reflecting 17% (10/58) of all linked PulsePoint activations and 31% (10/32) of all confirmed OHCAs. Of the remaining 48 cases that triggered PulsePoint activation numerous final paramedic problem codes were assigned of which 14% (8/58) were deemed alcohol intoxication, 10% (6/58) were active seizures, 7% (4/58) were behavioural/psychiatric events, among others. 10 incidents (17%) that triggered PulsePoint activation did not have an assigned final paramedic problem code. **Conclusion:** Implementation of PulsePoint is feasible in Canadian communities. Improved capabilities for linking with local EMS data will improve data capture, program monitoring capacity, and opportunity for research. The impact of PulsePoint on clinical outcomes remains uncertain and should be determined in future research.

Keywords: pulsepoint, out-of-hospital cardiac arrest, bystander cardiopulmonary resuscitation

MP11

Underreport of incident delirium in elderly patients treated in the emergency department

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Introduction: It is documented that physicians and nurses fail to detect delirium in more than half of cases from various clinical settings, which could have serious consequences for seniors and for our health care system. The present study aimed to describe the rate of documented incident delirium in 5 Canadian Emergency departments (ED) by health professionals (HP). **Methods:** This study is part of the multicenter prospective cohort INDEED study. Patients aged 65 years old, initially free of delirium with an ED stay 8hours were followed up to 24h after ward admission. Delirium status was assessed twice daily using the Confusion Assessment Method (CAM) by trained research assistants (RA). HP reviewed patient charts to assess detection of delirium. HP had no specific routine detection of delirious ED patients. Inter-observer agreement was realized among RA. Comparison of detection between RA and HP was realized with univariate analyses. **Results:** Among the 652 included patients, 66 developed a delirium as evaluated with the CAM by the RA. Among those 66 patients, only 10 deliriums (15.2%) were documented in the patients medical file by the HP. 54 (81.8%) patients with a CAM positive for delirium by the RA were not recorded by the HP, 2 had incomplete charts. The delirium index was significantly higher in the HP reported group compared to the HP not reported, respectively 7.1 and 4.5 ($p < 0.05$). Other predictive delirium variables, such as cognitive status, functional status, comorbidities, physiological status, and ED and hospital length of stay were similar between groups. **Conclusion:** It seems that health professionals missed 81.8% of the potential delirious ED patients in comparison to routine structured screening of delirium. HP could identify patients with a greater severity of symptoms. Our study points out the need to better identify elders at risk to develop delirium and the need for fast and reliable tools to improve the screening of this disorder.

Keywords: delirium, seniors, screening

MP12

Emergency department boarding: predictors and outcomes

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Introduction: Delays in transfer to an in-patient bed of admitted patients boarded in the ED has been identified as one of the chief drivers of ED overcrowding. Our study aims to replicate findings from a previous study in identifying patient characteristics associated with increased boarding time, and the impact of increased boarding time on in-patient length of stay (IPLOS). **Methods:** We conducted a retrospective single-centre observational study during the period between January 1, 2015 December 31, 2015 at a very high volume community hospital (~75,000 ED visits/year). All patients admitted from the ED to Medicine, Pediatrics, Surgery, and Critical Care were identified. The mean time to in-patient bed (TTB), as well as patient-specific and institutional factors that were associated with prolonged boarding times (12 hours) were identified. Mean IP LOS was calculated for those with prolonged boarding times and compared to those without prolonged boarding times. **Results:** There were 8,096 unique admissions during the study period. Patients admitted to the Medicine service exhibited significantly higher boarding times than those admitted to other services, with a mean boarding time of 17.4 hrs, as compared to 4.2 hrs, 5.7 hrs, and 4.0 hrs for those admitted to Surgery, Critical Care and Pediatrics respectively. Within Medicine patients, there was a statistically significant greater odds of prolonged boarding time for patients who were older, had a greater comorbidity burden, and required more specialized in-patient care (i.e. an isolation bed or telemetry bed). Medicine patients with prolonged boarding times also experienced 0.7 days longer IP LOS, even after correcting for age and comorbidity (mean adjusted IP LOS 10.6 days versus 11.3 days). **Conclusion:** Within our study period, older, sicker patients and those patients requiring more resource-intensive in-patient care have the longest ED boarding times. These prolonged 'boarding' times are associated with significantly increased IP LOS.

