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# Best Practices

## IN EMERGENCY SERVICES



## Q&A with Joan Mellor

Program manager, Medtronic Foundation's HeartRescue Project

*The Medtronic Foundation's Joan Mellor oversees the HeartRescue Project, an ambitious effort to change the way we collectively respond to sudden cardiac arrest (SCA). It's an issue she knows well, having worked her entire career for Medtronic, a Minneapolis-based medical device manufacturer that focuses on heart therapies, including implantable cardioverter defibrillators for people at risk of SCA.*

*In 1998, Mellor joined the staff of the Medtronic Foundation. For the next 12 years, she led the Heart-Rescue Program, with a focus on SCA education and CPR/AED training grants. Programs were created for the general public, schools, first responders, EMS and hospital personnel, and patient organizations, reaching more than 300 communities worldwide. This eventually led to the 2011*

*launch of the HeartRescue Project, a five-year, \$15 million collaborative initiative designed to improve how SCA is recognized, treated and measured in the United States.*

*Despite years of working to reduce the stubbornly high death rate from SCA, Mellor has high hopes that the rates will, indeed, improve. "It's been such a tough disease to tackle, and nobody has been able to do it in a way that is really scalable," she says. "And yet several communities across the country, including places like Arizona and Seattle-King County in Washington, have proven that increasing survival rates is possible."*

*Mellor spoke with Best Practices about the HeartRescue Project and what she thinks it will take to achieve a reduction in SCA deaths on a national scale.*

### Q What's the mission of the Medtronic Foundation?

The Medtronic Foundation is the primary philanthropic arm of Medtronic Inc. We focus much of our grant-making on efforts that improve access to care for patients with chronic diseases, including SCA. We also believe in the power of partnership. One way we can help increase survival is to improve systems of care and to work with partners in states and communities to share best practices.

### Q What's the HeartRescue Project?

The HeartRescue Project is an initiative to improve survival from SCA in the United States. Every year, nearly 400,000 people die from SCA, and survival rates on a national level are between 8 percent and 10 percent, depending on where you live. Remarkably, this survival rate hasn't

changed in 30 years, although there are pockets of communities that have significantly higher survival rates than the national average.

Prior to the HeartRescue Project, we primarily focused on CPR and AED training and awareness among bystanders and first responders. But we realized that is only one part of the equation, and we can do more to encourage a community-wide response.

In 2010, we made the decision to change the approach to the program. We'd now recruit and work directly with partners known for their leadership in resuscitation, who in turn would coordinate activities to definitively improve survival in their respective geographies. We currently are working with the Universities of Arizona, Illinois, Minnesota, Pennsylvania and Washington, and Duke University in North Carolina. We also work with

American Medical Response, which responds to 25,000 SCAs annually in 2,000 communities in the United States.

These partners have accepted a shared challenge to improve cardiac arrest survival by 50 percent over five years in their geographies. Across states, we're asking them to develop and expand SCA response systems by coordinating measurement, education, training and the application of evidence-based best practices among the general public, first responders, EMS and hospitals. We're asking them to connect bystander, pre-hospital and hospital response by using the science that's been published and applying that in a community to strengthen the chain of survival.

Every step in the chain of survival

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counts. There is bystander response, which includes early recognition of SCA, early initiation of bystander CPR and easy access to AEDs. There's prehospital response, including dispatchers who can recognize SCA and quickly get someone to start chest compressions. That alone is a huge opportunity to improve SCA survival rates. Then we need the EMS team to perform high-quality CPR, to provide defibrillation care and then early advanced care.

Finally, when they are transported, is the hospital ready for them? Is that person getting triaged to a resuscitation center of excellence? Is there in-hospital hypothermia? Is there 24/7 access to a cath lab? Is the patient receiving post-survival treatments appropriate for their underlying condition? And are the patients and families receiving education and support to manage their disease?

### **Q Why are measurement and data so important to this initiative?**

We can't improve what we don't measure, but SCA is not currently a reportable condition in this country. So a core element of the HeartRescue Project is to measure cardiac arrest performance and outcomes.

