

stakeholder feedback. We educated physician and nursing teams about the order sets, although use was ultimately at physician discretion. We implemented the order set on April 9, 2017. After three months, an electronic retrospective chart review identified patients with a final sepsis diagnosis admitted to the critical care unit. For each patient, we captured triage time using the electronic record, and time to antibiotics from when the antibiotic was taken out of the medication cart. Finally, utilization of order sets was checked via manual chart audit. **Evaluation/Results:** A run chart did not demonstrate any shifts or trends suggesting a change after implementation. Median time to antibiotics in minutes, 3 months prior ( $n = 45$ ) and post ( $n = 55$ ) intervention, increased from 245 to 340 minutes, although the range was very large. Chart audits demonstrated clinicians were not using the order sets. There was 10% usage for 2 of the months and 0% usage the other month, post-intervention. **Discussion/Impact:** There was insufficient uptake of the Sepsis Order Set by the Sunnybrook ED to result in any impact on time to antibiotics. Order sets require more than just implementation to be effective. Difficulties in implementation were due to the document not being readily available to physicians. To mediate, we have organized nursing staff to attach the order set onto charts based on triage assessment and will re-assess with another PDSA cycle after this intervention.

**Keywords:** order sets, quality improvement and patient safety, sepsis

## Moderated Poster Presentations

### MP01

**Retention and treatment outcomes for patients with substance use disorders treated in a rapid access to addiction medicine clinic**

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**Introduction:** Substance use is prevalent in Canada yet treatment for alcohol use disorder (AUD) and opioid use disorder (OUD) is often inaccessible. Consequently, alcohol and opioid-related diagnoses such as intoxication, withdrawal, and overdose are a major reason for frequent emergency department (ED) visits. The Rapid Access to Addiction Medicine (RAAM) Clinic opened at the University Health Network (UHN) in January 2018 as part of a larger network of clinics in Toronto, and provides rapid, low barrier access to medical treatment for substance use disorder (SUD). Patients attended via self-referral, peer-referral, or referral by the ED, primary care, internal medicine or withdrawal management services. This study describes the demographic profile and short-term outcomes for patients attending a new RAAM clinic in its first 26 weeks of operation, including substance use and treatment retention for AUD and OUD. **Methods:** We reviewed the electronic medical record at the clinic over its first 26 weeks of operation. We assessed SUD diagnoses, referral source, prescribed medications, self-reported outcomes and retention rates. We calculated descriptive statistics using proportions for categorical variables and means with standard error for continuous variables. A student's t-test was used for all statistical analyses using Microsoft Excel. We reviewed the electronic medical record at the clinic over its first 26 weeks of operation. We assessed SUD diagnoses, referral source, prescribed medications, self-reported outcomes and retention rates. We calculated descriptive statistics using proportions for categorical variables and means with standard error for continuous variables. A student's t-test was used for all statistical analyses using Microsoft Excel. **Results:** The clinic saw 64 unique patients: 66% had an AUD, 39%

had an OUD and 20% had a stimulant use disorder. 55% of patients were referred from outpatient care providers, 30% from the emergency department and 11% from withdrawal management services. 42% remained ongoing patients, 23% were discharged to other care and 34% were lost to follow-up. Gabapentin (38%), naltrexone (33%), and acamprosate (20%) were most frequently prescribed for AUD. Patients with AUD reported a significant decrease ( $p < 0.05$ ) in alcohol consumption at their most recent visit compared to their initial visit. Most patients (78%) with OUD were prescribed buprenorphine, and most (89%) patients with OUD on buprenorphine had a negative urine screen at their most recent visit. **Conclusion:** A new RAAM outpatient clinic demonstrates the early success of a low-barrier addictions model in addressing unmet needs in substance use treatment. We see a reduction in both alcohol consumption and opioid use, and increased access to evidence-based pharmacotherapy for SUDs.

