

also help to improve physicians' clinical skills by encouraging and enabling follow-up of patients they managed. Thus, bounceback reports are a valuable tool to provide to physicians and should be considered by ED Departments.

Keywords: quality improvement and patient safety, bouncebacks, patient outcome feedback

P116

A randomized cross-over trial of conventional bimanual versus single elbow (Koch) chest compression quality in a height-restricted aeromedical helicopter

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Introduction: Aeromedical helicopters and fixed wing aircraft are used across Canada to transfer patients to definitive care. Given height limitation in aeromedical transport, CPR performance can be affected. An adapted manual compression technique has been proposed by H. Koch (pron. Cook) that uses the elbow to compress the sternum rather than the conventional hand. This preliminary study evaluated the quality of Koch compressions versus conventional bimanual compressions. **Methods:** Paramedics (5), registered nurses (3) and a physician (1) were recruited. Each participant performed a 2 minute cycle of each technique, were randomized to determine which technique was performed first, and rested 5 minutes between compression cycles. A Resusci Anne SkillReporter manikin atop a stretcher in a BK117 helicopter was used. The compressors performed without feedback or prompting. Outcomes include compression rate, depth, recoil, and fatigue. **Results:** The mean conventional compression rate was (bpm) 118 +/- 13 versus 111 +/- 10 in the Koch scenario ($p=0.02$) (target 100 to 120). Mean conventional compression depth (mm) was 44 +/- 9 versus 49 +/- 7 in the Koch scenario ($p=0.01$) (target 50 to 60). The mean percentage of compressions with complete release in the conventional scenario was 86 +/- 20 versus 84 +/- 22 in the Koch scenario ($p=0.9$) (target 100%). Using a Modified Borg Scale of 1 to 10, mean provider fatigue after conventional CPR was 7 (+/- 1.6) versus 3 (+/- 1.2) using Koch technique ($p<0.001$). On average, Koch technique improved the percentage of compressions at target rate by 26%, the percentage at correct depth by 9%, overall compression quality score by 13% and were more less fatiguing. **Conclusion:** Using an elbow in a height-restricted environment improved compression depth and reduced provider fatigue. From our limited data, Koch compressions appear to improve compression quality. Further study and external validation are required.

Keywords: resuscitation, cardiopulmonary resuscitation, aeromedical transport

P117

A pilot program of physician at triage conducted at a tertiary care hospital improved measures of emergency department throughput and provides a potential solution for emergency department overcrowding

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Introduction: Emergency Department Overcrowding (EDOC) is a multifactorial issue that leads to Access Block for patients needing

emergency care. Identified as a national problem, patients presenting to a Canadian Emergency Department (ED) at a time of overcrowding have higher rates of admission to hospital and increased seven-day mortality. Using the well accepted input-throughput-output model to study EDOC, current research has focused on throughput as a measure of patient flow, reported as ED length of stay (LOS). In fact, ED LOS and ED beds occupied by inpatients are two "extremely important indicators of EDOC identified by a 2005 survey of Canadian ED directors. One proposed solution to improve ED throughput is to utilize a physician at triage (PAT) to rapidly assess newly arriving patients. In 2017, a pilot PAT program was trialed at Kelowna General Hospital (KGH), a tertiary care hospital, as part of a PDSA cycle. The aim was to mitigate EDOC by improving ED throughput by the end of 2018, to meet the national targets for ED LOS suggested in the 2013 CAEP position statement. **Methods:** During the fiscal periods 1-6 (April 1 to September 7, 2017) a PAT shift occurred daily from 1000-2200, over four long weekends. ED LOS, time to inpatient bed, time to physician initial assessment (PIA), number of British Columbia Ambulance Service (BCAS) offload delays, and number of patients who left without being seen (LWBS) were extracted from an administrative database. Results were retrospectively analyzed and compared to data from 1000-2200 of non-PAT trial days during the trial periods. **Results:** Median ED LOS decreased from 3.8 to 3.4 hours for high-acuity patients (CTAS 1-3), from 2.1 to 1.8 hours for low-acuity patients (CTAS 4-5), and from 9.3 to 8.0 hours for all admitted patients. During PAT trial weekends, there was a decrease in the average time to PIA by 65% (from 73 to 26 minutes for CTAS 2-5), average number of daily BCAS offload delays by 39% (from 2.3 to 1.4 delays per day), and number of patients who LWBS from 2.4% to 1.7%. **Conclusion:** The implementation of PAT was associated with improvements in all five measures of ED throughput, providing a potential solution for EDOC at KGH. ED LOS was reduced compared to non-PAT control days, successfully meeting the suggested national targets. PAT could improve efficiency, resulting in the ability to see more patients in the ED, and increase the quality and safety of ED practice. Next, we hope to prospectively evaluate PAT, continuing to analyze these process measures, perform a cost-benefit analysis, and formally assess ED staff and patient perceptions of the program.

