



A member of the  
**Global  
Resuscitation  
Alliance**



**Michigan – Culture of Excellence**

# Learning Health System (LHS) for Out-of-hospital Cardiac Arrest in Michigan Communities

## **BRIEF BACKGROUND**

Rapid treatment is critical to improve cardiac arrest survival and is directly affected by a bystander's ability to immediately diagnose cardiac arrest, call 911 and provide early CPR and/or AED use. In the Washtenaw-Livingston Medical Control Authority's region, cardiac arrest survival to hospital discharge with positive neurological outcomes was below the national average — 8% compared to approximately 10%.

The Michigan Medicine Departments of Emergency Medicine and Learning Health Sciences was determined to accelerate the shared identification of priority areas for investigation, and to facilitate rapid implementation of innovative interventions to reduce OHCA response time and increase survival in the region.

## **STEPS TAKEN**

In 2018, the departments collaborated with SaveMiHeart and local EMS agencies to establish an OHCA learning community of stakeholders in the chain of survival in Washtenaw and Livingston Counties. Given the complexity of the care system, they chose a learning health systems (LHS) approach to reduce time-to-first-treatment for OHCA, using data-driven learning to improve best practices and health outcomes.

In October 2018, approximately 65 stakeholders in the chain of survival identified four goals as critical to improving time-to-first-treatment:

- Improve bystander response
- Increase OHCA public awareness
- Reduce time-to-treatment and improve data collection for key process measures (time of cardiac arrest, time to first compression and time to AED)
- Improve post-cardiac arrest systems of care

Possible themes for Learning Community workgroups were also identified:

- Community education and public awareness (including bystander awareness of CA symptoms and hands-only CPR)
- Culturally-specific outreach and response (examine data by race, ethnicity, geography, sex, age, etc. and consider culturally relevant issues that could help improve response)
- AED & PulsePoint (strategize on increasing access to AEDs and discuss PulsePoint in Livingston and whether to do it in Washtenaw)
- Dispatch protocols
- System coordination and handoffs (including handoffs from EMS to hospital and handoffs earlier in the chain of survival)

Finally, the Learning Community discussed the critical work of increasing OHCA survival rates, including:

- AED accessibility
- Community education and outreach
- Dispatch optimization

## CHALLENGES

The timing of bystander intervention, and the therapies provided, did not lend to a significant increase in the number of out-of-hospital cardiac arrest patients that survived to lead normal lives. A focus on early treatments delivered by bystanders and first responders is critical.

## RESULTS

The University of Michigan was recently awarded funding from the American Heart Association's Strategically Focused Research Network for a new project: The Michigan Resuscitation Innovation and Science Enterprise (M-RISE). M-RISE includes three projects (Basic Science, Clinical Project and Population Science Project, as well as a postdoctoral training program.

The LHS for OHCA Learning Community project plays a key role in the Population Science Project. It will optimize timely implementation of proven therapies (CPR, defibrillation), help determine the feasibility of bystanders and first responders delivering new therapies.

## CONTACT

General inquiries: [LHS-OHCA-Info@umich.edu](mailto:LHS-OHCA-Info@umich.edu)

