

**Introduction:** Improving public access and training for epinephrine auto-injectors (EAI) can reduce time to initial treatment in anaphylaxis. Effective use of EAI by the public requires bystanders to respond in a timely and proficient manner. We wished to examine optimal methods for effective training and skill retention for public use of EAI. **Methods:** In this prospective, stratified randomized study, 154 participants at 15 sites receiving installation of public EAI were randomized to one of three experimental education interventions: A) didactic poster (POS) teaching; B) poster with video teaching (VID), and C) Poster, video, and simulation training (SIM). Participants were tested by participation in a standardized simulated anaphylaxis scenario at 0-months, immediately following training, and again at follow-up at 3 months. Participants responses were videoed and assessed by blinded raters. Patient recorded experience measures (PREMs) assessed participant-patient interaction for every scenario. Data that was non-normally distributed was analyzed using non-parametric testing (Kruskal-Wallis-Rank Sum-Test). **Results:** Initial analysis showed differences between group baseline characteristics for age and first aid training; with a multivariable analysis providing the effect size of these differences. PREM data and video assessment data were not normally distributed. Analysis of PREM data revealed significantly higher scores in the SIM group at 0-months (median = 6.5, IQR = 5;  $p = 0.05$ ) and 3-months (median = 5, IQR = 3;  $p < 0.01$ ), compared to those groups that did not receive SIM. Video assessment performance scores show trends in higher skills and knowledge retention for SIM participants at 3-months; full data analysis will be performed at a later date. Final video assessment analysis will involve a weighted scoring system, using a consensus process, and an inter-rater agreement analysis. **Conclusion:** Simulation training improves interaction, essential skills, and retention of knowledge in simulated anaphylaxis response with public EAI compared to non-simulation-based training.

**Keywords:** anaphylaxis, simulation training, epinephrine auto-injectors

#### P038

##### **Emergency medicine interest group: evaluation of a student led organization at Memorial University**

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**Introduction:** Interest groups have become increasingly popular as students explore potential career paths earlier in their undergraduate experience. Emergency medicine (EM) has grown as a specialty and the match has become quite competitive. Attractive features of EM cited by learners (diversity, procedural skills and flexible schedule) appeal broadly to the undergraduate population. Learners at Memorial University recognized this leadership opportunity and worked with faculty to reach this wide target audience through a streamlined iterative evaluation of their EM Interest Group (EMIG). **Methods:** The local EMIG was formed in 2010. Yearly, EMIG executive work with outgoing members using prior experiences, contacts and best practices to facilitate handover and progress. From 2015 to present, 305 surveys were collected, giving an 81.9% response rate. 59.7% of respondents were first year students, and 40.3% were second year. The survey consisted of Likert scale and open-response questions. The Likert scale questions yielded favorable responses. 304 students (99.6%) felt presenters were knowledgeable, 301 (98.6%) would recommend the sessions to others and 301 (98.6%) were satisfied they attended. Surprisingly, 133 students (43.6%) said they were not interested in Emergency Medicine, likely attending due to the appeal of session topics and transferrable of EM skills. 232 (76.0%) stated that attendance did increase their interest in EM. Top responses for aspects of EM most interesting to them included: ability to

find a work/life balance, ability to work urban or rural, variety of cases seen, and the non-routine shifts. **Results:** Survey feedback is used to inform refinement of the content, delivery and format of EMIG activities, delivered by EM faculty. Hands-on sessions (e.g. suturing & airway management) have been popular. Informational sessions, on specific medical topics (ECG, resuscitation cases) or broader topics (EM streams) have also been very well received. Inclusion of all interested students, particularly large numbers for hands-on sessions, has presented challenges. Beyond current survey results, it will be interesting to consider if EMIG participation translates to learning or behavioral changes relevant to later clinical encounters; a question that will be difficult to quantify. **Conclusion:** The EM interest group is one of the most active at Memorial University. Survey results indicate that participants enjoy the EMIG session content and the structured iterative approach used by the group has been successful in maintaining an effective student led organization.

