



# ECHO

Environmental influences  
on Child Health Outcomes

A program supported by the NIH

## Study Summary

### ***Children Living in Low-income Neighborhoods with Low Food Access at Higher Risk of Developing Asthma, ECHO Study Finds***

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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?

Asthma is characterized by chronic inflammation in the lungs, and prior research shows that a nutritious diet can reduce airway inflammation. However, access to affordable and healthy foods is often difficult for many communities that have limited access to supermarkets or grocery stores. In this study, the researchers wanted to learn whether residing in a low-income-low-food access neighborhood was associated with childhood asthma and whether this association was modified by sociodemographic factors.

#### What were the study results?

This study found that living in a low-income neighborhood with low food access was associated with higher risks of developing asthma in both cumulative early (age 0-5 years) and cumulative middle (age 0-11 years) childhood, with stronger associations observed in cumulative early childhood. The increased risk of asthma was more prominent among girls, Hispanic children, and children whose mothers had less than a high school education.

#### What was the study's impact?

This study demonstrates the importance of the neighborhood food environment to children's respiratory health, particularly in early childhood. The findings suggest that food access in the immediate vicinity of residence and that vehicle access may be important and may contribute to disparities in childhood asthma development.

#### Who was involved?

The study included 16,012 children from 35 ECHO Cohort study sites, born between 1998 and 2021, from across the United States.

#### What happened during the study?

During the study, researchers collected information on participants' residential addresses and whether they were diagnosed with asthma in cumulative early childhood (by age 5) or middle childhood (by age 11). Using the [U.S. Department of Agriculture's Food Access Research Atlas](#), the researchers evaluated whether each child lived in a low-income neighborhood that was within 0.5-1 mile of a supermarket (for urban areas) or 10-20 miles (for rural areas). They also evaluated whether each child lived in a low-income area where more than 100 households do not have a vehicle or a nearby supermarket. Using this data, researchers looked at how living in a low-income-low-food-access neighborhood might affect childhood asthma incidence. They also took into account factors like the child's sex, race/ethnicity, mother's education, whether the mother smoked during pregnancy, and whether the parents had 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 better understand how community access to healthy, nutritious foods affects asthma development. Future studies could also consider how other influences, such as the affordability of healthy foods and school-based food programs, might influence child health outcomes.

### Where can I learn more?

Access the full journal article, titled "Residing in a low-income-low-food-access neighbourhood and asthma in early and middle childhood in the Environmental influences on Child Health Outcomes (ECHO) program: a multisite cohort study," in [BMJ Open](#).

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