Cannabis

Key Points

- There are risks and harms associated with cannabis use, regardless of whether it is used for medical or non-medical purposes.
- Among the general population, cannabis use continues to increase compared to past years.
- Cannabis was the most common substance associated with substance-related hospitalizations for youth aged 10 to 24 years in 2017–2018.
- The number of individuals who report using cannabis for medical purposes without documentation is more than double those who report using with documentation.

Introduction

With the legalization and regulation of cannabis for non-medical purposes in October 2018, it has become a major focus and emerging area of research in Canada. Cannabis, also commonly called marijuana, is a tobacco-like greenish or brownish material consisting of the dried flowers, fruiting tops and leaves of the cannabis plant, *Cannabis sativa*. Commonly used street names for cannabis include "weed," "pot," "herb," "ganja," "grass," "Mary Jane" and "reefer." In October 2019, Canada legalized the use of new classes of cannabis products, which includes edible cannabis (e.g., chocolate, tea), cannabis extracts (e.g., concentrated vape oils) and cannabis topicals. These products vary in their appearance, concentrations of tetrahydrocannabinol (THC) and cannabidiol (CBD), and methods of use, and have health risks that are not present with dried cannabis.[1,2,3,4]

Data Considerations

The limitations and variations in methods of collecting data for different Canadian cannabis data sets must be kept in mind when reading this drug summary. The Canadian Tobacco, Alcohol and Drugs Survey collects data every two years from those 15 years of age and older, and is useful for detecting large changes in population use and trends over time. The National Cannabis Survey collects data quarterly from those 15 and older and can help detect nuanced population changes in shorter periods of time. In most cases, only the most recent National Cannabis Survey data have been reported in this summary. The Canadian Cannabis Survey collects year-over-year data from those 16 years and older and over-samples individuals who consume cannabis, which provides increased knowledge about this group but limits its applicability to the national population. Comparing data from the sources reported in the summary should be done cautiously.

Data discussed in the summary represent pre-legalization or post-legalization periods or sometimes both. For example, data reported on criminal activity associated with cannabis for the year 2018 in the Uniform Crime Reporting system represents acts that were illegal under pre-legalization laws as well as acts illegal under post-legalization laws. It is important to be aware of the collection period context of any data discussed.

A current challenge in collecting and reporting on cannabis data is that there are a minimal number of commonly accepted definitions, descriptors and categories to help standardize the wide range of cannabis products, ingredients and dosage amounts. Without accepted definitions, it is difficult to collect, interpret or compare data, particularly if self-reported. These are limitations when reviewing any cannabis data.

Effects of Cannabis Use

Cannabis contains multiple chemical compounds but CBD and THC are the two most discussed.[5] THC is the primary psychoactive compound that produces intoxicating and impairing effects — the "high" (see below). CBD does not produce the high attributable to THC, but might have some psychoactive and therapeutic effects, although more research is needed in this area.

Short-term: Cannabis produces euphoria and relaxation, changes in perception, time distortion and deficits in attention span.[4,6] It also negatively impacts the ability to divide attention and results in deficits in memory, body tremors and impaired motor functioning. Cannabis also impairs coordination and balance. Other physical effects of recent cannabis use include increased heart rate and appetite, increased blood pressure, dilated pupils, red eyes, dry mouth and throat, and bronchodilation (expansion of breathing passages).

Long-term: Regular cannabis use is associated with deficits in memory, attention, psychomotor speed and executive functioning, particularly among those who started using cannabis during early adolescence.[3,7,8] Regular use of this drug can also increase the risk of psychosis, depression and anxiety, and breathing problems and respiratory conditions (e.g., aggravation of asthma). Use of cannabis during pregnancy — particularly heavy use — can affect children's birthweight, cognitive functioning, behaviour, future substance use behaviour and mental health.[6]

Medical versus non-medical and legal versus illegal products: Since cannabis products obtained from legal sources are tightly regulated, there might be less risk associated with them. Nevertheless, the use of these products, especially those containing high THC levels, still pose health and safety risks, particularly to mental and physical health.[5] These risks apply regardless of the reason of use, including for medical use. Furthermore, irrespective of the source of the cannabis there is not enough research on its long-term effects and precautions should still be taken when considering the use of cannabis from any source or for any reason.

Types of products and consumption methods: Different cannabis products and their methods of consumption can produce varying effects on health. For instance, consuming extracts containing high concentrations of THC can increase the risk of over-intoxication, symptoms of which include severe anxiety, vomiting and psychosis (paranoia).[9] After ingesting an edible cannabis product, it can take up to four hours to feel the full effects and they can last for as long as 12 hours, with some residual effects lasting up to 24 hours.[10] In 2019, vaping[A] was associated with over 2,500 hospitalizations in the United States and over 10 in Canada.[11,12]

Cannabis use disorder: The Government of Canada estimates that among those who use cannabis, about one in 11 will develop a cannabis use disorder and this estimate increases to one in six for those who initiate cannabis use as a teenager.[13] Risk of cannabis use disorder also increases to between 25% and 50% for those who smoke cannabis daily. Studies also reveal links to increased risk of psychosis and schizophrenia that can be affected by genetics, frequency of use, age of initiation and dosage amount, among other factors.[2,14,15,16] For instance, one study found that individuals who consume cannabis are at increased risk of between 2.5 and 10 times higher over non-consumers of developing psychosis and schizophrenia if they have a family history of these disorders, and another study found a 40% increase in risk.[8,15,17] However, there are limited studies examining these effects and more research investigating health-related issues is needed.

