four-month pilot evaluation of medical scribes in the emergency department of the Queensway-Carleton Hospital in Ottawa, Ontario. Eleven scribes were utilized in the study ranging in age from 18 to 23 years old. Following scribe training and an initial two-month acclimation period for both scribes and physicians, data collection began January 2015. Twenty-two full or part time emergency physicians were followed in this study, who received shifts with and without a scribe over the next four months. Physician work hours as well as the number of patients seen by each physician on each shift was documented. From these metrics, PPH per physician was calculated for each shift. Across the four months, the average PPH was determined for each physician during shifts with a scribe and shifts without a scribe. Two-tailed paired-samples t-tests ($\alpha = 0.05$) were used to compare mean (SD) PPH within physicians based on presence or absence of a scribe. **Results:** A total of 463 physician hours were documented without use of a scribe and 693.75 physician hours were documented with use of a scribe. Across all 22 physicians in the study, 18 (81.8%) demonstrated a greater PPH with use of a scribe. Overall, PPH per physician was significantly greater (12.9%) during shifts with a scribe (mean 2.81, SD 0.78) compared to shifts without a scribe (mean 2.49, SD 0.60) ($p = 0.006$). Sensitivity analyses revealed that PPH per physician during shifts without a scribe during the study period were similar to the year prior, before scribes were introduced to the hospital ($p = 0.315$). **Conclusion:** Use of medical scribes resulted in an increased PPH per physician in our hospital. While these results were from an evaluation at a single centre, they support broader implementation and evaluation of scribes in more centres across Canada.

Keywords: health systems, productivity, wait times

LO56

Novel role of physician navigators on performance indicators in the emergency department

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Introduction: Burnout rates for emergency physicians (EP) continue to be amongst the highest in medicine. One of the commonly cited sources of stress contributing to disillusionment is bureaucratic tasks that distract EPs from direct patient care in the emergency department (ED). The novel position of Physician Navigator was created to help EPs decrease their non-clinical workload during shifts, and improve productivity. Physician Navigators are non-licensed healthcare team members that assist in activities which are often clerical in nature, but directly impact patient care. This program was implemented at no net-cost to the hospital or healthcare system. **Methods:** In this retrospective study, 6845 clinical shifts worked by 20 EPs over 39 months from January 1, 2012 to March 31, 2015 were evaluated. The program was implemented on April 1, 2013. The primary objective was to quantify the effect of Physician Navigators on measures of EP productivity: patient seen per hour (Pt/hr), and turn-around-time (TAT) to discharge. Secondary objectives included examining the impact of Physician Navigators on measures of ED throughput for non-resuscitative patients: emergency department length of stay (LOS), physician-initial-assessment times (PIA), and left-without-being-seen rates (LWBS). A mixed linear model was used to evaluate changes in productivity measures between shifts with and without Physician Navigators in a clustered design, by EP. Autoregressive modelling was performed to compare ED throughput metrics before and after the implementation of Physician Navigators for non-resuscitative patients. **Results:** Across 20 EPs, 2469 shifts before, and 4376 shifts after April 1, 2013 were analyzed. Daily patient volumes increased 8.7% during the period with Physician Navigators. For the EPs who used Physician Navigators, Pt/hr increased by 1.07 patients per hour (0.98 to 1.16, $p < 0.001$), and TAT to discharge decreased by 10.6 minutes (-13.2 to -8.0, $p < 0.001$). After the implementation of the Physician Navigators, overall LOS for non-resuscitative patients decreased by 2.6 minutes (1.0%, $p = 0.007$), and average PIA decreased by 7.4 minutes (12.0%, $p < 0.001$). LBWS rates decreased by 43.9% (0.50% of daily patient volume, $p < 0.001$). **Conclusion:** The use of a Physician Navigator was associated with increased EP productivity as measured by Pt/hr, and TAT to discharge, and reductions in ED throughput metrics for non-resuscitative patients.

