

improvement in health-related quality of life and in self-care behaviour pre- to 90 days post-monitoring. A full analysis of the 69 patients will be complete in February 2018. **Conclusion:** Preliminary findings indicate that home telemonitoring for HF patients can decrease ED revisits and improve patient experience. The length of stay data may also suggest the potential for early discharge of ED patients with home telemonitoring to avoid or reduce hospitalization. A stepped-wedge randomized controlled trial of TEC4Home in 22 BC communities will be conducted in 2018 to generate evidence and scale up the service in urban, regional and rural communities. This work is submitted on behalf of the TEC4Home Healthcare Innovation Community.

Keywords: emergency department readmissions, transition of care, home telemonitoring

Posters Presentations

P001

Age-adjusted D-dimer and two-site compression point of care ultrasonography to rule out acute deep vein thrombosis - a pilot study

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Introduction: Deep vein thrombosis (DVT) can lead to significant morbidity and mortality if not diagnosed and treated promptly. Currently, few methods aside from venous duplex scanning can rule out DVT in patients presenting to the Emergency Department (ED). Current screening tools, including the use of the subjective Wells score, frequently leads to unnecessary investigations and anticoagulation. In this study, we sought to determine whether two-site compression point-of-care ultrasound (POCUS) combined with a negative age-adjusted D-dimer test can accurately rule out DVT in ED patients irrespective of the modified Wells score. **Methods:** This is a single-center, prospective observational study in the ED of the Jewish General Hospital in Montreal. We are recruiting a convenience sample of patients presenting to the ED with symptoms suggestive of DVT. All enrolled patients are risk-stratified using the modified Wells criteria for DVT, then undergo two-site compression POCUS, and testing for age-adjusted D-dimer. Patients with DVT unlikely according to modified Wells score, negative POCUS and negative age-adjusted D-dimer are discharged home and receive a three-month phone follow-up. Patients with DVT likely according to modified Wells score, a positive POCUS or a positive age-adjusted D-dimer, will undergo a venous duplex scan. A true negative DVT is defined as either a negative venous duplex scan or a negative follow-up phone questionnaire for patients who were sent home without a venous duplex scan. **Results:** Of the 42 patients recruited thus far, the mean age is 56 years old and 42.8% are male. Twelve (28.6%) patients had DVT unlikely as per modified Wells score, negative POCUS and negative age-adjusted D-dimer and were discharged home. None of these patients developed a DVT on three-month follow-up. Thirty patients (71.4%) had either a DVT likely as per modified Wells score, a positive POCUS or a positive age-adjusted D-dimer and underwent a venous duplex scan. Of those, six patients had a confirmed DVT (3 proximal & 3 distal). POCUS detected all proximal DVTs, while combined POCUS and age-adjusted D-dimer detected all proximal and distal DVTs. None of the patients with a negative POCUS and age-adjusted D-dimer were found to have a DVT. **Conclusion:** Two-site compression POCUS combined with a negative age-adjusted D-dimer test appears to accurately rule out DVT in ED patients without the need for follow-up duplex venous scan. Using this approach would alleviate

the need to calculate the Wells score, and also reduce the need for radiology-performed duplex venous scan for many patients.

Keywords: acute deep vein thrombosis, age-adjusted D-dimer, point-of-care ultrasonography

P002

Prehospital analgesia with intra-nasal ketamine: a randomized double-blind pilot study

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Introduction: Primary care paramedics (PCPs) have limited options to provide analgesia during transport thus timely pain relief is often significantly delayed. Inhaled nitrous oxide is considered usual care for PCPs, but is limited in effectiveness. Intranasal (IN) ketamine has been shown to provide effective analgesia with no deleterious effects on cardiorespiratory function thus may provide rapid, easily-administered and well-tolerated analgesia in prehospital transports. **Methods:** This was a randomized double-blind pilot series. Patients with an acute painful condition reporting a pain score of 5 or more on an 11-point verbal numeric rating scale (VNRS) were included. Exclusion criteria were age under 18 years, known intolerance to ketamine, non-traumatic chest pain, altered mental status, pregnancy and nasal occlusion. Patients were randomized to 0.75 mg/kg of IN ketamine or IN saline. All patients received inhaled nitrous oxide. The primary outcome was the proportion of patients experiencing a reduction in VNRS pain score of two points or more (clinically significant pain reduction) at 30 minutes. Secondary outcomes were patient-reported comfort, patient and provider satisfaction, and incidence of adverse events. **Results:** 40 patients were enrolled, 20 in each group. 80% of IN ketamine patients compared to 60% of placebo patients reported a 2-point reduction in VNRS pain score by 30 minutes. 50% of ketamine vs. 25% of placebo patients reported feeling moderately or much better. 85% of ketamine vs 75% of placebo patients reported any improvement in subjective comfort. 80% of ketamine patients reported minor adverse effects compared to 52% of placebo patients. No serious adverse effects were reported. **Conclusion:** The addition of IN ketamine to usual care with nitrous oxide appears to result in a greater proportion of patients reporting a clinically significant reduction in VNRS pain score and improved subjective comfort, with a greater incidence of minor adverse effects. These findings will be used to power a definitive randomized double-blind trial.

