

**MP16****Development, implementation and evaluation of a curriculum for healthcare students working at electronic dance music events**

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**Introduction:** Mass Gathering Medicine (MGM) is a growing field within emergency medicine (EM) and providing care at electronic dance music events (EDMEs) is an increasingly popular activity with MGM groups. Often, health care students are allowed to participate. However, there is a lack of documented curricula to train junior learners in providing medical care at these events. To address this, we developed and initiated an interprofessional, simulation-based workshop for University of Alberta health care students interested in working at EDMs. **Methods:** We used Kerns six-step approach to develop the workshops. Our MGM Interest Group identified a need for educational sessions in toxicology case management at EDMs. A subsequent literature review revealed a paucity of pre-existing curricula on this topic for MGM learners. We created goals and objectives for the workshops, reflecting the knowledge, skills and attitudinal competencies required to provide appropriate medical care at these events. The workshops were implemented and evaluated in November 2016 and 2017. **Results:** A total of 44 medical and nursing students attended the workshops. An EM resident and staff physician, both with prior experience working at EDMs, led each session. Each workshop began with a short didactic lecture followed by two hours of case-based training using two standardized patients and a high fidelity simulator. Topics were chosen based on previously published articles describing medical cases seen at EDMs. The simulation replicated the actual space, noise and equipment available at the medical tents at these events. Two interprofessional learner groups took turns managing a different set of 3 patients: Set 1-opioid overdose (OD), alcohol/vomiting, sympathomimetic OD; Set 2-opioid OD not responsive to naloxone, anticholinergic/seizure, OD with hyperthermia. Initial assessment, medical management and team communication skills were emphasized. Debriefing was provided to learners immediately after each set of cases. After each workshop, the learners completed evaluation forms utilizing both Likert scale and open-ended responses. Overall, students were extremely complimentary about the workshop structure, content and communication skills teaching. They were especially appreciative of the opportunity to participate in their first interprofessional team experience. **Conclusion:** To address local needs, a well-received simulation-based workshop was created to train students in toxicology case management at EDMs. Future work will include using this workshop in a just-in-time fashion before upcoming EDMs and documenting students actual use of skills taught (Kirkpatrick level 3). The workshop will also be further modified to implement more detailed interprofessional objectives and can provide a venue for EM residents to practice teaching interprofessional education competencies as part of their CanMEDS Scholar role.

**Keywords:** innovations in emergency medicine education, simulation, interprofessional education

**MP17****Evaluating the efficacy of the flipped classroom model in postgraduate emergency medicine training**

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**Introduction:** As the value of interactive teaching becomes increasingly recognized, the Flipped Classroom model is receiving more attention in

the medical education community. In this model, learners master core declarative knowledge through self-learning prior to class and then expand upon this learning with integrative class exercises. The objective of this study was to assess the effectiveness of the new Flipped Classroom in a Canadian Emergency Medicine postgraduate program. **Methods:** The residents and staff were educated on the new model. An online questionnaire was sent to all EM residents and staff who had participated in the program 9 months after implementation. The survey tool assessed the participants opinions on utility, time-management, effectiveness in learning material, sustainability, collaboration with other members and overall impressions. Resident scores on national preparatory examinations including the Canadian In-Training Examination (CITE) and the American Board of Emergency medicine (ABEM) were compared before and after implementation of the new model. **Results:** Teaching staff were trained in the Flipped Classroom model and the majority of teaching sessions for the 2016 academic year were carried out using this paradigm. In addition, third year post-graduates received intensive training in the theory and implementation of interactive teaching techniques. A curriculum renewal committee generated objectives for each teaching session and suggested materials for learner pre-reading. **Conclusion:** Overall, both residents and staff physicians indicated that the flipped classroom model is a better format for EM academic day learning. Residents and staff collaborated more and felt more engaged during academic day. Residents spent more time preparing for the sessions with the new model, while staff spent less time preparing. Paired comparisons of same residency years for test exam scores using Wilcoxon signed-rank test showed an improvement in both CITE and ABEM exam test scores. In conclusion, the new flipped classroom model produced improvements in educational experience, satisfaction, and test examination scores.

**Keywords:** innovations in emergency medicine education, flipped classroom

**MP18****Development and implementation of a workshop for advanced care planning and goals of care conversations in the emergency department**

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**Introduction:** Advanced care planning (ACP) and Goals of Care (GOC) discussions are becoming increasingly common in our emergency departments (ED). The national ACP task group has found that the majority of Canadians have not had prior ACP/GOC discussions, nor have they obtained proper documentation of their wishes. The task of having these difficult but important conversations falls frequently to the ED. Despite this, our emergency medicine (EM) residents receive little formal training in ACP discussions. To address this need, we developed and implemented a workshop in ACP/GOC conversations for the University of Alberta EM academic curriculum. **Methods:** A literature search was performed to identify best practices for ACP discussions in the ED, barriers to ACP in the ED, and tools for identifying ED patients appropriate for ACP. Experts in ACP/palliative care and staff ED physicians were asked to identify previous difficult ACP discussions and highlight aspects of these cases that were challenging in the ED environment. These experiences, best practices and published APC curricula informed the development of a 3-hour case-based workshop that was implemented in the 2016/17 academic year for EM staff and residents. **Results:** Cases utilized in the workshop emphasized common ACP/GOC situations that occur in the emergency department: Case 1: An 84 year old with C1 GOC whose family did not accept the GOC designation. Case 2: A 72 year old with multiple comorbidities arriving intubated with no GOC documented. Case 3: An 82 year old

