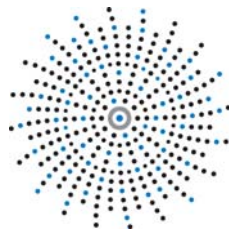




## Tobacco Use in Canada: Patterns and Trends

# Special Supplement: E-cigarettes in Canada



**PROPEL**  
CENTRE FOR  
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HEALTH IMPACT

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## About this Supplement

This report is intended to provide an overview of e-cigarettes and their use, specifically in the Canadian context. Although e-cigarettes containing nicotine have not been approved for sale in Canada, the popularity of e-cigarettes with and without nicotine has grown rapidly. This supplement reports the first national estimates of e-cigarette use in Canada, including prevalence and reasons for use.

### Data sources

This report uses data from the 2013 **Canadian Tobacco, Alcohol and Drugs Survey (CTADS)**, conducted by Statistics Canada with the cooperation and support of Health Canada to provide data on tobacco use and related issues, alcohol and drug use. Data were collected from February to December 2013, using computer-assisted random-digit-dialed telephone interviews. The sample was selected using a stratified random sampling procedure, and included the population of Canada aged 15 years and over, excluding residents of Yukon, Northwest Territories and Nunavut, as well as full-time residents of institutions and residents without telephones or with cell phones only.

For further details, visit: <http://www23.statcan.gc.ca/imdb/p2SV.pl?Function=getSurvey&SDDS=4440>

### Analysis

The data presented in this report are weighted estimates (using survey weights assigned by Statistics Canada), generated using SAS 9.4, unless otherwise noted. Statistical comparisons between groups were tested using weighted regression analyses in SAS 9.4, applying bootstrap weights. Reported  $p$  values were computed using the Wald test. The term “significant” has been reserved for instances where statistical testing has been performed, with  $p < 0.05$  as the cut-off for significance. Estimates are not reported where specific categories included less than 30 individuals (unweighted).

Data analysis was completed by Vicki Rynard, MSc, of the Propel Centre for Population Health Impact, using the CTADS dataset made available by Statistics Canada.

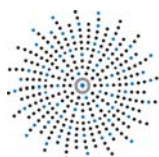
**This report and the views expressed herein do not necessarily reflect the views or opinions of Statistics Canada or Health Canada.**

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This supplement and the main report, *Tobacco Use in Canada: Patterns and Trends, 2015 Edition*, are available online at [www.tobaccoreport.ca](http://www.tobaccoreport.ca) and [www.uwaterloo.ca/propel](http://www.uwaterloo.ca/propel).

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## HIGHLIGHTS

### BACKGROUND

#### WHAT ARE E-CIGARETTES?

- E-cigarettes are products that **heat a liquid solution and deliver an aerosol or vapour**.
- **E-cigarettes do not contain tobacco and do not involve “combustion”**.
- Globally, most e-cigarettes include nicotine; however, some Canadian products are nicotine-free.
- E-cigarettes are highly variable products that continue to evolve.

#### WHAT ARE THE POTENTIAL RISKS AND BENEFITS?

- E-cigarettes are likely to pose **some direct health risk to users; however, the risk is likely to be considerably less than smoking**.
- Ultimately, the public health impact of e-cigarettes will be determined by their impact on smoking rates.

#### WHAT ARE THE RULES ABOUT E-CIGARETTES IN CANADA?

- In Canada, **e-cigarettes and “e-liquids” containing nicotine have not been approved for sale**.
- Nicotine-free e-cigarettes that do not make health claims are legal for sale.
- Several provinces and municipalities have begun to develop policies for the sale and marketing of non-nicotine-containing e-cigarettes.
- E-cigarettes are **widely available** in Canada, including **nicotine- and non-nicotine-containing e-cigarettes**.

### E-CIGARETTE USE IN CANADA

#### EXISTING RESEARCH

- E-cigarettes have become increasingly popular among Canadians.
- **Substantial proportions of young people, including non-smokers, are trying e-cigarettes, although regular use is concentrated among smokers**.
- Regular use of e-cigarettes among non-smokers is rare.

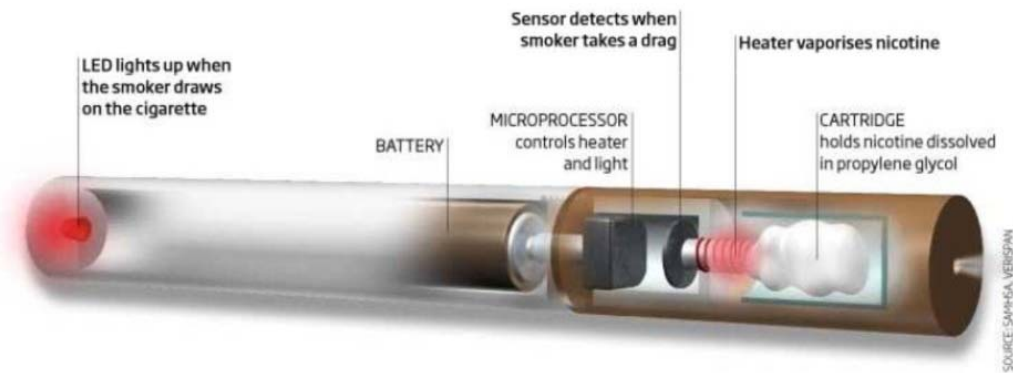
#### DATA FROM THE CANADIAN TOBACCO, ALCOHOL AND DRUGS SURVEY (CTADS), 2013

- **9% of all Canadians age 15 and older (approximately 2.5 million) reported having ever tried an e-cigarette**; 2% had used an e-cigarette in the past 30 days.
- Prevalence of “ever” e-cigarette use varied greatly by smoking status, from **3% among never smokers to 42% among current non-daily smokers**.
- Prevalence of e-cigarette use is highest among young people: **one in five youth (aged 15-19) and young adults (aged 20-24) had ever tried an e-cigarette**.
- Both ever use and past 30-day use were similar among males and females overall, although there were differences by sex within some age groups.
- Prevalence of **ever use of e-cigarettes varied by province**, from 6% in Ontario to 13% in Nova Scotia for the overall population. Among youth aged 15-19, ever use ranged from 15% in Ontario to twice that (31%) in Quebec.
- **One quarter of e-cigarette users reported that the last e-cigarette they used contained nicotine**, and nearly one in five users were uncertain about nicotine in their last e-cigarette.

## BACKGROUND: E-CIGARETTES

### WHAT ARE E-CIGARETTES?

Electronic cigarettes (e-cigarettes) are products that deliver nicotine in an aerosol or vapour form. E-cigarettes are comprised of a battery, a heating element (also known as an atomizer), and a solution-containing cartridge or a “tank” (see Figure 1). Puffing on the device triggers the heater to heat the solution, which produces a vapour that is inhaled by the user. E-cigarette solutions (also known as e-liquid or e-juice) are typically made up of propylene glycol or glycerin, flavouring agents, and may or may not contain nicotine.<sup>1</sup> A key difference between e-cigarettes and tobacco cigarettes is that e-cigarettes do not contain tobacco and no combustion takes place when they are used or “vaped”.



**FIGURE 1:** E-cigarettes are comprised of a battery, a heating element, and a cartridge. Some models also have an led that lights up when the device is being used (image reproduced from Polosa et al, 2013).<sup>2</sup>

E-cigarettes are a diverse set of products that continue to evolve (Figure 2).<sup>3</sup> “Cigarette-like” products have a similar appearance to cigarettes, with thin, elongated shapes. Users can purchase disposable products or rechargeable products with accompanying cartridges containing enclosed e-liquid. In contrast, other e-cigarettes are much larger, thicker, and often heavier, due to larger, more powerful batteries. These “personal vapourizers” or “tank” systems commonly allow users to modify and customize battery capacity, temperature, and other aspects, which can influence the vaping experience. “Tank” systems are rechargeable and refillable, meaning users purchase e-liquid and refill their devices as needed.<sup>4</sup>



**FIGURE 2:** Image at left: “Cigarette-like” products including disposable e-cigarettes, rechargeable e-cigarettes with cartridges, e-liquid, and e-cigar. Image at right: “Tank” systems, fully assembled (right) and disassembled to show re-fillable reservoir (centre)

## WHAT ARE THE POTENTIAL RISKS AND BENEFITS?

E-cigarettes pose potential risks and benefits to the individual user and to the population at large. Commonly reported adverse effects of e-cigarette use include mouth and throat irritation, nausea, headaches, and dry cough.<sup>1,4,5</sup> Chronic exposure to nicotine may also have harmful effects, particularly during fetal development and among young people, given the adverse effects of nicotine on brain development.<sup>6</sup> The long-term health effects from chronic inhalation of propylene glycol are not known.<sup>4</sup> Variability in the way e-cigarettes and e-liquids are manufactured may contribute to excess risk. For example, vapourized nicotine may contain other toxic constituents, either from additives contained in the liquid solution or from partial combustion due to excessive heating during use. Liquid nicotine solutions used in refillable e-cigarettes also carry a risk of nicotine poisoning if they come into contact with skin or are directly ingested (i.e., if someone drinks the solution). A number of these “excess” risks have the potential to be reduced through product standards. In addition to the direct risks to users, “second-hand” exposure to e-cigarette vapour may expose non-users to toxic emissions.

