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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

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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 (≥ 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

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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