A Vaping data represents all types of substances consumed such as nicotine and not just cannabis. Further details are discussed below.

Legal Status of Cannabis in Canada

On October 17, 2018, the Government of Canada legalized and began regulating cannabis for non-medical purposes through the *Cannabis Act* (Bill C-45). At the federal level, the Act sets out the authorizations, prohibitions and criminal offences related to the distribution and possession of cannabis, and enacts additional prohibitions to protect youth and public health. Provincial and territorial jurisdictions are responsible for enacting their own regulations or additional restrictions related to the sale and distribution of cannabis. CCSA has developed an interactive online map that displays by jurisdiction the provincial and territorial regulations related to cannabis.

Regulations for the production and sale of edible cannabis products, cannabis extracts and cannabis topicals, new classes of cannabis products, came into force on October 17, 2019.[18] Some ingestible products produce greater health risks than cannabis that is inhaled and there has not been enough time to fully examine them, particularly for potential long-term harms.[10] In response, the regulations for these products are very specific and attempt to minimize harms by addressing various factors from THC limits to packaging and labelling.[19]

Although legalized and regulated, driving while impaired by cannabis remains illegal. Bill C-46, *An Act to amend the Criminal Code*, was enacted alongside Bill C-45 to support and enhance criminal offences related to impaired driving, specifically in response to the legalization of cannabis. More information about driving criminal offences (*per se* laws) and administrative sanctions can be found on CCSA's Impaired Driving web pages. The new laws feature limits set for the combined use of alcohol and cannabis. When cannabis and alcohol are consumed in combination, the mixture produces greater impairing effects than either substance alone, even at lower consumption levels.[4]

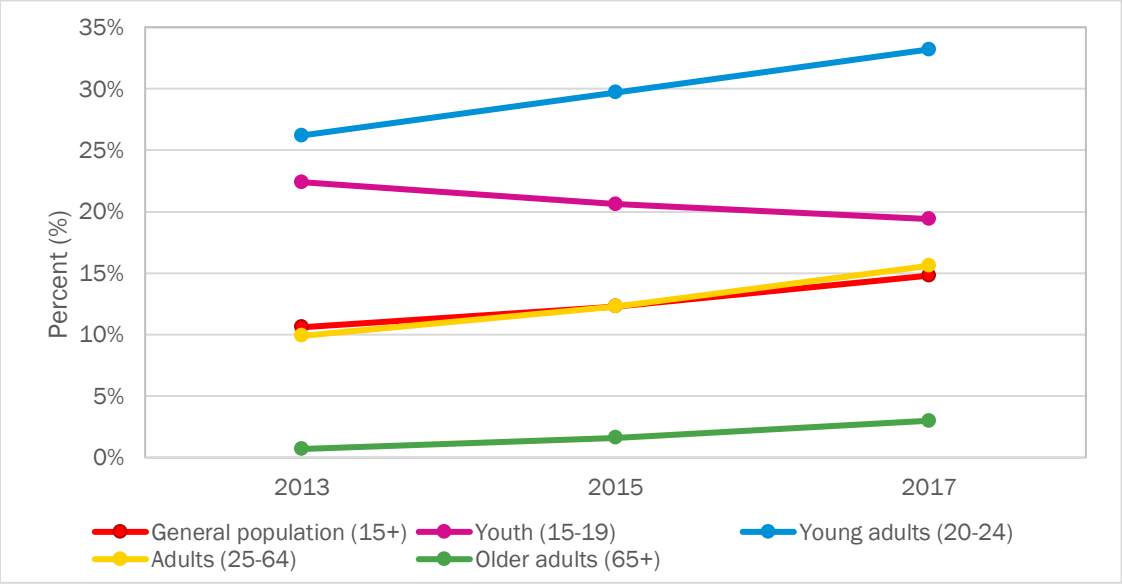
Past-Year Use in Canada

- **General population (age 15+):** For 2017, the Canadian Tobacco, Alcohol and Drugs Survey (CTADS) reported the prevalence of past-year use of cannabis among the general population was 14.8%, an increase from 2015 (12.3%; see Figure 1).[20] The National Cannabis Survey (NCS) data from the first quarter of 2018 to the third quarter of 2019 (Figure 2) indicates past-quarter use ranged from 14.0% (2018, first quarter) to 17.5% (2019, first quarter).[21,22,23,24]
- **Adults (age 25+):** Among Canadian adult respondents (25–64) in the CTADS (Figure 1), 15.6% reported past-year use of cannabis in 2017, an increase from the rate of 12.3% reported in 2015.[20] Between the first quarter 2018 and second quarter 2019,[B] adult (25+) use reported by the NCS (not shown) ranged from 12.8% (2018, first quarter) to 15.9% (2019, first quarter).[21,22,23]
- **Youth (age 15–24):** According to the CTADS (Figure 1), the rate of past-year cannabis use in 2017 was over two times higher among Canadian youth and young adults aged 15–24 compared to adults aged 25–64 (26.9% vs. 15.6%). Among youth aged 15–19, the rate of past-year cannabis use in 2017 was 19.4%; the corresponding rate was 33.2% among young adults aged 20–24.[20] The most recent NCS data from the third quarter of 2019 (Figure 2) reveals that for youth (15–24) past-quarter use was 27.0%, adults (25–44) were at 25.5%, middle-aged adults (45–64) were at 10.1% and older adults (65 years and older) were at 7.6%.[24] Additionally, CTADS data revealed that on average youth (15–19 years) initiated use of cannabis at 15.6 years, young adults (20–24 years) at 17.0 years and adults (over 25 years) at 18.9 years.[20,25,26]

B The NCS did not report use by 25 and older in the third-quarter 2019 report.

