

Introduction: Endotracheal intubation is frequently used in emergency departments and is often life saving, but it is also known to cause adverse events that can potentially lead to death. The main objective of this study is to evaluate mortality rates and duration of hospitalisation in patients who experienced post-intubation hypotension (PIH). **Methods:** A historical cohort of patients admitted between 07/2011 and 11/2014 at the ED of a level-one trauma centre. Patients were included if they were aged 16 years old or more, were intubated in the resuscitation room, had less than 3 intubation attempts, no need of surgical airway access, and had recorded vital signs prior to intubation. All clinical data including vitals were prospectively collected using ReaScribe[®]. PIH was defined by one measure or more of systolic arterial blood pressure <90 mm Hg. We retrospectively analysed the occurrence of PIH at 4 time points: 5, 15, 30 minutes, and at any moments after intubation. Study outcomes were in-hospital death and hospital length of stay in days (LOS). Univariate and multivariate analyses assessed the relation between PIH and outcomes. **Results:** 261 patients were included in the analyses. Amongst patient who experienced PIH, incidence of mortality was, respectively for each time estimate, of 31.0%, 33.3%, 28.6% and 26.9% compared to 25.4% ($p=0.5$), 24.2% ($p=0.1$), 24.9% ($p=0.5$), and 25.4% ($p=0.8$) in the normotensive group. The mean duration of hospitalisation in the group exposed to PIH was respectively of 26 (12.9-53.3), 22 (13.5-35.5), 19 (13.6-27.8), and 18 days (13.5-24.8) compared to 15.6 (12.9-18.9), 15.4 (12.6-18.8), 15.3 (12.3-19.1), and 15.5 (12.1-19.7) days ($p=0.4$). **Conclusion:** There was no association between the presence of post-intubation hypotension at 4 different time estimates and the in-hospital mortality nor the hospital length of stay. Further evaluation in specific sub-group should be foreseen to prevent adverse events from endotracheal intubation.

Keywords: endotracheal intubation, hypotension, mortality

P046

A quality improvement initiative for improving integration of resource stewardship concepts into undergraduate medical education

K. Eppler, BSc, C. Pendrith, BSc, MSc, E. Wishart, MD, D. Goodyear, MD, D. Jenkins, MD, MHPE, E. Cheng, MD, Cumming School of Medicine, Calgary, AB

Introduction: It is estimated that up to 30% of medical services in Canada are potentially unnecessary, not supported by current evidence or may cause patient harm. This type of practice negatively impacts patients and the healthcare system. Evidence suggests that medical education strongly impacts resource utilization in future practice. Our objective was to integrate Choosing Wisely (CW) recommendations into the undergraduate medical education curriculum to improve students understanding of resource stewardship in their pre-clerkship training. **Methods:** Post-course survey data and written feedback were collected from the Cumming School of Medicines 2019 class. Qualitative analysis of written feedback was used to identify perceived strengths and areas of improvement to inform additional changes for the 2020 class through a Plan-Do-Study-Act (PDSA) cycle. **Results:** The post-course survey was completed by 143 students. 60% reported the inclusion of CW improved their ability to develop a clinical management plan. Using the information gathered from the qualitative analysis, we made the following changes for the 2020 class: create an introductory lecture on resource stewardship, incorporate relevant CW recommendations into case study learning objectives, and create standardized slides on CW recommendations for lecturers. Feedback from the 2020 class revealed that the changes were well received and students reported feeling more comfortable with resource stewardship concepts. **Conclusion:** This data reveals that our efforts have increased students

confidence in creating a management plan that integrates resource stewardship and patient safety, and elicited strong faculty support. We will continue to integrate these changes and to obtain student and faculty feedback to help inform additional iterative changes for the subsequent cohort. Our findings are valuable for other medical schools across Canada seeking to incorporate CW material.

Keywords: quality improvement and patient safety, medical education, curricular change

P047

Prevalence and severity of hypertension presenting to Calgary area emergency departments

K. Eppler, BSc, D. Wang, MSc, T.P. Pollak, MD, PhD, E.S. Lang, MD, CM, Cumming School of Medicine, Calgary, AB

Introduction: Hypertension is common and a major cause of morbidity and mortality. Because it is asymptomatic, its diagnosis is often delayed. For many Canadians the Emergency Department (ED) is the only point of entry to the health care system, and therefore the recognition of undiagnosed and untreated hypertension in the ED is increasingly important. This study sought to evaluate the prevalence and severity of hypertension in patients presenting to Calgary area EDs, as well as to determine whether medical therapy was initiated and if patients had primary care providers for follow-up. **Methods:** Multi-centre electronic medical record (EMR) review of all adult patients presenting to Calgary area EDs from January 1, 2016 to December 31st, 2016. Hypertension was coded electronically by triage nurses and defined as systolic blood pressure SBP 140 mmHg and/or diastolic blood pressure DBP 90 mmHg. Hypertensive urgency was defined as SBP 180 mmHg and/or DBP 120 mmHg. Descriptive data was used to show patient demographics and hypertension prevalence. Primary care provider status, previous diagnosis of hypertension, chief complaint, and ED diagnoses were extracted and the EMRs were manually searched to determine whether treatment was initiated in the ED. **Results:** Of 304392 patients presenting to all Calgary sites, 43055 (14%) were found to have hypertension; mean age 52 (range 18 to 104), female 42%. Of these, 32986 (77%) had no known previous hypertension and 31% lacked a primary care provider. 0.2% had documentation of treatment initiated in the ED. 16% met criteria for hypertensive urgency. **Conclusion:** Many patients presenting to the ED have hypertension, often previously undiagnosed and at times severe. Many lack access to primary care. EDs may play an important role in the early recognition of hypertension. Dedicated management and follow-up pathways are indicated for this high-risk population.

