



## STAFF REPORT ACTION REQUIRED

### Legalization and Regulation of Non-Medical Cannabis

<b>Date:</b>	May 13, 2016
<b>To:</b>	Board of Health
<b>From:</b>	Medical Officer of Health
<b>Wards:</b>	All
<b>Reference Number:</b>	

#### SUMMARY

The Government of Canada has committed to legalizing and regulating the non-medical use of cannabis, with legislation to be introduced by spring 2017. This report responds to a 2015 Board of Health (BOH) request to report on the issue of cannabis legalization and regulation. The report will focus on public health considerations related to non-medical cannabis use. A regulatory system is already in place for use of medical cannabis, discussion of which is beyond the scope of this report.

Cannabis has been cultivated for centuries for industrial and therapeutic use as well as for its psychoactive properties. Alcohol is the most commonly used legal drug among both youth and adults, and cannabis is the most commonly used illegal drug. As with other psychoactive drugs, the use of cannabis is not benign. Research has found both benefits and harms associated with cannabis use. Cannabis has therapeutic qualities and many people consume it for its psychoactive effects. The potential for harm exists particularly for people who consume it frequently or begin use in adolescence. Most of the research to date has focused on frequent, chronic use and more evidence is needed about the impact of occasional and moderate use as this comprises the majority of non-medical cannabis use in our society.

Globally, there is growing debate about the efficacy of criminalizing drugs such as cannabis, in particular that the harms now outweigh any intended benefits. Several jurisdictions, including Uruguay and several U.S. states, have legalized non-medical cannabis. There are lessons to be learned from these experiences as well as from the successes and failures of regulatory systems for alcohol and tobacco. Many health organizations have advocated for a public health approach to legalization and regulation in Canada, informed by this evidence. Establishing a clear goal will be key to the cannabis regulatory framework for Canada. From a public health perspective the goal should be on reducing potential harms for the population as a whole.

Canada will be only the second country in the world to legalize non-medical cannabis, and will therefore be an example to other countries considering similar action. Designing a regulatory approach for non-medical cannabis is complicated. It is worth taking the time to get the framework right to ensure a comprehensive, evidence-based regulatory system is in place from the start.

Toronto Public Health (TPH) will continue to monitor this issue with respect to public health impacts and considerations, and report to the BOH, as required.

## **RECOMMENDATIONS**

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### **The Medical Officer of Health recommends that:**

1. The Board of Health urge the federal Minister of Health to use an evidence-based public health approach to develop a regulatory framework for non-medical cannabis with a goal of reducing potential harms for the population as a whole;
2. The Board of Health urge the federal Minister of Health to earmark funding for research related to the full range of potential health impacts of non-medical cannabis use, including for occasional and moderate consumption;
3. The Board of Health urge Health Canada to work with relevant stakeholders to develop and fund a comprehensive monitoring system for cannabis, including the collection of baseline data, prior to implementation of a regulatory system;
4. The Board of Health forward this report to the federal Minister of Health, MP Bill Blair and other Toronto area Members of Parliament, the Ontario Minister of Health & Long-Term Care, the Ontario Minister of Finance, the Ontario Minister of Community Safety & Correctional Services, the Council of Ontario Medical Officers of Health, the Urban Public Health Network, the Association of Local Public Health Agencies, and the Canadian Centre on Substance Abuse, for information.

### **Financial Impact**

There are no financial impacts arising from this report.

### **DECISION HISTORY**

At its meeting of October 29, 2001, the BOH adopted a TPH position paper, entitled *A Public Health Approach to Marijuana* for submission to the Special Senate Committee on Illegal Drugs.

<http://www.toronto.ca/legdocs/2001/minutes/committees/hl/hl011029.pdf>

At its meeting of October 24, 2005, the BOH approved the Toronto Drug Strategy report, which included a recommendation to support pending federal legislation to decriminalize the possession of small amounts of cannabis for personal use. This bill did not proceed due to the dissolution of Parliament.

<http://www.toronto.ca/legdocs/2005/minutes/committees/hl/hl051024.pdf>

At its meeting on June 29, 2015, following from a recommendation from the Toronto Drug Strategy Implementation Panel, the BOH asked the Medical Officer of Health to report to the BOH in the first quarter of 2016 on cannabis legalization and regulation. <http://app.toronto.ca/tmmis/viewAgendaItemHistory.do?item=2015.HL5.14>

## **ISSUE BACKGROUND**

The issue of cannabis legalization and regulation was considered by the BOH in 2001 when it adopted a TPH position paper recommending a public health approach to cannabis. This position supported a balanced approach to drug policy based on prevention, harm reduction, treatment and enforcement, and the establishment of a legal control framework on a trial basis that is rigorously evaluated.

In the fall of 2014, the Centre for Addiction & Mental Health (CAMH) released a *Cannabis Policy Framework*, which recommended legalization and a strong regulatory framework for cannabis. In June 2015, the Toronto Drug Strategy Implementation Panel submitted a motion to the BOH asking the Medical Officer of Health (MOH) to report on cannabis legalization and regulation, taking into consideration the CAMH report.

