

Race, income in neighborhoods tied to cardiac arrest survival

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Socioeconomics might impact the chance of surviving a cardiac arrest, suggests a new study that found survival rates are lower in heavily black than in heavily white neighborhoods, and in low- and middle-income

areas compared with wealthy ones.

More than 350,000 people each year in the U.S. have out-of-hospital cardiac arrests, when the heart's electrical system abruptly malfunctions, and it can't beat properly.

In research published recently in the *Journal of the American Heart Association*, people whose hearts stopped in [neighborhoods](#) where more than half the residents were black were 12% less likely to survive until hospital discharge than those whose cardiac [arrest](#) occurred in areas where more than 80% of residents were white. Survival in the other integrated neighborhoods was about the same as for their predominantly white counterparts.

Also, compared with the most affluent neighborhoods, where median household income exceeded \$80,000, people who had a cardiac arrest in middle-income areas were 11% less likely, and those in low-income areas 12% less likely, to survive to hospital discharge. Low-income neighborhoods had a median household income of less than \$40,000.

"The neighborhood in which one has a cardiac arrest matters—it affects whether you get CPR from a bystander and whether you live," said lead author Dr. Paul Chan, a cardiologist at St. Luke's Mid America Heart Institute in Kansas City, Missouri. "The study also identifies areas which have lower [survival](#) and would be important targets for CPR training."

People who had cardiac arrests in majority [black neighborhoods](#) were 40% less likely, and those in low-income areas 33% less likely, to receive bystander CPR than those in the mostly white and mostly affluent neighborhoods, respectively.

"This study brings important new information and draws attention to gaps in health equity for all income and racial groups receiving

emergency cardiac care," said Dr. Ivor Benjamin, director of the Cardiovascular Center at the Medical College of Wisconsin in Milwaukee.

Only about 10% of people who have a cardiac arrest survive. CPR, especially if provided immediately, can double or triple those odds.

Researchers used a database called the Cardiac Arrest Registry to Enhance Survival, or CARES, which captures cardiac arrest data for more than 130 million U.S. residents. The study focused on about 169,502 people who had out-of-hospital cardiac arrest from 2013 through 2017. Nearly two-thirds were men.

While 16,740 of the patients survived to hospital discharge, women and black adults were less likely to, the study found. Factors linked to better survival odds included if someone else saw the cardiac arrest happen, if it happened in a public location, and if a person's heart rhythm after the arrest was "shockable"—able to be treated with a defibrillator to restore a normal rhythm. Bystander CPR also was modestly linked to higher [survival rates](#).

"Prompt, high-quality bystander CPR remains the bedrock for improving survival rates by EMS and the chain of survival for all communities," said Benjamin, past president of the American Heart Association who was not involved in the study.

Although an untrained person can deliver CPR, Chan said training helps ensure chest compressions are deep enough to keep blood circulating until an ambulance arrives. "Without blood circulating, the brain starts dying after the first few minutes."

Previous research by Chan and colleagues has found CPR training is more common in areas with more white residents and higher household

incomes.

Other neighborhoods might be better targeted by developing culturally focused teaching materials and offering classes at sites like community churches, he said. He also suggests providing free CPR training where survival rates are lowest, making defibrillators more available and ensuring adequate training, resources and staffing for emergency medical services.

Benjamin said recent advances also have helped improve cardiac arrest survival. Those advances include immediate cardiac catheterization to address underlying coronary artery disease, and targeted hypothermia, or cooling the body after resuscitation to help protect the brain.

As overall survival rates for [cardiac arrest](#) increase, experts' focus on patient care is expanding to include longer-term fallout. Earlier this month, the AHA issued a scientific statement highlighting a web of emotional, physical, social and economic challenges that patients, caregivers and health care providers should consider to better support survivors.

More information: Paul S. Chan et al. Association of Neighborhood Race and Income With Survival After Out-of-Hospital Cardiac Arrest, *Journal of the American Heart Association* (2020). [DOI: 10.1161/JAHA.119.014178](#)

Provided by American Heart Association

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