

# **Municipal regulation of cannabis and public health in Canada: A comparison of Alberta, Ontario, and Quebec**

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## **CONFLICT OF INTEREST**

None to declare.

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## **Abstract**

Canada legalized non-medical cannabis in October 2018, but significant variations in municipal regulations exist. This article explored the variations that exist and pondered their potential public health consequences. A comparative analysis was completed on the regulations and guidelines that addressed retailers' location and public consumption in the municipalities of Alberta, Ontario, and Québec. Municipal regulations that addressed the location of retailers were more numerous and extensive in Alberta and Ontario (in the context of provincial private retail models) than in Québec (government-based model). Municipalities in Alberta added more restrictions to public consumption laws as compared to municipalities in Ontario and in Québec. These additions were made to Alberta's and Ontario's provincial-level smoking and vaping bans which used tobacco-inspired frameworks, and to Québec's ban on smoking and vaping in all public spaces. The comparative analysis showed the importance of considering municipal cannabis regulations when studying the impact of legalization, given the significant variations that exist. Policy makers should be made aware of these variations in the regulation of cannabis in order to limit health harms, and further social inequalities.

**Keywords:** bylaws, Canada, cannabis, density, land-use, legalization, localization, municipalities, outlet, public consumption, retailer, store

## 1 | INTRODUCTION

Canada legalized the production, distribution, and consumption of non-medical cannabis in October 2018, following Uruguay in 2013 and some US States in the subsequent years. The federal regulatory approach allowed provincial and territorial authorities (PTA) to strengthen regulations but not enact less stringent ones. Further, the regulations could also not be so restrictive that they would contradict the main objectives of the federal law. Canadian PTA took a similar approach, allowing municipalities to add restrictions to the provincial and federal legal frameworks. Such a flexible approach was also observed in some US States, as 48.4% of Colorado counties and 23.1% of Washington counties had prohibited non-medical cannabis retail stores (Payan, Brown & Song, 2021). Further, most counties and cities in Washington State passed permanent or temporary bylaws that banned cannabis retail sales altogether or from a specified distance from designated land-use types (e.g. schools, government buildings, etc.) (Dilley, Hitchcock, McGroder, Greto & Richardson, 2017). By shaping the environment in which people experience the commercialization of cannabis and/or the places in which they can use cannabis products, local variations have been shown to generate significantly different cannabis distribution and consumption patterns, which in turn affect the social determinants of the health in cannabis consumers (Garcia-Ramirez, Paschall & Grube, 2021; Golub, Johnson & Dunlap, 2006). As such, it is reasonable to expect more health consequences, including substance-related disorders and other mental health problems (National Academies of Sciences, Engineering, and Medicine et al., 2017; Volkow, Baler, Compton & Weiss, 2014).

Considerable variations in municipal regulations were also visible across Canada. Unfortunately, studies looking at the Canadian legalization process had mainly considered the federal and provincial scales of regulation. The main goal of this article was to explore the variety of municipal cannabis regulations across Alberta, Ontario and Quebec, and consider the differences in health impacts these regulations might have for Canadians. As such, this paper provides a comparative analysis of the regulation efforts of the municipalities of three provinces: Alberta, Ontario, and Québec. These three municipalities were selected because the provincial regulatory frameworks with regard to retail and public consumption of cannabis, were very different despite some similarities. These processual and legal similarities and singularities will be covered in detail later in the article.

### **1.1 | Analytical framework and study objectives**

In the Canadian federal system, municipalities (cities, regional municipalities, etc.) are artifacts of provincial or territorial laws. These laws grant municipalities varying scopes and types of powers to enact and enforce bylaws for issues related to the safety, health, and welfare of people, public places and activities, nuisances, etc. (Hoehn, 2019). Concerning cannabis products, many Canadian municipalities have mobilized these powers to direct where they can be sold and consumed, most notably. These can eventually affect public health and/or its determinants in many ways. Municipalities also have the power to direct where cannabis can be produced and when it can be sold and consumed. While these are important public health considerations that can affect physical accessibility to products, exposure to contaminants and to penal sanctions, they are out of the scope of this article. A detailed summary of studies is provided here to conceptually ground the analysis offered in this article.

### **1.1.1 | Physical accessibility**

Municipal regulations can impact consumption levels by way of location and physical accessibility of cannabis products for both current and potential consumers. According to previous literature reviews and document syntheses, increased accessibility has been associated with higher consumption levels of alcohol, tobacco, and cannabis in studies at the municipal/local, provincial/state and national levels (Henriksen, 2012; Rotering, Lempert & Glantz, 2021; Stockwell, Wettlaufer, Vallance, Chow, Giesbrecht et al., 2019). Incidentally, the most recent Statistics Canada report showed that, since enactment of cannabis legalization, self-reported cannabis use in the last three months increased in the three provinces considered between the first quarter of 2018 to the last quarter of 2020: from 16.6% to 21.7% in Alberta; from 13.5% to 23.1% in Ontario and; from 10.4% to 10.6% in Quebec (Rotermann, 2020). Two key factors that probably influenced consumption level and physical accessibility included store density and store location.

#### **1.1.1.1 | Store density**

In the United States of America (US), higher density of cannabis retailers has been associated with increased likelihood of past-month cannabis use, frequent cannabis use, past-month daily or near-daily use, and stronger intentions to use cannabis in the next six months (Everson, Dilley, Maher & Mack, 2019; Freisthler & Gruenewald, 2014; Paschall & Grube, 2020; Paschall & Lipperman-Kreda, 2018; Pedersen, Firth, Rodriguez, Shih, Seelam et al., 2021; Shih, Rodriguez, Parast, Pedersen, Tucker et al., 2019). Furthermore, both adults and adolescents living in US States with high outlet density were associated with higher odds of frequent vaping, use of edibles, and younger age of onset of vaping (Borodovsky, Crosier,

Lee, Sargent & Budney, 2016; Borodovsky, Lee, Crosier, Gabrielli, Sargent et al., 2017). As the number of retailers increased in US States that legalized cannabis, more favorable consumer perceptions were significantly associated with the quality of legal products (OR=1.25; 99%CI=1.07-1.46), pricing (OR=1.20; 99%CI=1.07-1.35), convenience to buy (OR=1.36; 99%CI=1.13-1.62), and safety of use and purchasing (OR=1.36; 99%IC=1.13-1.62) (Fataar, Goodman, Wadsworth & Hammond, 2021). Similarly, youth who lived near a higher number of outlets held more positive attitudes regarding cannabis use,  $\beta=0.003$ ; 95 CI=0.001-0.007 (Shih et al., 2019).

#### **1.1.1.2 | Store location**

Some jurisdictions have enacted separation distances between retail cannabis stores and locations where there are vulnerable populations such as youth or individuals with substance-related disorders. For example, as of February 2017, in the US, most States that had legalized medical cannabis have placed restrictions regarding outlet locations: 71% had proximity regulation concerning schools, 39% concerning daycare facilities, and 21% to churches; three states have regulated proximity from group care homes and restrictions related to colleges, drug-treatment facilities, and other outlets were found in one state (Klieger, Gutman, Allem, Pacula, Ibrahim et al., 2017). Among the 239 California local jurisdictions, 79% banned both medical and recreational cannabis retail sales, and those who had strict regulations on alcohol and cannabis retail locations were less likely to have high density and a high number of co-located alcohol and cannabis outlets (Matthay, 2021).

