Cannabis and Occupational Health and Safety

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Conflict of Interest Disclosures

Faculty: Nancy Carnide and Andrea Furlan

Relationships with commercial interests:

• Grants/Research Support:
  • We have received research funding from WorkSafeBC (provincial workers’ compensation organization in British Columbia) to examine the literature on drug use (including cannabis) on workplace safety outcomes
  • The Institute for Work & Health operates with funding from Ontario’s Ministry of Labour

• Speakers Bureau/Honoraria: None to disclose

• Consulting Fees: None to disclose

• Other: None to disclose
Learning Objectives

At the end of this presentation, participants should be able to:

• Describe the state of the evidence on cannabis use among Canadian workers and effects on occupational health and safety

• Explain the importance of the nature of a worker’s job in assessing the potential risk of cannabis use in the workplace

• Describe a few issues to consider to ensure lower risk use among workers
Why are workers an important subgroup to consider?
4 migrant workers die in plunge from highrise

The four construction workers who died when scaffolding collapsed on Christmas Eve were migrant workers, Toronto police confirmed Friday.

TTC driver in fatal crash had drugs, police say

Police found marijuana

0 shares

Investigators say they believe the TTC vehicle was involved in the truck. (CBC)
TOP 5 CONCERNS OF IMPACT ON WORKFORCE

1. EMPLOYEES OPERATING MOTOR VEHICLES
2. DISCIPLINARY PROCEDURES
3. DECREASED WORK PERFORMANCE
4. EMPLOYEES USING HEAVY MACHINERY
5. ATTENDANCE

Workers in Canada

- 18.5 million employed residents
- Represents 62% of the Canadian population aged 15 and older \( (Statistics\ Canada,\ 2017) \)
- Spend most waking hours at work or commuting \( (OECD,\ 2017) \)

- Expected working life has increased
  - Average retirement age now 63.6 years \( (Statistics\ Canada,\ 2017) \)
What do we actually know about current patterns of cannabis use among workers?
Non-medical cannabis use among working Canadians

Source: Canadian Alcohol and Drug Use Monitoring Survey (CADUMS) 2008-2012; Canadian Tobacco, Alcohol, and Drugs Survey (CTADS) 2013, 2015.
Recent results from the Canadian Cannabis Survey

- Survey of 9,215 Canadians 16 years or older across Canada
  - Conducted from March to May 2017
- Respondents who had used cannabis in the past 12 months asked how often they used cannabis for non-medical purposes to get high before going to or at work
  - 78.5% never in past year
  - 9.7% less than once a month
  - 4.1% monthly
  - 7.7% weekly or daily

Prevalence of medical cannabis use among working Canadians

Have you had to accommodate an employee that requires medical marijuana?

11% YES

89% NO

Source: Human Resources Professional Association.
Impact of cannabis on occupational health & safety

“You were right, coming to work high isn’t a good idea.”
Effects of cannabis of relevance to the workplace

Physiological effects
• Dizziness, drowsiness, fatigue, euphoria

Cognitive and psychomotor impairments
• Verbal learning and memory
• Attention, concentration
• Reaction time
• Coordination
• Decision-making and risk-taking
• Inhibition/impulsivity
• Altered time and space perception

Sources: Health Canada, 2016; Crean et al., 2011
What do we know about the impact of cannabis on workplace accidents?

- Large review looking at health effects of cannabis
- Six studies published since 1999 on cannabis use and occupational injury

**Conclusion:** Insufficient evidence to support or refute a statistical association between general, non-medical cannabis use and occupational accidents or injuries

Source: The National Academies of Sciences, Engineering and Medicine.  
https://www.nap.edu/catalog/24625/the-health-effects-of-cannabis-and-cannabinoids-the-current-state

www.iwh.on.ca
Results from our own systematic review

- Objective: to examine the effect of select central nervous system-affecting drugs, *including cannabis*, on workplace injuries, deaths, and near misses

- So far:
  - Screened ~20,600 studies
  - ~20 studies examine cannabis
    *Note: not final numbers*
  - Results not yet available, but…
Preliminary impressions of the methodological issues in this literature

- Some key limitations apparent:
  - Weak study designs
  - Often do not separate cannabis from other illicit drugs
  - Timing of use and inability to determine impairment at time of accident
  - Lack of consideration for exposure characteristics (e.g., frequency of use, potency)
  - Residual confounding
Effects on other work-relevant outcomes

- Some studies have also found cannabis use to be associated with:
  - Work absenteeism
  - Reduced productivity
  - Job turnover
  - Unemployment
  
  (Larson et al., 2007; Normand et al., 1990; Ryan et al., 1992; Cerda et al., 2016; Wadsworth et al., 2006; Hoffmann et al., 1999; Zwerling et al., 1990; Compton et al., 2014; Boden et al., 2017; Henkel et al., 2011)

- Others have found no association with some of these outcomes:
  - Job turnover
  - Employment
  
  (Normand et al., 1990; Popovici et al., 2014; Lee et al., 2015)

- Many limitations of the injury literature apply here
Extrapolating findings from the driving literature

• Often argued cognitive skills required for work overlap with driving (Els et al., 2016; Phillips et al., 2015)

• Experimental driving studies (Hartman and Huestis, 2013):
  • Attempts to compensate, but deteriorates with increasing task complexity
  • Increases lane weaving, impairs critical-tracking tests, reaction times, divided-attention tasks, lane-position variability

• Epidemiological studies (Rogeberg and Elvik, 2016):
  • Acute use associated with 20-30% additional risk of MVAs
  • But potential residual confounding and selection bias
Do certain jobs merit particular consideration?
Safety-sensitive work

