

2012 to March 2014. The primary outcome measure was emergency department LOS; secondary outcomes included reduction success rates, adverse events and unscheduled return visits. **Results:** Two-hundred and seventy-four patients were included for analysis; 109 treated with BB, 165 underwent PS. Overall, mean LOS was 82 min shorter for patients treated in the BB group (279 min vs. 361 min,  $p < 0.05$ ). Sub-analysis revealed a reduced LOS among patients treated with BB for fractures involving a single bone (286 min vs. 388 min,  $p < 0.001$ ) and both-bones of the forearm (259 min vs. 321 min,  $p < 0.05$ ). Both BB and PS resulted in comparable rates of successful reduction (98.2% vs. 97.6%,  $p = 0.74$ ). There were no major adverse events in either group. Patients who received BB experienced significantly fewer minor adverse events (2.7% vs. 14.5%,  $p < 0.05$ ). Return visit rates were similar in the BB and PS groups (17.6% vs. 17.1%,  $p < 0.05$ ). **Conclusion:** Compared to PS, forearm fracture reduction performed with BB was associated with a reduced emergency department LOS and fewer adverse events, with no difference in reduction success or return visits.

**Keywords:** ketamine, lidocaine, sedation

#### LO066

##### H1-antihistamine administration is associated with a lower likelihood of progression to anaphylaxis among emergency department patients with allergic reactions

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**Introduction:** H1-antihistamines are often used to treat allergic reactions, however, the influence of H1-antihistamines on progression to anaphylaxis remains unclear. Among patients initially presenting with allergic reactions, we investigated whether H1-antihistamines were associated with a lower proportion of patients progressing to anaphylaxis during observation. **Methods:** This was a retrospective cohort study conducted at two urban EDs from 2007 to 2012. We included adult patients with allergy and excluded those who met criteria of anaphylaxis at first evaluation by medical professionals and/or received antihistamines before the evaluation. Primary outcomes of interest were the number of patients who developed anaphylaxis during observation at ED and/or transportation by EMS. Secondary outcomes were the number of biphasic reactions and severe anaphylaxis (defined as sBP  $< 90$ ; SpO<sub>2</sub>  $< 92\%$ ; and/or confusion, collapse, loss of conscious, or incontinence). Logistic regression was performed comparing primary and secondary outcomes between H1-antihistamine treated and non-treated groups with propensity score adjustment of the baseline covariates. Number needed to treat (NNT) was calculated by adjusted absolute risk reduction of H1-antihistamine compared to non H1-antihistamine use on primary outcome. **Results:** This study included 1717 patients with allergic reactions, of whom 1228 were treated with H1-antihistamines. In the H1-antihistamine group 1.0% and 0.2% developed anaphylaxis and severe anaphylaxis, respectively; in the non-H1-antihistamine group 2.6% and 0.6% developed anaphylaxis and severe anaphylaxis, respectively. There were no biphasic reactions (0%, 95% confidence interval [CI] 0 to 0.17%). Administration of H1-antihistamines was associated with a lower incidence of subsequent anaphylaxis (adjusted odds ratio [OR] 0.23, 95% CI 0.10 to 0.53; NNT to benefit 49.1, 95% CI 41.6 to 83.3). There were no significant associations between H1-histamines administration and secondary outcomes. **Conclusion:** Among ED patient with allergic reactions, H1-antihistamine administration was associated with a lower likelihood of progression to anaphylaxis. These findings suggest that H1-antihistamines should be administered early in the care of patients with allergic reactions.

**Keywords:** anaphylaxis

#### LO067

##### Emergency department management of diabetic ketoacidosis and hyperosmolar hyperglycemic state: national survey of attitudes and practice

