

Vaping products in Canada

A market scan of e-liquid products, flavours, and nicotine content (2021).

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EXECUTIVE SUMMARY

The e-cigarette market has rapidly evolved in Canada, with changes to the types of products that are sold and retail settings where they are available. Many changes occurred following implementation of the 2018 Tobacco and Vaping Products Act (TVPA): federal legislation which liberalized the promotion and sale of vaping products in Canada. Additional restrictions have since been implemented at both the federal and provincial level, including limits on flavours and nicotine concentration.

The primary aims of this project were to: (1) provide a 'snapshot' of the e-cigarette retail market in Canada in 2021, and (2) examine differences in product between provinces with different policies on flavours and nicotine concentration.

This project builds on a 2020 scan of the e-cigarette retail market in Canada which collected data from (1) websites of the top 25 e-cigarette brands, two national online retailers, and additional local vape shops in five provinces, and (2) 81 'brick-and-mortar' vape shops and gas/convenience stores across the same five provinces [1,2].

The 2021 scan was conducted between January and May 2021 and was designed to collect a greater amount of provincial-level data than the 2020 scan. First, manufacturer websites for each of the four leading brands were identified. Second, one national online retailer that varied its content according to province was selected. Third, 19 provincial online stores were identified (a minimum of two per province with the exception of Quebec due to provincial restrictions that prohibited online sales). Data were analysed for e-liquids only (either sold separately or with a device), because these were most likely to be impacted by flavour and nicotine restrictions. The online scan identified a total of 37,655 unique e-liquids (a unique product was defined as an e-liquid of a unique brand, flavour, or nicotine concentration). A telephone scan was also conducted with 230 'brick-and-mortar' vape stores and 230 gas/convenience stores across all provinces to compare the profile of products identified in the online scan with products available in stores across the country.

As with our previous 2020 scan [1,2], the 2021 scan depicts an incredibly diverse market in Canada, with 307 e-liquid brands identified online. In 2021, the maximum e-liquid concentration identified was 60mg/mL, while the most common flavour identified was fruit.

Provinces that fully restricted the sale of vaping products with nicotine concentrations over 20mg/mL fully offered a lower proportion of e-liquids over 20mg/mL both online and in brick-and-mortar stores, thus suggesting that full restrictions have reduced the availability of higher-strength e-liquids at the provincial level.

Patterns were less clear for full flavour bans. In brick-and-mortar stores in provinces where full restrictions were implemented, mint/menthol and fruit flavoured e-liquids were less widely available than in provinces with no restrictions, suggesting that full restrictions have reduced the availability of flavoured e-liquids at the provincial level in brick-and-mortar vape and gas/convenience stores. However, these effects were not seen online: the online availability of fruit and other non-tobacco flavours were similar in provinces with full restrictions and no restrictions. The reasons for these findings remain unclear and warrant further research.

Partial restrictions limiting sales to adult-only stores also appeared to be effective in reducing the availability of e-liquids over 20mg/mL and non-tobacco flavoured e-liquids in brick-and-mortar gas/convenience stores with no restricted age of access. However, these products were more widely available online suggesting that sales of higher-strength and flavoured nicotine products may have shifted online where partial restrictions are in place.

Many online retailers did not comply with provincial nicotine limits and/or flavour bans. For example, 76% of e-liquids identified online in provinces with a full ban on fruit flavours contained a fruit flavour. Brick-and-mortar retailers reported high compliance.

Findings suggest that, in Canada, federal and provincial regulations are influencing the e-cigarette retail market. Compliance with full restrictions on maximum nicotine concentrations and flavours appears to be high overall but is noticeably notably lower among online stores compared to brick-and-mortar stores. The market may also respond to partial flavour restrictions in adult-only stores through shifting the sale of higher-strength and flavoured e-liquids online; therefore, formal age verification procedures could be required to access e-cigarette retail websites.

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METHODS

Online scan

Data were collected through an online scan of vaping product retailers from January and May 2021. Data were collected from 24 online vaping manufacturers/retailers. These consisted of manufacturer websites for each of the 4 leading brands (identified through the 2020 ITC Youth and Adult surveys [3,4]), 1 national online store, and 19 provincial online stores (2 per province, except BC where 3 stores were scanned due to additional funding, and except Quebec where no local online retailers had products available to purchase online). The national online retailer was selected based on a Google search of terms “vape” and “Canada”. The store selected sold most of the major e-cigarette brands in Canada in 2021 (e.g., Smok, Vype, STLTH). For the provincial websites, we selected the same website used in the 2020 scan [1,2] for ON, BC, AB, QC, and NS. An additional 10 websites were selected using a Google search of ‘vape shop’ in the major city of each province, and selected based on the store that sold the greatest number of e-liquids. Retailers were only eligible if product information was posted online. No stores were identified in QC that had product information online, consistent with provincial regulations that prohibit online sales.

DATA COLLECTION

Data were collected from online retailers in two ways. First, Research Assistants manually extracted data for manufacturer-specific websites and provincial websites with fewer than 250 e-liquids. Second, webscraping¹ (of the below listed variables) was used to extract data from the large national store and provincial websites with more than 250 e-liquids, and all BC stores due to additional funding. Two manufacturer store websites (Juul and Vuse/Vype) and the large national retail store varied their content depending on the province that was selected; therefore, for these stores, data were extracted specific to availability of products in each province after selecting the relevant province from a drop-down list upon entering the site.

The following variables were extracted from each retailer: brand, nicotine concentration (percent and/or mg/ml; all converted to percentages whereby 1.0mg/mL = 0.1%), and flavour. To account for the diversity of flavours identified, dummy variables (yes, no) were created for the following flavour categories based on the flavour names and product names that were obtained from the website: fruit, candy/dessert, non-alcoholic drink, alcoholic beverage, tobacco, menthol/mint, coffee, spice, unflavoured, tobacco & and menthol, unflavoured, and other.

¹ Webscraping is an automated technique where a computer program downloads the contents of a webpage, processes the data, and extracts structured content. The webscrapers were built in Python (3.8) using Scrapy (2.4.1) and Selenium (3.141.0).

To establish the reliability of the manual coding protocol (e.g., coding brands, flavours, nicotine concentration, price), three researchers independently coded 40 e-liquids. Reliability was high (91% agreement on average across all variables coded).

Table 1 shows the dates of data collection, method of data collection, and type of store included in the online scan.

Table 1. Description of stores included in the online e-cigarette retail scan, by province and store

Province	Type of store	Data collection month	Method
Not province-specific	Manufacturer (2 stores)	February	Manual
Alberta	Manufacturer (2 stores)	January – February	Manual
	National	February	Webscraped
	Provincial (2 stores)	February, May	Webscraped
BC	Manufacturer (2 stores)	January – February	Manual
	National	February	Webscraped
	Provincial (3 stores)	March	Webscraped
Manitoba	Manufacturer (2 stores)	January – February	Manual
	National	February	Webscraped
	Provincial (2 stores)	May	Webscraped
New Brunswick	Manufacturer (2 stores)	January – February	Manual
	National	February	Webscraped
	Provincial (2 stores)	March – April	Manual
Newfoundland and Labrador	Manufacturer (2 stores)	January – February	Manual
	National	February	Webscraped
	Provincial	March – May	Manual
Nova Scotia	Manufacturer (1 store)	January – February	Manual
	Provincial (2 stores)	March – May	Manual
Ontario	Manufacturer (2 stores)	January – February	Manual
	National	February	Webscraped
	Provincial (2 stores)	April – May	Webscraped
Prince Edward Island (PEI)	Manufacturer (2 stores)	January – February	Manual
	National	February	Webscraped
	Provincial (2 stores)	February – March ²	Manual
Quebec¹	National	February	Webscraped
Saskatchewan	Manufacturer (2 stores)	January – February	Manual
	National	February	Webscraped
	Provincial (2 stores)	April – May	Manual & Webscraped

¹ No local online stores that had products available to purchase online were identified in Quebec. At the time of data collection, e-cigarette products could not be sold online in Quebec.

² Regulations changed in PEI between February and March 2021, such that a flavour ban came into effect on 1st March. Data were collected from PEI provincial stores from 26th February until 5th March, and 95% of data from PEI provincial stores were collected in March (i.e., once the flavour ban had come into effect).

Telephone scan of 'brick-and-mortar' retailers

In Canada, the types of e-cigarette products that are sold sometimes differ by the type of retail store. Therefore, in addition to the online retail scan, brief telephone surveys were conducted with 'brick-and-mortar' vape shops and gas/convenience stores. Between April and May 2021, a total of 230 vape stores and 230 convenience/gas stores were called across all ten Canadian provinces: 50 vape and 50 convenience/gas stores in BC (due to additional funding), and 20 vape and 20 convenience/gas stores in all remaining provinces.

The selection of brick-and-mortar stores in each province were stratified by 'Population Centre'. Population Centres were listed within each province and the number of stores per Population Centre was calculated by multiplying the percentage of the population in that area by 20 (the target number of stores). For example, in Alberta the top 5 most populated Population Centres were Calgary, Edmonton, Lethbridge, Red Deer, and Medicine Hat, and the target number of vape stores in Calgary was 7 since it contains 34% of the population of Alberta (0.34×20). Research Assistants then used Google Maps and searched for 'convenience store,' 'gas station,' and 'vape store' to generate an ordered list. Each store was then called starting from the top of the list until the target number was reached (e.g., 7 vape stores and 7 gas/convenience stores in Calgary). For convenience/gas stores, we aimed to collect data from an even number of both (e.g., if the target was 7, aim for 3 or 4 gas stores and 3 or 4 convenience stores). Research Assistants used a standardized telephone protocol to collect information on brand availability, flavours, and nicotine levels (see Supplementary Materials).

A total of 436 stores (206 vape shops and 230 gas/convenience stores) were successfully contacted, of which 339 (169 vape shops and 170 gas/convenience stores) completed the survey. Unlike the online scan, data were collected in Quebec because vaping products could legally be sold in brick-and-mortar stores. All data were collected between April and May 2021, with the exception of PEI where all data were collected in April 2021.

Policy coding

For descriptive analyses, dummy variables were created according to provincial policy status at the time of data collection. Tables 2 and 3 summarize the restrictions on nicotine concentration and flavours of e-cigarettes in Canada, respectively. For nicotine concentration, the dummy variable was coded as 0 if data were collected in a province with no restrictions on nicotine concentration at the time of data collection, 1 if data were collected in a province with nicotine concentrations > 20mg/ml prohibited in some retail locations (access to <19+ years), and 2 if data were collected in a province with nicotine concentrations > 20mg/ml prohibited in all retail locations. Similarly, for flavours, dummy variables were coded as 0 if data were collected in a province with no restrictions on that flavour at the time of data collection, 1 if data were collected in a province with that flavour prohibited in some retail locations (access to <19+ years), and 2 if data were collected in a province with that flavour prohibited in all retail locations.

Table 2. Summary of restrictions on nicotine concentration of e-cigarettes in Canada

Federal	> 66mg/ml prohibited since 2017 and > 20mg/ml since July 23 2021
AB	No provincial restrictions
BC	> 20mg/ml prohibited since Sept 1 2020
SK	No provincial restrictions
MB	No provincial restrictions
ON	> 20mg/ml restricted to 19+ stores since July 1 2020
QC	No provincial restrictions
NB	No provincial restrictions
NS	> 20mg/ml prohibited since Sept 1 2020
PEI	No provincial restrictions
NFLD	No provincial restrictions

Table 3. Summary of restrictions on e-cigarette flavours in Canada

Federal	No federal restrictions
AB	No provincial flavour restrictions
BC	All non-tobacco flavours restricted to 19+ stores since Sept 1 2020
SK	All non-tobacco flavours, except menthol/mint, restricted to 19+ stores, since Sept 1 2021
MB	No provincial restrictions
ON	All non-tobacco flavours, except menthol/mint, restricted to 19+ stores since Jul 1 2020
QC	No provincial flavour restrictions
NB	Ban on all non-tobacco flavours since Sept 1 2021
NS	Ban on all non-tobacco flavours since Apr 1 2020
PEI	Ban on all non-tobacco flavours since Mar 1 2021
NFLD	No provincial restrictions

RESULTS

Product availability

ONLINE RETAILERS: PRODUCT AVAILABILITY

A total of 37,655 individual e-liquid products were identified. A ‘product’ was defined as an e-liquid only (91%) or e-liquid and device (9%) of a unique brand, flavour, or nicotine concentration. For example, a JUUL 5% nicotine pod with a Green Apple flavour was considered a unique product from a JUUL 2% nicotine pod with a Green Apple flavour, and a JUUL 5% nicotine pod with a Mint flavour.

E-liquid products were not available in all provinces or in all stores. In Quebec (where vaping products could not legally be sold online in 2021) no products were identified for sale in the manufacturer stores, and no local e-cigarette stores were identified that had information available online. In addition, no products were identified for sale in Nova Scotia in the national store.

BRICK-AND-MORTAR RETAILERS: PRODUCT AVAILABILITY

A total of 339 stores (169 vape shops and 170 gas/convenience stores) completed the survey. As Table 4 shows, of the 170 gas/convenience stores that completed the survey, 119 (70%) sold e-cigarette products, with the highest proportion in BC (90%). No gas/convenience stores sold e-cigarette products in PEI: at the time of data collection, PEI was the only Canadian province in which the sale of e-cigarette products was restricted to specialty, age-restricted, shops (e.g., vape shops).

Table 4. Number of stores with complete data, and proportion of gas/convenience stores that sold an e-cigarette product, by province.

Province	Vape stores	Gas/convenience stores	
	Total number with complete data	Total number with complete data	Proportion (n) that sold an e-cigarette product
BC	38	39	89.7% (35)
AB	16	15	73.3% (11)
ON	13	12	58.3% (7)
QC	19	13	84.6% (11)
NS	11	15	80.0% (12)
MB	17	10	80.0% (8)
NB	19	15	80.0% (12)
NFL	11	18	66.7% (12)
PEI	5	20	0.0% (0)
SK	20	13	84.6% (11)

Vaping brand availability

ONLINE RETAILERS: BRAND AVAILABILITY

Table 5 shows the retail availability of the 10 most popular brands that were identified from the 2020 ITC Youth and Adult surveys [3,4]. Of these top 10 brands, six were identified for sale online in Canada: Juul, Vuse/Vype, STLTH, ePuffer, Smok, and Puff, while four were not identified for sale online at all in Canada (see Table 5).