In the 2015 federal election, the Liberal party successfully ran on a policy platform that included a commitment to "remove marijuana consumption and incidental possession from the *Criminal Code*, and create new, stronger laws to punish more severely those who provide it to minors, those who operate a motor vehicle while under its influence, and those who sell it outside of the new regulatory framework." They further committed to "create a federal/provincial/territorial task force, and with input from experts in public health, substance use, and law enforcement, will design a new system of strict marijuana sales and distribution, with appropriate federal and provincial excise taxes applied."<sup>1</sup>

In January 2016, Bill Blair, MP for Scarborough Southwest and the former Chief of Police for Toronto, was named as the lead for the federal plan for legalization, including formation of a federal/provincial/territorial task force. On April 20, 2016, the federal health minister announced that legislation for the legalization and regulation of cannabis will be introduced in spring 2017.

The purpose of this staff report is to respond to the 2015 BOH report request. Given the federal government's commitment to change the legal status of cannabis, the report will focus on public health considerations related to cannabis legalization rather than on criminalization or decriminalization. Information and perspectives on this issue, where available, have been integrated into the report from the Toronto Drug Strategy Implementation Panel, the Centre for Addiction & Mental Health, the Canadian Public Health Association, the Canadian Association of Chiefs of Police, Health Canada, the Ministry of Health & Long-Term Care, the Canadian Mental Health Association, and the Canadian Centre for Substance Abuse. This report is focused on non-medical cannabis use. There is already a regulatory system in place for medical cannabis, discussion of which is beyond the scope of this report.

## COMMENTS

### Cannabis

Cannabis has been cultivated for centuries for industrial and medical use as well as for its psychoactive properties. Marijuana, hashish and hashish oil all come from the cannabis plant.<sup>2</sup> For the purposes of this report, the term cannabis will be used. There are more than 61 chemicals, called cannabinoids, in the cannabis plant. The main psychoactive ingredient is THC (delta-9-tetrahydrocannabinol).<sup>2</sup> Cannabis also contains CBD (cannabidiol), which produces little to no psychoactive effect, but does provide therapeutic benefits.

There are many ways to consume cannabis. Smoking is the most common form of use, usually rolled by itself or mixed with tobacco into a cigarette (joint) or pipe. Cannabis can also be consumed through herbal vaporizers that heat it (usually in herbal form) to a temperature hot enough to release the volatile cannabinoids as a vapour, but not so hot that it combusts to create smoke.<sup>3</sup> E-cigarettes are also used to consume cannabis oil through production of a vapour instead of smoke although they work differently than herbal vaporizers. Instead of heat to extract the volatile content, they use a pre-prepared solution (which may contain nicotine) that is turned into a vapour in a battery-powered atomization chamber upon inhalation.<sup>3</sup> Cannabis can also be cooked into edible forms or made into a drink.

### Prevalence of cannabis use in Toronto

People use psychoactive substances for many reasons, including for pleasure, to enhance social experiences, and also to cope with difficult or traumatic issues. Substance use in our society does not necessarily create harm when used safely and in moderation. Alcohol is the most commonly used legal drug among both youth and adults, and cannabis is the most commonly used illegal drug. As noted in Table 1, among Toronto students, 39% report using alcohol, and 19% used cannabis, in 2015. Rates of cannabis use among youth in Toronto have remained fairly stable over the last decade with a high of 23% in 2013. As noted in Table 2, the most recent data available for Toronto adults found that 72% reported consuming alcohol and 14% used cannabis (in 2013). Rates of cannabis use among adults, aged 18 and over, have also remained stable over the last 10 years fluctuating between 13-19%.

**Table 1:**  
**Prevalence of substance use in the past year among Toronto students, Grades 7-12**

	2005	2007	2009	2011	2013	2015
<b>Alcohol</b>	51%	55%	47%	47%	42%	39%
<b>Cannabis</b>	20%	22%	20%	19%	23%	19%
<b>Tobacco</b>	9%	10%	7%	9%	10%	7%

Source: Centre for Addiction & Mental Health (CAMH), Ontario Student Drug Use & Health Survey

**Table 2:  
Prevalence of substance use in the past year among Toronto adults age 18+**

	2005	2007	2009	2011	2013	2015
<b>Alcohol</b>	74%	74%	78%	75%	72%	n/a
<b>Cannabis</b>	19%	16%	16%	12%	15%	n/a
<b>Tobacco</b>	10%	17%	16%	7%	12%	n/a

Source: Centre for Addiction and Mental Health (CAMH). CAMH Monitor eReports.