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**Introduction:** The 2011 Canadian Diabetes Association (CDA) Clinical Practice Guidelines were developed in order to help physicians manage hyperglycemic emergencies in the emergency department (ED), including diabetic ketoacidosis (DKA) and hyperosmolar hyperglycemic state (HHS). The goal of this study was to determine physician attitudes towards these guidelines and to identify potential barriers to their implementation in the ED. **Methods:** We distributed an online, cross sectional survey to 500 randomly selected members of the Canadian Association of Emergency Physicians (CAEP) who were currently practicing physicians. A total of 3 email notifications were distributed on days 1, 7 and 14. The survey consisted of 23 questions relating to physician management of DKA and HHS in the ED. The primary outcome was overall physician familiarity and usage of the guidelines using a 7-point Likert scale. Secondary outcomes included physician attitudes towards the guidelines as well as any perceived barriers to their implementation in the ED. Simple descriptive statistics were used to illustrate the survey results. **Results:** The survey response rate was 62.2% (311/500) with the following participant characteristics: male (62.6%), CCFP(EM) training (46.1%) and working in major academic centers (50.5%). The overall awareness rate of the CDA guidelines was 22.9% (95% CI = 18.3%, 27.5%). 58.9% (95% CI = 53.3%, 64.3%) reported the CDA guidelines being useful. The most frequently reported barriers to CDA guideline implementation were concerns about education issues (56.0%), lack of time and disruption of flow (23.9%), staffing and human resource issues (26.7%) and poor policy adherence (25.5%). Physician's ideal changes to optimize the management of these patients included improved coordination for follow-up with family physicians (79.9%), increased diabetes education for patients (73.9%) and increased availability to diabetes specialists (47.5%). **Conclusion:** In this study, although Canadian ED physicians were generally supportive of the CDA guidelines, many were unaware that these guidelines existed and barriers to their implementation were reported. Future research should focus on strategies to standardize DKA and HHS management by ensuring physician awareness and education to ensure the highest quality of patient care.

**Keywords:** clinical guidelines, diabetic ketoacidosis, hyperosmolar hyperglycemic state

#### LO068

##### Physician adherence to Antimicrobial Guidelines for Community Acquired Pneumonia in the St. Michael's Hospital Emergency Department

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**Introduction:** The Toronto Central Local Health Integration Network released new antimicrobial guidelines for the treatment of community acquired pneumonia (CAP) in August 2013. These deemphasized antimicrobial coverage for atypical organisms and use amoxicillin-clavulanic acid (AMC) as first-line for low risk CAP. The purpose of this study was to assess physician adherence to these guidelines in St. Michael's Hospital (SMH) Emergency Department (ED). **Methods:** A retrospective chart review was conducted from April 1 to May 31 in

2013, 2014 and 2015. All adult patients who were discharged home from the ED with a diagnosis of pneumonia were included. Severity of pneumonia was graded based on the CRB-65 score as per the CAP guidelines. Primary outcome was type of antibiotic prescribed by the ED physician. Data was analyzed using simple descriptive statistics. **Results:** There were a total of 141 patients analyzed during the study period (N = 46 in 2013, N = 59 in 2014, N = 36 in 2015). Demographics and relevant comorbidities were similar across the years: age (2013: median = 53 years, range 20-92 years; 2014: 56, 21-83; 2015: 54, 20-81); preexisting lung disease (30%, 27%, 25% respectively); HIV positive status (9%, 7%, 17%). CRB-65 score was: low risk (0 points) = 70% in 2013, 66% in 2014, 75% in 2015; intermediate risk (1-2 points) = 30%, 34%, 25%; high risk (3-4 points) = 0% in all years. Percentage of patients discharged home with a documented prescription was 83%, 85%, and 94% respectively. In 2013, patients received azithromycin (AZM) (n = 17, 43% of antibiotic prescriptions that year); levofloxacin (LVX) (n = 10, 25%); AMC (n = 5, 13%); clarithromycin (CLR) (n = 5, 13%); trimethoprim-sulfamethoxazole (SXT) (n = 2, 5%); doxycycline (DOX) (n = 1, 3%). In 2014: AMC (n = 26, 51%); AZM (n = 12, 24%); LVX (n = 9, 18%); CLR (n = 2, 4%); DOX (n = 1, 2%); erythromycin (ERY) (n = 1, 2%). In 2015: AMC (n = 17, 47%); AZM (n = 12, 33%); LVX (n = 4, 11%); CLR (n = 1, 3%); SXT (n = 1, 3%); DOX (n = 1, 3%). Number of return ED visits within 2 weeks were: n = 16 (35%); n = 11 (19%); and n = 10 (28%) respectively. **Conclusion:** The results of this study show that there has been a change in antibiotic prescribing practices in the SMH ED since dissemination of the CAP guidelines, with AMC accounting for nearly half of antibiotic prescriptions. Further antimicrobial stewardship efforts will focus on evaluating factors influencing prescribing practices. **Keywords:** community-acquired pneumonia, quality improvement, antibiotic stewardship

