

into common themes. A pareto chart was constructed to analyze the frequency of causes. **Results:** Of 425 urine C&S ordered, 75 (17.7%) were inappropriate. The top 3 reasons were: inappropriate urosepsis work-ups (53%), order processing errors (17%) and inappropriate work-ups for weakness (16%). Inappropriate urosepsis work-ups were defined as urine C&S that were ordered empirically despite there being a clear focus for infection elsewhere (i.e. cough, cellulitis) and in the absence of urinary symptoms. Order processing errors were defined as urine C&S which were sent despite there being no documented order. Inappropriate testing was more likely to occur overnight, in females and when a urine routine and microscopy was not ordered prior to C&S. 29% of patients with inappropriate C&S received antibiotics. **Conclusion:** 17.7% of urine C&S ordered in the SMH ED during the 3-month study period were inappropriate. The top cause was septic patients who were empirically tested despite having another source for infection identified from the outset. A possible reason for this is the recent ED emphasis on early recognition of sepsis which may encourage early use of antibiotics and empiric urine C&S. One question to resolve is whether a 17.7% overutilization rate is sufficient to make it a target for change. Interventions designed to reduce inappropriate urine C&S may inadvertently increase the number of missed cultures in patients admitted with sepsis not yet diagnosed. Next steps involve discussions between the ED, Internal Medicine, Infectious Disease and Microbiology, and patient partners to identify patient-centered change ideas and sustainable strategies. This may involve establishing guidelines for ordering urine C&S and incorporating lab services to provide oversight into urine C&S processing.

Keywords: quality improvement and patient safety, emergency department, urine culture

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Outpatient parenteral antibiotic therapy following emergency department treatment of non-purulent skin and soft tissue infections: a descriptive analysis

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Introduction: Emergency department (ED) patients with non-purulent skin and soft tissue infections (SSTIs) requiring intravenous antibiotics may be managed via outpatient parenteral antibiotic therapy (OPAT). To date, there are no prospective studies describing the performance of an ED-to-OPAT clinic program. Furthermore, there are no studies that have examined physician rationale for intravenous therapy, despite this being a critical first step in the decision to refer to an OPAT program. **Methods:** We conducted a prospective observational cohort study of adults (age 18 years) with non-purulent SSTIs receiving parenteral therapy at two tertiary care EDs. Patients were excluded if they had purulent infections or could not provide consent. The emergency physician completed a form documenting rationale for intravenous therapy, infection size, and choice of antimicrobial agent, dose and duration. OPAT treatment failure was defined as hospitalization after a minimum of 48 hours of OPAT for: (i) worsening infection; (ii) peripheral intravenous line complications; or (iii) adverse antibiotic events. Patient satisfaction was assessed at a 14-day telephone follow up. **Results:** We enrolled a consecutive sample of 153 patients (mean age 60 years, 82 male (53.6%) and 38 (24.8%) with diabetes). A total of 137 patients (89.5%) attended their clinic appointment. Of the 101 patients prescribed cefazolin, 50.5% received 1000 mg and 48.5% received 2000 mg per day. There were low rates of OPAT treatment failure (3.9%).

None of the adverse peripheral intravenous line events (9.8%) or adverse antibiotic events (7.2%) required hospitalization. Patients reported a high degree of satisfaction with timeliness of clinic referral (median score 9 out of 10) and overall care received (median score of 10 out of 10). The top 5 reasons given by physicians for selecting intravenous therapy were: clinical impression of severity (52.9%); failed oral antibiotic therapy (41.8%); diabetes (17.6%); severe pain (7.8%); and peripheral vascular disease (7.8%). **Conclusion:** This is the first study to identify physician rationale for the use of intravenous antibiotics for SSTIs. There was significant variability in antibiotic prescribing practices by ED physicians. This prospective study demonstrates that an ED-to-OPAT clinic program for non-purulent SSTIs is safe, has a low rate of treatment failures and results in high patient satisfaction.

