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Health Ethics Concerns over Cannabis Use and Vaping

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It is somewhat perplexing that, after years of education and public health warnings about cigarette smoking, any government would then introduce the legalization of cannabis and be permissive towards the use of vaping products, mostly e-cigarettes.¹ One reason could have been the foreseen increased revenue from taxation of such products, but another reason was that the cost of policing cannabis use put severe stress on police budgets for an offence that society no longer deems serious, and which in any event was not very effective.

There were and are black market and criminal elements at work, especially where cannabis is concerned, and society would like to have these removed. It is unclear that legalization of cannabis is the best way to do so, since legalized markets are being undercut by those elements, while, at the same time, legitimization seems to have caused more use and, correspondingly, more addiction problems.

If there are more users, then revenue gained from taxation could be offset by treatment costs, as more people's health becomes affected. There will be costs of protecting minors through public health and educational campaigns, just as in previous anti-smoking campaigns. More users mean a likely increase in accidents and injuries, adding to already strained health care costs.

CANNABIS USE

Tetrahydrocannabinol (THC) extracted from the resin found in the glands of cannabis plants is responsible for most of the psychological effects sought by those who use any form of cannabis recreationally. Marijuana comes from the dried flowers and buds of the plant, and is smoked or inhaled as a vapour.

Cannabinoid receptors are concentrated in our brains and are associated with thinking, memory, pleasure, coordination and time perception. THC stimulates the brain to release dopamine, and this contributes to the euphoria experienced, the "high" that is sought, with effects lasting up to two hours. People taking medical marijuana are, therefore, instructed not to drive afterwards until they can assess their own tolerance of the drug. It is important to note that cannabis taken to relieve some medical conditions is in its own legal category and was allowed before the broader legalization of cannabis in 2019.

EFFECTS

Some listed effects of using cannabinoids include the possibility of hallucinations, changes in thinking, or delusions caused by interference with the hippocampus, which is needed for processing information. Use can trigger relapse in schizophrenic symptoms and affect motor skills for perhaps three hours.²

Longer term studies at CAMH show that regular use of cannabis is associated with depression or anxiety; there is a higher rate of injury and risk of death from more vehicle collisions; there are demonstrated causal effects re schizophrenia, chronic bronchitis and lung cancer. It is not clear

how much cannabis has to be consumed for impairment, which is hard to gauge, while at the same time roadside testing is experiencing some practical difficulties.³

CANNABIS AND YOUTH

In terms of priorities, society needs to pay more attention to cannabis use and vaping by young people. There are definite health ethics concerns for youth, given the rising numbers of users of both cannabis and vaping products. Here are some factors about cannabis use that are not well known:

- Youth in Canada has the highest level of use in developed countries, with almost a quarter of the population aged 15-24 reporting use in 2015
- 28% of youth aged 11-15 reported using marijuana in 2018, with the Atlantic and Western provinces showing higher rates than elsewhere
- In Ontario, 13.85 of 7th to 12th graders reported past month use in 2015, with 12th graders reporting the highest daily use, at 5.6%
- Indigenous youth are particularly at risk: nearly two thirds of youth aged 15-19 from Inuvik, Quebec, reported use in 2016 ⁴

The Canadian Paediatric Society is concerned about these rates and provided evidence to Health Canada, pre-legalization, about the effects of cannabis on youth:

- Cannabis use can cause functional and structural changes to the developing brain.
- Marijuana in this age group is strongly linked to cannabis dependence and other substance abuse disorders, to tobacco smoking, and to mental illnesses such as depression, anxiety or psychosis.

