

LO043

Is there an association between resuscitation effort and the use of cardiac ultrasound in patients arriving to the emergency department in cardiac arrest? The second Sonography in Hypotension and Cardiac Arrest in the Emergency Department (SHOC-ED 2) Study

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Introduction: The use of cardiac point of care ultrasound (PoCUS) to assess cardiac arrest patients is widespread, although not mandated by advanced cardiac life support (ACLS) guidelines. This study aims to examine if the use of ultrasound is associated with a difference in the length of resuscitation and the frequency of interventions during ACLS in the emergency department (ED). **Methods:** A retrospective database and chart analysis was completed for patients arriving to a tertiary ED in cardiac arrest, between 2010 and 2014. Patients were excluded if aged under 19, or with a previous DNR order. Patients were grouped based on whether PoCUS was used during ACLS (PoCUS group) and those without PoCUS (control group). Multiple data were abstracted from charts using a standardized form. Data was analyzed for the length of resuscitation, frequency of common ACLS interventions such as endotracheal intubation, administration of epinephrine, and defibrillation, as well as initial cardiac activity findings on PoCUS. **Results:** 263 patients met the study inclusion criteria, with 51 (19%) in the control group, and 212 (81%) in the PoCUS group. In the PoCUS group 23 (11%) had cardiac activity (Positive PoCUS) and 189 (89%) had no cardiac activity recorded. Positive PoCUS patients had longer mean resuscitation times (26.13 min, 95% CI 17.80-34.46 min) compared to patients with no PoCUS cardiac activity (12.63 min, 95% CI 11.07-14.19 min, $p < 0.05$) as well as to the control group (14.20 min, 95% CI 10.30-18.09 min, $p < 0.05$). Positive PoCUS patients were more likely to receive endotracheal intubation (91%, 95% CI 72-99%), and epinephrine (100%, 95% CI 85-100%) than patients with no PoCUS cardiac activity (ET: 47%, 95% CI 40-54%, $p < 0.0001$; Epi: 81%, 95% CI 75-86%, $p < 0.0172$) and than the control group (ET: 65%, 95% CI 50-78%, $p < 0.0227$; Epi: 80%, 95% CI 67-90%, $p < 0.0258$). There was no difference in numbers receiving defibrillation between groups. **Conclusion:** Our results suggest emergency physicians may be making increased resuscitative effort for patients with positive cardiac activity findings on PoCUS compared to those with negative findings or when no PoCUS was performed.

Keywords: point-of-care ultrasound (PoCUS), cardiac arrest, advanced cardiac life support

LO044

Stress-testing the resuscitation room: latent threats to patient safety identified during interprofessional in-situ simulation in the emergency department

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Introduction: Emergency Department (ED) resuscitation is a complex, high-stakes procedure where positive outcomes depend upon effective interactions between the healthcare team, the patient, and the environment. To this end, resuscitation teams work in spaces designed to optimize workflows and ensure that necessary treatments and skillsets are available when required. However, systematic failures in this environment cannot always be adequately anticipated, exposing patients

to opportunities for harm. As part of a new interprofessional education initiative, this prospective, observational study sought to characterize latent threats to patient safety (LST's) identified during the delivery of in-situ, simulated resuscitations in two Canadian, tertiary care, academic Emergency Departments. **Methods:** In-situ simulation sessions were delivered on a monthly basis in the EDs of each hospital campus, during which a variety of simulated resuscitation scenarios were run with distinct teams of ED healthcare professionals. A research assistant was present throughout each session and documented LST's identified by simulation facilitators and participants during the case and debriefing. Data were entered into a master table and grouped thematically for analysis. **Results:** After a pilot run-in, 10 in-situ simulation sessions were delivered, involving 27 cases and reaching 180 ED healthcare professionals (25 attending MD, 37 resident MD, 59 RN, 24 RT). 83 latent safety threats were identified through these sessions (mean 3.1 LSTs per case) of which 52 were determined to be "actionable". Corrective mechanisms have been initiated in 72% of these cases (e.g., new education campaigns and in-servicing, equipment provisioning, equipment checklists). **Conclusion:** In-situ simulation, beyond its role as a training tool for developing Non-Technical and Crisis Resource Management skills, can be effectively used to identify systematic deficits and knowledge gaps that could expose critically ill patients to harm. Effective quality improvement and continuing education programs are essential to translate these findings into more resilient patient care.

Keywords: in-situ simulation, patient safety, quality

LO045

Sonography in Hypotension and Cardiac Arrest (SHoC) - Cardiac Arrest: A consensus on the integration of point of care ultrasound into advanced cardiac life support during cardiac arrest

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Introduction: Point of care ultrasound (PoCUS) provides invaluable information during resuscitation efforts in cardiac arrest by determining presence/absence of cardiac activity and identifying reversible causes such as pericardial tamponade. There is no agreed guideline on how to safely and effectively incorporate PoCUS into the advanced cardiac life support (ACLS) algorithm. We consider that a consensus-based priority checklist using a "4 F's" approach (Fluid; Form; Function; Filling), would provide a better algorithm during ACLS. **Methods:** The ultrasound subcommittee of the Australasian College for