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Introduction / Innovation Concept: Musculoskeletal medicine (MSKM) complaints account for a significant portion of emergency room visits. Furthermore, MSKM diagnostic and management skills are poorly taught in undergraduate medicine and emergency medicine (EM). Here, we successfully developed an MSKM curriculum resulting in objectively improved resident acumen. **Methods:** Curriculum development was achieved by surveying local EM residents on their perceived MSKM deficits, and effective MSK teaching strategies. A literature search was also completed identifying MSKM teaching shortcomings. Finally, orthopaedic surgeons were asked which clinical entities they thought should be emphasized in our curriculum. **Curriculum, Tool, or Material:** A case-based MSKM curriculum was created. Cases emphasized commonly occurring emergency department presentations, topics that EM practitioners self-identified as requiring further teaching, commonly missed problems at first presentation, and high-risk cases if mismanaged. Curriculum implementation consisted of three, half-day, workshops. Workshops included didactic lectures, MSKM physical exam practice, and MSKM cases. MSKM cases required resident history taking and physical exam practice, radiography interpretation, and management plan formulation. Objective assessments of resident MSKM knowledge and skill were given to the learners before and after the workshops. Survey questions were grouped into 3 categories: MSK assessment, investigation, and management. Questions were scored on a 5-point Likert scale, ranging from "not at all confident" to "very confident". A Wilcoxon Signed Rank Test indicated statistically significant improvement in learner confidence within all three domains after the first workshop (n = 19 learners; assessment: $p < 0.001$, investigation: $p < 0.001$, management: $p < 0.001$), and after the second workshop (n = 24 learners; assessment: $p < 0.001$, investigation: $p < 0.001$, management: $p < 0.001$). **Conclusion:** We successfully incorporated MSKM teaching into our academic curriculum based on previously identified weaknesses, resulting in improved resident MSKM case management. Further MSKM teaching sessions and evaluations to facilitate knowledge and skill maintenance are currently under development.
Keywords: innovations in EM education, curriculum, medical education

P044

HEADSTRONG: helmet education, advocacy, distribution & social media trial to reduce obstacles & nudge group behaviour

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Introduction: Head injury is a major cause of bicycling-related disability and death, and more likely to occur in unhelmeted riders. Legislation regarding helmet use varies by province. In Ontario, helmet use is not mandatory for cyclists >= age 18, and approximately 50 % of adult cyclists do not routinely wear helmets. Non-legislative approaches to increase helmet use have included education, public health campaigns, and helmet giveaways, but sustained effect is typically limited. The goal of the HEADSTRONG Behaviour Study is to identify injured adult cyclists who do not regularly wear helmets, and effect *sustained* helmet use. The strategy incorporates evidence-based elements of health behaviour change, including: reducing barriers, education and modelling, providing necessary materials, and social support. **Methods:** Prospective cohort study in downtown Toronto teaching hospital, launched Nov 2015. ED clinician (EP or NP) will recruit injured cyclists (consecutive, convenience sample) who report not regularly wearing a helmet nor owning a suitable one. Study endpoint: 100 enrolled (to estimate prevalence of usage of +/- 10%, alpha 0.05, power > 90%, assuming 80% study completion and 50 % helmet wearing at 12 months). Exclusion criteria: unable to consent, admitted to hospital, age <18. Each element of the HEADSTRONG Behaviour Strategy is intended to facilitate patient adoption and maintenance of the desired behaviour, including: 1) enrolment/education by research associate while still in the ED; 2) provision and fitting of a free bicycle helmet; 3) social contract commitment and tailored reminders to document ongoing helmet use: participant agrees to respond to brief electronic survey follow-ups at two weeks, two months, six months, and twelve months; 4) social media engagement with participation in the HEADSTRONG Twitter group, which engages other enrolees and cycling advocacy groups; 5) peer nomination: the participant who is complying with the social contract is encouraged to nominate an uninjured non helmet-wearing colleague to enrol in the study. **Results:** Primary outcomes include: recruitment rate, enrolment, and sustained participation through follow-up period. Secondary outcomes include age, gender and social demographics of helmet recipients, and participation of peers. **Conclusion:** Discussion of strategy and interim results at six month interval will be presented at CAEP.
Keywords: injury prevention, bicycling, helmets

P045

What do we know about pediatric palliative care patients who consult the emergency department?

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Introduction: There is very little data about pediatric palliative care (PPC) patients' visits to the emergency department (ED). This study's goal was to determine the characteristics of PPC patients who consult the ED. **Methods:** A five-year retrospective chart review, conducted at a tertiary care pediatric university-affiliated hospital. Eligible patients initially consulted with the PPC team between April 1st 2007 and March 31st 2012. For each eligible patient, ED visits between these dates were included, using the ED's electronic data system. Data about each visit was drawn from the electronic data system and the patient's medical chart. This study was IRB approved. **Results:** During the study period, 290 new patients were followed by the PPC team; of these, 94 (32.4%) consulted the ED at least once (total of 219 visits). The median number of visits per patient was 2 (range: 1-8). Patient median age was 7 years 5 months (range: 1 month-22 years) and most common baseline diagnoses were: oncological diagnosis (39.4%), encephalopathy (27.7%) or genetic/chromosomal anomaly (13.8%). No patients died in the ED, but 36 (38.3%) died during the episode of care following one of their ED visits and 18 (19.1%) of them died within 72h of admission. PPC patients presented to the ED 219 times acutely ill: 11.4% of visits were triaged CTAS (Canadian Triage and Acuity Scale) level 1, 39.3% CTAS 2, 39.3% CTAS 3 and 10% CTAS 4 or 5. Many patients (37.9%) arrived by ambulance, 24.2% were admitted to the resuscitation room. Most patients consulted during day (45.2%) or evening (41.1%) shifts. Median length of stay was 3h50min (range: 13min - 15h10min). Reasons for consultation were respiratory distress/dyspnea (30.6%), pain (12.8%), seizure (11.4%), fever (9.1%), gastrointestinal symptoms (8.2%), fatigue (7.3%) and technical issues with catheters (5.9%). Most (79%) patients had investigations in the ED; 61.2% were admitted to wards, 7.3% to the PICU, and 20.5% were discharged. Two-thirds of patients (65.7%) had previously signed an advanced care directive at the time of their ED visit; discussions about goals of care were present in 37.4% of medical charts. **Conclusion:** Most PPC patients presented to the ED acutely ill, requiring work-up and admission. One-third presented in their end of life. Understanding the characteristics of PPC patients who consult the ED is the first step in offering better care for these complex patients.

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 ($\pm$8.9). Male were 50%. Mean stay in the ED was 1.4 day ($\pm$0.82). Preliminary data show an incidence of ED-induced delirium of 8.4%. Average frailty score at baseline was 3.5/7. 72 patients were considered frail, while 289 were considered robust. Among the frail seniors, there were 48.4% (30-66%) patients with ED-induced delirium vs 17.9% (13.7-22.0] in the non-frail ones ($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 $\geq$ 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 $\pm$ 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