Keywords: performance, physician productivity, efficiency

LO57

Validation of the Ottawa 3DY in community seniors in the ED

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Introduction: Cognitive dysfunction is getting more common in geriatric emergency department (ED) patients, as the number of seniors visiting our EDs is increasing. ED guidelines recommend a systematic mental status screening for seniors presenting to the ED. As the existing tools are not suitable for the busy ED environment, we need quicker and easier ways to assess altered mental status, such as the O3DY. The purpose of this study is to assess the effectiveness of the French version of the O3DY to screen for cognitive dysfunction in seniors presenting to the ED. **Methods:** This is a planned sub-study of the INDEED project, which was conducted between February and May 2016 in 4 hospitals across the province of Québec. Inclusion criteria were: patients aged ≥65, with an 8-hour ED stay, admitted on a care unit, independent or semi-independent in their activities of daily living. Exclusion criteria were: patient living in a long-term nursing facility, with an unstable medical condition, pre-existing psychiatric condition or severe dementia, a delirium within the 8-hour exposure to the ED. A trained research assistant collected the following data upon initial interview: socio-demographic information, cognitive assessment (TICS-m), functional assessment (OARS) and delirium screening (CAM). The O3DY was also administered at initial interview and during patient follow-ups, as well as the CAM. **Results:** This study population was composed of 305 participants, of which 47.7% were men. Mean age was 76 years old (SD: 10.8). Nine of these participants had a previous history of dementia. 151 of these participants (47,04%) had a negative O3DY and 154 (47,98%) a positive O3DY at the initial encounter. When compared to the CAM, the O3DY presents a sensitivity of 85.0% (95% CI [62.1, 96.8]) and a specificity of 57.7% (95% CI [51.8, 63.6]) for prevalent delirium. When compared to the TICS, the O3DY presents a sensitivity of 76.7% (95% CI [66.4, 85.2]) and a specificity of 68.1% (95% CI [61.3, 74.3]) for cognitive impairment. The **combined measure** presents a sensitivity of 76.7% (95% CI [66.6, 84.9]) and a specificity of 68.4% (95% CI [61.7, 74.5]). **Conclusion:** A negative result to the O3DY indicates the absence of prevalent delirium or undetected cognitive impairment. The O3DY could be a useful tool for the triage nurses in the ED.

Keywords: validation, Ottawa 3DY, seniors

LO58

Risk factors associated with acute in-hospital delirium for patients diagnosed with a hip fracture in the emergency department

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Introduction: Hip fractures affect over 35,000 Canadians each year. Delirium, or acute confusion, occurs in up to 62% of patients following a hip fracture. Delirium substantially increases hospital length of stay and doubles the risk of nursing home admissions and death. The primary objective of this study was to identify risk factors independently associated with acute in-hospital delirium within 72 hours of emergency department (ED) arrival for patients diagnosed with a hip fracture. **Methods:** This was a retrospective chart review of patients aged 65 years and older presenting to one of two academic EDs with a discharge diagnosis of hip fracture from January 1st 2014 to December 31st 2015. Multivariable logistic regression analysis was used to determine variables independently associated with the development of acute in-hospital delirium within 72 hours of ED arrival. **Results:** Of the 668 included patients, mean (SD) age was 84.1 (8.0) years and 501 (75%) were female. 521 (78.0%) patients received an opioid analgesic and/or femoral nerve block in the ED. The most common analgesics used in the ED were intravenous (IV) morphine (35.8%), IV hydromorphone (35.2%), or dual therapy with both IV hydromorphone and IV morphine (2.2%). Femoral nerve blocks were initiated for 36 (5.4%) patients and successfully completed in 35 (5.2%) patients in the ED. 181 (27.1%) patients developed delirium within 72 hours of ED arrival. History of neurodegenerative disease or dementia (OR: 5.7, 95% CI: 3.9, 8.4), age >75 (OR: 2.8, 95% CI: 1.4, 5.6) and absence of analgesia in the ED (OR: 2.1, 95% CI: 1.3, 3.2) were independently associated with acute in-hospital delirium. **Conclusion:** The development of in-hospital delirium is common in patients diagnosed with a hip fracture. We have identified modifiable and non-modifiable risk factors independently associated with acute in-hospital delirium, which can be identified in the ED. Clinicians should be aware of these risk factors in order to implement strategies directed at reducing the development of acute delirium. Additionally, further research is needed in order to understand the relationship between analgesia delivered in the ED and the development of delirium for patients diagnosed with a hip fracture. **Keywords:** delirium, hip fracture, risk factors

LO59

Police use of force and subsequent emergency department assessment-mental health concerns are the driving force behind ED use and choice of transport mode

