

# Cannabis in the workplace

## What physicians need to know

Brent Wolfrom MD CCFP FCFP Victor K. Ng MSc MD CCFP(EM) MHPE

Cannabis for recreational use was legalized in Canada on October 17, 2018.<sup>1</sup> Since that time there has been much discussion on the potential health effects of its use and the implications of legalization for public health and safety. Potential health effects, including psychosis and cardiovascular risk, have been suggested.<sup>2,3</sup> However, at this time there is little to inform physicians about the effects of cannabis on workers or workplaces.

While a variety of industries and organizations have now published guidance on the implications of cannabis use for the workplace, these policies, while based on the same available evidence, contain highly disparate recommendations. For instance, the Vancouver Police Department allows their police officers to consume cannabis at any time while off duty as long as they arrive for their shift able to complete their duties, whereas the Calgary Police Service has instituted an outright ban on cannabis use for their members.<sup>4</sup> In contrast, the Canadian Armed Forces has taken a more nuanced approach and instituted direction ranging from 8 hours of abstinence before duty up to a complete ban depending on the individual Canadian Armed Forces members' duties and location.<sup>5</sup> More generally, the Occupational and Environmental Medical Association of Canada has published a position paper on cannabis use for safety-sensitive work wherein they recommend against operating motor vehicles or equipment or engaging in other safety-sensitive tasks for 24 hours after cannabis consumption, or for longer if impairment persists.<sup>6</sup> Similarly, the Canadian Centre for Occupational Health and Safety has also released recommended workplace strategies for dealing with impairment caused by cannabis, including training supervisors to recognize the signs of impairment.<sup>7</sup>

Some of our patients work in industries or organizations with current and focused policies relevant to recreational drug use, in which case they might receive some level of guidance on cannabis or other recreational drugs. However, for many of our patients that is not the case, and it will fall to their physicians to provide guidance. While this might be a daunting task for us, it also emphasizes the importance of occupational medicine within family medicine. We should also pause and consider the effects of other drugs, including prescribed medications, on our patients in the workplace.

### What do we know about the risks of impairment?

The scientific data pertaining to cannabis are growing rapidly; however, the determination of impairment after consumption is elusive. This uncertainty is exacerbated

by differing pharmacokinetics depending on route of administration and apparent differences between chronic and intermittent users.<sup>8</sup> Indeed, bioavailability was found to be between 2% and 56% through the inhalation route alone, with bioavailability through oral consumption likely even more variable owing to differing rates of absorption and first-pass metabolism.<sup>9</sup> In general, psychotropic effects occur within minutes of inhalation and last for 2 to 4 hours, whereas psychotropic effects from oral consumption typically occur within 30 to 60 minutes and last for up to 12 hours.<sup>9,10</sup>

So what do we know about the risks of cannabis impairment in the workplace? Many of the current data are epidemiologic, with few controlled trials. Postal workers who tested positive for cannabis on enrolment drug screening had 55% more industrial accidents, 85% more injuries, and 75% higher absenteeism than those who tested negative.<sup>9</sup> These are large numbers but they hardly show a clear cause and effect. There are very compelling data to suggest that acute cannabis consumption is associated with an increased risk of motor vehicle collisions, especially fatal collisions.<sup>11,12</sup> Of note, regular cannabis users made more driving errors than nonregular users did, suggesting that there might be an increased risk with chronic use, at least when combined with alcohol use.<sup>8</sup> Importantly, a recent Canadian study found cannabis use to be associated with a 4-fold increased risk of being involved in a motor vehicle collision.<sup>13</sup>

A more controlled study involving airline pilots demonstrated impairments in aircraft landings 24 hours after smoking a cigarette containing 19 mg of tetrahydrocannabinol. Of interest, the pilots reported no awareness of impairment.<sup>14</sup> This lack of awareness of impairment would seem to correspond with data from the Canadian Cannabis Survey that found, among respondents who used cannabis in the previous 12 months, 39% reported driving within 2 hours of consumption, with 29% of those having done so 10 or more times within the past 12 months. It is not surprising, then, that 18% reported using cannabis at or before work.<sup>15</sup> Similar data are available out of the United States, where a trend toward decreased perception of risks associated with cannabis is correlated with an increase in its use.<sup>16</sup>

