

Child's home address helps predict risk of readmission to hospital

October 18 2012

Simply knowing a child's home address and some socioeconomic data can serve as a vital sign – helping hospitals predict which children admitted for asthma treatment are at greater risk for re-hospitalization or additional emergency room visits, according to new research in the *American Journal of Public Health*.

The use of a so-called "geographic social [risk index](#)," based on census measures of poverty, home values and number of adults with high school degrees, also can help hospitals identify families likely to report financial or psychological hardship – both of which are linked to adverse asthma outcomes, says Andrew Beck, MD, a pediatrician at Cincinnati [Children's](#) Hospital Medical Center and lead author of the study.

"The use of this data to help identify children admitted to the hospital with asthma who may need more aggressive, targeted assessments and/or interventions may prevent [asthma attacks](#) and reduce disparities," says Dr. Beck.

"These interventions could include enhanced care coordination, community health workers or help with better housing," adds Robert Kahn, MD, senior investigator of the Cincinnati Children's study. "The index could work like an extra vital sign at admission, increasing our ability to know a child's likelihood of returning to the hospital. This would allow you to trigger an enhanced clinical care pathway right at the start of an admission. Reducing such readmissions is increasingly critical in the era of healthcare reform."

The researchers geocoded home addresses (grouping households by geographic area) and constructed the social risk index from assigned census tract regions. This data included extreme [poverty rates](#), median home values and high school graduation rates. Based on this information, 601 children hospitalized for asthma were evaluated and placed in one of three categories, or risk strata: low, medium or high risk.

The researchers found that 39 percent of all patients were rehospitalized or returned to the emergency room within 12 months.

Compared to children at low geographic risk, children in the high risk category were 80 percent more likely to be rehospitalized or revisit the emergency room. In addition, high-risk children had caregivers who were five times more likely to report two or more financial hardships in their households and three times more likely to report psychological distress. Children in the medium-risk category were 30 percent more likely to be readmitted or return to the emergency room.

The links between socioeconomic disparities and childhood asthma are well-established. Poor, urban and minority children are at the highest risk for [emergency room](#) treatment and hospital admission. Despite this, say the Cincinnati Children's researchers, clinical care guidelines designed to standardize care for child asthma sufferers do little to account for how socioeconomic disparities affect asthma.

"Most children receive the same inpatient care despite differences in socioeconomic risk for poorer outcomes," says Dr. Beck. "Early identification of children at increased risk could allow additional assessments and services to be put in place prior to discharge to improve patient outcomes. It also could help to target and use scarce and overburdened hospital and community resources more efficiently."

The researchers now hope to use the geographic social risk index to

study other asthma outcomes and other conditions, such as diabetes mellitus. Ultimately, they want to assess whether the introduction of geographic data into clinical care leads to more in-depth and reliable triage of patients. They also want to evaluate whether this data helps link hospital- or community-based care to those patients most likely to benefit from it.

Provided by Cincinnati Children's Hospital Medical Center

Citation: Child's home address helps predict risk of readmission to hospital (2012, October 18)
retrieved 2 May 2024 from

<https://medicalxpress.com/news/2012-10-child-home-readmission-hospital.html>

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