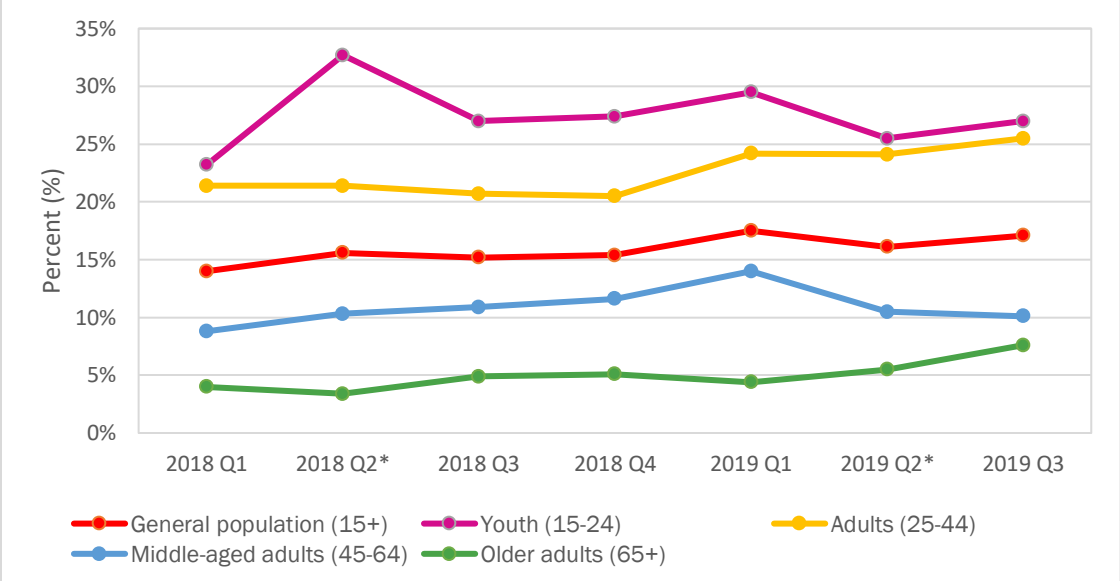
Similar results for age of initiation were reported in the 2019 Canadian Cannabis Survey (CCS) (16–19 at 15.6 years, 20–24 at 17.1 years and 25+ at 19.7 years).[27]

Figure 1. Prevalence of self-reported cannabis use among Canadians by year and age category (2013–2017)[C]



Source: CTADS 2013–2017[20,25,26]

Figure 2. Prevalence of self-reported past-quarter cannabis use among Canadians by age category (2018–2019)



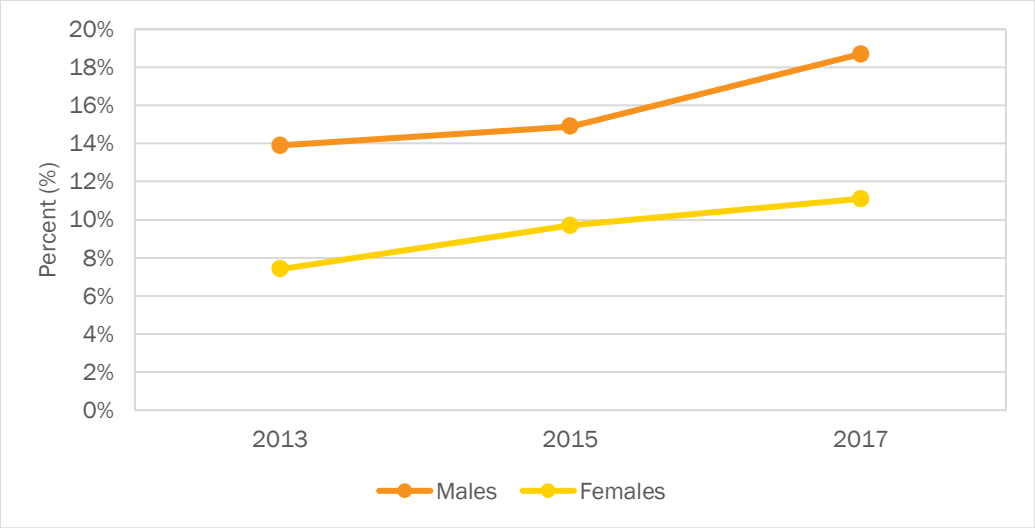
*** Data for these quarters includes provinces and territories, all remaining quarters are provincial data only.**
Source: NCS 2018 Q4; 2019 Q1; 2019 Q2; 2019 Q3[21,22,23,24]

C This analysis is based on the Statistics Canada microdata file. All computations, use and interpretation of these data are entirely those of the Canadian Centre on Substance Use and Addiction.