Table S1 shows where the top brands were sold in Canada. Of the six brands that were identified as being available for sale in Canada, five (JUUL, STLTH, ePuffer, Vuse/Vype, Smok) were identified in all provinces except Quebec. Puff (which includes Puff Bar) was only identified as available for sale in local stores in Manitoba and Ontario. ePuffer was only available in the national manufacture store that did not vary content based on province.

Table S2 shows the list of brands available across provinces in online retailers. In total, we identified 307 distinct brands, of which 254 were e-liquids only and 53 were e-liquids + devices, demonstrating the variability of the market. Only four brands (12 Monkeys, Koil Killaz, Naked100, Lix) were available in all provinces while 33 brands (11%) were available in all provinces except one, 37 brands (12%) were available in two provinces, 176 brands (57%) were available in only one province.

Table 5. List of the top brands (from 2020 ITC Youth and Adult surveys) and those that were identified for sale in Canada in online retailers.

	Identified for sale on website			
	Any	Manufacturer	National	Local
Juul	Y	Y	0	Y
Vuse/Vype	Y	Y	Y	Y
STLTH	Y	Y	0	Y
ePuffer	Y	Y	0	0
Smok ¹	Y	0	Y	Y
Puff (including puff bar and puff xxl) ²	Y	0	0	Y
88 vape ²	0	0	0	0
Sinister Liquids ²	0	0	0	0
nicQuid ²	0	0	0	0

¹ Manufacturer websites for Smok was not included in the retail scan because it did not sell e-liquids.

² No Canadian-specific manufacturer website for these brands were identified.

BRICK-AND-MORTAR RETAILERS: BRAND AVAILABILITY

Table 6 shows the retail availability of the 10 most popular brands that were identified from the 2020 ITC Youth and Adult surveys, among the 169 vape shops and 119 gas/convenience stores that sold e-cigarettes. Of these top 10 brands, five were mentioned as being available for sale by those who answered the phone in vape shops and four were mentioned by those who answered the phone in gas/convenience stores: Juul, Vuse/Vype, STLTH, Puff and, in vape shops only, Smok (Table 6). This confirms and extends the findings from the online scan that these brands are available for sale in Canada both online and in brick-and-mortar stores.

Table S3 shows the list of brands that were mentioned as being available for sale across provinces in brick-and-mortar retailers. In total, we identified 83 distinct brands. Seven brands (Aspire, Juul, Logic, Smok, STLTH, Uwell, and Vuse/Vype) were mentioned in stores across all ten provinces. Among the 83 brands mentioned in the phone scan, 29 were also identified in the online scan although the online scan was restricted to e-liquids and many of the brands mentioned in the phone scan were vaping devices only.

Table 6. List of the top brands (from 2020 ITC Youth and Adult surveys) and those that were mentioned as being available for sale in Canada in brick-and-mortar retailers.

	Mentioned as being available for sale for sale by store representative	
	Vape store	Gas/convenience store
Juul	Y	Y
Vuse/Vype	Y	Y
STLTH	Y	Y
Puff (including puff bar and puff xxl) ²	Y	Y
Smok	Y	0
ePuffer	0	0
88 vape	0	0
Sinister Liquids	0	0
nicQuid	0	0

Nicotine concentration of e-liquids

AVAILABILITY OF NICOTINE

ONLINE RETAILERS: NICOTINE CONCENTRATION

Nicotine concentration was available for 36,184 (96%) of the 37,655 e-liquids identified from online retailers (including e-liquids sold with a device). Overall, nicotine concentration ranged from 0mg/ml to 60mg/ml, with a mean of 17.9 mg/ml (SD=16.5). Approximately one third of e-liquids were between 1mg/ml and 10mg/ml (Figure 1).

BRICK-AND-MORTAR RETAILERS: NICOTINE CONCENTRATION

As part of the phone survey, staff were asked to report the highest nicotine level that they carried and, if they did not know, were asked to report if they had anything over 2% or 20mg/ml. Maximum nicotine concentration carried was reported by 168 of the 169 vape shops, and 114 of the 119 gas/convenience stores that sold e-cigarettes. Among vape shops, the maximum nicotine concentration reported ranged from 12mg/ml to 60mg/ml, with a mean of 39.7mg/ml (SD=15.4). In gas/convenience stores, the maximum nicotine concentration reported ranged from 18mg/ml to 60mg/ml, with a mean of 36.6mg/ml (SD=16.0). In most stores, the maximum e-liquid concentration reported was between 41mg/ml and 50mg/ml (Figure 2).

Figure 1. Nicotine concentration of e-liquids from online retailers (n=36,184 e-liquids).

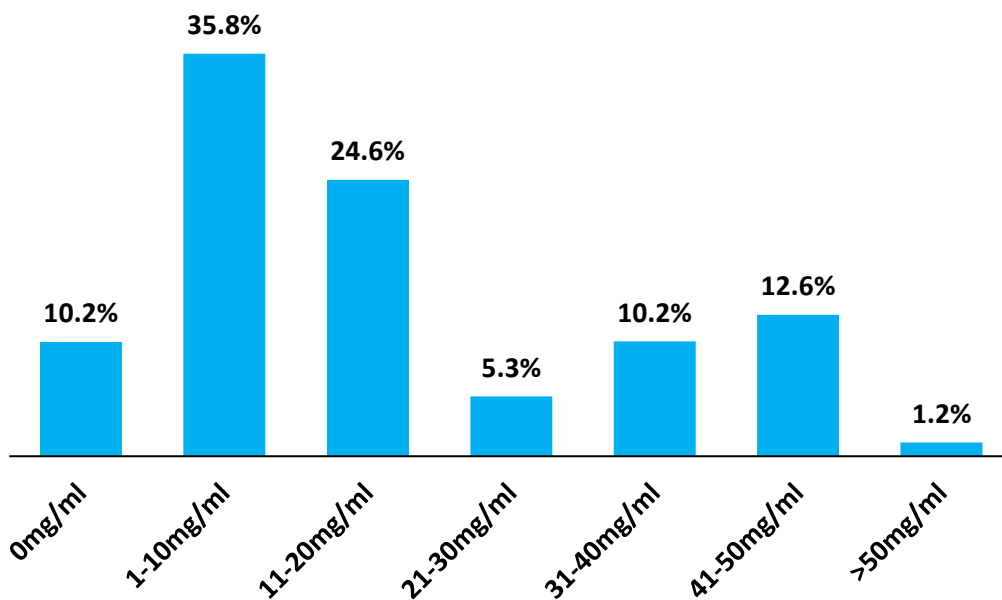
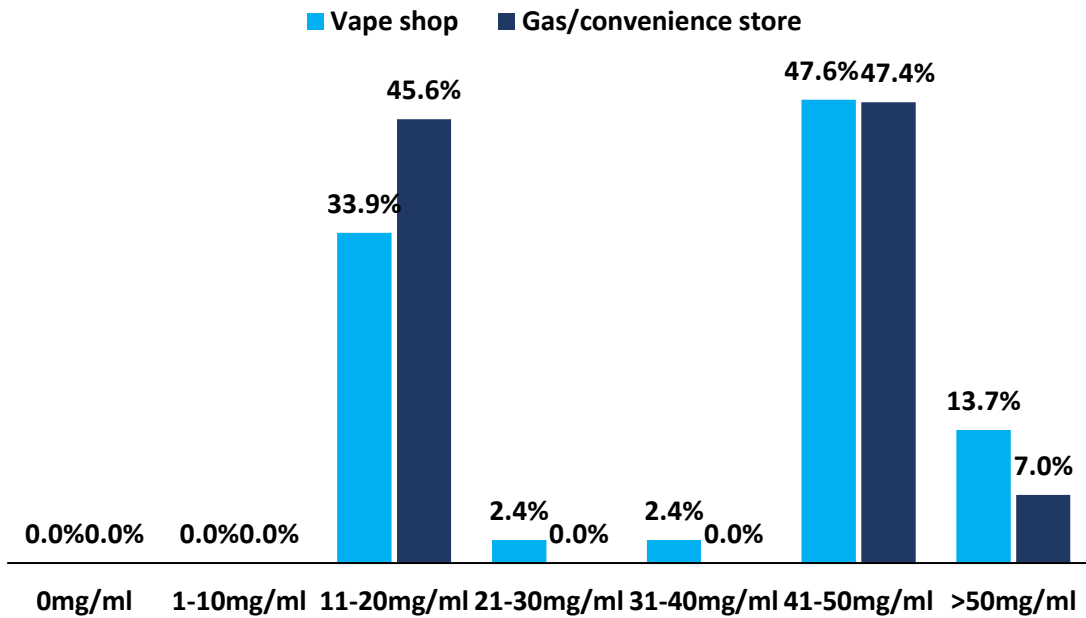


Figure 2. Maximum nicotine concentrations reported by vape shops (n=168 stores) and gas/convenience stores (n=114 stores).



PROVINCIAL DIFFERENCES IN NICOTINE CONCENTRATION

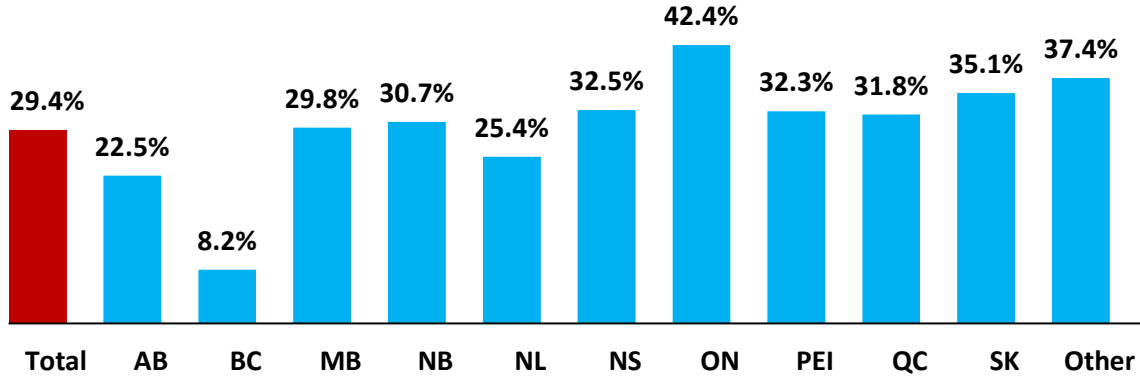
ONLINE RETAILERS: PROVINCIAL DIFFERENCES IN NICOTINE CONCENTRATION

Figure 2 shows the availability of e-liquids offered from online retailers that were over 20mg/ml, by province. Overall, 29% of e-liquids available were over 20mg/ml, and availability was highest in Ontario (42%) and lowest in BC (8%). Table S4 shows the findings by store type (manufacturer, national, local): the availability of e-liquids offered over 20mg/ml was generally higher in manufacturer stores (54%) and lower in local stores (28%).

BRICK-AND-MORTAR RETAILERS: PROVINCIAL DIFFERENCES IN NICOTINE CONCENTRATION

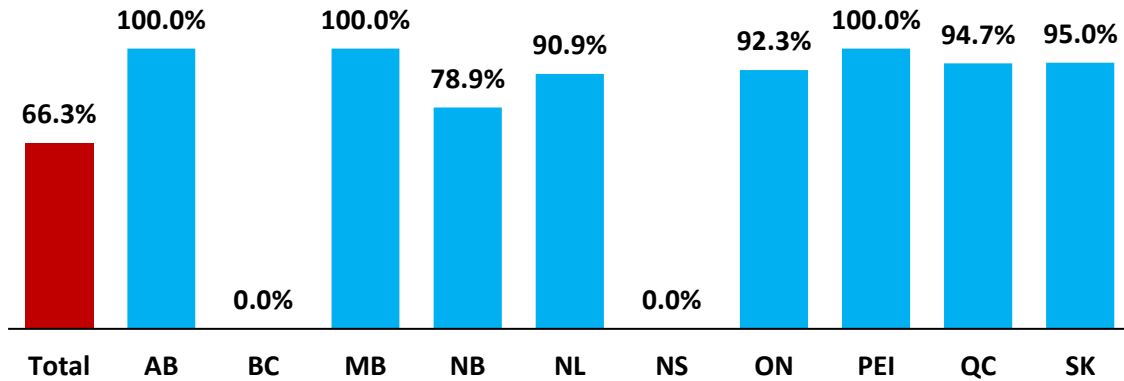
Figure 4 shows the proportion of vape shops, and Figure 5 shows the proportion of gas/convenience stores, that offered e-liquids over 20mg/ml, split by province. Overall, 66% of vape shops and 56% of gas/convenience stores offered e-liquids over 20mg/ml. No vape shops in BC or Nova Scotia sold e-liquids over 20mg/ml, and no gas/convenience stores in BC, Nova Scotia, or Ontario sold e-liquids over 20mg/ml.

Figure 3. Proportion of e-liquids among online retailers that were over 20mg/ml (n=36,184 e-liquids).



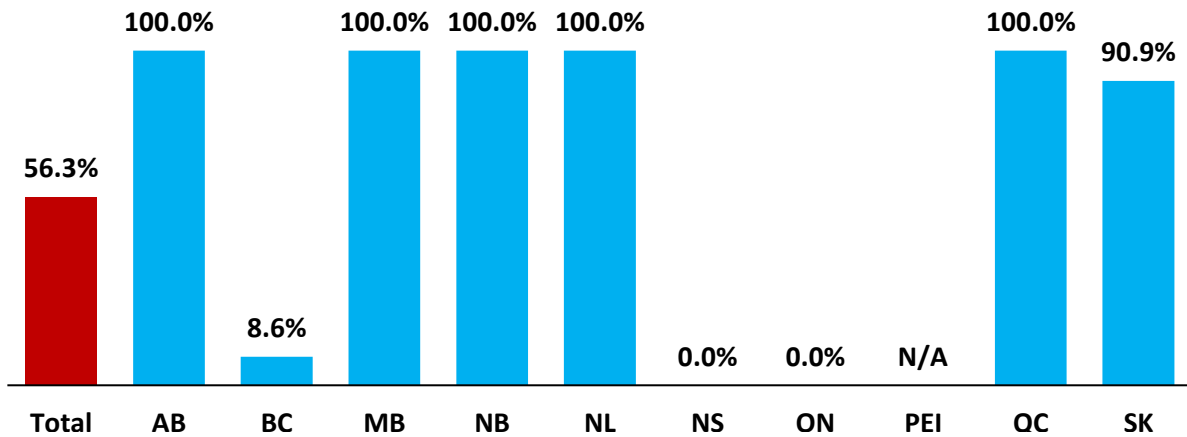
Frequencies are shown in Table S4.
 'Other' describes data that were not province-specific.