The CAMH 2015 *Ontario Student Drug Use and Health Survey* found that just over 2% of Ontario students in grades 9 to 12 reported symptoms of cannabis dependence.<sup>4</sup> The Canadian Community Health Survey found that just over 6% of Ontario residents aged 15 and older had symptoms of cannabis misuse or dependence in their lifetime.<sup>5</sup> This rate was much lower than for alcohol misuse or dependence (16%), but higher than for other illicit drugs (3%).<sup>5</sup> In Toronto, alcohol is the most common legal drug that people seek treatment for (71%), followed by tobacco (35%).<sup>6</sup> Among illicit drugs, cannabis is the most common drug people seek treatment for (32%) followed by crack cocaine (29%).<sup>6</sup>

### **Health impacts of cannabis use**

Cannabis use, similar to the use of other psychoactive substances, is not benign. However, the health risks associated with cannabis are significantly lower than they are for alcohol or tobacco.<sup>7,8</sup> The potential for harm exists particularly for people who consume it frequently (daily or near-daily) or begin use in adolescence.<sup>9</sup> However, these harms are associated with modifiable risk factors. TPH reviewed the available evidence on the health risks of cannabis use. The main sources of information for this evidence review were:

- the literature review that informed the *Lower Risk Cannabis Use Guidelines*;<sup>10</sup>
- a recent review of research over the past two decades about the health effects of non-medical cannabis use by Hall (2014);<sup>11</sup>
- the CAMH *Cannabis Policy Framework* (2014), which offers evidence-based conclusions about cannabis and measures aimed at reducing harm;<sup>8</sup>
- a review of the effects of cannabis use during adolescence conducted by the Canadian Centre on Substance Abuse (2015);<sup>12</sup> and,
- a review of the health and social consequences of non-medical cannabis with a special focus on the effects on young people and on long-term, frequent use by the World Health Organization (2016).<sup>9</sup>

TPH also conducted a search of studies not included in the reviews listed above or that were published more recently. This included a search of the PubMed database of biomedical literature for articles on 'cannabis health effects' and 'exposure' published since 2010, and Google Scholar for studies on health impacts.

#### **a) Medical cannabis**

As noted, cannabis contains CBD (cannabidiol), which has little to no psychoactive effect. Research suggests that CBD has various therapeutic properties, including the relief of pain, nausea and inflammation.<sup>2</sup> In 2013, the federal government in Canada

approved the use of cannabis for medical purposes when prescribed by a physician.<sup>13</sup> Synthetic cannabis medications (dronabinol, nabilone) are used to relieve nausea and vomiting and to stimulate appetite, which can help people who have AIDS or who take drugs used to treat cancer.<sup>2</sup> Sativex™, the world's first prescription medicine derived from the cannabis plant, was approved in Canada in 2005 for the relief of pain associated with multiple sclerosis.<sup>2</sup>

#### **b) Brain development**

The brain continues to actively develop throughout adolescence and into a person's twenties.<sup>12,14,16</sup> The brain is vulnerable to the effects of drugs during this time, including cannabis.<sup>8,14,15,16</sup> Heavy cannabis use during adolescence has been linked to more serious and long-lasting outcomes than use during adulthood.<sup>9,16</sup> Cannabis use during adolescence and young adulthood has been linked to impairments in memory and verbal learning.<sup>9,14,15,16,17,18,19</sup> There is also evidence that frequent use of cannabis is associated with declines in IQ,<sup>11,14,15,20</sup> although this finding was disputed in a study of adolescent twins.<sup>21</sup> Regular cannabis use in adolescence has also been linked with low levels of educational attainment,<sup>9,11,14,22,23</sup> although whether this is due to the effect of cannabis on brain development or other factors related to the social determinants of health (e.g., poverty) is unknown.<sup>11,14,23</sup>

It is unclear whether cognitive impairments associated with cannabis use are reversible. Growing evidence suggests that while the cognitive problems associated with regular use diminish after a period of non-use for adults,<sup>8</sup> the effects may be longer lasting or permanent for those who begin using in adolescence.<sup>8,12,14,20,24</sup> Conversely, other studies found partial or full recovery after a period of abstinence.<sup>11,14,25</sup>

#### **c) Mental health**

Many studies link frequent cannabis use to mental health issues, particularly in people who have a pre-existing genetic vulnerability to mental illness.<sup>8,11,14,26,27,28</sup> Several studies have found a relationship between regular cannabis use and psychotic disorders (e.g. schizophrenia) and symptoms,<sup>9,8,11,14,16,29</sup> particularly in people who began cannabis use in adolescence.<sup>11,12,14,16,28,29,30,31,32</sup> Cannabis use is also linked to bipolar disorder or increased manic symptoms in people with bipolar disorders,<sup>9,11,16,33,34</sup> an increased risk of anxiety and/or depression<sup>14,16,27, 35,36,37,38</sup> and suicide attempts or ideation.<sup>9,11</sup>

It is important to note that a clear causal relationship between cannabis use and mental illness has not been established. The evidence is mixed as to whether cannabis use causes psychotic disorders and other mental health issues or whether they would have occurred on their own.<sup>11,14,16,29</sup> The potency of cannabis may also be a factor as cannabis with a higher concentration of THC has been shown to increase the likelihood of developing psychosis.<sup>32,39,40</sup>

Further, many researchers note that if cannabis use caused schizophrenia, the incidence of schizophrenia would increase concurrently to the rise in cannabis use, which has not occurred.<sup>11,12,16,41</sup> Regardless, many studies agree that there is sufficient evidence to warn youth and young adults that early and frequent cannabis use could

increase their risk of developing psychosis or cause symptoms to appear earlier.<sup>11,29,30,31</sup>