- **Students (grades 7–12):** According to the Canadian Student Tobacco, Alcohol and Drugs Survey 2018–2019 (CSTADS), 18.1% of students from across Canada reported past-year use of cannabis, an increase from rates reported in 2016–2017 (16.7%).[28] Of those in grades 7 to 9, 7.0% reported past year use while 29.4% of those in grades 10 to 12 reported past year use. The average age of initiation was 14.3 years, with males on average initiating at age 14.2 and females at age 14.4. Cannabis use also increased with grade level. For instance, in 2018–2019, 2.4% of Canadian youth in Grade 7 reported past year use of cannabis compared to 21.2% of those in Grade 10 and 37.7% of those in Grade 12.
- **Post-secondary students:** Data from the spring 2019 National College Health Assessment Survey, which is drawn from a convenience sample of 58 Canadian post-secondary institutions and therefore not representative of all post-secondary students in Canada, indicates that 55.6% of post-secondary students had never used cannabis, 19.7% had used cannabis, but not in the past 30 days, 20.9% had used cannabis sometime in the past 30 days, while the remainder (3.9%) reported using cannabis daily.[29]
- **Sex:** Data from the 2017 CTADS (Figure 3) indicate that the prevalence of past-year cannabis use was higher among males than females (18.7% vs. 11.1%).[20] Prevalence of male use and female use increased from 2015 (from 14.9% and 9.7%, respectively).[26] The NCS data also indicate male quarterly use higher than female quarterly use across all quarters of the survey (Figure 4).[24] For instance, in the most recent quarter, 20.3% of males self-reported using cannabis in comparison to 14.0% of females.
- **Daily use:** Among the 14.8% of Canadians aged 15 and older who used cannabis in the past three months in the 2017 CTADS, 32% reported that they used this substance daily or almost daily, which was similar to the 33.0% in 2015.[20,26] Of these individuals who reported daily or almost daily use, 27.9% were youth aged 15–19, 29.9% were young adults aged 20–24 and 30.8% were aged 25 and older. According to the CCS for 2019, among those who reported using cannabis within the past 12 months, 17.5% reported daily use and 54.5% reported using cannabis three or less days per month.[27] During the 12 month reporting period, of those who reported daily use, 9.3% were aged 16–19, 14.6% were aged 20–24 and 19.3% were 25 and older.
- **Medical versus non-medical use:** According to the 2017 CTADS, among those who reported using cannabis (14.8%), 37% reported using it for medical purposes, which was an increase from the 2015 survey (24%).[30] The 2019 CCS reveals that, among those who used cannabis in the past 12 months, 3.8% used for medical purposes with documentation from a healthcare professional, 10.5% used for medical purposes without healthcare documentation, and 85.7% used for non-medical purposes.[27] According to the NCS, among those who used cannabis in the second and third quarter of 2019 (16.8%), 6.5% used for medical purposes with medical documentation, 16.1% used for medical purposes without medical documentation, 46.4% used for non-medical purposes and 31.0% used cannabis for both medical and non-medical purposes.[23,D]

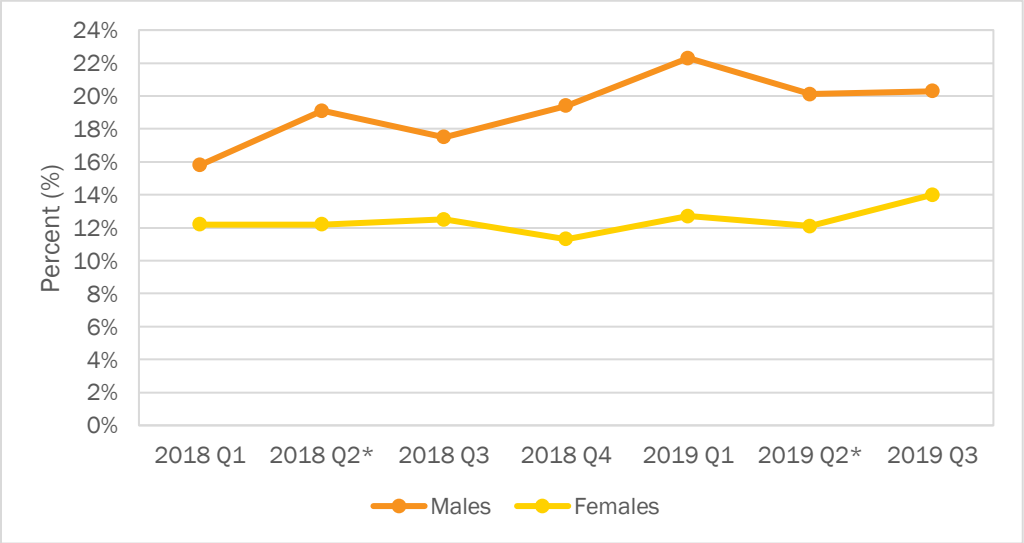
D NCS reports generally provide breakdowns of a single result, rather than proportions. For ease of reading alongside other data, NCS data here have been converted to proportions. For instance, if the NCS reported 20% of participants consumed cannabis and that percentage consisted of 15% who smoked and 5% who vaped, then the equivalent proportions would be 75% and 25% (of 20) respectively.

Figure 3. Prevalence of self-reported past-year cannabis use among Canadians by year and sex (2013-2017)[E]



Source: CTADS 2013 – 2017[20,25,26]

Figure 4. Prevalence of self-reported past-quarter cannabis use among Canadians by sex (2018-2019)



* Data for these quarters includes provinces and territories, all remaining quarters are provincial data only.
Source: NCS 2018 Q4; 2019 Q1; 2019 Q2; 2019 Q3[21,22,23,24]

- **Methods of consumption:**[F] The 2017 CTADS reveals that of those who reported using cannabis in the past 12 months, 91% smoked the substance, 38% consumed edible cannabis products, 34% smoked a tobacco product right after smoking cannabis, 29% vaped cannabis and 22% mixed cannabis with tobacco.[30] According to the CCS, among those who consumed cannabis in the past 12 months, 84.0% smoked it, 46.1% ate it in food, 27.2% vaped it using a pen or

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F In all surveys, respondents could report more than one method of consumption.