Figure 4. Proportion of vape shops that offered e-liquids over 20mg/ml (n=169 stores).



Frequencies are shown in Table S5.

Figure 5. Proportion of gas/convenience stores that offered e-liquids over 20mg/ml (n=119 stores).



Frequencies are shown in Table S5. Note that no gas/convenience stores in PEI sold e-liquids.

NICOTINE CONCENTRATION BY PROVINCIAL POLICY STATUS

At the time of data collection, two provinces had implemented ‘full restrictions’ on nicotine concentrations, which prohibited the sale of e-liquids greater than 20mg/ml in any stores (BC and NS). One province (ON) had implemented ‘partial restrictions’, in which the sale of e-liquids greater than 20mg/ml was restricted to stores that could only be accessed by adults 19 years of age and older.

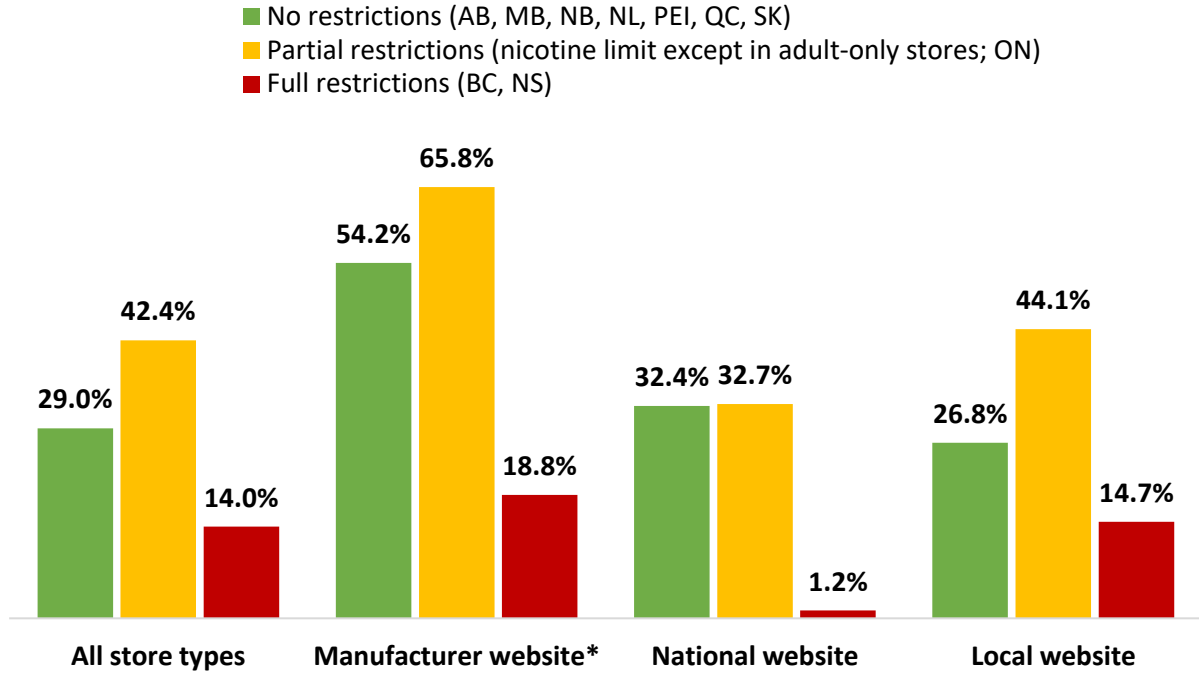
ONLINE RETAILERS: NICOTINE CONCENTRATION BY PROVINCIAL POLICY STATUS

Figure 6 shows the availability of e-liquids from online retailers over 20mg/ml, by provincial policy status and store type. When aggregating data across all store types, 29% of all e-liquids were over 20mg/ml in provinces with no restrictions on nicotine concentrations over 20mg/ml, compared to 42% in provinces with partial restrictions, and 14% in provinces with full restrictions. Patterns were similar when split by store type, although compliance with the 20mg/ml limit in provinces with full restrictions was lowest in local and manufacturer websites compared with national websites (Figure 6).

BRICK-AND-MORTAR RETAILERS: NICOTINE CONCENTRATION BY PROVINCIAL POLICY STATUS

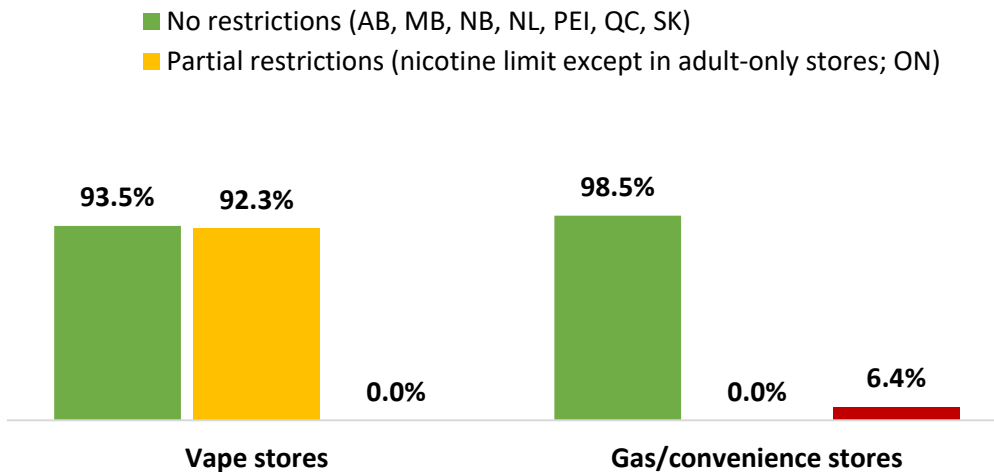
Figure 7 shows the proportion of stores that offered e-liquids over 20mg/ml, by provincial policy status and store type. In vape stores (which were adult-only stores), 94% of stores in provinces with no restrictions offered e-liquids over 20mg/ml, while corresponding proportions were 92% in provinces with partial restrictions (allowed only in adult-only stores), and 0% in provinces with full restrictions (prohibited in all retail locations). In gas/convenience stores (Figure 7), 99% of stores in provinces with no restrictions offered e-liquids over 20mg/ml while corresponding proportions were 0% in provinces with partial restrictions (allowed only in adult-only stores) and 6% in provinces with full restrictions (prohibited in all retail locations).

Figure 6. Proportion of e-liquids among online retailers that were over 20mg/ml, by provincial policy status and store type (n=36,184 e-liquids).



*Only brands Juul, Vuse/Vype, STLTH, ePuffer
Frequencies are shown in Table S6.

Figure 7. Proportion of vape shops (n=169 stores) and gas/convenience stores (n=119 stores) that offered e-liquids over 20mg/ml, by provincial policy status and store type



Frequencies are shown in Table S7.

Flavours of e-liquids

AVAILABILITY OF E-LIQUID FLAVOURS

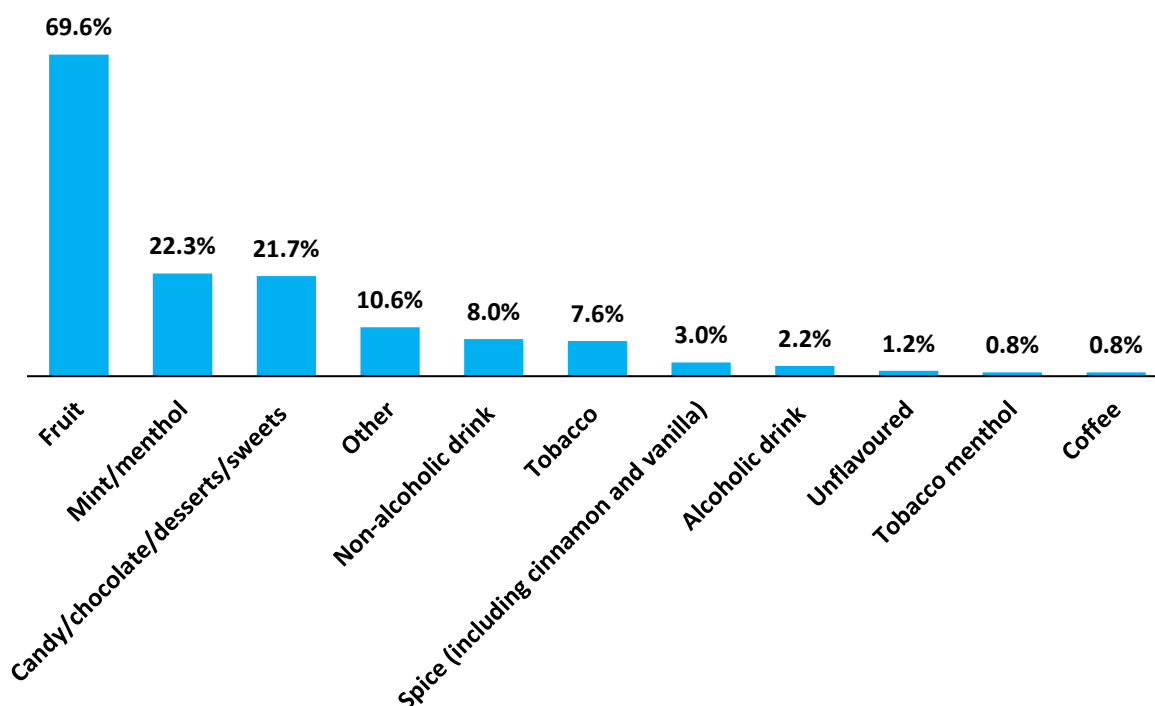
ONLINE RETAILERS: AVAILABILITY OF E-LIQUID FLAVOURS

Information on flavours was available for 36,945 (98%) of the 37,655 e-liquids identified from online retailers (including e-liquids sold with a device). The remaining 710 (2%) of products were kits sold without a specific e-liquid flavour. For the 36,945 with an available flavour, multiple flavours could be selected (i.e., flavours are not mutually exclusive). Overall, 62% had a visible indicator of one flavour, 30% had a visible indicator of two flavours, and the remaining 8% had had a visible indicator of between three and seven flavours. As Figure 8 shows, fruit was the most common flavour.

BRICK-AND-MORTAR RETAILERS: AVAILABILITY OF E-LIQUID FLAVOURS

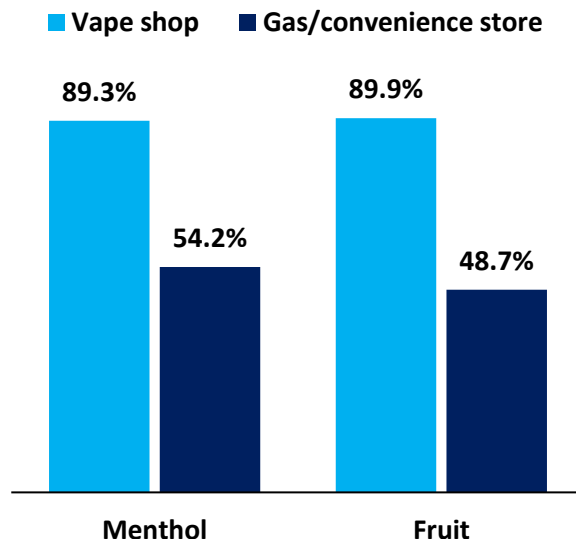
The phone scan only assessed the availability of two flavours: fruit and menthol. As Figure 9 shows, of the stores that sold e-cigarettes, 89% and 90% of vape shops offered menthol and fruit flavoured e-liquids, respectively, while 54% and 49% of gas/convenience shops offered menthol and fruit flavoured e-liquids, respectively.

Figure 8. Flavours of e-liquids from online retailers (n=36,945 e-liquids).



Frequencies are shown in Table S8.

Figure 9. Proportion of vape shops (n=169 stores) and gas/convenience stores (n=119 stores) that reported offering menthol and fruit flavoured e-liquids.



Frequencies are shown in Table S9.

PROVINCIAL DIFFERENCES IN MINT/MENTHOL FLAVOURED E-LIQUIDS

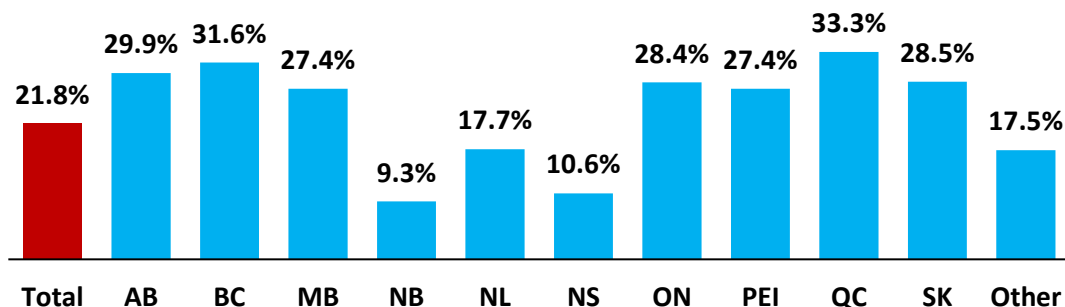
ONLINE RETAILERS: PROVINCIAL DIFFERENCES IN MINT/MENTHOL FLAVOURED E-LIQUIDS

Figure 10 shows the availability of e-liquids offered that have a mint/menthol flavour, by province. Overall, 22% of e-liquids available had a mint/menthol flavour, and availability was highest in Quebec (33%) and lowest in New Brunswick (9%). Table S9 shows findings by store type (manufacturer, national, local): the availability of e-liquids that contained a mint or menthol flavour was generally higher in the national store (30%) and lower in manufacturer stores (17%).

