

**P088**

**Procedural sedation in Canadian emergency departments a national survey of airway management, patient monitoring, and adverse events**  
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**Introduction:** Emergency department (ED) physicians strive to provide analgesia, amnesia and sedation for patients undergoing painful procedures through the use of procedural sedation (PS). While, PS is generally safe and effective in the ED, there is institutional variability and clinician disagreement with respect to the bedside equipment required for airway management and the monitoring of adverse events. The primary goal of this research project was to describe the variability of the bedside setup utilized by Canadian ED physicians performing PS in conjunction with self-reported adverse events. **Methods:** An electronic survey was distributed through the Canadian Association of Emergency Physicians (CAEP). Practicing physician members of CAEP were invited to complete the survey. The 20 question survey encompassed various aspects of PS including physician choices regarding bedside setup of airway equipment, and prevalence of self-reported adverse events. The primary outcome was the quantification of variability among ED physicians with respect to the above listed aspects of PS. Data was presented with simple descriptive statistics. **Results:** 278 ED physicians responded to our survey (response rate 20.9%). Respondents were primarily academic (53.2%) or community hospital based (38.2%). With emergency medicine training as: CCFP-EM (55.2%), FRCPC (30.1%), and CCFP (9.0%). The ED area in which PS was carried out varied; bedside (30.5%), procedure room (37.1%), resuscitation area (31.2%). The basic equipment set utilized appears to be a bag valve mask, suction, and an oral airway. These 3 items were present 95.4%, 95.9%, and 86.3% of the time respectively. The preparation of other items such as capnography and difficult airway equipment is highly variable and appears to be physician specific rather than clinical situation specific. The most common physician self-reported adverse events associated with PS appear to be hypoxia (SpO<sub>2</sub> < 90%), hypotension (sBP < 90), and prolonged sedation which occurred in 10.7%, 8.3%, and 8.1% of PS performed. **Conclusion:** There appears to be significant practice variability with respect to the clinical setting as well as the equipment ED physicians prefer when administering PS. Given that causal relationships cannot be inferred between airway/monitoring equipment preferences and adverse events, future studies should be targeted at identifying optimal bedside set ups which minimize adverse events.

**Keywords:** procedural sedation, airway management, survey

**P089**

**The effect of patient positioning on ultrasound landmarking for cricothyrotomy**

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**Introduction:** The cricothyroid membrane is used as a landmark for emergent surgical airway access. Ultrasound identification of the cricothyroid membrane is more accurate than landmarking by palpation. The objective of this study was to determine whether head of bed elevation affects the position of the cricothyroid membrane as identified by ultrasound. **Methods:** This was a prospective, observational study on a convenience sample of adult patients presenting to the emergency department. Participants underwent ultrasound scans by trained physicians at 0, 30 and 90 degrees head of bed elevation to identify the cricothyroid membrane. The cricothyroid membrane position identified at 0 degrees was used as a reference, and the change in position of the external landmark of the

cricothyroid membrane with the patient at 30 and 90 degrees was measured. Additionally, the patients gender, age, body mass index (BMI) and Mallampati score were recorded for comparison. Linear mixed effects models with 95% confidence intervals were used to determine the effect of head of bed elevation, age, BMI and Mallampati score on the differences between measured distances. **Results:** One hundred and two patients were enrolled in the study. The average change in position from reference was statistically significant for both 30 degrees [ $2.72 \pm 0.77\text{mm}$  ( $p < 0.01$ )] and 90 degrees [ $4.23 \pm 0.77\text{mm}$  ( $p < 0.01$ )] head of bed elevation. The adjusted linear mixed effects model showed age greater than 70, BMI over 30 and higher Mallampati score were associated with greater change in distance between cricothyroid membrane landmarks. **Conclusion:** There was a statistically significant difference in the position of the cricothyroid membrane comparing 0 degrees to 30 and 90 degrees head of bed elevation. However, the relatively small differences suggest that this finding is not clinically relevant. Further study is required to evaluate if these differences impact the actual successful performance of cricothyrotomy.