e-cigarette, 14.9% used a non-portable vaporizer, 9.9% dabbed,[G] 6.4% drank and 6.1% used other methods of consumption.[27] In the first half of 2019, NCS reports that 65.4% of respondents who reported using cannabis smoked, 13.8% vaped, 12.1% ate or drank, and 8.7% consumed the substance by other means.[23]

- **Obtaining cannabis:**[H] According to the 2019 CCS, respondents who had used cannabis in the past year were more likely to obtain cannabis from a legal storefront (24.5%), a friend (21.6%) or a legal online source (12.8%), while some respondents obtained cannabis from an illegal storefront (7.0%), a dealer (5.7%) or an illegal online source (3.6%).[27,I] Respondents reported that the most influential factor determining the source of cannabis was quality or safe supply (39.1%), followed by price (22.0%). Among NCS respondents who used cannabis in the second quarter of 2019, the top three sources they were most likely to choose were a legal source (48.3%),[J] an illegal source (41.9%) and friends and family (37.0%).[24] The top three most influential factors for choosing a source included quality and safety (75.7%), lowest price (42.1%) and accessible when wanted (34.5%).
- **Provincial differences:** In 2017, CTADS data indicated that the province with the lowest prevalence of past-year cannabis use was Quebec at 11.0%, while British Columbia had the highest prevalence at 23.4%.[20] Newfoundland and Labrador, New Brunswick, Prince Edward Island, Ontario and Saskatchewan had prevalence rates between 10.0% and 15.0%, while the prevalence rates for Nova Scotia, Manitoba and Alberta ranged between 15.0% and 19.9%. According to the 2019 NCS, in the third quarter, use was lowest in Quebec (11.5%) and highest in Nova Scotia (32.8%).[24] British Columbia and the remaining Atlantic provinces had rates between 20.0% and 26.0%, and rates for Ontario and the remaining Prairie provinces were between 16.0% and 20.0%.
- **Attitudes toward cannabis:** Data from the 2019 CCS revealed that approximately 19% of those who did not use cannabis in the past 12 months believed that consuming cannabis occasionally by smoking, vaping or eating for non-medical purposes was completely acceptable.[27] In comparison, approximately 68% of individuals who used cannabis in the past 12 months believed occasional use by these methods was completely acceptable. Beliefs about social acceptability of regular use were lower in both groups. Approximately 8% of individuals who did not use cannabis in the past 12 months and approximately 39% of individuals who did use cannabis in the past 12 months believed it was completely acceptable to use cannabis regularly via the above methods. Only about 11% of individuals who used cannabis in the past year believed that smoking, vaping or consuming cannabis on a regular basis had great risk, although 86.7% believed that cannabis can be habit forming for some people. Less than 10% of individuals who used cannabis in the past year thought that it had any harmful effects on their lives and the majority of respondents thought cannabis had no effect on most aspects of their lives. The top three areas where individuals who used cannabis in the past year felt cannabis had a positive effect were quality of life (52.0%), mental health (47.7%) and friendship or social life (39.9%).

G Dabbing involves a specialized water pipe or bong, a heating element, a blow torch and a dab tool. The element is heated with the torch and cannabis concentrate is placed on the element. The vapour from the heated concentrate is inhaled through the pipe or bong.

H In all surveys, respondents could provide more than one response.

I Some of the response options for the 2019 question on obtaining cannabis were changed from the 2018 response options and direct comparisons between previous years for some of the results cannot be made.

J The legal source of cannabis was not verified in the survey and some stores could be operating illegally.

Ranking among Top Five Substances

After alcohol, cannabis is the most commonly used psychoactive substance in Canada according to data from the 2017 CTADS (see Table 1).

Table 1. Top five substances used in the past year by Canadians (2017)

	#1	#2	#3	#4	#5
General Population (15+)	Alcohol (78.2%)	Cannabis (14.8%)	Cocaine/Crack (2.5%)*	Hallucinogens and Salvia (1.5%)	Problematic Prescription Drugs (1.2%)*
Youth (15–19)	Alcohol (56.8%)	Cannabis (19.4%)	Hallucinogens and Salvia (2.8%)	Problematic Prescription Drugs (2.1%)*	Ecstasy (1.6%)* Cocaine/Crack (1.6%)†
Young Adults (20–24)	Alcohol (83.5%)	Cannabis (33.2%)	Cocaine/Crack (6.2%)	Hallucinogens and Salvia (5.1%)	Problematic Prescription Drugs (3.6%)*
Adults (25+)	Alcohol (79.4 %)	Cannabis (12.7%)	Cocaine/Crack (2.2%)*	Number suppressed	Number suppressed
* Interpret with caution due to small sample sizes.					

Source: CTADS, 2017[20]

