

outcomes included time to scan completion and diagnostic accuracy on the transfer test. Assessment scores were compared using a two-tailed t-test. **Curriculum, Tool or Material:** 22 of 25 (88%) of invited residents agreed to participate in the study. Percentage of successful views increased from 44.5% (SD 27.9) at baseline to 98.6% (SD 3.5) after training ( $p < 0.001$ ), and was 86.8% (SD 12.1) on transfer testing ( $p < 0.001$ ). Time to complete the scan was 330 seconds at baseline, 125 seconds after training ( $p < 0.001$ ), and 184 seconds ( $p < 0.001$ ) in the transfer test. Participants made the correct diagnosis in 75% (SD 25.6) of the cases in the simulated patient encounter. The descending aorta view had the highest success rate (93.2%) and the midesophageal long axis view had the lowest success rate (75.0%). **Conclusion:** A brief simulation-based workshop was effective for teaching emergency medicine residents a five-view resuscitative TEE protocol. Future studies are needed to determine optimal methods for long-term skill retention.

**Keywords:** innovations in EM education, simulation, transesophageal echocardiography

#### MP22

#### Guiding practice transition with a faculty mentorship program

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**Innovation Concept:** Transition to independent practice is challenging and early career physicians are more prone to burnout and error. Despite recommendations for formal mentorship to support physicians, only 43.6% of US academic Emergency Medicine departments have such programs. We describe an innovative mentorship program designed to support these early career physicians and enhance quality of care, career longevity, and wellness. We operationalized mentorship in which experienced, highly regarded, empathic mentors guide mentees in their personal and professional development. **Methods:** In this program two Emergency Physician mentors were teamed with each newly hired Emergency Physician. Mentees could request their own mentors, and teams were matched on the basis of shared personal and academic interests. Mentors received academic funding and training on good mentorship practice, roles and responsibilities, and feedback. Teams had to meet formally at least twice a year, with additional contact as needed. While mentees set the meeting agenda, teams were also encouraged to address four main areas. These areas were identified from a targeted needs assessment and literature review. They include: 1) clinical process and care, 2) departmental structure and culture, 3) teaching and scholarship, and 4) physician wellness. After meetings, mentees summarized and submitted the topics discussed and reflected on action plans. An oversight committee supported the program. **Curriculum, Tool or Material:** All nine (9) newly hired physicians joined the program in Fall 2018. As of December 2018, six (6) teams have had formal meetings. They discussed the following areas: clinical processes and care (50%), departmental structure and culture (100%), teaching and scholarship (67%), and physician wellness (100%). Other areas discussed include: academic career, financial planning, and networking. Teams spent 20-60% of the time formulating steps to achieve mentee career goals. They spent 40-60% of the time discussing skills and resources needed. End of year program evaluation will include outcomes such as satisfaction, value, effectiveness, projects, promotions, and awards. The results will shape future program design. **Conclusion:** We implemented a mentorship program for newly hired Emergency Physicians. As

mentorship is integral to successful transition to independent practice, this program model could be highly beneficial to other academic Emergency Medicine departments.

**Keywords:** faculty development, innovation in EM education, mentorship

#### MP23

#### Giving medical students what they deserve - a rigorous, equitable and defensible CaRMS selection process

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**Innovation Concept:** The fairness of the Canadian Residency Matching Service (CaRMS) selection process has been called into question by rising rates of unmatched medical students and reports of bias and subjectivity. We outline how the University of Saskatchewan Royal College emergency medicine program evaluates CaRMS applications in a standardized, rigorous, equitable and defensible manner. **Methods:** Our CaRMS applicant evaluation methods were first utilized in the 2017 CaRMS cycle, based on published Best Practices, and have been refined yearly to ensure validity, standardization, defensibility, rigour, and to improve the speed and flow of data processing. To determine the reliability of the total application scores for each rater, single measures intraclass correlation coefficients (ICCs) were calculated using a random effects model in 2017 and 2018. **Curriculum, Tool or Material:** A secure, online spreadsheet was created that includes applicant names, reviewer assignments, data entry boxes, and formulas. Each file reviewer entered data in a dedicated sheet within the document. Each application was reviewed by two staff physicians and two to four residents. File reviewers used a standardized, criterion-based scoring rubric for each application component. The file score for each reviewer-applicant pair was converted into a z-score based on each reviewer's distribution of scores. Z-scores of all reviewers for a single applicant were then combined by weighted average, with the group of staff and group of residents each being weighted to represent half of the final file score. The ICC for the total raw scores improved from 0.38 (poor) in 2017 to 0.52 (moderate) in 2018. The data from each reviewer was amalgamated into a master sheet where applicants were sorted by final file score and heat-mapped to offer a visual aid regarding differences in ratings. **Conclusion:** Our innovation uses heat-mapped and formula-populated spreadsheets, scoring rubrics, and z-scores to normalize variation in scoring trends between reviewers. We believe this approach provides a rigorous, defensible, and reproducible process by which Canadian residency programs can appraise applicants and create a rank order list.

