

analyses, the education intervention alone did not produce a statistically significant change when factoring possible background time-related trends ( $P = 0.071$ ). However, the forcing function produced a statistically significant improvement ( $P < 0.0005$ ), which was maintained for 6 months.

**Conclusion:** The combination of a brief education-based intervention and a computerized forcing function was more effective than education alone in reducing solitary blood culture collection in our emergency department in this time series study. Forcing functions can be a powerful tool in modifying behaviours and processes in the clinical setting.

**Keywords:** quality assurance, blood cultures, computerized order entry

#### MP12

##### **Acute asthma presentations to emergency departments in Alberta: an epidemiological analysis of presentations**

C. Alexiu, BSc, L. Krebs, MPP, MSc, C. Villa-Roel, MD, PhD, B.R. Holroyd, MD, MBA, M. Ospina, PhD, C. Pryce, BScN, MN, J. Bakal, PhD, S.E. Jelinski, PhD, DVM, G. Innes, MD, E. Lang, MD, B.H. Rowe, MD, MSc, University of Alberta, Edmonton, AB

**Introduction:** Asthma is a chronic condition and exacerbations are a common reason for emergency department (ED) presentations across Canada. The objective of this study was to characterize and describe acute asthma presentations over a five-year period. **Methods:** Administrative health data for Alberta from 2011-2015 was obtained from the National Ambulatory Care Reporting System (NACRS) for all adult (>17 years) acute asthma (ICD-10-CA: J45) ED presentations. All presentations to an Alberta ED with a primary or secondary diagnosis of acute asthma were eligible for inclusion. Presentations with a Canadian Triage and Acuity Scale (CTAS) score of 1 were excluded. Data from NACRS were linked with a provincial diagnostic imaging database. Data are reported as means and standard deviation (SD), medians and interquartile range (IQR) or proportions, as appropriate. **Results:** From 2011-2015, a total of 51,269 (~10,000/year) acute asthma presentations were made by 34,481 patients (~0.3 presentations per patient per year). The median age was 35 years (IQR: 25, 49 years) and more patients were female (57.2%). Few patients arrived to the ED by ambulance (6.5%) and the most frequent CTAS score was 3 (43.5%). The majority of these patients (77%) had a primary diagnosis of asthma in the ED. Differences were explored between those with a primary asthma diagnosis and those with a secondary diagnosis (e.g., ambulance arrival, length of stay, hospital admission, etc.). Although differences were statistically significant, no clinically relevant differences were identified. Patients with asthma most frequently had a co-diagnosis of acute upper respiratory infection (6.2%); other co-diagnoses included bronchitis (4.7%), pneumonia (3.7%), heart failure (0.18%), pulmonary embolism (0.15%), and pneumothorax (0.03%). For 39.3% of patients, ED management included chest x-ray. The majority of patients were discharged from the ED (92.2%) following a median length of stay of 2.2 hours (IQR: 1.2, 3.8 hours). **Conclusion:** Acute asthma remains an important ED presentation in Alberta and the absolute frequency of presentations has remained relatively stable over the past five years. Frequency of chest x-ray ordering is high and represents a target for future interventions to reduce ionizing radiation exposure, improve patient flow and reduce healthcare costs.

**Keywords:** emergency department, asthma, epidemiology

#### MP13

##### **Characteristics and outcomes of older emergency department patients assigned a low acuity triage score**

A. Hendin, MD, D. Eagles, MD, V.R. Myers, MSc, I.G. Stiell, MD, MSc, University of Ottawa, Ottawa, ON

**Introduction:** Older patients are a high-risk population in the Emergency Department (ED) for poor outcomes after ED visit, including return presentation and hospital admission. Little is known however about outcomes in older patients identified as “low acuity” by triage. We aim to describe the characteristics, ED workup, disposition, and 14-day outcomes of ED patients 65 years and up who are triaged as low acuity and compare them to a younger cohort. **Methods:** This health records review was done in a Canadian tertiary care ED. Included patients received a Canadian Triage Acuity score (CTAS) of 4 or 5 and were either 65 years and up (“older” group), or 40-55 years (controls). Data collected included patient demographics, tests and services involved in ED, and disposition. Return ED visit and hospital admission rates at 14 days were tracked. Data were analyzed descriptively and chi-square testing conducted to assess for differences ( $p < 0.05$ ) between groups. A pre-planned stratified analysis of patients 65-74 years, 75-84, and 85 and older was conducted. **Results:** 350 patients (mean age 76.5, 56.6% female) were included in the older group and 150 in the control group (mean age 47.3, 55.3% female). Most patients presented with musculoskeletal or skin complaints (older cohort: 28.6% extremity pain/injury, 10% rash, 8.9% laceration, versus control 30% extremity pain/injury, 14.7% rash, 14.0% laceration) and were triaged to the ambulatory care area (88.6% elderly, 99.3% control). Older patients were significantly more likely than younger controls to be admitted on index visit (5.0% vs 0.3% admit rate,  $p = 0.016$ ). They had a trend towards increased re-presentation rates within 14 days (13.7% vs 8.7% control,  $p = 0.11$ ) and were more likely to be admitted on re-presentation (4.0% vs 0.7%,  $p = 0.045$ ). In sub-group analysis, very elderly patients (85 years and up,  $n = 79$ ) were more likely to be admitted (8.9%,  $p = 0.003$ ). **Conclusion:** Patients 65 years of age and older who present to the ED with issues labelled as “less acute” at triage are 16 times more likely to be admitted than younger controls. Patients 85 years and up are the primary drivers of this higher admit rate. This study characterizes “low acuity” elders presenting to ED and indicates these patients are high risk for re-presentation and admission within 14 days.