Although e-cigarettes are likely to be harmful to health, they are likely to be substantially less harmful than tobacco cigarettes. E-cigarettes do not involve combustion; therefore, the vapour contains far fewer toxic chemicals than tobacco smoke, including most of the carcinogens present in tobacco smoke. However, the long-term health effects of vaping have not been examined and are therefore unknown at this time.<sup>4</sup>

Ultimately, the public health impact of e-cigarettes will be determined by their impact on smoking prevalence. Although e-cigarettes have the potential to promote smoking cessation, the evidence that e-cigarettes are an effective cessation aid is mixed. Many smokers report using e-cigarettes to quit smoking; indeed, quitting or cutting down smoking are the most commonly reported reasons for using e-cigarettes.<sup>4,7</sup> To date, two large clinical trials have examined the use of e-cigarettes as a quit aid and suggest that e-cigarettes are about as effective as nicotine replacement therapy.<sup>8</sup> Although many former smokers report that e-cigarettes have helped them quit smoking, most e-cigarette users also report continued smoking.<sup>1</sup> The extent to which “dual” use of e-cigarettes leads to reductions in cigarette smoking or helps to sustain smoking remains unclear. For example, some smokers use e-cigarettes primarily when smoking is not permitted, which has the potential to sustain smoking behaviour when smokers might otherwise quit.<sup>4</sup> E-cigarettes also have the potential to promote smoking by “normalizing” nicotine use and promoting uptake among young people—patterns of e-cigarette use among young people are described later in this report.

## RULES AND REGULATIONS ON E-CIGARETTES

E-cigarette regulations differ across jurisdictions. In some countries, such as the United States, there are few restrictions on the sale of e-cigarettes, although the US Food and Drug Administration is in the process of developing new regulatory guideline.<sup>9</sup> Other jurisdictions, such as the European Union, have already developed comprehensive regulations for e-cigarettes, including requirements for health warnings and labelling/packaging practices, reporting obligations for manufacturers and importers, and restrictions on marketing/advertising of these products.<sup>10</sup> To date, the United Kingdom is the only jurisdiction that has licensed an e-cigarette-type product as a medicine, meaning licensed e-cigarettes can be provided through the National Health Service and are subject to fewer restrictions relative to unlicensed e-cigarettes.<sup>1</sup>

In Canada, e-cigarettes containing nicotine are regulated as drugs/drug delivery devices under the *Food and Drugs Act*.<sup>11</sup> Nicotine-containing e-cigarettes, with or without a health claim, require market authorization from Health Canada as new drugs before they can be imported, marketed or sold. To date, no such product has received market approval; therefore, e-cigarettes containing any level of nicotine have not been approved for sale in Canada. In contrast, e-cigarettes that do not contain nicotine and do not make health claims are legal. Health Canada has issued public

advisories against using e-cigarettes, as these products “may pose health risks and have not been fully evaluated for safety, quality, and efficacy”.<sup>12</sup>

In March 2015, a Parliamentary report on e-cigarettes was released by the House of Commons Standing Committee on Health. The report identifies 14 recommendations, including changes with respect to how e-cigarettes are regulated relative to other tobacco and nicotine products, a series of potential measures with respect to product standards, market and sale, as well as the need for increased research in Canada.<sup>13</sup>

Several provinces have begun to develop policies for the sale, marketing and use of both nicotine- and non-nicotine-containing e-cigarettes. As of May 2015, Nova Scotia will prohibit sales of e-cigarettes to persons under 19 years of age, and restrict promotion and sales of e-cigarettes.<sup>14</sup> E-cigarette regulations are also being considered by Ontario<sup>15</sup> and British Columbia.<sup>16</sup> If passed, these regulations would prohibit the sale of e-cigarettes to persons under 19 years of age; restrict the display and promotion of e-cigarettes; prohibit the sale of e-cigarettes in certain places; and, prohibit the use of e-cigarettes in enclosed workplaces, enclosed public places, and certain other places where smoking is prohibited. In Ontario, Bill 45 would also introduce provisions for the regulation of e-cigarette packaging and the sale of flavoured e-cigarettes.

At the municipal level, a growing number of jurisdictions are adopting by-laws or modifying their smoking policies to prohibit and/or restrict the use of e-cigarettes.

## PRODUCT AND PROMOTION IN CANADA

E-cigarettes are widely available in Canada, including both nicotine- and non-nicotine-containing e-cigarettes.<sup>17</sup> Consistent with other markets, e-cigarettes sold in Canada are available in a variety of types, flavours, and nicotine concentrations. Nicotine-containing e-cigarettes are widely available in specialty stores and “vape shops” and from online retailers. In contrast, “traditional” retail outlets, such as grocery and convenience stores, predominantly sell e-cigarettes labelled as nicotine-free. However, testing conducted on behalf of Health Canada between April and June of 2014 showed that approximately half of Canadian products labelled as nicotine-free actually contained nicotine.<sup>18</sup> Therefore, the sale of “illegal” nicotine-containing e-cigarettes may be more prevalent among “traditional” retail outlets than product labelling would suggest.



FIGURE 3: Various flavours of e-liquids available in Canada

FIGURE 4: Various flavours of non-nicotine “cigarette-like” disposable e-cigarettes available in Canada



E-cigarette advertising and promotions are prevalent in countries such as the United States and the United Kingdom. Typical marketing themes include promoting e-cigarettes as healthier alternatives to tobacco cigarettes, as potential cessation aids, and as products to use in settings where smoking is not allowed.<sup>4</sup> In Canada, a preliminary marketing scan suggests much lower levels of marketing, particularly in traditional media channels such as television and print.<sup>17</sup> Promotion of e-cigarettes in Canada is largely concentrated online and in retail outlets, particularly at the point-of-sale.

## E-CIGARETTE USE IN CANADA: EXISTING RESEARCH

### PREVALENCE

An increasing number of Canadians are trying e-cigarettes, particularly smokers and young Canadians. Recent estimates from national surveys of Canadian adults suggest that between one-third and one-half of smokers had tried e-cigarettes.<sup>19,20</sup> Studies of Quebec and Ontario high school students indicate even higher levels of use among youth smokers. In Ontario, 43% of youth who had used a tobacco product in the past 12 months reported *ever use* of e-cigarettes.<sup>21</sup> A larger study of high school students in Ontario and Alberta found that 35% of past-month smokers also reported using e-cigarettes in the past month.<sup>22</sup> In Quebec, 90% of youth smokers reported *ever use* of e-cigarettes, including 30% who reported use in the past 30 days.<sup>23</sup>

Young non-smokers are also trying e-cigarettes. Among high school students in Ontario, 7% of *never smokers* reported *ever use* of e-cigarettes,<sup>21</sup> compared to 28% of youth non-smokers in Quebec.<sup>23</sup> In general, few non-smokers reported use of e-cigarettes in the past month; several recent studies suggest that approximately 4% of non-smoking youth reported past-month use of e-cigarettes.<sup>22,23</sup>

### REASONS FOR USE

Regular e-cigarette users report various reasons for using these products, including: use as a less harmful alternative to tobacco cigarettes, use to reduce and/or quit smoking, and use in places where smoking is prohibited.<sup>19,20</sup>

### NICOTINE VS. NON-NICOTINE USE

Although many ever-users of e-cigarettes report using nicotine-free products, approximately one-third of respondents in the 2013 Ontario Student Drug Use and Health Survey reported trying a nicotine-containing e-cigarette, despite the fact that these products have not been approved for sale in Canada.<sup>21</sup> A substantial proportion of youth reported not knowing whether they had tried nicotine- or non-nicotine-containing products.<sup>20,21</sup>

### SUMMARY

Overall, there is evidence of increasing e-cigarette use in Canada, with a wide diversity of products and patterns of use. However, much of the existing evidence relies upon non-representative surveys with limited geographic scope. The data collected using the 2013 Canadian Tobacco, Alcohol and Drugs Survey (CTADS) provides the first nationally representative, comprehensive examination of e-cigarette use in the Canadian population.



FIGURE 5: Non-nicotine (far left) and nicotine-containing e-liquids sold in Canada

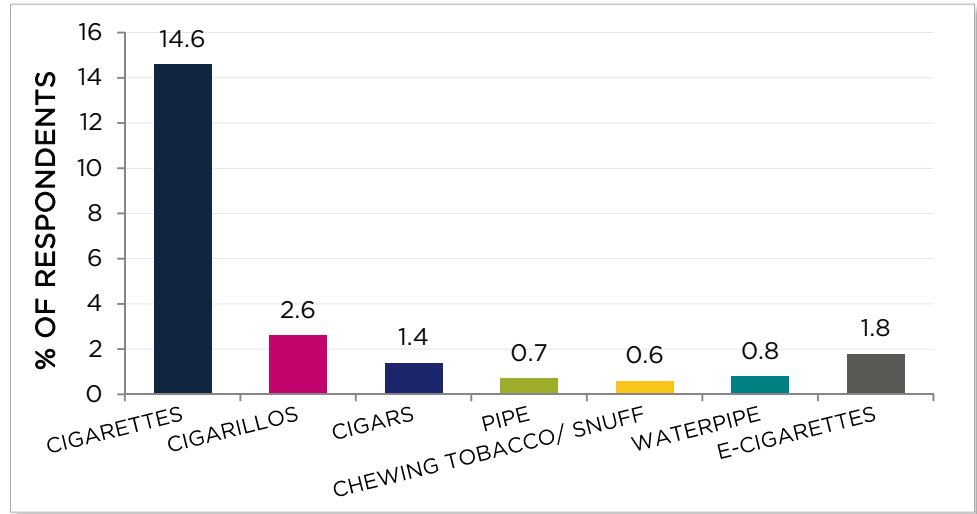
## E-CIGARETTE USE IN CANADA: DATA FROM CTADS, 2013

In 2013, 8.5% of all Canadians age 15 and older (approximately 2.5 million) reported having ever tried an e-cigarette; 1.8% had used an e-cigarette in the past 30 days.