An association between the proximity of off-premise cannabis retail establishments and public health outcomes had also been found. One study found that, when *coffee shops* opened in the Netherlands in the 1970s, cannabis consumers living near these establishments

experienced reduced exposure to the offer of drugs other than cannabis by clandestine sellers (Wouters & Korf, 2009). However, another study found Dutch individuals who lived closer to a *coffee shop* were more likely to start cannabis at an earlier age (Palali & van Ours, 2015). In California, longer drive time to the nearest outlet was associated with lower odds of cannabis use among pregnant women in California, OR=0.96; 95%CI=0.95-0.98 (Young-Wolff, Adams, Padon, Silver, Alexeeff et al., 2021). Having more retailers within a 15-minute drive was also associated with an increased likelihood of cannabis consumption (Young-Wolff et al., 2021). Washington State residents who lived close to a cannabis retailer were more likely to report current use or frequent use (Everson et al., 2019). Specifically, current cannabis use significantly increased among adults who lived: within 0.8 miles from an outlet (OR=1.45; 95%CI=1.24-1.69), between 0.8 and 1.1 miles from an outlet (OR=1.27; 95%CI=1.08-1.49) and between 1.2 and 18.4 miles from an outlet (OR=1.18; 95%CI=1.08-1.29) in the State of Washington (Everson et al., 2019). In Canada, legal retail store proximity has been associated with an increased likelihood of legal purchase, either in terms of distance (less than 3 km vs. over 10 km: OR=1.56; 95%CI=1.20-2.02) or of travel time (less than 5 min vs. over 15 min: OR=2.24; 95%CI=1.56-3.21) (Wadsworth, Driezen & Hammond, 2021).

Retail stores tend to be located in disadvantaged neighborhoods, where rates of cannabis use are also higher (Firth, Carlini, Dille, Wakefield & Hajat, 2020; Morrison, Gruenewald, Freisthler, Ponicki & Remer, 2014). Mair, Freisthler, Ponicki & Gaidus (2015) have linked higher density of outlets and lower median household incomes to increased likelihood of cannabis-related hospitalizations. Two years after non-medical cannabis legalization, lower-income neighborhoods (fifth quintile: RR=9.59; 95%CI=7.26-12.68), as

well those with a greater proportion of Canadians aged 20-29 (RR=1.05; 95%IC=1.05-1.06), had a higher number of cannabis stores in a range of one kilometer compared to higher-income neighborhoods (Myran, Staykov, Cantor, Taljaard, Quach et al., 2021).

### **1.1.2 | Places of consumption**

Depending on where (at home, in various public spaces) and through what mode cannabis consumers are permitted to use by municipal regulations, specific types of risks can be generated, such as second-hand-smoking, renormalization of smoking, normalization of vaping, or penal sanctions to marginalized groups.

#### **1.1.2.1 | Second-hand cannabis smoking**

Cannabis smoking releases many carcinogens, with some studies reporting that second-hand cannabis smoking (SHCS) is associated with increased heart rate, a “pleasant” psychoactive effect, psychomotor and working memory impairment, as well as eye and mucous irritation (Holitzki, Dowsett, Spackman, Noseworthy & Clement, 2017; Wei, Smith, Travers, O’Connor, Goniewicz et al., 2019). Some studies reported severe allergic reactions to SHCS by children and adolescents (Cabrera-Freitag, Infante, Bartolome, Alvarez-Perea, Fuentes-Aparicio et al., 2019; Hoffman, Kuhl, Knight, Philips & Rabinovitch, 2018) and cross-sectional surveys found an increased prevalence of: viral respiratory infections, ear infection, asthma, bronchitis/bronchiolitis; notably, among children of caregivers who smoke cannabis (Johnson, Wang, Wilson, Cline, Craven et al., 2021; Posis, Belletiere, Liles, Alcaraz, Nguyen et al., 2019). Also, cannabinoids from SHCS can be detected among non-smokers, which can constitute a problem for individuals in safety sensitive positions, workplaces enforcing zero-tolerance policies or drivers intercepted on the road that may be tested positive for cannabis, but were not impaired (Herrmann, Cone, Mitchell, Bigelow, LoDico et al., 2015; Holitzki et



al., 2017). Moreover, although SHCS is related to diverse harms, it was often perceived as less harmful than second-hand tobacco smoking (McDonald, Popova & Ling, 2016; Steigerwald, Cohen, Vali, Hasin, Cerda et al., 2020).

#### **1.1.2.2 | Smoking re-normalization and vaping normalization**

Another concern regarding public cannabis consumption is the re-normalization of inhaling substances such as tobacco (Caulkins & Kilborn, 2019; Orenstein, 2021; Steinberg, Unger, Hallett, Williams, Baezconde-Garbanati et al., 2020). However, based on observations regarding the impact of e-cigarettes and renormalization of smoking, the relationship is not straightforward between visibility, normalization, and enacted behavior. For example, a UK qualitative study revealed that some non-smokers exposed felt curious about trying vaping as a result of seeing others do it, but also did not make vaping a regular habit, nor were they likely to smoke as a result of it (McKeganey, Barnard & Russell, 2016).

#### **1.1.2.3 | Penal sanctions to marginalized groups**

According to a study, the prohibition of consumption of any cannabis products in public spaces in Washington State has reduced the rate of penal sanctions applied to members of various ethnocultural communities relative to the pre-legalization period (reduction of 46% among 18 to 20 years old and reduction of 87% among 21 and over), but it has also not changed or increased inequalities in this application between the groups on some indicators. Indeed, prior to legalization, the arrest rate of African Americans 21 years old and older for cannabis possession or consumption was 2.5 times higher relative to Whites, it became five times higher after legalization (Firth, Maher, Dilley, Darnell & Lovrich, 2019). Before cannabis legalization in the State of New York in March 2021, cannabis use in public view constituted between 10 to 15% of all adult arrests in NYC annually, with an extremely large

over-representation of Afro-descendants and Latin American individuals (Golub et al., 2006; Johnson, Golub, Dunlap & Sifaneck, 2008).

## **1.2 | Objectives of the current study**

This study aims to provide a comparative analysis of three Canadian provinces' municipal regulations related to cannabis retail sales and public consumption, as well as offer insights into the potential effects these regulations have on public health outcomes. The comparative approach is widespread in law and policy studies (Gazibo & Jenson, 2004; Husa, 2015). Comparative studies aiming to generalize results tend to look at a higher number of cases while studies that aim to produce an understanding of the singularities of certain situations tend to limit them – to the point of studying only two cases (Gazibo & Jenson, 2004). Given the absence of studies on municipal cannabis regulations in Canada, we opted to provide a more detailed understanding of certain “exemplary” cases and thus limited the number to the municipalities of three provinces. As previously mentioned, municipalities of Alberta, Ontario, and Québec were selected because of differences in provincial regulatory frameworks.

Examination of municipal-level variation across provinces is an important step to fully understand the impact cannabis legalization on population health. This level of analysis allows filling knowledge gaps in the context where federal, provincial, and municipal levels of government are presently reviewing current legislation and regulation and considering certain policy reforms.

## 2 | METHODS

### 2.1 | Data collection

Data collection for municipal bylaws and guidelines proceeded in two phases. The first phase occurred in Summer 2019 when Alberta Health Services conducted a cannabis bylaw mapping exercise. Elected officials and leaders from all municipalities across the province were contacted via email to provide information about their municipal bylaws. In the event no information was received, bylaw information was accessed by way of the municipality's website. The results from each municipality were then compiled. Data concerning public consumption regulations and land-use bylaws were consigned in an Excel spreadsheet. Each line of the spreadsheet represented one single municipality. Each column contained a single element characterizing this municipality, such as the number of inhabitants, exact separation distance written in bylaws, etc. For textual information, such as description of places, they were reproduced integrally (i.e., copy-paste) from the official documents into the Excel spreadsheet's appropriate cell. Through this data collection process Alberta Health Services also collected information on municipal regulations regarding cannabis retailers' hours of operations and on cannabis retailing in different commercial zones. These other dimensions of municipal regulations were excluded from the scope of the present study because the literature review conducted to develop the analytical framework did not reveal a significant scientific knowledge basis regarding these regulatory dimensions.