BRICK-AND-MORTAR RETAILERS: PROVINCIAL DIFFERENCES IN MINT/MENTHOL FLAVOURED E-LIQUIDS

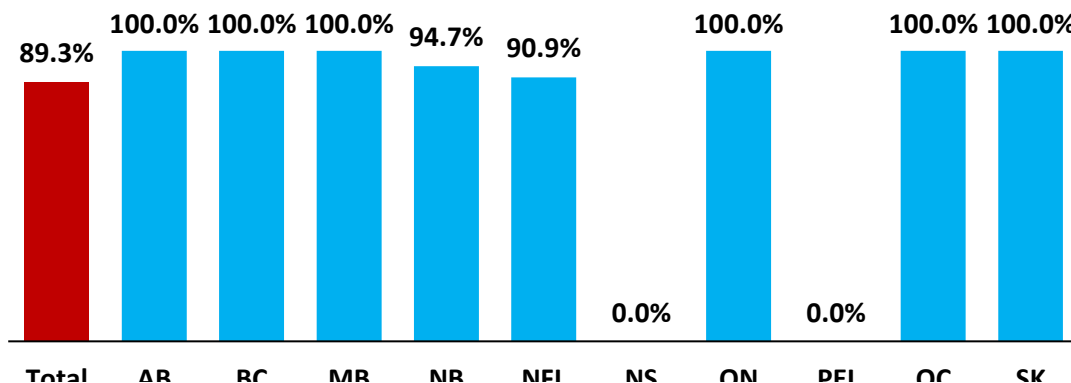
Figure 11 shows the proportion of vape shops, and Figure 12 shows the proportion of gas/convenience stores, that offered e-liquids that have a menthol flavour, split by province. Data are restricted to stores that sold e-cigarettes. Overall, 89% of vape shops and 54% of gas/convenience stores offered e-liquids that have a menthol flavour, although no vape shops or gas/convenience stores in Nova Scotia or PEI sold e-liquids that have a menthol flavour.

Figure 10. Proportion of e-liquids among online retailers that contain a mint or menthol flavour (n=36,945 e-liquids).



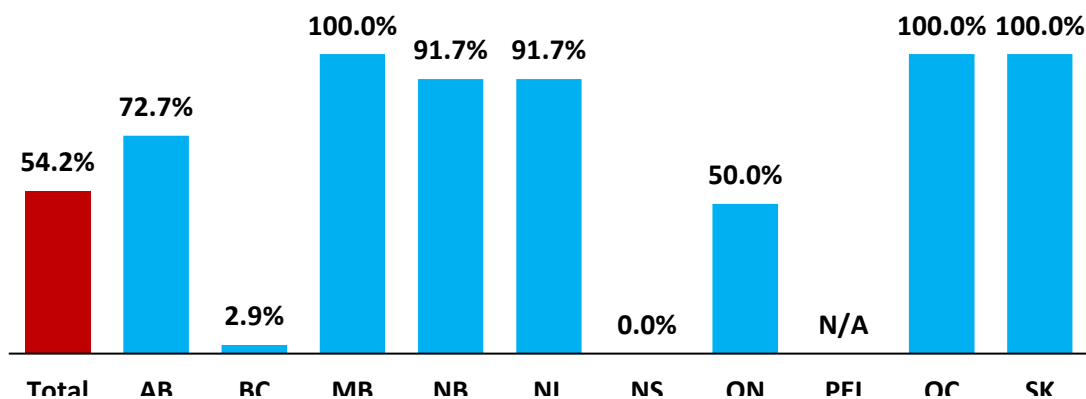
Frequencies are shown in Table S10.
 'Other' describes data that were not province-specific.

Figure 11. Proportion of vape shops that offered e-liquids containing a menthol flavour (n=169 stores).



Frequencies are shown in Table S9.

Figure 12. Proportion of gas/convenience stores that offered e-liquids containing a menthol flavour (n=119 stores).



Frequencies are shown in Table S9. Note that no gas/convenience stores in PEI sold e-liquids.

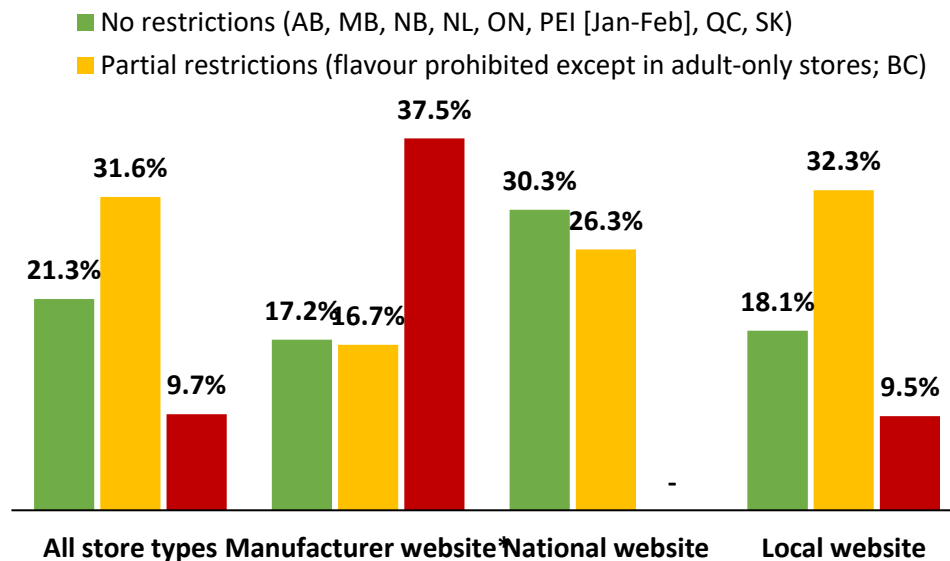
MINT/MENTHOL FLAVOURS BY PROVINCIAL POLICY STATUS

At the time of data collection, two provinces (Nova Scotia and Prince Edward Island [PEI]) had implemented full restrictions on the sale of mint/menthol e-cigarette products, and one province (British Columbia [BC]) had implemented partial restrictions, in which mint/menthol flavoured e-cigarette products could only be sold in adult-access stores.

ONLINE RETAILERS: MINT/MENTHOL FLAVOURS BY PROVINCIAL POLICY STATUS

Figure 13 shows the availability of mint/menthol flavoured e-liquids, by provincial policy status and store type. When aggregating data across all store types, 21% of all e-liquids offered were mint/menthol flavour in provinces with no mint/menthol flavour restrictions, while corresponding proportions were 32% among provinces with partial restrictions (allowed only in adult-only stores) and 10% among provinces with full restrictions (prohibited in all retail locations). Patterns were different when split by store type, such that a lack of compliance with the mint/menthol flavour ban was higher on manufacturer store websites (Figure 13). No e-liquid products were identified on national websites in Nova Scotia, or in PEI between March and May (after flavour bans were implemented). Overall, 10% of e-liquids identified in local stores where there were full restrictions did not comply.

Figure 13. Proportion of e-liquids among online retailers that were contain a mint or menthol flavour, by provincial policy status and store type (n=36,945 e-liquids).



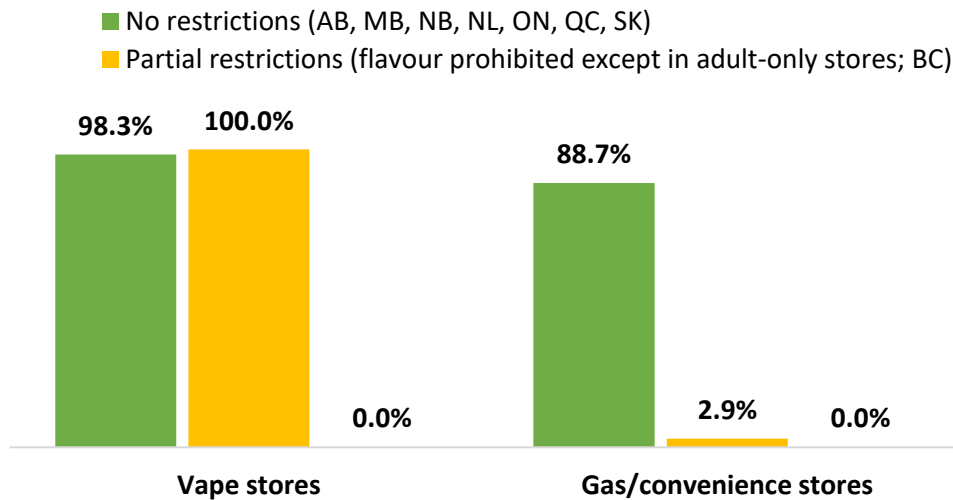
*Only brands Juul, Vuse/Vype, STLTH, ePuffer

- Indicates no e-liquids were identified as available for sale.
Frequencies are shown in Table S11.

BRICK-AND-MORTAR RETAILERS: MENTHOL FLAVOURS BY PROVINCIAL POLICY STATUS

Figure 14 shows the proportion of stores that offered menthol flavoured e-liquids, split by provincial policy status and store type. In vape stores (which were adult-only stores), 98% of stores in provinces with no restrictions offered e-liquids that have a menthol flavour, while corresponding proportions were 100% in provinces with partial restrictions (allowed only in adult-only stores), and 0% in provinces with full restrictions (prohibited in all retail locations). That is: all vape stores sampled complied with the menthol flavour ban in provinces where the limit was in place. In gas/convenience stores, 89% of stores in provinces with no restrictions offered e-liquids that have a menthol flavour while corresponding proportions were 3% in provinces with partial restrictions (allowed only in adult-only stores) and 0% in provinces with full restrictions (prohibited in all retail locations).

Figure 14. Proportion of vape shops (n=169 stores) and gas/convenience stores (n=119 stores) that offered e-liquids containing a menthol flavour, by provincial policy status and store type.



Frequencies are shown in Table S12.

PROVINCIAL DIFFERENCES IN FRUIT FLAVOURED E-LIQUIDS

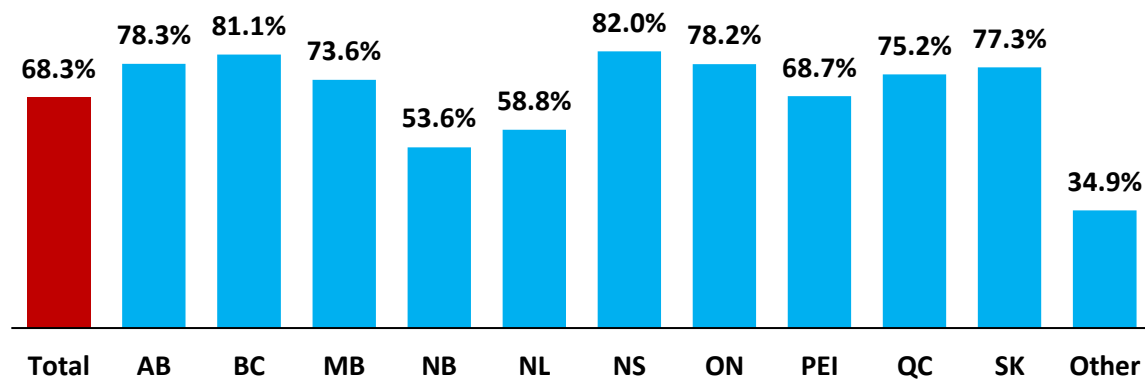
ONLINE RETAILERS: PROVINCIAL DIFFERENCES IN FRUIT FLAVOURED E-LIQUIDS

Figure 15 shows the availability of fruit flavoured e-liquids from online retailers, split by province. Overall, 68% of e-liquids available had a fruit flavour, and availability was highest in Nova Scotia (82%) and lowest in New Brunswick (54%). Table S13 shows the findings split by store type (manufacturer, national, local): the availability of fruit flavoured e-liquids was generally higher in the national store (75%) and lower in manufacturer stores (43%).

BRICK-AND-MORTAR RETAILERS: PROVINCIAL DIFFERENCES IN FRUIT FLAVOURED E-LIQUIDS

Figure 16 shows the proportion of vape shops, and Figure 17 shows the proportion of gas/convenience stores, that offered e-liquids that have a fruit flavour, split by province. Data are restricted to stores that sold e-cigarettes. Overall, 90% of vape shops and 49% of gas/convenience stores offered fruit flavoured e-liquids, although no vape shops or gas/convenience stores in Nova Scotia or PEI, and no gas/convenience stores in Ontario, sold e-liquids that have a fruit flavour.

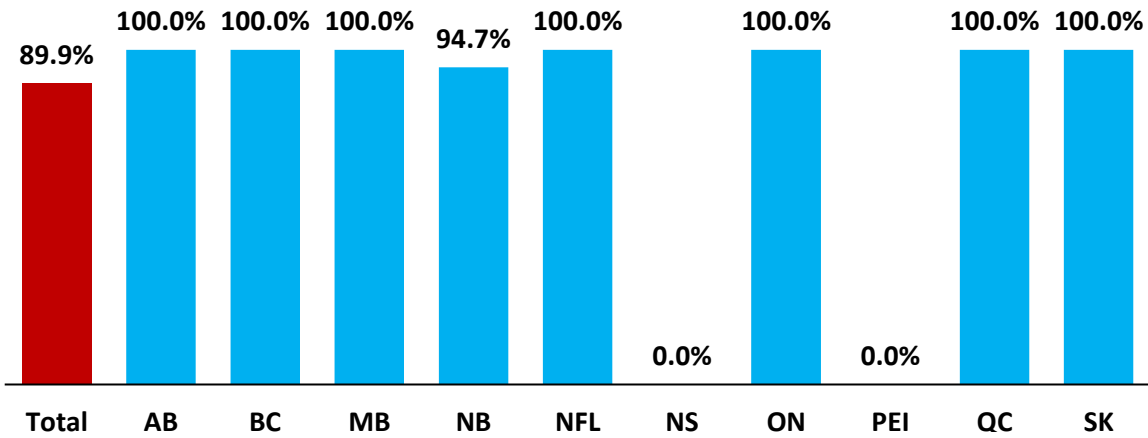
Figure 15. Proportion of e-liquids among online retailers that contain a fruit flavour (n=36,945 e-liquids).



Frequencies are shown in Table S13.