Keywords: quality improvement and patient safety, physician at triage, emergency department overcrowding

P118

Pulmonary Embolism Severity Index (PESI) score as a predictor for readmission in acute pulmonary embolism in emergency department?

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Introduction: Pulmonary Embolism (PE) management in Emergency Department (ED) confers a substantial cost burden representing opportunities for improvements in decision-making. The Pulmonary Embolism Severity Index (PESI) is a validated tool to prognosticate patients with PE supporting admit versus (vs.) discharge decisions from the ED. Despite existing evidence, PESI is under-used in patients with PE. We sought to evaluate PESI scores and patient disposition from 4 EDs within Calgary to determine discordance between them and the effect of the discordance on readmission and mortality. **Methods:** Retrospective review of adult patients 18 years, diagnosed with PE between January-June 2016 at 4 EDs in Calgary Health Region. Patients were divided into high-risk PESI (score > 85) and low-risk PESI (score 0-85). Chi-Square (2) test was used for comparison between the groups. Primary outcome measure was rate of discordance between PESI risk

and disposition decision and identify factors driving the discordance. Secondary outcome measures included comparing 30-day readmission rate, 30-day and 90-day mortality between the discordant PESI groups. **Results:** 365 patients were diagnosed with PE in the study period with 60% being admitted and 40% discharged. The median PESI score in admitted patients was 85 (26-172) vs. 68 (20-163) in discharged patients. 51% of admitted patients had a low-risk PESI score and 24% of the discharged patients were high-risk PESI. 30-day readmission rate was 22.9% vs. 5.3% ($p=0.002$) in discharged patients with high-risk PESI vs. discharged patients with low-risk PESI. Hypoxemia was the most common (62%) justification for admission in low-risk PESI groups. Among discharged patients we noted an 8.6% 90-day mortality in the high-risk vs. 0% in the low-risk PESI groups. **Conclusion:** Discharging a PE patient from the ED with a high PESI score carries a significant risk of ED revisit and readmission. Hypoxia was the reason for admission in majority of low risk PE patients.

Keywords: pulmonary embolism severity index, acute pulmonary embolism

P119

Pain free laceration repairs using intra-nasal ketamine: DosINK 1- A dose escalation clinical trial

