have used unstandardized definitions of a preventable death and various methodologies to perform the preventability assessment. The proportion of preventable or potentially preventable death reported in each study ranged from 2.4% to 76.5%. Delayed treatment, missed or incorrect initial diagnosis and adverse events following a procedure were commonly associated with preventable trauma deaths and could be targeted to develop quality improvement and monitoring projects.
Keywords: errors, preventable trauma death, systematic review

MP48

Head computerized tomography overuse in adults with mild traumatic brain injury in a single Quebec emergency department

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Introduction: Choosing Wisely Canada has reported rates of unnecessary head computed tomography (CT) scans for low-risk mild traumatic brain injury (mTBI) patients in Ontario and Alberta ranging from 14% to 46%. Local data for Quebec is currently not available. We sought to estimate the overuse of CT scans among adults with mTBI in the emergency department (ED) of a single level II trauma center in Quebec. **Methods:** We performed a retrospective chart review of adults who visited the ED of Hôtel-Dieu de Lévis from 04/01/2016 to 03/31/2017. Using an administrative database (Med-GPS, Montreal), we randomly sampled ED patients aged over 18 that had an initial Glasgow Coma Scale score of 13 to 15 and had suffered from a mTBI in the last 24 hours. We excluded patients with an unclear history of trauma, a bleeding disorder/anticoagulation, a history of seizure, any acute focal neurological deficit, a return visit for reassessment of the same injury, unstable vital signs, or a pregnancy. Data was extracted by two reviewers who analyzed separate charts. They used the Canadian CT Head Rule (CCHR) to determine relevance of CT scans. Overuse was determined if a patient without any high or medium risk CCHR criteria underwent a scan. A third reviewer verified a 10% random sample of the data extraction for each primary reviewer and inter-rater reliability was assessed using the kappa statistic. **Results:** From the 942 eligible mTBI patients, we randomly selected 418 patient charts to review, of which 217 met all inclusion and exclusion criteria (56% were men and the mean age was 48 years old (SD = 21)). Among included patients, 101 were determined as low risk. The overuse proportion was 26% (26/101), 95% CI [18-35]. Two CT scans were assessed as abnormal, but none revealed life-threatening injuries and only one was considered clinically significant with a subdural hematoma of 9 mm. Inter-rater reliability was substantial to perfect (kappa = 0.6 and 1.0) for each primary reviewer. **Conclusion:** We identified head CT scan overuse in this ED. This will support local quality improvement initiatives to reduce unnecessary head CT scans for adults with mTBI.
Keywords: computed tomography scan, emergency department, mild traumatic brain injury

MP49

Does reduced cough capacity in minor thoracic trauma leads to more atelectasis development?

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Introduction: Minor thoracic trauma (MTI) accounts for approximately 15% of all injuries treated in the emergency department (ED). Many of which are minor and will be handle on an outpatient basis. MTI and rib fractures especially cause non-negligible pain. The pain experienced by patients can lead to reduce pulmonary function, decrease mucous clearance and decrease cough capacity leading in infectious problems and atelectasis. To our knowledge, there is no study of atelectasis development caused by reduced cough capacity in the setting of MTI. Objective: Evaluate if a variation in cough capacity leads to atelectasis development. Evaluate if there was a difference in cough capacity perception between the nurse, the physician and the patient himself. **Methods:** A prospective observational cohort study (2006-2012) in 4 ED recruited patients with a chief complaint of MTI, ≥ 16 years old, discharged home from the ED. Exclusion criteria: 1) a confirmed hemothorax, pneumothorax, fail chest, lung contusion or any other important thoracic or abdominal internal injury at the initial visit or unable to attend follow-up visits. Patients were assessed at 7- and 14- days. For each patient, age, sex, mechanism of injury, dyspnea, COPD/asthma and smoking status were collected. Chest x-ray was done at each visit; pulmonary complications were assessed by a blind radiologist. Cough capacity was assessed on a scale of 0 to 10 by a nurse, physician and patient himself at 0, 7- and 14- days. Pain was scored on a scale of 0 to 10. Chi -squared and odds ratio (IC: 95%. $p \leq 0.05$) were assessed to determine if the cough capacity variation leads to atelectasis development. A Pearson correlation test was assessed the correlation in cough capacity among participants. **Results:** 1474 patients were recruited. Initial visit: 9% had atelectasis, 7 days: 7% and 4.6% at 14 days. 1105 patients were retained for analysis after exclusion of missing data. The median initial pain score was 7-8 for all patient categories. At 7 days, the odds ratio of atelectasis development were (score (0-3) 1.18 (0.42-3.34); score (4-7) 1.20 (0.48-3.03); p<=0.05). The Pearson correlation of cough capacity assessment, in patients without atelectasis were (0.53 nurse vs. patient; 0.37 physician vs. patient; 0.51 nurse vs. physician p<=0.05). As for the cough capacity perception correlation in patients with atelectasis were (0.62 nurse vs. patient; 0.40 physician vs. patient; 0.51 nurse vs. physician; p<=0.05). **Conclusion:** There is no statistically significant difference in atelectasis development depending on cough capacity and there is poor correlation regarding the perception of cough capacity except for the nurse. It would be interesting to develop a patient reported outcome measure questionnaire which targets minor thoracic trauma as it is a common emergency department complaint and it could help us improve medical management and patient quality of life
Keywords: atelectasis, cough capacity, minor thoracic trauma

