

## MP54

**The prevalence and pattern of drugs detected in injured drivers in four Canadian provinces**

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**Introduction:** Many drugs, including cannabis and alcohol, cause impairment and contribute to motor vehicle collisions (MVCs). Policy makers require knowledge of the prevalence of drug use in crash-involved drivers, and types of drugs used in order to develop effective prevention programs. This issue is particularly relevant with the recent legalization of cannabis. We aim to study the prevalence of alcohol, cannabis, sedating medications, and other drugs in injured drivers from 4 Canadian Provinces. **Methods:** This prospective cohort study obtained excess clinical blood samples from consecutive injured drivers who attended a participating Canadian trauma centre following a MVC. Blood samples were analyzed using a broad spectrum toxicology screen capable of detecting cannabinoids, cocaine, amphetamines (including their major analogues), and opioids as well as psychotropic pharmaceuticals (including antihistamines, benzodiazepines, other hypnotics, and sedating antidepressants). Alcohol and cannabinoids were quantified. Health records were reviewed to extract demographic, medical, and MVC information using a standardized data collection tool. **Results:** This study has been collecting data in 4 trauma centres in British Columbia (BC) since 2011 and was launched in 2 trauma centres in Alberta (AB), 1 in Saskatchewan (SK), and 2 in Ontario (ON) in 2018. In preliminary results from BC (n = 2412), 8% of injured drivers tested positive for THC and 13% for alcohol. Preliminary results from other provinces (n = 301) suggest a regional variation in prevalence of drivers testing positive for THC (10% - 27%), alcohol (17% - 29%), and other drugs. By May 2018, an estimated 4500 cases from BC, 600 from AB, 150 from SK, and 650 from ON will have been analyzed. We will report the prevalence of positive tests for alcohol, THC, other recreational drugs, and sedating medications, pre and post cannabis legalization. The number of cases with alcohol and/or THC levels above Canadian per se limits will also be reported. Results will be reported according to province, driver sex, age, single vs. multi vehicle crashes, and requirement for hospital admission. **Conclusion:** This will be among the largest international datasets on drug use by injured drivers. Our findings will provide patterns of drug and alcohol impairment in 4 Canadian provinces pre and post cannabis legalization. The significance of these findings and implication for impaired driving policy and prevention programs in Canada will be discussed.

**Keywords:** cannabis, drugs, motor vehicle collisions

## MP55

**Characteristics associated with biphasic reactions in an adult population**

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**Introduction:** Biphasic anaphylactic reactions are a concern in emergency medicine. Risk factors associated with this type of reaction remain ill-defined. The aim of this study was to investigate elements

associated with biphasic anaphylactic reactions and to determine the impact of anaphylaxis treatments on biphasic reactions. **Methods:** From the multicenter Cross-Canada Anaphylaxis Registry prospective cohort, we selected adults ( $\geq 18$  years) with a visit to the emergency department (ED) of Sacré-Coeur Hospital, an urban tertiary-care hospital. Then, a structured chart review was done to collect additional information on types and timing of treatments for the initial anaphylactic reaction, presence and treatment of biphasic reactions during the initial ED visit or upon patients' return. Biphasic reactions were defined by the recurrence of any anaphylaxis symptoms within 72 hours of a resolved anaphylaxis episode. Potential factors associated with biphasic reactions were studied using Chi-Square and Mann-Whitney tests. **Results:** Patients with anaphylaxis were enrolled between April 2014 and February 2018. From the cohort, 401 adult patients were identified. We found 37 patients who developed a biphasic reaction. Amongst them, 33 received treatments and 9 required more than one dose of intramuscular epinephrine. None of the biphasic reaction patients required intravenous epinephrine, other vasopressors, ICU admission, or endotracheal intubation. Biphasic reactions appeared in a median time of 13.3h after the initial reaction ranging from 1.1h to 69.6h (IQR 30.2). There was no difference in age or gender of patients who developed a biphasic reaction compared those who did not. Pertinent past medical history, daily medications, mean of arrival to the ED, allergen type, ingestion route, or initial symptoms during the anaphylaxis episode were not significantly different in the two groups. Treatment with corticosteroids was similar in the two groups (9.0% vs. 8.1%  $p = 0.82$ ). Treatment, dose and route of administration of epinephrine was not different in the two groups but longer delays before treatment with the first dose of epinephrine was more frequent in biphasic reaction patients (median delay of 64 minutes,  $p = 0.015$ ). **Conclusion:** No patient characteristic, allergen, route of ingestion, symptom, nor treatment with corticosteroids has shown to be significantly different in patients with and without biphasic reactions. Delayed treatment with epinephrine is significantly associated with biphasic reactions.

**Keywords:** anaphylaxis, biphasic anaphylaxis, treatment

## MP56

**A National survey of burnout and mentorship programs amongst Royal College Emergency Medicine residents**

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**Introduction:** In recent years, there has been growing interest in the field of physician wellness and burnout. Past research has shown that the prevalence of burnout is non-uniform between specialties and is most prevalent amongst emergency medicine physicians. Additionally, burnout can be observed amongst individuals early in their medical careers, including medical students and residents. To date, there is no national perspective of burnout amongst Canadian Royal College of Emergency Medicine (EM) residents. Our study looks to provide a national survey of burnout in this population as well as characterize mentorship programs at training sites. **Methods:** An anonymous electronic survey was e-mailed to Canadian EM residents via local program directors. Characteristics of mentor-mentee relationships and quality of residents' mentorship experiences were assessed on a 6-point Likert scale. The Maslach Burnout Inventory – Human Services Survey (MBI-HSS) for medical personnel was used to assess burnout on three dimensions (emotional exhaustion, depersonalization and personal accomplishment). Burnout was dichotomized as