The prevalence of recent e-cigarette use (in the past 30 days) was similar to some tobacco products like cigarillos and cigars, but still much lower than smoking cigarettes (Figure 6).

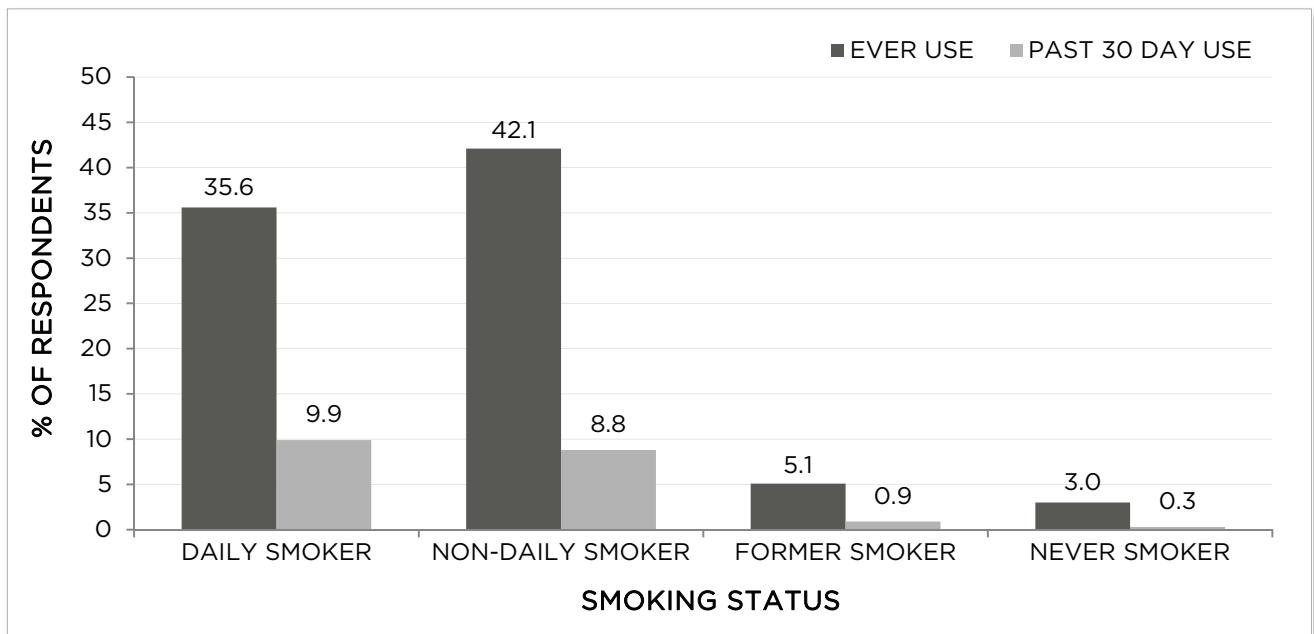
As shown in Figure 7, prevalence of e-cigarette use varied greatly by smoking status, both for ever use ( $p < 0.0001$ ) and past 30-day use ( $p < 0.0001$ ).

**FIGURE 6: PAST 30 DAY USE OF VARIOUS PRODUCTS AMONG CANADIANS AGE 15+, 2013**



DATA SOURCE: CTADS, 2013

**FIGURE 7: EVER USE OF E-CIGARETTES BY SMOKING STATUS AMONG CANADIANS AGE 15+, 2013**



**DAILY SMOKER:** RESPONDED "EVERY DAY" TO "AT THE PRESENT TIME DO YOU SMOKE CIGARETTES EVERY DAY, OCCASIONALLY OR NOT AT ALL?"

**NON-DAILY SMOKER:** RESPONDED "OCCASIONALLY" TO "AT THE PRESENT TIME DO YOU SMOKE CIGARETTES EVERY DAY, OCCASIONALLY OR NOT AT ALL?"

**FORMER SMOKER:** SMOKED "NOT AT ALL" AT THE TIME OF THE SURVEY, BUT HAD SMOKED 100+ CIGARETTES IN LIFETIME

DATA SOURCE: CANADIAN TOBACCO, ALCOHOL AND DRUGS SURVEY (CTADS), 2013

**2.5 million Canadians have tried e-cigarettes.**



## DEMOGRAPHIC PATTERNS IN E-CIGARETTE USE

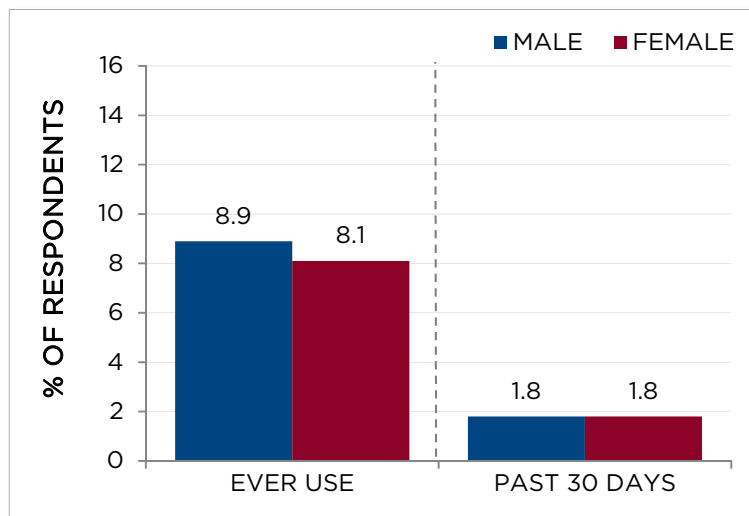
### Prevalence by Sex

Ever use of e-cigarettes was similar by sex ( $p=0.31$ ), at 8.9% of males (1.3 million) and 8.1% of females (1.2 million) (Figure 8).

Use in the past 30 days was the same for both males and females ( $p=0.98$ ), at 1.8%.

However, these overall figures obscure sex differences within age groups, which vary, and can be pronounced (see next page). For example, among youth aged 15-19, 23.9% of males had tried e-cigarettes, while 15.5% of females had done so.

**FIGURE 8: EVER USE AND PAST 30-DAY USE OF E-CIGARETTES AMONG CANADIANS AGE 15+, BY SEX, 2013**



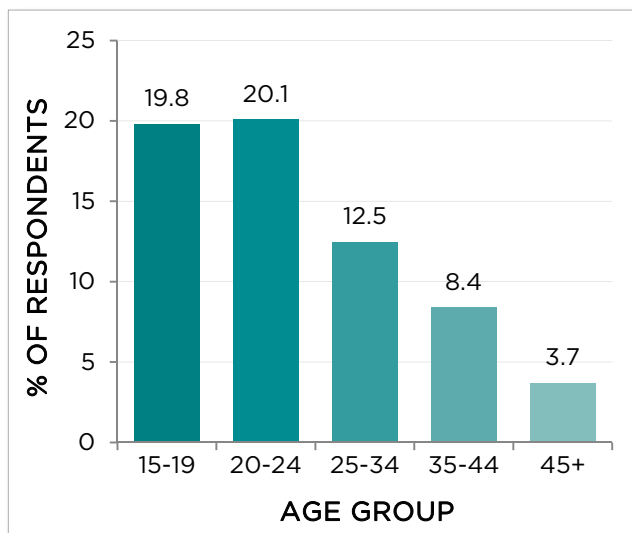
DATA SOURCE: CTADS, 2013

### Prevalence by Age

#### Ever Use

Prevalence of ever use of e-cigarettes varied significantly by age group ( $p<0.0001$ ): prevalence was highest among youth aged 15-19 and young adults aged 20-24, decreasing with age into adulthood (Figure 9).

**FIGURE 9: EVER USE OF E-CIGARETTES AMONG CANADIANS AGE 15+, BY AGE GROUP, 2013**

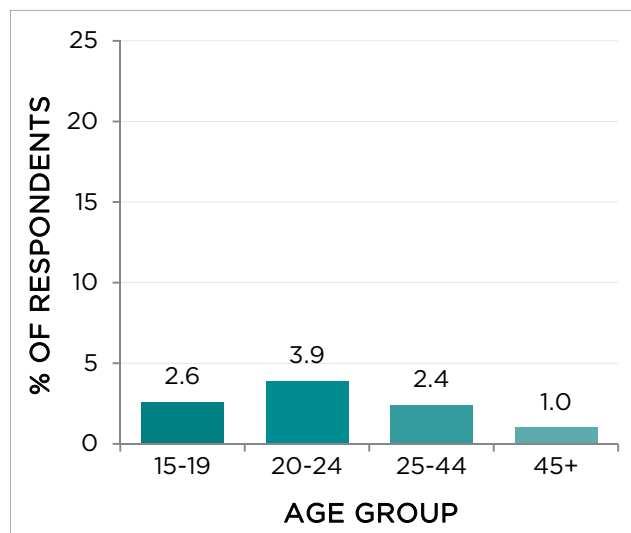


DATA SOURCE: CTADS, 2013

#### Past 30-day Use

Use of e-cigarettes in the past 30 days also varied significantly by age group ( $p<0.0001$ ): prevalence was highest among young adults aged 20-24 (Figure 10).