MP50

Vaping, tobacco and cannabis among patients presenting to the emergency department: a cross-sectional study

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Introduction: Inhaled toxins from tobacco smoking, cannabis leaf smoking as well as vaping/e-cigarette products use are known causes of cardio-respiratory injury. While tobacco smoking has decreased among Canadian adults, there are now several other forms of legal inhalant products. While legal, the evidence of benefit and safety of vaping is limited. Of concern, cases of e-cigarette or vaping products use associated lung injury (EVALI) have been accumulating in the U.S. and now in Canada. Despite this, very little is known about the inhalation exposure of emergency department (ED) patients; this

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study was designed to explore lung health in the ED. **Methods:** We investigated the prevalence of exposure to vaping, tobacco and cannabis among patients presenting to a Canadian ED from July to November 2019. Ambulatory (CTAS 2 to 5), stable, adult (≥ 17 years) patients were prospectively identified and invited to complete a survey addressing factors related to lung health (previous diagnosis of respiratory conditions and respiratory symptoms at the ED presentation) and information on current exposure to vaping, tobacco and cannabis smoking. Categorical variables are reported as frequencies and percentages; continuous variables are reported as medians with interquartile range (IQR). The study was approved by the Health Research Ethics Board. **Results:** Overall, 1024 (71%) of 1433 eligible patients completed the survey. The median age was 43.5 (IQR: 29, 60), and 51% were female. A total of 351 (31%) participants reported having been previously diagnosed with ≥1 respiratory conditions, and 177 (17%) were visiting the ED as a result of ≥1 respiratory symptoms (e.g., cough, shortness of breath, wheezing). Daily tobacco smoking was reported by 190 (19%), and 83 (8%) reported using vaping/e-cigarette products. Cannabis use within 30 days was described by 80 (15%) respondents. Exposure to tobacco and vaping products was reported by 39 (4%) participants, 63 (6%) reported using tobacco in combination with cannabis smoking, and 3% reported combining vaping and cannabis use. **Conclusion:** Patients seeking care in the ED are exposed to a large quantity of inhaled toxins. Vaping products, considered the cause of the most recent epidemic of severe lung injury, are used in isolation and in combination with other smoking products in Canada. These exposures should be documented and may increase the risk of lung health injuries and exacerbations of chronic respiratory conditions.