**Keywords:** applicant evaluation, Canadian residency matching service (CaRMS), innovations in EM education

#### MP24

#### The University of Ottawa's Department of Emergency Medicine pre-internship boot camp: a descriptive review

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**Innovation Concept:** Emergency Medicine (EM) residency programs in Canada have transitioned to competency based medical education and the first stage of the curriculum focuses on standardizing learner competency. Pre-internship boot camps provide a focused

opportunity to assist with this standardization prior to residency training. The objective of this descriptive review was to describe our institution's EM pre-internship boot camp in the context of current literature and to summarize the state of EM boot camp curricula across all reported EM residency programs. **Methods:** The description of our two-day boot camp included its curriculum design, required preparation and resources, and a detailed timeline of each day's events. To compare our boot camp to current literature, a comprehensive search of both primary and gray literature was performed. **Curriculum, Tool or Material:** Our institution's boot camp is two days of teaching focused on clinical knowledge and procedural competency, with a large component centered on simulation. Day one consisted of an introduction to the boot camp, a review of crisis resource management principles and advanced cardiac life support (ACLS) algorithms, ACLS simulation sessions, and small group skill sessions on common emergency department procedures. Day two contained a point of care ultra sound lecture, an ultrasound guided central venous catheterization session, pigtail and chest tube insertion sessions, and high-fidelity simulation cases. In comparison to the other pre-internship boot camps that were identified in the literature, our boot camp offers a unique focus and format. **Conclusion:** This review is the first to report on an EM-specific boot camp at a non-American institution, and it provides a framework for the development and refinement of pre-internship EM boot camps at other universities.

**Keywords:** boot camp, innovations in EM education, simulation

#### MP25

#### Implementation of pain order sets to decrease the time to analgesics in the emergency department: a quality improvement initiative in progress

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**Background:** Acute pain is a common presentation in the Emergency Department (ED) and inadequacy in its treatment can lengthen stay. Earlier analgesia use and discharge has been associated with positive patient experiences and improved pain management. Validated 'fast-track pathways' to aid physician decision making in analgesic administration is associated with decreased waiting times in renal colic diagnoses. **Aim Statement:** Our aim was to create an order set, for an approach to patients with acute pain, to reduce median time from point of triage to analgesia. We sought to reduce median time by 15 minutes, for ED patients with renal colic in the three months after implementation as compared to three months before. **Measures & Design:** We used a literature review and comparison to existing order sets at other EDs to design our draft. We focused our evaluation on patients with renal colic. We underwent multiple revisions based on stakeholder feedback and educated both physician and nursing teams about the order set. The utilization, however, was at physician discretion. We implemented the order set on March 30, 2017. After three months, an electronic retrospective chart review identified patients with a final renal colic diagnosis. For each patient, we captured triage time using electronic records and time to analgesia with the medication cart. Utilization of order sets was confirmed via manual chart audit. **Evaluation/Results:** A run chart showed worsening times after the intervention. Median time to analgesia in minutes, 3 months prior ( $n = 90$ ) and post ( $n = 93$ ) intervention, increased from 228 to 310 minutes, although the range was very large. Chart audits demonstrated a considerably low uptake of the order set with a small gradual increase from 0% to 20% over the 3-month period.

**Discussion/Impact:** There was insufficient uptake of the Acute Pain order set preventing impact on time to analgesia. Changes in occupancy likely contributed to the worsening times. There was an increase in utilization over the 3-month period and could be due to increased awareness. This demonstrates that interventions require more than implementation to be effective. Difficulties in implementation were due to the document not being readily available. We have organized the nursing staff to attach order sets onto charts based on triage assessment and will re-assess with another PDSA cycle after this intervention.

**Keywords:** pain, quality improvement and patient safety, renal colic

#### MP26

#### Development and evaluation of a novel emergency physician fan-out mechanism at an urban centre for use in mass casualty incidents

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**Background:** Understaffing in mass casualty incidents limits flow in the overwhelmed emergency department, which is further compounded by inefficient use of those same human resources. Process mapping analysis of a "Code Orange" exercise at a tertiary academic hospital exposed the failures of telephone-based emergency physician fan-out protocols to address these issues. As such, a quality improvement and patient safety initiative was undertaken to design, implement, and evaluate a new mass casualty incident fan-out mechanism. **Aim Statement:** By February 2019, emergency physician fan-out will be accomplished within 1 hour of Code Orange declaration, with a response rate greater than 20%. **Measures & Design:** Process mapping of a Code Orange simulation highlighted telephone fan-out to be ineffective in mobilizing emergency physicians to provide care in mass casualty incidents: available staff were pulled from their usual duties to help unit clerks unsuccessfully reach off-duty physicians by telephone for hours. Stakeholders subsequently identified automation and computerization as a compelling change idea. A de-novo automated bidirectional text-messaging system was thus developed. Early trials were analyzed for process measures including fan-out speed, unit clerk involvement, and physician response rate, with further large-scale tests planned for early 2019.

**Evaluation/Results:** Only 50% of telephone fan-out was completed after a 2-hour exercise despite 3 staff supplementing the 2 on-shift unit clerks, with a 4% physician response rate. In contrast, data from initial trials of the automated system suggest that full fan-out can be performed within 1 hour of Code Orange declaration and require only 1 unit clerk, with text-messages projected to yield higher physician response rates than telephone calls. Early findings have thus far affirmed stakeholder sentiments that automating fan-out can improve speed, unit clerk efficiency, and physician response rate. **Discussion/Impact:** Automated text-message systems can expedite fan-out protocol in mass casualty incidents, relieve allied health staff strain, and more reliably recruit emergency physicians. Large-scale trials of the novel system are therefore planned for early 2019, with future expansion of the protocol to other medical personnel under consideration. Thus, automated text-message systems can be implemented in urban centres to improve fan-out efficiency and aid overall emergency department flow in mass casualty incidents.

**Keywords:** disaster medicine, mass casualty incidents, quality improvement and patient safety