

P105**BC's public health emergency and naloxone administration by the BC Ambulance Service**

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Introduction: In 2015, there were 476 apparent illicit drug overdose deaths, prompting BC's Provincial Health Officer to declare a public health emergency on 14 Apr 2016. Paramedics of BC's Ambulance Service (BCAS) are on the front lines in this crisis. Here we examine recent trends in the number of suspected overdose events attended by the BCAS and the use of naloxone, an opioid antagonist, by BCAS paramedics.

Methods: The BC Centre for Disease Control receives a weekly data feed from BC Emergency Health Services that includes all records from the BCAS Patient Care Record where: naloxone was administered by paramedics; the primary impression code indicates poisoning or overdose; or, the originating call is associated with ingestion poisoning ('card 23'). Here, we report a descriptive analysis of these data for suspected drug overdose events during the period January 1, 2010 to September 30, 2016.

Results: Between January 2010 and September 2016 BCAS paramedics attended 164,227 suspected overdose events; 12% of these events (n = 16,944) included naloxone administration by BCAS paramedics. Paralleling the rise in illicit drug overdose deaths in BC, naloxone administration by paramedics has been increasing rapidly, doubling from approximately 180/month in 2014, to 370/month in 2016. When naloxone was administered by paramedics, 90% of these patients were transported, whereas 77% were transported when naloxone was not administered. Administrations occurred most frequently on Friday and Saturday evenings. Almost half (46%) of all naloxone administrations by paramedics were recorded as being in a home or residence; 18% were recorded as occurring on a street or highway. The proportion of naloxone administrations among males has increased yearly. In 2010, 58% of naloxone administrations were in males compared to 69% in 2016. **Conclusion:** The number of overdose deaths in BC has risen drastically in recent years and the proportion of ambulance calls requiring administration of naloxone by BCAS has climbed correspondingly. The vast majority of overdose cases—especially those requiring naloxone—are transported to the emergency department. With the overdose crisis showing little sign of abating, the administration of naloxone by BC paramedics will continue to be a critical element of the provincial response.

Keywords: overdose, public health emergency, naloxone

P106**Does training with a modified high-fidelity manikin improve junior residents' ability to establish transcutaneous pacing in an advanced cardiovascular life support course?**

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Introduction: Transcutaneous cardiac pacing (TCP), a skill taught in Advanced Cardiovascular Life Support (ACLS) courses, is recommended to treat unstable bradycardia. Training manikins currently available fail to reproduce key features of TCP and might be suboptimal to teach this procedure. The objective of this study was to measure the impact of a modified high-fidelity manikin on junior residents' TCP competency during an ACLS course. We hypothesized that the use of this high-fidelity manikin improves junior residents' performances.

Methods: This prospective cohort study was conducted at the Université de Montréal in July 2015 and 2016. First-year residents

undergoing their mandatory ACLS course were enrolled. The control group (2015) received the traditional curriculum, which includes hands-on teaching on Advanced Life Support manikins. The intervention group (2016) received a similar curriculum, but used a modified high-fidelity manikin that reproduces key features of TCP (e.g. use of multifunction pads, TCP induced patient twitching, ECG artifacts). Cohorts were tested with a simulation scenario requiring TCP. Performances were graded based on six critical tasks: turns on pacer function, applies multifunction pads, recognizes TCP is ineffective, achieves captures, verifies mechanical capture and prescribes sedation. Our primary outcome was successful use of TCP defined as having completed all tasks. Secondary outcomes were the success rates for each task. These were compared using Pearson's chi-squared test. We anticipated that the success rate of TCP would increase from 20% to 50%. To obtain a power of more than 90%, 48 participants were needed in both cohorts.

Results: A total of 50 residents were recruited in both cohorts. No resident that received the traditional curriculum was able to successfully establish TCP while 18 residents trained on the modified high-fidelity manikin succeeded (0 vs 36%, $P < 0.001$). Furthermore, the latter were more likely to recognize when pacing was inefficient (12 vs 86%, $P < 0.001$), obtain ventricular capture (2 vs 48%, $P < 0.001$), and check for a pulse rate to confirm capture (0 vs 48%, $P < 0.001$). **Conclusion:** Successful use of TCP is a difficult skill to master for junior residents. A modified high-fidelity manikin during ACLS training significantly improves their ability to establish effective pacing.

