

# Comments on Toronto Board of health recommendations

SUBMISSION TO THE TORONTO BOARD OF HEALTH

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## Purpose of summary

This brief has been prepared to help inform the Toronto Board of Health's deliberation on the report from the Medical Officer of Health on recommendations for e-cigarettes. This brief is not intended to support or oppose the specific recommendations from the Medical Officer of Health, but to provide an objective, balanced summary of the evidence.

## Bio

I am an Associate Professor in the School of Public Health & Health Systems at the University of Waterloo. I have published more than 130 peer-reviewed journal articles in the area of tobacco control, including as lead author in *The Lancet* and the *Canadian Medical Association Journal*, and is among the 10 most-published authors in the field of tobacco control over the past 50 years.<sup>1</sup> I am also the author on the only empirical publications of e-cigarette use in Canada to date.<sup>2,3,4,5</sup> I have no conflicts of interest to declare and I have not received any support or funding from the tobacco, pharmaceutical or vapourized nicotine industry.

I would be pleased to answer any questions.

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## Are e-cigarettes harmful?

Yes, although much less harmful than cigarettes. E-cigarettes do not contain tobacco and no combustion takes place. Therefore, the vapour from e-cigarettes does not contain the carcinogens and other toxicants present as combustion products in tobacco smoke.<sup>6</sup> A systematic review of chemical, toxicological and clinical studies on the potential risks from electronic cigarette use concluded that some toxic chemicals are released in the e-cigarette vapour, but their levels are substantially lower than in tobacco smoke, and in some cases are comparable to the amounts found in NRT.<sup>7,8</sup> Nevertheless, e-cigarettes are still likely to present some health risks. Although propylene glycol and glycerin are considered generally safe for use as additives in food and medicines, the effects of exposure from long-term use of e-cigarettes is not known.<sup>9</sup> Other potential risks relate to the lack of product standards for e-cigarettes, including potentially harmful additives, poorly labelled nicotine content and low quality batteries that may excessively heat solutions to the point of pyrolysis and lead to the formation of toxicants.<sup>10,11,12,13,14,15,16</sup> To date, the only large scale clinical trial to be conducted found no difference in the number of adverse events associated with use of e-cigarettes compared to the nicotine patch, and no serious adverse events associated with e-cigarette use.<sup>17</sup> Overall, assuming product standards are met, the evidence suggests that e-cigarettes present some health risk, but less risk than combusted tobacco products.

The primary public health impact of e-cigarettes will be determined by how they affect rates of smoking in Canada. If e-cigarettes help to promote the uptake of smoking among young people or help to sustain smoking among existing smokers, the net public health benefit will be negative. Alternatively, if e-cigarettes help to reduce smoking by helping smokers to quit, without increasing smoking uptake, they have the potential to benefit public health.

## Do e-cigarettes help smokers to quit?

E-cigarettes may be an effective cessation aid for smokers trying to quit, but there is insufficient evidence. Laboratory evidence indicates that e-cigarettes can be effective in reducing cravings and withdrawal, which is consistent with anecdotal evidence from smokers that e-cigarettes can help them quit. In countries such as the UK, e-cigarettes will soon be licensed as a medicinal product.<sup>18</sup>

Although e-cigarette have the potential to assist smokers trying to quit, e-cigarettes may be used for other reasons, in ways that may help to sustain smoking. For example, many smokers report using e-cigarettes during times when they are not permitted to smoke, which may help to sustain smoking among those who would otherwise quit.<sup>2</sup>

Overall, the evidence indicates that e-cigarettes manufactured to a high standard may be an effective cessation aid for smokers trying to quit; however there is insufficient evidence on patterns of use and from clinical trials to support any conclusion at this time.

## **Current e-cigarette regulations in Canada**

In Canada, e-cigarettes containing nicotine have not been authorized by Health Canada and their sale is prohibited.<sup>19</sup> E-cigarettes containing nicotine are regulated as a New Drug under Division 8, Part C of the Food and Drug Regulations. In addition, the delivery system (i.e., e-cigarette or “tank” system itself) associated with nicotine or that contains nicotine must meet the requirements of the Medical Devices Regulations as a Class II medical device.

Canadian retailers and e-cigarette advocates have claimed that it is permissible to sell e-cigarette containing less than 4mg of nicotine, or “e-juice” or nicotine liquid separate from the vapourizing device. This claim is based on current regulations for nicotine inhalers, which have been received regulatory approval under the Prescription Drug List. However, this claim is NOT correct. Health Canada does not allow e-cigarettes to fit the exemption for nicotine inhalers. Therefore, any e-cigarettes containing nicotine or nicotine liquid are not permitted to be sold in Canada.