The second data collection phase was conducted by RV and took place during Summer and Fall 2021. The same data collection Excel grid was used to collect and group public consumption regulations and land-use bylaws and guidelines for the municipalities of

2,000 or more residents of Ontario and Québec. Specifically, in Ontario, as will be covered later, the provincial licensing system does not allow municipalities to pass land-use bylaws specific to cannabis stores, but it does allow them to make recommendations to the regulatory agency when a licence application is filed by an applicant. Many have thus issued guidelines which indicated how they would comment, notably with regards to separation distances from other cannabis retailers and/or other land-uses. Given the time-lapse between this collection period and the initial collation period for Alberta, a new web search of Alberta's cannabis-related bylaws was conducted by RV in Fall 2021 to identify updates made by municipalities of 10,000 residents or more. These changes were included in the present analysis but given few changes had been found (10 changes out of 45 municipalities) and most were minor in nature, it was judged that a complete search of all municipalities below 10,000 residents was unlikely to yield significantly different results for this study. As such, after a few single cases were considered, most changes seemed insignificant for our purpose. For example, one municipality elevated the amount of the fine for public consumption of cannabis from 100\$ to 300\$. That said, only one case was deemed evidently significant, in which a municipality introduced a new bylaw mandating a separation distance of 200m between cannabis retail stores.

Provincial laws were retrieved by FG (Alberta and Québec) and RV (Ontario) directly from the websites of the provincial legislatures in these two years. In the two cases where the initial provincial (October 2018) law had been modified, i.e. Ontario and Québec, both versions were retrieved to better grasp how provincial laws evolved.

## **2.2 | Data analysis**

With the aim to understand the municipal regulations in the three provinces, the analysis called for descriptions of each provincial law, their respective municipal regulations, and the articulation between them. Analyses were purely descriptive and no statistical calculations were performed to determine significant differences between municipalities. The interpretation of the provincial laws was made on a consensus basis amongst the researchers.<sup>1</sup>

The analysis was carried out on municipalities with populations greater than 2,000. As such, access to information on smaller municipalities, which do not always have as many human resources and do not always maintain websites, proved to be a resource intensive process that was not sufficiently reliable. Nonetheless, since these concentrate a large majority of the population of each province, it is deemed that the analysis presented reflects the regulatory reality experienced by most of their residents. As such, based on the extracted information in our Excel grid, our analyses covered about 97.5% of Alberta's total population, 99.5% of Ontario and 92.6% of Québec.

Descriptive information from each province was grouped by domain (land-use and public consumption bylaws) and coded inductively to identify key categories within the data.<sup>2</sup> These larger categories of codes for each domain then allowed researchers to qualitatively describe and compare municipal regulations across the three provinces. The descriptions for each category and domain can be found below.

### **2.2.1 | Land-use bylaws and guidelines**

In land-use bylaws in Alberta and Québec, or the guidelines for license applicants in Ontario, municipalities determined additional minimum distance requirements between cannabis retailers and other cannabis retailers and/or other land-uses (for ex., liquor outlets, schools,

or cemeteries). Part of these appeared to carry the potential to significantly affect public health issues such as the density or concentration of cannabis and/or other retail stores of psychoactive substances in certain sectors, or the protection of youth or other vulnerable populations. To account for the nature and extension of how municipalities' bylaws and directives were formulated in this regard, a classificatory exercise was conducted along two lines: 1) separation distance itself (which was classified into three classes of 100 or less, 101-250m, 251m or more); and 2) the separation distances between retailers and other places of different nature. Every occurrence of a bylaw or guideline determining a distance between a cannabis retailer and another cannabis retail store or another sensitive land-use was registered in one of the five categories described in Table 1.

[insert Table 1 about here]

### **2.2.2 | Public consumption**

A similar classificatory effort was conducted to account for the nature and extension of how municipalities' bylaws directed public consumption. First, municipalities were distinguished based on whether they had adopted a general prohibition approach or had rather taken the approach of targeting specific places (and thus authorizing it by default everywhere else). When municipalities had adopted prohibitions of specific places, prohibitions mentioned in the bylaws were then registered in one or both of these subcategories: (a) prohibitions relative to places designed for children, youth, or other vulnerable groups or to places where these groups are likely to be the main population; (b) prohibitions relative to places where children, youth or other vulnerable groups are not likely to be the main populations. Second, it seemed important to account for the exceptions to these general or specific prohibitions determined in the bylaws. A count was thus made of mentions, in the bylaws, of provisions for designated

spaces for consumption (including authorizations for permanent designated consumption areas as well as temporary authorizations for events with city permits, for example). Third, and since different modes of consumption pose different public health risks, it also appeared important to give some measures of whether bylaws targeted all modes of consumption, or smoking and vaping only.

### **3| RESULTS**

The results for each of the two domains studied (retail store location and public consumption regulations and guidelines) are first presented for each province. The cross-case analysis follows.

#### **3.1 | Alberta**

##### **3.1.1 | Sales**

In Alberta, the retail distribution of cannabis involves two different systems. Online sales have been entrusted exclusively to Alberta Gaming Liquor and Cannabis Commission (AGLC), a public agency under the Ministry of Treasury Board and Finance, which operates for this purpose AlbertaCannabis. The physical cannabis stores follow a private retail model. This system functions through licensing, which is controlled by AGLC. Before cannabis legalization, AGLC managed the licensing of gaming and alcohol retailers in the province. AGLC operates according to the requirements provided by the Gaming, Liquor, and Cannabis Act (GLCA) and its regulations. The most important piece of legislation related to land-use is that a cannabis store cannot be located at least 100 meters from provincial health care facilities, schools, or parcels of land designated as a school reserve (Alberta, 2020a).

The Alberta regulations allowed municipalities to increase this separation distance and/or add other types of land-uses from which cannabis stores should be separated.

Seventy municipalities out of 143 with populations of 2,000 or greater (49%) chose to enact bylaws mandating additional minimum separation distances between a cannabis retailer and various land-uses. As shown in Figure 1, municipalities added minimum distances most often for places designed for youth (63 out of 70; 90%). Forty-seven municipalities (67%) imposed minimal distances between a cannabis retail store and another retailer of psychoactive substances. Less than half of the 70 municipalities have imposed minimum distances to the three other categories of land-uses.

With regards to separation distances, Table 2 reveals that 100m or less is the most common municipalities have opted for (the 70 municipalities altogether imposed 96 such restrictions over the 5 categories), followed by the 101-250m range (64 restrictions), and the 251m or more range (44 restrictions).

### **3.1.2 | Public consumption**

The Government of Alberta, in simple terms, restricts where cannabis can be consumed in publicly accessible spaces in alignment with the provincial Tobacco, Smoking and Vaping Reduction Act (TSVRA) prohibitions on public tobacco use. The TSVRA prohibits smoking and vaping in all workplaces and all enclosed spaces where the public can access and within a 5m radius of these places. A few additional places were introduced in the Cannabis Act and recently adopted within the TSVRA: on any hospital, school, or child care facility properties and on playgrounds, sports or playing fields, skateboards or bicycle parks, zoos, outdoor theatres, pool, and splash pads (Alberta, 2020b). Cannabis smoking and vaping are also



prohibited in any motor vehicle - except those being used as temporary residences such as parked recreational vehicles.

