

access to AEDs. However, inadequate AED training represents a significant barrier to successful defibrillation in the event of an OHCA. Our results showed that a simple focused AED training could improve the performance of school workers and optimize the chain of survival. **Keywords:** Automated external defibrillators, Out-of-hospital cardiac arrest, Resuscitation

MP56

Intraosseous versus intravenous access in pediatric out-of-hospital cardiac arrest: an examination of prehospital vascular access methods and survival rates

F. Besserer, MD, MSc, J. Dirk, BSc, G. Meckler, MD, MSHS, J. Tijssen, MD, MSc, A. DeCaen, MD, T. Kawano, MD, PhD, B. Grunau, MD, MHSc, University of British Columbia, Prince George, BC

Introduction: Intraosseous (IO) and intravenous (IV) access to the vascular system for the delivery of fluid and medication is a component of advanced pediatric resuscitation. Data describing the use of IV or IO vascular access methods and outcomes of pediatric out-of-hospital cardiac arrest (OHCA) are limited. **Methods:** We analyzed prospectively collected data of non-traumatic OHCA of the Resuscitation Outcomes Consortium registry in Canada and the USA (2011-2015). We included patients 17 years of age and younger who were treated by emergency medical services (EMS). We described the vascular access routes utilized, and the success rate of these attempts. We performed a logistic regression model, to evaluate the association of vascular access route and survival, adjusting for age, sex, shockable initial rhythm, witnessed status, public location, EMS arrival interval and time from 911 call to vascular access. In this model, we excluded patients with failed, multiple site or no vascular access attempts during the resuscitation. **Results:** Of 1549 non-traumatic pediatric OHCA, 822/895 (92%) and 345/488 (71%) had successful IO and IV vascular access attempts, respectively. IO access was more common in younger cases. Of 761 cases included in the regression model, 30/601 (5%) of IO-treated cases survived to hospital discharge, in comparison to 40/160 (25%) of IV-treated cases. Intraosseous access was associated with a decreased survival to hospital discharge (adjusted OR 0.46; 95% CI 0.21 to 0.98). **Conclusion:** In pediatric patients with OHCA, intraosseous vascular access was more commonly successful than IV placement and more common among younger cases. However, in cases with successful vascular access, IO use was associated with lower survival to hospital discharge. **Keywords:** intravascular access, out-of-hospital cardiac arrest, pediatrics

MP57

Effect of grip strength measured in the emergency department on the risk of functional decline following a minor trauma in robust elderly: a pan-Canadian study

S. Hegg, PhD, M. Sirois, PhD, P. Carmichael, MSc, J. Perry, MD, MSc, J. Lee, MD, MSc, R. Daoust, MD, MSc, E. Lang, MD, MSc, M. Emond, MD, MSc, Laval, Quebec, QC

Introduction: The elderly (65 yo and more) increase in Canada is well documented along with a disproportionate use of Emergency Departments after a minor injury. These patients requires specific care given a 16% risk of functional decline following a visit to ED. To prevent functional decline, a multidimensional assessment of the elderly is recommended in the emergency department. Objective: To determine if ED grip strength can predict functional decline at

3 or 6 months post-injury. **Methods:** A multicentre prospective study in 5 ED across Canada was realized between 2013 and 2016. Patients 65 years old and over, autonomous in daily living activities and consulting the emergency department for minor trauma were recruited 7 days a week. Clinical-demographic data, functional status, fear of falling, number of falls in the last month, grip strength measurement were collected in the ED. Functional decline (loss of at least points to functional status) was calculated at 3 and 6 months. Descriptive statistics and linear regression model with repeated measurements were used to determine if the grip strength was predictive of functional decline at 3 or 6 months. **Results:** 387 patient were recruited. Mean age was 74 ± 7 years old, 52% were male. XXX experienced a fall in the last month. The initial maximum grip strength was (24 ± 10 intervention vs. 28 ± 13 control; $p \leq 0.05$). grip strength is associated with pre-injury functional status ($p < 0.0001$) and fear of falling ($p = 0.0001$) but does not predict 3 or 6 month functional decline. **Conclusion:** Given the strong association with fear of falling and functional status at initial ED evaluation, we recommend that grip strength measurement could be included in a multidisciplinary geriatric emergency department assessment as needed.