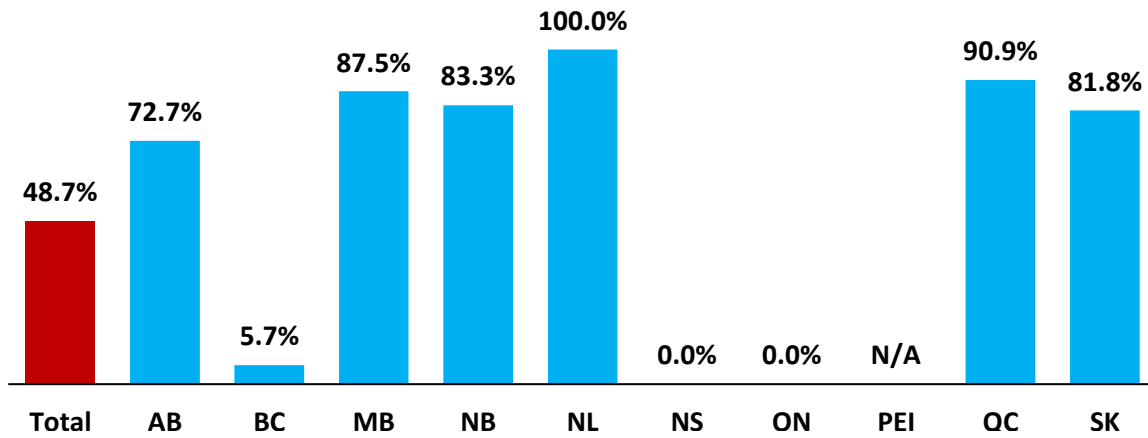
'Other' describes data that were not province-specific.

Figure 16. Proportion of vape shops that offered e-liquids containing a fruit flavour (n=169 stores).



Frequencies are shown in Table S9.

Figure 17. Proportion of gas/convenience stores that offered e-liquids containing a fruit flavour (n=119 stores).



Frequencies are shown in Table S9. Note that no gas/convenience stores in PEI sold e-liquids.

FRUIT FLAVOURS BY PROVINCIAL POLICY STATUS

At the time of data collection, two provinces (Nova Scotia and PEI) implemented full restrictions on the availability of all non-tobacco flavoured e-cigarette products (including fruit), and two provinces (BC and Ontario) had implemented partial restrictions in adult-only stores.

ONLINE RETAILERS: FRUIT FLAVOURS BY PROVINCIAL POLICY STATUS

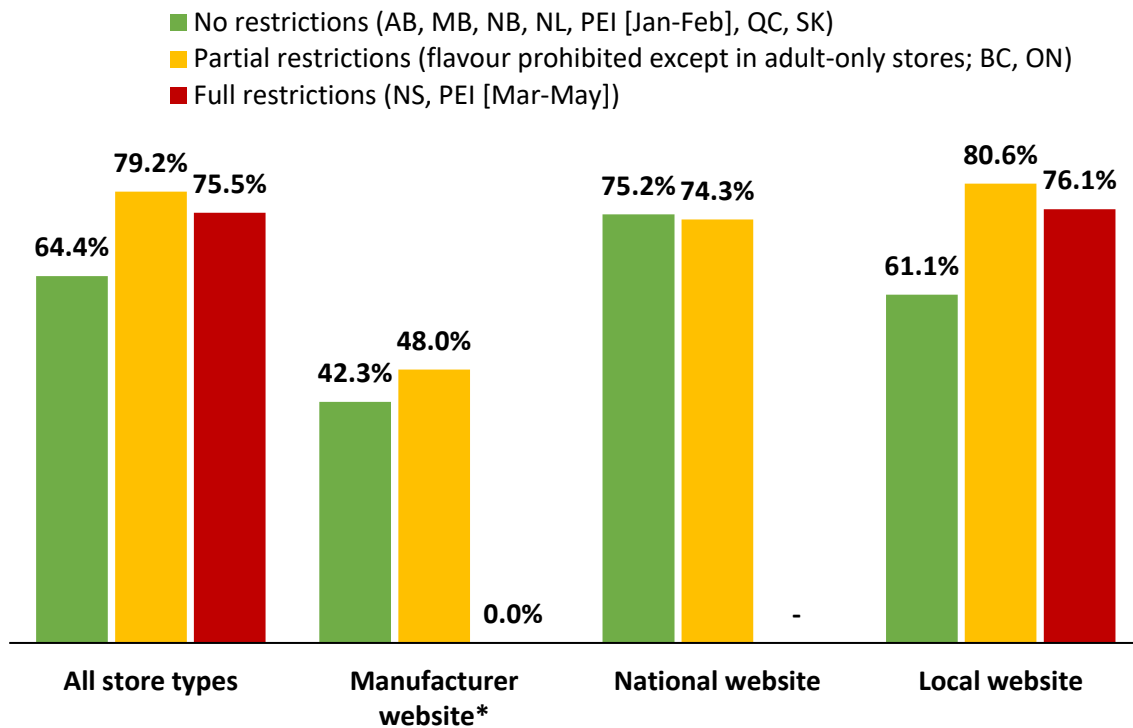
Figure 18 shows the availability of fruit flavoured e-liquids from online retailers, split by provincial policy status and store type. When aggregating data across all store types, 64% offered fruit flavoured e-liquids in provinces with no restrictions on non-tobacco flavours (including fruit), while corresponding proportions were 80% among provinces with partial restrictions (allowed only in adult-only stores), and 76% among provinces with full restrictions.

Patterns were similar when split by online retailer type although lack of compliance was restricted to manufacturer stores (**Figure 18**). No e-liquid products were identified on national websites in Nova Scotia, or in PEI between March and May (after flavour bans were implemented).

BRICK-AND-MORTAR RETAILERS: FRUIT FLAVOURS BY PROVINCIAL POLICY STATUS

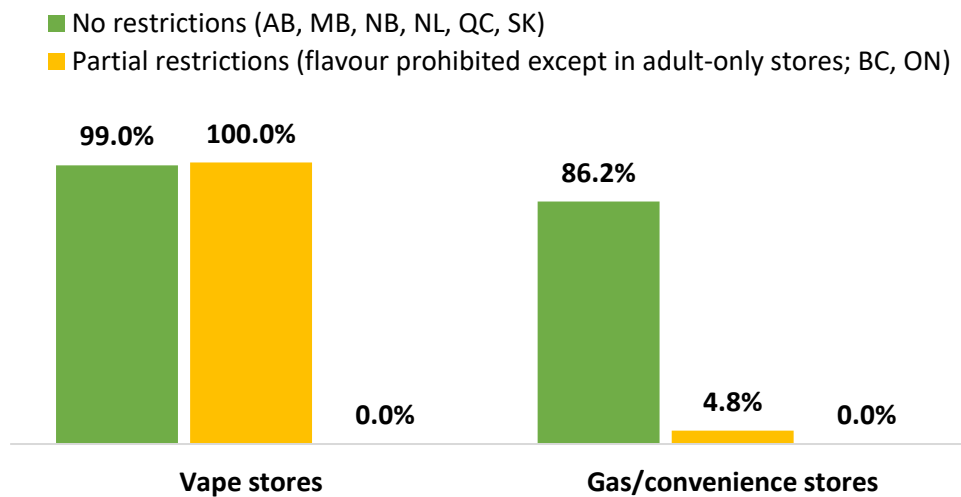
Figure 19 shows the proportion of brick-and-mortar stores that offered fruit flavoured e-liquids, split by provincial policy status and store type. In vape stores (which were adult-only stores), 99% of stores in provinces with no restrictions offered e-liquids that have a fruit flavour while corresponding proportions were 100% in provinces with partial restrictions (allowed only in adult-only stores) and 0% in provinces with full restrictions (prohibited in all retail locations). That is: all vape stores sampled complied with the fruit flavour ban in provinces where the ban was in place. In gas/convenience stores, 86% of stores in provinces with no restrictions offered e-liquids that have a menthol flavour while corresponding proportions were 5% in provinces with partial restrictions (allowed only in adult-only stores) and 0% in provinces with full restrictions (prohibited in all retail locations).

Figure 18. Proportion of e-liquids among online retailers that contain a fruit flavour, by provincial policy status and store type (n=36,945 e-liquids).



*Only brands Juul, Vuse/Vype, STLTH, ePuffer
 - indicates no e-liquids were identified as available for sale.
 Frequencies are shown in Table S14.

Figure 19. Proportion of vape shops (n=169 stores) and gas/convenience stores (n=119 stores) that offered e-liquids that contain a fruit flavour, by provincial policy status and store type.



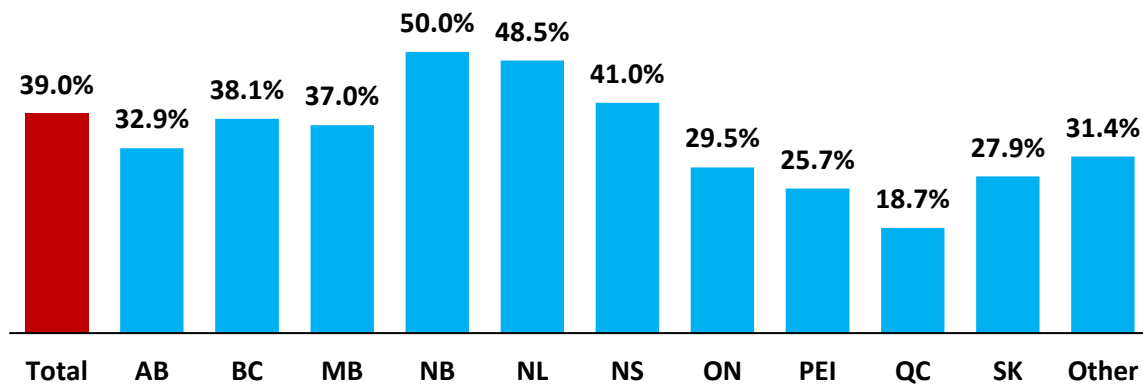
Frequencies are shown in Table S15 .

PROVINCIAL DIFFERENCES IN ‘OTHER’ NON-TOBACCO FLAVOURED E-LIQUIDS: CANDY, SPICE, COFFEE, NON-ALCOHOLIC DRINK, ALCOHOLIC DRINK, OTHER

Data on ‘other’ e-liquid flavours were only collected from online retailers and not collected from brick-and-mortar retailers.

Figure 20 shows the availability of e-liquids from online retailers offered with non-tobacco flavours, including candy, spice, coffee, a non-alcoholic or alcoholic drink, or other flavour, split by province. Overall, 39% of e-liquids available had at least one of these flavours, and availability was highest in New Brunswick (50%) and lowest in PEI (19%). Table S16 shows the findings split by online retailer type (manufacturer, national, local): the availability of e-liquids that contained a non-tobacco flavour, including candy, spice, coffee, a non-alcoholic or alcoholic drink, was generally higher in the local stores (44%) and lower in both the manufacturer (26%) and national (26%) stores.

Figure 20. Proportion of e-liquids among online retailers that contain a non-tobacco flavour that is candy, spice, coffee, a non-alcoholic or alcoholic drink, or other flavour (n=36,945 e-liquids).



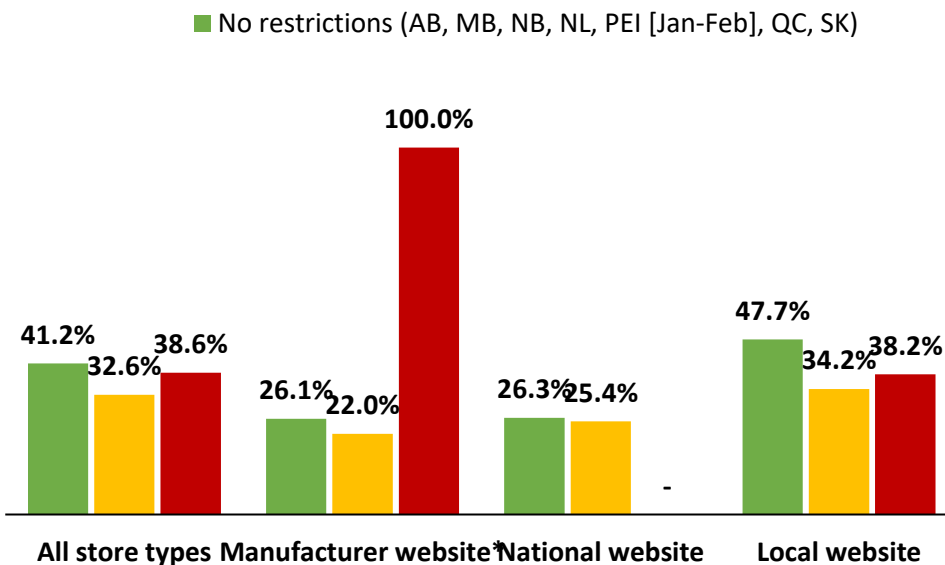
Frequencies are shown in Table S16.
 ‘Other’ describes data that were not province-specific.

'OTHER' NON-TOBACCO FLAVOURED E-LIQUIDS BY PROVINCIAL POLICY STATUS

As mentioned above, at the time of data collection, two provinces (Nova Scotia and PEI) implemented full restrictions on the availability of all non-tobacco flavoured e-cigarette products (including fruit), and two provinces (BC and Ontario) had implemented partial restrictions in adult-only stores.

Figure 21 shows the availability of e-liquids from online retailers that had a candy, spice, coffee, non-alcoholic or alcoholic drink, or other flavour, split by provincial policy status and store type. When aggregating data across all store types, 41% of all e-liquids offered had at least one of these flavours in provinces with no restrictions on non-tobacco flavours, while corresponding proportions were 33% among provinces with partial restrictions (allowed only in adult-only stores) and 39% among provinces with full restrictions (prohibited in all retail locations). That is: 39% of e-liquids identified in provinces with full restrictions on non-tobacco flavours did not comply. Patterns were different when split by store type such that a lack of compliance was predominantly in manufacturer stores although also present in local stores (Figure 21). No e-liquid products were identified on national websites in Nova Scotia, or in PEI between March and May (after flavour bans were implemented).

Figure 21. Proportion of e-liquids among online retailers that contain a non-tobacco flavour that is candy, spice, coffee, a non-alcoholic or alcoholic drink, or other flavour by provincial policy status and store type (n=36,945 e-liquids).



*Only brands Juul, Vuse/Vype, STLTH, ePuffer
 - indicates no e-liquids were identified as available for sale.
 Frequencies are shown in Table S17.

DISCUSSION

PRODUCT AVAILABILITY AND CHANGES SINCE 2020

As with our previous 2020 scan [1,2], the findings from the current retail scan depict a diverse vaping market in Canada with respect to the types of e-liquid products available. Scans of online retailers identified thousands of unique e-liquids available for sale across 307 distinct brands.

