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Disparities in asthma and allergy care, what can we do?

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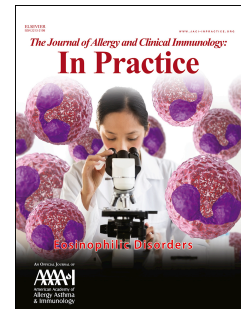
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INPRACTICE -20-01065R1**Disparities in asthma and allergy care, what can we do?**Princess U. Ogbogu, MD.^{a,b}Quinn Capers, IV, MD.^cAndrea J Apter MD, MSc, MA^d^a Division of Pediatric Allergy, Immunology and Rheumatology, Department of Pediatrics,
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ABSTRACT

The COVID-19 pandemic and the growing movements for social and racial equality have increased awareness of disparities in American healthcare that exist on every level. Social determinants of health, structural racism, and implicit bias play major roles in preventing health equity. We begin with the larger picture then focus on examples of systemic and health inequities and their solutions that have special relevance to allergy-immunology. We propose a four-prong approach to address inequities that requires: 1) racial and ethnic inclusivity in research with respect to both participants and investigators, 2) diversity in all aspects of training and practice, 3) improvement in communication between clinicians and patients and 4) awareness of the social determinants of health (SDOH) By communication we mean sensitivity to the role of language, cultural background, and health beliefs in physician-patient interactions and provision of training and equipment so the use of telecommunication can be a resource for all patients. The SDOH are the social factors that affect health and the success of healthcare, such as adequacy of housing and access to nutritious foods. Using this 4-prong approach we can overcome health disparities.

Key Words: health disparities, asthma, food allergy, social determinants of health, food insecurity, drug allergy, COVID-19, implicit bias, structural racism

Abbreviations:

SDOH social determinants of health

Inequities in healthcare have long been present. For example, African American/Blacks and Puerto Ricans are 2 to 3 times more likely to be hospitalized and to die from asthma compared to non-Hispanic whites.^{1,2} Although not well studied, particularly in adults, atopic dermatitis, food allergy, and allergic rhinitis all appear to be more common in Blacks than in whites.³ The COVID-19 pandemic has compounded health inequities. For example, recent reports from Chicago, where 30% of the population is African American, revealed African Americans accounted for 68% of COVID-19-related deaths.⁴ In Michigan, 33% of cases and 40% of the COVID-19 deaths occurred among Black persons, a group that comprises 14% of the state's population.⁵ In Louisiana Black persons account for 70% of COVID-19 deaths but 33% of the population.⁶ In New York City, the death rate for Black/African American persons was 92.3/100,000, for Latinx persons 74.3/100,000, and 45.2/100,000 for white persons.⁷ The senseless murder of George Floyd in the middle of the COVID-19 pandemic, precipitating widespread protests for racial equality, makes it clear addressing inequities is of critical importance. As we fight these crises, it is a good time to review these inequities: those habitually present and those brought forward by the current events and to learn from these issues as allergist-immunologists to help our patients. We will present cases with discussion to frame a 4-prong approach of what we can do as individual physicians to achieve health equity.

Centuries of discrimination and structural racism have allowed practices like redlining, the systematic denial of financial services like mortgages, insurance, and loans to entire neighborhoods on the basis of race or ethnicity to persist even if outlawed.^{8,9} For inhabitants of those neighborhoods redlining has profound and lasting effects.^{10,11} It prevents inhabitants from selling their property for sufficient funds to allow them to leave that neighborhood which prevents the next generations from having better homes, better health, and better schools. Food

deserts are common in such neighborhoods; consequently, fewer stores sell healthy foods, forcing increased reliance on high calorie prepared foods that result in obesity, diabetes, and heart disease. These comorbidities increase the likelihood of poor health outcomes. African American and Latinx people are over-represented in essential service jobs and thus are more likely to be exposed to COVID-19. These jobs often have few minimum benefits like sick leave, paid vacation time, adequate minimum wage, and provision of health care. Less than 1 in 5 Black and 1 in 6 Hispanic workers have jobs allowing remote work.¹²

Structural racism refers to the meshing of socially and culturally enforced hierarchies in societal norms, institutional practices, and law.⁹ This occurs in multiple simultaneous and synergizing ways involving housing and education access, income equality, criminal justice application, and media portrayal to name a few.^{8,9} The lack of academic opportunity in minority communities has limited professional career opportunities for students, further reducing the pipeline of diverse health care professionals.