**d) Relationship to other illicit drug use**

Most people who use cannabis do not go on to use other illicit drugs.<sup>42</sup> However, there is some evidence that cannabis use is associated with an increased risk of using other drugs, particularly when used in adolescence,<sup>9,14,43,44,45,46</sup> and among people with mental health issues.<sup>45</sup> A recent study linked cannabis use with developing substance use disorders, including alcohol misuse and dependence, cannabis or other drug misuse and dependence, and nicotine dependence.<sup>47</sup> Some researchers note that people who are genetically or otherwise susceptible to using other illicit drugs may start with cannabis because it is the most accessible drug, not because it leads to other drug use.<sup>9,12,14,44,48,49</sup>

**e) Dependence**

The risk for dependence is low with respect to cannabis, estimated at about 9%.<sup>50</sup> The risk of becoming dependent on alcohol is much higher (23%) and even higher with tobacco (68%).<sup>50</sup> Risk factors for cannabis dependence include early onset of use (i.e. at age 11-15), frequent use, positive reactions to first cannabis use, use outside of social contexts, previous drug use and the presence of other mental disorders.<sup>51</sup>

**f) Respiratory effects**

Like tobacco smoke, cannabis smoke contains cancer-causing chemicals and other harmful by-products.<sup>8,52,53,54,55</sup> There is some evidence that regular, long-term cannabis smoking is linked to poor respiratory health, including increased coughing and wheezing, bronchitis,<sup>9,56,57</sup> and lung,<sup>9,11,53,58,59,60</sup> and laryngeal cancer.<sup>61</sup> Compared to tobacco smoke, cannabis smoke is often unfiltered and smokers hold the smoke in their lungs for longer periods of time to increase the psychoactive effect. These differences in the way that cannabis is smoked could increase impacts on lung health.<sup>8,59</sup> However, it is important to note that the effect of cannabis smoking itself on lung health has been difficult to study because many cannabis smokers also smoke or used to smoke tobacco, which is an established cause of lung disease.<sup>8,11,109</sup> While some studies find increased risks of respiratory effects or cancer among cannabis-only smokers,<sup>11,53,56,57,61</sup> other studies have not, particularly when cannabis is used infrequently or occasionally.<sup>11,62,63,64</sup>

Concerns about the respiratory risks of cannabis use relate to smoking as the form of delivery. For this reason, the *Lower-Risk Cannabis Use Guidelines* recommend smokeless delivery systems such as vaporizers.<sup>109</sup> Vaping is often perceived by cannabis users as being less harmful to their health than smoking, although data on the health risks and benefits of this method is limited.<sup>65</sup> Emerging evidence indicates that vaporizing cannabis could reduce the respiratory risks associated with smoking cannabis.<sup>66,67,109</sup> However, as with e-cigarettes, there is some concern that vaping cannabis may be more attractive to youth than smoking as the vapor often tastes better and is less harsh than smoke.<sup>65,68,69</sup>

**g) Second-hand smoke**

A small number of studies have been conducted on the health impacts of exposure to second-hand cannabis smoke. These studies tend to focus on whether THC, the

psychoactive ingredient in cannabis, can be absorbed by non-smokers who are exposed to cannabis smoke. Second-hand cannabis smoke exposure has been found in experimental studies to produce THC in blood and urine,<sup>70,71,72,73</sup> minor effects of intoxication,<sup>70,73</sup> and minor impairment on tasks requiring psychomotor ability and working memory.<sup>70</sup>

Ontario studies have found cancer-causing chemicals in second-hand cannabis smoke.<sup>54,55</sup> However, whether second-hand cannabis smoke can cause similar health effects to tobacco smoke, and what amount of cannabis smoke is harmful to bystanders, is unknown. Some people mix cannabis with tobacco prior to smoking it, which is of concern as there is no safe level of exposure to second-hand tobacco smoke.<sup>74</sup>

#### **h) Pregnancy**

Studies about the reproductive effects of cannabis use often have limitations because self-reported rates of use during pregnancy are low, and it can be difficult to adjust findings for other factors such as cigarette use.<sup>11,109</sup> However, several studies associate cannabis use during pregnancy with reduced birth weight, including many that adjusted for cigarette smoking, alcohol and other illicit drug use.<sup>11,75,76,77,78</sup> The low birth weight associated with cannabis use during pregnancy includes both an increased risk of small for gestational age babies<sup>11,75</sup> and preterm birth, both of which pose health risks.<sup>11,75,79</sup>

There is also some evidence that prenatal exposure to cannabis could impact children's development, behaviour and academic achievement,<sup>9,11,80,81</sup> including symptoms of ADHD, deficits in learning and memory,<sup>82</sup> and poorer school performance.<sup>11,83</sup> Given the possibility of health effects associated with cannabis use during pregnancy, the *Lower Risk Cannabis Use Guidelines* advise that pregnant women avoid use.<sup>109</sup>

