

Minnesota cardiac arrest resuscitation treatment demonstrated 100% success rate in cannulation

November 13 2020



An SUV from the Minnesota Mobile Resuscitation Consortium in front of McNamara Alumni Center at the U of M Twin Cities campus. Credit: Angelicjewel Photography

Published today in the *EClinicalMedicine Journal*, a study from the University of Minnesota found that the first four months of the Minnesota Mobile Resuscitation Consortium (MMRC) was 100% effective in cannulation for out-of-hospital sudden cardiac arrests. Cannulation is when tubes are placed in large veins and arteries in the legs, neck or chest in a patient by a health care provider.

This Minnesota-based program began last December by launching three SUVs that brought proper [medical equipment](#) to emergency departments in Twin Cities metro area locations that are served by the program's health care system partners: Fairview Health Services, Regions Hospital (HealthPartners) and North Memorial Health Care System.

The study's findings concluded that MMRC is the first community-wide ECMO-facilitated resuscitation program in the U.S. that has:

- demonstrated 100% successful cannulation;
- functionally favorable survival rates; good safety;
- and the potential to be replicated in other states.

"A sudden [cardiac arrest](#) is when the heart stops and blood flow to the heart and the whole body stops, leading to oxygen deficit and, eventually, death unless treated immediately," said Demetri Yannopoulos, director of the Center of Resuscitation Medicine and a professor in the Medical School.

"With our [mobile teams](#) and cardiac [arrest](#) toolkits, we are able to deliver the expertise and equipment needed to stabilize people suffering cardiac arrest within as little as 30 minutes. The ability to deliver these life-saving capabilities so quickly and reach patients across the Twin Cities is a game changer in the treatment of cardiac arrest," said Jason Bartos, president of the Minnesota Mobile Resuscitation Consortium and assistant professor in the Medical School.

The study observed 63 consecutive patients enrolled in MMRC ages 18-75 from December 1, 2019, to April 1, 2020. The study authors observed:

- 58 patients met the criteria and were treated by the MMRC SUV response team;
- the mean age was approximately 57;
- 46 of 58 patients were male;
- 100% of patients were successfully cannulated, with no identified safety issues;
- and of the 58 patients treated, 43% were discharged from the hospital with either a return to normal daily living or with minimal disruption to their daily life.

The MMRC mobile ECMO program relaunched this September, following a disruption caused by COVID-19. Since then, the MMRC SUV response team has continued to serve cardiac arrest patients and expand the number of centers where cannulation services are provided.

"Our goal has been to improve cardiac arrest survival, and the early results from the MMRC's efforts show more people are alive today because of the hard work of all involved," said Walter Panzirer, a trustee of The Leona M. and Harry B. Helmsley Charitable Trust, which helped launch the program with an \$18.6 million grant. "The success of the SUV-based teams shows the way we treat cardiac arrest has changed. We are excited to see this game-changing work continue and shared broadly."

In early 2021, the MMRC plans to launch a larger mobile ECMO truck that will be outfitted with medical equipment and virtual reality technology to help experts attend to patients remotely. This approach will allow experts to administer treatment on-site in the vehicle—shortening the time to treatment and broadening the area

served by the program.

More information: Jason A. Bartos et al, The Minnesota mobile extracorporeal cardiopulmonary resuscitation consortium for treatment of out-of-hospital refractory ventricular fibrillation: Program description, performance, and outcomes, *EClinicalMedicine* (2020). [DOI: 10.1016/j.eclinm.2020.100632](https://doi.org/10.1016/j.eclinm.2020.100632)

Provided by University of Minnesota

Citation: Minnesota cardiac arrest resuscitation treatment demonstrated 100% success rate in cannulation (2020, November 13) retrieved 13 July 2024 from <https://medicalxpress.com/news/2020-11-minnesota-cardiac-resuscitation-treatment-success.html>

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