Also similar to our 2020 scan [1,2], e-liquids in Canada contained a wide range of nicotine concentrations. In 2021, a maximum nicotine concentration of 60mg/mL was identified in both the scan of online retailers and phone scan of brick-and-mortar retailers. This is similar to the 2020 scan, where the maximum nicotine concentration identified was 65 mg/mL [1,2].

In this online scan, the majority of e-liquid products (62%) had one visible flavour descriptor while 38% had two or more. Consistent with the 2020 scan [1,2], fruit was the most common flavour, followed by mint/menthol then candy/sweet flavours. The flavour distribution was also consistent with population-based surveys, in which adult and youth vapers are most likely to report using fruit flavoured e-liquids [5,6]. The 2021 phone scan of brick-and-mortar retailers only assessed the availability of two flavours, fruit and menthol, which were both available in at least half of stores sampled.

PROVINCIAL REGULATIONS

The nicotine concentrations and flavours of vaping products that were available for sale differed by provincial policies.

Regarding nicotine concentrations, provinces that fully restricted the sale of vaping products over 20mg/mL offered a lower proportion of those products both online and in brick-and-mortar stores. For example, 14% of e-liquids among online retailers were over 20mg/mL where full restrictions were in place compared with 29% in provinces with no restrictions. Similar patterns were seen among brick-and-mortar stores. Findings therefore suggest that full restrictions have reduced the availability of higher-strength e-liquids at the provincial level, but that some retailers continued to sell e-liquids that did not comply with provincial nicotine limits.

However, patterns were different for flavour restrictions. Although compliance with full flavour restrictions was high among brick-and-mortar stores (0% reported selling non-compliant products), compliance was low among online retailers. For example, 76% of e-liquids among online retailers contained a fruit flavour in provinces with full restrictions, and this was higher than in provinces with no restrictions (64%). Strong compliance with flavour restrictions in brick-and-mortar retailers may

be associated with greater non-compliance online because of an ongoing demand for flavoured e-cigarette products and because enforcement is more difficult for online sources. This pattern is particularly prominent in Nova Scotia, which was the first province to have a full ban on all non-tobacco flavoured e-liquids and had complete compliance in all brick-and-mortar retailers surveyed but the highest availability of fruit flavoured e-liquids online (82%).

In the online scan, lack of compliance with nicotine limits and flavour bans was higher among manufacturer websites, followed by the local websites, but minimal among national websites. However, the estimates for lack of compliance in manufacturer websites must be treated with caution due to low overall numbers of vaping products available for sale. Findings were different for fruit flavours, such that lack of compliance was restricted to local websites only.

Gas/convenience stores were found to have high compliance with partial restrictions to adult only stores in provinces with restrictions on nicotine limits and/or flavours. However, online retailers were found to have a greater or similar proportion of e-liquids that did not comply with nicotine limits and/or flavour bans than provinces with no restrictions. It is possible that partial restrictions on nicotine and flavours to adult-only stores have shifted e-cigarette markets online and away from gas/convenience stores.

LIMITATIONS

The current scan did not randomly sample e-liquids available on the Canadian market. However, a large number of products were identified and we scanned national websites, local websites, and the websites of the top 4 leading brands among youth and adult vapers in Canada [3,4].

For the online scan, product availability was determined based on the information that was displayed on e-cigarette retailer websites, either via webscraping or manual data collection by Research Assistants. Webscraping is limited in that it cannot collect data present on images which were often displayed on websites that may have contained additional information on nicotine profile and flavour. Coding of attributes such as flavour categories is also subject to human error; however, inter-coder reliability was high at 91%. It is also possible that, despite the information on retailer websites, some stores may have refused to ship products to jurisdictions in which they were prohibited; we did not verify this.

Some data collection occurred during the implementation period for new policies (e.g., PEI prohibited all non-tobacco flavours mid-way through data collection). While the precise date of data collection was used in cases where data within a province spanned both pre- and post-implementation periods, some retailers may have begun changing their websites and the products available prior to implementation.

Finally, the scan did not consider vaping devices that were sold without e-liquid. Future studies may wish to characterize how vaping devices may be changing, including in regard to product specifications such as heating temperature and coil and wick components which can influence emissions [7].

CONCLUDING REMARKS

In Canada, federal and provincial regulations are influencing the e-cigarette retail market. Compliance with full restrictions on maximum nicotine concentrations and flavours appears to be high overall but is noticeably notably lower among online stores compared to brick-and-mortar stores. The market may also respond to partial flavour restrictions in adult-only stores through shifting the sale of higher-strength and flavoured e-liquids online.

Findings highlight the challenge of regulatory compliance of e-liquids in online settings. One such strategy to reduce youth access to e-cigarette products online could be to mandate formal age verification processes to access e-cigarette retail websites. No websites included in the online scan had age verification procedures that were more advanced than selecting a box to confirm that the person accessing the site was above the legal purchasing age.

To complement and extend this work, population-based surveys will be important to understand how consumer preferences and patterns of use may have changed over the same period.

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7. Ward AM, Yaman R, Ebbert JO. Electronic nicotine delivery system design and aerosol toxicants: A systematic review. *PLoS One*. 2020;15(6):e0234189. doi: 10.1371/journal.pone.0234189.

SUPPLEMENTARY MATERIALS

Protocol for the telephone scan of brick-and-mortar retailers

Hi – I’m [name] and I’m helping to run a research project at The University of Waterloo about vaping. We’re trying to learn more about what kinds of vapes are available. Would you mind answering a few questions about the products that you have?

CONVENIENCE AND GAS STORES

1. Do you sell e-cigarettes or vapes? (yes/no)
2. What brands do you carry? (enter each brand they carry)
 - a. If they say they carry many brands but aren’t specific, ask ‘Do you carry Juul or Vype?’ (Enter these brands if they say yes)
3. What is the highest nicotine level you carry? (enter % or mg/ml)
 - a. If they don’t know, ask ‘Do you have anything over 2% (or 20mg/ml)?’
4. Do you sell any that come in fruit flavours? (yes/no)
5. Do you sell any that come in menthol? (yes/no)
6. [Ontario, New Brunswick, and BC stores only]: Do you have to be 19 years or older to enter the store?
[PEI stores only]: Do you have to be 21 years or older to enter the store?

VAPE SHOPS

1. What brands of e-cigarettes do you carry? (enter each brand they carry)
 - a. If they say they carry many brands but aren’t specific, ask ‘Do you carry Juul or Vype?’ (Enter these brands if they say yes)
2. What is the highest nicotine level you carry? (enter % or mg/ml)
 - a. If they don’t know, ask ‘Do you have anything over 2% (or 20mg/ml)?’
3. Do you sell any that come in fruit flavours? (yes/no)
4. Do you sell any that come in menthol? (yes/no)
5. [Ontario, New Brunswick, and BC stores only]: Do you have to be 19 years or older to enter the store?
[PEI stores only]: Do you have to be 21 years or older to enter the store?

Table S1. Online scan: Of the top brands that were available for sale in Canada, where were they sold and did the availability vary across provinces?

	National	AB	BC	MB	NB	NL	NS	ON	PEI	QC	SK
Manufacturer website											
Juul ¹	-	Y	Y	Y	Y	Y	Y	Y	Y	N	Y
Vuse/Vype ¹	-	Y	Y	Y	Y	Y	N	Y	Y	N	Y
STLTH ²	Y	-	-	-	-	-	-	-	-	-	-
ePuffer ²	Y	-	-	-	-	-	-	-	-	-	-
National website											
Vuse/Vype	-	Y	Y	Y	Y	Y	N	Y	Y	Y	Y
Smok	-	Y	Y	Y	Y	Y	N	Y	Y	Y	Y
Other	-	Y	Y	Y	Y	Y	N	Y	Y	Y	Y
Local website											
Juul	-	Y	Y	N	N	N	N	Y	N	N	N
Vuse/Vype	-	N	Y	Y	Y	N	N	Y	Y	N	Y
STLTH	-	Y	Y	Y	Y	Y	Y	Y	Y	N	Y
Smok	-	N	N	N	N	N	N	N	N	N	N
Puff	-	N	N	Y	N	N	N	Y	N	N	N
Other	-	Y	Y	Y	Y	Y	Y	Y	Y	N	Y

¹ Content of manufacture website varied based on the province selected.

² Content of manufacture website did not vary based on the province selected

Table S2. Online scan: List of brands available in each province, organized by availability across provinces.

Brand	Number of provinces	AB	BC	MB	NB	NL	NS	ON	PEI	QC	SK
12 monkeys	10	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
koil killaz	10	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
lix	10	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
naked100	10	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
180 smoke	9	Y	Y	Y	Y	Y		Y	Y	Y	Y
ace	9	Y	Y	Y	Y	Y		Y	Y	Y	Y
all day vapor	9	Y	Y	Y	Y	Y		Y	Y	Y	Y
allo	9	Y	Y	Y	Y	Y		Y	Y	Y	Y
aspire	9	Y	Y	Y	Y	Y		Y	Y	Y	Y
brite	9	Y	Y	Y	Y	Y		Y	Y	Y	Y
charlie's chalk dust	9	Y	Y	Y	Y	Y		Y	Y	Y	Y
coastal clouds	9	Y	Y	Y	Y	Y		Y	Y	Y	Y
envi	9	Y	Y	Y	Y	Y		Y	Y	Y	Y
illusions	9	Y	Y	Y	Y	Y		Y	Y	Y	Y
innokin	9	Y	Y	Y	Y	Y		Y	Y	Y	Y
llx	9	Y	Y	Y	Y	Y		Y	Y	Y	Y
lost vape	9	Y	Y	Y	Y	Y		Y	Y	Y	Y
met4	9	Y	Y	Y	Y	Y		Y	Y	Y	Y
nasty juice	9	Y	Y	Y	Y	Y		Y	Y	Y	Y
one vape	9	Y	Y	Y	Y	Y		Y	Y	Y	Y
ovns	9	Y	Y	Y	Y	Y		Y	Y	Y	Y
relx	9	Y	Y	Y	Y	Y		Y	Y	Y	Y
salt fizz e-juice	9	Y	Y	Y	Y	Y		Y	Y	Y	Y
salt nix	9	Y	Y	Y	Y	Y		Y	Y	Y	Y
smok	9	Y	Y	Y	Y	Y		Y	Y	Y	Y
smoking vapor	9	Y	Y	Y	Y	Y		Y	Y	Y	Y
snowplus	9	Y	Y	Y	Y	Y		Y	Y	Y	Y
stlth vape kits & pods	9	Y	Y	Y	Y	Y		Y	Y	Y	Y
suorin	9	Y	Y	Y	Y	Y		Y	Y	Y	Y
twist	9	Y	Y	Y	Y	Y		Y	Y	Y	Y
uwell	9	Y	Y	Y	Y	Y		Y	Y	Y	Y
vandy	9	Y	Y	Y	Y	Y		Y	Y	Y	Y
voopoo	9	Y	Y	Y	Y	Y		Y	Y	Y	Y

Brand	Number of provinces	AB	BC	MB	NB	NL	NS	ON	PEI	QC	SK
vuse(vype)	9	Y	Y	Y	Y	Y		Y	Y	Y	Y
wet e-juice	9	Y	Y	Y	Y	Y		Y	Y	Y	Y
juul	9	Y	Y	Y	Y	Y	Y	Y	Y		Y
stlth	9	Y	Y	Y	Y	Y	Y	Y	Y		Y
cactus e-liquid (vlabs)	8	Y	Y	Y	Y	Y		Y	Y		Y
eleaf	8	Y		Y	Y	Y		Y	Y	Y	Y
geekvape	8	Y		Y	Y	Y		Y	Y	Y	Y
glas	8	Y		Y	Y	Y		Y	Y	Y	Y
grind	8	Y		Y	Y	Y		Y	Y	Y	Y
juno (twelve vapor)	8	Y		Y	Y	Y		Y	Y	Y	Y
justfog	8	Y		Y	Y	Y		Y	Y	Y	Y
sigelei	8	Y		Y	Y	Y		Y	Y	Y	Y
vapetasia	8	Y	Y	Y	Y	Y		Y	Y		Y
vapresso	8	Y		Y	Y	Y		Y	Y	Y	Y
vapour artisans e-liquids	8	Y		Y	Y	Y		Y	Y	Y	Y
7 monks e-liquids	7	Y		Y	Y	Y		Y	Y		Y
big boy vape co	7	Y		Y	Y	Y		Y	Y		Y
cannoli e-liquids	7	Y		Y	Y	Y		Y	Y		Y
e-fizz e-liquids	7	Y		Y	Y	Y		Y	Y		Y
fresh farms e-liquid	7	Y		Y	Y	Y		Y	Y		Y
ghost	7	Y	Y	Y	Y	Y		Y			Y
lemon drop	7	Y	Y	Y		Y	Y	Y			Y
maddog	7	Y		Y	Y	Y		Y	Y		Y
maven e-liquids	7	Y		Y	Y	Y		Y	Y		Y
og juice e-liquids	7	Y		Y	Y	Y		Y	Y		Y
13th floor elevapors	6	Y		Y		Y		Y	Y		Y
fruitbae	6	Y	Y	Y		Y	Y	Y			
vital	6	Y	Y			Y	Y	Y			Y
chill	5	Y	Y				Y	Y			Y
kapow	5	Y	Y			Y	Y	Y			
ultimate	5	Y		Y		Y		Y			Y
berry drop	4	Y	Y				Y	Y			
blackwood	4	Y	Y				Y	Y			
decoded	4					Y	Y	Y			Y

Brand	Number of provinces	AB	BC	MB	NB	NL	NS	ON	PEI	QC	SK
dr fog	4	Y						Y	Y		Y
labo lvs	4					Y	Y		Y		Y
rope cut	4	Y				Y		Y			Y
ruthless	4	Y	Y				Y	Y			
skwezed	4	Y	Y	Y				Y			
sorbae	4	Y	Y	Y				Y			
sovereign	4	Y	Y				Y	Y			
splashy	4	Y		Y		Y		Y			
suavae	4	Y	Y				Y	Y			
ultra	4	Y					Y	Y			Y
7 daze	3		Y		Y			Y			
aqua	3	Y				Y		Y			
black mamba	3	Y		Y				Y			
don cristo	3	Y						Y			Y
hope	3					Y	Y				Y
japello	3					Y	Y				Y
loaded	3	Y			Y			Y			
mind blown vape	3	Y		Y				Y			
pachamama	3		Y					Y			Y
peak	3		Y			Y	Y				
riot squad	3			Y		Y		Y			
ripe vapes	3	Y	Y					Y			
shinjin	3					Y	Y				Y
smax	3	Y					Y	Y			
softie	3	Y	Y					Y			
vape time	3	Y					Y	Y			
1hundred	2	Y						Y			
air factory	2	Y	Y								
banana butt	2	Y						Y			
beard vape co	2	Y						Y			
brew house	2	Y						Y			
cassadaga	2	Y						Y			
cloud haven	2	Y									Y
crave	2		Y					Y			
daily drip	2			Y				Y			