[insert Figure 1 about here]

Eighty-four out of the 143 (59%) Alberta municipalities with populations 2,000 or greater have implemented supplementary public consumption prohibitions for cannabis. As Figure 1 illustrates, 75 of these municipalities opted for a general ban on cannabis consumption in public spaces - although 20 of those also chose to either authorize or include provisions allowing them to eventually authorize consumption in one form or another, temporarily or permanently, in some “designated spaces”. Seven of the 75 chose to apply this general ban approach to smoking and vaping and 68 to all modes (smoking, vaping, and ingesting). An additional nine municipalities implemented prohibitions for consumption in or in proximity to specific places. Five thus prohibited consumption to places where it was likely that youth and/or other vulnerable groups would be the main population and eight where it was unlikely to be the case.

## **3.2 | Ontario**

### **3.2.1 | Sales**

The framework for retail sale of cannabis in Ontario is very similar to that of Alberta. Initially in October 2018, Ontario authorities had only authorized the Ontario Cannabis Store to sell cannabis, but this change was made early after the election of a new government in the province in the Fall of 2019. Presently, this license system is controlled by a public agency, the Alcohol and Gaming Commission of Ontario (AGCO), which regulates cannabis by following the requirements provided by the Cannabis Licence Act and its regulations (Ontario, 1996). The two most important elements the Act contained for our analysis is that

a store cannot be located within 150 meters of a school (Ontario, 2019) and that municipalities had the opportunity, until January 22, 2019, to adopt a resolution to opt-out of having cannabis retail stores on their territory (Ontario, 2018a). Municipalities have no other power over the retail licensing or the land-use for cannabis stores other than providing comments to the AGCO on new applications (Ontario, 2019b).

[insert Figure 2 about here]

As Figure 2 reveals, 63 municipalities (20%) have published guidelines determining additional separation distances between a cannabis retailer and other land-uses. Further, 48 of the 321 municipalities with populations greater than 2,000 in the province (15%) have used the “opt-out” opportunity offered by the provincial law - i.e. they have chosen not to accept cannabis retail stores on their territories. Overall, more than three-quarters of the 63 municipalities have imposed minimum distances from places designated for children and youths (92%) or where they are likely to be the main population (81%), places where other vulnerable groups are likely to be there (75%), as well as places where the latter are not likely to be the main population (79%). Of note, 41% of 63 Ontario municipalities have designated a minimum distance between a cannabis retail store and other psychoactive substance retail stores.

With regards to separation distances, as Table 2 reveals, 101-250m is the most common (the 63 municipalities altogether imposed 158 such restrictions over the 5 categories), whereas 65 restrictions were in the 100 and less range, and 9 in the 251m and over.

### **3.2.2 | Public consumption**

In Ontario, provincial authorities have taken (as in Alberta) the approach of managing the consumption of cannabis similar to what they have done for tobacco and nicotine smoking and vaping. They thus banned the smoking and vaping of cannabis in workplaces and enclosed spaces accessible to the public or proximity to these (20 meters in this case). There are also the same sort of limited exceptions to these general prohibitions, for example in some residential care facilities or hotels, motels, and inns - where operators can designate consumption rooms for their patrons and/or guests. They have also banned smoking and vaping on the outdoor grounds of health care facilities, restaurants, and bar patios and within a radius of nine meters of the entrances and exits of those areas (Ontario, 2017). Provincial authorities have also prohibited cannabis consumption in motor vehicles through an amendment to the Highway Traffic Act.

Eighty-three municipalities out of the 321 with populations greater than 2,000 have adopted additional regulations concerning consumption in public spaces. As shown in Figure 1, seven have adopted a general ban approach, with five nonetheless designating limited spaces for consumption or preserving the power to eventually do so. Two of the seven prohibited all forms of consumption in this way while five did the same for smoking and vaping only. Most municipalities (76, or 92% of 83 municipalities) rather adopted prohibitions limiting consumption in specific spaces, with 12 nonetheless introducing provisions for designated spaces. Amongst those 76, 53 (70%) adopted restrictions to spaces where youth or other vulnerable groups are highly likely to be the main public. Seventy-two (95% of 76 municipalities) did the same for spaces where these groups were unlikely to be the main public.

### **3.3 | Québec**

### 3.3.1 | Sales

In Québec, the law entrusts both online and “brick and mortar”, i.e. an outlet with a physical location with face-to-face services to customers, retail of cannabis products exclusively to the *Société québécoise du cannabis* (SQDC) (Québec, 2020a). The law contains a fairly simple provision as to the location of retail stores. It imposes a 250m separation between a retail store and all educational establishments except universities. This separation distance is reduced to 150m in the case of the City of Montreal. As such, the density of educational establishments targeted in the City would have made it practically impossible to open any retail stores (Québec, 2020b). Otherwise, the responsibility for the determination of the number and location of retail stores lies with the SQDC.

[insert Figure 3 about here]

Eight municipalities out of 382 with populations greater than 2,000 (2%) adopted bylaws further regulating distances between cannabis stores and/or between stores and other land-uses. Of those, as Figure 3 illustrates, two chose to impose a distance between two cannabis retail stores. Most minimum distances imposed concerned youth-associated places (n=7). None chose to impose distances to places where other vulnerable groups are likely to be the main public, and three types of places where vulnerable groups are not likely to be the main public were identified.

With regards to separation distances, as seen in Table 2 most restrictions imposed are in the 250m or more range (the eight municipalities altogether imposed 10 such restrictions over the 5 categories), whereas 2 restrictions were in the 101-150 range and 1 in the 100 and less range.

### **3.3.2 | Public consumption**

In October 2018, Québec's provincial authorities banned the smoking and vaping of cannabis products much in the same way as the other two other provincial authorities - i.e. they implemented a framework that resembled that of tobacco and nicotine products but with a few more restrictions. Specifically, smoking and vaping were then prohibited in all workplaces and enclosed publicly accessible spaces and in proximity to an entry to these - 9m in this case. It had also added prohibitions to smoke or vape in a few unenclosed spaces such as collective transportation, outdoor wait areas, cycle paths, etc. Similar exceptions were put in place for some residential facilities as in the other provinces. The law also allows municipalities to further restrict public consumption. The law was revised after the election of a new political party in Fall 2019. It banned smoking and vaping in all unenclosed publicly accessible spaces but allowed municipalities to designate zones in parks for these purposes.

As Figure 3 shows, 78 municipalities chose to restrict further public consumption by generally prohibiting it in any form (with eight nonetheless introducing actual or the potential for designated spaces). Nineteen opted to prohibit consumption in specific places, with one targeting places where youth or other vulnerable groups could be the main population and all of them in places where this would not be likely to be the case.

### **3.4 | Cross-case analysis**

Comparing how the municipalities of Alberta, Ontario, and Québec direct the location of cannabis retailers and public consumption reveals similarities and differences that can affect public health. The comparative analysis addresses each dimension in turn.

#### **3.4.1 | Retail stores**

First, as previously mentioned, the ratios of municipalities that have imposed minimum distances were very different in the three provinces. Alberta's municipalities (49%) had been by far the most active in this regard. They were followed by Ontario's municipalities (20%) and Québec's ones at a distant third position (2%). To consider the 15% of Ontario municipalities that had "opted-out" of having retail stores altogether would move these closer to Alberta's ratios.

[insert Table 2 about here]

Table 2 highlights a few more important differences, but also similarities, amongst the municipalities of the three provinces. For one, Alberta's municipalities had relatively more often favoured shorter separation distances (100m or less), and that was also the case relative to the municipalities of the two other provinces. Ontario's municipalities had opted more often for the 101-250m range and Québec's municipalities for the 251m or more range.