Our partners are committed to helping define a data dictionary to make sure we are measuring things consistently. They are also working with the EMS agencies, hospitals and other agencies to not only get outcomes data through electronic patient care reports, but to add elements from the dictionary to their patient care reports so we are getting key information that helps us improve survival.

The information being collected is comprehensive but not overly burdensome in terms of data elements requested for each case of SCA. Some of the key questions include *Did a bystander start CPR? Was an AED used? By whom? Did the patient arrive alive at the hospital? Did he or she receive hypothermia? Did he receive appropriate post-resuscitative care? Did he get discharged alive?*

The goal is to measure the continuum of care for patients who have suffered cardiac arrest. Then we have to make sure that data gets back to the EMS and hospital providers so they can look at it and use it to improve what they're doing.

All data collected at the state level is then put into a surveillance registry,

CARES (Cardiac Arrest Registry to Enhance Survival).

### **Q What makes the HeartRescue Project different from other efforts to improve SCA survival?**

Some of the core features of the HeartRescue Project are that we have publicly stated, measurable goals. We are focused on data collection. And it's highly collaborative. We are bringing together hundreds of stakeholders in each state with a focus on one goal, which is reducing deaths from SCA.

At the outset of the project we wanted to work with leaders in resuscitation who could help us replicate the great work they were already doing, typically at the community level, but then spreading it across the state. Through their leadership, they're creating teams of bystanders, as well as EMS and in-hospital providers, to work together on this problem. So it becomes a collective project that has collective impact. This is different from an individual community taking this on. We're asking our partners to be a hub for a state, to partner with and collaborate with other agencies and organizations.

“If you improve your system to treat SCA—what some consider the most serious, time-sensitive problem that exists at the acute care level—then it stands to reason it's going to improve the whole EMS system.”

— Joan Mellor

The reality is that we haven't been able to improve survival in 30 years on a broad-based scale. So how are we going to do it today? We believe there has to be partnerships built between the bystander, prehospital and hospital response levels. Working together on implementing best practices and measuring progress will make the difference.

### **Q Are SCA survival rates an indicator of overall EMS system effectiveness?**

I believe they are. If you improve your system to treat SCA—what some consider the most serious, time-sensitive problem

that exists at the acute care level—then it stands to reason it's going to improve the whole system. Sometimes EMS providers will say, 'We can't focus this much time and energy on 1 percent of our calls.' But if you can tackle the toughest cases, you are likely going to be improving care for all your patients.

When you address cardiac arrest, you're also creating a network of care that you can now apply to other diseases. For example, in areas that have a STEMI (ST-segment elevation myocardial infarction) network, they already have great relationships between prehospital providers and hospitals. So it's much easier to dovetail resuscitation efforts into that, and vice versa. Take the case of Arizona, for example. They have created a wonderful statewide SCA system of care. Now what they're doing is taking this network of collaboration and relationships and applying it to traumatic brain injury with great success. We are starting to see stroke, STEMI, cardiac arrest, and even trauma and traumatic brain injury connecting with one another into larger acute care systems.

Some people think it's a lost cause, that SCA is not treatable. But we know through the experience of our partners that it is. We need to instill that in the consciousness of our prehospital and hospital systems, as well as in the minds of the general public. We need to believe we can make a difference. Our partners are charged with creating more believers through proof of success.

### **Q Are there any success stories yet?**

The success stories right now are foundational. All the states that are involved are working toward developing a network of EMS providers and hospitals that agree to collect the same data and are starting to put the data into the system. That is huge. In just a year and a half, all five states are covering at least 50 percent of their population in terms of outcomes data collection.

The other success so far is that communities around each state are embracing the concept and are starting to work together at each level of response and as whole teams across geographies. The Resuscitation Academies are a huge success. They started in Seattle several years ago

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and through partner collaborations are now offered by every HeartRescue partner for their state or region. They were initially intended to educate EMS medical directors about best practices for resuscitation; now there are Resuscitation Academies for dispatchers to learn about best practices in dispatch-assisted CPR, for EMS providers to learn high-performance CPR, and for hospital staff to teach post-resuscitative care, including in-hospital hypothermia. So measurement is one piece. Education and sharing of best practices among the sites is the other.

