

**P052****Who are the super-users of the emergency department?**

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**Introduction:** All emergency departments (EDs) across Canada can identify a group of high frequency users, which are typically defined in the literature as eight to ten visits per year. Although frequent users of the ED are well-studied in the literature, there is little published in terms of identifying the “super-user” group who present to the ED much more often than 10 visits per year. Faced with multiple co-morbidities and a high mortality rate, the ED is often the most appropriate environment to manage this population. In order to inform future initiatives to improve health outcomes, we aimed to identify the specific characteristics of this super-user group. **Methods:** A retrospective chart review was conducted using the electronic medical record from the Thunder Bay Regional Health Sciences Centre to identify patients who had at least 25 visits in the year 2017. A total of 75 patients presented to the ED greater than 25 times in 2017. The following data was then collected on each individual patient: demographic characteristics including age, gender, address, access to a primary care provider. In addition, we collected date, time, diagnoses at each visit, admission rate and surgical interventions. **Results:** Our preliminary results reveal this population presents to the ED on average 32 times per year. The population is 53% male. Most have a private address and half have a primary care provider for all 2017 with one quarter having a primary care provider for part of the year. The percentage of visits for infections was 30%, mental health and addictions presentations comprised 28% of the visits, with gastrointestinal and cardiac visits comprising a total 22% of the visits. Approximately 7% of visits required admission to hospital, and the average length of stay was 5 days. **Conclusion:** Super-users of the ED are a unique population that are typically well connected with primary care and have a very low admission and surgical rate. The most common reasons for visit are infections and mental health and addictions. The next steps include collecting mortality data. This data should be used to inform ED and community initiatives aimed at improved health outcomes for this population.

**Keywords:** frequent visitors, high volume, super-users

**P053****Adverse events and errors in trauma resuscitation: a systematic review**

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**Introduction:** Trauma resuscitations are plagued with high stress and require time sensitive and intensive interventions. It is a landscape that is a perfect hot bed for clinical errors and adverse events for patients. We sought to describe the adverse events and errors that occur during trauma resuscitation and any associated outcomes. **Methods:** Medline was searched for a combination of key terms involving trauma resuscitation, adverse events and errors from January 2000 to May 2019. Studies that described adverse events or errors in initial adult trauma resuscitations were included. Two reviewers analyzed papers for inclusion and exclusion criteria with a third reviewer for any discrepancies. Descriptions of errors, adverse events and associated outcomes

were collated and presented. **Results:** A total of 3,462 papers were identified by our search strategy. 18 papers met our inclusion and exclusion criteria and were selected for full review. Adverse events and errors reported in trauma resuscitation included missed injuries, aspiration, failed airway, and deviation from protocol. Rates of adverse events and errors were reported where applicable. Mortality outcomes or length of stay were not directly correlated to adverse events or errors experienced in the trauma resuscitation. **Conclusion:** Our study highlights the predominance of adverse events and errors experienced during initial trauma resuscitation. We described a multitude of adverse events and errors and their rates but further study is needed to determine outcome differences for patients and possibility for quality improvement.

**Keywords:** adverse events, errors, trauma

**P054****Delay in decision to transfer time for critically ill patients transported by air ambulance in Ontario**

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**Introduction:** Delays in definitive management of critically ill patients are known to drive poor clinical outcomes. A scarcely studied time period in interfacility transfer is the time between initial patient presentation and the decision to transfer. This study seeks to identify patient, environmental and institutional characteristics associated with delays in decision to transfer critically ill patients by air ambulance to a tertiary care centre. **Methods:** Patients >18 years old who underwent emergent air ambulance interfacility transport to a tertiary care centre were included. Patient records were located in a provincial air ambulance database. The primary exposure variable was time from patient presentation to initial call to facilitate transfer. Patient, environmental and institutional characteristics were identified using stepwise variable selection at a significance of 0.1. These characteristics were then explored using quantile regression to identify significant factors associated with delay in transport initiation. **Results:** A total of 11231 patients were included in the analysis. There were 5009 females (44.60%) and 6222 males (55.4%). The median age of patients was 57. The median time to initiate the transfer was 3.05 hours. The variables identified with stepwise selection were gender, category of illness, heart rate, systolic blood pressure, Glasgow coma scale, vasopressor usage, blood product usage, time of day, and type of sending site. The following factors were significantly ( $p < 0.05$ ) associated with an increase in time to initiate transfer compared to the reference category at the 90th centile of time: cardiac illness (+1.45h), gastrointestinal illness (+3.27h), respiratory illness (+4.90h), sepsis (+3.03h), vasopressors (+2.31h), and an evening hour of transport (+3.67h). The following factors were significantly ( $p < 0.05$ ) associated with a decrease in time to initiate transfer compared to the reference category at the 90th centile of time: neurologic illness (-1.45h), obstetrical illness (-1.56h), trauma (-3.14h), GCS <8 (-0.98h), blood transfusion (-1.47h), and sending site being a community hospital >100 beds (-2.26h), <100 beds (-4.71h), or nursing station (-10.02h). **Conclusion:** Time to initiate transfer represents a significant window in a patient's transport journey. In looking at the predictors of early or late initiation of transfers, these findings provide education and quality improvement opportunities in decreasing time to definitive care in critically ill populations.

