

# Developing equitable approaches to prevention, harm reduction and the route of administration (ROA): Aligning cannabis, tobacco use and vaping

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## Developing equitable approaches to prevention, harm reduction and the route of administration (ROA): Aligning cannabis, tobacco use and vaping

Lorraine Greaves, PhD  
Natalie Hemsing MA  
Andreea C. Brabete, PhD  
Nancy Poole, PhD

Centre of Excellence for Women's Health  
Vancouver, BC Canada

### INTRODUCTION

- In October 2019, cannabis extracts including vaping products, cannabis edibles, and cannabis topicals became legal, one year after the legalization of cannabis in Canada.
- Evidence from USA suggests that legalization is linked to increased use of vaping and edibles [1].
- Emerging cases of e-cigarette, or vaping, product use associated lung injury (EVALI) in North America requires assessment of the harms and benefits of different ROAs and a review of policies, regulations and public health approaches.
- Regulations and public health messages related to cannabis ROAs need to align with policy and messaging regarding tobacco secondhand smoke and electronic nicotine delivery systems (ENDS).
- Sex, gender and equity considerations must be integrated to create appropriate regulations and policies that prevent unintended consequences and benefit all.

### E-cigarette, or vaping, product use associated lung injury (EVALI):

- As of November 2019, there were n=2,172 cases of e-cigarette or vaping product use associated lung injury (EVALI) in the USA. The majority of these reported cases involved vaping THC products; those affected are primarily male (70%), and have a median age of 24 [2].
- As of November 2019, Canada has reported 8 confirmed cases in 3 provinces. Health Canada has advised: "It is important for Canadians to know that vaping does have health risks and that the potential short and long-term effects of vaping remain unknown" [3].
- UK researchers have suggested that tighter regulations and monitoring in the UK have prevented a similar public health issue [4].
- Recent laboratory tests in the USA found vitamin E acetate in all n=29 lung fluid samples from patients with EVALI. However, the CDC notes that evidence is insufficient to dismiss other chemicals of concern, and that there may be multiple factors [2].

### OBJECTIVES

- To present findings from a scoping review on:
- how sex and gender related factors impact patterns of use, exposure and health effects of different ROAs; and
  - the implications for aligning sex-, gender- and equity-informed prevention and harm reduction responses to cannabis, tobacco, and ENDS

### METHODS

- A scoping review was conducted to synthesize academic and grey literature published between 2007 and 2019 on sex, gender and cannabis smoking or cannabis vaping. Academic database searches returned 2,332 papers.
- Following abstract and full paper screening, 134 academic studies and 28 grey literature sources were included in the review.

### RESULTS

- The Lower Risk Cannabis Use Guidelines for Canada, and Lower Risk Cannabis Use for Youth, suggest avoiding combustible cannabis and choosing vaping and edibles (based on a 2017 review that identified harmful byproducts in smoked cannabis and adverse respiratory health outcomes associated with smoking [5].)
- ENDS are being investigated for their harm reduction potential or as tools in tobacco smoking cessation as they produce fewer toxicants and known carcinogens [6-8].
- Some argue for restricting cannabis smoking in public spaces to prevent potential health harms of secondhand smoke and support tobacco denormalization [9, 10].

There is limited scientific evidence on how sex and gender influence cannabis or nicotine vaping.

As policy, practice, and regulations evolve regarding cannabis routes of administration, it is critically important that evidence on sex, gender, and equity is integrated.

There is emerging evidence on the harms of vaping nicotine and cannabis, including E-cigarette or Vaping Product Use Associated Lung Injury (EVALI) cases which have been reported primarily in the USA and mostly among young men (70%).

There is a need for consistent and coordinated responses to cannabis, tobacco and nicotine vaping to reduce health risks and assist users and practitioners in harm reduction.



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### ADDITIONAL RESULTS

Unintended Harms: Issues with non-smoking ROAs, and overlapping issues with ENDS and tobacco use:

- Vaping of both nicotine and cannabis may increase frequency and misuse among youth [7, 11].
- People who use ENDS often also smoke cigarettes [12] and those who vape cannabis also tend to smoke cannabis [13, 14], and multiple ROAs of cannabis may be associated with greater risk of misuse and addiction [11].
- ENDS and cannabis vaping devices and their byproducts vary widely and health effects may vary depending on the carrier compounds, product materials and heating capacity [11, 15].
- The contamination of cannabis concentrate vaping products is likely underpinning the recent increase in reports of EVALI [16].
- There is a lack of long term evidence on cannabis and nicotine vaping [17], but emerging evidence and case reports suggest vaping related pulmonary illness, and adverse effects of ENDS on lung cellular, organ physiology and immune function [17].
- Edible cannabis use avoids respiratory harms, but there is less capacity to titrate dosage [15] and risks of accidental ingestion particularly by children and pets [18].

Lacking: Evidence on the sex-related effects of different ROAs of cannabis [19].

- No human studies have examined sex differences in the pharmacokinetics of smoked cannabis administration [20] and we lack evidence on sex-specific respiratory health risks of cannabis ROAs.
- Animal studies are limited as they often include only males and typically administer cannabis via intravenous or intraperitoneal methods [20].
- There is evidence for the therapeutic potential of some cannabis ROAs, although sex related effects have not been investigated. (For example, transdermal CBD improved measures of pain and inflammation in a male rat model of arthritis [21].)
- The co-use of tobacco and cannabis increases adverse health effects, and there is some evidence of sex-related effects; for example, females who co-used smoked cannabis and tobacco reported a shorter luteal phase compared to those who smoked only tobacco [22].

Gendered preferences:

- More men and boys report vaping cannabis [13, 14, 23], smoking joints or using cannabis concentrates [23, 24].
- Blunt use and the mixing of cannabis and tobacco is greater among men and boys [25-28].
- Among medical cannabis users, men report slightly greater rates of vaping compared to women [14].
- Women [23] and girls [29] tend to prefer edible cannabis in part because these products are more discreet [30].
- Among women who are pregnant, smoking cannabis is often preferred in part because of the difficulty ingesting when using to manage nausea [31].
- Vaping devices are designed to target specific user groups, including girls and women; marketing rebrands cannabis users as "stylish and fashionable" [32].

### CONCLUSIONS

- Further research is needed to understand the benefits and harms of various ROAs for all genders and to develop harm reduction advice that is sex, gender and equity informed [33].
- Most available sex and gender evidence on cannabis ROAs is on prevalence and patterns of cannabis use.
- Consistent and coordinated regulations are needed to prevent and address harms of cannabis vaping, ENDS and tobacco regarding sales, manufacturing and public use.
- Sex and gender issues must be integrated into harm reduction information so all Canadians are fully informed about the health impacts linked to different ROAs of cannabis

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