**FIGURE 10: PAST 30-DAY USE OF E-CIGARETTES AMONG CANADIANS AGE 15+, BY AGE GROUP, 2013**



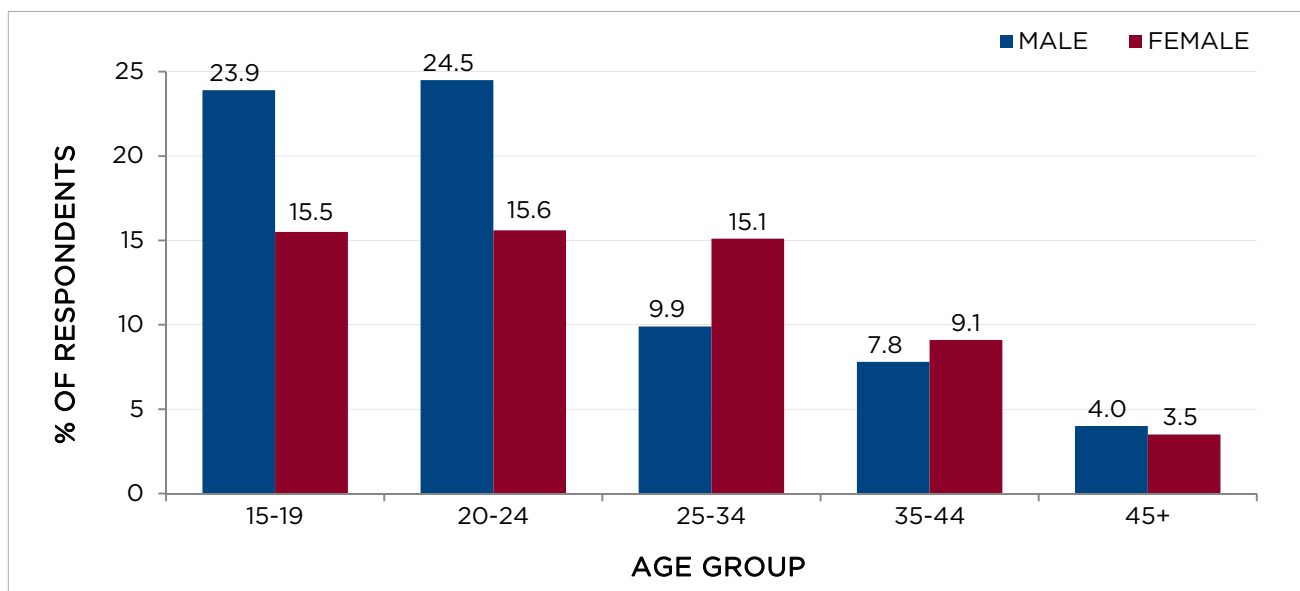
NOTE: AGES 25-34 AND 35-44 WERE COMBINED DUE TO LOW NUMBERS  
DATA SOURCE: CTADS, 2013

## Prevalence by Sex and Age Group

### Ever Use

Ever use of e-cigarettes was higher among male youth ( $p=0.0006$ ) and young adults ( $p=0.0003$ ), but was not significantly different between males and females in the older age groups ( $p=0.57$  for 35-44 age group;  $p=0.43$  for age 45 and older); while not statistically significant ( $p=0.08$ ), higher prevalence was observed among females in the 25-34 age group (Figure 11).

FIGURE 11: EVER USE OF E-CIGARETTES AMONG CANADIANS AGE 15+, BY AGE GROUP AND SEX, 2013

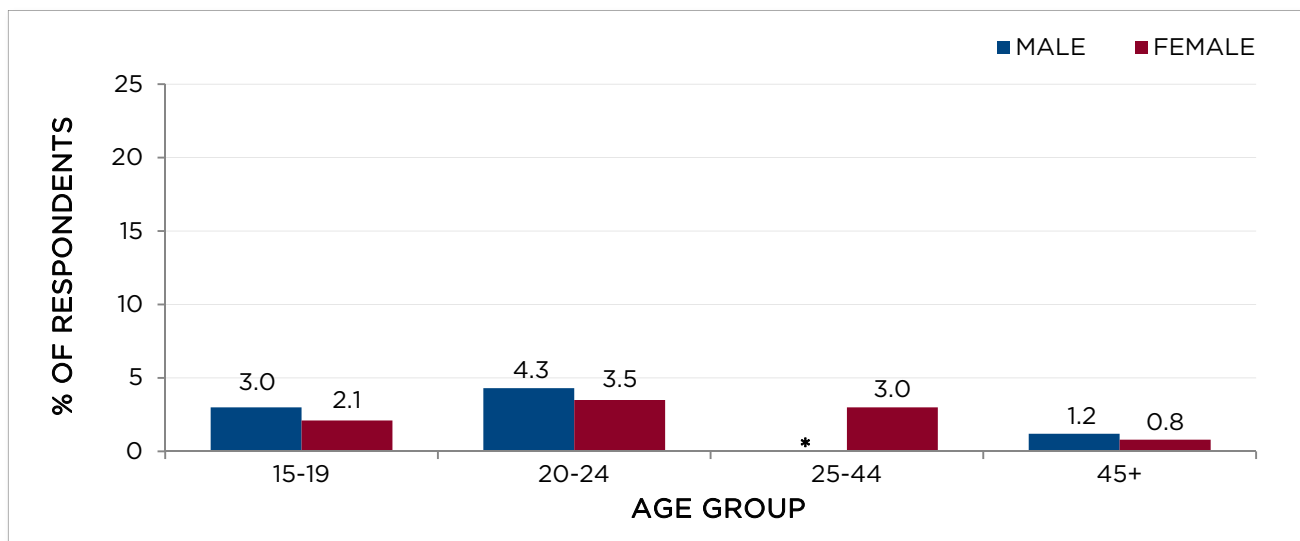


DATA SOURCE: CTADS, 2013

### Past 30-day Use

While use in the past 30 days was much lower than ever use, and sex differences were not significant ( $p=0.30$  for age 15-19;  $p=0.61$  for age 20-24;  $p=0.31$  for age 45+), patterns were similar (Figure 12).

FIGURE 12: PAST 30-DAY USE OF E-CIGARETTES, AMONG CANADIANS AGE 15+, BY AGE GROUP AND SEX, 2013



\*DATA FOR MALES AGE 25-44 NOT REPORTABLE DUE TO LOW NUMBERS IN THE NUMERATOR AND/OR DENOMINATOR

NOTE: AGES 25-34 AND 35-44 WERE COMBINED DUE TO LOW NUMBERS

DATA SOURCE: CTADS, 2013

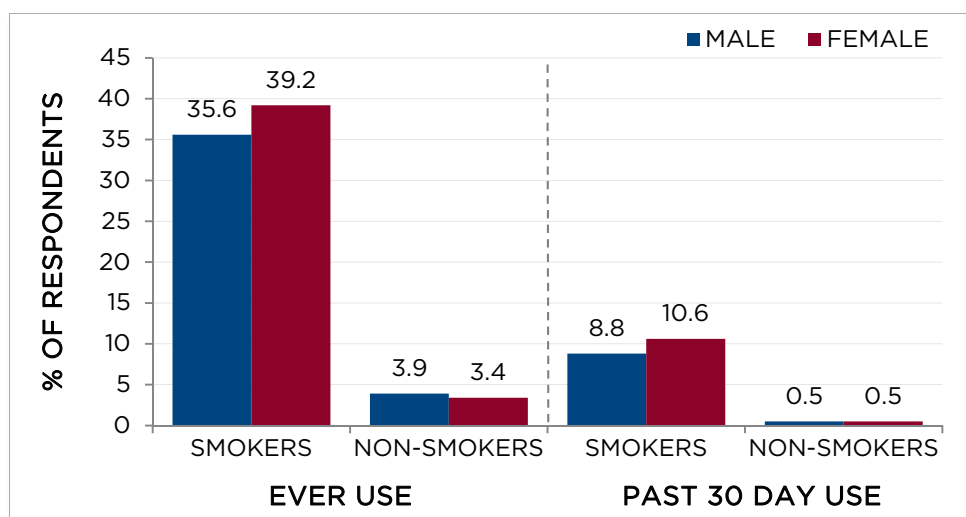
### Prevalence by Smoking Status

There were large differences in e-cigarette use by smoking status, as noted previously in Figure 7. Ever-use of e-cigarettes was 37.3% among current smokers, compared to just 3.6% among non-smokers. Similarly, past 30-day use was 9.6% among current smokers and 0.5% among non-smokers.

### Prevalence by sex, among smokers and non-smokers

As shown in Figure 13, although there appeared to be a slightly higher prevalence among female smokers, e-cigarette use did not differ significantly among male and female non-smokers ( $p=0.37$  for ever use;  $p=0.997$  for past 30-day use) and smokers ( $p=0.35$  for ever use;  $p=0.47$  for past 30 day use). Patterns of e-cigarette use by sex were similar for ever use and past 30 day use.

