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Introduction: Point of care ultrasound for assessment of undifferentiated hypotension and shock is part of the clinical scope of Emergency Physicians in Canada. The RUSH Exam outlines a systematic approach to these patients. A RUSH Exam educational model using didactic and hands on practice was developed and implemented for Emergency Medicine (EM) residents. This study evaluated the effectiveness of the module in a simulated setting on the following endpoints: improvement in image acquisition, interpretation, speed, and subjective comfort level, among EM residents with basic ultrasound training. **Methods:** Approval was received from the institutional health research ethics board for this before and after simulation study. Residents in the -EM Program or CCFP-EM Program from July 2014 to July 2015 were eligible to consent. Participants were excluded if they were unable to complete all portions. All residents were educated to the same level of introductory ultrasound training based on the curriculum in place at our institution. The 8-hour intervention included RUSH didactic and hands on small group sessions. Testing before and after the intervention was performed with the SonoSim Livescan training platform. Two evaluators scored each resident on the accuracy of image acquisition, image interpretation, and time to scan completion. A before and after survey assessed resident comfort level with performing ultrasound on an emergency patient in shock, and basing decisions on ultrasound findings. Statistical analysis was performed using McNemar's test for image acquisition and interpretation, a paired T test for time, and the Bahpkar test for the questionnaire. **Results:** 16 EM residents including 11 senior residents and 5 junior residents were enrolled. Improvement was achieved in the categories of IVC image acquisition and interpretation, as well as interpretation for B-lines, lung sliding, cardiac apical and parasternal long axis, and DVT ($p < 0.05$). Subjective comfort level of performing ultrasound in shock and basing decisions on the findings was increased ($p < 0.0001$). Among junior residents, there was an increased speed of image acquisition. **Conclusion:** With the introduction of the RUSH Exam educational module, EM residents showed improved image acquisition, image interpretation, speed, and comfort level when using ultrasound in critically ill patients.

Keywords: simulation, ultrasound, education

LO093

A national needs assessment survey for the development of a quality improvement and patient safety curriculum for Canadian emergency medicine residents

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Introduction: The Canadian Medical Education Directives for Specialists (CanMEDS) framework defines the competencies that postgraduate medical education programs must cover for resident physicians. The 2015 iteration of the CanMEDS framework emphasizes Quality Improvement and Patient Safety (QIPS), given their role in the provision of high value and cost-effective care. However, the opinion of Emergency Medicine (EM) program directors (PDs) regarding the need for QIPS curricula is unknown, as is the current level of knowledge of EM residents in QIPS principles. We therefore sought to determine the need for a QIPS curriculum for EM residents in a Canadian Royal College EM program. **Methods:** We developed a national multi-modal needs assessment. This included a survey of all Royal College EM residency PDs across Canada, as well as an evaluative assessment of

baseline QIPS knowledge of 30 EM residents at the University of Toronto (UT). The resident evaluation was done using the validated Revised QI Knowledge Application Tool (QIKAT-R), which evaluates an individual's ability to decipher a systematic quality problem from short clinical scenarios and to propose change initiatives for improvement. **Results:** Eight of the 13 (62%) PDs responded to the survey, unanimously agreeing that QIPS should be a formal part of residency training. However, challenges identified included the lack of qualified and available faculty to develop and teach QIPS material. 30 of 30 (100%) residents spanning three cohorts completed the QIKAT-R. Median overall score was 11 out of 27 points (IQR 9-14), demonstrating the lack of poor baseline QIPS knowledge amongst residents. **Conclusion:** QIPS is felt to be a necessary part of residency training, but the lack of available and qualified faculty makes developing and implementing such curriculum challenging. Residents at UT consistently performed poorly on a validated QIPS assessment tool, confirming the need for a formal QIPS curriculum. We are now developing a longitudinal, evidence-based QIPS curriculum that trains both residents and faculty to contribute to QI projects at the institution level.

Keywords: quality improvement, patient safety, medical education

LO094

Mass casualty incident training for rural Canadian municipalities: a mobile education unit initiative

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Introduction / Innovation Concept: The Shock Trauma Air Rescue Society (STARS®) is a charitable, non-profit organization that is dedicated to providing a safe, rapid, highly specialized emergency medical transport system for the critically ill and injured. The STARS® Mobile Education Unit (MEU) is comprised of a high fidelity simulation suite that mimics a hospital emergency room, installed in a specially equipped motorhome (SEM) that can wirelessly operate a high fidelity human mannequin. The MEU provides an excellent opportunity to combine continuing medical education for resuscitation and MCI management. At present, no formal MCI education process exists in Saskatchewan. **Curriculum, Tool, or Material:** The Saskatchewan STARS® MEU delivers a phased MCI education initiative to rural and regional centers within the province. The educational initiative is sub-divided into three stages: 1. pre-exercise knowledge translation using a flipped classroom approach, 2. on-site tabletop exercise (TTX) and, 3. high-fidelity simulation session with a review of MCI management principles. Sites perform a Hazard Vulnerability Analysis (HVA) following stage 2 and the highest identified site-specific risks are utilized during the development of the simulated scenarios for stage 3. During stage 2, participants also complete a pre and post-exercise survey. The survey evaluates the educational component, the tabletop exercise component and the perceived pre and post tabletop exercise competencies for the management of MCI. In the pilot project, two regional sites completed the tabletop exercise. The pre-exercise survey evaluated perceived MCI and disaster preparedness for the region. Only 8% and 25% of participants at each site respectively, reported that their disaster plan had been trialed in tabletop, full exercise or real activation within the past three years. Participants strongly agreed that the tabletop exercise was a valuable experience (86% and 88% respectively). More robust data will become available as the initiative transitions out of the pilot stage to formal operations. **Conclusion:** A formal MCI training program implemented through the STARS® MEU for rural Saskatchewan municipalities enables participants and their organizations to both review and enhance their current emergency management plans. This

initiative will aim to establish a foundation for future collaboration at the provincial and national level for rural MCI training and preparedness.

