patients for recruitment for ongoing mentor-initiated ED research projects. Remaining time was spent on independent student project work. Presentation to faculty and program evaluation occurred in week 10. Scholarly output included one abstract submitted for publication per student. Program evaluation by students reflected a uniform impression that course material and mentorship were each excellent (100%, n = 5). Interest in pursuing academic EM as a career was identified by all students. Faculty researchers rated the program as very effective (80%, n = 4) or somewhat effective (20%, n = 1) in terms of enhancing productivity and scholarly output. **Conclusion:** The STAR-EM program provides a transferable model for other academic departments seeking to foster the development of future clinician investigators and enhance ED research culture. Program challenges included delays in REB approval for student projects and engaging recalcitrant staff to participate in research.
Keywords: innovations in EM education, medical education

LO12

ClerkCast: a novel online free open access emergency medicine curriculum for medical students

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Innovation Concept: Canadian medical students completing their Emergency Medicine (EM) clerkship rotations must develop approaches to undifferentiated patients. Increasingly used in postgraduate EM education, Open Educational Resources (OERs) are a convenient and flexible solution to meeting medical student educational needs on their EM rotation. We hoped to supplement Canadian medical student EM education through the development of 'ClerkCast', a novel OER and podcast-based curriculum on CanadiEM.org. **Methods:** We utilized the Kern Six Step approach to curriculum development for 'ClerkCast'. A general needs assessment involved a review of available OERs and identified a lack of effective EM OERs specific for medical students. A specific online needs assessment was used to determine which EM topics required further education for medical students. The survey was shared directly with key Canadian medical student and undergraduate medical educator stakeholder groups, and distributed globally through the CanadiEM social media networks. Results of the needs assessment highlighted shared perceptions of educational needs for medical students, with an emphasis on increased need for education on critical care and common EM presentations. We used the topics determined to be highest priority for the development of our first ten episodes of 'ClerkCast'. **Curriculum, Tool or Material:** Podcast episodes are released from CanadiEM biweekly. Episodes are 30 to 45 min in length, and focus on cognitive approaches to a common EM presentation for medical students. Content is anchored on medical student interactions with a staff or resident EM co-host. Podcasts are supplemented by infographics and blog posts highlighting the key points from each episode. Learners are also encouraged to interact with the content through review quizzes on a provided question bank. Quality assurance of the content is provided by physician co-hosts who review episode scripts both prior to recording. Post-production feedback is elicited via comments on the curriculum's host website, CanadiEM.org, and through direct email correspondence to the ClerkCast address. **Conclusion:** With an ever increasing number of OERs in EM and critical care, the systematic development of new resources is important to avoid redundancies in content and medium while also addressing unmet learner needs. We describe the successful use of the Kern Six Steps for curriculum development for the creation of our novel EM OER for Canadian medical students, 'ClerkCast'.
Keywords: free open access medical education, innovations in EM education, medical students

LO13

Development of a national, standardized simulation case template

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Innovation Concept: A major barrier to the development of a national simulation case repository and multi-site simulation research is the lack of a standardized national case template. This issue was recently identified as a priority research topic for Canadian simulation based education (SBE) research in emergency medicine (EM). We partnered with the EM Simulation Education Researchers Collaborative (EM-SERC) to develop a national simulation template. **Methods:** The EM Sim Cases template was chosen as a starting point for the consensus process. We generated feedback on the template using a three-phase modified nominal group technique. Members of the EM-SERC mailing list were consulted, which included 20 EM simulation educators from every Canadian medical school except Northern Ontario School of Medicine and Memorial University. When comments conflicted, the sentiment with more comments in favour was incorporated. **Curriculum, Tool or Material:** In phase one we sought free-text feedback on the EM Sim Cases template via email. We received 65 comments from 11 respondents. An inductive thematic analysis identified four major themes (formatting, objectives, debriefing, and assessment tools). In phase two we sought free-text feedback on the revised template via email. A second thematic analysis on 40 comments from 12 respondents identified three broad themes (formatting, objectives, and debriefing). In phase three we sought feedback on the penultimate template via focus groups with simulation educators and technologists at multiple Canadian universities. This phase generated 98 specific comments which were grouped according to the section of the template being discussed and used to develop the final template (posted on emsimcases.com). **Conclusion:** We describe a national consensus-building process which resulted in a simulation case template endorsed by simulation educators from across Canada. This template has the potential to: 1. Reduce the replication of effort across sites by facilitating the sharing of simulation cases. 2. Enable national collaboration on the development of both simulation cases and curricula. 3. Facilitate multi centre simulation-based research by removing confounders related to the local adoption of an unfamiliar case template. This could improve the rigour and validity of these studies by reducing inter-site variability. 4. Increase the validity of any simulation scenarios developed for use in national high-stakes assessment.
Keywords: innovations in EM education, medical education, simulation

LO14

Interdepartmental program to improve outcomes for acute heart failure patients seen in the emergency department

