

Clearing the Air: Cannabis-related harms in post-legalization Urban Alberta Emergency Departments

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What did we want to find out?

1. Have the numbers of visits to the emergency department and calls to call centres changed?
2. Are the individuals presenting post-legalization different from those presenting pre-legalization?

What data did we use?



Data collected five years pre-legalization up to 10 months post



Sources: ED database, Poison Control, Telehealth



Data taken from Calgary and Edmonton (inclusive of Sherwood Park and St. Albert)



What did we do?

Used a variety of statistical methods to compare changes pre-legalization and post-legalization

Analyzed changes in the number and type of patients

Adjusted for population trends in Alberta

Cohort

- ▶ 14 732 patients identified with cannabis related harms
- ▶ 64.92% male
- ▶ Average age: 28.45 (SD=12.16)

Table 1. Age distribution of cohort

Age	n of cohort (%)
Child (0-14)	481 (3.27)
Adolescent (15-17)	1812 (12.30)
Young adult (18-24)	4718 (27.07)
Adult (25-44)	5937 (34.06)
Older adult (45-64)	1634 (9.37)
Senior (65+)	150 (0.86)

Results: Cannabis-related harms in the ED

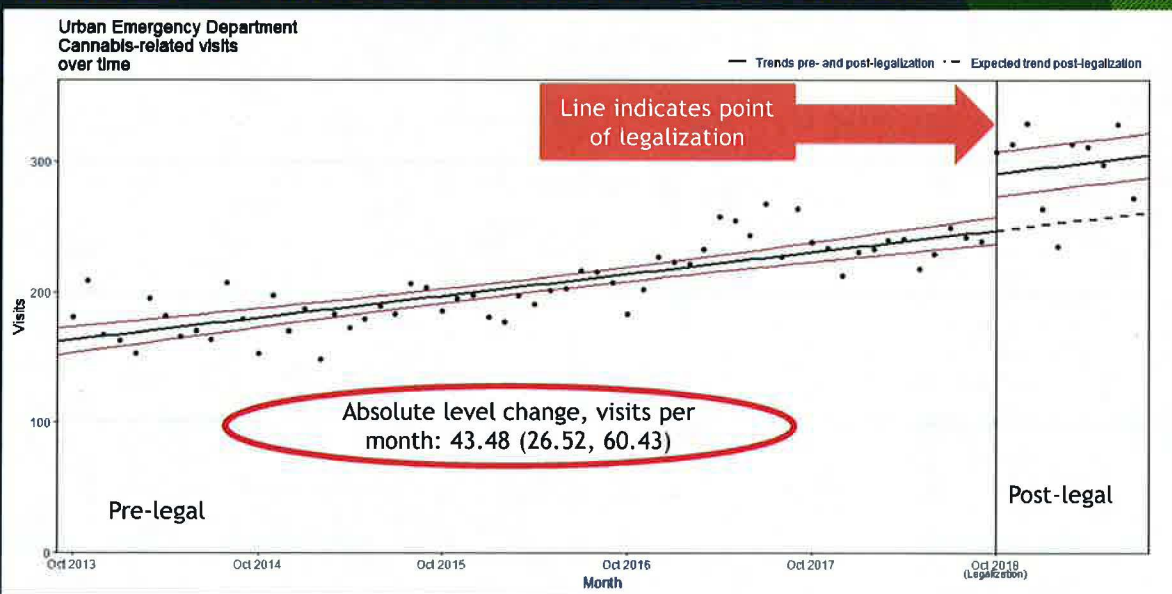


Table 2. Changes in ED presentation patterns for individuals presenting with CRH

Variable	RR (95% CI)	Variable	RR (95% CI)
LWBS*	1.27 (1.08, 1.49)**	Non-mood-psychotic disorder	0.79 (0.70, 0.90)**
Transferred	0.75 (0.61, 0.92)**	Mood-related disorder	0.70 (0.62, 0.78)**
Admits	0.88 (0.80, 0.96)**	Personality/behaviour disorder	0.75 (0.64, 0.87)**
Discharges	1.03 (0.98, 1.08)	Anxiety-related disorder	0.86 (0.78, 0.95)**
Accidental Ingestion	1.74 (1.34, 2.24)**	Cognitive disorder	1.32 (1.01, 1.71)**
External Injury	1.39 (1.27, 2.51)**	Cardiac distress	1.71 (1.27, 2.27)**
		Hyperemesis syndrome	1.23 (1.10, 1.36)**