**FIGURE 13: EVER USE AND PAST 30-DAY USE OF E-CIGARETTES AMONG CANADIANS AGE 15+, BY SEX AND SMOKING STATUS, 2013**

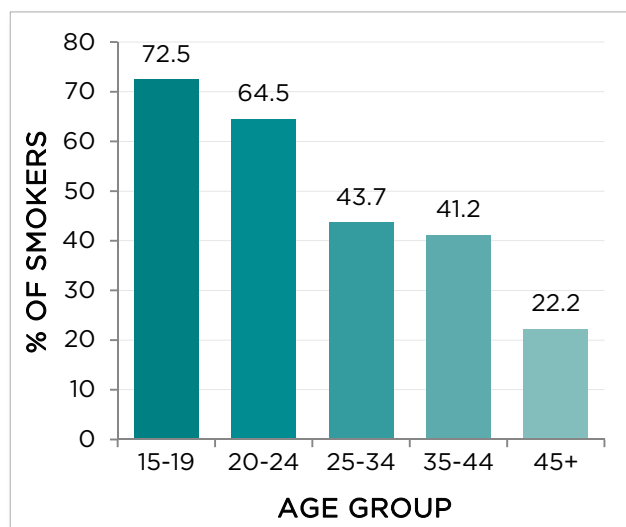


DATA SOURCE: CTADS, 2013

### Prevalence by age group, among smokers and non-smokers

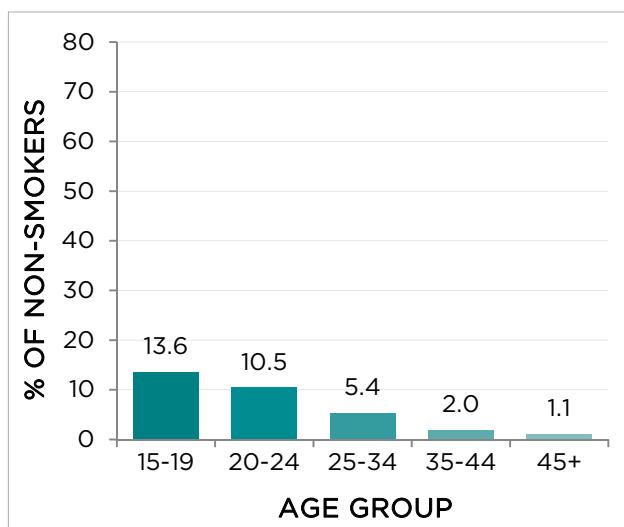
While there were large differences between smokers and non-smokers in ever use of e-cigarettes, the same pattern of high use among youth and young adults, declining with age, was observed in both groups ( $p<0.0001$ ) (Figure 14, Figure 15). Similarly, use of e-cigarettes in the past 30 days varied by smoking status and age. Among youth aged 15-19, 11.3% of smokers and 1.5% of non-smokers had used e-cigarettes in the past 30 days; among adult smokers, prevalence was 17.3%, 10.7%, and 6.7% for ages 20-24, ages 25-44 and age 45 and older, respectively, and too low to report among non-smokers.

**FIGURE 14: EVER USE OF E-CIGARETTES BY AGE GROUP AMONG SMOKERS, 2013**



DATA SOURCE: CTADS, 2013

**FIGURE 15: EVER USE OF E-CIGARETTES BY AGE GROUP AMONG NON-SMOKERS, 2013**

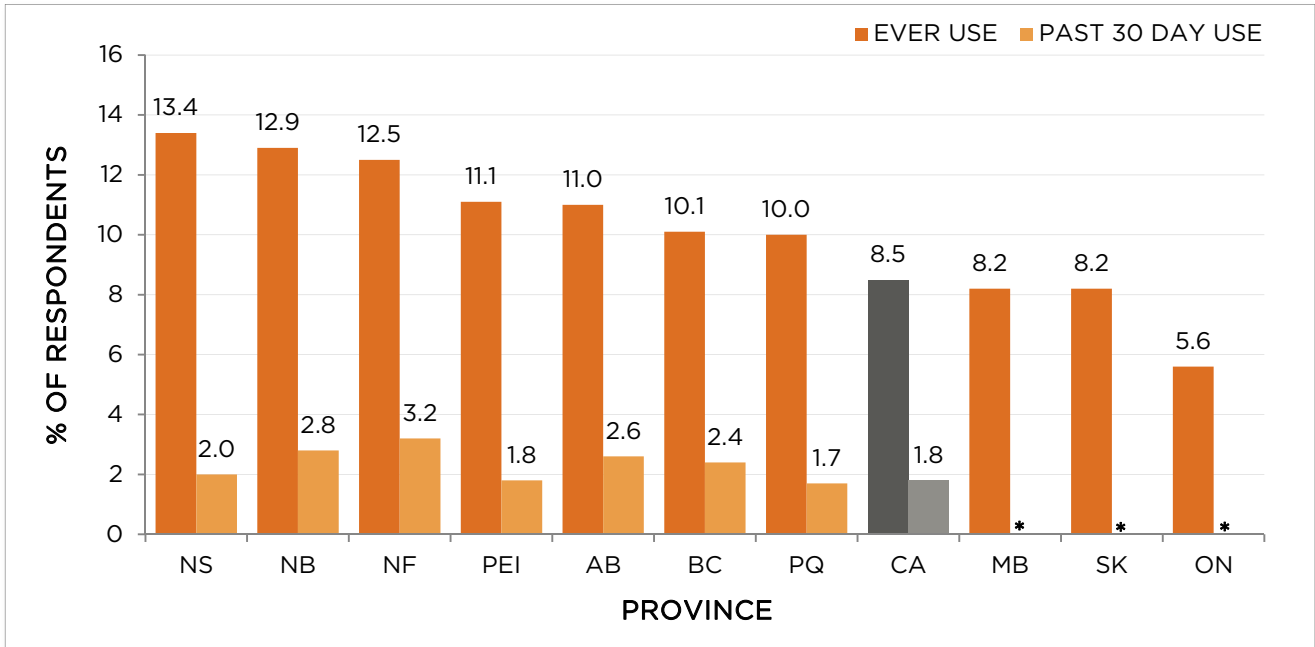


DATA SOURCE: CTADS, 2013

### Prevalence by Province

As shown in Figure 16, there was significant variation in ever use of e-cigarettes by province ( $p < 0.0001$ ), ranging from a low of 5.6% in Ontario to a high of 13.4% in Nova Scotia. Use of e-cigarettes in the past 30 days, however, did not vary significantly by province ( $p = 0.13$ ).

**FIGURE 16: EVER USE AND PAST 30 DAY USE OF E-CIGARETTES AMONG CANADIANS AGE 15+, BY PROVINCE, 2013**



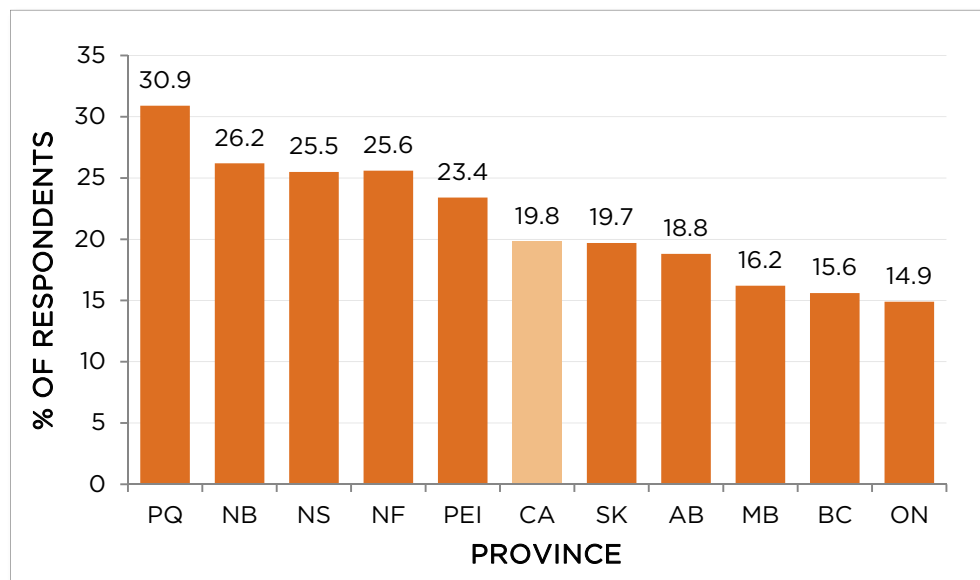
\*DATA FOR PAST 30 DAY USE IN MANITOBA, SASKATCHEWAN AND ONTARIO NOT REPORTABLE DUE TO LOW NUMBERS IN THE NUMERATOR AND/OR DENOMINATOR  
DATA SOURCE: CTADS, 2013

### USE OF E-CIGARETTES AMONG YOUTH

There is a great deal of concern about youth uptake of e-cigarettes, with some provinces introducing age restrictions on sales of e-cigarettes to minors.<sup>14,15,16</sup>

Among youth aged 15-19, prevalence of ever using e-cigarettes varied widely by province ( $p < 0.0001$ ), from 14.9% in Ontario to double that (30.9%) in Quebec (Figure 17).