Writers have pointed out the need as we rebuild our lives after COVID-19 of resolving inequities in housing, educational opportunities, minimum wage, sick leave, supplying adequate transportation, access to healthy food, and providing adequate health care for all. It is a good time to focus on events particularly relevant to Allergy & Immunology as the national guidelines for managing asthma are being updated and revised. It is also a time to ensure the diversity of the next generation of health care providers. The World Health Organization defines health equity as the absence of avoidable, unfair, or remediable differences among groups of people and implies everyone should have a fair opportunity to attain their full health potential without being disadvantaged from this potential.¹³ We frame our discussion around cases, addressing health equity concerns and offering practical recommendations that individual allergy-immunology

providers can use to mitigate disparities and provide patients with a fair and just opportunity for health. The cases, leading to our 4-prong approach, suggest steps we as individual health care providers can take so that together we can address the larger issues.

Case 1:

A 55-year-old African American woman with a long history of asthma requires hospitalization for an exacerbation. She has a history of Type 2 diabetes, obesity, and hypertension. Her allergist-immunologist reviews the current expert guidelines for managing asthma for this patient who belongs to a group with high morbidity.

Health equity consideration: Inclusivity in Disease Guidelines

The current Expert Report Panel-3 guidelines for the Diagnosis and Management of Asthma (EPR-3) were designed to provide guidance to clinicians on assessment and monitoring, patient education, control of factors contributing to asthma severity, and pharmacologic treatment.¹⁴ These guidelines, published in 2007, briefly address asthma health disparities, but do not specifically address the care of higher risk populations such as older patients or minority groups or females. In 2018, the EPR-4 working group was established to update these guidelines. Early drafts do not include specific guidance for populations such as these, though the final version is not yet published. Although asthma is more prevalent in adult women, there are no treatment recommendations specifically for older women. Furthermore, according to the CDC, asthma death rates are highest among the 65 years and older age group compared with all other age groups. Females have a higher death rate and non-Hispanic Blacks are two to three times more likely to die from asthma compared with other race groups.¹⁵ These troubling statistics suggest the importance of representation of these and other vulnerable groups in training

healthcare providers and in clinical trials. Guidance for use of biologic therapies for underrepresented patients is particularly needed. Of course, it is the lack of representation of these under-served groups in clinical trials that contributes to the lack of information needed for guidelines. It is imperative to promote inclusivity in clinical research with representation of diverse populations as both subjects and investigators. This requires understanding and overcoming barriers to minority participation in clinical research, stemming from mistrust from the Tuskegee experiment and other historical events of medical experimentation and abuse.¹⁶ Hospital systems and the pharmaceutical industry must address these issues and invest in outreach and programming to build bridges of trust. At the practitioner level, clinicians can advocate for the inclusion of minority patient populations at all levels of research, thus providing a more robust and inclusive database to help inform guidelines. Inclusivity should become a required topic in medical schools and maintenance of certification programs.

Case 2

An 8-year-old male is having an exacerbation of asthma. The family is Spanish-speaking and lives in a large Latinx community where most speak Spanish. The mother brings the child to the pediatrician's office for examination. The child speaks some English; however, no translator is available for the visit. They bring a bilingual friend to interpret, however the friend struggles to translate the concepts.