**Keywords:** addiction, low-barrier, outpatient

### MP02

**Diagnostic, medical, and surgical interventions that reduce emergency hospital admissions: a systematic review of systematic reviews of 215 randomized controlled trials**

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**Introduction:** Emergency hospital admissions are a growing concern for patients and health systems, globally. The objective of this study was to systematically review the evidence for diagnostic, medical, and surgical interventions that reduce emergency hospital admissions. **Methods:** We conducted a systematic review of systematic reviews by searching MEDLINE, PubMed, the Cochrane Database of Systematic Reviews, Google Scholar, and grey literature. Systematic reviews of any diagnostic, surgical, or medical interventions examining the effect on emergency hospital admissions among adults were included. The quality of reviews was assessed using AMSTAR and the quality of evidence was assessed using GRADE. The subsequent analysis was restricted to interventions with moderate or high-quality evidence only. **Results:** 13 051 titles and abstracts and 1 791 full-text articles were screened from which 42 systematic reviews were included. The reviews included an underlying evidence base of 215 randomized controlled trials with 135 282 patients. Of 20 unique diagnostic, medical, and surgical interventions identified, four had moderate ( $n = 4$ ) or high ( $n = 0$ ) quality evidence for significant reductions in hospital admissions in five patient populations. These were: cardiac resynchronization therapy for heart failure and atrial fibrillation, percutaneous aspiration for pneumothorax, early/routine coronary angiography for acute coronary syndrome (alone or comorbid with chronic kidney disease), and natriuretic peptide guided therapy for heart failure. **Conclusion:** We identified four interventions across five populations that when optimized, may lead to reductions in emergency hospital admissions. These findings can therefore help guide the development of quality indicators, standards, or practice guidelines.

**Keywords:** emergency hospital admissions, systematic review

### MP03

**Strategies to minimize impact of electronic health record implementation on emergency department flow**

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**Introduction:** Electronic health record (EHR) implementation can be associated with a slowdown in performance and delayed return to pre go-live productivity. The objective of this study is to describe the impact of a go-live strategy including diversion, public advertising of the go-live, and extra physician staffing to mitigate productivity loss. **Methods:** Lions Gate Hospital (LGH), an urban community hospital and rural referral centre with 250 beds and 65,000 annual ED visits went live with Cerner HER (Cerner Corporation, Kansas, MO) on April 28, 2018. The implementation included complete electronic ordering and electronic physician documentation. We compared patients seen per hour, time to physician (TTMD), ED length of stay (EDLOS), patients per hour left without being seen (LWBS), and admission rate (AR) for the 6 weeks prior to implementation (Pre), 2 weeks during (Imp), and 6 weeks after (Post) for LGH and a control hospital (Richmond Hospital – comparable in size/acuity) for the same periods. Medians were compared using the Mann-Whitney test for patients/hour, EDLOS and TTMD, and chi-square for AR and LWBS. **Results:** Patients/hour seen went from 2.1/hour in the pre phase, but dropped to 1.7/hr in the 2 week period following implementation ( $P < 0.05$ ). During weeks 2-8 post implementation, 2,3 patients per hour were seen ( $P = 0.38$  compared to Pre phase). At the control hospital, patients per hour were comparable across all time periods ( $P_s > 0.3$ ). Median time to physician was 54, 56, and 54 minutes at LGH for the Pre, Imp, and Post time periods ( $P_s > 0.3$ ). Median EDLOS was 184, 196, and 184 minutes in the pre, Imp, and post phases ( $P$  Imp versus pre = 0.11; Pre versus post = 0.54). LWBS rate was 1.3%, 2.9, and 2.4% ( $P_s$  for Imp and Post versus pre  $< 0.05$ ) at LGH, but the pattern was similar for the control hospital (2.9%, 4.1% and 4.0%  $P_s < 0.05$ ). There was no significant change in ambulance arrivals or admission rate at either hospital ( $P_s > 0.2$ ). **Conclusion:** A deliberate implementation strategy that focuses on ED physician upstaffing and visit diversion can smooth the impact of the implementation of an EHR so that patient care is not impacted significantly. Return to normal productivity occurred by 8 weeks post go-live. We demonstrate a strategy that may support easier implementation at other sites.