Keywords: simulation, advanced cardiovascular life support, transcutaneous cardiac pacing

P108**Fast track in Calgary hospitals: measures for quality improvement**

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Introduction: Fast track (FT) implementation in emergency departments (ED) has shown a decrease in patient wait times, length of stay (LOS), left without being seen rates, and has increased patient satisfaction. The objective of this study was to analyze the demographics and presenting complaints of patients presenting to FT in Calgary EDs using local administrative databases to understand the current selection of FT patients, as well as to uncover potential throughput efficiencies through LOS analysis. **Methods:** Sunrise Clinical Manager data was pulled from the Foothills Medical Center (FMC), Peter Lougheed Center (PLC), and Rockyview General Hospital (RGH) EDs between October 2015 and September 2016. Based on consensus achieved by the Calgary FT-Minor Treatment Sub-committee, data was descriptively analyzed based on the following criteria: (1) triage profiles of the Calgary ED sites; (2) site admission rates by complaint, Canadian Triage and Acuity Scale (CTAS), vitals, and age; (3) LOS for orthopedic patients admitted from FT/Minor; and, (4) LOS in FT for non-admitted back pain patients. **Results:** A total of 53911 patients were triaged to FT, with 16224 patients triaged to FMC, 18299 to PLC, and 19388 to RGH. 6.9% of FT patients were admitted to hospital at FMC, 4.8% at PLC and 4.8% at RGH. 14.4% of patients at FMC, 18.3% at PLC and 17.6% at RGH were CTAS 2; 40.9% of patients at FMC, 46.2% at PLC and 37.9% at RGH were CTAS 3; 34.0% of patients at FMC, 27.8% at PLC and 33.3% at RGH were CTAS 4; 10.7% of patients at FMC, 7.7% from PLC and 11.2% for RGH were CTAS 5. For FT patients 80 years or older, 10.4% were admitted at FMC, 13.1% at PLC and 9.4% at RGH. The top FT presenting complaints at all sites were lower extremity injury, upper extremity injury, and laceration/puncture. The annual FT bed hours for patients admitted to orthopedic surgery (consultation request to time of orthopedic admission) was 802.3 hours at

FMC, 441.1 PLC and 705.1 from RGH. The annual FT bed hours for patients with non-admitted back pain (FT bed to time of discharge) was 2144.3 hours from FMC, 3367.9 from PLC and 1134.9 from RGH.

Conclusion: The efficiency of FT is based on streamlining low acuity patients with an expected rapid discharge from hospital. The results of this investigation will be presented to the FT-Minor Treatment Sub-committee in order to utilize current admission rates, patient profiles, and aggregate LOS to potentially improve throughput.

Keywords: quality improvement, fast track, emergency medicine

P109

Characterizing spontaneous improvements in vasovagal syncope

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Introduction: Syncope is responsible for up to 5% of emergency department visits. Vasovagal syncope (VVS) is the most common subtype and can have significant quality of life implications as it is often recurrent. Clinicians treating VVS have limited treatment options available to them and often struggle with prognostication. The aim of our study was to identify patient-specific determinants of VVS improvement or cessation. **Methods:** Patients (pts) from the Prevention of Syncope Trials (POST) 1 and 2 were included in this study. All patients had VVS according to tilt table testing or a diagnostic point score. Patients had fainted ≥ 1 time in the previous year and all were followed for up to 1 year after enrollment. Data are presented as median (IQR). Complete responders (CR) did not faint in follow-up; partial responders (PR) fainted ≥ 1 /year less than prior year but did not stop; and non-responders (NR) did not improve or stop. **Results:** There were 392 patients: 126 males, median age 34 (23,50) who had fainted for 10 (3,22) years and followed for a median of 363 (148,376) days. There were 225 CR (57%), 120 PR (31%) and 47 NR (12%). PR subjects were younger: 27 (24,33) years compared to CR (36 (32,42)) years and NR (36 (29,47)) years ($p < 0.05$). Receiver operator characteristic analysis showed age predicted PR (AUC = 0.62). Lifetime fainting frequency was 0.67 (0.14,2.00) faints per year, increasing to 4 (2,10) faints in the pre-year and decreasing to 0 (0,1.9) faints in the post-year ($p < 0.0001$). Pts had similar syncope frequency in the distant past (PR, 1.14 faints/year; CR, 0.68 faints/year; NR, 0.58 faints/year) but PR pts worsened markedly prior to enrollment. PR subjects fainted much more in the prior year: 10 (6,18) faints compared CR (3 (2,3) faints, $p < 0.0001$) and NR (2 (2,4) faints, $p < 0.05$). Receiver operator characteristic analysis showed prior year faints predicted PR well (AUC = 0.81). There was no significant interaction with treatment (metoprolol in POST 1, fludrocortisone in POST 2). **Conclusion:** After specialist consultation, 57% of VVS patients stop fainting and 31% improve incompletely without a significant treatment effect. Patients who will improve incompletely can be accurately selected based on younger age and more frequent syncope. Older patients with less frequent syncope are 83% likely to stop fainting. These findings will help counsel pts and select candidates for medical therapy.