### What about risks from other medications?

As the use of cannabis increases, and its use becomes more acceptable and openly discussed, physicians will be required to become increasingly knowledgeable about its effects. Many commonly prescribed medications carry

similar risks. For instance, study participants tested the morning after taking 7.5 mg of zopiclone were found to demonstrate a level of impairment worse than a blood alcohol level of 0.05%.<sup>17</sup> The International Council on Alcohol, Drugs and Traffic Safety has developed a categorization system that provides specific recommendations to assist physicians in determining the risk of driving while taking certain medications. International Council on Alcohol, Drugs and Traffic Safety category III medications are considered likely to produce severe effects or are presumed to be potentially dangerous. Many frequently taken category III medications affected study participants in driving tests in ways that were equivalent to having a blood alcohol concentration of greater than 0.08%. Examples of category III medications include benzodiazepines, z drugs, amitriptyline, trazodone, mirtazapine, and diphenhydramine.<sup>18</sup> These are all medications that are commonly prescribed with little thought of the risks of impairment they cause. All impairing substances, including cannabis, should be assessed in the same manner for risks and benefits by physicians who have patients taking them. Further, when physicians recommend cannabis for medical reasons, we must be aware of its potential effects on safety-sensitive work.

## Conclusion

As the legalization of cannabis in Canada has presented a challenge for physicians, perhaps it has also provided an opportunity for reframing our thoughts about impairment. Impairment might be a result of illness; drugs that are illicit, prescribed, or legally acquired for recreation; fatigue; or distraction, among other causes. Cannabis legalization might also present an opportunity to refocus on the importance of occupational health in our patients' well-being and in their workplaces, and workplaces' effects on our patients' health. In the meantime, the Centre for Effective Practice has published a useful resource for physicians on nonmedical cannabis use.<sup>19</sup>

**Dr Wolfrom** is Postgraduate Program Director in the Department of Family Medicine at Queen's University in Kingston, Ont, and Veterans' Health Observer for the Occupational Medicine Community of Practice of the College of Family Physicians of Canada. **Dr Ng** is a physician advisor in the Professional Development and Practice Support division of the College of Family Physicians of Canada and Assistant Professor in family and emergency medicine at the University of Toronto in Ontario and at Western University in London, Ont.

### Competing interests

None declared

### Correspondence

**Dr Brent Wolfrom**; e-mail [brent.wolfrom@dfm.queensu.ca](mailto:brent.wolfrom@dfm.queensu.ca)

The opinions expressed in commentaries are those of the authors. Publication does not imply endorsement by the College of Family Physicians of Canada.