Keywords: cellulitis, intravenous antibiotics, outpatient parenteral antibiotic therapy

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Emergency department visits for hyperglycemia in emerging adults with diabetes: a health records review

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Introduction: Patients with diabetes who are in emerging adulthood, defined as the life stage between 18-29 years, have unique challenges in managing their illness and are at risk of acute complications and loss to follow-up. The study's objective was to describe emergency department (ED) utilization for hyperglycemia in emerging adults with diabetes and to characterize 30-day outcomes including return visits and admission for hyperglycemia. **Methods:** This was a health records review of emerging adults presenting over a one-year period to four tertiary care EDs with a diagnosis of hyperglycemia, diabetic ketoacidosis or hyperosmolar hyperglycemic state. Research personnel collected data on patient characteristics, treatment, disposition, and determined if patients returned to the ED for hyperglycemia within 30 days. Descriptive statistics were used to summarize the data where appropriate. **Results:** There were 185 ED encounters for hyperglycemia, representing 116 unique emerging adult patients. Mean (SD) age was 23 (3.5) years and 50.9% were female. 80 (69.0%) had known type 1 diabetes, 11 (9.5%) had type 2, and 25 (21.5%) were newly diagnosed in the ED. Of 185 visits, 98 (53.0%) resulted in hospital admission. 56 (30.3%) returned to the ED for hyperglycemia within 30 days of their initial encounter, and 21 (11.4%) resulted in admission on this subsequent visit. **Conclusion:** We characterized ED utilization and 30-day outcomes of emerging adults with diabetes for hyperglycemia. Future research should focus on earlier identification of those at higher risk for recurrent ED visits or admission and the efficacy of interventions to prevent these adverse outcomes.

Keywords: diabetes mellitus, hyperglycemia, emerging young adults

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Patient-important outcomes in hyperglycemia after discharge from the emergency department: a prospective cohort study

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Introduction: Hyperglycemic emergencies, including diabetic ketoacidosis (DKA) and hyperosmolar hyperglycemic state (HHS), carry

significant morbidity for individuals even after discharge. The objective of this study was to describe the patient-important outcomes and burden of disease for emergency department (ED) patients with hyperglycemia after discharge from hospital. **Methods:** This was a prospective cohort study of patients 18 years presenting to two tertiary care EDs (combined annual census 150,000 visits) with a discharge diagnosis of hyperglycemia, DKA or HHS over a 15-month period (Jul 2016-Oct 2017). During the ED visit, consent was obtained for a telephone follow-up call to determine patient-important outcomes. Trained research personnel collected data from medical records and completed a 14 day telephone follow-up using a standardized questionnaire to determine medication changes, missed days of school or work, and repeat admissions or visits to a healthcare provider. Descriptive statistics were used where appropriate to summarize the data. **Results:** Thus far, 172 patients have been enrolled in our study. Mean (SD) age is 53.9 (19.3) years and 97 (56.4%) are male. 65 (37.8%) patients were admitted from their initial ED visit. Of the 125 patients (72.7%) providing post-discharge outcomes, 75 (60.0%) required an adjustment to their diabetes medications or insulin. 21 (16.8%) patients missed days of school or work for a median (IQR) duration of 3.5 (1.3, 7.0) days. 85 (68.0%) saw another healthcare provider within a 14 day period, 45 (36.0%) saw their family physician, and 34 (27.2%) saw an internist or endocrinologist. 9 (7.2%) were seen again in the ED, 5 of these patients required admission to hospital. There was one death that occurred within the follow-up period. **Conclusion:** This prospective study builds on our previous retrospective work and demonstrates that visits for hyperglycemia carry a significant burden of disease beyond what may be seen in a single ED encounter. Further research will attempt to identify the factors that may be predictive of adverse outcomes in hyperglycemic patients presenting to the ED.

