



Study Summary

Children Born in Lower-Opportunity Neighborhoods Had Higher Rates of Asthma with Recurrent Exacerbations

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Who sponsored this study?

The Environmental influences on Child Health Outcomes (ECHO) Program at the National Institutes of Health supported this research.

Why was this study needed?

Neighborhood conditions—such as access to housing, healthy food, transportation, and education—can influence the development of childhood asthma. Researchers often use the Child Opportunity Index (COI) to measure these conditions, linking residential addresses at different stages of early life to data about the resources available in the surrounding neighborhood. This index looks at various aspects of a neighborhood to see how they might affect children's chances of success and health. It combines information from 29 indicators, such as access to good schools, healthy food, parks, clean air, and job opportunities. Studies have shown that neighborhoods with higher COI scores tend to have better conditions that help children grow up healthier and have more opportunities for economic success. So, the higher the COI score, the better the neighborhood is believed to be for children's development and future prospects. Previous research suggests that these factors can all play a role in shaping different types of childhood asthma. This ECHO study was needed to explore how conditions before and at the time of birth can affect children's rates of asthma with recurrent exacerbations (ARE)—a type of asthma where children experience frequent, severe episodes of asthma.

What were the study results?

The study found that children born in neighborhoods with low community opportunity, when measured at birth and as measured by the COI, had a much higher incidence rate of asthma with recurrent exacerbations compared to those from other neighborhoods. Non-Hispanic Black children had significantly higher rates than non-Hispanic White children across all neighborhood categories. Among children from very low-opportunity neighborhoods, the rates were several times higher for non-Hispanic Black and Hispanic Black children compared to White children. Even after accounting for individual factors, children from these low-opportunity areas had higher adjusted incidence rates for asthma with recurrent exacerbations, especially those aged 2 to 4 years or those who had a parent with asthma.

What was the study's impact?

Earlier [ECHO research](#) found that living in a neighborhood with higher opportunity at birth was associated with lower asthma incidence than living in a neighborhood with lower opportunity. This study highlights the importance of addressing neighborhood-level conditions to help prevent asthma flare-ups in children. It supports the idea that improving conditions in under-resourced areas can positively impact children's health.

Who was involved?

The study used data from 15,877 children born between 1990 and 2018. These children were from 60 ECHO cohorts across the U.S.

What happened during the study?

In this study, researchers followed children from ages 2 to at least 5, and up to age 19. They collected information on asthma diagnoses and the use of corticosteroids, a medication that helps reduce inflammation in the body. ARE was identified if a child used corticosteroids at least twice while being monitored by ECHO researchers. The study also looked at the connection between the COI and the children's birth addresses, examining how neighborhood conditions influenced the rates of asthma flare-ups while considering individual factors like child race and ethnicity, sex and parental history of asthma.

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.

What happens next?

Additional studies could help researchers further understand the prenatal and early childhood determinants of ARE at both the individual and neighborhood levels.

Where can I learn more?

Access the full journal article, titled "Child Opportunity Index at Birth and Asthma with Recurrent Exacerbations in the U.S. ECHO Program," in the [Journal of Allergy and Clinical Immunology](#).

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