#### **i) Driving**

A key public health concern relates to driving under the influence of cannabis. Motor-vehicle accidents are the main impact of concern contributing to Canada's burden of disease and injury from cannabis.<sup>8</sup> In 2015, 9% of Toronto students in grades 10-12 with a driver's licence reported driving after using cannabis at least once in the past year. In comparison, 4% of Toronto students reported driving after consuming two or more alcoholic drinks.<sup>4</sup>

Compared to alcohol, the effects of cannabis use on driving are not as well understood. There is evidence that cannabis use is associated with driving impairment, particularly in occasional smokers.<sup>84</sup> Cannabis has been found to negatively affect the cognitive and psychomotor skills needed for driving, such as memory, critical tracking, divided attention and stop reaction time, with the effects increasing as the dose increases.<sup>85,86,87,88,89</sup> Driving under the influence of both alcohol and cannabis causes greater impairment.<sup>84,90</sup> A survey of Ontario adults found that participants who drove after using cannabis had a greater risk of collision involvement than those who did not.<sup>91</sup> Other studies have found that cannabis use nearly doubles the risk of a driver being involved in a motor vehicle collision.<sup>11,92</sup>



The effects of cannabis on driving skills vary among individuals more than they do with alcohol because of tolerance, differences in smoking technique and absorption of THC.<sup>93</sup> Furthermore, unlike those under the influence of alcohol, drivers influenced by cannabis have been found to be aware of their impairment and to compensate by driving more cautiously.<sup>87,93</sup> One study that compared the effects of alcohol and THC on driving performance found that drivers drove more slowly after smoking cannabis and faster after drinking alcohol.<sup>94</sup>

Although conclusions from studies on the effects of cannabis use on driving are inconsistent, existing evidence supports measures to prevent driving while under the influence.

### **Limitations of cannabis research**

It is important to note that while there is growing evidence about the health impacts of cannabis some of the research findings are inconsistent or even contradictory, and causal relationships have not always been established. There is still much that we do not know. Most of the research to date has focused on frequent, chronic use, and the results must be interpreted in that context. More evidence is needed about occasional and moderate use as this comprises the majority of cannabis use. It is therefore recommended that the BOH urge the federal Minister of Health to earmark funding for research related to the full range of health impacts of cannabis use, in particular for occasional and moderate consumption.

### **Legal frameworks for cannabis**

Worldwide, the dominant legal framework for cannabis is criminalization. Canada did not criminalize cannabis until 1923 although use of the drug was very low until the 1960s. The federal law that prohibits designated psychoactive substances in Canada is the *Controlled Drugs & Substances Act*. In 2013, regulatory changes were made to allow for the provision of medical cannabis through prescription by a physician. The current federal government has committed to legalize and regulate the non-medical use of cannabis, although such use remains illegal until the necessary legislative changes are made.

Globally, there is growing debate about the efficacy of criminalizing drugs such as cannabis, in particular that the health, social, economic and criminal harms of this approach outweigh any intended benefits. Some countries, most notably the Netherlands, have not changed their laws but have allowed a "de facto" social acceptance of the use of cannabis. In 2001, Portugal decriminalized the possession of small amounts of all drugs and redirected their efforts toward health-oriented approaches, including treatment. Several jurisdictions have legalized cannabis although regulatory approaches vary. In 2014, Uruguay became the first country in the world to take this step. In the United States, cannabis remains illegal under federal law, although some states have legalized the non-medical use of cannabis, including Colorado, Washington, Alaska, and Oregon. The legalization of cannabis is also a ballot question in the 2016 US federal election in several states, including California and Nevada.

## **Benefits and concerns about legalization**

The movement toward legalizing and regulating drugs such as cannabis largely stems from a recognition that criminalization has not been effective. The harms associated with criminalization have been well documented and include high rates of incarceration for non-violent drug offences and the associated consequences, stigma and discrimination, and barriers to service provision.<sup>95</sup> There are no controls over the production or quality of cannabis in the current illegal non-medical cannabis drug market resulting in unknown THC levels and possible contaminants and adulterants, including other drugs. There are also serious health and safety issues related to illegal grow operations. Legalization will eliminate criminal sanctions as set out in the legislation, and the associated consequences for youth and adults. Further, government regulation of the production, manufacturing and distribution of cannabis will help to ensure a safer product.

Opponents of legalization highlight concerns that it may lead to an increase in cannabis use among youth.<sup>96</sup> However, experience has shown that criminal sanctions do not deter drug use. Cannabis is the most commonly used illicit drug among youth in Canada despite existing laws. Comparisons between states or regions with differing approaches to drug policy show no clear correlation between the toughness of laws and penalties and the levels of drug use.<sup>97</sup> Further, prevention and harm reduction approaches targeted to youth will be easier to implement in a legalized environment.

Another concern is that commercial or even government interests will drive the market toward a profit-based system as it has with tobacco and alcohol. Maintaining a strong public health oriented approach will require vigilance and comprehensive regulation to avoid profit-driven production, marketing and sales.<sup>95</sup>

## **Regulatory models**

Canada will be only the second country in the world to legalize and regulate cannabis. In that regard, Canada will be an international leader and an example for other countries considering similar action. Designing a new regulatory approach for cannabis is complex; it is both a responsibility and an opportunity. If it is over-regulated the potential benefits of regulation may be lost as people continue to turn to the illegal drug market. However, under-regulation could lead to further harms and it might be difficult to impose tighter controls going forward. It is worth taking the time to ensure a comprehensive, evidence-based regulatory system is in place from the start. It will also be important to develop a system that is agile and flexible enough to adapt and respond to any issues that emerge.

