American Academy of Allergy Asthma & Immunology

Addressing health disparities in food allergy: A Position Statement of the AAAAI Prior Authorization Task Force

American Academy of Allergy, Asthma & Immunology *Milwaukee, Wis*

Self-reported food allergies (FAs) affect approximately 8% of the US pediatric and approximately 10% of the adult population, which reflects potentially disproportionate increases among ethnically and racially minoritized groups. Multiple gaps and unmet needs exist regarding FA disparities. There is reported evidence of disparities in FA outcomes, and the FA burden may also be disproportionate in low-income families. Low family income has been associated with higher emergency care spending and insecure access to allergen-free food. Pharmacoinequity arises in part as a result of structural racism still experienced by historically marginalized populations today. Historically redlined communities continue to experience greater rates of neighborhood-level air pollution and indoor allergen exposure, lack of transportation to medical appointments, poverty, and lower prescription rates of necessary medications. Clinical research needs racially and ethnically diverse participation to ensure generalizability of research findings and equitable access to medical advances, but race reporting in clinical trials has been historically poor. Addressing health disparities in FA is a priority of clinical care, with professional organizations such as the American Academy of Allergy, Asthma & Immunology having a prominent role to play in mitigating the challenges faced by these individuals. In this position statement we recommend some key steps to address this important issue. (J Allergy Clin Immunol 2025;155:53-61.)

Key words: *Food allergy, health disparities, food insecurity, pharmacoequity, minoritized populations, advocacy, barriers, research*

Health disparities in food allergy (FA) negatively affect all areas of patient care including diagnosis, prevention, and management. This position statement aims to discuss current evidence on health disparities in FA, highlight unmet needs, and propose relevant solutions.

CURRENT KNOWLEDGE

Epidemiology

The prevalence of FA has increased in recent decades. FAs affect approximately 8% of the US pediatric and approximately 10% of the adult population, which also reflects potentially disproportionate self-reported increases among ethnically and racially minoritized groups.[1,2] In a recent study,[3] it was found that individuals self-identifying as Asian (odds ratio [OR], 1.21), Black (OR, 1.15), and Hispanic (OR, 1.17) are more likely to report at least 1 FA in comparison with White individuals. Retrospective data from 2 large inner-city tertiary centers noted that Black children were significantly more likely to have allergies to wheat, soy, fish, shellfish, and corn, but less likely to have allergies to tree nuts in comparison with White children.[4] The rate of severe reactions may be high among self-identifying Black and Hispanic children, in whom there are increased rates of emergency department (ED) visits for FA-related symptoms versus White children.[4] Hispanic adults have self-reported FA rates

From the American Academy of Allergy, Asthma & Immunology (AAAAI), Milwaukee.

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Corresponding author: American Academy of Allergy, Asthma, & Immunology, 555 East Wells Street, Suite 1100, Milwaukee, WI 53202. E-mail: info@aaaai.org.

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Abbreviations used

AAAAI: American Academy of Allergy, Asthma & Immunology
EAI: Epinephrine autoinjector
ED: Emergency department
FA: Food allergy
FIA: Food-induced anaphylaxis
FORWARD: Food Allergy Outcomes Related to White and African American Racial Differences
NSLP: National School Lunch Program
OFC: Oral food challenge
OIT: Oral immunotherapy
OR: Odds ratio
QoL: Quality of life
SES: Socioeconomic status
WIC: Special Supplemental Nutrition Program for Women, Infants, and Children

comparable with those of self-identifying non-Hispanic Black adults, and they also report the highest rates of FA-related ED visits.[2]

There is reported evidence of disparities in FA outcomes, measured as ED visits, hospitalizations, or deaths. In an analysis of Medicaid data, ethnically and racially minoritized children and those living in high-poverty counties were more likely to have diagnostic codes for FA-related ED visits than White children or those not living in high-poverty counties.[5] Black and Hispanic individuals had higher rates of ED visits with coding for food-induced anaphylaxis (FIA) in Florida,[6] whereas an analysis of pediatric ED visits for FIA in New York and Florida found the highest coded rates among Black children.[7] Coding for FIA ED visits and hospitalizations in an Illinois population increased in all groups from 2008 to 2012, with rates the highest among Asian children and the most rapidly increased rate among Hispanic children.[8] In a large retrospective cohort study of 2 centers in Illinois, rates of coding for FIA were higher in Black and Hispanic individuals than in White individuals.[4] Comorbid asthma, a suspected risk factor for fatal FIA, was also higher in Black individuals. A secondary analysis of the US National Mortality Database from 1999 to 2010 showed significantly higher coding rates for fatal FIA for Black individuals, with rates nearly quadrupling for Black males over the time span studied.[9]

The FA burden may also be disproportionate in low-income families. Low family income has been associated with higher emergency care spending[10] and insecure access to allergen-free food.[11] Data from the Food Allergy Outcomes Related to White and African American Racial Differences (FORWARD) study, which is a research project that examines various aspects of FAs in children and their caregivers, showed that although Black children with FA reported less access to "safe" foods, this was mostly accounted for by socioeconomic factors.[12] Data from the National Health and Nutrition Examination Survey suggest that Black individuals are more likely to report low food security and trouble affording prescriptions, whereas Hispanic individuals report trouble affording follow-up care.[13] A 2011 study found that Canadian children from higher-income homes were 8.35 times more likely than those from lower-income homes to report being prescribed epinephrine autoinjectors (EAIs).[14] There also may be an increased burden related to atopic comorbidities in disadvantaged populations. Neighborhood-level socioeconomic deprivation was associated with reported comorbid asthma and allergic rhinitis, whereas the Black race was independently associated with comorbid asthma among children with self-reported FA.[15,16]

Importantly, the methodology of how FA is diagnosed has considerable influence regarding the certainty of the evidence and estimate. In most of the included studies, the diagnosis of FA is not based on the use of oral food challenge (OFC). Studies in which FA was diagnosed by OFC are robust, with the highest diagnostic certainty, whereas studies with FA diagnosis made by self-report, serum serology or skin testing markers, or *International Classification of Diseases, Ninth/Tenth Revision* coding are of much lower certainty. A 2013 systematic review evaluating racial and ethnic disparities in FA in the United States found that available data lack a common definition for FA and use indirect FA measures instead of the OFC criterion standard. The authors concluded that although data suggest an increased risk of food sensitization, self-reported allergy, or clinic-based diagnosis of FA among Black children, no definitive racial/ethnic disparity in FA existed among the included studies.[17] Studies using the criterion standard diagnostic methods to investigate potential FA disparities are a crucial unmet need.

