



Published in final edited form as:

Pediatrics. 2022 August 01; 150(2): . doi:10.1542/peds.2022-057206.

Increasing the Resolution and Broadening the Focus on Childhood Asthma Disparities

Lara J. Akinbami, MD^a, Tyra Bryant-Stephens, MD^b

^aNational Center for Health Statistics, Centers for Disease Control and Prevention, Hyattsville, Maryland

^bChildren's Hospital of Philadelphia, Perelman School of Medicine at University of Pennsylvania, Philadelphia, Pennsylvania

In recent decades, national estimates have demonstrated growing childhood asthma disparities.^{1, 2} But this birds' eye view could not clearly identify underlying causes or remedies needed at the complicated ground level. In this issue of *Pediatrics*, Tyris et al.,³ in their study of adverse asthma outcomes among children in Washington, DC, marry two innovations—use of at-risk rates to measure asthma outcomes and assessment of social determinants of health (SDOH) at the census tract level—to reveal aspects of disparities that can inform actions to address them.

The higher rates of adverse asthma outcomes among people from some racial and ethnic minority groups or with low income are fueled by two components. First, asthma prevalence is higher among these groups.⁴ Primary prevention of asthma, that is, stopping asthma from developing in the first place, is still an elusive goal and therefore few interventions exist to address asthma prevalence disparities.⁵ Second, children with asthma from these groups are at higher risk of adverse asthma outcomes.¹ In contrast to primary prevention, secondary prevention measures, aimed at preventing asthma attacks, hospitalization and death among people with asthma, are well defined and evidence based.⁶ At-risk rates, as Tyris et al. explain,³ remove prevalence differences from the measurement of outcome differences and thereby measure the aspect of disparities for which interventions are proven effective. At-risk rates focus on this “actionable” component of disparities but do not provide insight into why disparities may exist.

Examining SDOH, which are unequally distributed in the population, can get closer to the “why” component of disparities. A substantial portion of asthma disparities are associated with SDOH.^{7,8} Examining SDOH shifts the focus from non-biologic constructs (i.e., race and ethnicity) to contextual factors that can guide choice of interventions and inform implementation. This type of research is not new. Previous studies have also examined distribution of SDOH by census tract to look at the intersection between asthma morbidity

Address correspondence to: Dr. Lara Akinbami, National Center of Health Statistics, 3311 Toledo Road, Hyattsville MD 20782, 301-458-4306, [lea8@cdc.gov].

Conflict of Interest Disclosures: The authors have no conflicts of interest to disclose

Publisher's Disclaimer: Disclaimer: The findings and conclusions in this paper are those of the authors and do not necessarily represent the official position of the U.S. Centers for Disease Control and Prevention

and contextual factors with the goal of informing population-level interventions.⁹ What has changed? Primarily, there is renewed recognition of the larger landscape. The broadening of focus beyond individuals and onto communities has been prompted by the COVID-19 pandemic which dramatically revealed the impact of occupation and place of residence on health risks and outcomes and bolstered contextual analyses. Additionally, increasingly powerful analytic tools are available to reveal undetected and/or more nuanced associations between exposures and health outcomes.¹⁰ Tyriss et al.'s analysis³ demonstrates how looking at data in new ways may contradict the expectations developed over the past couple decades.

We therefore read the work of Tyriss et al.³ as a renewed call to action. Creative use of existing data to assess the impact of SDOH is needed. However, ecologic studies in and of themselves do not change conditions faced by people who have been historically oppressed for hundreds of years because of the color of their skin or who must choose between paying rent or for medications. Progress beyond descriptions towards positive actions in communities may help transform the framework of addressing health disparities. A community-based framework would also help to dispel the illusion that individual pediatricians acting alone can tackle the multiple challenges facing families in a comprehensive and sustainable way.

Systemic positive change requires systems-based approaches.^{7, 8} For example, the findings of the high housing vacancy rate in certain census tracts can inform efforts to build newer housing or renovate older housing. Additionally, in areas of high crime rates, investments could create job opportunities for youth and adults.^{11, 12} There is also longstanding consensus that the community's voice should be front and center.¹³ Pediatricians have been at the helm of community-based interventions and have provided the examples for and evidence to support effective systemic intervention. For example, because Philadelphia is a city of neighborhoods, the Children's Hospital of Philadelphia's Center for Health Equity is taking a neighborhood-by-neighborhood approach to working with communities to improve the health of children.¹⁴ Importantly, this approach is more granular in nature and allows the institution and its partners to listen better, to understand assets and opportunities, and to target relevant interventions to achieve health equity. Important work has also been done toward meeting children where they spend most of their time, at school, with education and clinical interventions to fill the access to care gap^{15, 16} and in their homes with community health workers.⁹

We acknowledge that given the complexity of SDOH and other contextual factors that have resulted in health disparities, multi-pronged, long-term efforts are the most likely to show impact. By looking at outcomes from an at-risk perspective and linking them to contextual risk factors, Tyriss et al.³ give us a more meaningful methodology for measuring and mapping risk and outcomes at the census tract level and working for change.

