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The Maine EMS Quality Improvement Committee is excited to share the results of the Out of Hospital Cardiac Arrest (OHCA) survival review. This project required significant work at many levels. Without EMS Services compiling their service specific data and engaging with hospitals to match outcome data, this project would not have been possible. It is through these efforts that Maine has been able for the first time to define state-based survival from cardiac arrest. Thank you for your participation.

The value of our quality improvement activities is in sharing what we have learned. In 2013, Maine EMS responded to a total of 990 cardiac arrests where resuscitation was attempted, with a 10% "all rhythm" survival to discharge rate.

In 2004, the range nationally for V-Fib/V-Tach (VF/VT) survival was 3.3% to 40% with the best performing systems obtaining survival rates from witnessed VF/VT that approached 61%.^{Personal}
Communication Seattle Fire/Medic 1

In Maine 2013, for the shockable rhythms (VF/VT), the survival to discharge rate was 22%.

After reviewing state data, the Maine EMS Quality Improvement Committee chose to look at multiple factors contributing to patient outcomes. Some of these factors include:

- The location of patient arrest such as their home or a public place
- If the arrest was witnessed
- If CPR was performed prior to EMS arrival

When looking at these metrics, the vast majority of OHCA occur in private homes. Of all cardiac arrests 538 (54.3%) did not have CPR performed prior to EMS arrival. Of all cardiac arrests 401 (40.5%) were unwitnessed, likely increasing the time to CPR and EMS activation.

The goal of quality improvement is to follow outcomes and, when possible, identify areas for improvement. After reviewing state data as well as best practices within and outside of the state, the Maine EMS QI Committee has discovered three lessons that may improve survival from out of hospital cardiac arrest. These include:

1. Initiating high performance CPR, a structured approach to cardiac arrest management (Incident Command for cardiac arrest)
2. Educating and engaging with laypersons in an effort to increase the rate of bystander chest compressions. Tools to assist services with community outreach are included in this packet.
3. Educating EMS Providers: Maine EMS has placed two training programs on MEMSED.
 - a. The first is on high performance CPR and developing Incident Command models for responding to out of hospital cardiac arrests. The Incident Command model is intended to act as one method to improve teamwork and increase survival rates.

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This demonstration model is based on projects that have been successful in other states, as well as other larger EMS systems. This model was developed in collaboration with the state of New Hampshire and will be presented as a model for upcoming protocol revisions in our two states. There are many methods and systems that could be adopted by any service, however, and it is imperative that no matter the model chosen, it is one that can be implemented and routinely practiced by your service.

- b. The second educational program details improving documentation for out of hospital cardiac arrest cases.

The Maine EMS Quality Improvement Committee hopes these educational programs are of assistance. Similar to previous QI Project, the Committee intends to reassess OHCA survival again at a later date after services have had a chance to work on implementing these new practices.

Thank you again for your participation in this process and in our collective efforts to improve survival in citizens and visitors to Maine who suffer from out of hospital cardiac arrest.