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Introduction: We examined persons transported to hospital after police use of force to determine whether Emergency Department (ED) assessment and/or mode of transport could be predicted. **Methods:** A multi-site prospective consecutive cohort study of police use of force with data on ED assessment for individuals ≥18 yrs was conducted over 36 months (Jan 2010-Dec 2012) in 4 cities in Canada. Police, EMS and hospital data were linked by study ID. Stepwise logistic regression examined the relationship between the police call for service and subject characteristics on subsequent ED assessment and mode of transport. **Results:** In 3310 use of force events, 86.7% of subjects were male, median age 29 yrs. ED transport occurred in 26% (n = 726). Odds of ED assessment increased by 1.2 (CI 1.1, 1.3) for each force modality >1. Other predictors of ED use: if the nature of police call was for Mental Health Act (MHA) (Odds 14.3, CI 10.6, 19.2), features of excited delirium (ExD) (Odds 2.7, CI 1.9, 3.7), police-assessed emotional distress (EDP) not an MHA (Odds 2.1, CI 1.5, 3.0) and combined drugs, alcohol and EDP (Odds 1.7, CI 1.9, 3.7). Those with alcohol impairment alone were less likely to go to ED from the scene: OR 0.6 (CI 0.5, 0.7). EMS transported 55% of all patients (n = 401), although

police transported ~100 people who EMS attended at the scene but did not subsequently transport. For patients brought to the ED, 70% had a retrievable chart (512/726) with a discernible primary diagnosis: 25% for physical injury, 32% for psychiatric and 43% for drug and/or alcohol intoxication. For use of force events that began as MHA calls, patient transport was more often by police car than ambulance OR 1.8 (CI 1.2, 2.5), while those with drug intoxication or ≥ 3 ExD features were more often brought by ambulance: odds of police transport 0.5 (CI 0.3, 0.9) and 0.4 (CI 0.3, 0.7). Violence or aggression did not predict mode of transport in our study. **Conclusion:** About one quarter of police use of force events lead to ED assessment; 1 in 4 patients transported had a physical injury of some description. Calls including the Mental Health Act or individuals with drug intoxication or excited delirium features are most predictive of ED use following police use of force. In MHA calls with use of force, persons are nearly twice as likely to go to ED by police car than by ambulance. **Keywords:** emergency medical services, mental health, police

LO60

Validation of the PHQ-9 as a screen for depression in the emergency department

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Introduction: Screening for depression in the emergency department (ED) has been recommended for the last two decades. It is estimated that 1 in 5 adults presenting to the ED meet the criteria for depression, making this setting an ideal point of care for proper and early referral to general practitioners and/or specialist mental health services. One of the barriers to assessment of depression in the ED is a lack of validated tools to screen for depression in this context of use. The purpose of this study is to test the extent to which the commonly used Patient Health Questionnaire (PHQ-9) is valid and reliable to screen for depression in adults presenting to the ED. **Methods:** Adults, aged 19 years and over, presenting to an inner-city, academic ED with an acute mental health complaint (AMHC) completed a questionnaire package that included demographic questions, the PHQ-9, and 5 other questionnaires for validation purposes. Traditional and Rasch Measurement (RM) methods were applied to the data to examine how well the items: captured the 95% range (±2 logits) of the concept of interest, were reliable and valid, and met the criteria for unidimensional and invariant measurement. **Results:** Preliminary prospective data from 108/200 adults (mean age 39.7 ± 13.6 years; 65% male) completed the questionnaire package. A total of 58.9% of the sample met the criteria for moderate-severe depression (PHQ-9 ≥ 15), with 37% reporting thoughts of suicide and/or self-harm nearly every day for the past two weeks. Analysis of these items showed good overall fit to the Rasch model ($\chi^2 = 28.3$, $df = 18$, $p = .06$), good reliability ($r_p = 0.84$), an ordered 4-point response scale structure, excellent individual item fit, and no item bias for gender, age, level of education, or employment status. Items covered between -1.45 to 1.52 logits, spanning 74% of the targeted theoretical continuum, with gaps at each end of the range. Item #3 (trouble falling or staying asleep) was the easiest item (indicating lower depression) and Items #8 and #9 (moving slowly and thoughts of harm/suicide) were the more difficult items (indicating more severe depression). **Conclusion:** This study supports the PHQ-9 as a reliable and valid screen for depression in the ED. Incorporating standardized and uniform assessment in Canadian EDs will begin the process of advancing the role of the ED to initiate evidence-based care to optimize the outcomes of Canadians with an AMHC. **Keywords:** depression, screening, Rasch measurement