

Keywords: palliative care, pediatrics, ethics

P046

The “Nightmares-FM” course: an effective simulation-based acute care training method for family medicine residents

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Introduction / Innovation Concept: Acute care skills are difficult to teach but can be improved using high-fidelity simulation training. We developed a comprehensive acute care “Nightmares-FM” simulation course (NM) for our Family Medicine residents and compared it to our standard simulation teaching- episodic Acute Care Rounds (ACR). **Methods:** NM course consisted of an initial 2 day session followed by 3 follow-on sessions interspersed throughout the PGY-1 year. ACR participants got access to 3 sessions interspersed throughout the PGY-1 year, each focusing on a different aspect of acute care. Both groups got access to the NM manual which covered the relevant topics: shock, arrhythmias, shortness of breath, altered level of consciousness and myocardial infarction. The manual is physiology-based and written specifically at the level that an average Family Medicine resident would be expected to perform at during on-call crises or emergency medicine rotations. 12 residents participating in the NM and 12 residents in time-matched ACR filled out questionnaires asking them to rate their level of knowledge of various aspects of acute care. Self-reported changes before and after each session, and at the end of the year, were analyzed using Wilcoxon matched pairs test. End of the year mean scores were compared using a two sided t-test. Finally, we developed a high-complexity acute care Objective Structured Clinical Examination (OSCE): COPD exacerbation with septic shock requiring use of positive pressure ventilation, fluids and vasopressors. The groups participated in the OSCE in February of their PGY-2 year and were graded using a validated scoring sheet marked by two independent expert video reviewers. **Curriculum, Tool, or Material:** NM initial 2-day session significantly improved the resident’s self-assessment scores on all 20 items of the questionnaire ($p < 0.05$). Time matched ACR improved 11 out of 20 items ($p < 0.05$) level. Follow-up NM sessions improved 5-8 out of 20 items, ($p < 0.05$). Follow-up ACR sessions improved 1-5 out of 20 items, ($p < 0.05$). End of the year means were higher for 13/20 items in the NM group ($p > 0.05$) The NM group scored significantly higher on both the mean scores of OSCE individual categories: Initial assessment, Diagnostic workup, Therapeutic interventions and Communication and teamwork ($p < 0.05$) and the Global Assessment Score ($p < 0.026$). **Conclusion:** “Nightmares-FM” course is more effective than our standard curriculum at teaching acute care skills to Family Medicine residents.

Keywords: innovations in EM education, simulation, acute care

P047

Frailty assessment to help predict patients at risk of ED-induced delirium

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Introduction: Delirium is a frequent complication among seniors in the emergency department (ED). This condition is often underdiagnosed by ED professionals even though it is associated with functional & cognitive decline, longer hospital length of stay, institutionalization and death. Frailty is increasingly recognized as an independent predictor of adverse events in seniors and screening for frailty in EDs has recently

been recommended. The aim of this study was to assess if screening seniors for frailty in EDs could help identify those at risk of ED-induced delirium. **Methods:** This study is part of *the Incidence and Impact measurement of Delirium Induced by ED-Stay* study, an ongoing multicenter prospective cohort study in 5 Quebec EDs. Patients were recruited after 8 hours in the ED exposure & followed up to 24h after ward admission. Frailty was assessed at ED admission using the Canadian Study of Health and Aging-Clinical Frailty Scale (CSHA-CFS) which classified seniors from robust (1/7) to severely frail (7/7). Seniors with CSHA-CFS $\geq 5/7$ were considered frail. Delirium was assessed using the Confusion assessment method and Delirium Index. **Results:** Of the 380 patients recruited, mean age was 76.5 (± 8.9). Male were 50%. Mean stay in the ED was 1.4 day (± 0.82). Preliminary data show an incidence of ED-induced delirium of 8.4%. Average frailty score at baseline was 3.5/7. 72 patients were considered frail, while 289 were considered robust. Among the frail seniors, there were 48.4% (30-66%) patients with ED-induced delirium vs 17.9% (13.7-22.0) in the non-frail ones ($p < 0.0001$). **Conclusion:** Increased frailty appears to be associated with increased ED-induced delirium. Screening for frailty at emergency triage could help ED professionals identify seniors at higher risk of ED-induced delirium. Further studies are required to confirm the importance of the association between frailty and ED-induced delirium **Keywords:** delirium, frailty, seniors

P048

Listening to care partners: a feasible method to screen for frailty in emergency medical services?