There are a range of regulatory models for managing psychoactive substances (alone or in combination), including the following:

*a) Criminalization:*

Using criminal law to denounce, deter, punish, and rehabilitate those who use substances (e.g., cannabis, heroin, cocaine).

*b) Government control/monopoly:*

Government monopolies or partial monopolies on substances (e.g., alcohol).

*c) Commercialization:*

Free market perspective to managing substances as commodities (e.g., tobacco).

*d) Prescription:*

Health professionals provide access to drugs, with intent to maximize the medical benefits and minimize the harms associated with substances (e.g., methadone).<sup>95</sup>

Policy development, implementation and enforcement related to the regulatory model chosen for Canada will have implications for provinces, territories, municipalities, and local public health related to their jurisdictional and mandated responsibilities. For example, decisions about the implementation of certain aspects of the regulatory framework may fall to the provinces (e.g., distribution mechanisms, age limits).

### **Lessons from other jurisdictions**

In developing a regulatory system for cannabis in Canada, there is the opportunity to learn from the few jurisdictions that have already done this recognizing that implementation is still in the early stages. Colorado and Washington began retail sales of cannabis in 2014. The Colorado Department of Public Health and Environment has worked with other government agencies to develop a public health framework for legalization of cannabis based on public health functions of assessment, policy development and assurance.<sup>98</sup> These and other related policy documents provide useful guidance for development of a cannabis regulatory system for Canada.

The Canadian Centre on Substance Abuse produced a report on lessons learned from the U.S. experience to date, which includes the following recommendations:<sup>99</sup>

- Identify a clear purpose to drive the overall approach – what is the goal of legalization and regulation?
- Develop a comprehensive regulatory framework that addresses health, public health, social, economic, enforcement and criminal justice considerations.
- Reconcile medical and retail markets. (In Colorado, demand for medical cannabis was expected to fall, but it increased. This may be because there are higher possession limits for medical cannabis, exemptions from some taxes, and medical cards can be obtained for individuals under age 21, which is the age limit for non-medical cannabis in that state).<sup>98</sup>
- Prevent commercialization through taxation, state regulation and monitoring and controls on advertising and promotion.
- Prevent youth consumption by controlling access and investing in prevention, health promotion, awareness and education of both youth and parents.
- Invest in effective implementation, including developing a framework, ensuring there is the capacity and resources, providing strong leadership, promoting collaboration of stakeholders involved, investing in a public health approach, developing a clear communication plan, investing in research to establish the evidence base underlying the regulations, and conduct rigorous, ongoing data collection.<sup>99</sup>

It is also essential that the new regulatory framework be evaluated and establishing base line data will be an important first step for an effective evaluation. In Colorado, baseline data was not available before retail sales of cannabis began, which is a limitation for measuring future impacts. A monitoring system has since been developed with measures including cannabis-related emergency room visits and hospitalizations, impaired driving,

recreational injuries, unintentional poisonings, product contamination (mold, bacteria, etc.), over consumption, and food-borne illness from edible products.<sup>98</sup>

It is therefore recommended that the BOH urge Health Canada to work with relevant ministries and stakeholders to develop and fund a comprehensive monitoring system for non-medical cannabis, including the collection of baseline data, prior to implementation of a regulatory system for cannabis to enable effective evaluation.

### **A public health approach to regulation**

A number of health organizations have advocated for a public health approach to legalization and regulation in Canada, both before and after the federal government announced plans to legalize (see Appendix A). In 2014, the Canadian Public Health Association released a report entitled, *A New Approach to Managing Illicit Psychoactive Substances in Canada*, which articulates a public health approach to substances based on the principles of social justice, attention to human rights and equity, evidence-informed policy and practice, and addressing the underlying determinants of health.<sup>95</sup>

In 2014, CAMH released a *Cannabis Policy Framework*, which also articulates a public-health focused regulatory framework. The report was developed based on a systematic review of the scientific evidence, and the experience of other jurisdictions. The framework is based on the following key principles:<sup>8</sup>

- Establish a government monopoly on sales;
- Set a minimum age for purchase and consumption;
- Limit availability, with limits on retail density and hours of sale;
- Curb demand through pricing;
- Curtail higher-risk products and formulations;
- Prohibit marketing, advertising and sponsorship;
- Clearly display product information, in particular THC and CBD content;
- Develop a comprehensive framework to address and prevent cannabis-impaired driving;
- Enhance access to treatment and expand treatment options;
- Invest in education and prevention, including promotion of the lower-risk cannabis use guidelines.<sup>8</sup>

The CAMH framework and other related policy documents reflect the considerable body of research on alcohol and tobacco regulation, the lessons from which can be applied to identify elements of a public health approach to the regulation of non-medical cannabis, as follows:

#### **a) Availability and accessibility:**

Research has shown maintaining strong regulatory control on the availability of alcohol is key to preventing harms. Measures include government monopolies on the sale of alcohol and limiting locations and hours of sale.<sup>100</sup> Some initial speculation in Ontario is that cannabis may be sold through the Liquor Control Board of Ontario.

