

(ETI); non-invasive ventilation(NIV); diagnosis of acute myocardial infarction(AMI); or death within 30 days. Using a validated approach, an ED physician analyzed case summaries for flagged outcomes that were associated with ED care, designated as AEs. Preventable AEs had contributing errors in diagnosis, management, procedure, medications or unsafe disposition decisions. We analyzed these data using thematic coding and descriptive statistics. **Results:** Of 2,515 patients enrolled (1,100 HF and 1,415 COPD), 210 patients experienced flagged outcomes, 47.1% of which were female, 64.3% had HF and the remaining COPD. The majority (86.2%) of flagged outcomes were related to underlying disease, but 13.8% of cases met criteria for AE and all were deemed preventable. Of the identified AEs, 72.4% returned to the ED and required admission to hospital; 17.2% were admitted to ICU, CCU, or AMU; 6.9% of patients died; 3.4% were intubated; 3.4% had a diagnosis of AMI and 0% required NIV. We found 75.8% of preventable AEs resulted from a management error (eg. not prescribing steroids on discharge for moderate COPD exacerbation); 31.0% from an unsafe disposition decision and 10.3% of AEs resulted from diagnostic error. **Conclusion:** Patients with acute exacerbations of HF and COPD are at high risk of preventable AEs directly related to care provided in the ED. Management and disposition decisions were a concerning source of error and should compel and focus future quality improvement efforts.

Keywords: heart failure, chronic obstructive pulmonary disease patient safety

LO003

Outpatient referrals from the emergency department - a retrospective review

N. Prudhomme, MSc, MD, S. White, BA, E.S. Kwok, MD; University of Ottawa, Ottawa, ON

Introduction: While a majority of patients presenting to the emergency department (ED) are discharged home without need for inpatient hospitalization, many require outpatient follow-up. Currently, outpatient referrals from our ED are made via a complex and error-prone series of manual steps which have the potential to be unreliable and negatively impact quality of care. We sought to perform a current state analysis of our outpatient referral processes across the hospital's specialties. **Methods:** We conducted a retrospective health records review at a tertiary academic centre (>160,000 ED visits/year) from January 1 to January 7, 2015. All consecutive outpatient consultation requests triggered by an ED physician were identified and included for chart review. All cases were subsequently followed up to 11 months. A single reviewer extracted data on demographics, actual referral attendance rates, incomplete referrals, return ED visits, and time intervals. The top 3 and bottom 3 performing services were identified for further analysis of their outpatient referral mechanisms and processes. We present descriptive statistics. **Results:** A total of 251 outpatient referrals to a broad range of specialty services were identified during the study period. 216 (86.1%) of patients attended the intended appointment, while 35 (13.9%) of referrals were incomplete at 11 months post index ED visit. The overall median time to successful outpatient follow-up appointments was 8.5 days [IQR = 3.8-24.2]. 8 (3.2%) patients had a return ED visit for a related complaint prior to being seen at their outpatient appointment. The top 3 performers were Ophthalmology [Median = 1.0 day, IQR = 0.0-1.0, Incomplete = 2.8%], Plastic Surgery [Median = 5.0 days, IQR = 2.8-6.0, Incomplete = 7.7%], and Orthopedics [Median = 8.0 days, IQR = 7.0-10.0, Incomplete = 0.0%]. The bottom 3 performers were Dermatology [Median = 52days, IQR = 41.5-92.5, Incomplete = 25.0%], Neurology [Median = 40.0 days, IQR = 2.5-43.5, Incomplete = 56.3%], and Urology [Median = 14.0 days, IQR = 10.5-48.0, Incomplete = 33.3%]. **Conclusion:** We found a

tremendous range of variability in both the waiting times and actual reliability of outpatient referral processes from the ED. Future phases of this project will focus on examining specific processes of the top and bottom performing specialties in order to improve and standardize all outpatient referrals.

Keywords: outpatient referrals, follow-up, quality improvement

LO004

Short-term risk of arrhythmias among syncope patients presenting with atrial fibrillation/flutter to Canadian emergency departments

C. Toarta, BSc, K. Kwong, BSc, I.G. Stiell, MD, MSc, M.A. Mukarram, MBBS, MPH, M. Taljaard, PhD, R. Sheldon, MD, PhD, G.A. Wells, PhD, V. Thiruganasambandamoorthy, MD, MSc; University of Ottawa, Ottawa, ON

Introduction: Short-term risk of arrhythmia or death among emergency department (ED) syncope patients with atrial fibrillation/flutter (AFF) has not been reported in the literature. Our objectives were to assess the incidence and the independent risk of 30-day arrhythmia or death for syncope patients with AFF after ED disposition. **Methods:** We conducted a prospective study at 6 Canadian academic EDs to include adults with syncope. We collected demographic, clinical and ECG characteristics while our outcome assessments were completed by medical records review and by telephone follow-up of patients after 30 days. Primary outcome was arrhythmia or death within 30-days after ED disposition and secondary outcomes included non-arrhythmic cardiac and non-cardiac outcomes. We performed descriptive and logistic regression analyses. **Results:** We enrolled 4,266 patients: mean age 53.4 years, 55.4% females, and 8.5% with AFF. After excluding those with outcomes in the ED, lost to follow-up and those with other non-sinus rhythms, 3,417 patients in the sinus and 280 patients in the AFF groups were analyzed. The incidence of arrhythmia or death was significantly higher in the AFF group (Relative Risk 5.1; 95% CI 3.1-8.4; $p < 0.0001$) but there were no significant differences in secondary outcomes between the groups. The unadjusted odds ratio for 30-days arrhythmia or deaths among ED syncope patients with AFF was 5.4 (95% CI 3.2- 9.2). After adjusting for important baseline risk factors by multivariable analysis, the odds ratio for arrhythmia or death in patients with AFF was 1.5 (95% CI 0.8-2.7). **Conclusion:** The risk of AFF for 30-day arrhythmia or death among syncope patients after ED disposition is higher but is attenuated when adjusted for important patient characteristics. Future research should assess long-term outcomes among syncope patients with AFF to guide follow-up after ED discharge.

Keywords: arrhythmia, atrial fibrillation/flutter, syncope

LO005

Association between emergency department chest pain volume and outcomes among patients presenting with chest pain

N.D. Dattani, MD, M. Koh, MSc, A. Chong, BSc, A. Czarnecki, MD, D.T. Ko, MD, MSc; University of Toronto, Toronto, ON

Introduction: Chest pain is one of the most common reasons for emergency department (ED) visits in developed countries. Patients discharged after ED assessment remain at risk for adverse cardiac events. Although a volume-outcome relationship has been shown for myocardial infarction, it is uncertain whether a similar relationship exists with ED chest pain volume. Accordingly, we aimed to determine whether ED chest pain volume influences outcomes of patients presenting to the ED with chest pain who were discharged home. **Methods:** This was a retrospective cohort study using population-based