

Bystander CPR rates rising, but survival chances worse for women

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More people are stepping in to help give CPR when someone's heart stops, and first responders are intervening at higher levels—but survival rates are higher for men who have cardiac arrests than for women, a recent study suggests.

Based on data for 8,100 people in 16 North Carolina counties from 2010 to 2014, researchers measured the impact of a state initiative to improve care for out-of-hospital [cardiac arrest](#) patients. The Duke University-led study was inspired by the Institute of Medicine's 2015 call for action for better care of patients whose hearts stop outside of a hospital.

Despite "tremendous improvement" in CPR and first responder defibrillation, "we did not see improvement in survival for women, which is disappointing," said Dr. Carolina Malta Hansen, a researcher at Duke Clinical Research Institute.

"This improvement only seems to be substantial for a small group of patients—usually younger and male patients—who have a cardiac arrest in a

public place," said Hansen, who led the study, published in the *Journal of the American Heart Association*.

Different than a [heart](#) attack, cardiac arrest is an often-fatal event caused by the sudden loss of heart function in someone who may or may not be diagnosed with heart disease. More than 350,000 cardiac arrests happen outside of U.S. hospitals each year, with about 90 percent of those people dying.

CPR—or cardiopulmonary resuscitation—can double or triple a person's chance of survival. In 2014, about 45 percent of out-of-hospital cardiac arrest victims survived when bystander CPR was given.

But only about 46 percent of those who suffered cardiac arrests outside of a hospital in 2017 received bystander CPR.

Hansen said a number of factors might explain why women had worse outcomes. Compared to male victims of cardiac arrests, women are more likely to have cardiomyopathy, or disease of the heart muscle, and non-shockable rhythms that can't be treated with defibrillation. Women who suffer cardiac arrests also tend to be older than men and live at home alone, with less chance of CPR being performed.

"Those are all characteristics that we know are associated with poorer survival," she said.

"This study has complex findings that, in many ways, raises more questions than it answers," said Dr. Benjamin Abella, director of the University of Pennsylvania's Center for Resuscitation Science and a professor of emergency medicine. "But the most important message is that CPR works: The more people who deliver CPR, the more survivors you have who can leave the hospital and return to their families. That's the good news."

Abella, who was not involved in the study, said the results underscore the need for more research on ways to improve bystander CPR and increase the use of automated external defibrillators in public places. He said some bystanders might be hindered by the idea of removing clothing or touching the breasts of a woman to perform CPR or use an automated external defibrillator (AED).

"We need to have a better understanding of people's psychology when they're faced with emergency situations, so we can address it through education or training," he said. "We need to go deeper and understand the barriers: Is it fear of being sued? Is there some other emotional barrier?"

Training might be improved by using female manikins with breasts, or by using virtual reality simulations, Abella said. "The advantage of virtual reality is you can make it very lifelike and get a truer sense of somebody's response."

Hansen said there's still a great need to strengthen "all the links in the chain of survival," including training 911 dispatchers, emergency workers, the public and hospital staff.

"But the most important thing for the general public to know is that bystander intervention is paramount," she said. "You shouldn't be afraid of doing something wrong, because anything is better than nothing: Stepping in and starting CPR and applying an AED before EMS arrives is the foundation for survival."

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