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Introduction: Frailty is a state of vulnerability, and may go unrecognized in emergency medical services (EMS). Identifying frailty earlier may allow for services to be offered proactively to maintain function and prevent further health deterioration. The Clinical Frailty Scale (CFS) can be used to screen for frailty, but has only been validated when used by physicians. Our objective was to evaluate the feasibility and validity of a Care Partner-completed CFS, facilitated by a paramedic or nurse. **Methods:** A prospective sample of older adults (age ≥ 70 years) presenting in two settings (to EMS, following a 911 call, and to Geriatric Ambulatory Care) between February 2009 and March 2010 were included. Care partners completed a survey that included the nine-point CFS, which grades from 1 (very fit) to 9 (terminally ill). Demographic, clinical and outcome data were collected from the health care record, with one year follow-up. Based on clinical evaluations a frailty index was calculated for each patient. In each setting, descriptive statistics were used to compare fitter patients (CFS scores < 5) to frailer ones (CFS scores > 4). **Results:** The mean age was 82.2 ± 5.9 years ($n = 198$) and most were women ($n = 118, 62.1\%$). The Care Partner-CFS was incomplete for 3 surveys. The median CFS score in both the clinic and EMS groups was 5 (interquartile range = 4-6). The Care Partner-CFS correlated moderately with their independently assessed frailty index (0.64; $p < 0.01$; $n = 195$). Most patients ($n = 125$; 64%) had frailty scores > 4 . Frail patients were older and had worse health outcomes than the patients with score < 5 . More EMS patients were severely frail or very severely frail compared to the geriatric clinic patients ($n = 19, 19\%$ vs. $n = 5, 5\%$). **Conclusion:** The Care Partner-CFS is a feasible and valid method for evaluating frailty in the EMS and medical clinic settings where frailty was common. It may be a useful EMS screening tool to identify those that could benefit from comprehensive assessment and follow-up after emergency care. Future

research will evaluate this approach in multiple populations with community based follow-up intervention for those at higher risk.

Keywords: frailty, geriatrics, risk screening

P049

A novel administrative database solution for capturing ED patient co-morbidity - the derived Charlson Comorbidity Index

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Introduction: ED patient comorbidity is difficult to ascertain for research. Traditional surrogates such as triage acuity, admission rate, and age have been used to approximate patient complexity. Differences between EDs for the management of similar conditions are nevertheless difficult to reconcile. The Charlson Comorbidity Index (CCI) contains 19 categories and is a validated predictor of the ten-year mortality for a patient who may have a range of comorbid conditions. CCI is based on the International Classification of Diseases (ICD) diagnosis codes found in administrative data such as the Discharge Abstract Database (DAD). The DAD collects this, and other inpatient information, for all Canadian hospitals. We sought to develop a linkage between the regional ED database and the regional inpatient DAD in order to derive a CCI score for each ED patient as a surrogate of comorbidity. **Methods:** We used regional data from Vancouver Coastal Health (VCH) over a 2.5 year period from April 2013 - September 2015. An algorithm was created to identify CCI conditions in the regional DAD. Whenever a patient visited the ED a query was made to the DAD going back for 5 years to acquire CCI relevant diagnoses and enter these diagnoses as well as the CCI weighting into the ED database. Patient DAD records from VCH were utilized no matter in which ED a patient presented. No information from admissions outside the region was available. **Results:** There were 931,596 regional ED visits made by 446,579 unique patients in a total of 11 EDs (6 urban and 5 rural). In total there were 127,233 patients with a CCI score (13.7% of total visits). The average CCI was 0.40 (SD 1.31) with a range of 0.12 at the urban urgent care centre to 0.52 at the urban tertiary care centre. More isolated rural EDs tended to have higher percentages of patients with CCI scores than community urban EDs. Higher acuity, age, and ambulance arrival, ED death, all correlated to higher CCI scores. The most common CCI conditions were "diabetes with complications" (10/11 EDs) and was present in 35,816 (3.8%) visits and "cancer" (10/11 EDs) present in 34,624 (3.7%) ahead of COPD (26,451 visits) and CHF (25,233 visits). **Conclusion:** Use of the CCI is a novel way to passively capture patient comorbidities without reliance on a data entry technician. Limitations include the inability to link to hospitalization data outside a specific health region.

