

In-hospital cardiac arrest survival rates among children have improved in past 20 years

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Among children who experienced in-hospital cardiac arrest in the last 20 years, survival rates have increased significantly. Greater improvements have been seen among children who had recent cardiac surgery and cardiac arrest, with lesser gains in survival seen among children who had

cardiovascular disease (CVD) and no recent history of cardiac surgery, according to preliminary research to be presented at the American Heart Association's [Resuscitation Science Symposium 2022](#). The 2022 meeting will be held in person in Chicago, November 5-6, 2022, and will feature the most recent advances related to treating cardiopulmonary arrest and life-threatening traumatic injury.

Researchers examined the [American Heart Association Get With The Guidelines—Resuscitation](#) registry to review data for nearly 17,700 in-hospital pediatric cardiac arrest events in children younger than 18 years of age between 2000 and 2021, and [patient data](#) were grouped together in five-year intervals. They analyzed trends in treatment and [patient outcomes](#) after cardiac arrest on three illness categories: cardiovascular disease (CVD) with recent cardiac surgery (surgical-cardiac); CVD with no recent cardiac surgery (medical-cardiac); and no CVD (non-cardiac).

Rates of survival to hospital discharge among surgical-cardiac patients increased from 46% during the 2000-2004 timeframe to more than 62% during the 2015-2021 timeframe. Survival to discharge rates for medical-cardiac patients increased from nearly 37% to 47% during the same two timeframes. The researchers also found:

- Of the cardiac arrests investigated, 18% of the patients were in the surgical-cardiac group, 18% were in the medical-cardiac group and 64% were in the non-cardiac group.
- The children in the surgical-cardiac category had the highest rate of survival to discharge (56%), compared to the medical-cardiac group at 43% and the non-cardiac group at 46%.
- After controlling for age, location of event and hospital size, the odds of survival were 28% higher among surgical-cardiac patients and 13% higher for medical-cardiac patients, compared to non-cardiac patients.
- Surgical-cardiac patients had a 24% increased chance of survival

to hospital discharge in every five-year period from 2000 through 2021, compared to non-cardiac patients.

- Medical-cardiac patients had a slower survival rate with only 14% increased odds of survival per five-year period.

These findings indicate survival rates increased across all children in all time intervals. However, they also point to the need for more emphasis on the subset of medical-cardiac patients who are 'lagging behind' in improvement of outcomes, the researchers noted.

"Children with a history of cardiovascular disease often are not studied as a specific population in larger cardiac arrest studies, even though the difference between medical-cardiac and surgical-cardiac patients is important," said the study's lead author Monique Gardner, M.D., an attending physician in cardiac critical care medicine at the Children's Hospital of Philadelphia and an assistant professor of anesthesiology and [critical care](#) and pediatrics at the Perelman School of Medicine at the University of Pennsylvania in Philadelphia. "These patient groups have different physiology that may impact [medical treatments](#) and survival, and thus, they may need particular focused interventions from researchers and clinicians to determine ways to improve survival."

There are a few limitations to the study. The medical-cardiac group included children with varying degrees and types of [cardiovascular disease](#). Additionally, in a [large database](#) such as the one used for the study, detailed data, such as for anatomy, physiology and type of cardiac arrest, were not available.

"With the medical-cardiac patients' [survival rates](#) increasing at a slower rate, the study reflects a need for more research in resuscitation science and a challenge for [health care professionals](#) to acknowledge this gap and look for ways to improve survival among these vulnerable patients," Gardner said. "Future research should focus on the physiology of these

patients to improve cardiac arrest prevention, [cardiac arrest](#) response and post-arrest care."

Get With The Guidelines is the American Heart Association/American Stroke Association's hospital-based, quality improvement program that provides hospitals with the latest research-based guidelines to make it easier to provide consistent quality care. Developed with the goal of saving lives and hastening recovery, Get With The Guidelines has touched the lives of more than 10 million patients since 2001.

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More information: Abstract: www.abstractsonline.com/pp8/#!/...691/presentation/106

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