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

https://doi.org/10.1017/cem.2020.209 Published online by Cambridge University Press

upon cardiac arrest (2.3-fold increase), normalized with ROSC, and impaired again at death when compared with baseline. Consistent with clotting impairment, A10, Alpha, and MCF were all reduced with cardiac arrest, normalized with ROSC, and impaired again at death. **Conclusion:** Higher initial indices of coagulopathy in patients with cardiac arrest appear to correlate with death and thromboembolism. In this pilot, CFT is acutely modified by cardiac arrest. Since CFT is affected by overall Th activity, early Th dysregulation may be a critical driver of coagulopathy. Th may therefore be a lead target that is modifiable in the emergency post-arrest setting to decrease morbidity and mortality from PCAS in cardiac arrest survivors.

Keywords: cardiac arrest, coagulopathy, thrombin

P002

Minimum archiving requirements for emergency medicine point-of-care ultrasound: a modified Delphi-derived national consensus

M. Wong, MD, M. Woo, MD, W. Cheung, MD, MMed, P. Pageau, MD, P. Olszynski, MD, MEd, D. Lewis, MBBS, University of Ottawa, Department of Emergency Medicine, Ottawa, ON

Introduction: Point-of-care ultrasound (POCUS) has become standard practice in emergency departments ranging from remote rural hospitals to well-resourced academic centres. To facilitate quality assurance, the Canadian Association of Emergency Physicians (CAEP) recommends image archiving. Due in part to poor infrastructure and lack of a national standard, however, archiving remains uncommon. Our objective was to establish a minimum standard archiving protocol for the core emergency department POCUS indications. **Methods:** Itemization of potential archiving standards was created through an extensive literature review. An online, three-round, modified Delphi survey was conducted with the thirteen POCUS experts on the national CAEP Emergency Ultrasound Committee tasked with representing diverse practice locations and experiences. Participants were surveyed to determine the images or clips, measurements, mode, and number of views that should comprise the minimum standard for archiving. Consensus was pre-defined as 80%. **Results:** All thirteen experts participated fully in the three rounds. In establishing minimum image archiving standards for emergency department POCUS, complete consensus was achieved for first trimester pregnancy, hydronephrosis, cardiac activity versus standstill, lower extremity deep venous thrombosis, and ultrasound-guided central line placement. Consensus was achieved for the majority of statements regarding abdominal aortic aneurysm, extended focused assessment with sonography in trauma, pericardial effusion, left and right ventricular function, thoracic B-line assessment, cholelithiasis and cholecystitis scans. In total, consensus was reached for 58 of 69 statements (84.1%). This included agreement on 41 of 43 statements (95.3%) describing mandatory images for archiving in the above indications. **Conclusion:** Our modified Delphi-derived consensus represents the first national standard archiving requirements for emergency department POCUS. Depending on the clinical context, additional images may be required beyond this minimum standard to support a diagnosis.

Keywords: archiving, delphi, point-of-care ultrasound

P003

Productivity patterns in early-career physicians: a multi-center analysis of administrative emergency department operations data

C. Wong, MD, S. Lu, D. Wang, MSc, S. Dowling, MD, E. Lang, MD, University of Calgary, Calgary, AB

Introduction: Physician metrics extracted from an electronic medical records (EMR) system can be utilized for practice improvement. One key metric analyzed at many emergency departments (EDs) is 'patients per hour' (pts/hr), a proxy for physician productivity. It is often believed that early-career physicians experience rapid growth in efficiency as they acclimatize to a hospital system and develop clinical confidence. This is the first study to evaluate the following question: Do early-career ED physicians increase their productivity when beginning practice? **Methods:** We performed a retrospective review of EMR data of early-career ED physicians working at one or more urban, academic centers. Early-career physicians must have started practice within three months of residency completion, and were identified by privileging records and provincial medical college registration. Physicians were excluded if they did not have at least 36 months of continuous data. Monthly productivity data (pts/hr) was extracted for each physician for their first 36-months of practice. A 'performance curve' or graph with a trendline of productivity as a moving average was created for each physician. Each performance curve was visually evaluated by two independent reviewers to qualitatively identify the general trend as upward, downward, or stable, with disagreements resolved by conference. Each physician's first and third year average productivity was compared quantitatively as well, with a significant upward or downward trend defined as a difference of at least 0.2 pts/hr. **Results:** A total of 41 physicians met the inclusion and exclusion criteria. Overall monthly pts/hr averages ranged from 1.08 to 7.65. Upon visual inspection, six (14.6%) physicians had upward trends, five (12.2%) had downward trends, and 30 (73.2%) had no discernable pattern. The quantitative analysis comparing first year to third year productivity matched the qualitative inspection exactly, with the same six physicians showing increased productivity, five with decreased, and 30 without significant change. Notably, the majority (30/41) of physicians demonstrated radical productivity variations over short periods with no discernable long-term trends. **Conclusion:** The majority of early career physicians do not demonstrate sustained early-career productivity changes. Of those that do, an approximately equal number will become faster and slower.

Keywords: efficiency, metrics, productivity

P004

The impact of transfusion guideline on emergency physician transfusion orders

C. Williams, BSc, S. Campbell, MBChB, MD, I. Sadek, MD, C. Cheng, MD, PhD, C. LeBlanc, MD, MEd, Dalhousie University, Halifax, NS

Introduction: Blood transfusions continue to be a critical intervention in patients presenting to emergency departments (ED). Improved understanding of the adverse events associated with transfusions has led to new research to inform and delineate transfusion guidelines. The Nova Scotia Guideline for Blood Component Utilization in Adults and Pediatrics was implemented in June 2017 to reflect current best practice in transfusion medicine. The guideline includes a lowering of the hemoglobin threshold from 80 g/L to 70 g/L for transfusion initiation, to be used in conjunction with the patient's hemodynamic assessment before and after transfusions. Our study aims to augment understanding of transfusion guideline adherence and ED physician transfusing practices at the Halifax Infirmary Emergency Department in Nova Scotia. **Methods:** A retrospective chart review was conducted on one third of all ED visits involving red-cell transfusions for one year prior to and one year following the guideline implementation.

https://doi.org/10.1017/cem.2020.209 Published online by Cambridge University Press