**Keywords:** cricothyrotomy, ultrasound, position

**P090**

**The use of a pediatric pre-arrival and pre-departure trauma checklist to improve clinical care in a simulated trauma resuscitation: a randomized trial.**

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**Introduction:** The purpose of this study is to determine if the introduction of a pre-arrival and pre-departure Trauma Checklist as a cognitive aid, coupled with an educational session, will improve clinical performance in a simulated environment. The Trauma Checklist was developed in response to a quality assurance review of high-acuity trauma activations. It focuses on pre-arrival preparation and a pre-departure review prior to patient transfer to diagnostic imaging or the operating room. We conducted a pilot, randomized control trial assessing the impact of the Trauma Checklist on time to critical interventions on a simulated pediatric patient by multidisciplinary teams. **Methods:** Emergency department teams composed of 2 physicians, 2 nurses and 2 confederate actors were enrolled in our study. In the intervention arm, participants watched a 10-minute educational video modelling the use of the trauma checklist prior to their simulation scenario and were provided a copy of the checklist. Teams participated in a standardized simulation scenario caring for a severely injured adolescent patient with hemorrhagic shock, respiratory failure and increased intracranial pressure. Our primary outcome of interest was time measurement to initiation of key clinical interventions, including intubation, first blood product administration, massive transfusion protocol activation, initiation of hyperosmolar therapy and others. Secondary outcome measures included a Trauma Task Performance score and checklist completion scores. **Results:** We enrolled 14 multidisciplinary teams ( $n = 56$  participants) into our study. There was a statistically significant decrease in median time to initiation of hyperosmolar therapy by teams in the intervention arm compared to the control arm (581 seconds, [509-680] vs. 884 seconds, [588-1144],  $p = 0.03$ ). Time to initiation of other clinical interventions was not statistically significant. There was a trend to higher Trauma Task Performance scores in the intervention group however this did not reach statistical significance ( $p = 0.09$ ). Pre-arrival and pre-departure checklist scores were higher in the intervention group (9.0 [9.0-10.0] vs. 7.0 [6.0-8.0],  $p = 0.17$  and 12.0 [11.5-12.0] vs. 7.5 [6.0-8.5],  $p = 0.01$ ). **Conclusion:** Teams using the Trauma Checklist

did not have decreased time to initiation of key clinical interventions except in initiating hyperosmolar therapy. Teams in the intervention arm had statistically significantly higher pre-arrival and pre-departure scores, with a trend to higher Trauma Task Performance scores. Our study was a pilot and recruitment did not achieve the anticipated sample size, thus underpowered. The impact of this checklist should be studied outside tertiary trauma centres, particularly in trainees and community emergency providers, to assess for benefit and further generalizability.

**Keywords:** checklist, trauma, simulation

#### P091

##### **Emergency Critical Care Ultrasound (ECCU) paramedical course: a novel curriculum for training paramedics in ultrasound**

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**Introduction:** Ultrasonography (US), performed in the Emergency Department (ED) by Emergency Physicians, is well established. Educational studies have shown some promise in training paramedics in US use. We have developed and piloted a novel curriculum for paramedic US education. **Methods:** Based on an informal needs assessment, an US curriculum for paramedics was developed to include: Basic principles, Focused assessment with sonography for trauma (FAST), cardiac, and vascular access. Participants included ED-based and pre-hospital paramedics including all paramedics with critical care training who routinely perform vascular access and procedural sedation within our ED. Comparisons were made using paired non-parametric tests (GraphPad). **Results:** Participants (N=9) were provided pre-reading materials prior to completing a 6-hour course, consisting of a mix of didactic and practical sessions with live models and vascular access phantoms. Each module was introduced with a 30 minute didactic session, led by an Emergency Physician trained in US, followed immediately by a 1 hour hands-on session lead by either an Emergency Physician or an Emergency Medicine Resident at a learner to instructor ratio of 3:1. At the end of the course, participants were asked to complete a short 10 minute survey that included (1) an assessment of the course quality with regard to preparatory material and course content/delivery (4 point Likert scale; excellent, good, fair, poor); (2) self reported US knowledge pre and post course on a scale of 1-10 (10 high, 1 low); (3) general yes/no questions related to the future of ECCU paramedical and (4) a subjective written section for additional comments. All participants rated the content favourably: 97% scoring it as excellent, and 3% as good. The participants median self-reported US knowledge score increased from 2/10 (IQR 2-3) to 8/10 (IQR 7.25-8;  $p=0.009$ ) post- course. All comments from the text field were positive in nature. **Conclusion:** We report a paramedic US course curriculum, which when piloted resulted in high learner satisfaction and a high rate of self reported improvement in US knowledge. Further study will include an assessment of knowledge acquisition and practical performance. Future modifications in our curriculum will be based on needs assessment and may include additional modules.

