

Ten Steps to Improve Cardiac Arrest Survival in Your Community



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KEYWORDS

- Cardiac arrest • System improvement • Out of hospital cardiac arrest • Registry
- Telecommunicator cardiopulmonary resuscitation • Culture of excellence

KEY POINTS

- Improving successful resuscitation from out of hospital cardiac arrest (OHCA) begins at the call for help.
- Once on scene, professional rescuers should perform high-performance cardiopulmonary resuscitation (CPR), with measurement and postevent feedback, as well as registry collection of their efforts and results to better system-wide performance improvement efforts.
- First responders, including police, should be leveraged to create a system where early chest compressions and defibrillation are paramount.
- Advanced technologies may assist with various elements of OHCA care, and teaching CPR in schools will increase the likelihood that lay persons are comfortable performing CPR when needed.
- Accountability is a key portion of the creation of a culture of excellence within a system of care for OHCA.

INTRODUCTION

The goal of every system of care for patients with out of hospital cardiac arrest (OHCA) is to generate survivors. Some systems succeed more often than others. From these successful systems, lessons can be developed around best practices and recommendations for strategies that have succeeded in the past. These lessons have been collected over the years and developed into a curriculum that is taught as the Resuscitation Academy. This article is a brief overview of some of what one would encounter when attending a Resuscitation Academy.

The tendency for the reader will be to think, “ya, we do that.” Please, read in detail the recommendations/best practices and verify that you actually

“do that.” Go to your dispatch center and see how they dispatch a cardiac arrest. Take a stopwatch and time it, either surreptitiously or overtly. Find out which registry you use and how you use it. Most emergency medical services (EMS) systems do not fully complete many of these steps, although they may touch on the ideas here.

Throughout this reading, you will notice several phrases in italicized bold writing. These are the mantras. These sayings come up over and over again in the Resuscitation Academy. Some are self-evident, but most consist of multiple levels of complexity. These brief words should help to inspire in times of difficulty in implementing a system to care for OHCA patients. These words are proof that others have come before, have seen similar difficulties, and have been able to drive

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past, significantly improving survival in their community. You can do it, too.

CARDIAC ARREST REGISTRY

The primary mantra of the Resuscitation Academy, the phrase one would hear over and over again when in attendance, is *Measure and Improve*. The concept is that when measuring aspects of care in a system, the improvements that are needed flow naturally and become evident. Stated differently, success cannot be determined until it is defined and tracked. With a definition of success, progress can be measured from current state to a desired state, and the process can be improved to produce the desired outcome.

A prime area where this occurs is in cardiac arrest systems of care. It is truly difficult to improve a system until one is measuring the status quo. Registries have existed for years, first on paper, then in rudimentary form on computers, in spreadsheets, and now in more complex and flexible databases. The largest OHCA registry in the United States is the Cardiac Arrest Registry to Enhance Survival, or CARES (mycares.net). CARES allows for entry, recording, measurement, analysis, and comparison of many aspects of the care provided to patients with OHCA including telecommunicator variables, prehospital variables, patient variables, in-hospital data, and patient outcome information, where available. These data are aggregated in a privacy-centric way and may be benchmarked against other similar systems and national averages. Furthermore, CARES has worked to spread internationally and make data collection tools useful in other countries.

The benefits of a registry to collect data and allow for its analysis in a system of care for OHCA are multiple. A registry allows for large-scale feedback to teams on the overall direction of the program (eg, cardiopulmonary resuscitation [CPR] fraction has increased from an average of 70% to 92%). Discussing registry data with EMS crews also appears to have a version of a Hawthorne effect; once crews know their work is being watched, they seem to try even harder for their patients and are increasingly receptive to feedback as they receive nonpunitive feedback on their performance. Additionally, data from a registry can be analyzed to give receiving hospitals information about their performance and to ensure the hospital and other stakeholders that the EMS system is performing at a high level or working to improve.

Lessons learned from those systems that have implemented registries are important to consider. These include the notion that entering registry data is best completed when it is an assigned

duty for a person. This provides accountability and ensures completion of the data. While enrolling in a registry and assigning a person to be responsible for data entry is resource intensive, it is highly likely to pay dividends down the road for an organization that is seeking improvement in its system of care for OHCA.

TELECOMMUNICATOR CARDIOPULMONARY RESUSCITATION

When a lay person calls a central authority for emergency assistance, in many communities there is an attempt to provide instructions to the caller to assist the person in distress while professional aid is in route. This aid is proven to save lives in the treatment of OHCA.¹ In some of these call centers, these activities are measured and put through a quality improvement process. Feedback may even be provided to call takers to assist in their improvement in delivering prearrival aid.

Broadly, many problems exist in systems of care for patient prior to arrival of emergency aid. In order to provide CPR instructions, the telecommunicator must recognize cardiac arrest in a time-efficient manner and provide concise, clear instructions to the caller with regard to patient positioning and the delivery of chest compressions. Several of these steps can break down. For example, callers who speak a different language than the call taker can cause significant delays. The diagnosis can be missed or overdiagnosis can be sought. Overdiagnosis in this case is seeking an etiology by the call taker when only the need for CPR is indicated. If the patient needs CPR, the etiology can wait. Some caller interrogation systems in place delay compressions while seeking an etiology. The approach recommended by faculty in the Resuscitation Academy is that of *No... No... Go...* In this approach to caller interrogation, once an address is established, the caller is asked if the patient is awake and if the patient is breathing normally. If the answer to both of these questions is no, CPR instructions are immediately initiated. Occasionally, CPR is provided unnecessarily; however, it is then stopped quickly, and little harm has been shown to occur to these patients.²

The American Heart Association has recently put out program recommendations and performance measures to help optimize telecommunicator CPR.³ Adopting many, or potentially all, of these best practices can lead to a high performing telecommunicator CPR system that will predictably yield an increase in survivors in an EMS system.

High-quality feedback to these call takers is integral to ensuring the success of a telecommunicator CPR program. This feedback can include

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