**Keywords:** delay, transport

## P055

**Canadian emergency physician attitudes toward endotracheal intubation for aspiration prophylaxis**

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**Introduction:** Emergency patients with decreased level of consciousness often undergo intubation purely for airway protection from aspiration. However, the true risk of aspiration is unclear and intubation poses risks. Anecdotally, experienced emergency physicians often defer intubation in these patients while others intubate to decrease the perceived clinical and medico-legal consequences. No literature exists on the intubation practices of emergency physicians in these cases. **Methods:** An online questionnaire was circulated to members of the Canadian Association of Emergency Physicians. Participants were asked questions regarding two common clinical cases with decreased level of consciousness: (1) acute, uncomplicated alcohol intoxication and (2) acute, uncomplicated seizure. For each case, providers' perceptions of aspiration risk, the standard of care, and the need for intubation were assessed. **Results:** 128 of the 1546 Canadian physicians contacted (8.3%) provided responses. Respondents had a median of 15 years of experience, 88% had CCFP-EM or FRCPC certification, and most worked in urban centers. When intubating, 98% agreed they were competent and 90% agreed they were well supported. A minority (17.4%) considered GCS < 8 an independent indication for intubation. For the alcohol intoxication case, 88% agreed that aspiration risk was present but only 11% agreed they commonly intubate. Only 17% agreed intubation was standard care, and only 0.8% felt their colleagues always intubate such patients. For the seizure case, 65% agreed aspiration risk existed but only 3% agreed they commonly intubate, 1% felt colleagues always intubated, and 5% agreed intubation was standard of care. Additional factors felt to compel intubation (394 total) and support non-intubation (366 total) were compiled and categorized; the most common themes emerging were objective evidence of emesis or aspiration, other standard indications for intubation, head trauma, co-ingestions, co-morbidities and clinical instability. **Conclusion:** It is acceptable and standard practice to avoid intubating a select subset of intoxicated and post-seizure emergency department patients despite aspiration risk. Most physicians do not view the dogma of "GCS 8, intubate" as an absolute indication for intubation in these patients. Future research is aimed at identifying key factors and evidence supporting intubation for the prevention of aspiration, as well as the development of a validated clinical decision rule for common emergency presentations.

**Keywords:** aspiration, endotracheal intubation, intoxication

## P056

**Gastric ultrasound in stable patients with decreased level of consciousness and recreational substance use -- are presumed full stomachs full?**

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**Introduction:** Intoxicated patients with decreased Glasgow Coma Scale (GCS) are common presentations to emergency departments. These patients are often intubated due to presumed full stomachs and perceived aspiration risk. Gastric ultrasound (GUS) -- a simple, non-invasive and objective option -- could be applied to this problem. This pilot study uses GUS alongside usual care at a music festival; a

bounded, intoxication-dense environment where airways are often managed using non-invasive airway strategies. We aim to (1) clarify the gastric contents of any intubated patients, and (2) assess if patients managed without intubation go on to have a lack of aspiration sequelae because of empty stomachs or in spite of full stomachs. **Methods:** A prospective cohort study was conducted at a multi-day music festival. Patients presenting to on-site medical services with GCS  $\leq$  13 and known or suspected substance use were included. Patients with trauma, instability, metabolic derangements or additional aspiration risk factors (eg morbid obesity, pregnancy) were excluded. Standard GUS was performed by a trained provider and results were categorized according to convention as FS (full stomach, ie solids or liquids >1.5mL/kg) or ES (empty stomach, ie empty or liquids <1.5mL/kg). Additional patient data were extracted from linked medical records post event. **Results:** 33 patients met inclusion criteria and 27 remained after exclusions were applied and consent obtained. 25 patients reported substance use and 19 polysubstance use. The FS group had 15 patients (7 solid & 8 liquid > 1.5), and the ES group had 12 patients (5 empty & 7 liquid < 1.5). The median low GCS documented for FS and ES was 7 and 11 respectively, and 10 patients total had a GCS of 8 or less (6 FS & 4 ES). No patients were intubated and all were managed conservatively according to usual care. 3 patients (2 FS, 1 ES) were transferred to hospital. No patients re-registered at medical for clinically significant aspiration. **Conclusion:** This pilot study demonstrates the potential utility of GUS in stratifying aspiration risk in intoxicated patients with decreased GCS. "Empty" stomachs might avoid intubation, while the implications and true risks of "full" stomachs for aspiration sequelae in the absence of intubation remain unclear. Due to the small numbers in this pilot study and the quoted GUS sensitivity (only 95%), further research is needed to evaluate the safe application of this modality to clinical decision-making in intoxicated patients.

**Keywords:** aspiration, endotracheal intubation, gastric ultrasound

## P057

**Impact of a clinical pathway for the treatment of acute asthma in the emergency department**

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**Introduction:** In Canada, acute asthma is a common cause of emergency department (ED) attendance and its treatment is affected by ED overcrowding and increasing wait times. Literature suggests that a clinical pathway (CP) for the treatment of acute asthma can increase the use of medical therapy, reduce hospital admission rates and decrease associated costs. However, only few have looked at the effect on ED length of stay (ED LOS) when such a CP is initiated by triage nurse/respiratory therapist among adults. In this optic, an asthma CP was launched on Feb. 2016 at Centre Hospitalier Universitaire de Sherbrooke (QC) and included medical directives allowing triage nurse and respiratory therapist initiation of treatment. **Methods:** The objectives are to determine the effect of an ED nurse/respiratory therapist-initiated asthma CP on (1) ED LOS, (2) time-to-treatment (beta-agonist, corticosteroids), time-to-MD and other secondary outcomes. This was a retrospective before-after study. Adults presenting to the ED before and after CP implementation with a final diagnosis of asthma or asthma exacerbation were eligible. The groups A (before implementation) and B (after implementation) were compared for ED LOS. Three subgroups of 50 patients were generated and compared for outcomes: A1 (before implementation), B1 (after implementation)