**Keywords:** geriatrics, triage

#### MP14

##### **Prospective external validation of the Ottawa 3DY screening tool for the detection of altered mental status of elderly patients presenting to the emergency department**

B. Kim, BSc, Q. Salehmohamed, BSc, R. Stenstrom, MD, S. Barbic, PhD, D. Barbic, MD, MSc, University of British Columbia, Vancouver, BC

**Introduction:** Altered mental status (AMS) and cognitive impairment are common problems in elderly patients presenting to the emergency department (ED). The primary objective of this study was to test the diagnostic accuracy of the Ottawa 3DY (O3DY) screening tool for the detection of AMS in the ED. **Methods:** This was a prospective cohort study conducted at an inner city, academic ED with an annual census of 85,000 visits. Study investigators and trained research assistants screened and approached a convenience sample of patients for informed written consent. Patients completed the O3DY, Short Blessed Test (SBT) and Mini-Mental Status Exam (MMSE). Descriptive statistics using counts, medians, means and interquartile ranges (IQR) were calculated. Sensitivity and specificity of the O3DY compared to the MMSE were calculated in STATA (version 11.2). **Results:** We screened 163 patients for inclusion, 150 were eligible to participate, and 116 patients were enrolled in the final study. The median age of participants was 81 (IQR 77-85), 44.8% were female, and the most common pre-existing comorbidity was hypertension. The median ED

LOS at the time of O3DY completion was 1:40 (IQR 1:34-1:46). Characteristics of patients eligible, yet who declined to participate, were similar to the study population. The sensitivity of the O3DY for AMS was 71.4% (95%CI 47.8-95.1), and specificity was 56.3% (46.7-65.9). Sensitivity of the SBT was 85.7% (67.4-99.9) and specificity was 58.3% (48.7-67.8). Inter-rater reliability for the O3DY ( $k = 0.64$ ) and SBT ( $k = 0.63$ ) were moderate. **Conclusion:** In a cohort of geriatric patients presenting to an inner-city, academic ED the O3DY and SBT tools demonstrate moderate sensitivity and specificity for the detection of AMS. **Keywords:** geriatrics, altered mental status, Ottawa

### MP15

#### Profile and circumstances of cycling injuries: Data from an urban emergency department

J.R. Brubacher, MD, R. Yip, MSc, A. Trajkovski, MSc, C. Lam, BSc, G. Sutton, MSc, T. Liu, MSc, H. Chan, PhD, University of British Columbia, Vancouver, BC

**Introduction:** Cycling as a form of active transportation is popular in many urban communities. However, little is known about the prevalence and circumstances of cycling injuries, particularly injuries resulting from single bicycle crashes which are not recorded in road trauma surveillance systems based on police crash reports. This study aimed to examine the profile and circumstances of cycling injuries seen in an urban emergency department (ED). **Methods:** This was a cross-sectional historical chart review study. All injured patients attending our ED are electronically flagged according to mechanism of injury. We reviewed the medical charts of all ED visits in 2015 that were flagged as “Cyclist Injury” or “Fall” to identify all cyclists who were injured while travelling on public roads (including sidewalks). Off road injuries were excluded. **Results:** In 2015, a total of 6450 ED presentations were flagged as cyclist injury ( $n = 694$ ) or fall ( $n = 5756$ ), and 667 cycling injuries met our inclusion criteria. Of these, 73 (11%) were admitted to hospital. The most common mechanisms of injury were fall from bicycle (51%), crash into stationary object (16%), and collisions with moving motor vehicles (25%). Potential contributing factors included alcohol or drug impairment (11%), road hazards (9%), avoidance manoeuvre (5%) and dooring (3%), although the cause of the crash was generally poorly documented in the medical charts. The most common injured body regions were upper extremity (55%) followed by head and neck (34%). Most injuries were abrasions/lacerations and fractures. **Conclusion:** Two thirds of cyclist injuries in this series were caused by single bicycle incidents, events not captured in official road trauma statistics which are based on police crash reports. The large majority of injured cyclists were treated and released from the ED. In most cases, the cause of the crash was poorly documented. This data highlights the limitations of using police crash reports or hospital admission records for road trauma surveillance and the significant knowledge gap in our understanding of causative factors leading to cycling injuries.