**Keywords:** innovations in emergency medicine education, student lead interest group, survey evaluation

#### P039

##### **Application of the Delphi method to refine key components in the iterative development of a mobile tele-simulation unit (MTU)**

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**Introduction:** Safe and efficient provision of quality healthcare requires maintenance of knowledge and skills relevant to daily practice. This is particularly relevant in rural and remote locations where high-acuity low-occurrence procedures and clinical scenarios present even less frequently. Simulation based training is widely used to supplement clinical exposure and practice but effective delivery of this approach to the rural/ remote practitioner must address barriers of time, cost and geographical separation. Mobile tele-simulation is an innovative approach that may help in bridging the gap through delivery of effective mentoring using telemedicine technologies and tailored educational content. **Methods:** To help direct the iterative design cycle for the mobile tele-simulation unit, input from potential future users was felt to be essential. The Delphi method was employed to reach consensus among study participants on four key questions: 1) What applications would the MTU be best suited for?, 2) What technical requirements and teaching tools would be needed to make the MTU successful?, 3) Which fields, besides EM/medical education, may benefit from partnerships with the final MTU?, 4) What research studies could be developed using the MTU? It was decided in advance that two rounds would be the maximum due to time constraints of the larger MTU projects. The first questionnaire focused on demographics and the four questions above. Independent reviewers analyzed, compiled and compared responses. Participants were sent the updated list, asked to confirm their responses and then to rank the responses highest to lowest priority. **Results:** Fifteen of 17 first round participants completed the questions, giving an 88.2% response rate. All shared a simulation background. 66% were physicians, 13.3% medical students, and 20% staff at Memorial Simulation Center. 66% had been involved with simulation-based education less than 5 years, and the others greater than 5 year. 13 of 15 (86.7%) responded in round 2. Consensus was not reached statistically using Kendall's W test for each of the four questions. However, there were several responses that showed higher median ranks than the others under each question. Application use: rural healthcare training, and medical professional training Technical factors: reliable learner-mentor connection, and competent technical support Non-technical factors: knowledgeable mentor and content relevant to locations practice, Research studies: training needs assessment from rural sites, and

learners experience compared to stationary simulation center **Conclusion:** Input from a heterogeneous group of simulation users was sought to help prioritize key features in the development of the Mobile Tele-simulation Unit. Although statistically the study did not reach consensus, valuable feedback was compiled and pragmatically applied in the iterative development cycle.

**Keywords:** simulation-based medical education, simulation education, telemedicine

#### P040

##### **Describing antibiotic utilization and uptake of the chronic obstructive pulmonary disease order set in Saskatoon emergency departments**