### References

1. *Cannabis Act*. S.C. 2018, c. 16. Available from: <https://laws-lois.justice.gc.ca/eng/acts/C-26.5/>. Accessed 2020 Mar 30.
2. Singh A, Saluja S, Kumar A, Agrawal S, Thind M, Nanda S, et al. Cardiovascular complications of marijuana and related substances: a review. *Cardiol Ther* 2018;7(1):45-59. Epub 2017 Dec 7.
3. Marconi A, Di Forti M, Lewis CM, Murray RM, Vassos E. Meta-analysis of the association between the level of cannabis use and risk of psychosis. *Schizophr Bull* 2016;42(5):1262-9. Epub 2016 Feb 15.
4. Furlan A, Carnide N. Cannabis in the workplace: we need an accurate measure of impairment. *The Conversation* 2018 Oct 16. Available from: <http://theconversation.com/cannabis-in-the-workplace-we-need-an-accurate-measure-of-impairment-89142>. Accessed 2020 Mar 27.
5. Department of National Defence. *Defence Administrative Orders and Directives (DAOD) – 2000. DAOD 2007-2, Use of Cannabis by DND Employees*. Ottawa, ON: Government of Canada; 2018. Available from: <https://www.canada.ca/en/department-national-defence/corporate/policies-standards/defence-administrative-orders-directives/2000-series/2007/2007-2-use-cannabis-dnd-employees.html#pro>. Accessed 2020 Mar 27.
6. Els C, Jackson TD, Aidoo H, Wyatt G, Sowah D, Chao D, et al. *Position statement on the implications of cannabis use for safety-sensitive work*. Winnipeg, MB: Occupational and Environmental Medical Association of Canada; 2018. Available from: <https://oemac.org/wp-content/uploads/2018/09/Position-Statement-on-the-Implications-of-cannabis-use.pdf>. Accessed 2020 Mar 27.
7. Canadian Centre for Occupational Health and Safety. *Workplace strategies: risk of impairment from cannabis*. 3rd ed. Hamilton, ON: Canadian Centre for Occupational Health and Safety; 2018. Available from: [https://www.ccohs.ca/products/publications/cannabis\\_whitepaper.pdf](https://www.ccohs.ca/products/publications/cannabis_whitepaper.pdf). Accessed 2020 Mar 27.
8. Fischer B, Russell C, Sabioni P, van den Brink W, Le Foll B, Hall W, et al. Lower-risk cannabis use guidelines: a comprehensive update of evidence and recommendations. *Am J Public Health* 2017;107(8):e1-12. Epub 2017 Jun 23. Erratum in: *Am J Public Health* 2018;108(5):e2.
9. Goldsmith RS, Targino MC, Fanciullo GJ, Martin DW, Hartenbaum NP, White JM, et al. Medical marijuana in the workplace: challenges and management options for occupational physicians. *J Occup Environ Med* 2015;57(5):518-25.
10. Monte AA, Zane RD, Heard KJ. The implications of marijuana legalization in Colorado. *JAMA* 2015;313(3):241-2.
11. Asbridge M, Hayden JA, Cartwright JL. Acute cannabis consumption and motor vehicle collision risk: systematic review of observational studies and meta-analysis. *BMJ* 2012;344:e536.
12. Liguori A, Gatto CP, Robinson JH. Effects of marijuana on equilibrium, psychomotor performance, and simulated driving. *Behav Pharmacol* 1998;9(7):599-609.
13. Asbridge M, Mann R, Cusimano MD, Trayling C, Roerecke M, Tallon JM, et al. Cannabis and traffic collision risk: findings from a case-crossover study of injured drivers presenting to emergency departments. *Int J Public Health* 2014;59(2):395-404. Epub 2013 Sep 24.
14. Yesavage JA, Leirer VO, Denari M, Hollister LE. Carry-over effects of marijuana intoxication on aircraft pilot performance: a preliminary report. *Am J Psychiatry* 1985;142(11):1325-9.
15. Government of Canada. *Canadian Cannabis survey 2017—summary*. Ottawa, ON: Government of Canada; 2017. Available from: <https://www.canada.ca/en/health-canada/services/publications/drugs-health-products/canadian-cannabis-survey-2017-summary.html>. Accessed 2020 Mar 27.
16. Volkow ND, Baler RD, Compton WM, Weiss S. Adverse health effects of marijuana use. *N Engl J Med* 2014;370(23):2219-27.
17. Mets MA, de Vries JM, de Senerpont Domis LM, Volkerts ER, Olivier B, Verster JC. Next-day effects of ramelteon (8 mg), zopiclone (7.5 mg), and placebo on highway driving performance, memory functioning, psychomotor performance, and mood in healthy adult subjects. *Sleep* 2011;34(10):1327-34.
18. Verster JC, Mets MA. Psychoactive medication and traffic safety. *Int J Environ Res Public Health* 2009;6(3):1041-54. Epub 2009 Mar 10.
19. Centre for Effective Practice. *Non-medical cannabis resource: Ontario*. Toronto, ON: Centre for Effective Practice; 2018. Available from: <https://cep.health/media/uploaded/20181015-Non-Medical-Cannabis-Rev-6.3.pdf>. Accessed 2020 Mar 27.

This article has been peer reviewed. *Can Fam Physician* 2020;66:317-8

La traduction en français de cet article se trouve à [www.cfp.ca](http://www.cfp.ca) dans la table des matières du numéro de mai 2020 à la page e140.