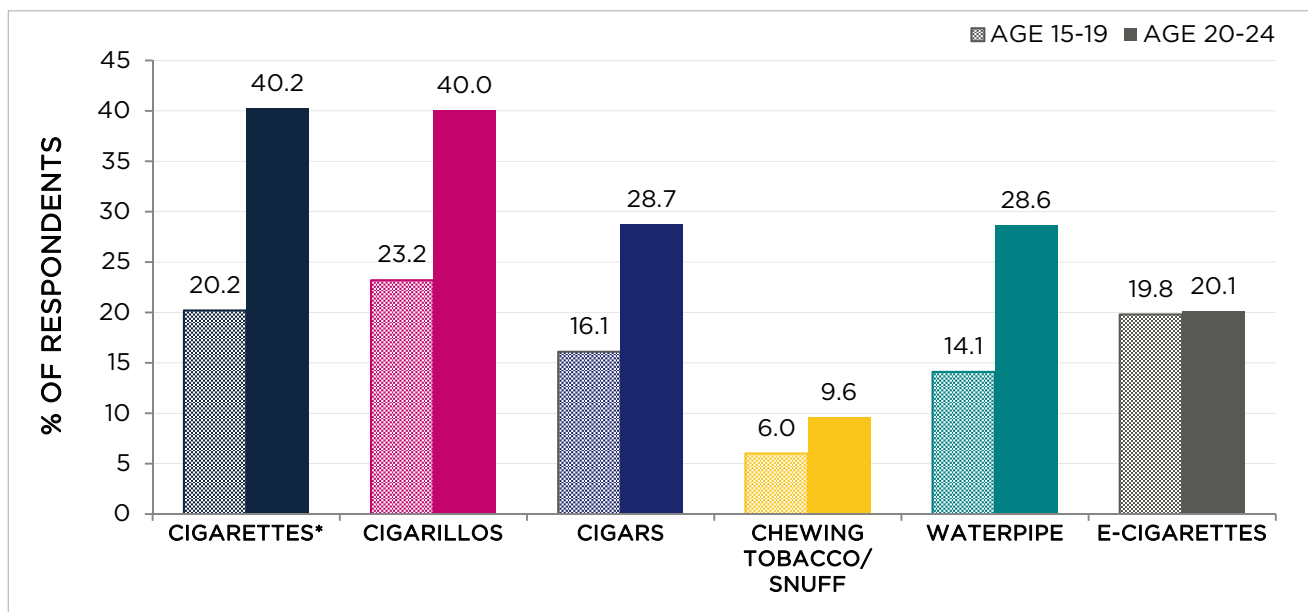
**FIGURE 17: EVER USE OF E-CIGARETTES AMONG YOUTH AGED 15-19, BY PROVINCE, 2013**



DATA SOURCE: CTADS, 2013

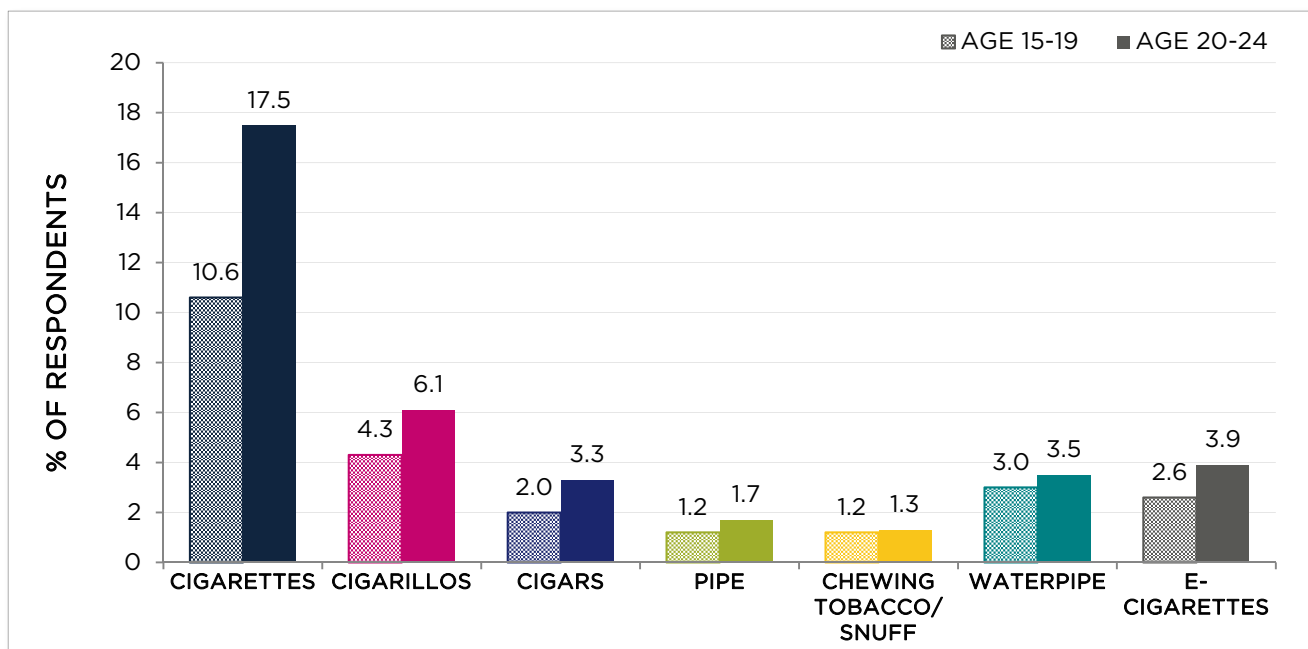
Figure 18 shows ever use of various products among youth and young adults, while Figure 19 shows use in the past 30 days. While the percentage of youth age 15-19 who had tried e-cigarettes was comparable to smoked tobacco products, only cigarettes had relatively high recent (past 30-day) prevalence of use. Among young adults age 20-24, estimates for prevalence of ever use for smoked tobacco products were up to double the prevalence of e-cigarette ever use, while again recent use was high only for cigarettes.

**FIGURE 18: PERCENTAGE OF YOUTH AND YOUNG ADULTS WHO HAD EVER TRIED VARIOUS PRODUCTS, 2013**



\*SMOKED A WHOLE CIGARETTE  
DATA SOURCE: CTADS, 2013

**FIGURE 19: PERCENTAGE OF YOUTH AND YOUNG ADULTS WHO HAD USED VARIOUS PRODUCTS IN THE PAST 30 DAYS, 2013**

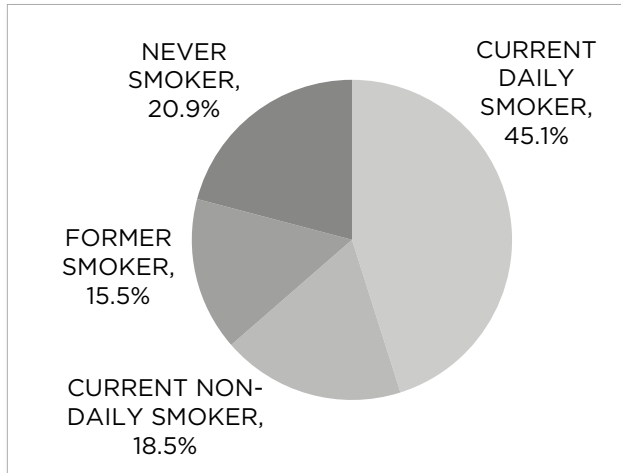


DATA SOURCE: CTADS, 2013

## SMOKING STATUS OF E-CIGARETTE USERS

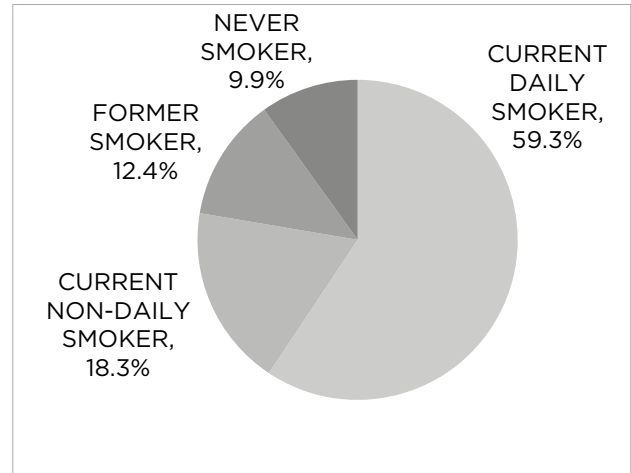
The majority of ever users (63.6%) and past 30 day users (77.7%) of e-cigarettes were current smokers, suggesting that dual use of cigarettes and e-cigarettes is high. Only 15.5% of ever e-cigarette users and 12.4% of recent (past 30 day) e-cigarette users were former smokers. One in five ever users and one in ten recent users of e-cigarettes had never been a smoker, indicating interest among non-smokers (Figure 20; Figure 21). There were no differences in the percentages of ever or past 30-day users who were smokers among males (63.6% and 77.9%, respectively) and females (63.7% and 77.4%).

**FIGURE 20:** SMOKING STATUS OF EVER USERS OF E-CIGARETTES, 2013



DATA SOURCE: CTADS, 2013

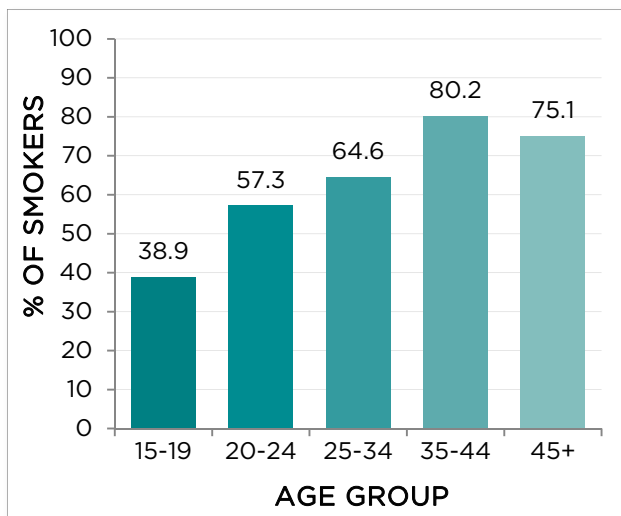
**FIGURE 21:** SMOKING STATUS OF PAST 30 DAY USERS OF E-CIGARETTES, 2013



DATA SOURCE: CTADS, 2013

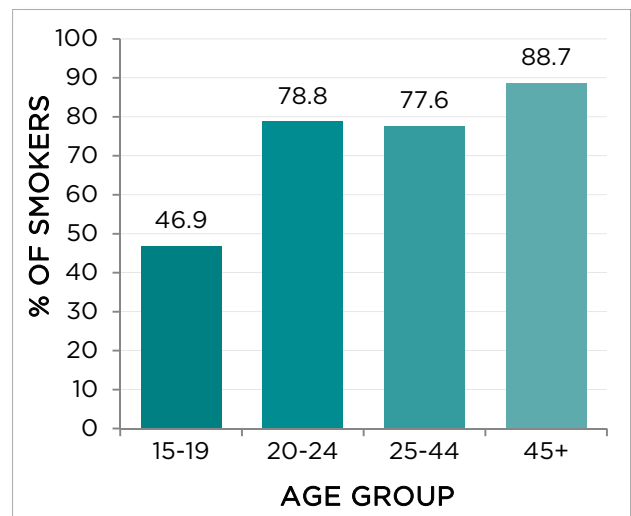
The percentage of ever e-cigarette users who were current smokers varied significantly by age ( $p < 0.0001$ ), and was lowest among youth age 15-19 (Figure 22). A similar pattern was observed for past 30-day use ( $p = 0.0005$ ) (Figure 23). Never smokers comprised more than half (57.1%) of youth ever users and 46.8% of past 30-day e-cigarette users; among young adults, never smokers comprised 30.7% and 15.6% of ever and recent users, respectively. E-cigarette use among never smokers over age 35 was rare.