Given the health concerns of mixing alcohol and other drugs, consideration should be given to establishing a separate government sales outlet for cannabis. There has

recently been an erosion of controls on the sale of alcohol in Ontario (e.g., sales in supermarkets). This trend of economic priorities overriding health considerations is a concern in the face of an expanding drug market. Mechanisms should be put in place to ensure profit is not the key policy driver.

**b) Minimum age:**

A minimum purchase age for alcohol and tobacco products has been found to be an important measure in controlling the use of these substances by youth.<sup>100,101</sup> Legal drinking and smoking ages vary across provinces in Canada. In Ontario, the minimum age to purchase alcohol and cigarettes is 19. A key goal of the federal government in the regulation of cannabis is to reduce potential harms for youth. Setting a minimum legal age for consumption and purchase will be important in achieving this goal.

**c) Density of sales outlets:**

Research has found that greater alcohol outlet density is associated with increased alcohol consumption and related harms, including medical harms, injury, crime, and violence.<sup>100,102</sup> Similarly, tobacco outlet density is associated with higher likelihood of youth smoking.<sup>103</sup> The establishment of control options such as distancing provisions (e.g., from other sales outlets, schools or other sensitive locations) should be considered as part of the cannabis regulatory framework.

**d) Marketing and promotion:**

Evidence has demonstrated that marketing of substances has an impact on youth. For example, advertising has been found to promote and reinforce perceptions of drinking as positive, glamorous and risk-free.<sup>100</sup> To minimize promotion of cannabis, a standardized, neutral (e.g., plain packaging) and non-promoting environment for cannabis sales should be considered.<sup>104,105</sup>

**e) Pricing and taxation:**

Price has an effect on the level of alcohol consumption and related problems. Consumers respond to changes in price and this applies to all groups of drinkers, including young people and heavy or problem drinkers.<sup>104</sup> This effect is also true for tobacco.<sup>106,107</sup> A challenge will be establishing an effective pricing structure for cannabis that discourages harmful levels of consumption without increasing demand for contraband products.

**f) Driving measures:**

Policy measures that have been shown to be effective in reducing alcohol impaired driving include setting low BAC (blood alcohol concentration) limits, graduated licencing, and random breath tests.<sup>100</sup> Driving while impaired by a drug, including cannabis, is an offence under the *Criminal Code*, and drivers are subject to the same penalties as those impaired by alcohol.<sup>108</sup> Strong impaired driving laws, including more effective drug testing measures for cannabis, will be important going forward.

**g) Health promotion and education:**

Targeted health promotion and education has a role to play in reducing the harms of substance use when combined with robust policy measures.<sup>100</sup> Public education will be key when implementing a new regulatory system for cannabis. However, the content must be evidence-based and targeted across the life span. Historically, education about drugs has been fear-based, not based on evidence, and grounded in

stigmatizing and discriminatory beliefs about substance use. Part of the education process will be helping to establish new cultural norms, including bridging the diversity of views about cannabis. There is an opportunity to promote a culture of moderation and harm reduction for cannabis that may extend to other substance use, especially among young people.

Health promotion strategies can also be informed by the *Lower Risk Cannabis Use Guidelines*, developed by Canadian researchers in 2011.<sup>109</sup> These guidelines have been endorsed by the CAMH and the CPHA. As with any psychoactive drug, the only way to completely avoid risk is not to consume cannabis, but potential harms can be reduced with the following strategies:

- Delay use until adulthood (the brain is fully developed by around age 24);
- Avoid frequent use (every day or almost every day);
- Avoid smoking cannabis with tobacco, avoid deep inhalation or breath-holding, or use smokeless delivery systems such as vaporizers;
- Use less potent cannabis products, or titrate the THC dose;
- Avoid driving for at least 3 to 4 hours after use, or more if needed; and,
- Pregnant women, middle-aged or older men with cardiovascular problems and people with a personal/family history of psychosis should avoid cannabis use.<sup>109</sup>

**h) Use in public places:**

With respect to health protection, the Smoke-Free Ontario Act prohibits smoking tobacco in enclosed public places and workplaces, on bar and restaurant patios and in other select outdoor places.<sup>110</sup> Establishing a regulatory model for cannabis should ensure use is prohibited in places where tobacco smoking or e-cigarette use is also prohibited. This will ensure consistency with existing laws and address potential health concerns associated with second-hand cannabis smoke and vapour, and social exposure of youth to smoking.

**i) Additional considerations:**

There are other considerations related to the supply and production of cannabis that will need to be thought through as part of a regulatory framework, including:

- Licencing system and standards for producers;
- Production quality, including strains of cannabis, THC levels, products (e.g., edibles, tinctures, etc.) that meet consumer preference so they do not turn to the illegal drug market;
- Product design and labelling requirements (e.g., health risks); and,
- Production for personal consumption (i.e., as with home brewing of beer and wine).