Keywords: analgesia, prehospital, ketamine

P003

Which factors predict resuscitation outcomes in patients arriving to the emergency department in cardiac arrest? A SHoC series study

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Introduction: The decision as to whether to end resuscitation for pre-hospital cardiac arrest (CA) patients in the field or in the emergency department (ED) is commonly made based upon standard criteria. We studied the reliability of several easily determined criteria as predictors of resuscitation outcomes in a population of adults in CA transported to the 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. Multiple data were abstracted from charts using a standardized form. Regression analysis was used to compare criteria that predicted return of spontaneous circulation (ROSC) and survival to hospital admission (SHA). **Results:** 264 patients met the study inclusion criteria. Logistic regression was used to identify predictors of ROSC and SHA. The criteria that emerged as significant predictors for ROSC included; longer ED resuscitation time (Odds ratio 1.11 (1.06- 1.18)), witnessed arrest (Odds ratio 9.43 (2.58- 53.0)) and having an initial cardiac rhythm of Pulseless Electrical Activity (Odds Ratio 3.23 (1.07-9.811)) over Asystole. Receiving point of care ultrasound (PoCUS; Odds ratio 0.22 (0.07-0.69)); and having an initial cardiac rhythm of Pulseless Electrical Activity (Odds Ratio 4.10 (1.43-11.88)) were the significant predictors for SHA. Longer times for ED resuscitation was close to reaching significance for predicting SHA **Conclusion:** Our results suggest that both fixed and adaptable factors, including increasing resuscitation time, and PoCUS use in the ED were important independent predictors of successful resuscitation. Several commonly used criteria were unreliable predictors.

Keywords: cardiac arrest, resuscitation outcomes, prediction

P004

Simulation for emergency department quality improvement

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Introduction: There have been an increasing number of studies published since 2011 investigating the benefits of in situ simulation as a quality improvement (QI) modality. We instituted an emergency department (ED) in situ simulation program at Kelowna General Hospital in 2015 with the aims of improving inter-professional collaboration, improving team communication, developing resident resuscitation leadership skills, educating ED professionals on resuscitation medical expertise, and identifying QI action items from each simulation session. **Methods:** We applied the SMART framework. Our specific, measurable, and attainable goal was to select two QI action items discovered from each simulation session. Realistic and timely follow-up on each action item was conducted by the nurse educator group who reported back to the local ED network, pharmacy, or manager depending on the action item. This ensured sustainability of our model. **Results:** A total of 65 individuals participated in 2015 at program inception. This increased to 213 individuals in 2017 with an average of 24 participants/session. Attendants included nurses (31%), ED physicians (20%), ED residents (18%), paramedics (10%), and medical students, respiratory therapists, pharmacists, and others (21%). Our QI action items were grouped as (1) team/communication, (2) equipment/resources, and (3) knowledge/tasks. Examples of each category were: (1) Inability to hear paramedic bedside reports resulting in reinforcement of one paramedic speaking while the team remains quiet, (2) Difficulty in looking up medication information in the resuscitation bay resulting in installation of an additional computer in the resuscitation bay, and (3) Uncertainty of local process for initiating extra corporeal membrane oxygenation (ECMO) in the ED resulting in review of team placement, patient transfer, and initiation of ECMO lines in the ED. Inter-professional team members have reported through electronic feedback on the value of these sessions, including improved inter agency cooperation and understanding. **Conclusion:** This quality improvement initiative used in situ simulation as a QI tool. We were able to identify latent safety threats, test new patient care protocols, find equipment issues, and foster teamwork in a sustainable way to improve the quality of care in our ED. We hope that this serves as encouragement

to others who are initiating a similar program. Our main suggestions after reflection include: (1) Engage a multidisciplinary team in the development of an in situ simulation program, (2) Start with aims and objectives, (3) Foster attendance and buy in by making it convenient for people to attend, (4) Celebrate your successes through interdepartmental communication, and (5) Recruit individuals with expertise in simulation based education.

Keywords: quality improvement and patient safety, simulation, emergency department

P005

Optimum accuracy of massive transfusion protocol activation criteria: the clinician's view

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Introduction: Massive Transfusion Protocol (MTP) activation allows for efficient delivery of a balanced transfusion strategy to exsanguinating patients, and should deliver a reasonable ratio of plasma and platelets to red blood cells. MTP activation should facilitate communication between care providers and laboratory services in order to minimize blood product wastage. Unfortunately, it is unclear which activation criteria are best to achieve this. Understanding of acceptable sensitivity and specificity, as well as reasons for blood component wastage, may provide refinement to MTP design. **Methods:** We surveyed clinicians, who were identified as content experts in their fields, using a snowball survey technique. Respondents were categorized into two groups: Group 1 included Emergency Medicine, Anesthesia, Critical Care, and Surgery; Group 2 included Hematology, Hematopathology and Transfusion Medicine. Between-group differences were examined using the Pearsons Chi-Square Test. Statistical significance was set at $p < 0.05$. **Results:** 50% of physicians in Group 1 considered an MTP under-call rate of 5-10% to be acceptable, whereas the majority (57.1%) of physicians in Group 2 considered an under-call rate of <5% to be acceptable. Both groups agreed on an acceptable over-call rate of 5-10%. A significantly greater proportion of physicians in Group 1 felt that MTP activation criteria including transfusion of an entire blood volume within 24 hours, loss of >50% blood volume within 3 hours and anticipated transfusion of >10U of PRBC in 24 hours were appropriate for MTP activation. Physicians in Group 2 were more likely to consider poor communication a reason for blood component wastage. **Conclusion:** Similarities in acceptable over- and under-call rates of MTP highlight the similar values in MTP activation between different medical specialties. Collaboration between the resuscitation team and consultants in transfusion medicine is necessary for MTP protocol development to improve patient outcomes and reduce blood wastage.

Keywords: transfusion, resuscitation, survey

P006

Patient passports in the emergency department: a scoping review

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Introduction: Discharge communication in the emergency department occurs frequently and has been identified as an important, underestimated problem. Tools, such as patient or caregiver-held passports have been used in other departments to improve communication and facilitate provider and patient decision making. The objective of this review was to identify what modalities, methods and designs have been