Prevention

Globally, most infant feeding practice guidelines have changed to recommend early introduction of allergenic foods as part of complementary feeding to help prevent development of FA.[18] However, because infant feeding is often tied to specific social and cultural practices,[19,20] such guidance may be vulnerable to significant disparities between communities. For example, despite the long-standing recommendations for exclusive breast-feeding in the first 4 to 6 months of life, there are still disparities by race, ethnicity, and socioeconomic status (SES) in this practice.[21,22]

It has been reported that White children may be introduced to peanut and cow's milk earlier than non-White children, whereas urban populations may introduce peanut and egg earlier than suburban populations, although the reasons for this are unclear.[23,24] A study conducted across 3 sites in Ohio showed that timing of food introduction was most strongly affected by physician recommendation regardless of patient race, ethnicity, and income.[24] Furthermore, a parent-report survey from 2021 found that caregivers with a primary care provider who provided guideline-adherent recommendations were significantly more likely to introduce peanuts in the first year of life.[25] However, according to data from a large survey, primary care providers with more than 50% Medicaid patients were less likely to implement the peanut allergy prevention guidelines and more likely to report barriers to implementation, such as decreased access to subspecialists and less clinic time, although it is unclear whether this is directly related to the underserved population they care for.[26]

Australian data showed that although early introduction efforts resulted in a 3-fold (21.6%-85.6%) increase in early peanut consumption, this change was associated with lower risk of peanut allergy among infants of only Australian parents, and not of East Asian ancestry.[27] The authors stated that different introduction patterns may have contributed to the findings because it seemed that peanut was still introduced slightly later in children of East Asian ancestry. Previously, it had been shown that the prevalence of FA in Asian children was higher in Australia than in Singapore, despite Asian children in Singapore reporting

delayed introduction of allergenic foods.[28,29] Ethnic and cultural practices in various geographical areas may influence both FA prevention and dietary avoidance strategies.

Diagnosis and management

Differences in access to health care may be a notable barrier for FA diagnosis in underserved communities. In the United States, Black and Hispanic individuals are more likely to have health care covered by Medicaid.[4] A survey of American College of Allergy, Asthma & Immunology physicians indicated that nearly 70% of non-White patients reported to their physicians that they experienced difficulties accessing specialists who take Medicaid (69%) and had deficits in education regarding FA symptoms (68%).[30] Furthermore, the FA *International Classification of Diseases, Ninth Revision* diagnostic coding prevalence in individuals on Medicaid is much lower (0.6%) than previous parent-reported, physician-diagnosed FA estimates (4.7%), which could be due to poor access to specialists able to diagnose FA.[31] Black and Hispanic individuals are reported to have a shorter duration of allergist follow-up than White individuals.[4]

Managing FA involves allergen avoidance, which requires accurate and consistent reading of ingredient labels, finding suitable substitutions, and effectively communicating the relevant dietary limitations to multiple stakeholders. Accidental exposures may occur, and management should include recognizing signs and symptoms of an allergic reaction and understanding how and when to use emergency medications. Disparities may exist here as well. In a survey of parents of children with self-reported FA, self-identifying White participants were more likely to identify FA triggers and signs of an allergic reaction than non-White participants, whereas Black and Hispanic parents were more likely to recognize the importance of avoiding food allergens in comparison with White parents.[32] Another survey noted that low caregiver health literacy was associated with knowledge gaps in management of allergic reactions and decreased likelihood of demonstrating the correct use of an EAI.[33]

Inequities in access to emergency medication have also been documented. A survey of school nurses in the Houston Independent School District found that, controlled for the number of children with FA, schools in high-SES populations report more EAIs versus schools serving low-SES students.[34] A Canadian population-based survey of elementary schoolchildren found differences in access to EAIs associated with SES; children from upper-middle and highest household income levels were substantially more likely to report having a prescription for EAI as compared with students from the lowest and lower-middle household income levels (OR, 8.35; 95% CI, 2.72-25.61).[14] A multicenter North American study of ED visits for FA reported that 22% of patients presenting to the ED for anaphylaxis received discharge prescriptions for EAI; the White race was associated with increased odds of receiving an EAI prescription at ED discharge (OR, 2.7; 95% CI, 1.3-5.7).[35]

Pharmacoequity and FA treatments

Pharmacoequity relates to the ability of all patients to access FA therapies, regardless of race, ethnicity, and SES.[36,37] Pharmacoinequity arises in part as a result of structural racism still experienced by historically marginalized populations today.[38-40] Historically redlined communities (communities of color excluded from home ownership subsidization and facilitation) continue to experience greater rates of neighborhood-level air pollution and indoor allergen exposure, lack of transportation to medical appointments, poverty, and lower prescription rates of necessary medications.[38,41,42] Housing insecurity continues to affect social cohesion, safety, depression, and stress, which increases burden of disease.[38,39] These factors are interwoven into therapeutic decisions, whether recognized or not.[43] When considering possible FA management options of avoidance alone, food immunotherapy, and omalizumab, historically marginalized populations struggle with both access and availability of resources to empower them as partners in shared decision making.[36,44] Caregivers belonging to historically underrepresented populations are less likely to experience minimally disruptive medicine (defined as a patient-centered approach that aims to minimize the burden of a treatment plan).[45-47] These caregivers are often required to work multiple jobs, resulting in a decreased ability to supervise complex immunotherapy regimens or transport children to injection appointments.[44,45,48-50]

