

Orchestrating the Resuscitation to Improve CPR Performance in a Large, Multiagency EMS System

Austin-Travis County EMS System, Austin, Texas



In the City of Austin and Travis County, Texas, leaders of the

EMS system knew they had room for improvement. The survival rate from non-traumatic cardiac arrests was good, but not as good as they felt it could be. So they set out to engineer the process and maximize CPR quality while minimizing interruptions to chest compressions.

In 2010, the Austin-Travis County Office of the Medical Director led the implementation of high-performance CPR—what they called a “pit crew” model—as one of several methods for improving cardiac arrest survival. The choreographed approach was designed to minimize interruptions in CPR. One key would be for every cardiac arrest to look the same, with responders knowing exactly what to do and where to do it before they even arrived on scene. That can be a challenge in any system, but especially one where 14 different agencies respond; Austin-Travis County is served by a single EMS transport agency and 13 fire departments that provide first response. Since Austin-Travis County EMS worked cardiac arrests with each of the 13 fire departments, having one unified way of treating these patients made the most sense. That meant training more than 1500 firefighters and nearly 400 paramedics.

“The model allows us to train and practice CPR in an organized, efficient manner that replicates the way we will actually perform on scene,” says Austin Fire Department Battalion Chief Tom Vocke. In addition to training, the agencies all adopted standardized clinical guidelines, checklists, and equipment.

“The advent of pit crew CPR has given us a framework that improves patient care by offering a consistent and reliable approach for the treatment of prehospital cardiac arrest,” says Patrick Murphy, an EMS commander with Austin-Travis County EMS.

The initial implementation of the pit crew model was just one part of a process of improvement that never really ends as new evidence and performance data become available.

“High-performance CPR and resuscitation efforts in general are an ongoing journey,” explains Louis Gonzales, a quality and patient safety specialist in the Austin-Travis County Office of the Medical Director. “There is never an end and it is often difficult to tease out whether quantitative results are attributable to any specific effort.”

For example, early on they identified the need to change compressors after one minute, rather than two, to achieve the target compression performance. Repeated training, emphasis on key choreography aspects of pit crew CPR and the introduction of real-time compression feedback and ventilation timing devices have become essential to the system’s ongoing improvement of its response to cardiac arrest.

“We have made great strides forward through analysis, modifications to clinical guidelines and continuous training,” says Mark Escott, MD, medical director for the City of Austin-Travis County EMS System. “Our constant pursuit of excellence continues to enhance survival from sudden cardiac arrest in our community.”