

Moving FORWARD Toward Racial Equity in Food Allergy



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Equity, as defined by the World Health Organization, is the absence of avoidable or remediable differences among groups of people, whether those groups are defined socially, economically, demographically, or geographically.¹ Health disparities are inequalities linked with social, economic, demographic, and environmental disadvantages that adversely affect groups that have systematically experienced greater social or economic obstacles to health.² In this issue, Mahdavinia and colleagues³ have provided results of an important investigation into the differences in the demographics and clinical characteristics of food allergies between White and African American children that addresses the disparate food allergy risk in African Americans. The results have the potential to decrease health disparities in food-allergic children nationwide.

The Food Allergy Management and Outcomes Related to White and African American Racial Differences (FORWARD) study is an important step in expanding the paucity of food allergy research in underrepresented groups, removing a perceived barrier to equitable health in the African American food allergic pediatric population. Involvement of this group of patients, which is significantly hesitant to participate in research owing to historical injustices, in a clinical trial in urban US tertiary centers with racially and ethnically diverse investigators is an example of the feasibility of performing food allergy research in diverse populations. In the field of food allergy, many research studies have not reported race or ethnicity, or considered that a lack of diversity in trial participants may not reflect prevalence of disease, but rather access to care. The FORWARD study shows the importance of efforts to report racial and ethnic differences and include racial and ethnic groups in clinical research.

The FORWARD study is a well-designed, large, prospective, multicenter cohort study with White and African American food-allergic children age 0 to 12 years observed in allergy and immunology clinics from four academic institutions in Chicago,

Washington DC, and Cincinnati. The primary outcome was the prevalence of nine food allergies and atopic comorbidities in these two groups. After controlling for covariates, in this large cohort of 664 African American and White children with a diagnosis of food allergy, there was a three times higher adjusted odds ratio for shellfish allergy and a 2.5 higher adjusted odds ratio for finfish allergy in African American children compared with their White counterparts. Shellfish allergy was also associated with asthma. These observations confirm prior research showing a high prevalence of shellfish allergy in Black or Hispanic/Latino US children with comorbid asthma, allergic rhinitis, or a parental history of asthma, environmental, or other food allergies.⁴ Advantages of the FORWARD study over prior studies are the inclusion of confirmation by chart review, requirement of a positive food-specific IgE or skin prick test for diagnosis, and consultation with the primary allergist regarding the diagnosis of comorbid conditions.

The African American children in this study differed from White children because they were older (almost four times as likely to be age 5 years or greater), poorer (20 times less likely to have a household income of greater than \$100,000), and almost three times more likely to have asthma. Interestingly, the presence of non-seafood allergies was similar between groups. A large infant birth cohort study (Wayne County Health, Environment, Allergy, and Asthma Longitudinal Study [WHEALS])⁵ described a higher proportion of African American children with peanut allergy, and several studies^{5,6} showed that African American children are more likely to have multiple food allergies than White children. The disparity between the FORWARD study results and others may be the heterogeneous methods used by multiple allergists in confirming food allergy diagnosis through medical records or prior diagnosis with no strict pre-determined criteria, differences in access to care in different regions of the United States, and/or regional dietary practices.

It is well-known that there is a differential wealth gap between White and African American families; the FORWARD study reflects this significant difference in household income between the two populations. The authors note that economic burdens can directly affect social determinants of health and food access in children and have significant impacts on children with food allergy. Further investigation is needed of the social determinants of health or dietary practices that could affect the higher prevalence of shellfish and finfish allergies in low-income African American children compared with other low-income groups.

Seafood allergy is one of the six most common food allergen groups⁷ and consists of shellfish and finfish allergies. Comparatively, research to understand the epidemiology, immunologic mechanisms, diagnostic accuracy of testing, and treatment options has lagged behind that of other, more common allergens. Most clinical seafood allergy research studies have been

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performed in international populations outside the United States. Because the expression of shellfish and finfish allergies in the US population is not as well understood, the FORWARD study expands our knowledge by characterizing the prevalence and importance of seafood allergy and allergic comorbidities in African American children.³

Seafood allergy is one of the most common food allergies in the world. In the United States, shellfish allergy is the most common food allergy among adults (3%) and the third most common among children (1%).⁷ Interestingly, details of the prevalence of specific finfish allergies have not been reported in the United States. Overall, the number of affected seafood allergic pediatric and adult patients in the United States is staggering and comparable to peanut allergy. As allergists, we are seeing these patients in our offices. Seafood allergy is one of the leading causes of emergency room and intensive care unit admissions and anaphylaxis caused by food.⁷ Despite these public health implications, there are gaps in the epidemiologic understanding of seafood allergy. Significant scientific advances are needed regarding the pathophysiology and clinical management of seafood allergy.

The FORWARD study's finding that asthma is linked to shellfish allergy brings to the forefront the increased risk for food-induced life-threatening anaphylaxis in patients with asthma. African American children have higher rates of food allergy-related anaphylaxis and emergency department visits.⁸ However, research in low-income, urban minority patient populations with a physician-documented food allergy shows that fewer than half received confirmatory testing or evaluation by an allergy specialist. Although most were given an epinephrine auto-injector, significantly more African Americans were not given food allergy action plans.⁹ This indicates there is a greater need for allergy or immunology clinics to become more accessible to low-income patients, and for allergists and immunologists to perform confirmatory testing consciously and give anticipatory guidance in this patient population to decrease health disparities.

Some limitations of the FORWARD study bear mentioning. There was a disproportionate number of White children compared with African American children in the study, with a larger proportion of cases obtained from Northwestern/Lurie Children's Hospital, where African American children represented a lower percentage of enrolled cases. The differences in the prevalence of African American children between centers may

have biased the results, although the authors adjusted the findings for covariates, including current age in years and yearly household income. Because race is a social construct and self-identification of race or ancestry does not correlate with genetic ancestry, this limitation is acknowledged. The FORWARD study investigators thoughtfully excluded self-identified White and African American participants when Hispanic ethnicity or Latinx race was also reported, and mixed-race children. The field would benefit from future studies that disentangle self-report of race and ethnicity as well as genetic ancestry in the context of food allergy.

More investigation is needed to improve clinical care in populations in which shellfish and finfish allergies are significant. Allergists and immunologists can start by providing access, testing, and education to low-income minority patients. The FORWARD study is enlightening and provides the impetus for a clarion call to improve the detection and treatment of shellfish and finfish allergies. This would be a giant step forward toward racial equity in treating food allergies in minority, low-income US populations. The time for us to act is now.

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