Historically excluded populations may be more likely to bear the burden of "low-value" therapies (that are may be medically unnecessary and provide no real health benefits to patients).[36,51,52] Costs of biologic therapies exceed value-based estimates by 2- to 3-fold, and even if biologics were cost-effectively priced, costs are still excessive.[53,54] Although omalizumab use for IgE-mediated FA may be an attractive option for many, evidence suggests that historically marginalized populations will likely not have equal access to this biologic.[41,42,47,55] In a 2021 evaluation of the IQVIA (I [IMS Health], Q [Quintiles], and VIA [by way of]) national database, no biologics were recorded for those without insurance, and biologic use was lower in those publicly insured.[41] Step therapies, site-of-service therapies, and "white bagging" polices (when insurance companies make coverage of needed patient-specific medications contingent on the medication being distributed from a third party) may also disproportionately affect historically marginalized populations.[56] With greater complexity added to obtain needed medications, those patients with poor numeracy and health literacy may struggle to meet criteria outlined by third-party payers before therapies can be accessed.[46,57]

Data suggest that inequity has already been occurring with oral immunotherapy (OIT). A 2019 national survey regarding OIT-related knowledge, attitudes, and experiences among 781 US adults and caregivers of children self-reporting FA noted that higher income and educational status were associated with higher awareness of OIT as a treatment option.[58] No data are available regarding disparities in awareness of other FA treatments. A review of 135 published FA immunotherapy clinical trials found that race and ethnicity were frequently not reported (this was reported only in 16 of 135 trials).[59] Of the reporting trials, White participants (81.7%) were overrepresented compared with Asian (7.7%), Black (2.8%), Hispanic (1.3%), and Native American or Pacific Islander (0.1%) participants.[59] In recent phase III treatment trials, only 1.6% (PALISADE),[60] 0.8% (PEPITES),[61] and 0.55% (EPITOPE)[62] participants were Black; Hispanic ethnicity and socioeconomic factors were not reported in the original publication.[60] Disparities in enrolling for FA immunotherapy trials may impede their generalizability to non-White populations.

Food insecurity

Food insecurity is associated with numerous adverse health, developmental, and nutritional outcomes.[63-67] In the United States, food insecurity was reported to affect 12.8% of households in 2022, reflecting an increase from 10.2% in 2021.[68] For consumers with FAs, purchasing allergen-safe foods can be expensive, and access may be difficult on the basis of local availability of foods.[69] Food insecurity in those with FAs may be more prevalent among ethnically and racially minoritized and low-SES groups.[12] In a national survey of 1351 US children self-reporting FA, 20.95% were determined to have food insecurity, which was the highest among self-identifying Black and Hispanic children.[13]

Approximately 55% of food-insecure households reported receiving assistance from the Supplemental Nutrition Assistance Program, free or reduced-price school lunch from the National School Lunch Program (NSLP), or the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC).[70] However, FAs may limit participation in these programs. One US study surveyed 392 parents of children with FA.[71] Eleven percent of children were eligible to participate in the NSLP, but 70% of eligible families opted out, mostly because of FA (89%).[71] Although the NSLP is required to provide safe substitutions for children with FA, opting out may reflect parental concern that the program would not safely accommodate their child.

According to 2021 data, 43% of US infants were eligible for WIC, with 98% of the eligible population participating. Presently, WIC participants younger than 1 year do not have access to products that would support new policy regarding early introduction of allergenic solid foods.[70] This translates to nearly 1.5 million infants who are without potential access to peanut-containing products, which are not part of the current infant WIC package. Lack of WIC access to peanut-containing products potentially places a significant portion of US infants at serious risk for delayed peanut introduction in this critical time period and represents a crucial health disparity.[70] The potential protective benefit could actually be achieved at a very low cost. Using 2022 data, the average US price for peanut butter is $0.15 per ounce (1 oz = 28.3 g, 22% protein by weight).[72] Following the National Institute of Allergy and Infectious Diseases guidelines recommendation that infants consume approximately 6 g protein per week (given as 2 g thrice weekly) to gain the preventative benefit, this equates to approximately 2 tablespoons weekly.[72] Early introduction of allergenic solid foods is supported by guidance documents from the National Institute of Allergy and Infectious Diseases, the American Academy of Pediatrics, the American Academy of Allergy, Asthma & Immunology (AAAAI), the American College of Allergy, Asthma & Immunology, the Canadian Society of Allergy and Clinical Immunology, and the US Department of Agriculture.[73-76] However, if WIC participants, who rely on WIC as their safety net for access to affordable food, do not have such crucial inclusions in their infant package, this widens further food insecurity and health disparities regarding compliance with feeding guidance.

Access to safe allergen-free foods is a priority among patients with FA, but access is not always equitable.[77] The FORWARD study identified that only 59% of Black households reported access to allergen-free foods.[12] Clinicians should screen for food insecurity among their patients. A recent AAAAI work group report found that more than 70% of allergy providers did not screen for food insecurity.[78] Barriers to screening included lack of knowledge and resources for patients.[78]

Psychological burden

Although FA may be associated with reduced quality of life (QoL), anxiety, and maladaptive coping, it is poorly understood how FA-related psychosocial functioning specifically relates to race, ethnicity, and SES. Racial or ethnic minority status, living in a neighborhood with a lower median SES, and having less education have been associated with barriers to accessing accurate FA information, FA medical care, allergen-free food, allergy medication, and FA research and with less FA knowledge.[11,79-82] These social determinants of health may influence the psychosocial burden of living with FA and contribute to psychological distress.

Regarding parental FA-related psychosocial burden and QoL, a report from the FORWARD study cohort indicated no effect from child race and ethnicity, household income, and parent educational attainment, but among Black parents, higher FA self-efficacy was related to a lower burden.[83] Similarly, no significant differences in psychosocial burden among racial groups were noted in a sample of 101 parents recruited from an FA clinic.[84] However, in an examination of 6829 patient and caregiver QoL surveys, Asian respondents reported better QoL than other respondents in the non-Medicaid population. Among respondents insured with Medicaid, Black and Hispanic respondents reported worse QoL compared with White respondents.[85] Canadian food-allergic children whose parents had a university education were reported to have better QoL than children whose parents had less educational attainment.[86] In contrast, a different study noted no effect from parent education level or household income.[83] Higher educational attainment, but not household income, was associated with social and dietary limitations in another study.[87]