Keywords: emergency department overcrowding, patient safety, administrative database

MP13

Accuracy of Korean Triage and Acuity Scale when pain severity is used as a modifier

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Introduction: Accurate triage is important because under-triage may delay critical care for emergent patients and over-triage may inhibit efficient management of emergency department (ED) resources. In Korea, the Korean Triage and Acuity Scale (KTAS) was developed based on the CTAS in 2015. The purpose of this study was to evaluate the accuracy of KTAS in predicting patient's severity when degree of pain was used as a modifier. **Methods:** This was a retrospective observational cohort study, conducted in an ED of urban tertiary university hospital with more than 90,000 visits per year. We studied adult patients who visited the ED from January 2016 to June 2016. Patients were devided into pain group and non-pain group according to whether the degree of pain was used as a modifier in the KTAS evaluation. We used acute area registration, emergency procedure, emergency operation, hospitalization, intensive care unit admission, and hospital mortality as markers to determine urgent patients. To evaluate discriminative ability of KTAS, the odds ratios of each KTAS values compared to KTAS 3 for the urgent patients were calculated. And to compare the predictive power of KTAS for urgent patients between the two groups, the area under the receiver operating characteristic (ROC) curves were compared by DeLongs method. **Results:** There were 9,175 (37.8%) patients in the pain group and 15,078 (62.2%) patients in the non-pain group. When KTAS was assessed as 2, only 20.3% of the

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patients in the pain group were registered to the acute area, while 71.2% of the patients in the non-pain group were registered to the acute area ($p < 0.001$). And the proportion of emergency procedure, admission, ICU admission, and mortality was also higher in patients with pain group. Similarly, in the patients of KTAS 3, the proportion of urgent patients was higher in the non-pain group except emergency operation. The odds ratio for the occurrence of urgent patients decreased as the KTAS value increased in both groups, however, the difference between the odds ratios of each KTAS was more evident in the non-pain group. In pain group, compared to patients with KTAS 3, the odds ratio (95% CI) for acute area registration were 2.32 (1.92-2.80), 0.61 (0.51-0.73), and 0.35 (0.23-0.53) for patients with KTAS 2, 4, 5, respectively; in non-pain group, odds ratio were 5.59 (5.09-6.13), 0.28 (0.25-0.32), and 0.13 (0.10-0.16). The non-pain group showed better predictive power of KTAS for acute area registration than pain group; AUC (95% CI), 0.864 (0.861-0.867) vs. 0.810 (0.802-0.818), $p < 0.0001$). The predictability of KTAS was also higher in non-pain group for emergency procedure, emergency operation, admission, and ICU admission. **Conclusion:** We have confirmed that the use of pain severity as a modifier in KTAS is a factor affecting accuracy. The acuity level is overestimated when pain severity is used as modifier in KTAS evaluation.

Keywords: triage, patient acuity, pain

MP14

Community paramedic point of care blood analysis: validity and usability testing of two commercially available devices