Keywords: elderly, functional decline, grip strength

MP58

Have opioid prescription by emergency physicians changed significantly over five years?

M. Wei, MD, M. Da Silva, MD, J. Perry, MD, MSc, University of Ottawa, Ottawa, ON

Introduction: It is believed by some that emergency physicians prescribe more opioids than required to manage patients' pain, and this may contribute to opioid misuse. The objective of our study was to assess if there has been a change in opioid prescribing practices by emergency physicians over time for undifferentiated abdominal pain. **Methods:** A medical record review for adult patients presenting at two urban academic tertiary care emergency departments was conducted for two distinct time periods; the years of 2012 and 2017. The first 500 patients within each time period with a discharge diagnosis of "abdominal pain" or "abdominal pain not yet diagnosed" were included. Data were collected regarding analgesia received in the emergency department and opioid prescriptions written. Opioids were standardized into morphine equivalent doses to compare quantities of opioids prescribed. Analyses included t-test for continuous and chi-square for categorical data. **Results:** 1,000 patients were included in our study. The mean age was 42.0 years and 69.6% of patients were female. Comparing 2017 to 2012, there was a non-significant decrease in opioid prescriptions written for patients discharged directly by emergency physicians, from 17.8% to 14.4% ($p = 0.14$). Mean opioid quantities per prescription decreased from 130.4 milligrams of morphine equivalents per prescription to 98.9 milligrams per prescription ($p = 0.002$). 13.9% of opioid prescriptions in 2017 were for more than 3 days, which is a decrease from 28.1% in 2012. During the emergency department care, there was an increase in foundational analgesia use prior to initiating opioids from 17.6% to 26.8% ($p = 0.001$). There was also a decrease for within ED opioid analgesia use from 40.0% to 32.8% ($p = 0.018$). **Conclusion:** Opioid prescription rates did not change significantly during our study. However, physicians reduced the quantity of opioids per prescription and used less opioid analgesia in the emergency department for abdominal pain of undetermined etiology.

Keywords: analgesia, opioids

MP59

Exploring adverse events in boarded psychiatric patients in Calgary zone adult emergency departments

D. Major, BSc, S. VandenBerg, MD, MSc, University of Calgary, Calgary, AB

Introduction: Adult Emergency Departments (EDs) in Calgary are facing a crisis of boarded patients admitted to psychiatric in-patient units. In psychiatric emergency care, “boarding” describes the holding of patients in the ED after the decision to admit has been made by a staff psychiatrist and a bed request has been submitted. Literature review suggests psychiatric patients face exorbitantly higher boarding times than any other service in the hospital however little is published on the nature of these adverse events. Examples of adverse patient events from a psychiatric perspective could include: the need to initiate mechanical and/or chemical restraints after admission and while still in the ED, attempts to self-harm, and verbal and physical assault on ED staff. **Methods:** This study quantifies the incidence of adverse events experienced by psychiatric patients while boarded in the ED. It uses a retrospective chart review of all adult psychiatric patients, age 18 - 55yo, who presented to one of four adult EDs and who were admitted to a psychiatric in-patient unit in the Calgary Zone between January 1, 2019 and May 15, 2019. A randomly generated convenience sample identified 200 patients, 50 from each site, for in-depth review. **Results:** During the study time period, 1862 adult patients were admitted from emergency departments to the psychiatry service across all four sites. Of the 200 charts reviewed, patients ranged in age from 26-41 (average 34). 52.5% were male with the majority being admitted to a non-high observation bed. The average boarding time was 23.5 hours with an average total ED length of stay of 31 hours for all comers. Those who experienced an adverse event while boarded in the ED experienced a significantly prolonged average boarding time (35 hours) compared to those who did not experience an adverse event (6.5 hours) ($p = 0.005$). Significant adverse events were associated with the specific hospital site and the type of admission bed needed (high observation versus normal versus short stay) ($p < 0.05$). **Conclusion:** Psychiatric patients boarded in Calgary EDs experience a number of significant adverse events. The importance of understanding the reality of the conditions that psychiatric ED patients face while waiting for in-patient placement cannot be overstated. This study is important to emergency medicine as it will allow for deeper understanding of the patient experience while in the ED and identifies areas that may require further advocacy amongst ED staff and our psychiatry colleagues.