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Introduction: Laceration is common in children presenting to the emergency department (ED). They are often uncooperative related to pain and distressed during repair. Currently, there are wide variations regarding sedation and analgesia practices when sutures are required. There is a growing interest in the intranasal (IN) route for procedural sedation and pain control because of its effectiveness potential and ease of administration. Few studies have evaluated IN ketamine for procedural sedation in children with reported doses ranging from 3 to 9 mg/kg. The objective is to evaluate the optimal IN ketamine dose for effective and safe procedural sedation for laceration repair in children aged 1 to 12 years. **Methods:** A dose escalation clinical trial with an initial dose of 3 mg/kg of IN ketamine up to a maximum dose of 9 mg/kg in children 1 to 12 years old, using a 3+3 trial design. For each tested dose, 3 patients are enrolled. Escalation to the next dose is permitted if sedation is unsuccessful in at least one patient without serious adverse event (SAE). Regression to prior dose is warranted in the occurrence of two or more SEAs. This process is repeated until effective sedation for 6 patients at two consecutive doses is achieved with a maximum of 1 SAE or if regression occurs. The primary outcome is the optimal dose for successful procedural sedation as per the PERC/PECARN consensus criteria. Secondary outcome, namely, pain and anxiety levels, parent, patient and provider satisfaction, recovery time, length of stay in the ED, side effects and adverse event are recorded. **Results:** Nine patients have been recruited from March to December 2017 with median age of 2.9 years-old and with laceration length of 2 to 5 cm and with facial involvement in 55% of cases, respectively. Sedation was successful in 1/3, 1/3 and 3/3 of patients at doses of 3, 4, 5 mg/kg respectively, without any SAE. Median time from ketamine administration to return to baseline status and discharge were 35 and 98 min, respectively. We expect to complete patient recruitment in March 2018. **Conclusion:** The results from our trial is a groundwork for future dose-finding study. Pending study completion, a multicentric dose validation trial, is set up to further validate the optimal dose from dosINK1 trial. IN ketamine has the potential to improve the field of procedural sedation for children by introducing an effective IN agent

with respiratory stability but without the need for an IV line insertion not otherwise needed.

Keywords: intranasal, ketamine, procedural sedation

P120

Rapid hepatitis C virus screening and diagnostic testing for high-risk patients in an urban emergency department: a pilot project

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Introduction: Hepatitis C virus (HCV) infection represents a significant public health problem in Canada and it is estimated that nearly half of individuals with chronic hepatitis C infection are unaware of their disease status. Previous studies of urban emergency department (ED) based screening programs have shown a prevalence ranging from 7.3 to 26% in high risk patients presenting to the ED. The advent of new treatment regimens with high rates of virologic cure strengthens the case for identifying the optimal setting for screening and testing individuals who may benefit from treatment. The proposed pilot project of ED-based screening for hepatitis C virus will aim to determine the prevalence of undiagnosed HCV infection and to link patients with chronic HCV infection to appropriate specialized follow-up care. **Methods:** We will be conducting a prospective cohort study of patients presenting to an urban emergency department between March and May 2018. Patients will be screened using high risk criteria for HCV infection as per national guidelines. Eligible patients will be offered and consented for a rapid point of care antibody test. Individuals with a positive antibody screen will have confirmatory testing and be linked to hepatology follow-up. The primary outcome will be the prevalence of hepatitis C virus among tested patients. Secondary outcomes will include the proportion of high risk patients without a primary care MD or access to alternate care settings where screening may occur, as well as the proportion of HCV-positive patients who are successfully linked to care. **Results:** We expect to screen approximately 2000 participants during the study period leading to an estimated 400 rapid antibody tests. Based on published results from other centres, we estimate that a significant proportion of screened patients will test positive for chronic HCV infection ($> 10\%$). Descriptive analyses will be performed for all variables using proportions with 95% confidence intervals. **Conclusion:** To our knowledge, no emergency department in Canada has undertaken protocolized HCV screening using rapid antibody testing in the ED. Results will inform the future development of integrated ED-based screening programs in novel settings more likely to be accessed by the at-risk population. Linking patients with chronic HCV infection to appropriate care will decrease the number of individuals developing HCV-related cirrhosis and hepatocellular carcinoma, thereby improving patient outcomes and reducing the future impact on our health care system.

Keywords: screening, public health, hepatitis C virus

P121

Derivation of a clinical decision tool for predicting adverse outcomes among emergency department patients with lower gastrointestinal bleeding

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Introduction: Lower gastrointestinal bleeding (LGIB) can result in serious adverse events, including recurrent bleeding, need for intervention