

Research Study: Areas of Greater Socioeconomic Disadvantage Linked to 60% Greater Likelihood of a Primary Hypertension in Youth

Children living in poor neighborhoods may be at a greater risk of preventable heart disease



Dr. Carissa Baker-Smith

“The relationship between the level of neighborhood deprivation and primary hypertension in youth has not been well evaluated,” said the study’s lead author Carissa Baker-Smith, MD, MPH, FACC, FAHA, FAAP, director of Pediatric Preventive Cardiology, Nemours Children’s Health, Delaware Valley. “Perhaps as a result, strategies for screening and diagnosis of hypertension do not routinely consider a child’s community as a potential risk factor.”

Wilmington, Del. (March 15, 2023) – Children living in the most disadvantaged communities have a 60 percent greater likelihood of being diagnosed with primary hypertension, the leading risk factor for developing cardiovascular disease later in life, according to the first U.S. study of its kind, led by researchers at Nemours Children’s Health and published today in *JAMA Network Open*.

“The relationship between the level of neighborhood deprivation and primary hypertension in youth has not been well evaluated,” said the study’s lead author Carissa Baker-Smith, MD, MPH, FACC, FAHA, FAAP, director of Pediatric Preventive Cardiology, Nemours Children’s Health, Delaware Valley. “Perhaps as a result, strategies for screening and diagnosis of hypertension do not routinely consider a child’s community as a potential risk factor.”

The study analyzed medical records of more than 65,000 Delaware youth ages 8 to 18 who were covered by Medicaid between 2014 and 2019. Researchers found that the majority of children diagnosed with primary hypertension lived in neighborhoods with an Area Deprivation Index (ADI) of 50 or greater, which represents Delaware’s top neighborhood deprivation quartile. The ADI is a composite created by the Health Resources & Services Administration, based on Census data for 17 variables in income, education, household characteristics and housing to describe a community’s socioeconomic conditions.

Overall, children living in neighborhoods with an ADI of 50 or higher had 60 percent greater odds of a hypertension diagnosis, the study found.

“Knowledge of risk factors for hypertension in youth is essential to improve cardiovascular outcomes later in

life,” Baker-Smith added. “Our study highlights the importance of considering neighborhood-related factors when diagnosing hypertension.”

Primary hypertension refers to high blood pressure not caused by another medical condition, such as structural heart disease or renal failure, and has become increasingly common in U.S. children and teens, largely due to the obesity epidemic. An estimated 4 percent of U.S. youth have this type of hypertension. However, physician recognition of the condition in this population is poor, so most cases go undiagnosed, researchers said.

The researchers found that the relationship between neighborhood deprivation and primary hypertension was rivaled only by an obesity diagnosis. Other associated risk factors were older age, male sex and longer duration of full Medicaid coverage. Prevalence of primary hypertension was highest in those aged 13 to 18.

The study did not find an association with race or ethnicity when degree of deprivation was included in the analysis.

These findings are similar to previous studies in adults that have noted a link between neighborhood deprivation and hypertension diagnosis.

The authors urge that screening algorithms and national guidelines consider the importance of neighborhood deprivation when assessing the presence and prevalence of primary hypertension in youth. Hypertension is the primary modifiable risk factor for cardiovascular disease, the leading cause of death in the U.S.

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About Nemours Children's Health

Nemours Children's Health is one of the nation's largest multistate pediatric health systems, which includes two free-standing children's hospitals and a network of more than 70 primary and specialty care practices. Nemours Children's seeks to transform the health of children by adopting a holistic health model that utilizes innovative, safe, and high-quality care, while also caring for the health of the whole child beyond medicine. Nemours Children's also powers the world's most-visited website for information on the health of children and teens, Nemours KidsHealth.org.

The Nemours Foundation, established through the legacy and philanthropy of Alfred I. duPont, provides pediatric clinical care, research, education, advocacy, and prevention programs to the children, families and communities it serves. For more information, visit Nemours.org.

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