

an eighteen-month period. PMRs were evaluated for demographic, physiologic and clinical variables. The information was entered into a database, which auto-filled a tool that determined SIRS criteria, shock index, prehospital critical illness score, NEWS, MEWS, HEWS, MEDS and qSOFA. Descriptive statistics were calculated. **Results:** We enrolled 298 eligible sepsis patients: male 50.3%, mean age 73 years, and mean prehospital transportation time 30 minutes. Hospital mortality was 37.5%. PMRs captured initial: respiratory rate 88.6%, heart rate 90%, systolic blood pressure 83.2%, oxygen saturation 59%, temperature 18.7%, and Glasgow Coma Scale 89%. Although complete MEWS and HEWS data capture rate was <17%, 98% and 68% patients met the cut-point defining “critically-unwell” (MEWS  $\geq 3$ ) and “trigger score” (HEWS  $\geq 5$ ), respectively. The qSOFA criteria were completely captured in 82% of patients; however, it was positive in only 36%. It performed similarly to SIRS, which was positive in only 34% of patients. The other scores were interim in having complete data captured and performance for sepsis recognition. **Conclusion:** Patients transported by ambulance with severe sepsis have high mortality. Despite the variable rate of data capture, PMRs include sufficient data points to recognize prehospital severe sepsis. A validated screening tool that can be applied by paramedics is still lacking. qSOFA does not appear to be sensitive enough to be used as a prehospital screening tool for deadly sepsis, however, MEWS or HEWS may be appropriate to evaluate in a large prospective study.

**Keywords:** prehospital, sepsis, early recognition

#### P008

##### **Implementation of a voluntary provincial knowledge translation intervention project to improve the appropriateness of CT imaging for patients with mild traumatic brain injury and suspected pulmonary embolism**

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**Introduction:** Utilization of CT imaging has risen dramatically with increases in availability, but without corresponding improvements in patient outcomes. Previous attempts to improve imaging appropriateness via guideline implementation have met with limited success, with commonly cited barriers including a lack of confidence in patient outcomes, medicolegal risk, and patient expectations. The objective of this project is to improve CT utilization and appropriateness by addressing common barriers through clinical decision support (CDS) embedded in clinical practice. **Methods:** This matched-pair cluster-randomized trial saw 12 Alberta EDs with CT scanners randomized to receive CDS for diagnostic imaging. After extensive site engagement to recruit emergency medicine and diagnostic imaging leadership and stakeholders and understand local contexts, half of the sites received CDS for mild traumatic brain injury (MTBI) based on the Canadian CT Head Rule, while the remainder received CDS for suspected pulmonary embolism (PE), including the Pulmonary Embolism Rule-out Criteria (PERC), Wells Score, age-adjusted D-dimer and CT pulmonary angiography (CTPA) use. Hardcopy CT order forms including quantitative decision support, source literature and patient handouts were developed and adapted and integrated into workflow as per local site preference. Regular physician and site report cards on CT utilization and CDS use were also provided. The primary outcome was diagnostic imaging utilization for patients with MTBI and suspected PE. **Results:** During the study period, 144 emergency physicians at 6 EDs saw 3,278 patients with MTBI and 146 emergency physicians at six matched comparison EDs saw 18,606 patients with suspected PE. Use of CDS was highly variable by site, ranging from 0% to 29% of CT orders for MTBI and

from 13% to 75% of CTPA orders for suspected PE. Impact on CT utilization, appropriateness, diagnostic yield is currently under investigation, but is expected to be limited at many sites given the variable adoption of decision support. **Conclusion:** A comprehensive CDS intervention to improve evidence-based imaging has met with variable uptake. Meaningful and widespread sustained improvements in practice will likely require incentives, accountability measures and leadership authority to enforce change.