Brand	Number of provinces	AB	BC	MB	NB	NL	NS	ON	PEI	QC	SK
dinner lady	2				Y			Y			
drip social	2	Y						Y			
exotix	2	Y						Y			
filthy	2	Y	Y								
fugu	2		Y	Y							
harleys	2	Y			Y						
ivg	2	Y			Y						
khree	2									Y	Y
lemon killaz	2	Y						Y			
marco polo	2	Y		Y							
mbv	2	Y						Y			
myle	2	Y		Y							
nikki	2		Y			Y					
oro	2	Y						Y			
pgvg labs	2		Y			Y					
puff	2			Y				Y			
rad	2				Y	Y					
rwb	2		Y	Y							
savage	2					Y	Y				
social salt	2						Y	Y			
soi	2					Y	Y				
sour master	2	Y						Y			
sucker punch	2		Y					Y			
the juice punk	2						Y				Y
tobac no7	2	Y					Y				
true northern	2	Y		Y							
usa vape lab	2		Y					Y			
vape and beyond	2				Y	Y					
3 baccos	1	Y									
3 titans	1	Y									
4 stroke	1										Y
416 vapes	1							Y			
80v e-liquid	1	Y									
airvape	1			Y							
alchemist labs	1										Y

Brand	Number of provinces	AB	BC	MB	NB	NL	NS	ON	PEI	QC	SK
archer e-liquid	1	Y									
avalon vapor	1					Y					
bamboo s-pod	1							Y			
bazooka sour straw	1	Y									
bb vapes	1			Y							
bloko vape stick	1							Y			
bold & gold	1							Y			
bottom of the bowl	1										Y
brewsky	1										Y
bubble gang	1			Y							
bubbles	1							Y			
buhl's root beer	1	Y									
burst e-liquid	1	Y									
cactus drops	1	Y									
cali bars x	1							Y			
canada eclouds	1							Y			
canada vape lab	1			Y							
choco cow	1	Y									
clouds juice division	1		Y								
clarity liquids	1	Y									
classic e-juice	1	Y									
cloud connoisseurs	1	Y									
cloud remedy	1		Y								
clouds	1		Y								
cola man	1	Y									
confectionist	1			Y							
cop salt	1							Y			
country clouds	1							Y			
crazy juice	1							Y			
darkside or dsv creations	1										Y
dave's finest	1							Y			
decoded eliquid	1	Y									
decoded salt	1	Y									
dose	1				Y						

Brand	Number of provinces	AB	BC	MB	NB	NL	NS	ON	PEI	QC	SK
drag 2-in-1	1							Y			
drag xxl 2000 puffs	1							Y			
dragon slayer	1							Y			
dripflavors	1	Y									
drippers paradise	1										Y
dvine eliquid	1	Y									
element eliquid	1	Y									
escape pods	1		Y								
evercloud	1							Y			
excision	1	Y									
exile eliquids	1	Y									
famous fair	1							Y			
fizzy	1							Y			
flamingo vape	1			Y							
flavour crafters	1		Y								
fogunit	1		Y								
food fighter	1	Y									
freak out and vape	1							Y			
french press	1							Y			
fresh pressed	1	Y									
fuspod	1		Y								
gemini	1			Y							
gogo juice	1					Y					
golden cloud	1		Y								
good times e-liquid	1		Y								
graham slam	1	Y									
great canadian fog	1							Y			
high roller	1							Y			
hm vapes	1	Y									
hot sips	1							Y			
hundred	1							Y			
hygge bar disposables	1							Y			
impact by cntrl labs	1		Y								
indulge	1		Y								

Brand	Number of provinces	AB	BC	MB	NB	NL	NS	ON	PEI	QC	SK
inspired vapor company	1										Y
jam monster	1	Y									
jazzy boba	1		Y								
joy	1	Y									
jsc house juice	1								Y		
juicy	1						Y				
just	1			Y							
keep it 100 e-liquids	1							Y			
kilo sour	1							Y			
kloud panda	1	Y									
koi	1	Y									
kvndi	1	Y									
lec	1	Y									
lee's e-liquids	1	Y									
level	1			Y							
level up	1		Y								
liberty reserve e-liquid	1	Y									
light matter	1			Y							
loon bullet	1							Y			
lost art	1			Y							
mad hatter	1							Y			
madman	1										Y
maple leaf vapes	1						Y				
mark-it	1		Y								
menthol institution	1			Y							
milkshake liquids	1							Y			
mistress	1			Y							
mo-ment	1			Y							
montreal original	1							Y			
moti	1		Y								
myst	1		Y								
nautilus	1					Y					
nic-it	1							Y			
nixalted	1		Y								

Brand	Number of provinces	AB	BC	MB	NB	NL	NS	ON	PEI	QC	SK
noms ejuice	1	Y									
og classic	1							Y			
ohm boy	1							Y			
okvmi	1			Y							
one 100	1							Y			
one hit wonder salts	1							Y			
oro eliquid	1	Y									
peer eliquids	1		Y								
peterson's	1							Y			
phillip rocke	1			Y							
pikasso vapes	1		Y								
pirmal pipe	1		Y								
podz	1							Y			
pop	1							Y			
premium labs	1	Y									
proost	1					Y					
puff labs	1			Y							
rare	1							Y			
razz + jazz	1				Y						
react salt	1						Y				
reds apple	1	Y									
refill	1							Y			
refresh e-juice	1		Y								
republic	1					Y					
rockt punch	1			Y							
ropecut	1							Y			
salt box	1		Y								
salt cellar	1	Y									
salt worx	1					Y					
simply nic salts	1						Y				
spectrum	1							Y			
stig	1							Y			
sub ohm invasion	1							Y			
summer holidays eliquid	1	Y									

Brand	Number of provinces	AB	BC	MB	NB	NL	NS	ON	PEI	QC	SK
svrf	1	Y									
tasty boy	1							Y			
tdaawg	1										Y
tea house	1			Y							
teleos	1			Y							
the clique eliquid	1	Y									
the grail	1	Y									
the masaman	1							Y			
the milkman	1							Y			
the ratio	1			Y							
theravape	1			Y							
toronto juice co	1							Y			
travellers finest	1			Y							
tugpod	1							Y			
tvf	1								Y		
u-turn	1	Y									
van mist vapor co	1		Y								
vango	1	Y									
vape breakfast classics	1	Y									
vape evasion	1							Y			
vape pink	1							Y			
vape shot	1				Y						
vapetime eliquid	1	Y									
vapor maid	1						Y				
vapormaid	1	Y									
veritas	1			Y							
via	1					Y					
viscount	1			Y							
yogi	1							Y			
z pods	1							Y			
zabba	1						Y				
ziip	1	Y									
zuur	1					Y					
ePuffer ¹	-										

¹ National manufacturer store (content did not vary by province)

Table S3. Phone scan: List of brands available in each province, organized by availability across provinces.

Brand	Number of provinces	AB	BC	MB	NB	NL	NS	ON	PEI	QC	SK
aspire	10	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
juul	10	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
logic	10	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
smok	10	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
stlth	10	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
uwell	10	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
vuse/vype	10	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
geekvape	9	Y	Y	Y	Y	Y	Y		Y	Y	Y
vapresso	9	Y	Y	Y	Y	Y	Y	Y		Y	Y
voopoo	9	Y	Y	Y	Y	Y	Y	Y		Y	Y
allo	8	Y	Y	Y	Y	Y		Y		Y	Y
ghost	8	Y	Y	Y	Y	Y		Y		Y	Y
caliburn	7	Y	Y		Y		Y	Y		Y	Y
freemax	7	Y	Y		Y	Y	Y			Y	Y
aegis	5		Y	Y	Y	Y				Y	
envi	5		Y		Y	Y		Y		Y	
innokin	5	Y			Y		Y	Y		Y	
lost vape	4	Y		Y						Y	Y
puff bar	4	Y	Y	Y				Y			
blu	3	Y	Y			Y					
eleaf	3				Y		Y			Y	
horizon	3	Y					Y			Y	
kangertech	3	Y	Y	Y							
nikki	3				Y	Y				Y	
elise	2		Y								Y
imperial	2	Y					Y				
kick	2	Y	Y								
lemon drop	2			Y				Y			
motii pen	2	Y	Y								
NiC-IT	2							Y		Y	
smoant	2	Y									Y
Aoros	1					Y					
boost	1										Y

Brand	Number of provinces	AB	BC	MB	NB	NL	NS	ON	PEI	QC	SK
boxer	1										Y
caliber	1		Y								
deep	1						Y				
dinner lady	1		Y								
endura	1				Y						
evape	1				Y						
fruitbae	1			Y							
grillex	1		Y								
heat	1	Y									
hellvape	1	Y									
hexo	1	Y									
hometech	1		Y								
iKON	1				Y						
illusions	1							Y			
indican	1							Y			
IPV	1		Y								
japellos	1										Y
jomo	1				Y						
joytech	1	Y									
justfog	1									Y	
leaf touch	1			Y							
limitless	1		Y								
lix	1		Y								
marley	1					Y					
twelve monkeys	1							Y			
myle	1										Y
nasty	1		Y								
nicy	1			Y							
nitecore	1		Y								
obs	1	Y									
oni	1										Y
piper bar	1	Y									
prana	1			Y							
relic	1									Y	
relx	1		Y								

Brand	Number of provinces	AB	BC	MB	NB	NL	NS	ON	PEI	QC	SK
rigel	1				Y						
soverign	1			Y							
stig	1							Y			
suorin	1						Y				
tdaawg	1										Y
tech	1		Y								
vandy	1		Y								
vapor	1							Y			
vaporlax	1		Y								
vigo	1		Y								
vpur	1						Y				
west coast ejuice	1		Y								
wismec	1										Y
xros	1							Y			
zen	1					Y					

Table S4. Online scan: Availability of nicotine concentrations >20mg/ml in Canada overall and by province.

	Total	AB	BC	MB	NB	NL	NS	ON	PEI	QC	SK	Not province-specific
All stores	36,184	4,241	3,090	3,026	9,776	4,735	956	5,636	1,160	598	2,653	313
Nicotine concentrations >20mg/ml offered?	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
N (%) of products that are >20mg/ml	10631 (29.4%)	953 (22.5%)	254 (8.2%)	903 (29.8%)	3002 (30.7%)	1205 (25.4%)	311 (32.5%)	2391 (42.4%)	375 (32.3%)	190 (31.8%)	930 (35.1%)	117 (37.4%)
Manufacturer website¹	877	76	24	76	76	76	8	76	76	0	76	313
Nicotine concentrations >20mg/ml offered?	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y
N (%) of products that are >20mg/ml	473 (53.9%)	50 (65.8%)	0 (0%)	50 (65.8%)	50 (65.8%)	50 (65.8%)	6 (75%)	50 (65.8%)	50 (65.8%)	-	50 (65.8%)	117 (37.4%)
National website	7,755	990	241	997	946	998	0	991	997	598	997	0
Nicotine concentrations >20mg/ml offered?	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	N
N (%) of products that are >20mg/ml	2442 (31.5%)	324 (32.7%)	3 (1.2%)	324 (32.5%)	298 (31.5%)	329 (33%)	-	324 (32.7%)	325 (32.6%)	190 (31.8%)	325 (32.6%)	-
Local website	27,552	3,175	2,825	1,953	8,754	3,661	948	4,569	87	0	1,580	0
Nicotine concentrations >20mg/ml offered?	Y	Y	Y	Y	Y	Y	Y	Y	N	N	Y	N
N (%) of products that are >20mg/ml	7716 (28.0%)	579 (18.2%)	251 (8.9%)	529 (27.1%)	2654 (30.3%)	826 (22.6%)	305 (32.2%)	2017 (44.1%)	0 (0%)	-	555 (35.1%)	-

¹Only brands Juul, Vuse/Vype, STLTH, ePuffer

Table S5. Phone scan: Availability of nicotine concentrations >20mg/ml in Canada overall and by province.

	Total	AB	BC	MB	NB	NL	NS	ON	PEI	QC	SK
Vape shop, N	169	16	38	17	19	11	11	13	5	19	20
Nicotine concentrations >20mg/ml offered?	Y	Y	N	Y	Y	Y	N	Y	Y	Y	Y
N (%) of stores that offer >20mg/ml	112 (66.3)	16 (100)	0 (0)	17 (100)	15 (78.9)	10 (90.9)	0 (0)	12 (92.3)	5 (100)	18 (94.7)	19 (95)
Gas/convenience store, N	119	11	35	8	12	12	12	7	0	11	11
Nicotine concentrations >20mg/ml offered?	Y	Y	Y	Y	Y	Y	N	N	N	Y	Y
N (%) of stores that offer >20mg/ml	67 (56.3)	11 (100)	3 (8.6)	8 (100)	12 (100)	12 (100)	0 (0)	0 (0)	-	11 (100)	10 (90.9)

- indicates no e-liquids were identified as available for sale.

