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Introduction: The accurate interpretation of potential ST-segment elevations on electrocardiograms (ECGs) to diagnose acute myocardial infarction (MI) is a critical competency for emergency physicians (EPs) and cardiologists. There is conflicting evidence on the diagnostic accuracy of EPs and cardiologists interpreting potential STEMI ECGs. **Methods:** We conducted a web-based assessment of the diagnostic accuracy of potential STEMI ECGs of Canadian EPs and cardiologists. They were identified using the membership lists of the Canadian Association of Emergency Physicians and the academic departments of cardiology at Canadian medical schools. When provided with 20 ECGs of confirmed STEMI patients, EPs and cardiologists were asked to provide a binary Yes/No answer to the question, "In a patient with ischemic chest pain, does this ECG represent a STEMI?" EPs and cardiologists were blinded to the correct answers while completing the web-based assessment. Descriptive statistics were used to describe frequencies and counts. Analysis using Rasch Measurement Theory was used to explore the relationship between correct interpretation of ECGs and predictive variables such as age, years in practice or type of practice. **Results:** Two hundred and fifty EPs and 30 cardiologists (n = 280) responded to our survey (total response rate 25%). Average years in practice were 12.5 for EPs (SD 10.6; median 10) and 14.6 for cardiologists (SD 10.6; median 11); 52% of EPs and 93% of cardiologists practiced in an academic setting. Seven of the cardiologists were interventionalists, while 47.6% of EPs and 97% of cardiologists practiced at hospitals with 24-hour catheterization capability. The diagnostic accuracy of EPs for identifying STEMI ECGs was 75% (SD 15%); cardiologists' accuracy was 76% (SD 15.5%). The ability to correctly interpret the ECGs was independent of age, years in practice, or type of practice (community vs academic). **Conclusion:** EPs and cardiologists display similar diagnostic accuracy for interpreting STEMI ECGs, regardless of age, years in practice or type of practice. The findings of our study suggest the need for focused ECG education for both EPs and cardiologists.

Keywords: acute myocardial infarction, electrocardiogram (ECG), diagnostic accuracy

MP035

Point-of-care-ultrasound to diagnose appendicitis in a Canadian emergency department

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Introduction: Appendicitis is a common surgical condition that frequently requires patients to undergo diagnostic imaging. Abdominal computed tomography is the gold standard imaging technique for the diagnosis of appendicitis, but exposes patients to radiation. Ultrasound offers an alternate radiation-free imaging modality for appendicitis. However, the availability of ultrasound during off-hours is limited in many Emergency departments (EDs). Clinician performed point-of-care ultrasound (POCUS) is increasingly used by emergency physicians as a bedside tool to evaluate suspected appendicitis. The purpose of this study is to evaluate the test characteristics of emergency physician performed POCUS to diagnose appendicitis in a Canadian ED. **Methods:** A pragmatic, retrospective chart review was performed on all patients for whom a POCUS was performed to diagnose appendicitis at St. Joseph's Healthcare Hamilton in Ontario from December 1, 2010 to December 4, 2015. All POCUS scans were performed by physicians with Registered Diagnostic Medical Sonographer (RDMS) credentials

or resident physicians undergoing POCUS fellowship training. All scans were over-read by RDMS credentialed faculty and subject to a rigorous quality assurance (QA) process. POCUS findings and patient outcomes were reported. **Results:** A total of 90 patients were included in the study. 24 patients were diagnosed with appendicitis on POCUS. Ultimately, 18 were diagnosed with appendicitis through formal imaging, laparoscopy, and pathology. The sensitivity and specificity for POCUS to diagnose appendicitis was found to be 69.2% (95% CI, 48.1%-84.9%) and 90.6% (95% CI, 80.0%-96.1%) respectively. **Conclusion:** Bedside ultrasound is a reliable imaging modality for ruling in acute appendicitis. In cases where POCUS is negative or indeterminate for appendicitis, further imaging should be obtained as clinical suspicion warrants. The use of POCUS has the potential to reduce patient exposure to ionizing radiation and decrease the costs of obtaining CT scans, while hastening the process of achieving definitive management through earlier surgical consultation.

Keywords: appendicitis, point-of-care-ultrasound (PoCUS), diagnostic imaging

MP036

Trauma Resuscitation Using in-situ Simulation Team Training (TRUST): a novel approach to latent safety threat identification in trauma care

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Introduction: Resuscitation of a trauma patient requires a multi-disciplinary team to perform in a dynamic, high-stakes environment. Error is ubiquitous in trauma care, often related to latent safety threats (LSTs) - previously unrecognized threats that can materialize at any time. In-situ simulation (ISS) allows a team to practice in their authentic environment while providing an opportunistic milieu to explore critical events and uncover LSTs that impact patient safety. **Methods:** At a Canadian Level 1 trauma centre, regular, unannounced trauma ISSs were conducted and video-recorded. A retrospective chart review of adverse events or unexpected deaths informed ISS scenario design. Each session began with a trauma team activation. The on-duty trauma team arrived in the trauma bay and provided care as they would for a real patient. Semi-structured debriefing with participant-driven LST identification and ethnographic observation occurred in real time. A framework analysis using video review was conducted by human factors experts to identify and evaluate LSTs. Feasibility was measured by the impact on ED workflow, interruptions of clinical care and participant feedback. **Results:** Six multidisciplinary, high-fidelity, ISS sessions were conducted and 70 multidisciplinary staff and trainees participated in at least one session. Using a framework analysis, LSTs were identified and categorized into seven themes that relate to clinical tasks, equipment, team communication, and participant workflow. LSTs were quantified and prioritized using a hazard scoring matrix. ISS was effectively implemented during both low and high patient volume situations. No critical interruptions in patient care were identified during ISS sessions and overall participant feedback was positive. **Conclusion:** This novel, multidisciplinary ISS trauma training program integrated risk-informed simulation cases with human factors analysis to identify LSTs. ISS offers an opportunity for an iterative review process of high-risk situations beyond the traditional morbidity and mortality rounds; rather than waiting for an actual case to generate discussion and review, we prophylactically examined critical situations and processes. Findings form a framework for recommendations about improvements in

equipment, environment layout, workflow, system processes, effective team training, and ultimately patient safety.