**FIGURE 22:** PERCENTAGE OF EVER E-CIGARETTE USERS WHO WERE CURRENT SMOKERS\*, BY AGE GROUP, 2013



\*INCLUDES DAILY AND NON-DAILY SMOKERS  
DATA SOURCE: CTADS, 2013

**FIGURE 23:** PERCENTAGE OF PAST 30 DAY E-CIGARETTE USERS WHO WERE CURRENT SMOKERS\*, BY AGE GROUP, 2013

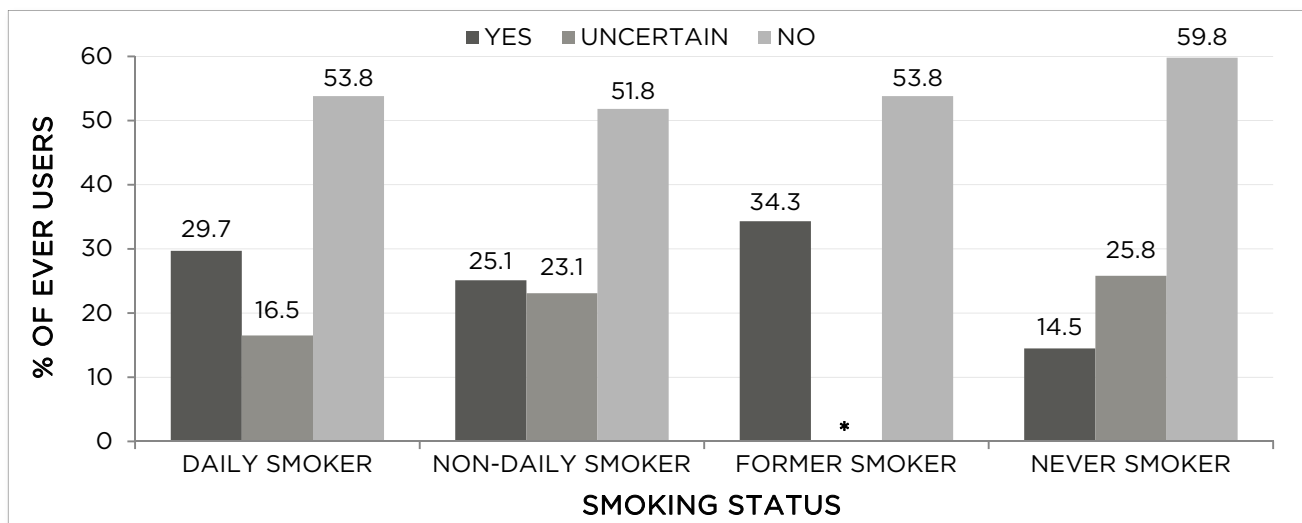


\*INCLUDES DAILY AND NON-DAILY SMOKERS  
NOTE: AGES 25-34 AND 35-44 WERE COMBINED DUE TO LOW NUMBERS  
DATA SOURCE: CTADS, 2013

## NICOTINE IN E-CIGARETTES

When those who had used e-cigarettes were asked whether the last one they used contained nicotine, just over half (54.6%) said it did not. Despite the fact that nicotine-containing e-cigarettes are not approved for sale in Canada, one quarter of users (26.4%) said the last e-cigarette they used did contain nicotine. Nearly one in five users (18.9%) did not know whether their last e-cigarette contained nicotine, highlighting the importance of clear product labelling. Use of nicotine-containing e-cigarettes varied by smoking status (Figure 24), and was highest among former smokers (34.3%), and lowest among never smokers (14.5%), although the overall difference was of borderline significance ( $p=0.059$ ).

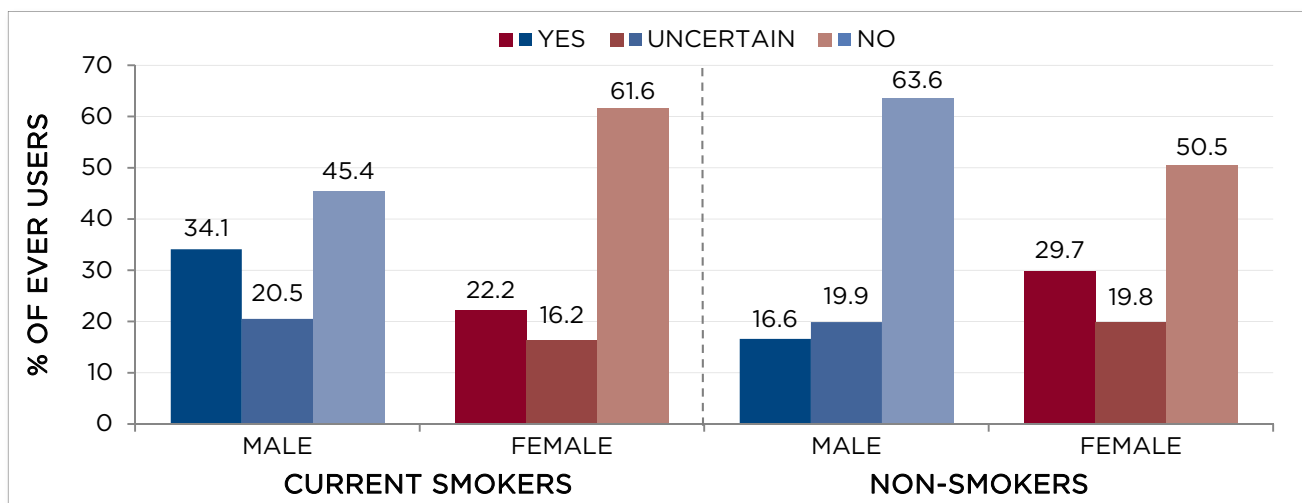
**FIGURE 24:** RESPONSES TO “THE LAST TIME YOU USED AN E-CIGARETTE, DID IT CONTAIN NICOTINE?” AMONG EVER USERS OF E-CIGARETTES, BY SMOKING STATUS, 2013



\*DATA FOR “UNCERTAIN” AMONG FORMER SMOKERS NOT REPORTABLE DUE TO LOW NUMBERS IN THE NUMERATOR AND/OR DENOMINATOR  
**DAILY SMOKER:** RESPONDED “EVERY DAY” TO “AT THE PRESENT TIME DO YOU SMOKE CIGARETTES EVERY DAY, OCCASIONALLY OR NOT AT ALL?”  
**NON-DAILY SMOKER:** RESPONDED “OCCASIONALLY” TO “AT THE PRESENT TIME DO YOU SMOKE CIGARETTES EVERY DAY, OCCASIONALLY OR NOT AT ALL?”  
**FORMER SMOKER:** SMOKED “NOT AT ALL” AT THE TIME OF THE SURVEY, BUT HAD SMOKED 100+ CIGARETTES IN LIFETIME

As shown in Figure 25, among smokers, significantly more males than females used e-cigarettes containing nicotine ( $p=0.04$ ). Conversely, among non-smokers, more females used e-cigarettes with nicotine, although this difference was not statistically significant ( $p=0.07$ ).

**FIGURE 25:** RESPONSES TO “THE LAST TIME YOU USED AN E-CIGARETTE, DID IT CONTAIN NICOTINE?” AMONG EVER USERS OF EC-CIGARETTES, 2013



DATA SOURCE: CTADS, 2013

## REASONS FOR USE OF E-CIGARETTES

### USE AS A SMOKING CESSATION AID

Ever-users of e-cigarettes who were either recent (past year) quitters or current smokers who had ever tried to quit, were asked “*In the past two years, did you ever use the e-cigarette as an aid while attempting to quit smoking?*”; half (50.7%) reported doing so.

Use of e-cigarettes as a smoking cessation aid was reported by 54.2% of males and 46.2% of females, not significantly different ( $p=0.22$ ). Use as a cessation aid was also not significantly different by age group ( $p=0.31$ ), although it appeared to be less prevalent among youth and young adults than among adults age 25 and older (Figure 26).

When considering all those who had ever used an e-cigarette (of any smoking status), 28.3% (33.1% of males; 23.1% of females) reported using it as a quit aid within the past 2 years.