Among studies that have examined FA-related anxiety, one[84] reported no differences in parental worry of FA among racial and ethnic groups, and another[88] noted no race-based differences in parental fear of using EAIs. In the FORWARD study, parents with a bachelor's degree or higher reported more anxiety about their child having an allergic reaction due to food prepared outside the home.[81] FA-related bullying had shown no race-based differences.[89] However, parents of White children 11 years and older reported higher rates of FA-related bullying, whereas parents of Black children reported higher rates of non–FA-related bullying.[89] Parental educational attainment and household income were not related to FA-related bullying. In another study, FA-related bullying did not differ among racial groups when children were queried about their own experiences.[90]

Representation in research studies

Clinical research needs racially and ethnically diverse participation to ensure generalizability of research findings and equitable access to medical advances. A 2022 report from the National Academies of Sciences, Engineering, and Medicine highlighted that there has been little progress in the past 30 years in this area.[91] Although race and ethnicity are social constructs without biological basis, the effects of social inequities and structural racism within society create differential lived experiences

and exposures that may influence biological mechanisms.[92] It is essential to report race, ethnicity, and SES factors so that health care inequities can be examined and addressed.[93] Race reporting in clinical trials has been historically poor.[94,95]

Barriers to clinical trial participation in underrepresented groups include inadequate recruitment and retention strategies, logistical barriers (eg, transportation, childcare, time, and resource constraints for participants), exclusion of non-English speakers, lack of diverse research teams that reflect the diversity within the affected patient population, and mistrust of the clinical research system because of previous and current injustices.[96] Although some mistrust likely stems from past historical abuses (such as the Tuskegee study), it is reinforced by ongoing discrimination and health care inequities.[97]

Another consideration may be that FA is valued very differently by White populations than by non-White ones or by affluent versus nonaffluent ones. The lens itself through which we may judge what constitutes a disparity needs careful examination if we do not fully know the relative importance of an issue (like FA) to a particular group or culture versus other groups or cultures, or what their relative health beliefs may be. Researchers and clinicians may have considerable bias in terms of the relative importance they may place (and feel others should place) on particular prioritization of FA as a health problem.

CURRENT GAPS AND UNMET NEEDS

Multiple gaps and unmet needs exist regarding potential FA disparities (see Table I). First, we need better diagnostic methods in studies assessing prevalence. Prevalence rates are currently limited by indirect assessment, which forces reliance on easy-to-measure, but less certain, estimates of prevalence rates. Second, there needs to be greater participation by ethnically and racially minoritized populations in FA research to allow better generalization of findings. Although it is unlikely that there is heterogeneity of treatment effects in FA studies based on race, it would be important to have stratified subgroups that could demonstrate this with adequate statistical power. Third, qualitative and preference-based studies need to be conducted in diverse populations to understand the relative importance of FA compared with other diagnoses and life constraints that such families may manage. It is difficult to understand potential disparities without understanding the context of the health beliefs of such individuals. Fourth, with better understanding of the way diverse populations may approach a health issue such as FA, we can tailor potential interventions that both support families in their FA management within their context of how they approach the disease and with an understanding of their perception of things that act as barriers and facilitators to care. Fifth, as a field, we need to address poor acceptance of Medicaid populations in our practices. There are concerning issues regarding access to specialist care.

PROPOSED ACTION STEPS

Addressing health disparities in FA is a priority of clinical care, with professional organizations such as the AAAAI having a prominent role to play in mitigating the challenges faced by these individuals (see Table I). We recommend the following steps to address this issue:

1. *Increase Medicaid participation from all allergists.* Reimbursement rates for Medicaid should be increased to be comparable with other payers, and physicians should be appropriately reimbursed for their costs and time. This will encourage more allergists to participate in Medicaid.
2. *Conduct focus groups within ethnically and racially minoritized groups to better understand how they value FA and what is culturally appropriate in different populations.* Fully inclusive research practices include ensuring research questions are in line with the needs of the FA community and creating structures of accountability wherein participants can evaluate the study for participant-centeredness impact on the community. Focus groups will help increase knowledge, understanding, motivations, concerns, desires, and trade-off limitations in FA through the use of semistructured interviews representative of relevant populations. Diverse study teams and investigators are also critical. If FA has a low relative importance as a health condition to someone, it could be an important mediator in understanding why certain groups have lower representation in research, are not seen by specialists at the same rate, may not fill certain medications they are prescribed, or make certain food-related purchases.
3. *Increase participation of ethnically and racially minoritized populations in research and support further research in the area of health disparities in FA to obtain more robust data.* Future clinical trials should be better designed to examine prevalence rates in diverse populations. They should be designed in ways that ensure recruited populations reflect the diversity of the estimated FA population. Creating a community advisory board can help establish a reciprocal research partnership. Community partners provide their expertise on the basis of their professional and lived experiences, which may lead to changes in study design and even what questions are being studied. In addition, they can help disseminate meaningful research findings to their community.
4. *Raise awareness of the probability that health disparities likely exist in FA.* This may be achieved in the form of public campaigns and community engagement and by trying to work within the framework of the cultural acceptance the community has for FA. Efforts to increase community knowledge and awareness of FA in various settings including schools/day cares/camps and restaurants would be valuable. Building and maintaining relationships over time with community stakeholders is foundational and this will be key in promoting the relevant messages to the wider public.
5. *Incorporate educational initiatives and alternate health care modalities for providing care.* Education about food insecurity among those in the allergy profession would help in addressing a key area of unmet need. Improved access to specialist care may be achieved with alternative health care modalities, such as the use of telehealth.
6. *Diversify the workforce within the allergy and immunology specialty.* Facilitation of diverse groups in the pipeline for the allergy and immunology specialty is critical. Improving outreach, taking a holistic approach to the fellowship program selection process, and focusing on mentorship of underrepresented groups are essential steps to foster diversity. Supporting the recruitment, retention, and advancement of diverse medical school faculty is also essential.

