

Can we improve cardiac arrest survival in hospitals?

July 30 2018, by Brahmajee Nallamothu



Credit: Blue Bird from Pexels

Each July brings residents – recent graduates from medical schools – to the inpatient wards of major teaching hospitals across the United States. Among the many new responsibilities these young doctors will be taking

on, one of the oldest and most critical will be their role on Code Blue teams, or groups of caregivers who respond to cardiac arrests.

About 200,000 cardiac arrests happen each year in U.S. hospitals. Nearly [80 percent](#) of patients do not survive.

This begs an important question. In 2018, do hospital leaders even know how Code Blue teams should be optimally designed and deployed to tackle in-hospital cardiac arrests? I recently led a research team to assess response to cardiac arrest at nine hospitals. After collecting and reviewing nearly 80 hours of interviews, we found striking and humbling results: Top hospitals designed, deployed and trained their Code Blue teams, which respond to cardiac emergencies, in fundamentally different ways. Our results were [published](#) recently in *Circulation*, a journal of the American Heart Association.

Heart-stopping emergencies

[Cardiac arrests](#) are medical emergencies that occur when the heart stops beating. They typically result from either primary diseases of the heart, like congestive heart failure and heart attacks, or from sudden stresses on the heart due to other underlying conditions, like trauma or sepsis. They can happen when patients slowly deteriorate over time due to progressive illness or as sudden events.

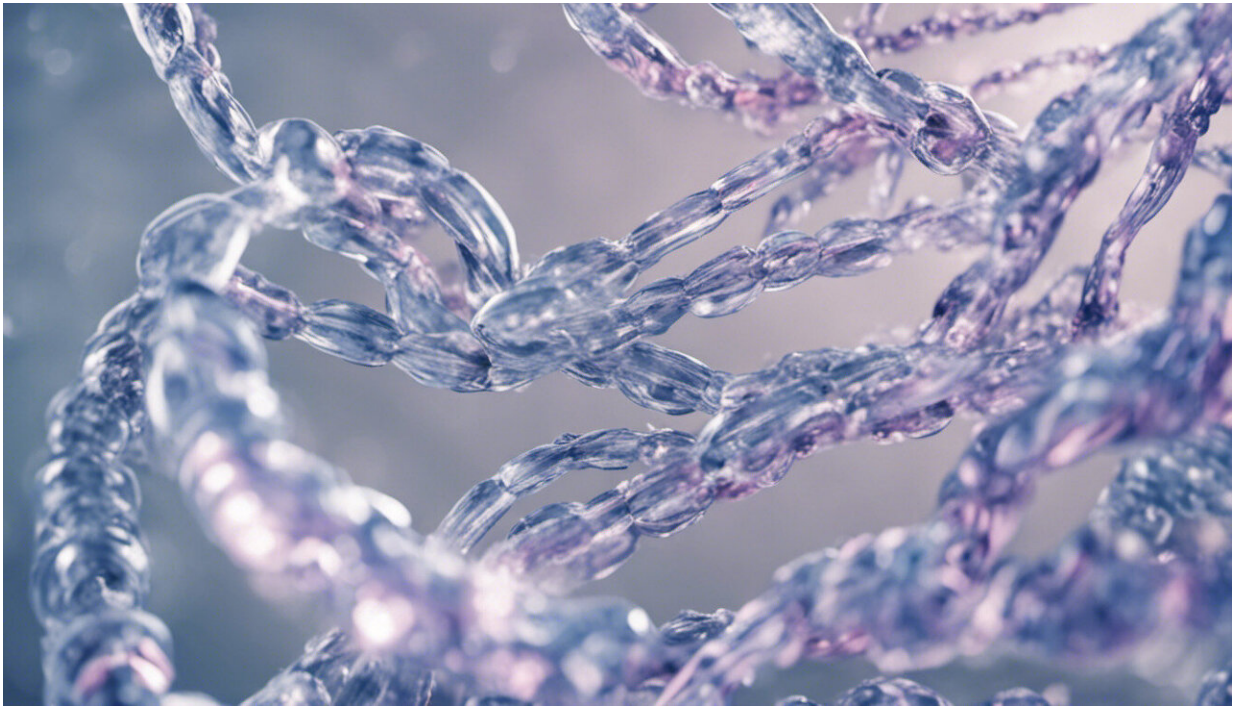
Some treatments, like [defibrillation](#), can reverse cardiac arrest if applied promptly. If delayed, however, death is inevitable, even with treatment. About [4 of 5 patients](#) who have cardiac arrests in the hospital do not survive.

