

to local settings may involve modifying the recommended clinical actions based on local resources and feasibility.

Keywords: knowledge translation, risk-stratification, syncope

MP08

Using administrative data to explore emergency department management of patients presenting with acute atrial fibrillation/flutter: Is Shock-First a more effective strategy than Drug-Shock?

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Introduction: Atrial fibrillation and flutter (AFF) are the most common arrhythmias managed in the emergency department (ED). Equipoise in cardioversion strategies for patients with recent onset AFF contributes to observed practice variation. Using administrative data, the objective of this study was to explore the pattern of practice and the comparative effectiveness (outcomes and costs) between Shock-First and Drug-Shock approaches in AFF. **Methods:** Adult patients >17 years of age with AFF from one academic Canadian hospital ED were eligible. Using administrative data linkage among the National Ambulatory Care Record System, provincial practitioner claims data repository and a local hospital pharmacy database, patients who received treatment with procainamide and/or electrical cardioversion for AFF were identified. Outcomes including disposition, length of stay, revisit within 72 hours and 30-days, and ED costs were analyzed over a seven-year period. Categorical variables are reported as percentages. Continuous variables are reported as median and interquartile range (IQR). Univariate and multivariate logistic regression analyses were completed and reported as odds ratios (OR) and 95% confidence intervals (CI). **Results:** Overall, 5,372 patients were identified with AFF; the median age was 70 years and 55% were male. The majority of patients had chronic or secondary AFF; however, in 1687 (31%) cardioversion options were employed for presumed recent onset AFF. A Shock-First strategy was most common (1379 {82%}); 308 (18%) received a Drug-Shock approach. Discharge time was 33 minutes (95% CI: 4-63) longer in the Drug-Shock approach compared to the Shock-First approach. Hospital admissions were higher (OR = 2.33; 95% CI: 1.68, 3.24) and revisits within 30-days were lower (OR = 0.74; 95% CI: 0.54, 0.95) in the Drug-Shock group. The Shock-First strategy demonstrated marginally higher costs (median = \$106 CND; 95% CI: \$68.89, \$144.40) in adjusted analyses. **Conclusion:** In patients with acute AFF, when cardioversion was attempted, a Shock-First strategy was employed 80% of the time and resulted in shorter ED length of stay and lower hospitalization; however, higher costs and ED revisits within 30-days were observed. Many factors, including physician and/or patient preferences, influence ED decision-making in patients with AFF and understanding the factors influencing these decisions requires further attention.

Keywords: atrial fibrillation, cardioversion, decision-making

MP09

Predictors of return acute asthma visits among patients receiving guideline recommended discharge management in the emergency department

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Introduction: Despite improvements in the recognition of asthma among the pediatric population and the use of preventative therapies,

rates of emergency department (ED) visits and hospitalizations remain high, leading one to question how these acute health care visits for asthma can be further avoided. In this study, we aimed to identify predictors of future repeat acute care visits among children and adolescents who had already received 'best practice' discharge treatments and instructions during their first asthma ED visit. **Methods:** We performed a retrospective single center cohort study of all children ages 1-17 years presenting to the ED at the Children's Hospital of Eastern Ontario in Ottawa, Canada for an acute asthma exacerbation during a 1-year time frame between September 1, 2014 – August 31, 2015. Only children with no prior ED asthma visit and documentation of receipt of a prescription for inhaled corticosteroids and/or a written asthma action plan were included. Multivariable logistic regression was performed to identify predictors of repeat future asthma ED visit or hospitalization in the year following the first ED visit. **Results:** We identified 909 children with an eligible ED visit during the study period, of whom 24% had a repeat asthma ED visit or hospitalization within the subsequent 1 year. Predictors of repeat acute asthma visits included having a nut allergy (OR 1.76, 95% CI: 1.15, 2.70), higher severity symptoms at triage (OR 2.04, 95% CI: 1.23, 3.39), a primary care physician (OR 2.23, 95% CI: 1.26, 3.93), or a prior history of asthma (OR 1.53, 95% CI: 1.03, 2.28). **Conclusion:** In children and adolescents with repeat asthma ED visits and hospitalizations despite having received 'best practice' asthma discharge management at their first ED visit, factors such as having an allergy to nuts, higher severity symptoms at presentation, a prior history of asthma, and having a primary care provider may be used to identify these more high-risk children and adolescents. Such parameters can be used practically to target and apply more intensive preventative interventions to those most in need at the first ED visit, in order to prevent future return visits.

Keywords: asthma, childhood, emergency department

MP10

Does arrival pain severity predict stone characteristics or short-term outcomes in emergency department patients with acute renal colic?

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Introduction: Renal colic is among the most painful conditions that patients experience. The main outcome determinants for patients with renal colic are stone size, location and hydronephrosis; however, little is known about the association of pain with these parameters. Our objective was to determine whether more severe pain is associated with larger stones, more proximal stones or more severe hydronephrosis, findings that might suggest the need for advanced imaging, hospitalization or early intervention. **Methods:** We used administrative data and structured chart review to study all adult emergency department (ED) patients in two cities with a renal colic diagnosis over one-year. Patients with missing imaging results or pain scores were excluded. Triage nurses recorded numeric rating scale (NRS) pain scores on arrival. We stratified patients into mild (NRS <4), moderate (NRS 4-7) and severe (NRS 8-10) pain groups, as per CTAS guidelines. Stone size (mm) and location (proximal, middle, distal ureter, or renal) were abstracted from imaging reports, while index admissions were determined from hospital discharge abstracts. We used multivariable linear regression to determine the association of arrival pain with stone characteristics and hydronephrosis severity (primary outcome), and we used multivariable logistic regression to

