evidence exists to support A&F as a tool for self-reflection and identifying unperceived learning needs, there are many questions that remain such as the optimal content of the A&F reports, the method of dissemination for emergency physicians (EP) and the perceived benefit. The goal of the project was to 1) evaluate EP perceptions regarding satisfaction with A&F reports and its' ability to stimulate physicians to identify opportunities for practice change and 2) identify areas for optimization of the A&F reports. **Methods:** EP practicing at any of the four adult hospital sites in Calgary were eligible. We conducted a web survey using a modified Dillman technique eliciting EP perspectives regarding satisfaction, usefulness and suggestions for improvement regarding the A&F reports. Quantitative data were analyzed descriptively and free-text were subjected to thematic analysis. **Results:** From 2015 onwards, EP could access their clinical performance data via an online dashboard. Despite the online reports being available, few physicians reviewed their reports stating access and perceived lack of utility as a barrier. In October 2016, we began disseminated static performance reports to all EP containing a subset of 10 clinical and operational performance metrics via encrypted e-mail. These static reports provided clinician with their performance with peer comparator data (anonymized), rationale and evidence for A&F, information on how to use the report and how to obtain continuing medical education credits for reviewing the report. **Conclusion:** Of 177 EP in Calgary, we received 49 completed surveys (response rate 28%). 86% of the respondents were very/satisfied with the report. 88% of EP stated they would take action based on the report including self-reflection (91%) and modifying specific aspects of their practice (63%). Respondents indicated that by receiving static reports, 77% were equally or more likely to visit the online version of the eA&F tool. The vast majority of EP felt that receiving the A&F reports on a semi-annual basis was preferred. Three improvements were made to the eA&F based on survey results: 1) addition of trend over time data, 2) new clinical metrics, and 3) optimization of report layout. We also initiated a separate, real-time 72-hour bounceback electronic notification system based on the feedback. EP value the dissemination of clinical performance indicators both in static report and dashboard format. Eliciting feedback from clinicians allows iterative optimization of eA&F. Based on these results, we plan to continue to provide physicians with A&F reports on a semi-annual basis.
**Keywords:** audit and feedback, self-reflection, performance metrics

**P035**

**Continuous intravenous low-dose ketamine infusion for managing pain in the emergency department**

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**Introduction:** To describe dosing, duration, and pre- and post-infusion analgesic administration of continuous intravenous sub-dissociative dose ketamine (SDK) infusion for managing a variety of painful conditions in the emergency department (ED). **Methods:** Retrospective chart review of patients aged 18 and older presenting to the ED with acute and chronic painful conditions who received continuous SDK infusion in the ED for a period over 6 years (2010-2016). Primary data analyses included dosing and duration of infusion, rates of pre- and post-infusion analgesic administration, and final diagnoses. Secondary data included pre- and post-infusion pain scores and rates of side effects. **Results:** 104 patients were enrolled in the study. Average dosing of ketamine infusion was 11.26 mg/hr, the mean duration of infusion was 135.87 minutes with 38% increase in patients not requiring post-infusion analgesia. The average decrease in pain score was 5.04. There were 12 reported adverse effects with nausea being the most prevalent. **Conclusion:** Continuous intravenous SDK infusion has a role in controlling pain of various etiologies in the ED with a potential to reduce need for co-analgesics or rescue analgesic administration. There is a need for more robust, prospective, randomized trials that will further evaluate the analgesic efficacy and safety of this modality across wide range of pain syndromes and different age groups in the ED.
**Keywords:** ketamine, analgesia, emergency department

**P036**

**Interim analysis of the impact of the emergency department transformation system on flow metrics**

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**Introduction:** Emergency Department Systems Transformation (EDST) is a bundle of Toyota Production System based interventions implemented in two Canadian tertiary care Emergency Departments (ED) between June 2014 to July 2016. The goals were to improve patient care by increasing value and reducing waste. Longer times to physician initial assessment (PIA), ED length of stays (LOS) and times to inpatient beds are associated with increased patient morbidity and potentially mortality. Some of the 17 primary interventions included computerized physician order entry optimization, staff schedule realignment, physician scorecards and a novel initial assessment process ED access block has limited full implementation of EDST. An interim analysis was conducted to assess impact of interventions implemented to date on flow metrics. **Methods:** Daily ED visit volumes, boarding at 7am, time to PIA and LOS for non-admitted patients were collected from April 2014-June 2016. Volume and boarding were compared from first to last quarter using an independent samples median test. Linear regression for each variable versus time was conducted to determine unadjusted relationships. PIA, LOS for non-admitted low acuity (Canadian Triage and Acuity Scale (CTAS) 4,5) and non-admitted high acuity (CTAS 1,2,3) patients were subsequently adjusted for volume and/or boarding to control for these variables using a non-parametric correlation. **Results:** Overall, median ED boarding decreased at University Hospital (UH) (14.0 vs. 6.0, $p < 0.01$) and increased at Victoria Hospital (VH) (17.0 vs. 21.0, $p < 0.01$) from first to last quarter. Median ED volume increased significantly at UH from first to last quarter (129.0 vs. 142.0, $p < 0.01$) but remained essentially unchanged at VH. 90th percentile LOS for non-admitted low acuity patients significantly decreased at UH (adjusted $rs = -0.24$, $p < 0.01$) but did not significantly change at VH. For high acuity patients 90th percentile LOS significantly decreased at both hospitals (UH: adjusted $rs = -0.23$, $p < 0.01$; VH: adjusted $rs = -0.21$, $p < 0.01$). 90th percentile time to PIA improved slightly but significantly in both EDs (UH: adjusted $rs = -0.10$, $p < 0.01$; VH: adjusted $rs = -0.18$, $p < 0.01$). **Conclusion:** Persistent ED boarding impacted the ability to fully implement the EDST model of care. Partial EDST implementation has resulted in improvement in PIA at both LHSC EDs. At UH where ED boarding decreased, LOS metrics improved significantly even after controlling for boarding.
**Keywords:** emergency department systems transformation, quality improvement, overcrowding

**P037**

**Training first-responders to administer publicly available epinephrine – a randomized study**

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**Introduction:** Improving public access and training for epinephrine auto-injectors (EAIs) can reduce time to initial treatment in anaphylaxis. Effective use of EAIs 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 EAIs. **Methods:** In this prospective, stratified randomized study, 154 participants at 15 sites receiving installation of public EAIs 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 (Kruskall-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 EAIs 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 Memorials 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 Kendalls 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



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