Keywords: syncope, prognosis, decision tool

P110

Acute mountain sickness in the Himalayas: preliminary report

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Introduction: Acute Mountain Sickness (AMS) is a high-altitude medical emergency that requires prompt treatment. If left untreated AMS can progress to high-altitude cerebral edema or pulmonary edema,

both of which can be fatal. As the popularity of high altitude trekking increases in the Himalayas we were interested in determining what rates of AMS are on popular routes in this region. **Methods:** AMS was diagnosed using a standardized Lake Louise Symptom Score (LLSS) where scores 3-5 denoted mild AMS and >5 denoted severe AMS. Forms were distributed to trekkers prior to departure and symptoms scores were determined daily. Data on medical history and patient demographics were also collected. All data are expressed as mean \pm SEM. **Results:** Preliminary results are reported from N = 17 (4 female) participants. Mean age was 43.7 ± 3.9 y. Most subjects, 68.8%, had trekked above 2500m in the past. Only 6.25% reported having no knowledge of AMS, with the others having limited or expert knowledge. 25% of subjects had previously suffered from AMS. Most subjects, 82.4%, took prophylactic AMS medication, acetazolamide; at a dose of 250 mg/d. Subjects trekked at a mean altitude of 3650 ± 85 m and ascended to a maximum altitude of 5012 ± 103 m. The mean LLSS was 1.48 ± 0.31 with a maximal LLSS of 4.76 ± 0.75 . Within our sample, 70.86% suffered from AMS at some point during their trek. Of those who suffered from AMS, the mean number of days affected was 3.17 ± 0.61 , and of those with severe AMS, mean number of days affected was 2.14 ± 0.7 . **Conclusion:** Over 70% of trekkers to the Himalayas experience AMS for an average of 3d, despite the use of prophylactic medication that most participants take. Almost 95% of trekkers have working knowledge of AMS and most have prior experience trekking at high-altitude. Given the dangers of high altitude trekking, pre-departure education for patients, especially those with chronic diseases, alongside prophylactic medication for AMS may help mitigate the risk.

Keywords: altitude medicine, acute mountain sickness

P111

The social determinants of health in adults presenting to the ED with a mental health complaint

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Introduction: The social determinants of health (SDoH) can play a significant role in a person's overall wellbeing. This is especially true for adults with mental illness and mental health disorders. In this study, we describe the SDoH of patients presenting to an academic, inner-city emergency department (ED) with an acute mental health complaint (AMHC). **Methods:** We prospectively identified and enrolled a convenience sample of patients presenting to an ED with an annual census of 85,000 visits. Participants provided informed written consent, and completed a questionnaire package containing questions related to demographics and SDoH. As well, participants were asked to complete four mental health, quality of life, and recovery validated patient-reported outcome measures. **Results:** A total 108 participants were enrolled in this study, of which 65% were male, aged 37.5 years (IQR 26.7-50.3), 56% Caucasian, and 22% Aboriginal. Depression was the primary diagnosis reported by 55% of participants, with 58.9% meeting the PhQ-9 cutoff for moderate-severe depression. The highest level of educational achievement for 44% of participants was high school or less, with 75% reporting being unemployed. Almost half (45%) reported engaging in less than two hours of structured activity each week. Thirty eight percent of participants reported living in their own apartment, with 25% reporting being homeless and 17% living in a single-room housing unit. The majority of participants (56%) sampled were not satisfied with their housing, and 67% were actively looking for new housing. Sixty percent of participants reported smoking cigarettes daily and 40% reported weekly cannabis use. A total of