TABLE I. Gaps, unmet needs, and proposed action steps to address health disparities in FA

Gaps and unmet needs	Proposed action steps to address health disparities in FA
Poor acceptance of Medicaid populations in our practices	Increase Medicaid participation from all allergists
Lack of understanding of the relative importance of FA compared with other diagnoses and life constraints in ethnically and racially minoritized groups	Conduct focus groups within ethnically and racially minoritized groups to better understand how they value FA and what is culturally appropriate in different populations
Limited participation by ethnically and racially minoritized populations in FA research to allow better generalization of findings	Increase participation of ethnically and racially minoritized populations in research and support further research in the area of health disparities in FA to obtain more robust data.
Prevalence rate estimates of FA in ethnically and racially minoritized populations are currently limited by indirect assessment	Use better and more accurate diagnostic methods in studies assessing prevalence Raise awareness of the probability that health disparities likely exist in FA
Barriers to accessing care, especially access to specialist care	Diversify the workforce within the allergy and immunology specialty Expand advocacy efforts alongside an increased push for policy changes that ensure all food-allergic individuals have access to needed resources Incorporate educational initiatives and alternate health care modalities for providing care

7. *Expand advocacy efforts alongside an increased push for policy changes that ensure all food-allergic individuals have access to needed resources.* Working with both local and national organizations to address pharmacoequity, improve access to allergen-safe foods and advocate on a national level to improve federal food and nutrition assistance programs to offer equitable access to foods that meet current clinical practice guidelines.

Conclusion

This position statement highlights multiple gaps with regard to potential health disparities in FA, including lack of robust epidemiological data, barriers to accessing specialist care and treatments, food insecurity, unexplored psychological burden, limited participation of minoritized populations in research studies, lack of understanding of the relative importance of FA in certain populations, and poor Medicaid acceptance in many practices. Future initiatives should focus on action steps that will successfully address these unmet needs.

DISCLOSURE STATEMENT

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the Brighton Collaboration Criteria Vaccine Anaphylaxis 2.0 Working Group; is the senior associate editor for the *Annals of Allergy, Asthma & Immunology*; is a member of the Joint Task Force on Allergy Practice Parameters; and has received honoraria for lectures from ImSci, Red Nucleus, Medscape, Paradigm Medical Communications, and multiple state/local allergy societies.

Task Force Collaborators: Aikaterini Anagnostou, MD, MSc, PhD,[a,b] Julie Wang, MD,[c] Sharon Chinthrajah, MD,[d] Ruchi Gupta, MD,[e] Carla M. Davis,[a,b] Christopher Parrish, MD,[f] Rachelle Lo, MD,[g] Marion Groetch, MS, RDN,[c] Linda Herbert, PhD,[h,i] Jodi Shroba, MSN, APRN, CPNP,[j] Samantha Sansweet, MPH,[e] Marcus Shaker, MD, MS,[k,l] Corwin Rolling, BS,[e] Jonathan Tam, MD,[m] and Matthew Greenhawt, MD, MBA, MSc[n]

From [a]the Division of Immunology, Allergy and Retrovirology, Department of Pediatrics, Texas Children's Hospital, and [b]the Division of Allergy, Immunology & Retrovirology, Baylor College of Medicine, Houston, Tex; [c]the Division of Pediatric Allergy and Immunology, Icahn School of Medicine at Mount Sinai, New York, NY; [d]Sean N. Parker Center for Allergy, Stanford, Calif; [e]Northwestern Feinberg School of Medicine, Chicago, Ill; [f]the Division of Allergy and Immunology, UT Southwestern Medical Center, Dallas, Tex; [g]the Department of Allergy, Kaiser Permanente Oakland Medical Center, Oakland, Calif; [h]the Division of Psychology & Behavioral Health, Children's National Hospital, and [i]the Department of Pediatrics, George Washington University School of Medicine, Washington, DC; [j]the Division of Allergy and Immunology, Children's Mercy Kansas City, Kansas City, Mo; the Departments of [k]Medicine and [l]Pediatrics, Geisel School of Medicine at Dartmouth, Hanover, NH; [m]Children's Hospital Los Angeles, Los Angeles, Calif; and [n]the Section of Allergy and Clinical Immunology, Children's Hospital Colorado, University of Colorado School of Medicine, Aurora, Colo.