Table S6. Online scan: Availability of nicotine concentrations >20mg/ml in Canada by provincial policy status at the time of data collection

	No restrictions (AB, MB, NB, NL, PEI, QC, SK)	Partial restrictions (nicotine limit except in adult- only stores; ON)	Full restrictions (BC, NS)
All stores	26,502	5,636	4,046
Nicotine concentrations >20mg/ml offered?	Y	Y	Y
N (%) of products that are >20mg/ml	7675 (29.0%)	2391 (42.4%)	565 (14.0%)
Manufacturer website¹	769	76	32
Nicotine concentrations >20mg/ml offered?	Y	Y	Y
N (%) of products that are >20mg/ml	417 (54.2%)	50 (65.8%)	6 (18.8%)
National website	6,523	991	241
Nicotine concentrations >20mg/ml offered?	Y	Y	Y
N (%) of products that are >20mg/ml	2115 (32.4%)	324 (32.7%)	3 (1.2%)
Local website	19,210	4,569	3,773
Nicotine concentrations >20mg/ml offered?	Y	Y	Y
N (%) of products that are >20mg/ml	5143 (26.8%)	2017 (44.1%)	556 (14.7%)

¹Only brands Juul, Vuse/Vype, STLTH, ePuffer

Table S7. Phone scan: Availability of nicotine concentrations >20mg/ml in Canada by provincial policy status at the time of data collection

	No restrictions (AB, MB, NB, NL, PEI, QC, SK)	Partial restrictions (nicotine limit except in adult- only stores; ON)	Full restrictions (BC, NS)
Vape shop, N	107	13	49
Nicotine concentrations >20mg/ml offered?	Y	Y	N
N (%) of stores that offer >20mg/ml	100 (93.5%)	12 (92.3%)	0 (0%)
Gas/convenience store, N	65	7	47
Nicotine concentrations >20mg/ml offered?	Y	N	Y
N (%) of stores that offer >20mg/ml	64 (98.5%)	0 (0%)	3 (6.4%)

Table S8. Online scan: Flavour of e-liquids offered in Canada (n=36,184). Note that flavour categories are not mutually exclusive, i.e., e-liquids could have a fruit and menthol flavour.

	N	%
Fruit	25,726	70%
Mint/menthol	8,225	22%
Candy/chocolate/desserts/sweets	8,009	22%
Other	3,918	11%
Non-alcoholic drink	2,972	8%
Tobacco	2,807	8%
Spice (including cinnamon and vanilla)	1,107	3%
Alcoholic drink	826	2%
Unflavoured	429	1%
Tobacco menthol	293	1%
Coffee	293	1%

Table S9. Phone scan: Availability of menthol and fruit flavoured e-cigarette products in Canada overall and by province.

	Total	AB	BC	MB	NB	NL	NS	ON	PEI	QC	SK
Vape shop, N	169	16	38	17	19	11	11	13	5	19	20
Menthol											
Is menthol offered?	Y	Y	Y	Y	Y	Y	N	Y	N	Y	Y
N (%) of stores that offer menthol	151 (89.3%)	16 (100%)	38 (100%)	17 (100%)	18 (94.7%)	10 (90.9%)	0 (0%)	13 (100%)	0 (0%)	19 (100%)	20 (100%)
Fruit											
Is fruit offered?	Y	Y	Y	Y	Y	Y	N	Y	N	Y	Y
N (%) of stores that offer fruit	152 (89.9%)	16 (100%)	38 (100%)	17 (100%)	18 (94.7%)	11 (100%)	0 (0%)	13 (100%)	0 (0%)	19 (100%)	20 (100%)
Gas/convenience store, N	118	11	35	8	12	12	12	6	0	11	11
Menthol											
Is menthol offered?	Y	Y	Y	Y	Y	Y	Y	Y	N	N	Y
N (%) of stores that offer menthol	64 (54.2%)	8 (72.7%)	1 (2.9%)	8 (100%)	11 (91.7%)	11 (91.7%)	0 (0%)	3 (50%)	-	11 (100%)	11 (100%)
Fruit											
Is fruit offered?	Y	Y	Y	Y	Y	Y	N	N	N	N	Y
N (%) of stores that offer fruit	58 (48.7%)	8 (72.7%)	2 (5.7%)	7 (87.5%)	10 (83.3%)	12 (100%)	0 (0%)	0 (0%)	-	10 (90.9%)	9 (81.8%)

- indicates no e-liquids were identified as available for sale.

Table S10. Online scan: Availability of mint or menthol flavored e-cigarette products in Canada overall and by province.

	Total	AB	BC	MB	NB	NL	NS	ON	PEI	QC	SK	Not province-specific
All stores, N	37,655	4,406	3,273	3,215	9,943	4,899	956	5,817	1,325	685	2,821	315
Is mint/menthol offered?	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
N (%) of products that are mint/menthol	8225 (21.8%)	1318 (29.9%)	1034 (31.6%)	880 (27.4%)	925 (9.3%)	866 (17.7%)	101 (10.6%)	1650 (28.4%)	363 (27.4%)	228 (33.3%)	805 (28.5%)	55 (17.5%)
Manufacturer website¹, N	879	76	24	76	76	76	8	76	76	.	76	315
Is mint/menthol offered?	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y
N (%) of products that are mint/menthol	153 (17.4%)	13 (17.1%)	4 (16.7%)	13 (17.1%)	13 (17.1%)	13 (17.1%)	3 (37.5%)	13 (17.1%)	13 (17.1%)	-	13 (17.1%)	55 (17.5%)
National website, N	9,064	1,152	319	1,160	1,105	1,162	.	1,158	1,162	685	1,161	.
Is mint/menthol offered?	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	N
N (%) of products that are mint/menthol	2737 (30.2%)	347 (30.1%)	84 (26.3%)	348 (30%)	336 (30.4%)	347 (29.9%)	-	348 (30.1%)	350 (30.1%)	228 (33.3%)	349 (30.1%)	-
Local website, N	27,712	3,178	2,930	1,979	8,762	3,661	948	4,583	87	.	1,584	.
Is mint/menthol offered?	Y	Y	Y	Y	Y	Y	Y	Y	N	N	Y	N
N (%) of products that are mint/menthol	5335 (19.3%)	958 (30.1%)	946 (32.3%)	519 (26.2%)	576 (6.6%)	506 (13.8%)	98 (10.3%)	1289 (28.1%)	-	0 (0%)	443 (28%)	-

¹Only brands Juul, Vuse/Vype, STLTH, ePuffer.

Table S11. Online scan: Availability of mint or menthol flavoured e-cigarette products in Canada by provincial policy status at the time of data collection

	No restrictions (AB, MB, NB, NL, ON, PEI [Jan-Feb], QC, SK)	Partial restrictions (flavour prohibited except in adult-only stores; BC)	Full restrictions (NS, PEI [Mar- May])
All stores, N	33,344	3,273	1,038
Is mint/menthol offered?	Y	Y	Y
N (%) of products that are mint/menthol	7090 (21.3%)	1034 (31.6%)	101 (9.7%)
Manufacturer website, N	847	24	8
Is mint/menthol offered?	Y	Y	Y
N (%) of products that are mint/menthol	146 (17.2%)	4 (16.7%)	3 (37.5%)
National website¹, N	8,745	319	0
Is mint/menthol offered?	Y	Y	N
N (%) of products that are mint/menthol	2653 (30.3%)	84 (26.3%)	-
Local website, N	23,752	2,930	1,030
Is mint/menthol offered?	Y	Y	Y
N (%) of products that are mint/menthol	4291 (18.1%)	946 (32.3%)	98 (9.5%)

¹Only brands Juul, Vuse/Vype, STLTH, ePuffer

- indicates no e-liquids were identified as available for sale.

Table S12. Phone scan: Availability of menthol flavoured e-cigarette products in Canada by provincial policy status at the time of data collection.

	No restrictions (AB, MB, NB, NL, ON, QC, SK)	Partial restrictions (flavour prohibited except in adult-only stores; BC)	Full restrictions (NS, PEI)
Vape shop, N	115	38	16
Is menthol offered?	Y	Y	N
N (%) of stores that offer menthol	113 (98.3%)	38 (100%)	0 (0%)
Gas/convenience store, N	71	35	12
Is menthol offered?	Y	Y	N
N (%) of stores that offer menthol	63 (88.7%)	1 (2.9%)	0 (0%)

Table S13. Online scan: Availability of fruit flavoured e-cigarette products in Canada overall and by province

	Total	AB	BC	MB	NB	NL	NS	ON	PEI	QC	SK	Not province-specific
All stores, N	37,655	4,406	3,273	3,215	9,943	4,899	956	5,817	1,325	685	2,821	315
Is fruit offered?	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
N (%) of products that are fruit	25726 (68.3%)	3451 (78.3%)	2654 (81.1%)	2366 (73.6%)	5327 (53.6%)	2880 (58.8%)	784 (82%)	4547 (78.2%)	910 (68.7%)	515 (75.2%)	2182 (77.3%)	110 (34.9%)
Manufacturer website¹, N	879	76	24	76	76	76	8	76	76	0	76	315
Is fruit offered?	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y
N (%) of products that are fruit	374 (42.5%)	36 (47.4%)	12 (50%)	36 (47.4%)	36 (47.4%)	36 (47.4%)	(0%)	36 (47.4%)	36 (47.4%)	-	36 (47.4%)	110 (34.9%)
National website, N	9,064	1,152	319	1,160	1,105	1,162	0	1,158	1,162	685	1,161	0
Is fruit offered?	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	N
N (%) of products that are fruit	6806 (75.1%)	866 (75.2%)	226 (70.8%)	874 (75.3%)	834 (75.5%)	872 (75%)	-	872 (75.3%)	874 (75.2%)	515 (75.2%)	873 (75.2%)	-
Local website, N	27,712	3,178	2,930	1,979	8,762	3,661	948	4,583	87	.	1,584	.
Is fruit offered?	Y	Y	Y	Y	Y	Y	Y	Y	N	N	Y	N
N (%) of products that are fruit	18546 (66.9%)	2549 (80.2%)	2416 (82.5%)	1456 (73.6%)	4457 (50.9%)	1972 (53.9%)	784 (82.7%)	3639 (79.4%)	0 (0%)	-	1273 (80.4%)	-

¹Only brands Juul, Vuse/Vype, STLTH, ePuffer.

Table S14. Online scan: Availability of fruit flavoured e-cigarette products in Canada by provincial policy status at the time of data collection

	No restrictions (AB, MB, NB, NL, PEI [Jan-Feb], QC, SK)	Partial restrictions (flavour prohibited except in adult-only stores; BC, ON)	Full restrictions (NS, PEI [Mar- May])
All stores, N	27527	9090	1038
Is fruit offered?	Y	Y	Y
N (%) of products that are fruit	17741 (64.4%)	7201 (79.2%)	784 (75.5%)
Manufacturer website¹, N	771	100	8
Is fruit offered?	Y	Y	Y
N (%) of products that are fruit	326 (42.3%)	48 (48.0%)	0 (0%)
National website, N	7,587	1,477	0
Is fruit offered?	Y	Y	N
N (%) of products that are fruit	5708 (75.2%)	1098 (74.3%)	-
Local website, N	19,169	7,513	1,030
Is fruit offered?	Y	Y	Y
N (%) of products that are fruit	11707 (61.1%)	6055 (80.6%)	784 (76.1%)

¹Only brands Juul, Vuse/Vype, STLTH, ePuffer

- indicates no e-liquids were identified as available for sale.

Table S15. Phone scan: Availability of fruit flavoured e-cigarette products in Canada by provincial policy status at the time of data collection.

	No restrictions (AB, MB, NB, NL, PEI [Jan-Feb], QC, SK)	Partial restrictions (flavour prohibited except in adult-only stores; BC, ON)	Full restrictions (NS, PEI [Mar- May])
Vape shop, N	102	51	16
Is fruit offered?	Y	Y	N
N (%) of stores that offer fruit	101 (99%)	51 (100%)	0 (0%)
Gas/convenience store, N	65	42	12
Is fruit offered?	Y	Y	N
N (%) of stores that offer fruit	56 (86.2%)	2 (4.8%)	0 (0%)

Table S16. Online scan: Availability of 'other' flavoured e-cigarette products in Canada overall and by province

	Total	AB	BC	MB	NB	NL	NS	ON	PEI	QC	SK	Not province-specific
All stores	37,655	4,406	3,273	3,215	9,943	4,899	956	5,817	1,325	685	2,821	315
Are 'other' flavours offered?	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
N (%) of products that are 'other'	14697 (39%)	1448 (32.9%)	1247 (38.1%)	1188 (37%)	4975 (50%)	2378 (48.5%)	392 (41%)	1716 (29.5%)	340 (25.7%)	128 (18.7%)	786 (27.9%)	99 (31.4%)
Manufacturer website¹	879	76	24	76	76	76	8	76	76	0	76	315
Are 'other' flavours offered?	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y
N (%) of products that are 'other'	231 (26.3%)	17 (22.4%)	5 (20.8%)	17 (22.4%)	17 (22.4%)	17 (22.4%)	8 (100%)	17 (22.4%)	17 (22.4%)	-	17 (22.4%)	99 (31.4%)
National website	9,064	1,152	319	1,160	1,105	1,162	0	1,158	1,162	685	1,161	0
Are 'other' flavours offered?	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	N
N (%) of products that are 'other'	2368 (26.1%)	310 (26.9%)	62 (19.4%)	310 (26.7%)	303 (27.4%)	314 (27%)	-	313 (27%)	314 (27%)	128 (18.7%)	314 (27%)	0 (0%)
Local website	27,712	3,178	2,930	1,979	8,762	3,661	948	4,583	87	0	1,584	0
Are 'other' flavours offered?	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	N
N (%) of products that are 'other'	12098 (43.7%)	1121 (35.3%)	1180 (40.3%)	861 (43.5%)	4655 (53.1%)	2047 (55.9%)	384 (40.5%)	1386 (30.2%)	9 (10.3%)	-	455 (28.7%)	-

¹Only brands Juul, Vuse/Vype, STLTH, ePuffer

Table S17. Online scan: Availability of ‘other’ flavoured e-cigarette products in Canada by provincial policy status at the time of data collection

	No restrictions (AB, MB, NB, NL, ON, PEI [Jan-Feb], QC, SK)	Partial restrictions (flavour prohibited except in adult-only stores; BC)	Full restrictions (NS, PEI [Mar- May])
All stores	27,527	9,090	1,038
Are ‘other’ flavours offered?	Y	Y	Y
N (%) of products that are ‘other’	11333 (41.2%)	2963 (32.6%)	401 (38.6%)
Manufacturer website¹	771	100	8
Are ‘other’ flavours offered?	Y	Y	Y
N (%) of products that are ‘other’	201 (26.1%)	22 (22%)	8 (100%)
National website	7,587	1,477	0
Are ‘other’ flavours offered?	Y	Y	N
N (%) of products that are ‘other’	1993 (26.3%)	375 (25.4%)	-
Local website	19,169	7,513	1,030
Are ‘other’ flavours offered?	Y	Y	Y
N (%) of products that are ‘other’	9139 (47.7%)	2566 (34.2%)	393 (38.2%)

¹Only brands Juul, Vuse/Vype, STLTH, ePuffer

- indicates no e-liquids were identified as available for sale.