Keywords: simulation, trauma, patient safety

Posters Presentations

P001

Concussion patients in the emergency department: assessing a new triaging tool for follow-up and prompt long term management

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Introduction: Concussion is a common emergency department (ED) presentation. Most patients improve with expectant management. A subset with risk factors for post-concussion syndrome (PCS) may require closer outpatient follow-up. A novel emergency department (ED)/head injury clinic (HIC) triaging system has been created to allow concussed patients rapid access to educational information and specialized consultant services. This system has been well received by patients and physicians alike; however, objective measures are needed to determine if this system ultimately decreases excessive healthcare utilization (HCU) and improves symptom management of PCS. **Methods:** Single centered prospective observational study. Control population of 42 mTBI patients referred to the HIC through the Ontario Acquired Brain Injury (ABI) Network within 3-12 months of injury. These patients have received little concussion education or treatment and will be compared to 50 concussion patients seen in the ED and HIC. Rivermead scores, a validated likert scale of PCS symptoms (1-4, maximum score of 64) and HCU (patient reported number of healthcare visits post injury) will be collected on their initial clinic visit and subsequent follow up phone interview. **Results:** Control ABI network patients were 50% male, mean age 40 yrs (18-90, \pm 16.3) while 83% (35/42) reported > 1 subsequent visit to ED or family physician and 39% (16/42) visited neurologist. Mean Rivermead Score was 32.6 (7-58, \pm 12). **Conclusion:** A significant proportion of control patients utilized multiple healthcare resources and were still symptomatic 3-6 months following injury. Data collection is currently ongoing to determine if rapid outpatient follow-up and education decreases HCU and PCS symptoms.

Keywords: concussion, triaging tool, Rivermead

P002

Ten patients, one ventilator: how to best allocate critical care resources during mass disaster

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Introduction: Any large-scale disaster may place a hospital system in a precarious position. Planning is fundamental to facilitate an equitable process for allocating scarce critical care resources, yet there is a paucity of literature guiding protocol development, and few Canadian hospitals have done this planning. We performed a scoping review of the available literature, and used this data to develop a hospital-wide policy to guide critical care resource allocation as part of the hospital emergency management planning process. **Methods:** A primary search of MEDLINE (1946-2015), EMBASE (1980-2015), Disaster Lit (2002-2010) and Pubmed focusing on *a priori* criteria was completed. A secondary search of the grey literature served to increase sensitivity and rigor. Two independent reviewers manually reviewed the citations,

and selected eligible abstracts for full-text. Qualitative thematic analysis was undertaken of the selected articles. The results then informed the development of a hospital-wide policy and protocol to guide critical care resource allocation. **Results:** The search identified 832 citations; 134 papers were reviewed and 11 selected for qualitative analysis. All included papers were expert opinion and reviews. All suggested that an ethical framework be used; eight discussed this in detail. Ten recommended allocating a triage team to implement the protocol. Nine papers recommended specific resource allocation protocols with inclusion/exclusion criteria, physiologic scores, and reassessment at varying time intervals (12-120 hours). **Conclusion:** Effective planning, prior to a disaster, is critical to saving as many lives as possible. Based on our scoping review, we have developed a hospital-wide protocol that incorporates ethical principles and clear inclusion and exclusion criteria, to help avoid inequity and promote transparent decision-making. Next steps include a public consultation process and review, prior to implementation testing and educational roll-out.

Keywords: critical care, mass disaster, policy development

P003

Do all clavicle fractures in children need to be managed by orthopaedic surgeons?

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Introduction: Although many uncomplicated pediatric fractures do not require routine long-term follow-up with an orthopedic surgeon, practitioners with limited experience dealing with pediatrics fractures will often defer to a strategy of frequent clinical and radiographic follow-up. Development of an evidence-based clinical care pathway can help unnecessary radiation exposure to this patient population and reduce costs to patient families and the healthcare system. **Methods:** A retrospective analysis including patients who presented to the Hospital for Sick Children (SickKids) for management of clavicle fractures was performed. **Results:** Three hundred and forty patients (227 males, 113 females) with an average age of 8.1 (range 0.1-17.8) were included in the study. The mean number of clinic visits including initial consultation in the emergency department was 2.1 (\pm 1.3). The mean number of radiology department appointments was 1.8 (\pm 1.3) where patients received a mean number of 4.2 (\pm 3.0) radiographs. Complications were minimal; 2 refractures in our series and no known cases of non-union. All patients achieved clinical and radiographic union and returned to sport after fracture healing. **Conclusion:** Our series suggests that the decision to treat operatively is made at the initial assessment. If no surgical indications were present at the initial assessment by the primary-care physician, then routine clinical or radiographic follow up is unnecessary. Our paediatric clavicle fracture pathway will reduce patient radiation exposure and reduce costs incurred by the healthcare system and patients' families without jeopardizing patient outcomes.

Keywords: clavicle fracture, clinical pathway, management

P004

What happens to cognitive load during trauma skill training using computer based video instructions?

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Introduction: In the clinical settings, emergency physicians are faced with situations that require multitasking such as interacting with other team members, documentation and utilization of computer resources while ensuring competency on a particular trauma skill. The purpose of