### USE TO REPLACE CIGARETTES

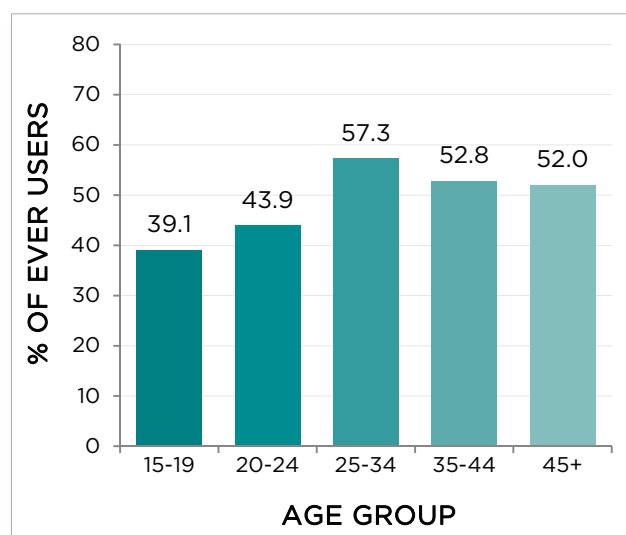
Current smokers were asked the following: “*Sometimes smokers use e-cigarettes even when they are not attempting to quit smoking. Have you ever used e-cigarettes when you were not able to smoke or when you wanted to smoke fewer cigarettes? (For example, in a meeting, on a plane, at school?)*”.

Overall, approximately one-third (34.9%) of e-cigarette ever-users who were also cigarette smokers reported using an e-cigarette when they were unable to smoke, or to smoke fewer cigarettes.

This type of use was reported by 40.3% of males and 29.1% of females, a difference of borderline significance ( $p=0.056$ ). Use varied significantly by age group ( $p=0.03$ ), but no clear pattern was observed, as shown in Figure 27.

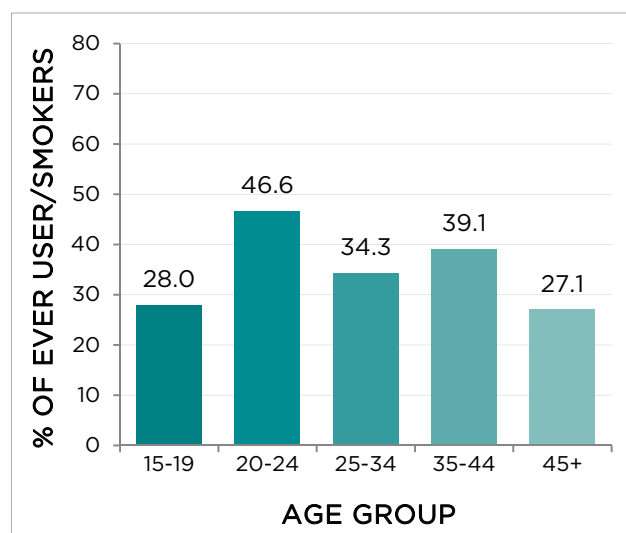
When all current smokers were considered, 12.9% (14.2% of males; 11.3% of females) reported ever using an e-cigarette to replace cigarettes.

**FIGURE 26:** USE OF E-CIGARETTES AS A SMOKING CESSATION AID, AMONG EVER USERS WHO WERE EITHER RECENT QUITTERS OR SMOKERS WHO HAD TRIED TO QUIT, BY AGE GROUP, 2013



DATA SOURCE: CTADS, 2013

**FIGURE 27:** USE OF E-CIGARETTES TO REPLACE CIGARETTES, AMONG EVER USERS WHO WERE CURRENT SMOKERS, BY AGE GROUP, 2013



DATA SOURCE: CTADS, 2013



## REFERENCES

1. Britton J, Bogdanovica I. *Electronic cigarettes*. A report commissioned by Public Health England; 2014. Available from: <http://www.gov.uk/government/publications/electronic-cigarettes-reports-commissioned-by-phe>.
2. Polosa R, Rodu B, Caponnetto P, Maglia M, Raciti C. A fresh look at tobacco harm reduction: The case for the electronic cigarette. *Harm Reduction Journal* 2013;10:19.
3. Benowitz NL, Goniewicz ML. The regulatory challenge of electronic cigarettes. *JAMA* 2013;21;310(7):685-6.
4. Grana R, Benowitz N, Glantz SA. E-cigarettes. A scientific review. *Circulation* 2014;129:1972-1986.
5. Hajek P, Etter JF, Benowitz N, Eissenberg T, McRobbie H. Electronic cigarettes: review of use, content, safety, effects on smokers and potential for harm and benefit. *Addiction* 2014;109(11):1801-10
6. US Department of Health and Human Services. *The health consequences of smoking – 50 years of progress. A report of the Surgeon General*; 2014. Available from: <http://www.surgeongeneral.gov/library/reports/50-years-of-progress/>.
7. Carroll Chapman SL, Wu L. E-cigarette prevalence and correlates of use among adolescents versus adults: A review and comparison. *Journal of Psychiatric Research* 2014;54:43-54.
8. McRobbie H, Bullen C, Hartmann-Boyce J, Hajek P. Electronic cigarettes for smoking cessation and reduction (Review). *The Cochrane Library*; 2014;12.
9. Food and Drug Administration. *Deeming – Extending authorities to additional tobacco products*; 2014. Available from: <http://www.fda.gov/TobaccoProducts/Labeling/ucm388395.htm>.
10. European Commission. *Proposal for a directive of the European Parliament and of the Council on the approximation of the laws, regulations and administrative provisions of the Member States concerning the manufacture, presentation and sale of tobacco and related products*; 2014. Available from: [http://ec.europa.eu/health/tobacco/products/index\\_en.htm](http://ec.europa.eu/health/tobacco/products/index_en.htm).
11. Health Canada. *Notice – To all persons interested in importing, advertising or selling electronic smoking products in Canada*; 2009. Available from: [http://www.hc-sc.gc.ca/dhp-mps/prodpharma/applic-demande/pol/notice\\_avis\\_e-cig-eng.php](http://www.hc-sc.gc.ca/dhp-mps/prodpharma/applic-demande/pol/notice_avis_e-cig-eng.php).
12. Health Canada. *Health Canada advises Canadians not to use electronic cigarettes*; 2009. Available from: <http://www.healthycanadians.gc.ca/recall-alert-rappel-avis/hc-sc/2009/13373a-eng.php>.
13. Standing Committee on Health. March 2015. *Vaping: Towards a Regulatory Framework for E-Cigarettes*. Report of the Standing Committee on Health. 41st Parliament, 2nd Session. Available online: [http://www.parl.gc.ca/Content/HOC/Committee/412/HESA/Reports/RP7862816/412\\_HESA\\_Rpt09\\_PDF/412\\_HESA\\_Rpt09-e.pdf](http://www.parl.gc.ca/Content/HOC/Committee/412/HESA/Reports/RP7862816/412_HESA_Rpt09_PDF/412_HESA_Rpt09-e.pdf).
14. Bill 60. *An Act to Amend Chapter 12 of the Acts of 2002, the Smoke-free Places Act, and Chapter 14 of the Acts of 1993, the Tobacco Access Act*. Available from [http://nslegislature.ca/index.php/proceedings/bills/smoke-free\\_places\\_act\\_amended\\_-\\_bill\\_60](http://nslegislature.ca/index.php/proceedings/bills/smoke-free_places_act_amended_-_bill_60).
15. Bill 45. *Making Healthier Choices Act*, 2015. Available from: [http://www.ontla.on.ca/web/bills/bills\\_detail.do?BillID=3080](http://www.ontla.on.ca/web/bills/bills_detail.do?BillID=3080).
16. Bill 14. *Tobacco Control Amendment Act, 2015*. Available from: [http://www.leg.bc.ca/40th4th/1st\\_read/gov14-1.htm](http://www.leg.bc.ca/40th4th/1st_read/gov14-1.htm).
17. Hammond D, White C, Czoli C, Martin C, Magennis P, Shiplo S. *Promotional activities for electronic cigarettes in Canada: A review and preliminary environmental scan*; 2014.
18. Geller H (Assistant Deputy Minister, Healthy Environments and Consumer Safety Branch, Department of Health). Testimony to the Standing Committee on Health, Canadian House of Commons. October 21, 2014, 1105.
19. Adkison SE, O'Connor RJ, Bansal-Travers M, Hyland A, Borland R, Yong H, Cummings KM, McNeill A, Thrasher JF, Hammond D, Fong GT. Electronic nicotine delivery systems. International Tobacco Control Four-Country Survey. *American Journal of Preventive Medicine* 2013;44(3):207-215.
20. Czoli CD, White CM, Hammond D. Electronic cigarettes in Canada: Prevalence of use and perceptions among youth and young adults. *Canadian Journal of Public Health* 2014;105(2):e97-e102.
21. Hamilton HA, Ferrence R, Boak A, Schwartz R, Mann RE, O'Connor S, Adlaf EM. Ever use of nicotine and non-nicotine electronic cigarettes among high school students in Ontario, Canada. *Nicotine & Tobacco Research* 2014; doi: 10.1093/ntr/ntu234.
22. Czoli CD, Hammond D, Reid JL, Cole AG, Leatherdale ST. Use of conventional and alternative tobacco and nicotine products among a sample of Canadian youth. *Journal of Adolescent Health*, in press.
23. Canadian Cancer Society. *The Canadian Cancer Society's exclusive study: 5,000 children have already tried an electronic cigarette in Grade 6! One in three high school students have already smoked it (142,000 youths)*; 2014. Available from: <http://www.cancer.ca/en/about-us/for-media/media-releases/quebec/2014/electronic-cigarette-study/?region=qc>.