**Keywords:** road trauma, cyclists

### MP16

#### Quality of work life among nurses and physicians in Québec rural emergency departments

R. Fleet, MD, PhD, G. Dupuis, PhD, M. Mbakop-Nguebou, P.M. Archambault, MSc, MD, J. Plant, MD, J. Chauny, MD, MSc, J. Levesque, PhD, M. Ouimet, PhD, J. Poitras, MD, J. Haggerty, PhD, F. Légaré, MD, PhD, Université Laval and CHAU Hôtel-Dieu de Lévis, Lévis, QC

**Introduction:** Recruitment and retention of healthcare staff are difficult in rural communities. Poor quality of work life (QWL) may be an underlying factor as rural healthcare professionals are often isolated and work with limited resources. However, QWL data on rural emergency (ED) staff is limited. We assessed QWL among nurses and physicians as part of an ongoing study on ED care in Québec. **Methods:** We selected EDs offering 24/7 medical coverage, with hospitalization beds, in rural or small towns (Stats Canada definition). Of Québec’s 26 rural EDs, 23 (88%) agreed to participate. The online Quality of Work Life Systemic Inventory (QWLSI, with 1 item per 34 “life domains”), was sent to all non-locum ED nurses and physicians (about 500 potential participants). The QWLSI is used for comparing QWL scores to those of a large international database. We present overall and subscale QWL scores as percentiles (PCTL) of scores in the large database, and comparisons of nurses’ and physicians’ scores (t test). **Results:** Thirty-three physicians and 84 nurses participated. Mean age was 39.8 years ( $SD = 10.1$ ): physicians = 37 (7.7) and nurses = 40.9 (10.7). Overall QWL scores for all were in the 32nd PCTL, i.e. low. Nurses were in the 28th PCTL and physicians in the 44th ( $p > 0.05$ ). For both groups, QWL was below the 25th PCTL i.e. very low, for “sharing workload during absence of an employee”, “working equipment”, “flexibility of work schedule”, “impact of working hours on health”, “possibility of being absent for familial reasons”, “relations with employees”. The groups differed ( $p < 0.05$ ) on only two subscales: remuneration and career path. For remuneration, scores were similar on fringe benefits (nurses 22nd PCTL, physicians 32nd) and income security (nurses 72nd, physicians 74th), but differed on income level (nurses 74th, physicians 93rd). The groups differed on all 3 career path items: advancement possibilities (nurses 53th, physicians 91st), possibilities for transfer (nurses 51nd, physicians 84th) and continuing education (nurses 18th, physicians 49th). **Conclusion:** Overall QWL among rural ED staff is poor. Groups had similar QWL scores except on career path, with physicians perceiving better long-term prospects. Given difficulties in rural recruitment and retention, these findings suggest that QWL should be assessed in rural and urban EDs nationwide.

**Keywords:** rural, quality of work life, emergency

### MP17

#### Improving Communications during Aged Care Transitions (IMPACT): lessons learned

P. McLane, BA, MA, PhD, K. Tate, B.H. Rowe, MD, MSc, C. Estabrooks, PhD, G. Cummings, PhD, Emergency Strategic Clinical Network, Alberta Health Services, Edmonton, AB

**Introduction:** When patients transition from long term care (LTC) to emergency departments (ED), communication among clinicians in different settings is often poor. We pilot tested a transfer form to facilitate communications of handover information among LTCs, emergency medical services (EMS), and EDs regarding LTC residents transitioning to and from the ED. We interpret implementation challenges in light of the “theoretical domains” implementation framework in order to produce lessons for future healthcare communication interventions. **Methods:** We provided setting specific training and a user guide to 13 participating sites, collected 90 forms to assess completion rates, and assessed perspectives on the form from 266 surveys of healthcare providers. Throughout the study, staff kept detailed notes on implementation of the form. We retrospectively categorized implementation challenges reported by survey respondents, and/or recorded in staff implementation notes, according to the theoretical domains framework. **Results:** The LTC patient transfer forms were used in 36.4% of