- Impaired neurological development and cognitive decline
- Diminished school performance and lifetime achievement
- Rates of hospitalization for young children who have ingested products unintentionally have increased⁵

The Society underlined the fact that the amount of problematic TCH in cannabis (delta-9 – tetrahydrocannabinol) is currently two to four times higher than before. It emphasizes the detrimental effects of use on brain plasticity in youth, since brains are not fully formed until about age 25, much older than people realize. The Society points out a further concern: when cannabis use is combined with alcohol and tobacco, it triples the risk of health issues, and the risk of dependence (addiction) grows where two or three such substances are at work.⁶

It is estimated that one in six adolescents who use cannabis will meet the criteria for dependence, and two new diagnoses reflect these developments: Cannabis Use Disorder (CUD) based on observation of functional impairment, is shown in reduced academic performance/truancy/reduced participation in extracurricular activities/conflict with family and so on. The second is Cannabis Withdrawal Symptom (CWS), shown by the presence of irritability/anxiety/depressed mood/ sleep disturbance/serious changes in appetite, etc.⁷

A major concern for parents is teen driving, and they should be aware that cannabis-impaired driving is more prevalent among adolescents than alcohol-impaired driving. In 2015, 9.8 students in Ontario (Grades 10-12) admitted to driving after cannabis use at least once during the previous year. This is compounded by the fact that road side testing is still problematic and that cannabis-infused edibles can take up to six hours to show effects. Young people may not even know that they are impaired.⁸

VAPING AND E-CIGARETTES

“*Vaping* is the act of inhaling and exhaling an aerosol produced by a *vaping* product...*Vaping* doesn't require burning like cigarette smoking...”⁹

The long-term health impacts of vaping are unknown. There is enough evidence to justify efforts to prevent the use of vaping products by youth and non-smokers, and the Canadian government is aware of this. Provincial laws regulate age, so that in Ontario, one must be 19 to buy cannabis and vaping products. This does not appear to take the warning of possible dangers to brain plasticity stated by the Canadian Paediatric Society at all seriously.

In any event, whether a young person is thirteen or twenty-three, the most important point about e-cigarettes is that they contain nicotine, and no amount of fancy flavourings should be allowed to disguise this factor. It is thought that smoking e-cigarettes is preferable to smoking “real” cigarettes, to wean people off nicotine. Recent adverts sponsored by the tobacco industry extol the virtues of e-cigarettes in themselves and for their use in providing addicted smokers with a cigarette with a lower level of nicotine. That may be true in those cases, but we are still talking about nicotine use, and it is dangerous for marketers to suggest that e-cigarettes are harmless or even beneficial: they may be *less* harmful for adults than full scale cigarettes, but the point for youth is surely to discourage smoking entirely and not expose them to the possibility of addiction to *any* level of nicotine in the first place! There is a strong ethical need for government and public health to work to make this clear and not permit adult advertising campaigns that could confuse young people about the facts. The health effects in the two situations are completely different and must not be conflated.

CONTENTS OF E-CIGARETTES:

- As well as nicotine, E-cigarettes may also contain THC or other cannabinoids

- Vaping cartridges containing THC may include other unknown substances
- Possibly Vitamin E (used as thickener) and/or THC are added
- The Centers for Disease Control (US) have warned people not to buy products from street sources since the contents will be unknown¹⁰

TEEN USE IN CANADA

- After nicotine-containing e-cigarettes were legalized, the number of Canadian teens who vape doubled¹¹
- Monthly use rose to 14.6 in 2018 from 8.4 in 2017
- Cannabis vaping oils, along with cannabis-infused edibles and beverages, became legal and available in Canada, December, 2019¹²

HEALTH RISKS: ADULTS AND TEENS

- Numbers vaping continue to rise quickly
- US reported cases of severe lung damage in August 2019
- CDC (Centers for Disease Control) names the new lung problems EVALI: E-cigarette or Vaping product use Associated Lung Injury¹³
- May experience difficulty breathing / shortness of breath/ chest pain/ fevers/ vomiting/fatigue
- 2000 Americans have fallen ill since March, 2018 and 40 have died
- CDC warned e-cigarettes should not be used by youth, young adults or pregnant women
- Health Canada responded more slowly: first vaping-related illness reported in London, September, 2018¹⁴

IMPORTANT INFORMATION

Canada Health now has several websites dedicated to cannabis and vaping products, with specific information for parents and for youth.¹⁵ Educational programs are available and underway in schools. Legislation specifically

prohibits those under the age of 18/19 from buying any of these products, but user statistics tell a different story, and young people need to be protected by those closest to them. Legislation can only do so much and parents must make sure they are informed to help their children understand the larger picture involved in using these products.

