



# ECHO

Environmental influences  
on Child Health Outcomes

A program supported by the NIH

## Study Summary

### ***How does neighborhood social vulnerability affect children's weight?***

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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?

The physical and social characteristics of neighborhoods may influence how children grow and develop. Children's body mass index (BMI)—an estimation of their overall body fat—and childhood obesity are significant risk factors for heart disease later in life. The associations between neighborhood characteristics and children's BMI and risk of obesity remains understudied. This study compared neighborhood-level measures of opportunity and social vulnerability with BMI and obesity patterns in children from birth to adolescence.

#### Who was involved?

This study included 20,677 children from 54 ECHO cohorts located across the United States.

#### What happened during the study?

ECHO researchers collected each child's home address and weight at birth, infancy (6 months–1.5 years), early childhood (2–5 years), and mid-childhood (5–10 years). The researchers linked participants' addresses throughout childhood to data from the Child Opportunity Index and Social Vulnerability Index. The Child Opportunity Index measures neighborhood conditions and resources that may affect child health outcomes including education, health and environment, and social and economic factors. The Social Vulnerability Index identifies communities with high numbers of public health emergencies and other stressors by looking at demographics, socioeconomic status, type of housing, access to transportation, and other factors.

The researchers used these data to examine links between children's neighborhood-level opportunity and social vulnerability and their BMI and obesity over time.

#### What were the study results?

The study found that children who lived in higher opportunity or less vulnerable neighborhoods early in life had lower average BMI and lower risk of obesity from childhood to adolescence. The neighborhoods children lived in at birth affected these health outcomes more than the neighborhoods they lived in later in childhood. These associations were not affected by individual and family sociodemographics or by prenatal risk factors for childhood obesity.

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 research focuses on how community resources can enhance children's health outcomes. The Child Opportunity Index, Social Vulnerability Index, and other measures of neighborhood characteristics could help inform efforts to reduce neighborhood barriers and improve access to community resources so families can better support their children's health and well-being.

### What happens next?

More research is needed to determine how changes to specific aspects of neighborhood environments might influence weight gain and obesity in children.

### Where can I learn more?

Access the full journal article, titled "Associations of Neighborhood Opportunity and Vulnerability with Trajectories of Child Body Mass Index and Obesity Among U.S. Children," in [JAMA Network Open](#).

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