Furthermore, the proportion of municipalities of Alberta and Ontario that have focused on retailers of other psychoactive substances (cannabis, alcohol, tobacco) was around twice the ratios of those of Québec. Minimum separation distances imposed for the other categories seemed overall to be in similar ranges for the three provinces. This suggests that youth protection has been a constant preoccupation for all the municipalities, with a caveat. Particularly, Québec's municipalities have proportionately introduced much less minimum distances in the category "places where children and youth are likely to be the main population". This will be important to monitor given the low ratio of municipalities that have introduced additional regulations for retail stores in the first place and also given that the provincial law is relatively minimal with regards to proximity to places designed for youth (solely focusing on educational establishments with no mentions of universities). Along the

same lines, Québec’s municipalities have introduced no regulations at all concerning “places where other vulnerable groups are likely to be the main population” and the provincial law is silent in this regard.

### **3.4.2 | Public consumption**

As seen earlier, the proportion of municipalities that have introduced additional bylaws restricting further public consumption of cannabis are 59% for Alberta, 26% for Ontario, and 25% for Québec. Given the similarity of the provincial laws in Alberta and Ontario, it seems possible to conclude that Alberta’s municipalities have been significantly more restrictive in this regard. This seems compounded by the fact that Alberta’s municipalities have largely taken a “general ban” approach to public consumption and that they have also largely targeted all forms of consumption - as shown in Figure 2. In contrast, and as is also apparent from Figure 2, Ontario’s municipalities have generally opted to ban consumption in specific places on their territory, and have largely focused on smoking and vaping only. Figure 2 also highlights the lower ratio of the introduction of additional restrictions by Québec municipalities on all forms of cannabis consumption (ingesting as well as smoking and vaping). This must be understood in light of the general prohibition approach taken by most of Quebec municipalities and also of the all-out provincial ban on the smoking and vaping of cannabis in public spaces. Considered thus, public spaces where it is prohibited to consume cannabis in the municipalities are arguably more restricted in Québec than in the two other provinces.

As for the categories of land-uses targeted by municipalities that have opted to prohibit consumption in specific spaces, it appears both that all municipalities sought to protect places where vulnerable groups are likely to be the main populations more than other

places, and also that Ontario's municipalities have done it more so than the two other provinces.

#### **4| DISCUSSION**

This research aimed to compare municipal regulations in three Canadian provinces related to cannabis retail sales and public consumption based on official documents regarding bylaws and guidelines. Our descriptive analyses showed that Alberta and Ontario, two provinces with private retail models, presented more numerous and extensive municipal regulations related to outlet location compared to Québec, which has a government-based model. Regarding public consumption, Québec banned smoking and vaping cannabis in all public spaces, while Alberta and Ontario used a tobacco-inspired framework. As a reminder, these differences were purely descriptive and not based on statistical calculations. To document these official regulation variations constitutes a necessary first step before further exploring the potential effects of these regulations on public health outcomes. The following sections will discuss this study's findings in regard to previous literature and offer potential future public health and research directions. Discussing elements related to the concrete application of these regulations is beyond the scope of this current study, as municipal authorities or cannabis users were not consulted. Therefore, this discussion will focus mainly on how bylaws and guidelines were officially written, not on how they were actually applied.

As outlined in many public health documents, the main challenge facing cannabis regulation through legalization processes consisted of finding the right balance between authorizations and prohibitions. Attested over and over again with cannabis, as well as in the



tobacco and alcohol or “illegal” substances fields, excessively liberal or prohibitive frameworks lead to undesirable effects on public health and its determinants (Alberta Health Services, 2020; Beauchesne, 1989; Gagnon, 2021; Health Officers’ Council of British Columbia, 2005).

This balancing act translated specifically in finding the right balance between access to quality-controlled cannabis products, health protections for the general public or vulnerable groups (such as people of lower socioeconomic status, youth or people living with substance-related disorders or other mental health problems) and the profits of the cannabis industry. In the case of public consumption, it meant restricting cannabis sufficiently as to prevent exposure to SHCS (Hemsing & Greaves, 2018; McKee, McClure, Fyfe & Stanwick, 2018; Steinberg et al., 2020), smoking renormalization or vaping normalization, and public intoxication - but not to the point at which consumers are subjected to stigmatization or to penal sanctions. This could deteriorate their social conditions or expose their family or friends to secondary smoke or vapor - which could be the case if prohibitions to consumption in public were so broad that consumers smoked or vaped inside their homes to avoid sanctions.

#### **4.1 | Physical accessibility and cannabis consumption**

Myran, Brown & Tanuseputro (2019) reported that six months after cannabis legalization, provinces or territories with private/hybrid retail models had 49% more cannabis stores per capita and that they were located 166.7 meters closer to a school than regions with public ones. As of October 2020, Alberta had the highest number of stores per capita (14.29 stores per 100,000 individuals) while Ontario (1.57 per 100,000 individuals) and Québec (0.64 per 100,000 individuals) presented lower numbers (Myran et al., 2021). Commercial

developments have continued in the three provinces over the last two years, as datasets published by provincial regulatory agencies attest. As of November 2021, there were 714 authorized stores in Alberta (16.1 per 100,000 individuals)<sup>3</sup>, 1252 authorized in Ontario (8.4 per 100,000 individuals)<sup>4</sup> and 78 operational stores in Québec (0.9 per 100,000 individuals).<sup>5,6</sup> Even though Alberta still presents the highest ratio of stores, Ontario the second-highest, and Québec the lowest, their respective trends seem to be both bringing Ontario closer to Alberta and bringing these two further from Québec. Also, it does not seem reasonable to believe that the situation of proximity of stores to schools, as outlined by Myran et al. (2019), has changed much between the provinces. Furthermore these provincial geographic considerations between stores and schools are probably translated into the municipal realities studied. That is, the differences in the density of stores and their proximity to schools, and potentially other places where youth and other vulnerable groups are likely the main populations, are likely following the same differential patterns. Moreover, research in Canadian jurisdictions and in some US states (e. g. Colorado, California, Washington, Oregon), also found higher stores per capita in neighborhoods with a larger proportion of racial or ethnic minorities, lower household income, and medium to high crime index (Amiri, Monsivais, McDonnell & Amram, 2019; Firth et al., 2020; Myran et al., 2021; Shi, Rodriguez, Parast, Pedersen, Tucker et al., 2016; Unger, Vos, Wu, Hardaway, Sarain et al., 2020).

The number and location of cannabis stores raise important concerns regarding consumption levels in general and that of populations living in more socially and/or materially deprived neighborhoods which may be at an increased risk of cannabis-related consequences. Public health policy makers need to address those concerns head-on by looking for municipal regulations that can avoid creating a high-risk environment and take

into consideration potential impacts on vulnerable populations (e.g. youth, individuals with substance use disorders, etc.), as higher density or lower separation distance from certain places may create a normalization phenomenon by increased access and availability. Based on previous research on alcohol and tobacco, a higher density of retail outlets affects use rates and social issues within communities (Campbell, Hahn, Elder, Brewer, Chattopadhyay et al., 2009; Glasser & Roberts, 2021). As the number of stores continues to increase, municipalities need to keep a public health perspective when creating or modifying bylaws, as higher density tends to be associated with a higher proportion of individuals who consume cannabis.