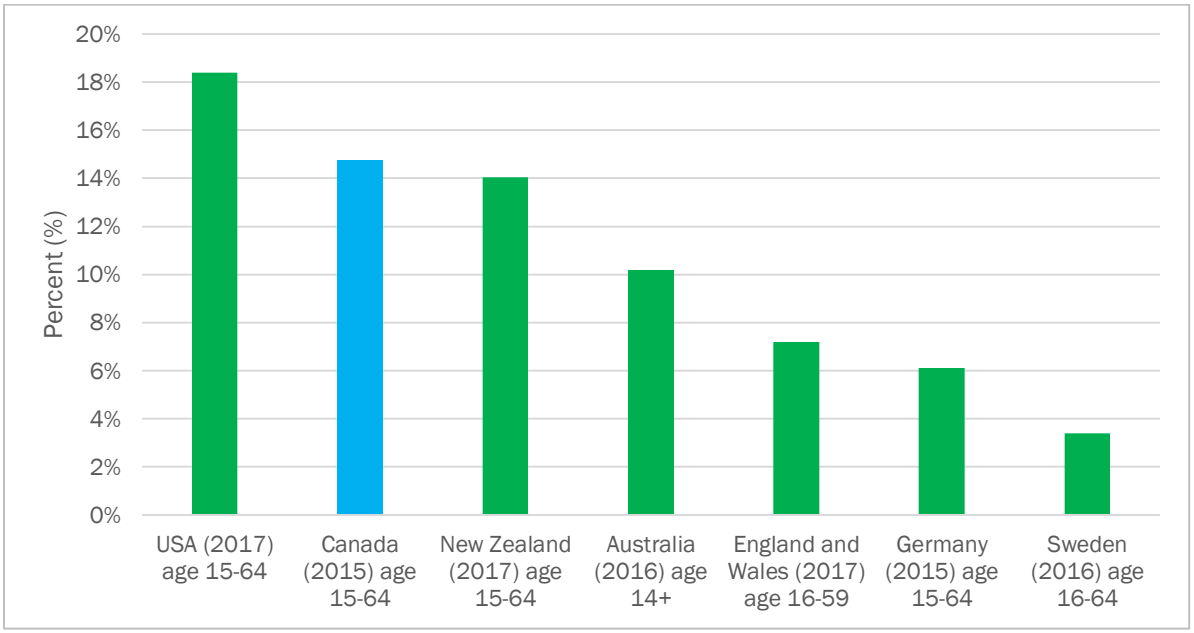
Past-Year Use Internationally

At the international level, Canadians rank among the most frequent people who used cannabis in the past year. Figure 5 presents data on the prevalence of self-reported past-year cannabis use for several countries, as reported in by the United Nations Office on Drugs and Crime (UNODC).[31] As this data is reported by individual member states based on different survey years and age ranges, the prevalence rates are not directly comparable. These estimates are based on annual report questionnaire data and other official sources.

Several U.S. states, the District of Columbia and Uruguay have passed legislation to legalize cannabis for personal use. Definitive conclusions about the impact of these policy changes on cannabis use and the cannabis market are not yet possible because of how recently the changes have been made, differences in the way they have been implemented, and variations in the scope and quality of data collected.[K]

K Additional information on policy approaches to cannabis is available through CCSA's policy briefs at https://www.ccsa.ca/policy-and-regulations-cannabis.

Figure 5. Prevalence of self-reported past-year cannabis use among the general population by select countries



Source: UNODC, Annual prevalence of drug use[31]

Associated Harms

Morbidity

Hospitalizations

Hospital administrative data provide an important measure of the impact of substance use on the healthcare system. Data collected by the Canadian Institute for Health Information for 2017–2018 indicated that cannabis was the most common substance associated with substance-related hospitalizations (first or second drug detected, 39%) for youth aged 10–24.[32] Furthermore, cannabis was found to be the only known substance in 22% of all youth hospitalizations for any substance use. More broadly, among Canadians 10 years and older, cannabis was the third most common substance associated with hospital stays (15%) due to substances only (i.e., not in conjunction with cancer, strokes, trauma, etc.), which could include cannabis combined with other drugs.[14,L]

Vaping

Vaping is an emerging popular method for consuming tobacco, cannabis and other products. Substances in liquid form are heated using an electronic device (e-cigarette, vape, vape-pen) to create a vapour that can be inhaled.[33] As of February 18, 2020, there were 2,807 reported vaping hospitalizations or deaths due to associated pulmonary (lung) illness and 68 confirmed deaths in the United States.[11] Among those tested for substances, THC was found in the majority of samples, followed by nicotine. In Canada, 19 cases of hospitalization associated with vaping have been reported as of April 7, 2020.[12] According to patients, the majority had consumed nicotine only, followed by THC only and other substances combined (nicotine, THC, etc.); however, these reports

L Medical practitioners are not always able to identify the substance or primary substance in some cases of hospital stays, particularly in cases of multiple substances, which might include cannabis. This means that cannabis is also likely one of the substances in some of the 16.9% of hospital stays for unknown drugs.

are based upon self-reported use and have not been validated. The cause or causes of the illnesses and deaths have not yet been specifically identified, but vitamin E acetate has been found in almost all patient samples and other toxins in e-liquids are under investigation.[11,33] More research is needed, but vaping under certain conditions appears to be associated with a risk to the lungs.

Driving under the Influence of Cannabis

According to the first quarter of the 2019 NCS, during the first six months of legalization 14.7% of respondents reported driving within two hours of consuming cannabis.[22] These drivers were more likely to use cannabis daily or almost daily (31.1%) and were more likely to believe it was safe to drive within three hours of consumption (36.0%). Males (17.5%) were more likely to drive within two hours than females (9.5%). Among all respondents, 4.1% reported being a passenger in vehicles driven by someone who had consumed cannabis within two hours. In terms of perceptions, 5.6% of Canadians believe it is safe to drive within three hours of consuming cannabis, while 49.1% believe it is safe to drive after three hours. When considering only those who consume cannabis daily or almost daily, 18.0% believe it is safe to drive within three hours. Data from the 2019 CCS, shows that 26.4% of respondents who had smoked or vaped cannabis in the past year reported driving within two hours of use in their life time.[27] Males (31.8%) were more likely to engage in this behaviour than females (19.3%). Among those who had consumed an edible cannabis product, 15.9% had done so within four hours of driving. In addition, 27.7% of all respondents reported being a passenger in a vehicle operated by a driver who had used cannabis within two hours. The majority of respondents (66.7%) think that there is a somewhat to extremely likelihood of being caught while driving under the influence of cannabis, which is lower than those who believe they will be caught driving under the influence of alcohol (87.2%).[27] Driving after having consumed alcohol and cannabis can be more dangerous given the additive effects on impairment.[4] Among those who reported in the NCS using cannabis within two hours of driving, 18.4% reported also using alcohol. [M] In the CCS, 20.5% of respondents reported doing so.