Health equity considerations: Language and Cultural Health Beliefs

This case highlights concerns related to cross-cultural communications. Language barriers present unique challenges to health care delivery. Issues such as low-health literacy and cultural

health beliefs are also critical to address. The U.S. Department of Health and Human Services defines health literacy as “the degree to which individuals have the capacity to obtain, process, and understand basic health information needed to make appropriate health decisions.”¹⁷ Data from the National Assessment of Adult Literacy demonstrated that Hispanic adults have the lowest average health literacy scores of all racial/ethnic groups.¹⁸ This coupled with cultural beliefs associated with asthma may also impact care and outcomes in asthma. For example, cultural beliefs on asthma causation, safety of long-term inhaled corticosteroids, and benefits of herbal therapies can impact a family’s decision to follow through with recommended medical management.^{19,20} In order to meet the challenge of these concerns, A/I physicians must first of all recognize the complexity of these issues and make meaningful practice changes to better care for this patient population. These changes include identifying patients in need of interpretation services and providing these services at both live and virtual visits, and in written communications. It is a legal requirement that an interpreter be provided for non-English speaking patients. However, there is no additional reimbursement for these services which adds a barrier to the physician. This case also demonstrates the importance of increasing the diversity of health care providers. These providers will not only be able to communicate with diverse patients but can also expose their colleagues to effective ways to communicate.

An important factor to address is general cultural health beliefs, including non-biomedical views of health and wellness which may be prevalent in many minority patient groups. Biomedical views of health and wellness assume that all illness is secondary to disease and ignores cultural influences on health beliefs and illness representation.²¹ Understanding illness representation is critical to improving cross-cultural communication. Illness representation shapes patient’s understanding of their disease, how to cope, and informs decision making on

adherence.²² Understanding and applying these concepts to A/I patient visits allows for practitioners to implement patient-centered care approaches to cross-cultural visits. Resources recommended for A/I practitioners include: engaging in diversity and communication training offered by hospitals and health societies, working with community health workers to help clinicians understand cultural health beliefs and to help patients understand medical recommendations in light of their beliefs, attending the AAAAI cross-cultural communications course offered at the Annual Meeting, joining local and national committees focused on decreasing health care disparities such as the AAAAI Committee on the Underserved, among many others.

Case 3:

A 10-year old African-American boy presents to the allergist with severe eczema and multiple food allergies. The child lives with his parents and 4 siblings in an urban housing development in a food desert. On allergy testing, the child is sensitized to mouse, cockroach, dust mite, milk, egg, and peanut. The parents mention that the housing development has a cockroach infestation, however due to finances they are unable to move to a different location. The child has had many episodes of accidental food ingestion, the last one resulting in an overnight hospitalization for anaphylaxis. The parents are frustrated and unsure what to do next.

Health equity considerations: Social Determinants of Health (SDOH)

SDOH are social factors that affect health and the success of healthcare (Figure 1). Exposure to indoor allergens, inadequate housing conditions, and poor access to nutritious foods/living in food deserts contribute to health disparities, particularly in A/I patients. Living in a food desert with limited resources is particularly challenging for families of food-allergic children. Studies

have shown that the economic burden of food allergy is significant, particularly when out of pocket costs for special diets are included.²³ Exposure to indoor allergens such as insect and rodent infestations may be difficult to avoid, and the cost of dust mite encasements prohibitive. As A/I providers, SDOH must be considered in the patient care relationship and that such families struggle with not one but many problems. Meeting families where they are and addressing home environmental issues, access to healthy food, technology, and education are critical factors to reduce health disparities. Strategies may include incorporating social workers into A/I practices to help address environmental concerns, working with dietitians to address the needs of food allergy patients who live in food deserts, becoming aware of community resources for patients, and routinely asking questions that elucidate need for such services.

Case 4:

A 38-year-old woman emigrated to the United States from Kenya 12 years ago. She has a pruritic rash, present for 3 months, thought by her primary care doctor to be an adverse drug reaction. She is unable to come into the office due to the COVID-19 pandemic. A telemedicine appointment is scheduled. A few days before the appointment an office representative calls and together they attempt to download the telemedicine program. When they are unsuccessful after 6 attempts, the patient is scheduled for a telephone call. The patient is a home health aide and had to take off from work for the appointment. In addition, she had to skip working with her daughter on her math homework. Her daughter is in the 6th grade and is struggling because there is not a computer at home that she can use for the recent home assignments. Many of her friends have computers. Her parents are not familiar with the education system, the teaching of mathematics, the new technology used for home schooling, or telemedicine. The allergist-

immunologist never sees the rash. The patient does not know how to upload a photo to the electronic medical record.