Research efforts could assist by assessing and monitoring consumption at the local scale, using diverse methodologies such as self-reported frequency/quantity or measured consumption levels from wastewater in associations with location and density of stores. Additional research is also needed on the high and low-risk regulatory environments at the municipal level and evaluation of various options for lowering the level of risk where needed. Specifically, there is a high need to evaluate the efficiency and trade-offs of separation distances between cannabis retailers and youth-oriented places to prevent initiation of use and consumption or normalization. The intent of applying minimum distances is to minimize exposure to cannabis retail establishments as this can contribute to normalization. As has been found with alcohol and tobacco, the more exposure to normalizing behaviors the greater the risk for initiation or increase in the frequency of use. While there are few studies specific to the proximity of cannabis stores to schools and places where youth gather, it will be important for municipalities to continue to take a precautionary approach until further research is conducted to ensure harms are minimized.

In the same line of thought, public health authorities and researchers need to work with municipalities as confounding factors specific to the municipality's characteristics may have to be taken into account in both bylaw development and research efforts. Some municipalities' characteristics, such as their built environments, might already ensure population health safety. For instance, physical or natural barriers may exist (e.g. schools could be separated from a store by a railway or a river). Collaborative work with municipalities and public health authorities will also help ensure that bylaws will not potentially weaken or contradict previous public health strategies related to other substances, such as prohibition of onsite smoking or vaping or consumption of alcohol in public spaces.

#### **4.2 | Public consumption**

While various municipal and provincial regulations regarding cannabis use have been enacted in the three provinces, no studies on the consequences of these have been published so far. Nonetheless, our analysis makes it possible to make some observations and raise some questions.

All three provincial authorities have at least implemented similar augmented versions of the tobacco smoking and vaping acts. Québec's law introduced for its part a total ban on smoking and vaping in any publicly accessible spaces. Many municipalities in Ontario, and some in Alberta, also added more restrictions to vaping and smoking. In Alberta and Québec, a significant number also implemented total bans on ingestion of cannabis products, i.e. edibles or drinks. These restrictions mean that cannabis users are often directed towards their homes.

While part of the rationale for prohibiting public consumption of cannabis was to reduce public intoxication and its associated risks, (e.g., impaired driving, injury prevention,

trivialization of cannabis use, public nuisance) as we have seen in the analytical framework in the introduction, it can expose already marginalized populations to penal sanctions. It is also possible that if consumers choose smoking as their mode of use at home, they could expose family and friends to SHCS. For public health policy makers, this probably underscores a need to work with those responsible for bylaw applications to find ways to avoid disproportionately affecting marginalized groups, especially in urban settings where multi-unit housing without access to outdoor space is more common. It also probably underscores a need for harm reduction messaging for consumers to protect children and others in their homes from SHS, if and when access to private or common outdoor space is not possible. Research efforts could again help here by monitoring the fines imposed on marginalized groups and identifying innovative strategies and best practices.

### **4.3 | Limitations**

First, it is possible municipalities had not updated their information on their websites. Second, the study covered only the municipalities of three provinces, including the two most populous ones (Québec and Ontario). The analysis presented here does not represent all the nuances in municipal jurisdictions across Canada. Third, the study does not cover the regulations of sub-city jurisdictions, such as wards or neighborhoods that exist notably in Toronto (Ontario) and Montreal (Québec). These may have implemented bylaws or developed guidelines regarding public consumption or store location. Fourth, the results show percentages of municipalities, not the proportion of the provinces' population affected. This is a significant consideration because one municipality could represent 20% of a province's population (e.g., Calgary in Alberta). Last, this exploratory study has not considered how the regulations considered are concretely applied by municipal authorities.

Considerable differences between them in this regard can be anticipated and, consequently, in the ways they might influence the behaviors and health of cannabis consumers and of the other inhabitants. Furthermore, cannabis consumers may be unaware of these municipal restrictions, especially if they did not have any interaction with municipal authorities, such as a police officer that informed them that it was illegal to use cannabis in a specific space. Future studies on the topic should integrate this in their design.

## 5| CONCLUSION

This study provided a comparative analysis between municipal regulations and guidelines of three Canadian provinces regarding cannabis retail stores and public consumption of cannabis. The analysis has shown the importance of considering municipal cannabis regulations when studying the impact of legalization. It also contributes to a better understanding of how and why municipalities have sought to regulate retail activities and public consumption on their territories in three singular provincial legal environments. It is hoped that this will allow future studies to address their potential benefits or negative consequences on public health and some of its determinants in the Canadian context, and that other jurisdictions can use the results to correct the course where legalization has already passed and seem to be generating harms or “get it right from the start” decisions are being made on the way to legal change. This might be especially important and useful where state-level retail and public consumption policies could be too liberal.

It seems clear that research can be of help in this regard. Law and policy studies have in some domains started to focus on municipal regulations and their positive or negative

consequences for public health in many domains, but it is not yet the case with regards to the regulation of cannabis or psychoactive substances more generally. Through this contribution, it is hoped that other researchers will take note and develop new research topics around these. Public health policy makers and public health outcomes depend on these.

## **ENDNOTES**

<sup>1</sup> FG wrote a first version of the Quebec and Alberta laws (in this last case, based on a prior publication by Alberta Health Services in which MK and MF were among the authors). RV and CH revised the Quebec law draft and MK and MF the one for Alberta. RV wrote a draft version of the Ontario law, and FG revised it. There were no changes made to the Quebec and Ontario drafts other than formatting, but the Alberta draft was also updated to capture recent changes to the laws. There were no disagreements on the versions included in the article.

<sup>2</sup> The final classifications for both dimensions (land-use and public consumption bylaws) are the result of back and forth between the FG and the other authors. FG made an initial classificatory proposal in both cases based on his analysis of the data collected and submitted it to the other team members, who proposed adjustments via email and/or Zoom. Disagreements were resolved through consensus during the team meetings, and all authors agree with the final classifications. The coding work per se was made by FG for land-use bylaws. For public consumption bylaws, IJ and FG coded a sample to ensure consistency amongst them. IJ then completed the coding for the remaining bylaws and FG counter-validated it.

<sup>3</sup> Accessed November 12, 2021: <https://aglc.ca/cannabis/retail-cannabis/cannabis-licensee-search>.

<sup>4</sup> Accessed November 12, 2021: <https://www.agco.ca/cannabis/industry-resources/status-current-cannabis-retail-store-applications>

<sup>5</sup> Accessed November 12, 2021: <https://www.sqdc.ca/fr-CA/Magasins>

<sup>6</sup> Statistics Canada's population estimates were used for the calculation of rates:  
<https://www150.statcan.gc.ca/n1/pub/71-607-x/71-607-x2019036-eng.htm>