Roadside Surveys of Drivers and Cannabis

Roadside surveys are one method for assessing the prevalence of certain substances consumed by drivers. Two recent surveys were conducted in British Columbia (2018) and Ontario (2017). Among B.C. drivers, 8.5% tested positive for at least one psychoactive substance and 70.5% of these drivers tested positive for cannabis (approximately 6.0% of drivers).[34] In Ontario, 10.5% of drivers tested positive for drugs of which 82.1% of these drivers were positive for cannabis (approximately 8.6% of drivers).[35] In both provinces, the two most common reasons drivers reported for driving after using cannabis were that they do not think they are impaired and that they do not think they will be caught by the police. More details can be found in CCSA's *Impaired Driving in Canada* (topic summary).

Injured Drivers

Between 2010 and 2015, blood samples were collected[N] from injured drivers at seven trauma centres in British Columbia within six hours following a crash to determine the presence of drugs in their systems.[36] In Canada, having ≥ 2 ng/mL and <5 ng/mL of THC in blood while driving is considered a summary conviction offence, while having ≥ 5 ng/mL is considered an indictable

M NCS reports generally provide breakdowns of a single result, rather than proportions. For ease of reading alongside other data, NCS data here have been converted to proportions. For instance, if the NCS reported 20% of participants consumed cannabis and that 15% smoked it and 5% vaped, then the equivalent proportions would be 75% and 25% (of 20), respectively.

N Not all injured drivers were tested. The treating physician decided if blood was collected and drivers who did not require bloodwork (e.g., minor injuries) were not tested. Motorcyclists, commercial vehicle drivers and drivers involved in incidents where police did not attend were also excluded from the study.

offence.[37] Among the 1,816 patients where blood samples were available, 7.5% tested positive for THC with 4.1% having greater than 2 ng/mL of THC in their blood. For context, 15% of patients tested positive for alcohol. Additionally, 49.3% of the THC-positive patients were also found to have at least one other impairing substance in their system. A similar study[O] was conducted with a hospital in Toronto (February, 2018) and one in Ottawa (March, 2018).[38] Among the sample of 531 eligible drivers, 22.0% tested positive for any THC, 9.2% tested positive for THC equal to or greater than 2 ng/mL and 3.6% tested positive for THC equal to or greater than 5 ng/mL[P] For context, alcohol was detected in 14.9% of patients.

Workplace and Cannabis Use

In the first six months after the legalization of cannabis, 13.4% of individuals who reported using cannabis in the NCS survey also reported using cannabis at or before work.[22] People who reported daily or almost daily use were more likely to report use before or at work (27.1%) compared to those who used cannabis less often (6.6%). The 2019 CCS revealed that 3.3% of individuals who used cannabis in the past 30 days reported using cannabis at work.[27] Among those who used cannabis within the past 12 months, 5.5% of those who used weekly, almost always or always also used the substance within two hours before work. According to the Institute for Work & Health, which conducted a survey of employees across Canada in 2018, 22% of those who reported using cannabis also consumed the product before or at work.[39] Among all respondents in the survey, 21% believed it would be easy to obtain, buy or sell cannabis at work, 20% believed it would be easy to use while working and 44% believed it would be easy to use during lunch or breaks. Differences between the results in these different surveys could be due to the differences between the questions asked, the time period of the question and the populations sampled.

Mortality

Cannabis use can increase the risk of fatal injuries, such as driving impaired by cannabis. Case-control studies (one of the better methods to examine crash risk) reveal that the odds of being involved in a crash with THC blood concentrations ≥ 5 ng/mL increase between 1.35 to 3.06 times, although some studies have shown as much as a 14.32 increase in crash risk.[40,41,42,43] A national study of fatally injured drivers in Canada in 2015 reported that, of the 80.1% of the drivers tested for drugs, 49.2% of these drivers (405) were positive for drugs in their system.[44,Q] Cannabis was detected in 42.5% of the 405 fatally injured drivers who tested positive for drugs.

Treatment

In 2016–2017, cannabis was the second most frequently reported[R] drug (30%) used among individuals receiving treatment from publicly funded, community-based services across eight of Canada's 13 provinces and territories (data are not yet available for all jurisdictions).[45] Alcohol (64%) was the most frequently reported substance used during this time. In 2017–2018, cannabis was the third most frequently reported drug used among individuals receiving treatment (30%), behind alcohol (64%) and cocaine (33%).

O There were some methodological differences such as the Ontario study included motorcyclists or the B.C. study compared data to police reports, among others. Refer to the studies for all differences.

P Not all injured drivers were tested. Those who were tested included moderately or severely injured drivers who had blood samples taken within six hours of the crash.

Q This study did not include data from B.C. Fatalities only include those drivers who died within 30 days of the crash on public roads.