REFERENCES

1. Carter MC, Saini SS, Davis CM. Diversity, disparities, and the allergy immunology pipeline. J Allergy Clin Immunol Pract 2022;10:923-8.
2. Gupta RS, Warren CM, Smith BM, Jiang J, Blumenstock JA, Davis MM, et al. Prevalence and severity of food allergies among US adults. JAMA Netw Open 2019;2:e185630.
3. Jiang J, Warren CM, Brewer A, Soffer G, Gupta RS. Racial, ethnic, and socioeconomic differences in food allergies in the US. JAMA Netw Open 2023;6:e2318162.
4. Mahdavinia M, Fox SR, Smith BM, James C, Palmisano EL, Mohammed A, et al. Racial differences in food allergy phenotype and health care utilization among US children. J Allergy Clin Immunol Pract 2017;5:352-7.e1.
5. Kanaley MK, Dyer AA, Negris OR, Fierstein JL, Ciaccio CE, Gupta RS, et al. Guideline-informed care among Medicaid-enrolled children with food allergy. Am J Manag Care 2020;26:505-12.
6. Harduar-Morano L, Simon MR, Watkins S, Blackmore C. A population-based epidemiologic study of emergency department visits for anaphylaxis in Florida. J Allergy Clin Immunol 2011;128:594-600.e1.
7. Sakai-Bizmark R, Friedlander SMI, Oshima K, Webber EJ, Mena LA, Marr EH, et al. Urban/rural residence effect on emergency department visits arising from food-induced anaphylaxis. Allergol Int 2019;68:316-20.
8. Dyer AA, Lau CH, Smith TL, Smith BM, Gupta RS. Pediatric emergency department visits and hospitalizations due to food-induced anaphylaxis in Illinois. Ann Allergy Asthma Immunol 2015;115:56-62.
9. Jerschow E, Lin RY, Scaperotti MM, McGinn AP. Fatal anaphylaxis in the United States, 1999-2010: temporal patterns and demographic associations. J Allergy Clin Immunol 2014;134:1318-28.e7.
10. Bilaver LA, Kester KM, Smith BM, Gupta RS. Socioeconomic disparities in the economic impact of childhood food allergy. Pediatrics 2016;137:5.
11. Bozen A, Zaslavsky JM, Cohn D, Samady W, Lombard L, Nadeau K, et al. Barriers to food allergy management among Americans with low income. Ann Allergy Asthma Immunol 2020;125:341-3.
12. Coleman AT, Sharma H, Robinson A, Pappalardo AA, Vincent E, Fierstein JL, et al. Access to allergen-free food among black and white children with food allergy in the FORWARD study. J Allergy Clin Immunol Pract 2022;10:182-8.
13. Johns CB, Savage JH. Access to health care and food in children with food allergy. J Allergy Clin Immunol 2014;133:582-5.
14. Coombs R, Simons E, Foty RG, Stieb DM, Dell SD. Socioeconomic factors and epinephrine prescription in children with peanut allergy. Paediatr Child Health 2011;16:341-4.
15. Dileep A, Warren C, Bilaver LA, Stephen E, Andy-Nweye AB, Fox S, et al. Assessing disparities in the prevalence of atopic comorbidities among food-allergic children. J Allergy Clin Immunol Pract 2023;11:1169-76.
16. Dileep A, Warren C, Bilaver LA, Gupta RS, Mahdavinia M. Understanding how socioeconomic determinants affect the development of allergy to common foods in children. Ann Allergy Asthma Immunol 2023;131:393-5.
17. Greenhawt MJ, Weiss CC, Conte M, Doucet M, Engler A, Camargo C. Racial and ethnic disparity in food allergy in the United States: a systematic review. J Allergy Clin Immunol 2013;131:AB58.
18. Du Toit G, Roberts G, Sayre PH, Bahnson HT, Radulovic S, Santos AF, et al. Randomized trial of peanut consumption in infants at risk for peanut allergy. N Engl J Med 2015;372:803-13.
19. Bergamini M, Simeone G, Verga MC, Doria M, Cuomo B, D'Antonio G, et al. Complementary feeding caregivers' practices and growth, risk of overweight/obesity, and other non-communicable diseases: a systematic review and meta-analysis. Nutrients 2022;14:2646.
20. Pelto GH. Applying focused ethnographic methods: examining implications of intracultural diversity for nutrition interventions. Nutr Rev 2020;78:71-9.
21. Meek JY, Noble L. Policy statement: breastfeeding and the use of human milk. Pediatrics 2022;150:e2022057988.
22. Standish KR, Parker MG. Social determinants of breastfeeding in the United States. Clin Ther 2022;44:186-92.
23. Brewer AG, Jiang J, Warren CM, Sharma HP, Tobin MC, Assa'ad A, et al. Racial differences in timing of food allergen introduction. J Allergy Clin Immunol Pract 2022;10:329-32.e2.
24. Hartman H, Dodd C, Rao M, DeBlasio D, Labowsky C, D'Souza S, et al. Parental timing of allergenic food introduction in urban and suburban populations. Ann Allergy Asthma Immunol 2016;117:56-60.e2.
25. Samady W, Warren C, Bilaver LA, Zaslavsky J, Jiang J, Gupta R. Early peanut introduction awareness, beliefs, and practices among parents and caregivers. Pediatrics 2023;152:e2022059376.
26. Gupta RS, Bilaver LA, Johnson JL, Hu JW, Jiang J, Bozen A, et al. Assessment of pediatrician awareness and implementation of the addendum guidelines for the prevention of peanut allergy in the United States. JAMA Netw Open 2020;3:e2010511.
27. Soriano VX, Peters RL, Moreno-Betancur M, Ponsonby AL, Gell G, Odoi A, et al. Association between earlier introduction of peanut and prevalence of peanut allergy in infants in Australia. JAMA 2022;328:48-56.
28. Suaini NHA, Loo EXL, Peters RL, Yap GC, Allen KJ, Van Bever H, et al. Children of Asian ethnicity in Australia have higher risk of food allergy and early-onset eczema than those in Singapore. Allergy 2021;76:3171-82.
29. Tham EH, Lee BW, Chan YH, Loo EXL, Toh JY, Goh A, et al. Low food allergy prevalence despite delayed introduction of allergenic foods—data from the GUSTO cohort. J Allergy Clin Immunol Pract 2018;6:466-75.e1.
30. Corbett M, Allen A, Bobo N, Foggs MB, Fonacier LS, Gupta R, et al. Proposed solutions by the American College of Allergy, Asthma, and Immunology and advocacy experts to address racial disparities in atopic dermatitis and food allergy. Ann Allergy Asthma Immunol 2023;130:392-6.e2.
31. Bilaver LA, Kanaley MK, Fierstein JL, Gupta RS. Prevalence and correlates of food allergy among Medicaid-enrolled United States Children. Acad Pediatr 2021;21:84-92.
32. Gupta RS, Springston EE, Smith B, Kim JS, Pongracic JA, Wang X, et al. Food allergy knowledge, attitudes, and beliefs of parents with food-allergic children in the United States. Pediatr Allergy Immunol 2010;21:927-34.
33. Egan M, Yin HS, Greenhawt M, Wang J. Low caregiver health literacy among pediatric food-allergic patients is associated with poorer food allergy management knowledge. J Allergy Clin Immunol Pract 2019;7:655-8.
34. Shah SS, Parker CL, O'Brian Smith E, Davis CM. Disparity in the availability of injectable epinephrine in a large, diverse US school district. J Allergy Clin Immunol Pract 2014;2:288-93.e1.
35. Clark S, Bock SA, Gaeta TJ, Brenner BE, Cydulka RK, Camargo CA. Multicenter study of emergency department visits for food allergies. J Allergy Clin Immunol 2004;113:347-52.
36. Chalasani R, Krishnamurthy S, Suda KJ, Newman TV, Delaney SW, Essien UR. Pursuing pharmacoequity: determinants, drivers, and pathways to progress. J Health Polit Policy Law 2022;47:709-29.
37. Jotterand F, Spellecy R, Homan M, Derse AR. Promoting equity in health care through human flourishing, justice, and solidarity. J Med Philos 2023;48:98-109.
38. Grant T, Croce E, Matsui EC. Asthma and the social determinants of health. Ann Allergy Asthma Immunol 2022;128:5-11.