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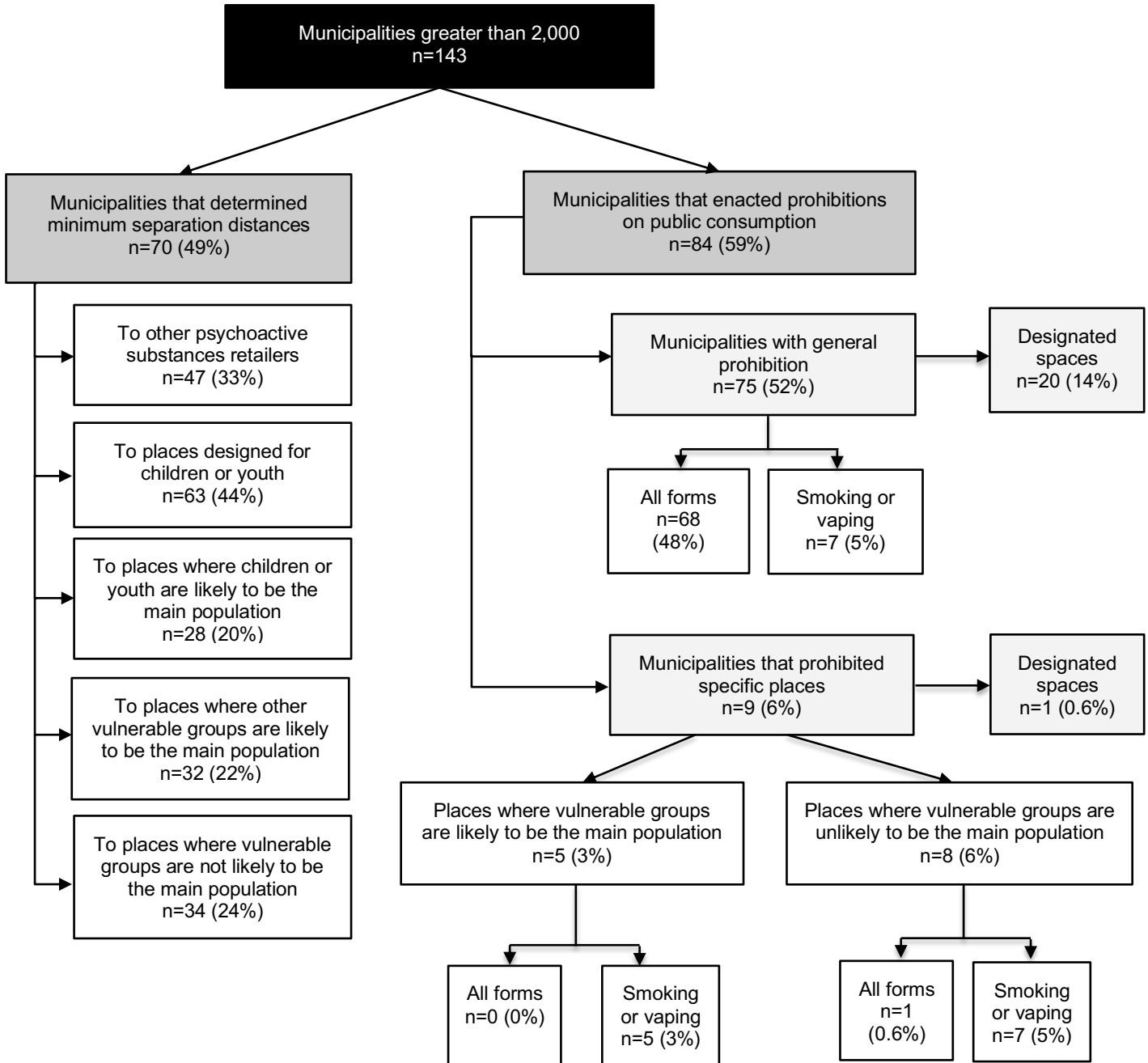
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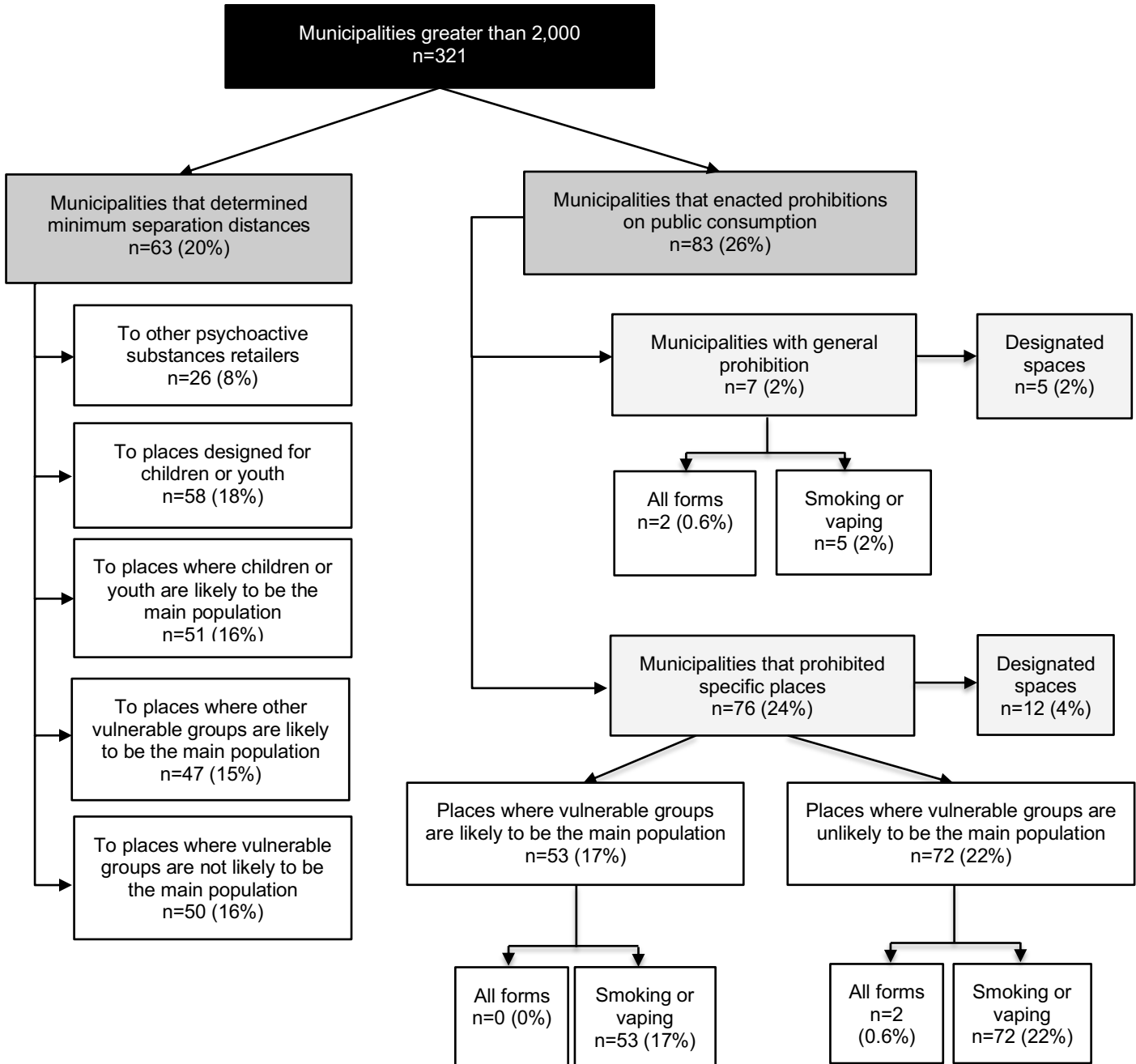
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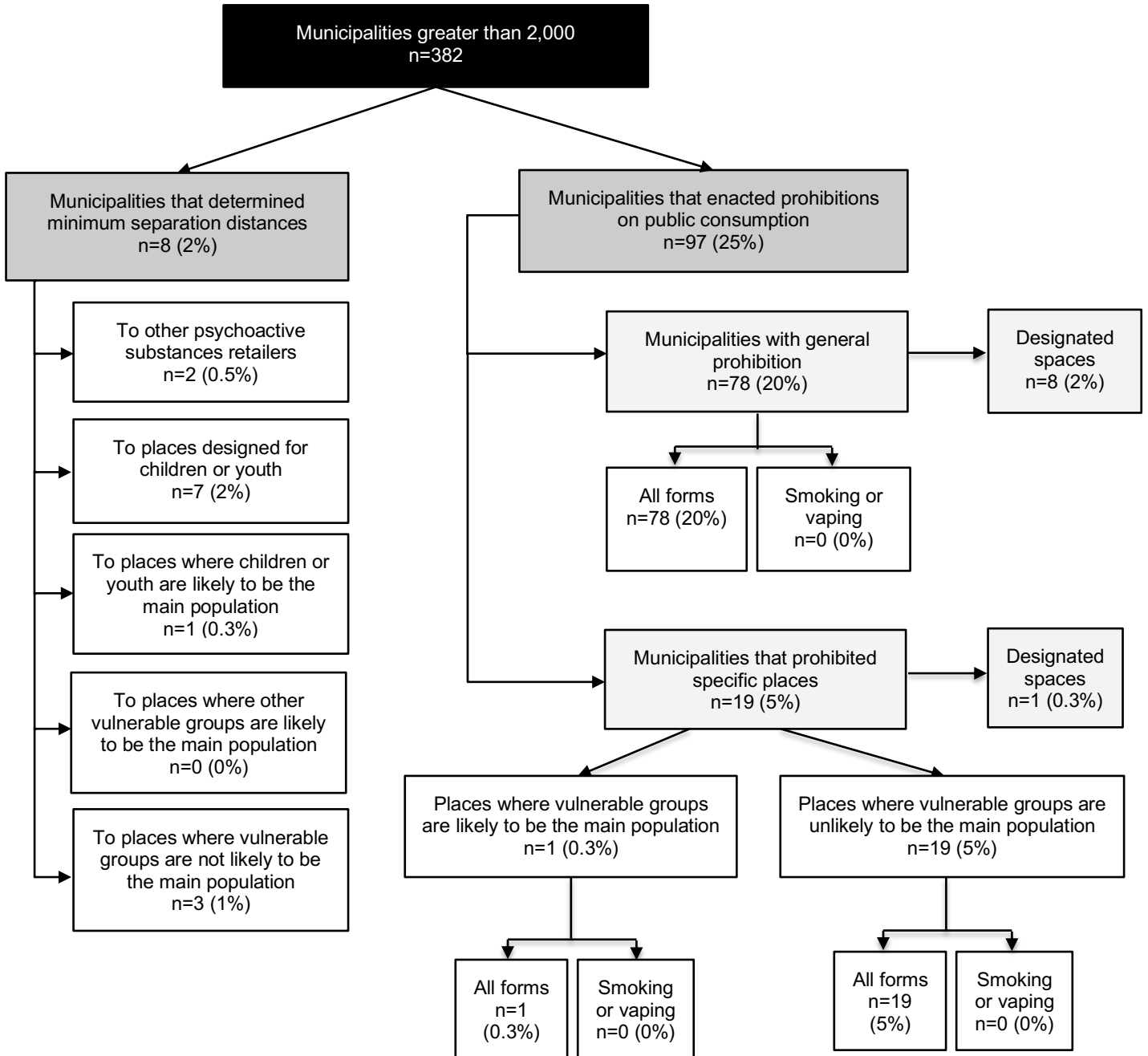
**FIGURE 1. PROHIBITIONS ON CANNABIS CONSUMPTION IN PUBLICLY ACCESSIBLE SPACES IMPLEMENTED BY ALBERTA MUNICIPALITIES.**



