



ECHO

Environmental influences
on Child Health Outcomes

A program supported by the NIH

Study Summary

The Relationship between Neighborhoods and Asthma Occurrence in Children

Author(s): Antonella Zanobetti, Patrick H. Ryan, et al.

Who sponsored this study?

This research was supported by the Environmental influences on Child Health Outcomes (ECHO) program, Office of The Director, National Institutes of Health.

Why was this study needed?

In the United States, Black and Hispanic children have higher rates of asthma compared to White children and more often live in communities where households struggle to meet their basic needs. The objective of this study was to explore how much neighborhood-level socioeconomic factors, like income and education, contribute to differences in childhood wheezing and asthma between Black, White, and Hispanic children.

Who was involved?

Almost 6,000 children across the United States born between the 1980s and 2010s.

What happened during the study?

The team used questionnaires and interviews to collect information such as wheezing and asthma occurrence, medical history, and demographics. Each child's home address was matched to U.S. Census data for the decade closest to their birth year. Researchers studied how children's race/ethnicity and their mother's education level and smoking habits, plus their neighborhood socioeconomic conditions, were related to wheezing – a symptom involving whistling breathing sounds due to narrowed airways – and asthma.

What were the study results?

Of the 5,809 children studied, 46% experienced wheezing in their first year of life, with 26% having wheezing through age 11. Diagnosis of asthma by age 11 varied by cohort, with an overall median prevalence of 25%. Children in neighborhoods with more people, and with more families with lower incomes, experienced more asthma and early and persistent wheezing. Black and Hispanic children remained at higher risk for asthma than White children, even in wealthier neighborhoods.

Footnote: Results reported here are for a single study. Other or future studies may provide new information or different results. You should not make changes to your health without first consulting your healthcare professional.

Impact

This study suggests that neighborhood characteristics at birth and race/ethnicity play a role in the development of childhood wheezing and asthma. This information can help inform strategies to reduce childhood asthma, including strategies that address the socioeconomic factors that create higher risks for Black and Hispanic children.

[Where can I learn more?](#)

Access the full journal article, titled “Childhood Asthma Incidence, Early and Persistent Wheeze, and Neighborhood Socioeconomic Factors in the ECHO/CREW Consortium” in [JAMA Pediatrics](#).

The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Institutes of Health.

Published May 23, 2022