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**Introduction:** Chronic obstructive pulmonary disease (COPD) is one of the leading causes of morbidity and mortality in Canada. The Anthonisen criteria utilizes the cardinal symptoms of acute exacerbations of COPD (AECOPD), increased shortness of breath, increased sputum production, and increased sputum purulence, to determine which patients should receive antibiotics. In July 2015, a COPD Order Set Pilot was implemented in Saskatoon emergency departments (ED). The order set utilizes the Anthonisen criteria to optimize AECOPD patient management and ensure appropriate antibiotic usage. By January 2019, we aim to optimize AECOPD patient management in Saskatoon ED. We aim to increase physician uptake of the order set to 50% and to increase appropriate antibiotic prescription to 90%. **Methods:** Our project was designed following the Plan-Do-Study-Act method. Our primary outcome was to measure the rate of appropriate antibiotic prescription when managing AECOPD patients. Our secondary outcome was to measure physician uptake of the order set. We believed that a standardized order set would optimize patient care. We hypothesized that 80% of AECOPD patients would be managed with antibiotics appropriately and that 25% of emergency physicians would utilize the order set. A chart review was conducted examining AECOPD patient management in Saskatoon ED. The study period included the 6 months following the implementation of the order set. Our inclusion criteria were patients diagnosed with AECOPD and managed in the ED. Our exclusion criteria were patients currently prescribed antibiotics or patients requiring inpatient admission. A convenience sample of 125 charts was selected for review, enabling an accurate representation of order set utilization and antibiotic usage. A secondary reviewer abstracted a random 15% sample of the charts to ensure validity of the data. **Results:** Our results showed that, during our study period, none of the AECOPD patients were managed with the order set. Of the patients receiving antibiotic therapy, only 32 of the 53 (60.38%) met the Anthonisen criteria and were appropriately prescribed antibiotics. Of the patients not given antibiotics, 15 of the 42 (35.71%) met the Anthonisen criteria and should have been managed with antibiotics. These results refuted both of our hypotheses. **Conclusion:** As COPD is one of the leading causes of morbidity and mortality in Canada, proper management is crucial. Our results state that uptake of the order set is low and that antibiotic utilization is not optimized. These results demonstrate the need to modify and promote the current order set. We believe that by encouraging the use of the order set and streamlining the management guidelines, we can increase physician uptake. This will subsequently increase appropriate antibiotic prescription and improve AECOPD patient care. A second identical chart review for 2017 has been completed. Data analysis will be finalized prior to the conference.

**Keywords:** quality improvement and patient safety, acute exacerbation of chronic obstructive pulmonary disease, antibiotics

#### P041

##### **Patient perspectives on emergency department use for acute atrial fibrillation: a qualitative study using the theoretical domains framework**

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**Introduction:** Acute atrial fibrillation (AAF) is the most common arrhythmia managed in the Emergency Department (ED). Direct costs of AAF are primarily attributed to ED visits and subsequent admission to hospital. A better understanding of patients attitudes regarding ED attendance is necessary to develop strategies to improve the patient care experience while simultaneously reducing ED presentation and inappropriate hospital admissions. This study aims to describe patient perspectives on ED use for AAF using in-depth qualitative interviews.

**Methods:** An interview template designed to explore why patients attend the ED for AAF was constructed based on the Theoretical Domains Framework, a theory-informed approach that utilizes 14 domains to describe influencers of behavior. We conducted audio-recorded, semi-structured interviews of patients following their presentation to the ED for management of AAF. Interviews were anonymized, transcribed and imported into NVivo for coding and analysis. Two independent reviewers used a direct approach to code participant statements. Discrepancies were resolved by a third party. Belief statements were generated and relevant domains identified based on high frequency scores, conflicting belief statements or evidence of strong influencing beliefs. **Results:** 12 patient interviews, mean age 63.1 years, 91.7% male, 75.0% recurrent AAF, were completed. Patients stated that they attended the ED because: 1) symptom severity; 2) they were instructed by physicians to attend the ED should their AAF recur; and 3) they were encouraged by family members to attend. Their primary goal was to have relief of their symptoms. There was no expectation of specialist consultation or admission to hospital. Even though most patients stated they were open to managing these episodes independently, they reported that they did not have the knowledge or tools to do so. **Conclusion:** Patients with AAF present to the ED because of their symptom burden, social influences (physician and family) and lack of other management options. This study demonstrates the need for development of patient self-management strategies which will empower patients in their disease management and may decrease future ED visits.

**Keywords:** acute atrial fibrillation

#### P042

##### **Resuscitative endovascular balloon occlusion of the aorta (REBOA) in trauma: a systematic review**

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**Introduction:** Trauma leading to uncontrolled hemorrhage of the torso in the critically injured patient can rapidly progress to decreased cerebral and cardiovascular perfusion and carries a significant morbidity and mortality. Given the non-compressible nature and difficult anatomic access of these injuries, obtaining hemostasis is often a challenge and non-surgical options are sparse. Resuscitative Endovascular Balloon Occlusion of the Aorta (REBOA) is a rapidly administered emergency department intervention that allows transient source control of caudal