present or absent if the MBI criteria are met (emotional exhaustion score > 26 or depersonalization score > 9 or personal accomplishment < 34). **Results:** To date, 52 responses have been collected. Respondents are primarily male (63%) and in their PGY year 1-3 (71%). Responses were collected from 6/14 (43%) of eligible programs. 84% of residents currently had an emergency medicine mentor. Of these, 8% were dissatisfied with their residency's mentorship program and 55% were satisfied/very satisfied. 72% of residents met the threshold for burnout in at least one dimension of the MBI (3 dimensions = 17%; 2 dimensions = 17%; 1 dimension = 38%) and 13% cited considering suicide during their training. **Conclusion:** Results thus far suggest significant burnout amongst Royal College of Emergency Medicine residents. Alarming, 13% of responders cited having contemplated suicide during their training. These results point to an important opportunity to better support EM residents during their training to improve wellness and reduce burnout. Our findings suggest a high prevalence of residents with established mentors and future analyses will examine the correlation between mentorship characteristics and resident burnout levels.

**Keywords:** burnout, mentorship, residents

## Poster Presentations

### P001

#### Continuing professional development and faculty development: launching continuous practice enhancement for academic emergency physicians

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**Innovation Concept:** Emergency medicine physicians must maintain a broad knowledge base and procedural skillset while fulfilling their academic roles as teachers, researchers and administrators. Most academic departments do not have a regular, affordable, formal continuing professional development (CPD) and faculty development (FD) curriculum for their staff. We set out to design and implement a novel continuous practice enhancement program to address this issue. **Methods:** Strategic planning by the Ottawa academic Department of EM identified CPD and FD as priorities. A program was created to support high quality, monthly CPD/FD courses provided by physicians. We had 5 goals: (1) enhance clinical and academic skills, (2) disseminate group best practices, (3) sustain skills in high impact/low frequency scenarios, (4) support physician academic careers, and (5) acquire new procedural skills. A CPD/FD Committee composed of local meded experts and experienced clinical teachers was tasked with overseeing the creation and evaluation of these sessions. **Curriculum, Tool or Material:** The longitudinal curriculum was informed by perceived needs (group survey), ascribed needs (M&M rounds, physician metrics and departmental leadership priorities) and participant feedback. The committee identified local experts to present on their areas of expertise in order to promote group best practice. Topics to-date have included clinical skills updates, teaching and coaching strategies and academic career planning. A comprehensive monthly simulation-based curriculum was rolled out simultaneously to give participants the opportunity to develop crisis resource management and critical care skills. Except for sessions requiring advanced equipment or cadavers, sessions are financed by academic funds and free for participants. **Conclusion:** Faculty academic

learning and engagement is an important goal and participation in this curriculum is reviewed at each physician's annual reappointment. To-date, 18 physicians (21% of our group) have presented topics and 92% of physicians have participated in at least one session with 63% having attended three or more. Evaluations have been overwhelmingly positive, and a recent survey identified the CPD/FD program as a significant contributor to our physicians' wellness. We introduced an innovative, structured CPD/FD program in response to perceived and ascribed needs of our physicians and departmental leadership. Our successful CPD/FD curriculum represents a model for other departments who are considering similar initiatives.

**Keywords:** continuing professional development, faculty development, innovation in EM education

### P002

#### Effectiveness of video-based learning modules in emergency medicine procedural skill training

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**Introduction:** Competence in procedural skills is vital within the emergency department. Challenging procedures such as cricothyrotomy are difficult to master as they are rare and hard to train for. Additionally, common procedures such as chest tube insertions require practice to become sufficiently competent. Opportunities to hone these skills are essential in residency training. This project aimed to create instructional video modules for specific emergency medicine (EM) procedures and gauge their utility as adjunctive resources for procedural learning in the EM residency curriculum. **Methods:** Tutorial videos for clamshell thoracotomy, cricothyroidotomy, and chest tube insertion were filmed within a cadaver lab with step-by-step instructions. The footage was edited and overlaid with a pre-prepared audio narration using Camtasia®/Apple® Video Editing software. These videos were embedded within modules that included foundational knowledge relevant to the procedures, including anatomy, physiology and pathophysiology. The modules were peer-edited by licensed EM staff physicians and distributed to EM residents and staff physicians for analysis. Qualitative and quantitative analysis relied upon participants' answers to questions and a Modified Task Value Scale, respectively. **Results:** Ten participants were included in the analysis, including EM residents (n = 6) and staff emergency physicians (n = 4). Qualitative feedback suggested that positive aspects of the modules included visuals, content, narration, and review of anatomy. Negative aspects included the lack of indications for procedures, technical details, real patient examples, and a speed up function. Quantitative feedback resulted in scores of 4 and above out of 5 on the Motivated Task Value Scale across all aspects for all the modules. Furthermore, analysis revealed an average score of 3.9 for inclination to access more modules such as these, and a score of 4.4 for overall perception of the modules. **Conclusion:** Participants found the video modules valuable to their learning, both qualitatively and quantitatively. This study was limited by a small sample size of modules and a low number of participants. Furthermore, a more detailed analysis with further measures, including self-efficacy and self-confidence, would yield more comprehensive conclusions. However, video-based modules provide an effective and easily accessible adjunctive tool to acquire skill and confidence with EM procedures, for medical learners and staff physicians.

**Keywords:** procedural skill, video-based learning