

CASE STUDY

Changing Realities for Urban Resuscitation

Chicago and Detroit are overcoming challenges to increase SCA survival rates

THE CHALLENGE:

Large, densely populated urban areas – like rural, scarcely populated areas – often present unique challenges that negatively affect out-of-hospital cardiac arrest (OCHA) survival rates. Chicago and Detroit are no exception; both cities have historically poor cardiac arrest survival. In 2011, Chicago had a stagnant 3% survival rate, and in 2002, Detroit had an OCHA survival rate of only 0.2%.

THE RESPONSE:

Chicago

Since 2011, Chicago has restructured the city's approach to the treatment of OHCA:

- The Chicago Fire Department's EMS call takers and dispatchers were trained to improve recognition of OHCA and provide telephone-assisted CPR (T-CPR) instructions to bystanders making the 911 call.
- 911 dispatchers activate a tiered response for OHCA calls.
- Simulation-based training sessions in Incident Command defined high-performance CPR quality metrics and resuscitation roles.
- In 2013, systematic OHCA data collection was introduced using the Cardiac Arrest Registry to Enhance Survival (CARES).
- Illinois Heart Rescue implemented an audit and feedback program using funded data coordinators.
- Between January of 2013 and December of 2016, almost 30,000 people participated in nearly 300 bystander CPR community trainings conducted by Illinois HeartRescue in underserved communities of Chicago.

Chicago has made great strides:

 **9.9%**

The city's OCHA survival improved from **7.3 percent to 9.9 percent over 4 years**, an increase of almost 36 percent.

 **23.8%**

During the same period, bystander CPR rates **increased from 13.1% to 23.8%**.

Chicago's improvements highlight the opportunity for large urban communities to save lives through systematic implementation of evidence-based, quality improvement initiatives, along with focused community engagement and surveillance. Learn more at <https://pubmed.ncbi.nlm.nih.gov/31009693/>.

Detroit

Since 2013, the city of Detroit has significantly improved its OCHA survival rate with a focus on EMS. Among Detroit's activities:

- The city began tracking OHCA care and outcomes data in CARES and partnered with the Save-MI-Heart collaborative, which provided support for rigorous data collection of Detroit OHCA cases. This data was used to prompt changes in cardiac arrest care.
- The city committed to a process improvement program.
- Changes to the emergency response system were implemented:
 - Detroit emergency communication centers implemented standardized pre-arrival instructions and trained all its 911 telecommunicators.
 - More than 800 fire fighters were trained and licensed as medical first responders.
 - For the first time in the city's history, non-transporting fire units started being used in a medical role, with dispatch to all high priority medical dispatch priority system calls.
 - Private industry facilitated the donation of ambulances to the city and private EMS providers support the city's EMS system during peak hours.

The use of the CARES registry provided a common platform to understand how programs were affecting patient care. The progress motivated the system to push forward and make improvements.

Detroit's success underscore that improving OHCA survival rates in large, population-dense urban areas is feasible. Learn more at <https://pubmed.ncbi.nlm.nih.gov/30369308/>.

Detroit has seen vast improvement, demonstrating how OHCA data analysis and EMS improvement can improve outcomes in a resource-limited urban setting:



Detroit's OCHA survival rate increased by 73% from 2014 to 2016 - from 3.7% to 6.4%.



CPR initiation by medical first responders increased from 3.7% in 2014 to 20.7% in 2016.



The use of AEDs by a medical first responder increased from 28.3% in 2014 to 83.2% in 2016.



The rate of survival to hospital admission increased from 15.3% in 2014 to 20.5% in 2016.