Neighborhood Risks and Pediatric Asthma Hospital Use

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BACKGROUND

Asthma is one of the most common chronic conditions of childhood. Stressors related to the neighborhood context have been shown to exacerbate asthma symptoms in children. Children who are exposed to higher levels of neighborhood risks are at increased risk for more health care utilization.

STUDY PURPOSE

To assess the association of neighborhood risks and pediatric asthma hospital use.

NEIGHBORHOOD RISks INDEX:

-derived using five correlated block group measures from the 2010-2014 American Community Survey:

- % adults 25+ with no high school education
- % single parent households
- % household crowding
- % vacant homes
- % renter-occupied households
- % families below 100% of the Federal Poverty Level (FPL)

We computed quintiles for each of the 5 measures and summed these, resulting in a scale with a range of 0-20, with higher scores indicating greater neighborhood risk.

MEASURES

Patients' home addresses were geocoded using ArcGIS to identify the Census block group. Average annual rates of asthma ED visits and inpatient admissions calculated for each block group.

Maps were created to show distribution of neighborhood risk and average annual asthma visit rates. Linear regression was used to assess the average increase in the pediatric asthma ED and hospitalization rates per increase in neighborhood risk quartile.

DISCUSSION

The number and severity of neighborhood risks may contribute to pediatric ED use and hospitalization for asthma. Higher levels of neighborhood risk were more strongly associated with pediatric asthma ED visits than with hospitalization rates.