**Keywords:** paramedic, point-of-care ultrasound, education

#### P092

##### **Combatting sedentary lifestyles; can exercise prescriptions in the emergency department lead to a behavioural change in patients?**

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**Introduction:** Patients with chronic diseases are known to benefit from exercise. Such patients often visit the emergency department (ED). There are few studies examining prescribing exercise in the ED. We wished to study if exercise prescription in the ED is feasible and effective. **Methods:** In this pilot prospective block randomized trial, patients in the control group received routine care, whereas the intervention group received a combined written and verbal prescription for moderate exercise (150 minutes/week). Both groups were followed up by phone at 2 months. The primary outcome was achieving 150 min of exercise per week. Secondary outcomes included change in exercise, and differences in reported median weekly exercise. Comparisons were made by Mann-Whitney and Fishers tests (GraphPad). **Results:** Follow-up was completed for 22 patients (11 Control; 11 Intervention). Baseline reported median (with IQR) weekly exercise was similar between groups; Control 0(0-0)min; Intervention 0(0-45)min. There was no difference between groups for the primary outcome of 150 min/week at 2 months (Control 3/11; Intervention 4/11, RR 1.33 (95% CI 0.38-4.6;  $p=1.0$ ). There was a significant increase in median exercise from baseline in both groups, but no difference between the groups (Control 75(10-225)min; Intervention 120(52.5-150)min; NS). 3 control patients actually received exercise prescription as part of routine care. A post-hoc comparison of patients receiving intervention vs. no intervention, revealed an increase in patients meeting the primary target of 150min/week (No intervention 0/8; Intervention 7/14, RR 2.0 (95% CI 1.2-3.4);  $p=0.023$ ). **Conclusion:** Recruitment was feasible, however our study was underpowered to quantify an estimated effect size. As a significant proportion of the control group received the intervention (as part of standard care), any potential measurable effect was diluted. The improvement seen in patients receiving intervention and the increase in reported exercise in both groups (possible Hawthorne effect) suggests that exercise prescription for ED patients may be beneficial.

**Keywords:** exercise prescription, emergency department, prevention

#### P093

##### **Performing the balancing act: emergency medicine physicians' multifaceted roles and their influence on trainee assessment**

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**Introduction:** Competency-based workplace assessments are important in clinical training. However, feedback and assessment are still often perceived as unsatisfactory, particularly in busy settings such as emergency departments. Currently, little is known about how attending staff physicians sense of self may interface with the processes they use to assess and give feedback to trainees. We aimed to understand how attendings perceive their roles when tasked with conducting assessments and providing feedback to trainees. **Methods:** We conducted semi-structured, individual interviews with attendings (n=16) who used McMAP (McMaster Modular Assessment Program), a workplace-based assessment system at McMaster University's Royal College Emergency Medicine program. Attendings were recruited using snowball sampling. Data were interpreted using thematic analysis, sensitized to the dramaturgical lens and rater cognition frameworks. **Results:** Attendings identified themselves using three distinct but intimately connected roles when assessing trainee performance: the doctor that ensures the safety and well-being of patients; the coach (educator) that empowers, guides, and supports the next generation of medical doctors; and the assessor that formally assesses a trainees progression through the residency program. These roles are influenced by clinical training and experience, teaching experience and context. **Conclusion:** The ways in which attendings assess and provide feedback to trainees involve a complex