**FIGURE 2. PROHIBITIONS ON CANNABIS CONSUMPTION IN PUBLICLY ACCESSIBLE SPACES IMPLEMENTED BY ONTARIO MUNICIPALITIES.**



**FIGURE 3. PROHIBITIONS ON CANNABIS CONSUMPTION IN PUBLICLY ACCESSIBLE SPACES IMPLEMENTED BY QUEBEC MUNICIPALITIES.**



**TABLE 1. CLASSIFICATION REGARDING SEPARATION DISTANCES BETWEEN RETAILERS AND OTHER PLACES OF DIFFERENT NATURE**

Category	Description
Retail stores of psychoactive substances	Other cannabis retail stores, liquor and tobacco outlets, and pharmacies
Places designed for children and youth	<ul style="list-style-type: none"> <li>• Facilities whose primary purpose is to serve children and youth</li> <li>• 5 sub-categories:               <ul style="list-style-type: none"> <li>○ schools</li> <li>○ other educational institutions</li> <li>○ daycares</li> <li>○ youth centers</li> <li>○ playgrounds or splash pads.</li> </ul> </li> <li>• Also considered when referred to “places where youth congregate” or other such general formulation</li> </ul>
Places where children and youth are likely to be the main populations	<ul style="list-style-type: none"> <li>• Facilities not designed specifically for children and youth but where they are likely to be the main users</li> <li>• 3 sub-categories:               <ul style="list-style-type: none"> <li>○ sports facilities</li> <li>○ active use parks</li> <li>○ recreational or leisure facilities (e.g., municipal pools)</li> </ul> </li> <li>• Also considered when referred to “places where youth congregate” or other such general formulations</li> </ul>
Places associated with other vulnerable groups	<ul style="list-style-type: none"> <li>• Places designed for people presenting vulnerabilities such as mental health (e.g. addiction) or social (e.g. homelessness) problems - or where they are likely to be the main population.</li> <li>• 4 sub-categories:               <ul style="list-style-type: none"> <li>○ addiction and mental health facilities (e.g. detox centers)</li> <li>○ hospitals</li> <li>○ other health or social care services (urgent care centers, local health centers, homeless shelters)</li> <li>○ correctional facilities</li> </ul> </li> <li>• Also considered when referred to “facilities for people with addictions or mental health problems” or other such general formulations</li> </ul>
Places not associated with youth or other vulnerable groups	<ul style="list-style-type: none"> <li>• Civic places not designed specifically for children, youth, or people with particular health or social vulnerabilities - or where it is not likely that they would be the main population</li> <li>• 5 sub-categories:               <ul style="list-style-type: none"> <li>○ libraries, community centers, and farmers markets</li> <li>○ parks (when they were not qualified with “active-use”), rivers and trails</li> <li>○ places of worship for remembrance (e.g. cemeteries)</li> <li>○ streets, roads, and interchanges</li> <li>○ municipal offices (e.g. police stations)</li> </ul> </li> </ul>

Note: Some bylaws were counted twice as these categories were not mutually exclusive.

**TABLE 2. ADDITIONAL MINIMUM SEPARATION DISTANCE BETWEEN A CANNABIS RETAILER AND OTHER SENSITIVE LAND USES DETERMINED BY MUNICIPALITIES**

Sensitive use area	Alberta			Ontario			Québec		
	100m or less	101-250m	251m and over	100m or less	101-250m	251m and over	100m or less	101-250m	251m and over
Other retailers of psychoactive substances	18 (25.7%)	15 (21.4%)	14 (20.0%)	12 (19.0%)	13 (20.6%)	1 (1.6%)	1 (12.5%)	-	1 (12.5%)
Places designed for children and youth	25 (35.7%)	26 (37.1%)	12 (17.1%)	15 (23.8%)	40 (63.5%)	3 (4.8%)	-	2 (25.0%)	5 (62.5%)
Places where children and youth are likely the main population	16 (22.9%)	6 (8.6%)	6 (8.6%)	14 (22.2%)	36 (57.1%)	1 (1.6%)	-	-	1 (12.5%)
Places where other vulnerable groups are likely the main population	12 (17.1%)	12 (17.1%)	8 (11.4%)	9 (14.3%)	35 (55.6%)	3 (4.8%)	-	-	-
Places vulnerable groups unlikely to be main population	25 (35.7%)	5 (7.1%)	4 (5.7%)	15 (23.8%)	34 (54.0%)	1 (1.6%)	-	-	3 (37.5%)
Total <sup>1</sup>	96	64	44	65	158	9	1	2	10

Note: The total does not add up to 100% for a given province, given that many municipalities have identified distances to places belonging to many categories and that categories are not all mutually exclusive (when municipalities used general language related to children or youth, they were registered as having determined distances covering both youth-related categories).