*LWBS=Left without being seen by a physician

** p<0.05

Table 3. Common co-ingestants and changes in co-ingestant patterns

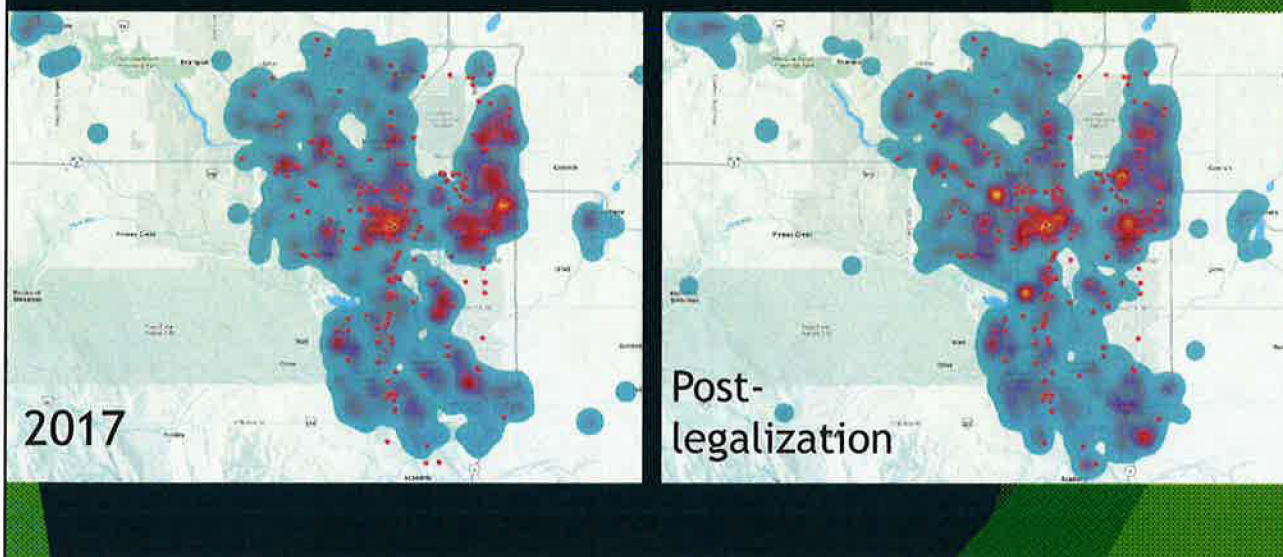
Substance	n of cohort (%)	Substance	RR (95% CI)
Alcohol	n = 3327 (22.58)	Alcohol	0.76 (0.69, 0.84)**
Other	n = 1711 (11.61)	Other	0.68 (0.60, 0.77)**
Stimulants	n = 1575 (10.69)	Stimulants	0.84 (0.73, 0.95)**
Cocaine	n = 1463 (9.93)	Cocaine	0.58 (0.49, 0.67)**
Opiates	n = 578 (3.92)	Opiates	0.69 (0.55, 0.87)**
Sedatives	n = 418 (2.84)		
Hallucinogens	n = 209 (1.42)		
Nicotine*	n = 76 (0.52)		
Inhalants	n = 7 (0.05)		

** indicates p<0.05

Cannabis Store Location and Injury Rates

- ▶ Informal analysis would indicate no substantial changes in community cannabis use due to the presence of cannabis stores
- ▶ Trends may change as communities become accustomed to the presence of stores
- ▶ Data input was limited due to ArcGIS limitations
- ▶ All compared to 2017

Calgary-area ED visits pre- and post-legalization



Discussion: What do results mean for users?

- ▶ Fewer users are reporting comorbidities and coingestant use associated with cannabis use
- ▶ Unfamiliarity with effects
 - Driving increase in physiological comorbidities
 - Driving increase in patients who leave the ED without being treated

Discussion: What do results mean for the city?

- ▶ Cannabis legalization has caused a true increase in the number of cannabis-related harms visits to the ED (-45%) and calls to poison control (-20%)
- ▶ Relative to pre-legalization numbers
- ▶ Increase is not of concern (spread over 30 days and over a dozen sites)
- ▶ It is unlikely the majority of injuries are associated with legal cannabis retailers

Our results in perspective...

- ▶ CRHs represent only 0.01% of all ED visits in Alberta
- ▶ Population-level impact remains low
- ▶ Of all users, based on the National Cannabis Survey, 1.08% of users present to the ED

Core messages

1. Legalization is correlated with an increase in emergency department visits and calls to poison control
2. We do not yet know if increases are due to the novelty effect of cannabis
3. Cannabis remains a small contributor to ED visits overall

Acknowledgements

- ▶ This study was supported by funding from Alberta Health Services and personnel from the University of Calgary, Alberta Health Services, and the City of Calgary
- ▶ I would like to thank my supervisors Dr. Rebecca Haines-Saah and Dr. Eddy Lang for their support in helping design and execute this study plan. I would also like to thank Matt Zabloski for the opportunity to present our findings to the City of Calgary and Chris Mamer for assistance in mapping data



