

Introduction: A variety of pain assessment tools exist for children, however none of the current scales were created specifically for family use. Further, none provide direct guidance with regards to pain treatment threshold. This study aimed to validate a novel, three faced, coloured coded (red, yellow, green), family-friendly pain tool, the Stoplight Pain Scale, by comparing it to the widely accepted and validated Faces Pain Scale-Revised (FPS-R). This novel tool has the capability to guide families with regards to treatment, as well as measure pain. **Methods:** A prospective observational cohort study was conducted at the Stollery Childrens Hospital emergency department (ED) (Edmonton, Alberta) from November, 2014 to February, 2017. Demographic information was collected, and patients (3-12 years) and their caregivers were asked to rate their pain using the novel Stoplight Pain Scale as well as the FPS-R. Pain was measured at presentation to the ED, immediately following painful procedures, and thirty minutes after analgesia administration. Patients and their caregivers also indicated their preferred scale for assessing pain. **Results:** A purposeful random sample of 227 patients were included for analyses; 61/227 (26.9%) of patients were 3-5 years old and 166/227 (73.1%) were 6-12 years old. 53/227 (23.3%) of patients had been previously hospitalized. Correlation between the two pain scales was consistently fair to moderate; using Kappa Statistics, a baseline correlation for Stoplight and FPS-R was fair for both caregivers (0.38, 95% CI 0.28-0.48) and patients (0.36 95% CI 0.27-0.45). The Stoplight Pain Scale had fair to moderate correlation between caregiver and patient scores, (0.37, 95% CI 0.27-0.47), compared to FPS-R which showed poor to fair agreement between caregiver and child scores (0.20, 95% CI 0.12-0.29). Regardless of age or hospitalization status, 64% of patients (139/218) and 54% caregivers (118/220) preferred the Stoplight Pain scale ($p=0.001$). **Conclusion:** The Stoplight Pain Scale correlates moderately well with FPS-R, a validated pain assessment tool for children and shows good correlation between patients and caregivers assessment of reported pain. The Stoplight Pain Scale is a simple, easy to administer tool that may have a role in empowering family involvement in ED pain management. Future research should focus on at-home study of the tool. **Keywords:** pain, measurement, self-report

MP43

Evaluation of an innovative web-based educational program to teach the management of alcohol withdrawal

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Introduction: Ideal management of alcohol withdrawal syndrome (AWS) incorporates a symptom driven approach, whereby patients are regularly assessed using a standardized scoring system (Clinical Institute Withdrawal Assessment for Alcohol-Revised; CIWA-Ar) and treated according to severity. Accurate administration of the CIWA-Ar requires experience, yet there is no training program to teach this competency. The objective of this study was to develop and evaluate a web-based curriculum to teach clinicians how to accurately assess and treat AWS. **Methods:** This was a three-phase educational program consisting of a series of 3 e-learning modules of core competency material, in-person seminar to orient learners to high fidelity simulation, and summative evaluation in an OSCE setting using a standardized patient. To determine the ED impact of the AWS curriculum, we recorded how often the CIWA-Ar was appropriately applied in the ED pre and post training, ED length of stay, total dose of benzodiazepines administered in the ED, and number of prescriptions and unit benzodiazepine doses given upon discharge were also recorded. **Results:** 74

nurses from an academic ED completed the AWS curriculum. There were 130 and 126 patients in the pre and post AWS training periods, respectively. Management of AWS was not compliant with CIWA-Ar protocol in 78 (60.0%) and 46 (36.5%) patients pre and post AWS training, respectively (23.5%; 95% CI: 11.3%, 34.7%), resulting in administration of benzodiazepine when it was not required, or not giving benzodiazepines with a CIWA-Ar score of 10. There was an average of 4 CIWA-Ar scores per patient in both the pre and post implementation periods. Prior to AWS training, 144/560 (25.5%) CIWA-Ar scores resulted in a breach of protocol, compared to 64/547 (11.7%) following AWS training (13.8%; 95% CI: 9.3%, 18.3%). Median total dose of benzodiazepines administered in the ED was lower after the implementation of the AWS curriculum (40mg vs. 30mg; 10mg; 95% CI: 0mg, 20mg). ED length of stay and the amount of benzodiazepines given to patients at discharge were similar between groups. **Conclusion:** This AWS curriculum appears to be an effective way to train ED clinicians on the proper administration of the CIWA-Ar protocol, and results in improved patient care.

Keywords: alcohol withdrawal syndrome, emergency department, clinical institute withdrawal assessment for alcohol scale

MP44

TEC4Home heart failure: using home telemonitoring to decrease ED readmissions and clinical flow

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Introduction: Patients with Heart failure (HF) experience frequent decompensation necessitating multiple emergency department (ED) visits and hospitalizations. If patients are able to receive timely interventions and optimize self-management, recurrent ED visits may be reduced. In this feasibility study, we piloted the application of home telemonitoring to support the discharge of HF patients from hospital to home. We hypothesized that TEC4Home would decrease ED revisits and hospital admissions and improve patient health outcomes. **Methods:** Upon discharge from the ED or hospital, patients with HF received a blood pressure cuff, weight scale, pulse oximeter, and a touchscreen tablet. Participants submitted measurements and answered questions on the tablet about their HF symptoms daily for 60 days. Data were reviewed by a monitoring nurse. From November 2016 to July 2017, 69 participants were recruited from Vancouver General Hospital (VGH), St. Pauls Hospital (SPH) and Kelowna General Hospital (KGH). Participants completed pre-surveys at enrolment and post-surveys 30 days after monitoring finished. Administrative data related to ED visits and hospital admissions were reviewed. Interviews were conducted with the monitoring nurses to assess the impact of monitoring on patient health outcomes. **Results:** A preliminary analysis was conducted on a subsample of participants ($n=22$) enrolled across all 3 sites by March 31, 2017. At VGH and SPH ($n=14$), 25% fewer patients required an ED visit in the post-survey reporting compared to pre-survey. During the monitoring period, the monitoring nurse observed seven likely avoided ED admissions due to early intervention. In total, admissions were reduced by 20% and total hospital length of stay reduced by 69%. At KGH ($n=8$), 43% fewer patients required an ED visit in the post-survey reporting compared to the pre-survey. Hospital admissions were reduced by 20% and total hospital length of stay reduced by 50%. Overall, TEC4Home participants from all sites showed a significant

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,