Keywords: mass casualty, tabletop exercise, interdisciplinary

LO095

Developing and implementing an interprofessional in-situ simulation program in an academic, tertiary-care emergency department: barriers, successes and the Ottawa Hospital experience
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Introduction / Innovation Concept: During Emergency Department (ED) resuscitation of critically ill patients, effective teamwork and communication among various healthcare professionals is essential to ensure favorable patient outcomes and to minimize threats to patient safety. However, numerous individual and system factors create barriers to effective team functioning. Simulation center-based training has been used to improve Crisis Resource Management skills among physician and nursing trainees, but in-situ simulation is a relatively new concept in adult Emergency Medicine in North America. **Methods:** To enhance patient care and team effectiveness, an ED nursing and physician group was created to develop and implement a novel interprofessional in-situ simulation program in two Canadian, academic tertiary-care emergency departments. Departmental approval and financial support was obtained and sessions commenced in January 2015. **Curriculum, Tool, or Material:** Monthly high-fidelity simulation sessions are held in the ED resuscitation rooms at both campuses of our hospital. Each session is facilitated and debriefed by simulation-trained Emergency Medicine faculty and senior residents, a nurse educator and a research assistant. Technical support is provided by our simulation center staff. Participants are recruited from the physicians, residents, nurses, respiratory therapists and other support staff working in the ED. To minimize the impact on patient care, two additional nurses are scheduled to cover nursing assignments on “sim days”. Simulations are limited to fifteen minutes, followed by a twenty minute debriefing. **Conclusion:** We have successfully developed and implemented an interprofessional in-situ simulation program in our ED. Participant feedback has been overwhelmingly positive. Lack of financial support, reluctance of staff to participate, and overwhelmed resources are some of the challenges to running a program like this in a busy ED environment. However, there are clear benefits: empowering team members, culture change, identification of latent safety threats, and a perception of improved teamwork and communication.

Keywords: innovations in EM education, in-situ simulation, interprofessional education

LO096

Comfortable with your thoracotomy skills? An innovative simulation-based curriculum to teach rare procedures in emergency medicine
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Introduction / Innovation Concept: Emergency medicine (EM) residents must demonstrate proficiency in several rare, life-saving procedures but few clinical opportunities exist to practice and master these skills. Currently no standardized curricula exist for the instruction of these skills during EM residency. Accordingly, many residents graduate without the experience to perform these critical procedures confidently.

We developed a novel, simulation-based curriculum for six rare, life-saving, EM skills that integrates deliberate practice and Kolb's theory of experiential education. **Methods:** We used existing EM training objectives and a recent national resident needs assessment to develop a simulation-based technical skills curriculum. The six station curriculum was underpinned by the pedagogical framework of experiential education and deliberate practice. Instructor and participant feedback directed subsequent curriculum modifications. **Curriculum, Tool, or Material:** This one-day intensive curriculum was successfully implemented at two Canadian EM residency programs for 54 EM residents, from both CCFP-EM and FRCP-EM streams. Participant feedback was highly favorable. An iterative approach to curriculum implementation at two separate residency programs effectively allowed educators to respond to participant needs. **Conclusion:** A novel simulation-based curriculum for rare procedures in EM is feasible, practical, and highly valued by participants. Ongoing work is underway to refine the curriculum and assess its efficacy in creating competence. Deliberate practice and Kolb's theory of experiential education provide useful frameworks for technical skills training.

Keywords: innovations in EM education, simulation, procedure

LO097

A novel curriculum for assessing competency in resuscitation at the foundations of discipline level of training
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Introduction / Innovation Concept: Junior residents are often the first physicians who attend to the acutely unwell floor patient, especially at night and on weekends. The ‘Nightmares Course’ at Queen's University was designed to address an Entrustable Professional Activity (EPA) relevant to several residency programs at the ‘Foundations of Discipline’ level of training: “to manage the acutely unwell floor patient for the first 5-10 minutes until help arrives”. In keeping with competency based medical education principles, this course offers longitudinal and repetitive practice and assessment. We have also designed a summative objective structured clinical exam (OSCE) in order to identify trainees who require additional remedial practice of this EPA. **Methods:** We developed simulated cases that reflect common but “scary” calls to the floor. We then, using a modified Delphi process with experts in resuscitation, defined relevant milestones applicable to the Foundations of Discipline level of training in order to inform our formative assessment. We also modified the Queen's Simulated Assessment Tool (QSAT) to adopt CBME terminology and this will be used to provide a summative assessment during a four-scenario OSCE in the spring. Residents with QSAT scores below the competency threshold will be enrolled in a remediation course. **Curriculum, Tool, or Material:** Weekly sessions were led by staff physicians and were offered to first-year residents from internal medicine, core surgery, obstetrics and gynecology, and anesthesiology over the academic year. Each resident participated in one session every 4-week block. Sessions were organized into themes such as “shortness of breath” or “decreased level of consciousness” and involved three high-fidelity simulated cases with a structured debrief following each case. Formative feedback was given following each case. **Conclusion:** The Nightmares Course is a novel simulation-based, multidisciplinary curriculum in resuscitation medicine. It includes longitudinal practice and repetitive assessment, as well as summative testing and remediation of an EPA common to several residency programs.

Keywords: innovations in EM education, postgraduate medical education, resuscitation