Disclosures

- ▶ 2019 Emergency Strategic Clinical Network Summer Studentship grant

Supplemental Slide 1: Common ICD codes associated with Cannabis-related harms

ICD code	Meaning
R11	Vomiting
F40-48 and R44	Anxiety, dissociative, stress-related, somatoform, or other nonpsychotic mental disorder
F30-39 and R45	Mood (affect) disorders
F20-29	Schizophrenia, schizotypal, delusional, and other non-mood psychotic disorders
F60-69 and R46	Adult personality and behavioural disorder
I30-49 and R00-03	Cardiac distress
R04-09	Respiratory distress
R40-43	Signs and symptoms constituting part of a mental disorder
W00-X59 (excludes X42)	Accidental external injury
X42	Accidental poisoning

Supplemental Slide 2: Common Presentation Diagnoses

Variable	n of cohort (%)
Anxiety, dissociative, stress-related, somatoform, or other nonpsychotic mental disorder	2831 (16.24)
Unintentional external injury	2731 (15.68)
Mood (affect) disorders	2551 (14.63)
Vomiting	1922 (11.03)
Schizophrenia, schizotypal, delusional, and other non-mood psychotic disorders	1847 (10.60)
Adult personality and behavioural disorder	1336 (7.66)
Signs and symptoms constituting part of a mental disorder	313 (1.80)
Respiratory distress	304 (1.74)
Cardiac distress	233 (1.34)
Unintentional ingestion	2289 (13.13)

Supplemental Slide 3: Methods

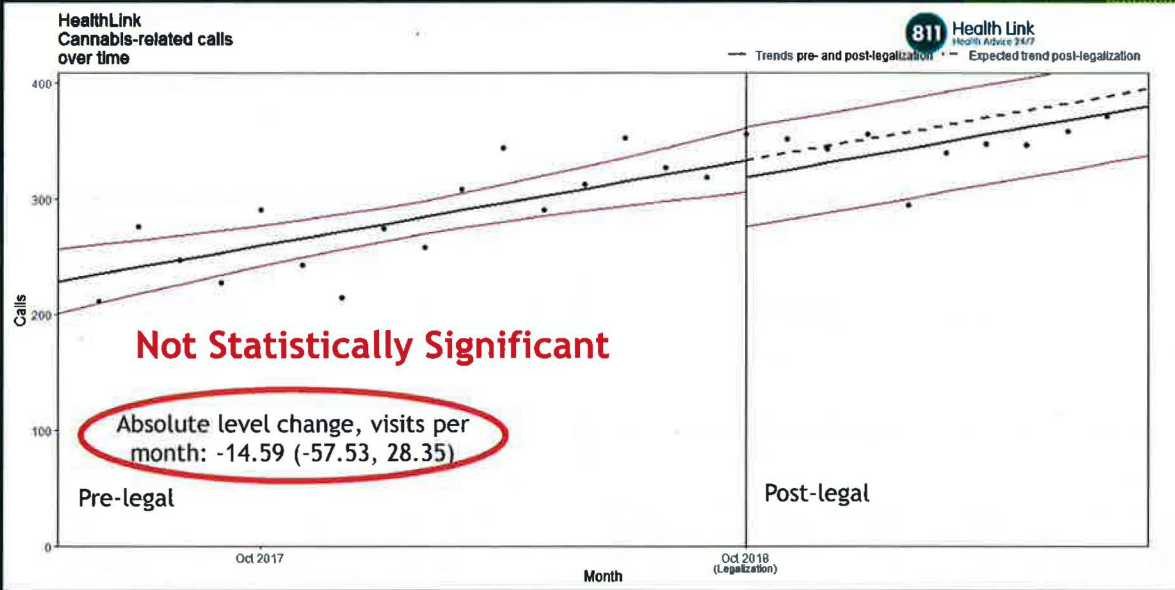
- ▶ Visits for cannabis identified with ICD codes F12 (cannabis-dependence) and T40.7 (poisoning from cannabis)
- ▶ Common cannabinoid comorbidities identified based on common ICD codes (see Table 1.)
- ▶ Calls based on keyword from callers