Keywords: comorbidity, Charlson Comorbidity Index, international classification of diseases (ICD)

P050

Electronic health record perceptions and utilization by physicians in urban emergency departments

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Introduction: In 2006, Alberta implemented an Electronic Health Record called the Alberta Netcare Portal (ANP). The ANP provides provincial read-only access to lab tests, diagnostic imaging, medication information and numerous text reports. There is no computerized order entry, and care is coordinated using a hybrid of paper charting and various electronic systems. Here, we quantify observed ANP use by physician participants providing care in four urban Emergency

Departments (EDs) in Alberta. The results form part of a larger mixed methods research project aimed at detecting broader implications of ANP use for patient care. **Methods:** Between October 2014 and July 2015, ED physicians at four EDs (University of Alberta Hospital [UAH], Grey Nuns Community Hospital [GNCH], Foothills Medical Centre [FMC], Peter Lougheed Centre [PLC]) participated in structured clinical observations. Observations were purposively sampled during the first hours of shifts, when physicians orient themselves to the patients they will see during the rest of their shift, including reviewing available historic patient information. Observers used a tablet based tool to generate a time-stamped record of the information tools used alongside patient care. Information tools included permanent paper records, paper excluding permanent documentation, the ANP, clinical and other applications accessed via desktop computers, and mobile devices. Observers also recorded contextual data, including participant commentary, on paper field notes. **Results:** Across the 4 sites, 142 physicians participated in 376 sessions for a total of 566 observed physician-hours. Participants accessed information in different computerized applications and on paper (i.e., a 'hybrid' care environment). The highest proportion of observed physician time interacting with ANP was observed at the UAH (7.0%-8.1%, all values 95% Confidence Intervals). Physicians spent less time using ANP at GNCH (4.1%-4.8%), which was similar to the Calgary EDs (FMC: 4.4-5.3% and PLC: 5.2%-5.9%). Thematic analysis of field notes showed that ANP acceptance was very high. Patient safety concerns were recorded related to care provided alongside 'hybrid' patient records. **Conclusion:** We found high physician acceptance of ANP based on documented comments and observed usage. We posit a high potential for EHRs such as ANP to support improved care coordination which remains partly realized.

Keywords: electronic health record, medical informatics, decision making

P051

Validation of the Sainte-Justine head trauma pathway for children younger than 2 years of age

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Introduction: The PECARN head CT scan rule helps to identify children at risk of clinically important Traumatic Brain Injury (ciTBI) but many children fall in a grey zone while applying the rule (observation vs. CT scan). The C-3PO rule identifies children at risk of skull fracture. The Ste-Justine Head Trauma pathway comprises both rules for the management of all children younger than two years who suffered a head trauma. The primary objective of this study was to measure the capacity of the Ste-Justine Head Trauma pathway to identify children with ciTBI. **Methods:** This was a retrospective study of all children younger than two years old who visited a university affiliated pediatric emergency department (ED) for a head trauma between Sept. 2013 and Aug. 2015. Participants were all patients admitted for a head trauma and a randomly selected sample of 5% of non-admitted patients. Independent variables of the algorithm were recorded for each patient. The primary outcome was the presence of a ciTBI defined by any of the following secondary to TBI: death, neurosurgery, intubation of more than 24 hours or hospitalization for more than one night. Participants were identified using the computerized database of the ED and all charts were reviewed using a standardized report form. The primary analysis was the proportion of children with ciTBI accurately identified using the pathway. A secondary analysis was to compare the performance of the pathway in comparison to the PECARN rule alone. **Results:** During the study period a total of 2,258 children were seen in the ED for head