Keywords: adverse event, boarding, psychiatric emergency

MP60

Application of routinely collected administrative data to track demographic and mental health characteristics of people experiencing homelessness

I. Burcul, BSc, J. Dai, BSc, Z. Ma, BHSc, S. Jamani, R. Hossain, MD, S. Strobel, MD, MA, University of Toronto, Toronto, ON

Introduction: People experiencing homelessness have complex psychiatric and medical presentations, and have poor access to primary care. Thus, emergency departments (EDs) often become their main point of healthcare contact. Using routinely collected administrative data from EDs, we examine the ED utilization, health and reasons for presentations of people experiencing homelessness. **Methods:** All routinely collected administrative health data from EDs located within Ontario, Canada from 2010-2017 were analyzed. Individuals

experiencing homelessness were identified by a marker that was adopted in 2009 replacing their recorded postal code with an XX designation. Outcomes include number of unique patients, number of visits and repeat visits, CTAS scores, ambulance utilization, and type of ICD-10 presentation. **Results:** 640,897 visits to the ED over 10 years were made by 39,525 unique individuals experiencing homelessness. A visit to an ED by a homeless patient resulted in repeat presentation on the same day 5% of the time. The median repeat presentation to an ED was 14 days. In people experiencing homelessness, the most prevalent category of presentations were primary mental health diagnoses, accounting for 34.8% of visits ($n = 223,392$). Under mental health conditions, psychoactive substance use presentations made up more than 54% of the presentations ($n = 121,112$). Alcohol was by far the most common cause of substance use/induced disorders ($n = 84,805$). **Conclusion:** Applications of administrative data presents a novel method of measuring health and healthcare outcomes for marginalized populations. We found people experiencing homelessness are presenting to ED more frequently in Ontario, with significant mental health and addiction problems. Our study identifies several important health vulnerabilities within the population, which may serve as potential targets for future interventions.

Keywords: data, health characteristics, homelessness

Poster Presentations

P001

Proof-of-principle in a large animal pilot: cardiac arrest may be associated with acute, transient coagulopathy that may drive post-cardiac arrest syndrome

C. Yeh, MD, PhD, B. Camilotti, MD, H. Hanif, MLT, R. Mohindra, MDCM, MASc, C. Sun, P. Kim, MSc, PhD, S. Lin, MD, MSc, M. Sholzberg, MDCM, MSc, University of Toronto, Toronto, ON

Introduction: Many cardiac arrest survivors die later due to hemorrhage or thromboembolism, thought to be caused by acquired coagulopathy in post-cardiac arrest syndrome (PCAS) from shock and reperfusion injury. Understanding PCAS is a priority identified by the AHA for the prevention of complications in cardiac arrest survivors. Shock dysregulates both coagulation and fibrinolysis. The key effector enzyme thrombin (Th), is responsible for both up- and down-regulating coagulation and fibrinolysis. Measuring early Th activity may allow for predicting PCAS coagulopathy, and early medical intervention in the ED. Therefore, we aimed to characterize the time-course profile of early coagulation using an established pig model of cardiac arrest. **Methods:** Yorkshire pigs were anaesthetised and intubated, had VF-arrest induced by pacing, and were resuscitated per ACLS. Rotational thromboelastometry (ROTEM) was performed on whole blood at four times: baseline, intra-arrest, post-arrest, and death, using the fibrin-based test with tissue factor to initiate clotting in the presence of a platelet inhibitor cytochalasin D (FIBTEM). Clot time (CT), clot formation time (CFT), alpha-angle during clot formation (Alpha), clot amplitude at 10 min (A10), maximum clot firmness (MCF), and maximum lysis as total percentage (ML%) were quantified. The primary outcome is the overall coagulation initiation measured by CFT, while secondary outcomes include ROTEM parameters reflecting Th activity. Parameters are compared over time in SPSS using repeated measures ANOVA and Bonferroni correction. **Results:** Pilot data from one experiment show that cardiac arrest causes immediate early changes to coagulation that subsequently normalized with ROSC (Figure 1). CFT was impaired immediately