Supplemental Slide 4: Diagnoses categorization

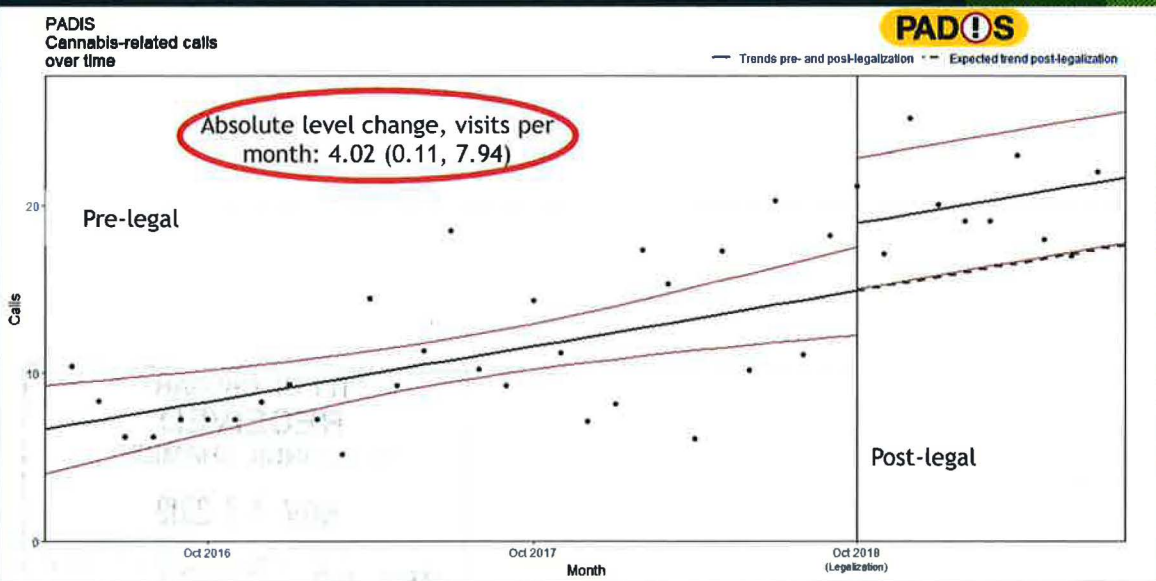
For ED visits:

- ▶ Primary diagnoses describe the most serious harm
- ▶ Secondary diagnoses describe diagnoses that may be consequent, causing, or unrelated to the primary diagnoses
 - May include descriptors of cause and location
- ▶ We examined all diagnoses fields for cannabis and opiate-related ICD codes, as well as for the common comorbidities

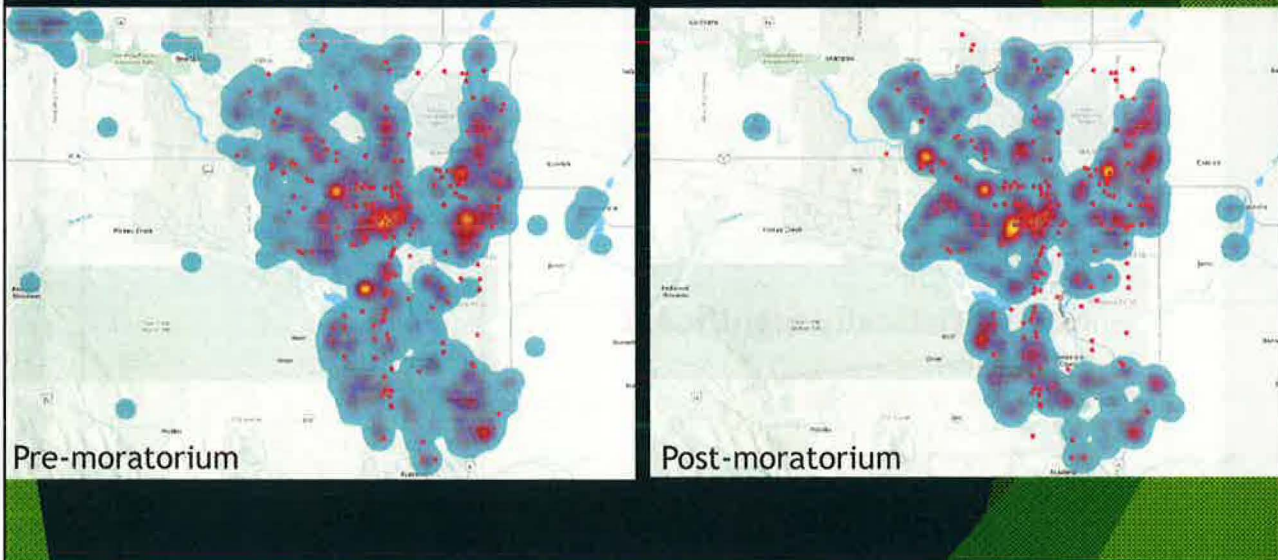
Supplemental Slide 5: Cannabis-related calls to HealthLink



Supplemental Slide 6: Cannabis-related calls to poison control



Supplemental Slide 7: Calgary-area ED visits pre- and post- moratorium



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