

Implementing a multi-site cardiac arrest quality improvement initiative

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Background: Medical cardiac arrest care in Edmonton Zone Emergency Departments does not undergo structured quality monitoring or continuous improvement. Prior to this work, quality indicators had not been selected, nor had tracking or reporting activities been undertaken. This work brings the Edmonton Zone EDs to the forefront of the continuous quality improvement recommendations made by Heart and Stroke Canada and the American Heart Association that are believed to improve both patient outcomes and overall system performance.

For this project quality indicator development and implementation takes three perspectives: patients and families, frontline staff and the health care system. This work is informed by the Institute for Healthcare Improvement, the National Institute of Science and the International Liaison Committee on Resuscitation's work on Systems of Care and Continuous Quality Improvement for Emergency Cardiovascular Care. This work is motivated by the desire to improve patient/family experience and outcome, provider experience while improving system performance.

Implementation: An iterative process identified the lowest resource/highest impact areas for improvement. This process was informed through a Delphi survey conducted by the Alberta Cardiac Arrest Stakeholders group and stakeholder engagement. Four areas for improvement were identified: support of patients and families, support of staff, improvement in care metrics, and system level interventions. Support of patients and families was accomplished through the development of an advisory network, by linking families with existing supports, and through the implementation of a bereavement package. Supporting staff was accomplished through the development of a formal and informal debriefing processes. Improving clinical care was accomplished through the integration of chest compression feedback devices into clinical care. Improvements at the system level will be accomplished through the creation of a cardiac arrest registry.

Evaluation Methods: Mixed methods approaches are used to evaluate this project. Post cardiac arrest quality track forms are being filled out. Chest compression feedback device data was obtained through simulated patient-care scenarios, staff experiences were obtained through a structured survey. Clinically chest compression data was collected from the feedback devices by Clinical educators, through tracking forms, and pre-and-post surveys of frontline staff measuring burnout and occupational stress are underway. Data is being collected in a local registry to generate accurate incidence and survival rates. Eventual post-implementation interviews with providers, survivors and families will be conducted.

Results: A patient/family advisor network has been established. Survivor and families can be connected with the Bystander Support Network and the Heart and Stroke Foundation portal through the bereavement packages being offered at one of the QI sites. Two sites have developed staff debriefing processes: an interdisciplinary Critical Incident Stress Management (CISM) team at one site, and referral to an existing CISM team at two other sites. Chest compression feedback is being used at two sites, staff feedback has been

positive. One site is tracking resuscitation metrics which are being used to guide and evaluate the interventions: continued improvement in chest compression quality has been noted. Data analytics are being used at all sites to identify additional opportunities to improve resuscitation care and efforts are underway to expand data collection to other sites and to unify pre-hospital and in-hospital cardiac arrest data.

Advice and Lessons Learned:

- 1) Pre-intervention data would have allowed for more meaningful comparisons in patient care. Efforts should be put into identifying what these measures could be.
- 2) High levels of staff engagement at one site appear to have influenced the uptake of chest compression feedback. Effort should identify key stakeholders and gain buy in to increase uptake
- 3) There are significant barriers to unifying pre-hospital and in-hospital cardiac arrest data. It is our belief that a continuous record offers some greatest opportunity to collect data on resuscitation care. Efforts should focus on building a linkage between these data sources and creating a shared data set.