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Introduction: Community Paramedics (CPs) require access to timely blood analysis in the field to guide treatment and transport decisions. Point of care testing (POCT), as opposed to traditional laboratory analysis, may offer a solution, but limited research exists on CP POCT. The objective of this study is to compare the validity of two POCT devices (Abbott i-STAT® and Alere epoc®) and their use by CPs in the community. **Methods:** In a CP programme responding to 6,000 annual patient care events, a split sample validation of POCT against traditional laboratory analysis for seven analytes (sodium, potassium, chloride, creatinine, hemoglobin, hematocrit, and glucose) was conducted on a consecutive sample of patients. The difference of proportion of discrepant results between POCT and laboratory was compared using a two sample proportion test. Usability was analysed by survey of CP experience, an expert heuristic evaluation of devices, a review of device-logged errors, coded observations of POCT use during quality control testing, and a linear mixed effects model of Systems Usability Scale (SUS) adjusted for CP clinical and POCT experience. **Results:** Of 1,649 CP calls for service screened for enrollment, 174 had a blood draw, with 108 patient care encounters (62.1%) enrolled from 73 participants. Participants had a mean age of 58.7 years (SD16.3); 49% were female. In 4 of 646 (0.6%) individual comparisons, POCT reported a critical value that the laboratory did not; with no statistically significant difference in the number of discrepant critical values reported with epoc® compared to i-STAT®. There were no instances of the laboratory reporting a critical value when POCT did not. In 88 of 1,046 (8.4%) individual comparisons, the a priori defined acceptable difference between POCT and the laboratory was exceeded; occurring more often in epoc® (10.7%;95% CI:8.1%,13.3%) compared to i-STAT® (6.1%;95% CI:4.1%,8.2%) ($p = 0.007$). Eighteen of 19 CP surveys were returned, with 11/18 (61.1%) preferring i-STAT® over epoc®. The i-STAT® had a higher mean SUS score (higher usability) compared to the epoc® (84.0/100 vs. 59.6/100; $p = 0.011$). Fewer field blood analysis device-logged errors occurred in i-STAT® (7.8%;95% CI:2.9%,12.7%) compared to epoc® (15.5%;95% CI:9.3%,21.7%) although not statistically significant ($p = 0.063$). **Conclusion:** CP programs can expect valid results from POCT. Usability assessment suggests a preference for i-STAT.

Keywords: community paramedic, point-of-care testing

MP15

Innovative use of simulation to consolidate pediatric didactic curriculum. A pilot in emergency department continuing medical education

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Introduction: Our emergency department (ED) sees a low volume of high acuity pediatric cases. A needs assessment revealed that 68% of our Emergency Physicians (EP) manage pediatric patients in less than 25% of their shifts. The same percentage of EPs as well as ED nurses indicated they were uncomfortable managing a critically unwell neonate. Thus, an interprofessional curriculum focused on pediatric emergencies for ED staff was developed. In-situ simulation education was chosen as the most appropriate method to consolidate each didactic block of curriculum, and uncover important system gaps. **Methods:** Needs assessment conducted, and emerging themes informed IPE curriculum objectives. A committee of experts in simulation, pediatric emergencies and nursing education designed a full-day, RCPSC accredited, interprofessional in-situ simulation program. **Results:** Progressive segmental strategy maximized learning outcomes. The initial phase (2 hrs) comprised an" early recognition of sepsis" seminar and 4 rotating skills stations (equipment familiarity, sedating the child, IV starts, and mixing IV medication). This deliberate, adaptive, customized practice was enhanced by expert facilitation at each station, directly engaging participants and providing real-time feedback. The second phase allowed interprofessional teams of MDs, RNs and Physician Assistants to apply knowledge gained from the didactic and skills stations to in-situ simulated emergencies. Each group participated in two pediatric emergency scenarios. Scenarios ran 20 minutes, followed by a 40 minute debrief. Each scenario had a trained debriefer and content expert. The day concluded with a final debrief, attended by all participants. Formalized checklists assessed participants knowledge translation during simulation exercises. Participants assessed facilitators and evaluated the simulation day and curriculum via anonymous feedback forms. Debriefing sessions were scribed and knowledge gaps and system errors were recorded. Results were distributed to ED leaders and responsibilities assigned to key stakeholders to ensure accountability and improvement in system errors. Results All participants reported the experience to be relevant and helpful in their learning. All participants requested more frequent simulation days. System gaps identified included: use of metric vs imperial measurements, non-compatible laryngoscope equipment, inadequate identification of team personnel. As a result, the above-mentioned equipment has been replaced, and we are developing resuscitation room ID stickers for all team roles. **Conclusion:** Simulation as a culmination to a didactic curriculum provides a safe environment to translate acquired knowledge, increasing ED staff comfort and familiarity with rare pediatric cases. Additionally, is an excellent tool to reveal system gaps and allow us to fill these gaps to improve departmental functioning and safety.

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

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