Keywords: hypertension, hypertensive urgency, emergency department

P048

Interprofessional airway microskill checklists facilitate the deliberate practice of surgical cricothyrotomy with 3-D printed surgical airway trainers

J. P. French, MB, BSc, K. David, BN, S. Benjamin, BN, J. Fraser, BN, J. Mekwan, MBBS (Lond), P. Atkinson, MB, BCh, BAO, MA, Dalhousie University, Rothesay, NB

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. Surgical cricothyrotomy is a rarely performed safety critical task. **Methods:** Two doctors and three nurses developed stepwise team microskills checklists from case review, simulations and published evidence. The checklist was tested, evaluated and developed during four days of simulation faculty team training. The final 30 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. Commonly available airway trainers were retrofitted with the 3-D printed larynx. 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 through 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:** 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 12/21, RNs 6/12. The commonest changes in practice were equipment preparation (all teams). All professions agreed strongly that the approach produces a positive change in practice (median score 5/5). **Conclusion:** Microskills checklists facilitate cricothyrotomy skill development in interprofessional teams in this provisional analysis.

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

P049

Changes in situational awareness of emergency teams in simulated trauma cases using an RSI checklist

J. P. French, MB, BSc, D. Maclean, K. David, BN, A. McCoy, BN, S. Benjamin, BN, J. Fraser, BN, T. Pishie, MD, P. Atkinson, MB, BCh, BAO, MA, Dalhousie University, Rothesay, NB

Introduction: Situational awareness (SA) is the team understanding patient stability, presenting illness and future clinical course. Losing SA has been shown to increase safety-critical events in multiple industries. SA can be measured by the previously validated Situational Awareness Global Assessment Tool (SAGAT). Checklists are used in many safety-critical industries to reduce errors of omission and commission. An RSI checklist was developed from case review and published evidence. The New Brunswick Trauma Program supports an inter-professional simulation-based medical education program **Methods:** Simulations were facilitated in three hospitals in New Brunswick from April 2017 to October 2017. Learner profiles were collected. The SAGAT tool was completed by a research nurse at the end of each scenario. SAGAT scores were non-normally distributed, so results were expressed as medians and interquartile ranges. Mann Whitney U tests were used to calculate statistical significance. To understand the effect of the of an RSI checklist a comparison was made between SAGAT scores at baseline in scenario 1, and the same first scenario completed after a washout period. A Poisson regression analysis will be used to account for the effect of confounding variables in further analyses. **Results:** The group was composed of Registered Nurses (8), Physicians (7), and Respiratory Therapists (2). Situational awareness increased significantly with the use of an RSI checklist after 1 day of 4 simulations. The washout period ranged between 5 weeks and 8 weeks. The baseline situational awareness of the whole group during scenario 1 was 9 +/-0.5 (median,

IQR), and with the RSI checklist was 12 +/-1 (median, IQR). The difference was highly statistically significant, $p \leq 0.001$. This level of situational awareness using checklist is comparable to the SAGAT scores after 10 scenarios. **Conclusion:** In this provisional analysis, the use of an RSI checklist was associated with an increase in measured situational awareness. Higher levels of situational awareness are associated with greater patient safety. A Poisson regression model will be used to understand the confounding effects of user expertise and the likely interaction with simulation exposure.

Keywords: quality improvement and patient safety, airway management, checklist

P050

How aware is safe enough? Situational awareness is higher in safer teams doing simulated emergency airway cases

J. P. French, MB, BSc, D. Maclean, J. Fraser, BN, S. Benjamin, BN, P. Atkinson, MB, BCh, BAO, MA, Dalhousie University, Rothesay, NB

Introduction: Situational Awareness is the ability to identify, process, and comprehend the critical elements of information about the patient condition, stability, the operational environment and an appropriate clinical course. The Situational Awareness Global Assessment Tool (SAGAT) is a validated tool for measuring situational awareness. The SAGAT tool was measured during a series of standardized high fidelity advanced airway management simulations in multidisciplinary teams in New Brunswick Emergency Departments delivered by two simulation programs **Methods:** Thirty eight simulated emergency airway cases were performed in situ in Emergency Departments and in learning centers in Southern New Brunswick from September 2015 to October 2017. Eight standardized cases were used whose educational objectives were to develop the optimization of critically ill patients prior to induction, to deliver patient-centered anesthesia and to choose an appropriate airway strategy. Learner profiles collected. Cases were divided into two groups; those that contained critical errors and those that did not based on video assessment. Critical errors were defined as failure of 1) Oxygenation, 2) Shock correction, 3) Induction dose estimation, 4) Choice of airway management paradigm. The SAGAT has a maximum score of 13 and was assessed by research nurses after each case for all participants. SAGAT scores were non-normally distributed, so results were expressed as medians with interquartile ranges. Mann Whitney U tests were used to calculate statistical significance. **Results:** Results. Of the 38 cases, 14 contained one more critical errors. The median SAGAT score in the group that contained critical errors was 8 +/-2 (IQR). The median SAGAT Score in the group that contained no critical errors was 11 +/-2 (IQR). The median scores were significantly different with a p-value of 0.02. **Conclusion:** In this study in simulated emergency cases, higher SAGAT scores were associated with teams leaders that did not commit safety critical errors. This work is the initial analysis to develop standards for Simulated team performance in Emergency Department teams.

Keywords: innovations in emergency medicine education, simulation, human factors

P051

Management of subcutaneous abscesses in the emergency department

S. M. Friedman, MD, MPH, A. Al-Den, MB, ChB, D. Porplycia, MSc, Faculty of Medicine, University of Toronto, Toronto, ON