Healthy equity considerations: Educational Opportunities and Exposure to Technology

The use of technology for virtual visits and for the patient portal of the electronic health record for medical personnel communication with patients has become common. Similar programs are now used for communication by schools with students and parents. The lack of computers, reliable internet access, and experience with this equipment disadvantages patients and school children. Successful communication is extremely important. It has been noted that even within low-income homes, about 80% of all adults have a smartphone.²⁴ Communication could be optimized by use of smartphones and mobile devices in those that have them with health centers focusing on basic health portal training with common devices. Limitations on use of these devices may include cost of data usage in those without reliable Wi-Fi access.^{25, 26} With respect to A/I practices, clinicians, and their staff must learn to recognize when patients need introductions to technology and also be able to refer patients to classes. Providers should partner with social work to identify patients that may have difficulty with access to technology or internet access and provide both education and home health resources. An example is using mobile health care teams equipped with devices and mobile hotspots that can assist with connection for telemedicine health visits. Communities must have funding as well as resources to offer such training through public libraries, schools, hospitals, and other community organizations.

Had the patient access to telehealth, an additional benefit of a virtual visit would have been the elimination of transportation difficulties, There tends to be more limited public transportation in low-income areas. A virtual visit would eliminate the need for the patient either to bring her daughter along or leave her at home for a long period while the patient went to the appointment. However, this would not be possible if the patient does not have internet access and must pay for a costly data plan.

Case 5:

A 52-year-old Black male truck driver presents for worsening chronic cough and a request to refill his bronchodilator inhaler. He does not have health insurance or a PCP. He has had asthma “since childhood” but did not need treatment until 10 years ago. He smokes 1-2 packs of cigarettes daily. He takes many long-haul trips and does not have time to establish with a PCP. Two weeks ago, he went to an urgent care center out of town for the same complaints and was prescribed an albuterol inhaler which relieved his symptoms. After a thorough history and physical, the A/I specialist prescribes a steroid inhaler along with a bronchodilator inhaler and recommends that the patient obtain a PCP. She does not discuss with the patient the need for chest imaging, tobacco cessation, nor does she refer him to a tobacco cessation clinic.

Health Equity Consideration: Implicit Bias

Implicit biases are automatic, unconscious associations made by the brain when two things are often seen together. For instance, if most school teachers you have encountered are women, you may unconsciously associate the job “school teacher” with “woman.” Likewise, if we often see Black men acting in violent or defiant ways, our unconscious mind may associate Black men with these negative attributes. The physician made the unconscious judgement that it

was unlikely that the patient would get a chest x-ray, comply with tobacco cessation, or have the time, resources, or motivation to visit a tobacco cessation clinic. Because these unconscious associations can influence our behavior, these implicit biases can lead well-meaning people to discriminate. In fact, a number of studies show that implicit associations as measured on the computer-based implicit association test (IAT) can predict uncomfortable patient-doctor interactions and influence clinical decision-making.^{27,28} In the case above, implicit negative bias about Black people (which many physicians hold²⁹) could have influenced this doctor to associate the man's appearance with non-compliance and a lack of motivation to make changes to benefit his health. These associations could have influenced the allergist to conclude that a chest X ray and follow up appointment with a specialist are not necessary and that advising him to quit smoking would be a waste of time. Because these associations are made outside of conscious awareness, the A/I specialist in this case may be unaware that she has provided inadequate care, and in fact may be offended if this were suggested. Fortunately, implicit biases can be consciously overridden. Formal training in implicit bias mitigation techniques have been shown to reduce the impact of implicit biases in one-on-one interactions and we recommend that all clinicians have such training at regularly recurring intervals.³⁰

DISCUSSION

We have described the large national picture of sustained health inequity. We contend there is much we can do and employed cases to suggest how as individual physicians and healthcare providers we can address these inequities. Our cases focus on asthma because it is the most prevalent A/I disorder; however, the concepts can be extrapolated across the spectrum of disorders we manage. Similarly, these concepts can be applied to the many under-represented

and vulnerable groups. We propose a four-prong approach to address A/I health disparities: 1) inclusivity in research, 2) diversity in training and practice, 3) improvement in communication between patients and clinicians, and 4) attention to patients' SDOH.

