exposed to certain environmental factors common in Western settings. The specific environmental factors involved are not yet fully understood, but may include different patterns of microbial exposure, changes in dietary patterns and infant feeding practices, changes in sunlight exposure and vitamin D status, humidity, or other aspects of the early-life environment.

Much less is known about allergic disease among Aboriginal and Torres Strait Islander children. Although national data show that asthma is more commonly reported among First Nations Australians, other allergic diseases have not necessarily been recognised as an important concern among First Nations people, particularly in remote areas. National surveys also suggest a lower rate of reported allergies among First Nations people. However, it remains unclear whether this reflects genuinely lower prevalence, underrecognition, underreporting, or barriers to diagnosis and access to care.

Despite lower rates of reported allergy in surveys, our research in Queensland found that First Nations Australians were more likely to present to emergency departments with allergy-related illnesses compared with non-Indigenous Australians. This may reflect more severe disease at presentation, limited access to specialist services, or delays in diagnosis and management, particularly in regional and remote settings. These findings highlight the importance of improving access to culturally safe allergy services, strengthening data collection, and working in partnership with First Nations communities to better understand and address allergic disease across diverse populations.

Q7 Looking ahead, what areas of allergy and immunology research are you most excited about, whether in prevention, early intervention, or novel therapies, and where do you see the field heading in the next 5–10 years?

One of the things that most excites me is the possibility that in the next 5–10 years, we might start to see large reductions in the number of children living with food allergy. We already have prevention strategies that we know can reduce the number of new cases of food allergy when implemented effectively, and other promising strategies are currently being tested in large RCTs. These include infant vitamin D supplementation as well as maternal consumption of allergenic foods during pregnancy and breastfeeding. Other areas of active research include skincare interventions aimed at preventing eczema and subsequent food allergy, as well as strategies targeting the infant microbiome. Hopefully, some of these approaches will prove effective and be incorporated into clinical guidelines in the coming years. Combined with emerging treatments that may help some children, and possibly adults, outgrow existing food allergies, there is genuine potential for meaningful, population-level reductions in food allergy prevalence.

Another area where I am encouraged by recent progress is the increasing inclusion of the perspectives of families and people living with allergies across all stages of the research process. Continued improvement in this area should help ensure that research over the next 5 years and beyond addresses questions that matter most to those directly affected by allergic disease, ultimately leading to prevention and treatment strategies that are both effective and relevant.