39. Pollack CE, Roberts LC, Peng RD, Cimbolic P, Judy D, Balcer-Whaley S, et al. Association of a housing mobility program with childhood asthma symptoms and exacerbations. JAMA 2023;329:1671-81.
40. Bailey ZD, Krieger N, Agénor M, Graves J, Linos N, Bassett MT. Structural racism and health inequities in the USA: evidence and interventions. Lancet 2017;389:1453-63.
41. Akenroye AT, Heyward J, Keet C, Alexander GC. Lower use of biologics for the treatment of asthma in publicly insured individuals. J Allergy Clin Immunol Pract 2021;9:3969-76.
42. Inselman JW, Jeffery MM, Maddux JT, Shah ND, Rank MA. Trends and disparities in asthma biologic use in the United States. J Allergy Clin Immunol Pract 2020;8:549-54.e1.
43. Mello MM. Barriers to ensuring access to affordable prescription drugs. Annu Rev Pharmacol Toxicol 2020;60:275-89.
44. Syed ST, Gerber BS, Sharp LK. Traveling towards disease: transportation barriers to health care access. J Community Health 2013;38:976-93.
45. Mustafa SS, Anagnostou A, Greenhawt M, Lieberman JA, Shaker M. Patient partnerships and minimally disruptive medicine. Ann Allergy Asthma Immunol 2024;132:671-3.
46. Hensley C, Heaton PC, Kahn RS, Luder HR, Frede SM, Beck AF. Poverty, transportation access, and medication nonadherence. Pediatrics 2018;141:e20173402.
47. Mosnaim GS, Greenhawt M, Imas P, Au L, Mehlis S, Oppenheimer J, et al. Do regional geography and race influence management of chronic spontaneous urticaria? J Allergy Clin Immunol 2022;150:1260-4.e7.
48. Assari S. Unequal gain of equal resources across racial groups. Int J Health Policy Manag 2018;7:1-9.
49. Barakat C, Konstantinidis T. A review of the relationship between socioeconomic status change and health. Int J Environ Res Public Health 2023;20:6249.
50. Dill J, Duffy M. Structural racism and black women's employment in the US health care sector. Health Aff (Millwood) 2022;41:265-72.
51. Teisberg E, Wallace S, O'Hara S. Defining and implementing value-based health care: a strategic framework. Acad Med 2020;95:682-5.
52. Ying X, Kahn P, Mathis WS. Pharmacy deserts: more than where pharmacies are. J Am Pharm Assoc (2003) 2022;62:1875-9.
53. Wu AC, Fuhlbrigge AL, Robayo MA, Shaker M. Cost-effectiveness of biologics for allergic diseases. J Allergy Clin Immunol Pract 2021;9:1107-17.e2.
54. Hwang TJ, Kesselheim AS, Sarpatwari A. Value-based pricing and state reform of prescription drug costs. JAMA 2017;318:609-10.
55. Wood RA, Togias A, Sicherer SH, Shreffler WG, Kim EH, Jones SM, et al. Omalizumab for the treatment of multiple food allergies. N Engl J Med 2024;390:889-99.
56. White bagging, brown bagging, and site of service policies: best practices in addressing provider markup in the commercial insurance market. Institute for Clinical and Economic Review. 2023. Available at: https://icer.org/wp-content/uploads/2023/04/ICER-White-Paper-_-White-Bagging-Brown-Bagging-and-Site-of-Service-Policies.pdf. Accessed December 29, 2023.
57. Apter AJ, Wan F, Reisine S, Bender B, Rand C, Bogen DK, et al. The association of health literacy with adherence and outcomes in moderate-severe asthma. J Allergy Clin Immunol 2013;132:321-7.
58. Warren CM, Roach A, Das R, Casale TB, Vickery BP, Wasserman RL, et al. Oral immunotherapy-related awareness, attitudes, and experiences among a nationally representative sample of food allergy patients/caregivers. J Allergy Clin Immunol Pract 2021;9:4087-94.e3.
59. Davidson L, Jones B. The racial and ethnic makeup of food allergy immunotherapy trials. J Allergy Clin Immunol 2021;147:AB93.
60. Vickery BP, Vereda A, Casale TB, Beyer K, du Toit G, Hourihane JO, et al. AR101 oral immunotherapy for peanut allergy. N Engl J Med 2018;379:1991-2001.
61. Fleischer DM, Shreffler WG, Campbell DE, Green TD, Anvari S, Assa'ad A, et al. Long-term, open-label extension study of the efficacy and safety of epicutaneous immunotherapy for peanut allergy in children: PEOPLE 3-year results. J Allergy Clin Immunol 2020;146:863-74.
62. Greenhawt M, Sindher SB, Wang J, O'Sullivan M, du Toit G, Kim EH, et al. Phase 3 trial of epicutaneous immunotherapy in toddlers with peanut allergy. N Engl J Med 2023;388:1755-66.
63. Metallinos-Katsaras E, Colchamiro R, Edelstein S, Siu E. Household food security status is associated with anemia risk at age 18 months among low-income infants in Massachusetts. J Acad Nutr Diet 2016;116:1760-6.
64. Laraia BA. Food insecurity and chronic disease. Adv Nutr 2013;4:203-12.
65. Mangini LD, Hayward MD, Dong YQ, Forman MR. Household food insecurity is associated with childhood asthma. J Nutr 2015;145:2756-64.
66. Franklin B, Jones A, Love D, Puckett S, Macklin J, White-Means S. Exploring mediators of food insecurity and obesity: a review of recent literature. J Community Health 2012;37:253-64.
67. Jyoti DF, Frongillo EA, Jones SJ. Food insecurity affects school children's academic performance, weight gain, and social skills. J Nutr 2005;135:2831-9.
68. Rabbitt MP, Hales LJ, Burke MP, Coleman-Jensen A. Household food security in the United States in 2022. Washington, DC: Economic Research Service, US Department of Agriculture; 2023.
69. Golding MA, Protudjer JLP. A review of food allergy-related costs with consideration to clinical and demographic factors. Curr Opin Allergy Clin Immunol 2023;23:246-51.
70. USDA Food and Nutrition Service. US Department of Agriculture. National and State Level Estimates of WIC Eligibility and Program Reach in 2021. Available at: https://www.fns.usda.gov/research/wic/eligibility-and-program-reach-estimates-2021. Accessed December 25, 2023.
71. Dupuis R, Herbert L, Young M, Sicherer S, Phipatanakul W, Bartnikas L. Disrupted foodways: food allergies and food insecurity. J Allergy Clin Immunol 2022;149:AB106.
72. US Bureau of Labor Statistics, Washington, DC. Available at: https://data.bls.gov/timeseries/APU0000716141?amp%253bdata_tool=XGtable&output_view=data&include_graphs=true. Accessed November 22, 2023.
73. Togias A, Cooper SF, Acebal ML, Assa'ad A, Baker JR, Beck LA, et al. Addendum guidelines for the prevention of peanut allergy in the United States: report of the National Institute of Allergy and Infectious Diseases–sponsored expert panel. J Allergy Clin Immunol 2017;139:29-44.
74. Fleischer DM, Chan ES, Venter C, Spergel JM, Abrams EM, Stukus D, et al. A consensus approach to the primary prevention of food allergy through nutrition: guidance from the American Academy of Allergy. Asthma, and Immunology; American College of Allergy, Asthma, and Immunology; and the Canadian Society for Allergy and Clinical Immunology. J Allergy Clin Immunol Pract 2021;9:22-43.e4.
75. Phillips JA. Dietary guidelines for Americans, 2020-2025. Workplace Health Saf 2021;69:395.
76. Greer FR, Sicherer SH, Wesley Burks A, Abrams SA, Fuchs GJ, Kim JH, et al. The effects of early nutritional interventions on the development of atopic disease in infants and children: the role of maternal dietary restriction, breastfeeding, hydrolyzed formulas, and timing of introduction of allergenic complementary foods. Pediatrics 2019;143:e20190281.
77. Scurlock AM, Brown E, Davis CM. Food insecurity in children and adults with food allergies. Ann Allergy Asthma Immunol 2022;129:424-9.
78. Shroba J, Das R, Bilaver L, Vincent E, Brown E, Polk B, et al. Food insecurity in the food allergic population: a work group report of the AAAAI Adverse Reactions to Foods Committee. J Allergy Clin Immunol Pract 2022;10:81-90.
79. Keet CA, Savage JH, Seopaul S, Peng RD, Wood RA, Matsui EC. Temporal trends and racial/ethnic disparity in self-reported pediatric food allergy in the United States. Ann Allergy Asthma Immunol 2014;112:222-9.e3.
80. Luke AK, Flessner CA. Examining differences in parent knowledge about pediatric food allergies. J Pediatr Psychol 2020;45:101-9.
81. Vincent E, Bilaver LA, Fierstein JL, Thivalapill N, Pappalardo AA, Coleman A, et al. Associations of food allergy-related dietary knowledge, attitudes, and behaviors among caregivers of black and white children with food allergy. J Acad Nutr Diet 2022;122:797-810.
82. Warren C, Bartell T, Nimmagadda SR, Bilaver LA, Koplin J, Gupta RS. Socioeconomic determinants of food allergy burden: a clinical introduction. Ann Allergy Asthma Immunol 2022;129:407-16.
83. Pappalardo AA, Herbert L, Warren C, Lombard L, Ramos A, Asa'ad A, et al. Self-efficacy among caregivers of children with food allergy: a cohort study. J Pediatr Psychol 2022;47:674-84.
84. Widge AT, Flory E, Sharma H, Herbert LJ. Food allergy perceptions and health-related quality of life in a racially diverse sample. Children (Basel) 2018;5:70.
85. Rubeiz C, Siddiqui J, Ernst M, Assa'ad A. A041 race/ethnicity and socioeconomic status effect of food allergy-related quality of life in children and caregivers. Ann Allergy Asthma Immunol 2020;125:S8.
86. Soller L, Clarke AE, Lyttle A, Chin R, Ben-Shoshan M, Cheuk S, et al. Comparing quality of life in Canadian children with peanut, sesame, and seafood allergy. J Allergy Clin Immunol Pract 2020;8:352-4.e1.
87. Warren C, Dyer A, Lombard L, Dunn-Galvin A, Gupta R. The psychosocial burden of food allergy among adults: a US population-based study. J Allergy Clin Immunol Pract 2021;9:2452-60.e3.
88. Chad L, Ben-Shoshan M, Asai Y, Cherkaoui S, Alizadehfar R, St-Pierre Y, et al. A majority of parents of children with peanut allergy fear using the epinephrine autoinjector. Allergy 2013;68:1605-9.
89. Brown D, Negris O, Gupta R, Herbert L, Lombard L, Bozen A, et al. Food allergy-related bullying and associated peer dynamics among Black and White children in the FORWARD study. Ann Allergy Asthma Immunol 2021;126:255-63.e1.
90. Cooke F, Ramos A, Herbert L. Food allergy-related bullying among children and adolescents. J Pediatr Psychol 2022;47:318-26.