with decreased LOC whose family asks for an ACP discussion in the ED. Participants were divided into groups (5-6 members). Each small group analyzed and discussed each case before the participants reconvened and discussed their opinions in one large group. ACP experts from palliative care, emergency medical services and EM facilitated the discussions highlighting the best practices from the literature for each case reviewed. Pre and post Likert surveys were distributed to workshop participants to assess changes in confidence in a variety of domains. A Wilcoxon Signed Rank Test showed statistically significant improvement in learner confidence within the following areas ( $N=21$ ;  $p<0.05$ ): identifying patients appropriate for GOC discussions, initiating GOC discussions, and identifying barriers to GOC, in the ED. The majority (89%) of participants agreed the workshops should become part of our academic curriculum. **Conclusion:** An ACP/GOC workshop was successfully implemented and further ACP/GOC sessions are planned for the upcoming academic year. Looking ahead, we will look at using other teaching modalities such as simulation to further enhance the delivery of the curriculum. We will also attempt to capture defined physician behaviors (e.g. documenting GOC in the ED chart, sending letters to family physicians documenting GOC discussions) to gauge uptake of the workshop principles into clinical practice.

**Keywords:** innovations in emergency medicine education, advanced care planning, goals of care

#### MP19

##### **Interprofessional airway microskill checklists facilitate the deliberate practice of direct intubation with a bougie and airway manikins**

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**Introduction:** Deliberate practice (DP) is the evolution of practice using continually challenging and focused practice on a particular task. DP involves immediate feedback, time for problem-solving and evaluation, and opportunities for repeated performance. Microskills training breaks down larger tasks into multiple smaller subtasks and then adds opportunities for feedback and adjustment for each subtask. Microskills training is routinely used to achieve excellence in competitive sports, martial arts, military operations, and music. Endotracheal intubation is a complex task with a clinically significant complication and failure rate. **Methods:** Two doctors and three nurses developed stepwise team microskills checklist from case review, simulations and published evidence. The checklist was tested, evaluated and developed during four days of simulation faculty team training. The final 36 item checklist was used to facilitate skills training for doctors, nurses, respiratory therapists and ACPs in one level 2, and two level 3 trauma centers from April 2017 to October 2017. The microskills checklist was used in four phases: 1. Group discussion of each microskill step 2. Groups of three team members; operator, assistant and microskill facilitator (using the checklist) to enable the deliberate analysis of the teams current performance. Each subtask is performed with immediate peer and where necessary faculty feedback. Changes are recorded. 3. Total task run though without interruption. Changes are recorded. 4. Repetition and feedback using different team members, manikins, including time pressure. User satisfaction surveys were collected after the skills training session **Results:** Results. Teams were composed of Registered Nurses (8), Physicians (9), and Respiratory Therapists (2). All of the teams experienced a change in practice. The median number of microskills changed for MDs 13/30, RNs 7/16. The commonest changes in practice were patient positioning (all teams). All professions agreed strongly that

the approach produces a positive change in practice (median score 4.8/5). **Conclusion:** Microskills checklist facilitate endotracheal intubation with a bougie skill development in interprofessional teams in this provisional analysis.

**Keywords:** innovations in emergency medicine education, airway management, deliberate practice

#### MP20

##### **ImageSim - performance-based medical image interpretation learning system**

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**Introduction:** Medical images (e.g. radiographs) are the most commonly ordered tests in emergency medicine. As such, emergency medicine physicians are faced with the task of learning the skill of interpreting these images to an expert performance level by the time they provide opinions that guide patient management decisions. However, discordant interpretations of these images between emergency physicians and expert counterparts (e.g. radiologists) is a common cause of medical error. In pediatrics, this problem is even greater due to the changing physiology with age. **Methods:** ImageSim (<https://imagesim.com>) is an evidence-based on-line learning platform derived and validated over an 11 year period (<https://imagesim.com/research-and-efficacy>). This learning system incorporates the concepts of cognitive simulation, gamification, deliberate practice, and performance-based competency in the presentation and interpretation of medical images. Specifically, ImageSim presents images as they are experienced in clinical practice and incorporates a normal to abnormal ratio is representative of that seen in emergency medicine. Further, it forces the participant to commit to the case being normal or abnormal and if abnormal, the participant has to visually locate the specific area of pathology on the image. The participant submits a response and gets text and visual feedback with every case. After each case, the participant gets to play again until they reach a desired competency threshold (80% is bronze resident; 90% silver staff emergency medicine physician; 97% gold radiologist). Importantly, the learning experience also emphasizes deliberate practice such that the learning system provides hundreds of case examples and therefore each participants performance has the opportunity to improve along their individual learning curve. **Results:** Course selection was made based on known medical image interpretation knowledge gaps for practicing emergency physicians. Currently, ImageSim live courses include pediatric musculoskeletal radiographs (2,100 cases, 7 modules) and pediatric chest radiographs (434 cases). In 2018, we will also release a pediatric point-of-care ultrasound course (400 cases, 4 modules) and the pre-pubertal female genital examination (150 cases). For a demo, go to <https://imagesim.com/demo>. Using ImageSim, the deliberate practice of about 120 cases (1 hour time commitment) increases accuracy on average by 15%. Currently integrated into 10 emergency medicine training programs and there are about 300 continuing medical education world-wide participants. **Conclusion:** While acquiring mastery for these images may take years to acquire via clinical practice alone, this learning system can potentially help achieve this in just a few hours.

**Keywords:** deliberate practice, computer assisted learning, competency

#### MP21

##### **Global emergency medicine fellowship: establishing a global EM training program at Queen's University**

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