**Keywords:** decision support, diagnostic imaging, knowledge translation

#### P009

##### **Improving elderly care transitions through the local adaptation and implementation of the Acute Care for Elderly (ACE) program**

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**Introduction:** Decreasing readmission rates and return emergency department (ED) visits represent a major challenge for health organizations. Seniors are especially vulnerable to discharge adverse events which can result in unplanned readmissions and loss of physical, functional and/or cognitive capacity. The ACE Collaborative is a national quality improvement initiative that aims to improve care of elderly patients. We aimed to adapt Mount Sinai's Care Transitions program to our local context in order to decrease avoidable readmissions and ED visits among seniors. **Methods:** We performed a prospective pre/post implementation cohort study. We recruited frail elderly hospitalized patients ( $\geq 50$  years old) discharged to home and at risk of readmission (modified LACE index score  $\geq 7/12$ ). We excluded patients being discharged to long-term nursing homes or institutions. Our intervention is based on selected strategic ACE Care Transitions best practices: transition coach, telehealth personal response services and a structured discharge checklist. The intervention is offered to selected patients before hospital discharge. Our primary outcome is a 30-day post-discharge composite of hospital readmission and return ED visit rate. Our secondary outcomes are functional autonomy, satisfaction with care transition, quality of life, caregiver strain and healthcare resource use at recruitment and at 30-days follow-up. Hospital-level administrative data is also collected to measure global effect of practice changes. **Results:** The project is currently ongoing and preliminary results are available for the pre-implementation cohort only. Patients in this cohort ( $n = 33$ ) were mainly men (61%), aged  $75 \pm 10$  years and presented an OARS score (Activities of Daily Living instrument that ranges from 0-28) of  $5.6 \pm 4.9$ . At 30 days post-discharge, the patients in our cohort had a 42.4% readmission rate (14 hospitalisations) and a 54.5% return ED visit rate (18 visits). For the same time period, readmission and return ED rates for all patients in the same corresponding age-group at the hospital level were 14.4% and 21.9%, respectively. Further results for our post-intervention cohort will be presented at CAEP 2017. **Conclusion:** Our cohort of elderly patients have high readmission and return ED visit rates. Our ongoing quality improvement project aims to decrease these readmissions and ED visits.

**Keywords:** discharge, geriatrics, implementation

#### P010

##### **Code Silver: Lessons learned from the design and implementation of Active Shooter Simulation In-Situ Training (ASSIST)**

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**Introduction:** Hospital shootings are rare events that pose extreme and immediate risk to staff, patients and visitors. In 2015, the Ontario Hospital Association mandated all hospitals devise an armed assailant Code Silver protocol, an alert issued to mitigate risk and manage casualties. We describe the design and implementation of ASSIST (Active Shooter Simulation In-Situ Training), an institutional, full-scale hybrid simulation exercise to test hospital-wide response and readiness for an active shooter event, and identify latent safety threats (LSTs) related to the high-stakes alert and transport of internal trauma patients. **Methods:** A hospital-wide in-situ simulation was conducted at a Level 1 trauma centre in downtown Toronto. The two-hour exercise tested a draft Code Silver policy created by the hospital's disaster planning committee, to identify missing elements and challenges with protocol implementation. The scenario consisted of a shooting during a hospital meeting with three casualties: a manikin with life-threatening head and abdomen gunshot wounds (GSWs), a standardized patient (SP) with hypotension from an abdominal GSW, and a second SP with minor injuries and significant psychological distress. The exercise piloted the use of a novel emergency department (ED)-based medical exfiltration team to transport internal victims to the trauma bay. The on-call trauma team provided medical care. Ethnographic observation of response by municipal police, hospital security, logistics and medical personnel was completed. LSTs were evaluated and categorized using video framework analysis. Feasibility was measured through debriefings and impact on ED workflow. **Results:** Seventy-six multidisciplinary medical and logistical staff and learners participated in this exercise. Using a framework analysis, the following LSTs were identified: 1) Significant communication difficulties within the shooting area, 2) Safe access and transport for internal casualties, 3) Difficulty accessing hospital resources (blood bank) 4) Challenges coordinating response with external agencies (police, EMS) and 5) Delay in setting up an off-site command centre. **Conclusion:** In situ simulation represents a novel approach to the development of Code Silver alert processes. Findings from ethnographic observations and a video-based analysis form a framework to address safety, logistical and medical response considerations.