### **Q How important is bystander CPR to improving survival?**

We can't improve survival without bystanders. The chances of survival double if a bystander provides timely CPR. Bystanders are also needed to call 911 and ask for an AED. None of this works without the bystander.

All of the partners are taking on bystander CPR in a way that fits for that state. For example, in Arizona, they've done public awareness campaigns through the Department of Health to increase hands-only CPR. Their next step is to improve dispatcher-assisted CPR, which means training dispatchers in recognizing cardiac arrest and instructing bystanders to start CPR as quickly as possible.

Other states are focusing on the Internet and social media. In Philadelphia, they have run a contest in which citizens were asked to locate and snap pictures of AEDs in the community to upload to a citywide map. In Minnesota, they're doing CPR awareness through flash mobs at the Mall of America. They all have their own local twist.

At the national level, we're also helping out by creating the interactive Save-A-Life Simulator, which teaches you the basics of bystander response by immersing you in a local mall, where you have just witnessed an SCA and are asked to make a series of decisions about how to respond. It's a groundbreaking way to

reach more bystanders through social media and has already reached more than 750,000 people. [See pg. 12 of this issue for more information.]

### **Q How important is dispatcher-assisted CPR to improving rates of bystander CPR?**


It's very important and a great way to effectively create systemic improvements. In Seattle, the overall bystander CPR rate is 60 percent for witnessed SCA; more than one-third of that is due to dispatcher assistance. They do a good job of training their dispatchers: Dispatchers know how to recognize it, give clear instructions and give the bystander enough confidence to try it.

The American Heart Association recently came out with new recommendations for dispatcher-assisted CPR. There are basically two questions: The dispatcher should ask if the person is responsive and if they are breathing normally. If the answer is *no* to both questions, the bystander should be directed to start chest compressions. However, some dispatch organizations may use dispatch software that includes more than these two questions. No matter what protocol is used, a QA process for reviewing cardiac arrest calls is recommended to minimize the time between 911 call and first compressions and ultimately save more lives.

### **Q Why is it important to hold survivor summits?**

SCA doesn't have pink ribbons or three-day walks; there is no such voice for this problem. Of course I support breast cancer and other types of research, but 40,000 people in the United States die annually of breast cancer, while 400,000 die of out-of-hospital cardiac arrest. We need to continue to build a patient community of people who have been affected by SCA so they can support one another and become the voice that affects policy and health care decisions about treating this disease so more people survive.

For more on the HeartRescue Project and to download the Community SCA Response Guide, visit [heartrescueproject.com](http://heartrescueproject.com).

If you think of other diseases like cystic fibrosis or pediatric leukemia, these are diseases that did not have long-term survival rates in the '60s and '70s. But as better care progressed and more patients survived, they started creating support groups and registries and organizing as patient communities to advocate for continued research and funding. We are now starting to see this gradually build among survivors of SCA with groups like the Sudden Cardiac Arrest Association and the Sudden Cardiac Arrest Foundation. Survivors are powerful advocates, and the more we can support their efforts to organize and strengthen their national presence, the better. 

— Jenifer Goodwin, associate editor

### **HeartRescue Project Partners**

Six statewide partners are centered in leading universities; in addition, American Medical Response is a partner serving more than 2,000 communities.

#### **Arizona (University of Arizona)**

Bentley J. Bobrow, M.D.

#### **North Carolina (Duke University)**

James G. Jollis, M.D., FACC

#### **Illinois (University of Illinois)**

Terry Vanden Hoek, M.D.

#### **Minnesota (University of Minnesota)**

Demetris Yannopoulos, M.D.

#### **Pennsylvania (University of Pennsylvania)**

Lance B. Becker, M.D.

#### **Washington (University of Washington)**

Graham Nichol, M.D., MPH

#### **American Medical Response**

Edward M. Racht, M.D.

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