Another consideration relates to the indoor production of cannabis, which has been shown to have a significant carbon footprint. Indoor cultivation uses significant energy resources, including intensive lighting and climate control. For example, one cannabis 'cigarette' represents 1.5 kg of CO<sub>2</sub> emissions equal to driving a hybrid car 35 kilometres.<sup>111</sup> Regulation and licensing options worth considering include mandating carbon-free electricity generation.<sup>112</sup> Boulder, Colorado requires cannabis businesses to offset 100% of their electricity consumption with renewable energy.<sup>112</sup>

Establishing a clear goal for legalization and regulation in Canada will be central in guiding the overall framework. From a public health perspective the goal should be on reducing potential harms. It is therefore recommended that the BOH urge the federal Minister of Health to use an evidence-based public health approach to develop a regulatory framework for non-medical cannabis with a goal of reducing potential harms for the population as a whole.

Cannabis policy is a complex and dynamic issue in Canada, and will be for some time. TPH will continue to monitor this issue with respect to public health impacts and considerations, and report to the Board of Health as required.

## **CONTACT**

Jann Houston  
Director, Strategic Support  
Toronto Public Health  
Phone: 416-338-2074  
Email: [jhouston@toronto.ca](mailto:jhouston@toronto.ca)

Susan Shepherd  
Manager, Toronto Drug Strategy Secretariat  
Toronto Public Health  
Phone: 416-338-0923  
Email: [sshephe1@toronto.ca](mailto:sshephe1@toronto.ca)

## **SIGNATURE**

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Dr. David McKeown  
Medical Officer of Health

## **ATTACHMENTS**

Appendix A: Health and enforcement positions on cannabis legalization and regulation

## Appendix A: Health and enforcement positions on cannabis legalization and regulation

The Board of Health requested information on the views of several health and enforcement agencies related to cannabis legalization. These positions, along with those of other relevant organizations, are outlined below.

- **Canadian Public Health Association (CPHA)**  
In 2014, the CPHA released a report entitled, *A New Approach to Managing Illicit Substances in Canada*. The purpose of this report was to identify options and stimulate discussion toward an evidence-based, public health approach to illicit drugs, including cannabis. Among its recommendations, the report calls for "the development and evaluation of public-health oriented regulatory changes for managing cannabis in Canada."
- **Centre for Addiction & Mental Health (CAMH)**  
In the fall of 2014, CAMH released a report entitled, *Cannabis Policy Framework*, which recommended legalization and a strong regulatory framework for cannabis. The CAMH position was developed based on a systematic review of the scientific evidence, and the experience of other jurisdictions.
- **Canadian Centre for Substance Abuse (CCSA)**  
The CCSA has produced a number of policy reports and research summaries related to non-medical cannabis use, including *Cannabis Regulation: Lessons Learned from Colorado and Washington State* (2015), *Cannabis Regulatory Approaches* (2015), *The Effects of Cannabis Use during Adolescence* (2015) and, *Clearing the Smoke on Cannabis — Highlights* (2015).
- **Canadian Association of Chiefs of Police (CACCP)**  
In August 2013, the CACCP passed a resolution affirming "the illicit use of cannabis has a negative impact on public safety and the health of young persons," and that "the CACCP does not support decriminalization or legalization of cannabis or any other illicit substance."<sup>113</sup> However, the resolution does highlight the need for alternative enforcement options and calls on the Minister of Justice and the Attorney General to amend the *Controlled Drugs & Substances Act (CDSA)* to "provide police officers with the discretionary option of issuing a ticket for simple possession of cannabis (30 grams or less of cannabis marihuana or one gram or less of cannabis resin) where a formal criminal charge pursuant to the CDSA would not be in the public interest."
- **Local Public Health Agencies**  
Several local health agencies in Ontario have endorsed a public health approach to regulating the non-medical use of cannabis. In November 2015, the Sudbury & District Board of Health passed a motion to "support a public health approach to the forthcoming cannabis legalization framework, including strict health-focused regulations to reduce the health and societal harms associated with cannabis use." This motion was also supported by the Board of Directors of the Association of Local



Public Health Agencies (alPHa) and the Grey-Bruce Board of Health in December 2015. The Windsor-Essex County Board of Health passed a similar resolution in December 2015 adding the need for strong health-centered and age-restricted regulations to reduce the health and societal harms associated cannabis use."

In January 2016, the Middlesex-London Board of Health passed motions advocating for "an evidence-based public health approach to cannabis in the context of legalization, including strict regulation for the non-medical use of cannabis, as well as its production, distribution, product promotion and sale; and to establish baseline data and mechanisms to monitor local use of cannabis in the coming years."

In March 2016, the Board of Health for Elgin St. Thomas Public Health passed a resolution supporting a public health approach to "any cannabis legalization framework introduced into Ontario, including a strong health-centred and age-restricted regulations to reduce the health and societal harms associated with cannabis use." In April 2016, the Simcoe Muskoka District Health Unit Board of Health passed a resolution urging the federal government to adopt a public health approach regarding the legalization of cannabis, with strict regulation of its use, production, distribution, product promotion, and sale.

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