Such poor outcomes are explained, in part, by the serious nature of the illnesses that trigger cardiac arrest. But what is more troubling is evidence by my research team and others that suggests similar patients

may have widely variable outcomes across different hospitals.

In one [study](#), for example, differences in death rates between the top and bottom 10 percent of hospitals were almost two-fold. My colleagues and I have spent the last two years trying to understand potential reasons for why such variability exists.

This is especially puzzling since providers typically follow the same [guidelines](#) for CPR and advanced cardiac life support that are established regularly by the American Heart Association.



Credit: AI-generated image ([disclaimer](#))

A look at the best

To understand this issue better, we performed a qualitative study by visiting nine hospitals over the last two years at the extremes of performance for cardiac arrest and talked with administrators, quality and patient safety personnel, and most importantly, doctors, nurses and other clinical staff that were boots on the ground. We visited both types to get a sense of performance across the spectrum—five hospitals were top, and four were non-top performers. This type of study focuses on what experts have called a ["positive" deviance approach](#) – that is, figure out what outlier facilities, or those with the highest performance, are doing differently that may explain their extraordinary results and then share this knowledge across numerous facilities.

Probably the most crucial lesson our study team learned was that there isn't a single "blueprint" that exists for what a successful team should be like. So hospitals have been forced to figure this out on their own by balancing the unique needs of their patients with available resources. And this makes sense for the most part.

On television, Code Blue teams are often portrayed like a [Navy SEAL Team 6](#) of health care – a group of seasoned professionals responding immediately with stunning coordination to deploy heroic interventions with [amazing success](#) in these fictitious environments. In theory, this is what we also want in the real world since survival in cardiac arrest patients depends upon prompt care.

Yet at many hospitals, the reality may be far different given the challenges with having such expertise readily available at all times. We found that some top hospitals had teams with members dedicated to responding to cardiac arrests around the clock. Others we discovered had members who could be responsible for other patients during work hours, but, preemptively, systems were set in place for them to immediately drop these duties and respond when needed.

Another example was in how hospitals constructed, led and trained teams. This is an area of intense [research](#) in simulated environments but with little empirical data. For instance, residents frequently make up a big part of Code Blue teams at major teaching hospitals when they rotate through services in cardiology or the ICU for a few short weeks. Part of this reason is because residents are typically in "house" at all hours of the day.

But reliance on residents can potentially lead to gaps in care given that experiences of residents during critical scenarios may vary. Our research found that top hospitals have explored innovative models to get more consistent results. One hospital with residents had senior doctors with more experience also respond to support residents. At another hospital without residents immediately available, teams were co-led by nurses that included a core group of individuals specifically trained to handle cardiac arrests and other emergencies. This allowed for intimate familiarity between team members on a day-to-day basis that is critical for teams to succeed during high-stakes situations like cardiac arrest.

Finally, the top hospitals also trained providers – including residents – differently, using strategies like "realistic" mock codes. Mock codes are practice runs where teams are activated and members go through a simulated cardiac arrest under the supervision of instructors. These mock codes at top hospitals were used regularly and in real-world environments (not just simulation labs) to help provide team members with training relevant to their care.

In the 1960s, the [fundamental aspects of CPR](#) and resuscitation were uncovered, transforming the care of patients with [cardiac arrest](#) in the [hospital](#). This told us "what" we should be doing to provide the best care possible. Our study is a first look at the next step of "how" hospitals can improve Code Blue teams to deliver these complex procedures and services in the best possible manner with top hospitals serving as

guideposts for excellence and innovation.

This article was originally published on [The Conversation](#). Read the [original article](#).

Provided by The Conversation

Citation: Can we improve cardiac arrest survival in hospitals? (2018, July 30) retrieved 20 April 2024 from <https://medicalxpress.com/news/2018-07-cardiac-survival-hospitals.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.