**Keywords:** physician productivity, electronic health record, patient volumes

#### MP04

##### **rEDirect: safety and compliance of an emergency department diversion protocol for mental health and addictions patients**

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**Introduction:** Transportation of patients better served at an alternative destinations (diversion) is part of a proposed solution to emergency department (ED) overcrowding. We evaluated the pilot implementation of the “Mental Health and Addiction Triage and Transport Protocol”. This is the first Canadian diversion protocol that allows paramedics to transport intoxicated or mental health patients to an alternative facility, bypassing the ED. Our aim was to implement a safe diversion protocol to allow patients to access more appropriate service without transportation to the emergency department. **Methods:** A retrospective analysis was conducted on patients presenting to EMS with intoxication or psychiatric issues. Study outcomes were protocol compliance, determined through missed protocol opportunities, noncompliance, and protocol failure (presentation to ED within 48 hours of appropriate diversion); and protocol safety, determined through patient morbidity (hospital admission

within 48 hours of diversion) and mortality. Data was abstracted from EMS reports, hospital records, and discharge forms from alternative facilities. Data was analyzed qualitatively and quantitatively. **Results:** From June 1st, 2015 to May 31st, 2016 Greater Sudbury Paramedic Services responded to 1376 calls for mental health or intoxicated patients. 241 (17.5%) met diversion criteria, 158 (12.9%) patients were diverted and 83 (4.6%) met diversion criteria but were transported to the ED. Of the diverted patients 9 (5.6%) represented to the ED <48rs later and were admitted. Of the 158 diversions, 113 (72%) were transported to Withdrawal Management Services (WMS) and 45 (28%) were taken to Crisis Intervention (CI). There was protocol noncompliance in 77 cases, 69 (89.6%) were due to incomplete recording of vital signs; 6 (10.3%) were direct protocol violations of being transferred with vital signs outside the acceptable range. **Conclusion:** The Mental Health and Addiction Triage and Transport Protocol has the potential to safely divert 1 in 6 mental health or addiction patients to an alternative facility.

**Keywords:** emergency medical service, mental health, quality improvement and patient safety

#### MP05

##### **Diagnostic accuracy of point of care ultrasound in undifferentiated hypotension presenting to the emergency department: a systematic review**

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**Introduction:** Undifferentiated hypotension remains one of the most life-threatening presentations to emergency departments (ED) around the world. An accurate and rapid initial assessment is essential, as shock carries a high mortality with multiple unique etiologies and management plans. Point of care ultrasound (PoCUS) has emerged as a promising tool to improve these diagnostic and management challenges, yet its reliability in this setting remains unclear. **Methods:** We performed a systematic review of Medline, EMBASE, CINAHL, Cochrane, and clinicaltrials.gov databases from inception to June 8, 2018. Databases were reviewed by two independent researchers and all languages were included. The methodological quality of included studies were evaluated using the Quality Assessment of Diagnostic Accuracy Studies (QUADAS-2) tool. Our primary outcome was diagnostic accuracy of PoCUS in hypotension, with secondary outcomes including patient outcomes and changes to management. **Results:** Our literature search revealed 5345 articles after duplicates were removed, leaving 235 articles for full article review. Following full article review, 9 studies remained and were included in the systematic review. There were 2 randomized control trials, 6 prospective cohort trials, and 1 retrospective cohort trial. For our primary outcome of diagnostic accuracy, eight studies were included; we extracted Kappa values ranging from 0.70 to 0.971, pooled sensitivity ranging from 69% to 88%, and pooled specificity ranging from 88% to 96%. Four studies reported on management change including results reporting shorter time to disposition, change in diagnostic test ordering (18% to 31%), change in consultation (13.6%), change in admission location (12%) and change in management plan (25% to 40%). Only one study reported on patient outcomes, which revealed no survival or length of stay benefit. **Conclusion:** When assessing for the diagnostic accuracy of PoCUS in the setting of undifferentiated hypotension presenting to the emergency department, we found fair consistency between PoCUS and final diagnosis with high Kappa values, fair to good pooled sensitivities, and good to excellent specificities.