determine the association of pain with index hospitalization (secondary outcome). We also performed a stratified analysis looking at ureteral vs. kidney (intrarenal) stones. **Results:** We studied 1053 patients, 66% male, with a mean age of 48 years. After controlling for patient and disease characteristics, we found no significant association between pain severity and stone size ($b = -0.0004$; 95%CI = $-0.0015, 0.0008$) or stone location ($b = 0.0045$; 95%CI: $-0.020, 0.029$). Nor did we find an association between pain and hydronephrosis severity ($b = 0.016$; 95%CI: $-0.053, 0.022$, $p = 0.418$). Stratified analyses using a Bonferroni correction for multiple comparisons revealed the same absence of associations in the kidney and ureteral stone subgroups. Arrival pain did not predict index admission (OR = 0.82, 95% CI: 0.59, 1.16). **Conclusion:** Arrival pain scores are not associated with stone size, stone location or hydronephrosis severity, and do not predict index visit hospitalization in ED patients with renal colic. Severe pain should motivate efforts to minimize treatment delays, but do not suggest the need to modify advanced imaging or admission decisions.

Keywords: pain, renal colic, stone

MP11

Emergency physician attitudes on opioid use disorder and barriers to providing buprenorphine/naloxone

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Introduction: Buprenorphine/naloxone (buprenorphine) has proven to be a life-saving intervention amidst the ongoing opioid epidemic in Canada. Research has shown benefits to initiating buprenorphine from the emergency department (ED) including improved treatment retention, systemic health care savings and fewer drug-related visits to the ED. Despite this, there has been little to no uptake of this evidence-based practice in our department. This qualitative study aimed to determine the local barriers and potential solutions to initiating buprenorphine in the ED and gain an understanding of physician attitudes and behaviours regarding harm reduction care and opioid use disorder management. **Methods:** ED physicians at a mid-size Atlantic hospital were recruited by convenience sampling to participate in semi-structured privately conducted interviews. Audio recordings were transcribed verbatim and de-identified transcripts were uploaded to NVivo 12 plus for concept driven and inductive coding and a hierarchy of open, axial and selective coding was employed. Transcripts were independently reviewed by a local qualitative research expert and themes were compared for similarity to limit bias. Interview saturation was reached after 7 interviews. **Results:** Emergent themes included a narrow scope of harm reduction care that primarily focused on abstinence-based therapies and a multitude of biases including feelings of deception, fear of diversion, feeling buprenorphine induction was too time consuming for the ED and differentiating patients with opioid use disorder from 'medically ill' patients. Several barriers and proposed solutions to initiating buprenorphine from the ED were elicited including lack of training and need for formal education, poor familiarity with buprenorphine, the need for an algorithm and community bridge program and formal supports such as an addictions consult team for the ED. **Conclusion:** This study elicited several opportunities for improved care for patients with addictions presenting to our ED. Future education will focus on harm reduction care, specifically strategies for managing patients desiring to continue to use substances. Education will focus on addressing the multitude of biases elicited and dispelling common myths. A

locally informed buprenorphine pathway will be developed. In future, this study may be used to advocate for improved formal supports for our department including an addictions consult team.

Keywords: buprenorphine, harm reduction, opioid use disorder

MP12

Abdominal ultrasound image acquisition and interpretation by novice practitioners after minimal training on a simulated patient model

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Introduction: The FAST exam – Focused Assessment with Sonography in Trauma – is a rapid test using ultrasound to identify sonographic evidence of hemorrhage within the abdomen. In the prehospital setting, the information from a FAST examination can help triage patients, direct patients to the most appropriate facilities, assist with management strategies and potentially expedite time to definitive intervention. Few studies examine the accuracy of paramedic-only-performed FAST examinations. However, despite the potential benefits to the Canadian prehospital system, a potential barrier to implementation is the tremendous financial and operational burden if paramedics require prolonged ultrasound training courses. In this study, we conducted a double-blinded observational study comparing the accuracy of paramedic-performed FAST versus physician-performed tests on a sonographic Phantom, after a one-hour didactic training session. **Methods:** The interpretation of paramedic performed FAST exams was compared to the interpretation of physician performed FAST examinations on a mannequin model. The mannequin utilized in this study was a realistic model of a human torso where fluid could be injected into the abdomen to create a realistic ultrasound image of abdominal free fluid. Participants were required to scan the mannequin twice, once with 300 mL of fluid instilled and once with the abdomen free of fluid. Participants were blinded to the status of hemoperitoneum. The primary outcome of the study was accuracy rate of FAST examination by paramedics compared to emergency room physicians. Results were compared using the Chi-square test. Differences in accuracy rate were deemed significant if $p < 0.05$. Total scan time was reported using means, standard deviations and 95% CIs and was compared between groups using standard t-test. **Results:** Fourteen critical care flight paramedics and four emergency physicians were voluntarily recruited. The critical care paramedics were ultrasound-naïve whereas the emergency physicians had ultrasound training. The correct interpretation of FAST scans was comparable between the two groups 85.6% and 87.5% ($\Delta 1.79$ 95%CI -33.85 to 21.82 , $p = 0.90$) for paramedics and emergency physicians respectively. Total scan time differed between groups but did not reach statistical significance. Paramedics took longer to complete the FAST examination with a mean (SD) time to complete the two scans of 10.35 (3.43) minutes compared to 7.34 (2.74) minutes for physicians, ($\Delta 3.01$ minutes 95%CI -0.97 to 7.00 , $p = 0.13$). **Conclusion:** This study determined that critical care paramedics were able use ultrasound to detect free fluid on a simulated mannequin model and interpret the FAST exam with a similar accuracy as experienced emergency physicians following a one hour training course. This suggests the potential use of ultrasound in prehospital programs to determine the most appropriate transport destination and aid in the triage of trauma patients while limiting the financial and logistical burden of ultrasound training.