

Kids from low-income areas fare worse after heart surgery, finds study

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Children from low-income neighborhoods had a higher mortality rate and higher hospital costs after heart surgery compared with those from higher-income neighborhoods, found a national study of more than 86,000 kids with congenital heart disease. The magnitude of the neighborhood effect, which persisted even after accounting for race, type of insurance, and hospital, was similar for children of all disease severities.

The findings were published online today in *Pediatrics*.

"These results were surprising," said Brett Anderson, MD, MBA, an attending pediatric cardiologist at New York-Presbyterian Morgan Stanley Children's Hospital, assistant professor of pediatrics at Columbia University Irving Medical Center, and the study's lead investigator. "The fact that disparities exist in healthcare is nothing new. But the fact that we see such a big effect in this population is shocking. We think of this group of children as being particularly well integrated into the healthcare system, regardless of their background. Most children with [congenital heart disease](#) are diagnosed prenatally or as newborns, and the children in this study—mostly infants—all had access to highly specialized cardiac care teams at major tertiary children's hospitals. While we expected to see some differences, we assumed the effect would be minor compared to what is seen in general pediatric populations. In fact, the effect was essentially identical to that observed in general pediatric patients."

How the study was conducted

The researchers used data from the Pediatric Health Information System (the largest U.S. database of pediatric discharges) to evaluate post-surgical mortality, length of stay, and standardized hospital costs in 86,104 children with congenital heart defects at 46 U.S. pediatric hospitals between 2005 and 2015. The results were combined with U.S. Census Bureau data on median household income by zip code.

What the study found

Overall, 2.9 percent of the children who had heart surgery died. Children from the lowest-income [neighborhoods](#), which included more families with public insurance, had an 18 percent increase in risk of death compared with children from the highest-income neighborhoods, after adjusting for differences in race, insurance, and disease severity. Length of hospital stay and costs were both 7 percent higher for children from the lowest-income neighborhoods compared to children from the highest-income neighborhoods.

The researchers also looked at outcomes in 857,833 children who were hospitalized for other conditions between 2013 and 2015. About half of this group had a chronic condition. Similarly, children from the lowest-income neighborhoods had a 22 percent greater chance of dying in the hospital compared with kids from higher-income neighborhoods. Length of stay and in-hospital costs were about 3 percent higher for children from the lowest-income neighborhoods.

What caused the disparities?

"When neighborhood disparities have been described in other studies, they have been largely attributed to differences among hospitals or in

environmentally-mediated differences in behavioral health," said Dr. Anderson. "In our study, even when the [hospital](#) effect was taken into account, neighborhood remained an important predictor of outcomes."

The study found a higher incidence of severe heart disease in children from low-income neighborhoods, but the neighborhood effect remained after controlling for disease severity.

"Certain environmental factors—such as maternal stress, nutrition, or health expectations—might have contributed to the differences in outcomes that we saw in [children](#) from low-income neighborhoods," said Dr. Anderson. "But until we conduct detailed qualitative studies, we can't be sure why these disparities persist. Ideally, such studies would examine the role of both families and providers—such as how long it takes before a family makes or obtains an appointment with a subspecialist, and whether providers knowingly or unknowingly make different care choices based on a family's income level or the socioeconomics of the neighborhood from which the child comes."

The study is titled, "Disparities in Outcomes and Resource Utilization after Hospitalization for Cardiac Surgery by Neighborhood Income."

More information: "Disparities in Outcomes and Resource Utilization after Hospitalization for Cardiac Surgery by Neighborhood Income" *Pediatrics* (2018).

Provided by Columbia University Medical Center

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