91. National Academies of Sciences, Engineering, and Medicine, Policy and Global Affairs, Committee on Women in Science, Engineering, and Medicine, and Committee on Improving the Representation of Women and Underrepresented Minorities in Clinical Trials and Research. Improving representation in clinical trials and research: building research equity for women and underrepresented groups. Washington, DC: The National Academies Press; 2022.
92. Borrell LN, Elhawary JR, Fuentes-Afflick E, Witonsky J, Bhakta N, Wu AHB, et al. Race and genetic ancestry in medicine—a time for reckoning with racism. N Engl J Med 2021;384:474-80.
93. Davis CM, Jones BL. Increasing meaningful representation of children in clinical trials to inform science and achieve health equity. JAMA Pediatr 2022;176: e220139.
94. Turner BE, Steinberg JR, Weeks BT, Rodriguez F, Cullen MR. Race/ethnicity reporting and representation in US clinical trials: a cohort study. Lancet Reg Health Am 2022;11:100252.
95. Brewster RCL, Steinberg JR, Magnani CJ, Jackson J, Wong BO, Valikodath N, et al. Race and ethnicity reporting and representation in pediatric clinical trials. Pediatrics 2023;151:e2022058552.
96. Warren CM, Brown E, Wang J, Matsui EC. Increasing representation of historically marginalized populations in allergy, asthma, and immunologic research studies: challenges and opportunities. J Allergy Clin Immunol Pract 2022;10:929-35.
97. Scharff DP, Mathews KJ, Jackson P, Hoffsuemmer J, Martin E, Edwards D. More than Tuskegee: understanding mistrust about research participation. J Health Care Poor Underserved 2010;21:879-97.