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Introduction: An important challenge physicians face when treating acute heart failure (AHF) patients in the emergency department (ED) is deciding whether to admit or discharge, with or without early follow-up. The overall goal of our project was to improve care for AHF patients seen in the ED while avoiding unnecessary hospital admissions. The specific goal was to introduce hospital rapid referral clinics to ensure AHF patients were seen within 7 days of ED discharge. **Methods:** This prospective before-after study was conducted at two campuses of a large tertiary care hospital, including the EDs and specialty outpatient clinics. We enrolled AHF patients ≥50 years who presented to the ED with shortness of breath (<7 days). The 12-month before (control) period was separated from the 12-month after (intervention) period by a 3-month implementation period. Implementation included creation of rapid access AHF clinics staffed by cardiology and internal medicine, and development of referral procedures. There was extensive in-servicing of all ED staff. The primary outcome measure was hospital admission at the index visit or within 30 days. Secondary outcomes included mortality and actual access to rapid follow-up. We used segmented autoregression analysis of the monthly proportions to determine whether there was a change in admissions coinciding with the introduction of the intervention and estimated a sample size of 700 patients. **Results:** The patients in the before period (N = 355) and the after period (N = 374) were similar for age (77.8 vs. 78.1 years), arrival by ambulance (48.7% vs 51.1%), comorbidities, current medications, and need for non-invasive ventilation (10.4% vs. 6.7%). Comparing the before to the after periods, we observed a decrease in hospital admissions on index visit (from 57.7% to 42.0%; P <0.01), as well as all admissions within 30 days (from 65.1% to 53.5% (P < 0.01). The autoregression analysis, however, demonstrated a pre-existing trend to fewer admissions and could not attribute this to the intervention (P = 0.91). Attendance at a specialty clinic, amongst those discharged increased from 17.8% to 42.1% (P < 0.01) and the median days to clinic decreased from 13 to 6 days (P < 0.01). 30-day mortality did not change (4.5% vs. 4.0%; P = 0.76). **Conclusion:** Implementation of rapid-access dedicated AHF clinics led to considerably increased access to specialist care, much reduced follow-up times, and possible reduction in hospital admissions. Widespread use of this approach can improve AHF care in Canada.

Keywords: emergency department, heart failure, quality improvement

LO15

Paramedic and allied health professional interventions at long-term care facilities to reduce emergency department visits: systematic review

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Introduction: Emergency department (ED) crowding, long waits for care, and paramedic offload delay are of increasing concern. Older adults living in long-term care (LTC) are more likely to utilize the ED and are vulnerable to adverse events. We sought to identify existing programs that seek to avoid ED visits from LTC facilities where allied health professionals are the primary providers of the intervention and, to evaluate their efficacy and safety. **Methods:** We completed this systematic review based on a protocol we published apriori and following the Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA) statement. We systematically searched Medline, CINAHL and EMBASE with terms relating to long-term care, emergency services, hospitalization and allied health personnel. Two investigators independently selected studies and extracted data using a piloted standardized form and evaluated the risk of bias of included studies. We report a narrative synthesis grouped by intervention categories. **Results:** We reviewed 11,176 abstracts and included 22 studies. Most studies were observational and few assessed patient safety. We found five categories of interventions including: 1) use of advanced practice nursing; 2) a program called Interventions to Reduce Acute Care Transfers (INTERACT); 3) end-of-life care; 4) condition specific interventions; and 5) use of extended care paramedics. Of the 13 studies that reported ED visits, all (100%) reported a decrease, and of the 16/17 that reported hospitalization, 94.1% reported a decrease. Patient adverse events such as functional status and relapse were seldom reported (6/22) as were measures of emergency system function such as crowding/inability of paramedics to transfer care to the ED (1/22). Only 4/22 studies evaluated patient mortality and 3/4 found a non-statistically significant worsening. When measured, studies reported decreased hospital length of stay, more time spent with patients by allied health professionals and cost savings. **Conclusion:** We found five types of programs/interventions which all demonstrated a decrease in ED visits or hospitalization. Many identified programs focused on improved primary care for patients. Interventions addressing acute care issues such as those provided by community paramedics, patient preferences, and quality of life indicators all deserve more study.

Keywords: community paramedic, long-term care, reducing emergency department visits

LO16

Predicting survival from out-of-hospital cardiac arrest

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Introduction: Prognostication is a significant challenge early in the post-cardiac arrest period. Common prognostic factors for neurological survival are unreliable (high false positive rates) until 72 hours post-cardiac arrest. It is not known whether there are a combination of factors that can be utilized earlier in the post-cardiac arrest period to accurately predict patient outcome. Our objective was to predict neurological outcome utilizing a novel combination of patient factors early in the post-cardiac arrest period. **Methods:** We conducted a retrospective cohort study using data from our local cardiac arrest registry. We included adult patients who obtained a return of spontaneous circulation (ROSC) after out-of-hospital cardiac arrest (OHCA). We excluded patients who did not survive for at least 24 hours post-ROSC and those who had a do not resuscitate (DNR) order within 2 hours of ROSC. We performed an ordinal regression analysis using the proportional odds model to predict neurological outcome (modified rankin score (mRS)). We included a good neurological outcome (mRS 0-2), poor neurological outcome (mRS 3-5), and dead (mRS 6) as an ordinal outcome. We included a number of patient demographics, intra- and post-cardiac arrest factors as covariates in our model. The predictive performance of our model was analyzed using receiver operating characteristic (ROC) curves for discrimination and Brier statistic for calibration. **Results:** We included 3448 patients in our analysis. We found that an initial shockable rhythm (odds ratio (OR) 4.1; 95% confidence interval (CI) 3.6, 5.4), the absence of pupillary reflexes (OR 3.5; 95% CI 2.4,4.8) and

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