The Globe and Mail recently reported that “The Ontario government is moving to ban most flavoured vaping products from convenience stores and gas stations and to cap nicotine levels in a bid to prevent young people from using e-cigarettes.” In December 2019, the federal government announced it would ban most forms of e-cigarette advertising that young people could see, including on social media, and it has promised new flavour restrictions this year. *The Globe and Mail* notes: “Under the current federal law, companies cannot promote e-cigarette flavours that could appeal to youth, such as

candy, dessert or soft drink flavours.”¹⁶ Such use has not yet been banned, but societal concerns about youth choices could impel a change in legislation, however slow.

CONCLUSION

Health Canada clearly states the risks to both adult and youth from cannabis and e-cigarettes, and educational material is being used in schools and elsewhere. Our youth need to be informed and protected, and it would be a true health breakthrough if they could recognize the wisdom of a statement made by an expert from the University of Alberta who summed it up pretty well in saying: “**Nothing inhaled outside of prescribed and tested inhalational medications is safe for your lungs...Your lungs are meant for respiration.**”¹⁷ ■

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¹ Cannabis Act S.C. 2018, c. 16

² Health Canada website.

<https://www.canada.ca/en/health-canada/services/drugs-medication/cannabis/health-effects/effects.html>

³ CAMH website. <https://www.camh.ca/en/health-info/mental-illness-and-addiction-index/cannabis>

⁴ Christina N Grant, Richard E Bélanger. Canadian Paediatric Society, Adolescent Health Committee, Paediatric Child Health 2017;22(2):98-102

⁵ *Ibid.*

⁶ *Ibid.*

⁷ *Ibid.*

⁸ *Ibid.*

⁹ Health Canada.

<https://www.canada.ca/en/services/health/publications/healthy-living/talking-teen-vaping-tip-sheet-parents.html>

¹⁰ Centers for Disease Control (US). Overview page.

https://www.cdc.gov/tobacco/basic_information/e-cigarettes/severe-lung-disease/need-to-know/#cdc-recommends

¹¹ The Canadian Press. “Vaping among Canadian teens spikes by 74% in 1 year, Waterloo study finds.” Jun 21, 2019 11:08 AM ET

<https://www.cbc.ca/news/canada/kitchener-waterloo/waterloo-university-vaping-teens->

¹² “Consumers should avoid ‘experiment’ with vaping oil products, say U of A medical experts who cite lack of

health evidence and lung problems linked to vaping.” <https://www.folio.ca/cannabis-vaping-is-now-legal-in-canada-but-that-doesnt-make-it-safe-experts/> October 2019.

¹³ Centers for Disease Control. “Outbreak of Lung Injury Associated with the Use of E-Cigarette, or Vaping, Products.”

https://www.cdc.gov/tobacco/basic_information/e-cigarettes/severe-lung-disease.html

¹⁴ Global National. “First known Canadian case of vaping-related illness reported in London, Ont.” September 2018

<https://globalnews.ca/news/5917942/middlesex-london-health-unit-youth-vaping-illness/o>

¹⁵ <https://www.canada.ca/en/services/health/campaigns/cannabis/health-effects.html>

[https://www.canada.ca/en/health-](https://www.canada.ca/en/health-canada/services/smoking-tobacco/vaping/risks.html#a3)

[canada/services/smoking-tobacco/vaping/risks.html#a3 https://www.canada.ca/en/services/health/publications/healthy-living/talking-teen-vaping-tip-sheet-parents.html](https://www.canada.ca/en/services/health/publications/healthy-living/talking-teen-vaping-tip-sheet-parents.html)

¹⁶ <https://www.theglobeandmail.com/canada/article-ontario-to-ban-flavoured-vaping-products-from-being-sold-in/>

¹⁷ <https://www.ualberta.ca/medicine/about/people/Dilini-Vethanayagam#> <https://www.folio.ca/cannabis-vaping-is-now-legal-in-canada-but-that-doesnt-make-it-safe-experts/>