**Keyword:** disaster preparedness, code silver, in situ simulation

#### P011

##### **Discerning perceived barriers and facilitators to goals of care discussion in the emergency department: A survey of emergency physicians and residents**

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**Introduction:** Patients presenting to the Emergency Department (ED) may require clarification of their goals of care (GOC) to ensure they receive treatments aligned with their values. However, these discussions can be difficult to conduct for multiple reasons, including lack of time in a busy ED, competing priorities and a limited relationship with the patient. Few studies have examined the perceived challenges faced by Emergency Physicians in conducting GOC discussions. This study sought to contextualize and discern the barriers and facilitators to having these conversations as reported by Emergency physicians. **Methods:** An interdisciplinary team of Emergency Medicine, Palliative Care and Internal Medicine providers developed an online survey comprised of multiple choice, Likert-scale and open-ended questions to explore four domains of GOC discussions: training; communication; environment; and personal beliefs. Invitations and scheduled reminders were sent to 275 ED physicians at six academic sites in a Canadian urban centre,

including 49 EM residents. **Results:** 105 (46%) staff physicians and 23 (47%) residents responded with similar representation from all sites. Differences were reported in the frequency of GOC discussions: 59% of staff physicians conduct several per month whereas 65% of residents conduct less than one per month. Most agreed that GOC discussions are within their scope of practice (92%), they feel comfortable (96%), and are adequately trained (73%) to have them; however, 66% reported difficulty initiating GOC discussions. 73% believed that admitting services should conduct GOC discussions, yet acuity was noted in the comments as a major determinant with initiating GOC discussions by ED physicians. Main barriers identified were lack of time, chaotic environment, lack of advanced directives and the inability to reach substitute decision makers. 54% of respondents indicated that the availability of 24-hour Palliative Care consults would facilitate GOC discussions in the ED. **Conclusion:** Emergency physicians are prepared to conduct goals of care discussions, but often believe they should instead be conducted by the patient's admitting service. Multiple perceived barriers to goals of care discussion in the ED were identified, and a majority of respondents felt that the availability of Palliative Care in the ED may facilitate these discussions.

**Keywords:** palliative care, barriers to care

#### P012

##### **Québec emergency physicians propose priority solutions to improve rural emergency care**

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**Introduction:** In the province of Québec, roughly 20% of the population lives in rural areas. Rural emergency departments (EDs) face different challenges than their urban counterparts. Yet, few studies have sought to understand these challenges. This study aims to survey Québec's emergency physicians to: 1) identify problems specific to rural EDs, 2) find solutions for improving accessibility and quality of care offered in rural regions and, 3) rank solutions in order of priority. These results will allow data triangulation with other of our studies that seek to identify challenges faced by rural EDs and potential solutions. **Methods:** During the 2016 annual conference of the *Québec Emergency Physicians' Association*, we asked physicians and residents (including those from urban EDs), to complete a survey about the challenges faced by rural EDs. The survey contained two sections. The first took the form of open-ended questions in which respondents could write three challenges about accessibility and quality of care in rural EDs (objective 1) and three solutions to address these challenges (objective 2). The second section listed 11 potential solutions identified in our previous study. The solutions were ranked based on their priority level on a five-point Likert scale that ranged from "not a priority" to "an absolute priority" (objective 3). We added the total number of points for each solution and produced a ranking list. **Results:** Ninety-one physicians out of the 417 at the conference completed the survey; 58% came from urban EDs and 42% from rural EDs. Open-ended questions suggest that access to specialists and interfacility transfers are the principal challenges faced by rural EDs. The top five solutions identified as the highest priorities were: 1) care protocols, 2) improvement of interfacility transfers, 3) training with simulators, 4) targeted ultrasound and, 5) implementation of staff retention and recruitment strategies. **Conclusion:** This study is relevant and useful as roughly a quarter of attendants at the conference spontaneously volunteered to help identify and prioritize solutions to foster the accessibility and quality of care in rural EDs. Furthermore, it represents a stepping stone for our recently-launched