#### LO069

##### **Current management of pharyngitis in the emergency department: a retrospective multicenter observational study**

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**Introduction:** Pharyngitis is a common presenting complaint at the emergency department (ED). Historically, acute pharyngitis has been overdiagnosed as the result of a bacterial etiology, leading to overprescription of antibiotics, and overuse of throat culturing. This study attempts to quantify the current management of acute pharyngitis in the ED, and compare to the theoretical management using a modified Centor score. **Methods:** This was a retrospective chart review of 1640 patients who presented to four EDs in the central zone of the Nova Scotia Health Authority that received a diagnosis of pharyngitis, bacterial pharyngitis or tonsillitis. The primary outcome was the observed rate of each diagnosis in the study population, the rate of antibiotic prescription, and the rate of throat swab cultures performed. The secondary outcomes were the rate of antibiotics and throat swabs ordered using a modified Centor score. Antibiotics as first-line treatment were indicated if the Centor score was three or greater, and throat cultures were indicated if the Centor score was two or greater. **Results:** A total of 1596 patients were included in the analysis. Antibiotics were given in 893 patients (0.559; 95% CI: {0.535, 0.584}). Cultures were sent on 863 patients (0.541 CI: {0.516, 0.565}). Using the modified Centor thresholds, we would have prescribed antibiotics as the first-line treatment in 77 cases (0.048 CI: {0.038, 0.060}), potentially saving 786 prescriptions, and ordered throat swabs on 502 patients

(0.315, CI: {0.292, 0.338}), saving 361 cultures. The most commonly prescribed antibiotic was penicillin, and the least prescribed was metronidazole. **Conclusion:** Over half of patients that present with acute pharyngitis receive an antibiotic, and over half have a throat swab culture performed. Utilizing a modified Centor score would result in decreased antibiotic prescription rate, and a diminished rate of throat cultures. Incorporation of these Centor criteria could result in diminished antibiotic prescription rates for acute pharyngitis in the ED.

**Keywords:** antibiotic, pharyngitis

#### LO071

##### **Influenza and pneumococcal vaccinations in the emergency department**

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**Introduction:** Influenza and pneumococcal disease are vaccine preventable diseases that account for significant morbidity and mortality in Canada. Influenza vaccination has been shown to reduce mortality and pneumococcal vaccination reduces invasive pneumococcal disease. Previous studies have shown that emergency department (ED) patients are often at high risk for influenza and pneumococcal disease and willing to be vaccinated during their ED stay. Our study set out to determine what proportion of adult patients in the ED qualify for and are willing to be vaccinated against influenza and pneumococcus during their ED visit. **Methods:** Our study used a convenience sample of patients presenting to the ED at a large Canadian tertiary care centre (Vancouver General Hospital). Inclusion criteria were: adult patients (19 years or greater); consenting to be screened for immunization status; and able to communicate in English. The exclusion criteria were: critically ill patients and patients in severe pain. The primary outcome was the proportion of patients presenting to the ED that could be immunized for influenza and pneumococcus (member of a high risk group, unvaccinated and willing to be vaccinated). Secondary outcomes included additional demographic characteristics and patient attitudes regarding vaccination. **Results:** We screened 413 patients of which 55 did not meet inclusion/exclusion criteria and 104 declined participation. A total of 254 patients completed the survey for a response rate of 71%. Our primary outcome was present in 20% of patients for influenza (high risk for complications, unvaccinated and willing to be vaccinated in the ED). For pneumococcus, 15% were at high risk, unvaccinated and willing to be vaccinated in the ED. In our population, 83% were at high risk of complications from influenza and 58% were at high risk of complications from pneumococcus. In total, 53% of patients would accept influenza vaccine and 44% would accept pneumococcal vaccine. **Conclusion:** Our study demonstrates that there is a significant high-risk population that is otherwise unreached and are willing to be vaccinated for influenza and pneumococcus in the ED. Our patient population has a very high prevalence of risk factors for complications of pneumonia and influenza. This data suggests that ED patients are a high-risk population and could be a target group for vaccination campaigns.

**Keywords:** influenza, pneumococcus, vaccination

#### LO072

##### **Fever in the returning traveller: a systematic review and critical appraisal of existing clinical practice guidelines and approaches to returning travellers presenting with fever**