Keywords: cannabis, tobacco, vaping

MP51

The relationship between entrustment scores in the simulated and workplace environments among emergency medicine residents

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Introduction: The Emergency Medicine Specialty Committee of the Royal College of Physicians and Surgeons of Canada (RCPSC) has specified that resuscitation Entrustable Professional Activities (EPAs) can be assessed in either the workplace or simulation environments; however, there is minimal evidence that such clinical performance correlates. We sought to determine the relationship between assessments in the workplace versus simulation environments among junior emergency medicine residents. **Methods:** We conducted a prospective observational study to compare workplace and simulation resuscitation performance among all first-year residents (n = 9) enrolled in the RCPSC-Emergency Medicine program at the University of Ottawa. All scores from Foundations EPA #1 (F1) were collected during the 2018-2019 academic year; this EPA focuses on initiating and assisting in the resuscitation of critically ill patients. Workplace performance was assessed by clinical supervisors by direct observation during clinical shifts. Simulation performance was assessed by trained simulation educators during regularly-scheduled sessions. We present descriptive statistics and within-subjects analyses of variance. **Results:** We collected a total of 104 workplace and 36 simulation assessments. Interobserver reliability of simulation assessments was high (ICC = 0.863). We observed no correlation between mean EPA scores assigned in the workplace and simulation environments (Spearman's rho=−0.092, p = 0.813). Scores in both environments improved significantly over time ($F(1,8) = 18.79$, $p < 0.001$, $\eta p2 = 0.70$), from 2.9(SD = 1.2) in months 1-4 to 3.5(0.2) in months 9-12 (p = 0.002). Workplace scores (3.4(0.1)) were consistently higher than simulation scores (2.9(0.2)) ($F(1,8) = 7.16$, $p = 0.028$, $\eta p2 = 0.47$). **Conclusion:** We observed no correlation between EPA F1 ratings of resuscitation performance between the workplace and simulation environments. Further studies should seek to clarify this relationship to inform our ongoing use of simulation to assess clinical competence.

Keywords: entrustment, resuscitation, simulation

MP52

Effectiveness of an outpatient parenteral antibiotic therapy clinic for adults with non-purulent cellulitis

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Introduction: Emergency department (ED) patients with cellulitis that are treated with intravenous (IV) antibiotics may be eligible for outpatient parenteral antibiotic therapy (OPAT). The primary objective of this study was to determine whether the implementation of an OPAT clinic results in decreased hospitalization and return ED visits for patients treated with IV antibiotics. **Methods:** We conducted a before-after implementation study involving adults (age >=18 years) that presented to two tertiary care EDs with cellulitis and were treated with IV antibiotics. The intervention was referral to an infectious disease physician within one week of the index ED visit at the newly created OPAT clinic. The primary outcomes were hospital admission and return ED visits within 14 days. Secondary outcomes were treatment failure (admission after 48 hours of OPAT) and adverse events (e.g. vomiting, diarrhea). We conducted an interrupted time series analysis from January to December both pre-intervention (2013) and post-intervention (2015), with 24 monthly data points. The year of clinic implementation (2014) was considered a transition period. A segmented non-linear regression autoregressive error model was used to aggregate the monthly data to evaluate the effectiveness of the intervention. **Results:** A total of 1,666 patients met inclusion criteria: 858 pre-intervention (mean age 59 years, 53.1% male) and 808 post-intervention (mean age 62 years, 54.5% male). Hospitalization rates were not significantly higher one year after clinic implementation (p = 0.53) although there was a non-statistically significant gradual increase of 0.8% per month (95%CI -0.3% to 1.9%). One year after introduction of the OPAT clinic, return ED visits were significantly lower (change in intercept -24.4%, 95%CI -34.2% to -14.6%; p < 0.001), followed by an additional drop of 1.4% per month (95%CI -2.1% to -0.6%; p = 0.002). By the end of the study, return visits were 40.7% lower (95%CI 25.6% to 55.9%) than if the intervention had not been introduced. Treatment failure rates were <2% and adverse events were <5% in both groups. **Conclusion:** Implementation of an OPAT clinic significantly reduced return ED visits for cellulitis, which is critically important given the current ED overcrowding crisis. There was no significant change in hospital admission rates. There were low rates of treatment failures and adverse events. An OPAT clinic should be considered to reduce ED crowding while maintaining safe patient care.

Keywords: cellulitis, infectious disease, outpatient parenteral antibiotic therapy

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