

bootstrapping to account for incomplete data and seasonal and daily effect. **Results:** 143 out of a possible 168 observations were completed. Two different combinations of 3 variables outperformed NEDOCS and LOCAL. The most powerful combination was: Boarded Patients; plus Waiting Room Patients; plus Patients in beds To Be Seen, with Sensitivity 81% and Specificity 76% ($r = 0.844$, $\beta = 0.712$, $p < 0.0001$, strong positive correlation). This compared favourably with NEDOCS and LOCAL, each with Sensitivity 71% and Specificity 64% [PA1] ($r = 0.545$ and $r = 0.640$ respectively). We will also present a sensitivity and specificity analysis of all combinations of predictor variables, using various reference standard cut-offs for crowding. **Conclusion:** A combination of 3 easily measurable ED variables (Boarded Patients; plus Waiting Room Patients; plus Patients in beds To Be Seen) performed better than the validated NEDOCS tool and a NEDOCS-derived LOCAL score at predicting ED crowding. Work is on going to design a simple tool that can predict crowding in real time and facilitate early interventions. Correlation with ED system and clinical outcomes should be studied in different ED environments.

Keywords: emergency department, crowding, overcapacity

LO53

Resuscitation status documentation availability among emergency patients with advanced disease

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Introduction: Patients with advanced malignant and non-malignant disease (advanced disease—AD) who do not want or benefit from aggressive resuscitation may unfortunately receive such treatments if unable to communicate in an emergency. Timely access to patients' resuscitation wishes is imperative for treating physicians and for medical information systems. Our aim was to determine what proportion of emergency department (ED) patients with AD have accurate, readily accessible resuscitation status documentation. **Methods:** This cross-sectional, prospective study was conducted at a tertiary care ED during purposefully sampled random accrual times in summer 2016. We enrolled all patients with: 1) palliative care consultation, 2) metastatic malignancy, 3) COPD or CHF on home oxygen, 4) hemodialysis, or 5) advanced neurodegenerative disease/dementia. The primary outcome was the retrieval of any existing resuscitation status documents. Documentation was obtained from a standardized review of forms accompanying the patient ("arrival documents") and electronic medical record ("EMR"). We measured the time to retrieve this documentation, and interviewed consenting patients to corroborate documentation with their current wishes. **Results:** Of 85 enrolled patients, only 33 (39%) had any documentation of resuscitation status: 28 (33%) had goals of care retrieved from the hospital EMR, and 11 (15%) from arrival documents (some had both). Patients from long-term care facilities were more likely to have documentation available (odds ratio 13 [95% CI 2.5-65] vs community-living). Of 32 patients who were able to be interviewed, 20 (63%) expressed "do not resuscitate" wishes. Ten of these 20 lacked any documents to support their expressed resuscitation wishes. Previously expressed resuscitation wishes took more than 5 minutes to be retrieved in 3 cases when not filed "one click deep" in our EMR. **Conclusion:** The majority of patients with AD, including half of those who would not wish resuscitation from cardiorespiratory arrest, did not have goals of care documents readily available upon arrival to the ED. Patients living in the community with AD appear to be at high risk for unwanted resuscitative treatments should they present to hospital *in extremis*. Having documentation of their goals of care that is

easily retrievable from the EMR shows promise, though issues of retrieval, accuracy, and validity remain important considerations.

Keywords: documentation, resuscitation wishes, code status

LO54

A descriptive analysis of ED length of stay of admitted patients 'boarded' in the emergency department

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Introduction: Previous studies have shown a link between Emergency Department (ED) overcrowding and worse clinical outcomes, increased risk of in-hospital mortality, higher costs, and longer times to treatment. Prolonged ED Length of Stay (LoS) of admitted patients awaiting a bed on in-patient units has been identified as a major driver of ED overcrowding. The purpose of this study is to provide a descriptive analysis of ED LoS among admitted patients, and determine the impact of prolonged ED LoS on total hospital in-patient length of stay (IP LoS). **Methods:** We conducted a single-site retrospective study for the period between January 1-December 31, 2015 at a very high volume community hospital. All patients aged ≥ 18 years admitted from the ED to acute in-patient Medicine units were identified. We carried out overall descriptive analysis (including analysis of day-of-the-week variability) on ED LoS. The mean total IP LoS for those patients with ED LoS < 12 hours, 12-24 hours, and ≥ 24 hours were calculated and analyzed using ANOVA and Tukey HSD tests. **Results:** A total of 6,961 individuals were admitted to the medical units over the 12-month period. The median and mean ED LoS for admitted patients were 22.9 hrs (IQR: 13.9 hrs- 33.1 hrs) and 25.6 hrs respectively. Using ANOVA, there was a statistically significant difference in means of ED LoS as a function of the day of the week ($p < 0.0001$), with Mondays having the highest mean ED LoS (27.6 hrs), and Fridays having the lowest (23.1 hrs). The mean IP LoS for those with ED LoS < 12 hours, 12-24 hours, and ≥ 24 hours, were 6.8 days, 6.9 days, and 8.5 days respectively, with a statistically significant difference between group means ($p < 0.0001$). Multiple pairwise comparisons of group means showed a statistically significant ($p < 0.05$) difference between mean IP LoS of those with an EDLoS ≥ 24 hours and those with an EDLoS < 24 hours. **Conclusion:** Preliminary results indicate that ED LoS ≥ 24 hours among admitted patients was associated with an increase in total IP LoS. *In the next 1-2 months, we intend to explore the role of other independent variables (age, sex, comorbidity, isolation status, and telemetry) on total ED LoS, and its association with IP LoS. **Keywords:** overcrowding, quality improvement, adverse events

LO55

A pilot evaluation of medical scribes in a Canadian emergency department

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Introduction: Improving emergency department productivity has been a priority across Canada. In the United States, medical scribes have been utilized to increase the number of patients seen per hour (PPH) per physician; however, it is not well known if these outcomes can be translated to Canada. The purpose of this pilot evaluation was to (a) establish proof-of-concept of medical scribes in Canada and (b) gain experience in scribe implementation so as to inform future directions for the use of scribes in Canada. It was hypothesized that use of medical scribes would result in a greater PPH per physician. **Methods:** We conducted a

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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