



ECHO

Environmental influences
on Child Health Outcomes

A program supported by the NIH

Study Summary

ECHO Study Suggests Neighborhood Conditions Throughout Childhood May Shape Risk of Developing Asthma

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Who sponsored this study?

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

Why was this study needed?

Neighborhood conditions, such as access to housing, healthy food, transportation, and education centers, can contribute to the development of childhood asthma. Researchers often measure these conditions using the Child Opportunity Index and the Social Vulnerability Index, which link residential addresses at birth, infancy (age 0.5–1.5 years), and early childhood (age 2.0–4.8 years) to census-tract data about the opportunities and resources available in the surrounding neighborhood. Previous studies looking into this topic lacked geographic diversity or considered only specific socioeconomic aspects of neighborhood disadvantage, which may not fully capture the role of early-life experiences on health outcomes. This study examines the association of conditions and resources available in neighborhoods during different developmental stages with childhood asthma incidence.

What were the study results?

Living in a neighborhood with higher opportunity at birth, infancy, or early childhood was associated with lower asthma incidence when compared to living in a neighborhood with lower opportunity. Differences in sociodemographic characteristics, parental asthma history, or the number of births a mother had did not explain this effect.

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 was the study's impact?

Neighborhood conditions could help researchers identify vulnerable children who are at high risk for developing asthma. Policymakers, researchers, and community groups can use this information to guide decisions and interventions to improve the health of children and promote equitable opportunities across neighborhoods.

Who was involved?

This study used data from 10,516 children at 46 research sites participating in ECHO. The participants have at least one residential address from birth and a parent or caregiver report of a physician's diagnosis of asthma.

What happened during the study?

Researchers linked participants' residential addresses to the Child Opportunity Index and Social Vulnerability Index. They estimated asthma incidence rates associated with Child Opportunity Index or Social Vulnerability Index data for a child's neighborhood at each life stage, adjusting for sociodemographic characteristics, maternal and paternal history of asthma, and the number of births a mother had.

What happens next?

Future studies can explore the impact of investing in early life health and environmental, social, and economic resources on improving health outcomes for children in disadvantaged neighborhoods. Follow-up studies can also focus on how these neighborhood-level factors are affecting asthma rates and how moving may alter asthma development.

Where can I learn more?

Access the full journal article, titled "Associations of Neighborhood Opportunity and Vulnerability with Incident Asthma Among U.S. Children in the ECHO cohorts," in *JAMA Pediatrics*.

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