• A safety-sensitive position can be defined as one that, if not performed in a safe manner, can cause direct and significant damage to property, and/or injury to the employee, others around them, the public and/or the immediate environment (Canadian Human Rights Commission, 2017)

• Examples of safety-sensitive tasks:
  • Operating motor vehicles, heavy equipment operation, sharps work, working at heights, tasks involving high levels of cognitive function and judgment (Hegemann et al., 2014)

• Examples of safety-sensitive industries:
  • Transportation, health care, law enforcement and first responders, manufacturing, construction, mining
Decision-critical work

- Some researchers argue a middle category of “decision-critical” workers exist *(Fan et al., 2016)*:
  - “whose continued performance depends on the ability to consistently exercise judgement and insight, but who do not precisely fall under the ‘safety sensitive’ category”
  - Examples include: corporate executives, teachers, lawyers, IT workers, some health professionals
So what will change following legalization?
Employer concerns about impact of legalization

• Accessibility ➔ increase in use and impairment ➔ accidents and performance issues following legalization
• Increases in “self-medication” and pressures to accommodate

Do you believe your existing policy for marijuana adequately covers off on any potential new workplace issues that may arise with the legalization of recreational marijuana?

54% YES
46% NO

Source: Human Resources Professional Association.
What does the US experience tell us?

- Data on workplace-specific impacts from legalization of non-medical cannabis are non-existent
  - Applies to use patterns among workers and workplace effects
- But if we extrapolate again to the driving literature…
Crash Fatality Rates After Recreational Marijuana Legalization in Washington and Colorado

Jayson D. Aydelotte, MD, Lawrence H. Brown, PhD, Kevin M. Lujan, MD, Alexandra L. Mardock, BA, Pedro G. R. Teixeira, MD, Ben Coopwood, MD, and Carlos V. R. Brown, MD

Objectives: To evaluate motor vehicle crash fatality rates in the first 2 states with recreational marijuana legalization and compare them with motor vehicle crash fatality rates in similar states without recreational marijuana legalization.

Methods: We used the US Fatality Analysis Reporting System to determine the annual numbers of motor vehicle crash fatalities between 2009 and 2015 in Washington, Colorado, and 8 control states. We compared year-over-year changes in motor vehicle crash fatality rates (per billion vehicle miles traveled) before and after recreational marijuana legalization with a difference-in-differences approach that controlled for underlying time trends and state-specific population, economic, and traffic characteristics.

Results: Pre–recreational marijuana legalization annual changes in motor vehicle crash fatality rates for Washington and Colorado were similar to those for the control states. Post–recreational marijuana legalization changes in motor vehicle crash fatality rates for Washington and Colorado also did not significantly differ from those for the control states (adjusted difference-in-differences coefficient = +0.2 fatalities/billion vehicle miles traveled; 95% confidence interval = −0.4, +0.9).

Conclusions: Three years after recreational marijuana legalization, changes in motor vehicle crash fatality rates for Washington and Colorado were not statistically different from those in similar states without recreational marijuana legalization. Future studies over a longer time remain warranted. (Am J Public Health. 2017;107:1329–1331. doi: 10.2105/AJPH.2017.303848)
What legalization won’t change

- Under occupational health and safety legislation across Canada (CCOHS, 2017):
  - Employers have a duty to provide a safe work environment and take reasonable precautions to protect workers and other in the workplace
  - Employees have a duty to perform their job safely and understand the impact of using substances on safety
Bottom line

• Workers will not be permitted to use cannabis at work, nor come into work impaired, regardless of legality (much like alcohol)
• As of now, no changes in law permitting widespread random drug testing
  • Safety-sensitivity of work is not sufficient: must also demonstrate pervasive culture of drug use
• Will continue to require documented medical authorization from a physician to use for medical purposes to receive accommodations
• Employers must also continue to accommodate workers with cannabis dependence
Mitigating the risks of cannabis use among workers
Key issues for physicians to consider when advising working patients

1. Purpose for use
2. Timing of use
3. Method of consumption
4. Frequency of use
5. Potency of cannabis
6. Type of work tasks
7. Signs of impairment
8. Signs of aberrant behaviour
Other considerations

- Educate worker about potential risks in the workplace
- Consider some suggested wait times before driving and operating machinery
  - Lower Risk Cannabis Use Guidelines: at least 6 hours or even longer \((Fischer \textit{et al.}, 2017)\)
  - College of Family Physicians of Canada: anywhere from 4 to 8 hours \((College of Family Physicians of Canada, 2014)\)
  - Els: no use for those performing safety-sensitive tasks \((Els \textit{et al.}, 2016)\)
- No consensus on a safe window or THC limits: may depend on other factors (e.g., frequency of use, THC content)
- And don’t forget to document that you have provided advice
Accommodations for medical cannabis or substance dependence

- Some questions to consider:
  - Is the patient aware of his/her limitations at work?
  - Is the patient able to perform safety-sensitive tasks at work?
  - Does this patient need accommodation to use cannabis for medical purposes?
  - Does this patient need accommodation to attend treatment or rehabilitation?
Examples of accommodations

• Modified hours
• Modified tasks
• Re-assign to a position that is not safety-sensitive
• Leave of absence for treatment and rehabilitation
Key messages
Key messages

• Cannabis use is not uncommon among Canadian workers, but extent of use and impairment at work is not well understood

• Robust evidence for a causal relationship between cannabis use and occupational health & safety outcomes is lacking, but workers in safety-sensitive and decision-critical occupations may be more at risk for harms

• Clinical assessment of a worker using cannabis should probe nature and timing of use, type of job tasks, and potential need for accommodations to assist worker in minimizing any risks of use
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The views expressed in this document are those of the authors and do not necessarily reflect those of the Province of Ontario.
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