1) **Inclusivity in research:** Guidelines and the research from which guidelines are derived must consider not only relatively healthy patients, but also high-risk and under-represented groups with co-morbidities. In addition, to patient cohorts, clinical researchers also must be diverse so that they can draw on their experiences and contribute to medical recommendations. Guidelines should include recommendations directed at diverse and vulnerable patients. This emphasis on inclusivity immediately leads to the second element.

2) **Diversity in training:** We need diverse clinicians and researchers to participate in research, contribute to the design, intervention, and analysis of research not only from an individual but also a public health viewpoint. We must increase the diversity of our profession so that the under-represented groups participate fully as investigators, as providers of health care, and as educators of patients, healthcare providers, and researchers. We must encourage early interest in our specialty and work to ensure underrepresented groups have the same educational opportunities as all. An encouraging step towards equity was taken recently when the first part of the medical examination boards was made pass/fail. However, there is more work to be done.³¹ Importantly, we must work within our communities and nationally to change funding of public schools so that all children attend diverse fully-funded schools, starting with all-day kindergarten. Introducing children and young adults early to the possibility of a health care career through school career presentations or by having students visit physicians at work is

something individual allergist-immunologists could do. We can also lobby to make medical training less costly.

3) Improvement in communication between patients and their families and clinicians:

Providers must understand patients' health care and relevant cultural beliefs. Patients for whom English is not the primary language must be accommodated. Medical practices now rely on technology to message patients through patient portals and to evaluate patients through virtual visits. This disadvantages patients who have not had educational opportunities to acquire these skills or have the finances for telemedicine equipment. Finally, one of the most important advances in communication will be the elimination of implicit bias. Training sessions aimed at medical students, trainees, and allergist-immunologists doing maintenance of certification can help physicians recognize and avoid implicit bias.

4) Attention to patients' SDOH: Our specialty and its journals often focus on addressing the biological model of disease through basic science and immunology interventions to improve the health of individual patients.^{32,33} That is, we seek the biological defect, the aberrant gene, the molecular pathway, the immunologic or physiologic event (e.g. TH2 excess in asthma) triggering disease without considering the patients' environment and their SDOH. Most physicians no longer make house calls so there is no direct visualization of SDOH. Without asking the right questions, we miss the opportunity to understand if a patient has adequate food or housing or lives in a safe community with adequate schools and transportation, and whether they will be able to follow our recommendations.

CONCLUSIONS

How we can help eliminate health disparities depends upon our practice and our ability to take an active role in the community in which we live. For example, a university researcher can work to admit diverse students and hire diverse colleagues. A community allergist can hire diverse staff. Both can ensure that there is regular education and training about cross-cultural communication and implicit bias in the workplace. Allergists, through professional societies can ensure health disparities are considered and addressed, and that research and guidelines address under-represented groups. We can take a role in the politics and governance of our communities to address structural racism and minimize its impact on providing healthcare to all individuals. We must ensure that we also focus on the social environment and social forces affecting health.^{32,33} (Figure 2) Through these changes, we can truly impact health disparities and move the needle towards equity.

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LEGENDS

Figure 1. Social Determinants of Health (SDOH) adapted from Healthy People 2020. Social determinants of health are social conditions that affect the health and well-being of persons. They can be protective or detrimental to health and some are modifiable. Health disparities refer to modifiable factors unequally and unfairly distributed among different population groups. As an example, economic instability leads to poverty and housing instability. Adapted from Office of Disease Prevention and Health Promotion, US Dept of Health & Human Services, Washington DC. Updated 7/17/2020, Accessed 7/19/2020. <https://www.healthypeople.gov/2020/topics-objectives/topic/social-determinants-of-health>

Figure 2. Ways the allergist/immunologist can impact health disparities. The allergist/immunologist can impact health disparities through interaction with a variety of stakeholders including patients and families, community organizations, local government, medical schools and post-graduate training programs, and professional allergy-immunology organizations.

Health Disparities • Figure 2



Social Determinants of Health (SDOH) from Healthy People 2020