Keywords: diabetes mellitus, hyperglycemia, patient-important outcomes

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Methanol poisoning by inhalation: a case series

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Introduction: Methanol intoxication is a well-recognized toxicological emergency. While most cases of significant methanol poisoning occur via ingestion, there are reports in the literature of poisoning resulting from the inhalational route. We report a series of methanol intoxications secondary to inhalational abuse of a methanol containing lacquer thinner presenting to an inner city Emergency Department. **Methods:** A laboratory database was searched for methanol levels >5 mmol/L. (16mg/dL). from January 1, 2010 to December 31, 2015. A chart review was completed to determine mode of poisoning, clinical presentation, treatment, and disposition. **Results:** We found 35 patients who made a total of 83 emergency department (ED) visits with a methanol level >5mmol/L. (16mg/dL). The methanol levels ranged from 5.3-39.6 mmol/L. (16.96-126.72 mg/dL). 73% of poisonings were secondary to inhalation of a methanol-containing lacquer thinner. The median age of these patients was 43 years, and 49% were male. The majority of patients (96%) resided in the core area. The most frequent chief complaints were substance abuse/intoxication, gastrointestinal complaints, and chest pain. 18% of patients described visual symptoms. Treatments were fomepizole only (59%), fomepizole plus hemodialysis (26%), and hemodialysis alone (2%). 49% of patients were discharged from the ED, while 28% and 23% were admitted to an intensive care unit (ICU) and an internal medicine ward respectively. There were no cases of blindness. We describe

a cohort of patients who developed methanol poisoning from inhalation of a methanol containing lacquer thinner that required treatment with fomepizole and hemodialysis. While almost 1/3 of these patients were admitted to ICU, 49% were discharged from the emergency department after a course of fomepizole. The etiology of this outbreak was found to be a change in the formulation of the lacquer thinner, substituting a higher concentration of methanol for toluene. The manufacturer and a number of local retail outlets were contacted. This resulted in the product being taken off the shelves by the retail outlets, and eventually, a change in the product formulation by the manufacturer, with a resultant decrease in the methanol content. After these actions, we have not seen any additional presentations of inhalational methanol intoxication. **Conclusion:** We report the largest case series to date of patients who presented with methanol intoxication, requiring fomepizole and/or hemodialysis, secondary to inhalation of a methanol containing lacquer thinner. Physician advocacy regarding the etiology of this outbreak resulted in collaboration with retail outlets and subsequent action by the manufacturer. This ended the outbreak.

Keywords: methanol, advocacy, poisoning

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Development of the BC-Airway Registry for Emergencies (BCARE) network

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Introduction: Intubation is one of the highest-risk procedures performed in the ED. Few Canadian centres monitor intubation frequency, indications, methods used, success, and/or complication rates. An airway registry that tracks patient outcomes and variation in practice would be a valuable quality improvement (QI) tool. We describe the development of the BC-Airway Registry for Emergencies (BCARE) network, an emergency intubation database at two tertiary-care and one community hospital. **Methods:** Respiratory Therapists (RTs) are present at every intubation outside of the OR and complete a standardized post-intubation form. The airway forms were developed collaboratively with input from RTs, emergency physicians, intensivists, and anesthesiologists. Completed forms are collected from participating sites and data is entered into a secure online database where patient outcomes are analyzed in real-time. **Results:** We collected data from 737 unique intubations over 19 months with ongoing enrolment at the time of abstract submission. Mean age was 59.4 (Range 17-95, SD 17.6), Male 66.2%, intubation locations were ED (396, 53.7%), ICU (221, 30.0%), Ward (120, 16.3%). The most common indications for ED intubation were ICH/stroke (14.6%), seizure (10.9%), and sepsis (9.5%). Intubations are done by attending physicians more frequently in the ED (48.0%) compared to in the ICU (11.8%), and ward (8.6%). ED intubations were more commonly performed using video laryngoscopy (57.7%) with a smaller proportion using direct laryngoscopy (39.0%). First-pass success was 81.8% in the ED, 79.2% in the ICU, and 77.5% on the wards. Of ED intubations, 56 (14.1%) had complications and 73 (18.4%) were considered to be a difficult airway. **Conclusion:** The BCARE network tracks intubation performance across hospitals and is a valuable QI tool. BCARE can be used to ensure that all centres are meeting a benchmark success rate, for assessing the impact of practice changes such as pre-intubation checklists, and for implementing systematic methods to identify patients who previously had a "difficult airway."

Keywords: airway, intubation, registry