Funding/Support:

No funding was secured for this work

Abbreviations:

SDOH social determinants of health

References

1. Akinbami LJ, Moorman JE, Garbe PL, Sondik EJ. Status of childhood asthma in the United States, 1980–2007. *Pediatrics*. 2009;123 Suppl 3:S131–145. [PubMed: 19221156]
2. Akinbami LJ, Moorman JE, Simon AE, Schoendorf KC. Trends in racial disparities for asthma outcomes among children 0 to 17 years, 2001–2010. *The Journal of allergy and clinical immunology*. 2014;134(3):547–553 e545. [PubMed: 25091437]
3. Tyris JGA, Ward MC, Kachroo N, Teach SJ, Parikh K. Social Determinants of Health and At-Risk Rates for Pediatric Asthma Morbidity. IN PRESS this issue, *Pediatrics*.
4. Akinbami LJ, Simon AE, Rossen LM. Changing Trends in Asthma Prevalence Among Children. *Pediatrics*. 2016;137(1).
5. von Mutius E, Smits HH. Primary prevention of asthma: from risk and protective factors to targeted strategies for prevention. *Lancet*. 2020;396(10254):854–866. [PubMed: 32910907]
6. National Asthma Education and Prevention Program. Expert Panel Report 3: Guidelines for the Diagnosis and Management of Asthma: National Heart, Lung, and Blood Institute, National Institutes of Health; August 28, 2007.
7. Federico MJ, McFarlane AE 2nd, Szeffler SJ, Abrams EM. The Impact of Social Determinants of Health on Children with Asthma. *The journal of allergy and clinical immunology In practice*. 2020;8(6):1808–1814. [PubMed: 32294541]
8. Bryant-Stephens TC, Strane D, Robinson EK, Bhambhani S, Kenyon CC. Housing and asthma disparities. *The Journal of allergy and clinical immunology*. 2021;148(5):1121–1129. [PubMed: 34599980]
9. Bryant-Stephens T, Kenyon C, Apter AJ, et al. Creating a community-based comprehensive intervention to improve asthma control in a low-income, low-resourced community. *The Journal of asthma : official journal of the Association for the Care of Asthma*. 2020;57(8):820–828. [PubMed: 31082287]
10. Adejare AA, Gautam Y, Madzia J, Mersha TB. Unraveling racial disparities in asthma emergency department visits using electronic healthcare records and machine learning. *The Journal of asthma: official journal of the Association for the Care of Asthma*. 2022;59(1):79–93. [PubMed: 33112174]
11. Heller SB. Summer jobs reduce violence among disadvantaged youth. *Science*. 2014;346(6214):1219–1223. [PubMed: 25477459]
12. Philadelphia Department of Public Health. Chronic Male Unemployment and Gun Violence in Philadelphia. CHART. <https://www.phila.gov/media/20210628174453/Chartv6e6.pdf>. Published 2021. Accessed 5/10/2022.
13. Harris DA, Pensa MA, Redlich CA, Pisani MA, Rosenthal MS. Community-based Participatory Research Is Needed to Address Pulmonary Health Disparities. *Annals of the American Thoracic Society*. 2016;13(8):1231–1238. [PubMed: 27249657]
14. Dankwa-Mullan I, Perez-Stable EJ. Addressing Health Disparities Is a Place-Based Issue. *Am J Public Health*. 2016;106(4):637–639. [PubMed: 26959267]
15. Cicutto L, Gleason M, Haas-Howard C, et al. Building Bridges for Asthma Care Program: A School-Centered Program Connecting Schools, Families, and Community Health-Care Providers. *J Sch Nurs*. 2020;36(3):168–180. [PubMed: 30336726]
16. Halterman JS, Fagnano M, Tajon RS, et al. Effect of the School-Based Telemedicine Enhanced Asthma Management (SB-TEAM) Program on Asthma Morbidity: A Randomized Clinical Trial. *JAMA pediatrics*. 2018;172(3):e174938. [PubMed: 29309483]