## **Non-smokers are trying e-cigarettes, but regular use is very low**

Findings from the 2013 Ontario Student Drug Use Survey indicated that 15% of Ontario high school students reported “ever” trying e-cigarettes, a sample that included both smokers and non-smokers.<sup>20</sup> Findings from online surveys with non-smokers 16-24 found that 10 % reported “ever” using e-cigarettes 2013, an increase from 5% in 2012.<sup>3</sup>

However, regular use of e-cigarettes remains very low among non-smokers in Canada. In the same online survey, less than 1% of non-smoking youth, aged 16-24, reported using e-cigarettes in the past month—a common indicator of “current” use. Therefore, while the rates of trying e-cigarettes have increased dramatically in recent years, very few non-smokers report regular use of e-cigarettes.<sup>2,3</sup>

## **Smokers account for most e-cigarette use**

Approximately half of smokers in Canada report “ever” trying e-cigarettes and more than one quarter report current use of e-cigarettes (use in the past month). Younger smokers are significantly more likely to report using e-cigarettes compared to older smokers. Most e-cigarettes users report buying e-cigarettes “in-person” (approximately 63%), while one quarter report buying from the internet.<sup>21</sup>

## **Flavoured e-cigarettes are popular among both non-smokers and smokers**

E-cigarettes come in a wide variety of flavours. A recent scan of 15 Toronto retail outlets identified 5 main categories of e-cigarette product flavours for sale in Toronto: candy (e.g. chocolate), drinks (e.g. pina colada, mocha), fruit (e.g. cherry, grape, blueberry), tobacco (e.g. Canadian, menthol, or classic), and dessert/food flavours (e.g. coconut cream pie, vanilla).<sup>22</sup>

Most e-cigarettes used in Canada have distinct flavours. The most popular flavour of e-cigarettes reported by users in 2013 was fruit flavour, followed by menthol, tobacco, and candy flavours.<sup>3</sup> Other flavours included coffee, alcohol, and “spice” flavouring. The popularity of flavours was consistent across non-smokers and smokers, although smokers reported significantly greater use of menthol and tobacco flavoured e-cigarettes.

## **E-cigarette use in Canada includes a mix of “legal” and “illegal” e-cigarettes.**

Currently, there are no precise estimates of the proportion of e-cigarette use in Canada that includes nicotine. Approximately 40% of e-cigarette users surveyed in 2014 indicated that they used e-cigarettes with nicotine, 10% reported they “did not know”, while the remaining 50% reported using e-cigarettes without nicotine.<sup>3</sup> Findings from the 2013 Ontario Student Drug Use Survey found that 27% of “ever” e-cigarette users reported using nicotine varieties.<sup>20</sup>

Non-smokers are less likely to use e-cigarettes with nicotine (approximately 10%), compared to smokers (approximately 43%).<sup>3</sup>

## **“Illegal” nicotine-containing e-cigarettes are widely available in Toronto.**

In August 2014, a systematic scan of 15 Toronto retail outlets was conducted in grocery stores, convenience stores, vape shops and tobacco shops.<sup>22</sup> Overall, 87% (13 of the 15 stores) sold e-cigarettes. E-cigarettes were sold in all four convenience stores, all four tobacco shops, all three vape shops and in one of the four grocery stores.

All of the products sold at the convenience stores, grocery stores, and tobacco stores were nicotine-free and products containing nicotine were not available any of these stores. However, it is important to

note that one of the tobacco stores may have sold an e-juice product with nicotine as it was seen behind the register with a sign saying “with nicotine” even though the employee only referred to products without nicotine. All three of the vape shops sold e-cigarette products with nicotine. The only type of e-cigarette product that contained nicotine was e-juice refills. All of the available e-juice refill products at the vape shops contained nicotine. At two of the vape shops, the available nicotine levels in the e-juice refills were 0, 0.6, 1.2, 1.8, or 2.4% nicotine. The other vape shop had refills available in 0, 0.6, 1.2, and 1.8% nicotine levels. The nicotine levels can be seen either as a percentage (e.g. 0.6% nicotine) or as mg meaning mg/mL (e.g. 6mg nicotine), but they are the same levels just shown in a different measurement.

At the one grocery store that sold e-cigarette products, a rechargeable tank system, disposables in 2 pack and 5 pack sizes, as well as e-juice refills were available. The disposables and e-juice refills were only available in tobacco flavours. All of the products had a health claim on the package. These products were located in the smoking cessation section of the pharmacy area.

Two of the tobacco shops only sold disposable e-cigarettes (available in various flavours), and one of these stores had a poster with a health-related statement. The other two tobacco shops sold tank systems, e-juice refills (various flavours), as well as flavoured disposable e-cigarettes in different package sizes – singles, 2 packs and 5 packs.

Two of the vape shops sold all three types of products (tank systems, e-juice refills, and disposable e-cigarettes) in various flavours; the other two stores only sold tank systems and flavoured e-juice refills. The e-juice refills were found in either 10ml or 30ml bottle sizes, with 10ml being most common. One of the vape shops had a sign with a health claim about their store-brand e-juice, and specifically referred to the propylene glycol used in their e-juice.

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