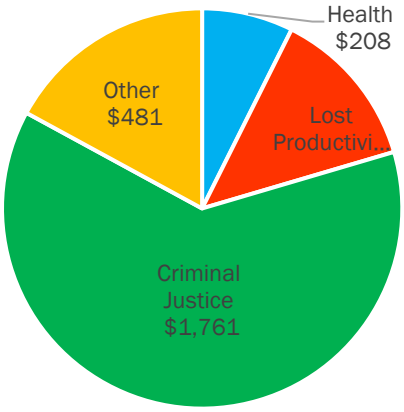
R Individuals could be seeking treatment for more than one substance.

Costs of Cannabis Use

The costs of cannabis to Canadians in 2014S is estimated to have been $2.82 billion, ranging from $3.5 million to $1,176.5 million in the individual provinces and territories.[46] Per capita, this ranges from $66 to $107 per person across the jurisdictions or $79 for each Canadian regardless of age.

The majority of costs of cannabis in 2014 was borne by the criminal justice system ($1,761 million), followed by other costs ($481 million), lost productivity ($368 million) and the health system ($208 million), as shown in Figure 6.[46] Criminal justice activity includes costs such as police work, courts and corrections; other direct costs include expenditures such as research and prevention, motor vehicle damage and other workplace costs not associated with lost productivity; lost productivity includes costs such as lost value of work due to premature mortality, and long- and short-term disability; and healthcare expenditures include costs such as inpatient hospitalizations, emergency department presentations and physician time.[47]

Figure 6: Cost of cannabis in millions by type (2014)



Source: Canadian Substance Use Costs and Harms (CSUCH) Scientific Working Group. (2019). CSUCH visualization tool.[46]

In the first year of legalization and regulation (October 2018 to September 2019), cannabis retailers sold approximately $908 million dollars in cannabis products.[48] In the third quarter of 2019,T Canadian households spent $1,432 million dollars on cannabis, of which medical use accounted for $155 million, non-medical licensed purposes accounted for $417 million and non-medical unlicensed purposes accounted for $860 million.[49] According to the 2019 CCS, respondents who had used cannabis in the past year reported spending on average of about $64 a month on cannabis for non-medical purposes and $108 a month on cannabis for medical purposes.[27] The StatsCannabis crowdsourced website collects anonymous data from individuals who choose to submit information on how much they pay for cannabis and other basic information such as source of purchase and primary reason for purchase. Between January 2018 and December 2019, Canadians on average reported paying $6.94 per gram for cannabis, with the most expensive price in the territories at $10.65 per gram and the least expensive in Quebec at $5.85 per gram.[50]

S The year for which the most recent data are available. Refer to the online data visualization tool developed by the Canadian Substance Use Costs and Harms (CSUCH) to calculate various costs associated with cannabis in various sectors https://csuch.ca.

T The third quarter of 2019 is the period for which the most recent data are available.

Enforcement

In 2018, police reported 83,483 drug offences under the *Controlled Drugs and Substances Act* (CDSA) and the *Cannabis Act*, of which 43% were cannabis-related incidents.[51] These data reflect the change in status of cannabis in 2018 in that offences for cannabis-related activities prohibited before legalization (e.g., possession of cannabis) were combined with offences for activities newly prohibited after legalization (e.g., possession in certain circumstances). This change should be taken into consideration when reviewing 2018 enforcement data. Table 3 illustrates cannabis-related offences before and after legalization.

Table 3: Cannabis-related offences for 2018

Offence	Pre-legalization (CDSA)	Post-legalization (Cannabis Act)
Possession	26,194	458
Trafficking	3,349	---
Production Import / export	(combined) 4,898	308 98
Distribution	---	175
Sale	---	236
Other	---	179

Source: Statistics Canada (2019). Police-reported crime statistics in Canada, 2018[50]

Cannabis offences continued to decline in 2018 regardless of the change in the law. For instance, compared with 2017, these offences declined 14% in the first 9.5 months and the overall pro-rated data for the remaining months also demonstrated a decline.[51] Although overall cannabis offences revealed a net reduction, individual offences varied in that rates of possession, trafficking and production declined while rates of import and export increased.

According to the UNODC,[52] in 2017, Canada seized the following amounts of cannabis:[U]

- 42,624 kg cannabis plants, 26 kg hemp
- 16,698 kg marijuana herb
- 352 kg hashish (resin)
- 77 kg cannabis oil, 11 kg CBD oil
- 29 kg edibles
- 11 kg THC
- 4 kg shatter

Health Canada's Drug Analysis Services, which tests samples of suspected illegal drug seizures, identified cannabis in 9,071 samples in the first half of 2019.[53,54,V]

U It is unclear the extent to which seizure data accurately reflects illegal activity level. Seizures include various forms of cannabis (e.g., capsules, liquids, seeds, etc.) and are converted to kilogram equivalents. Quantities reflect bulk weight of seizure and do not account for purity or potency. Reporting of cannabis seizures has changed since previous report. See www.unodc.org/wdr2019/ for more information.

V Samples are not taken from all seizures and thus do not represent the total number of substances seized. A single sample might contain more than one substance.

Police in Canada reported 70,593 charges of alcohol- and drug-impaired driving in 2018, which is relatively the same as 2017 (69,108).[55,W] Drug-only impairment accounted for approximately 6% of all impaired driving charges, with 4,426 violations in 2018, an increase of 932 from the previous year.[X] With the exception of Nunavut and Newfoundland and Labrador, police-reported drug-impaired driving offences increased in all provinces and territories, with the highest increases being recorded in Ontario (+36%) and Alberta (+34%), followed by British Columbia (+21%) and Quebec (+17%).[51]

Additional Resources

- Cannabis (CCSA web page for all cannabis resources)
- Interactive Map of Provincial and Territorial Cannabis Regulations
- Heath Impacts of Cannabis
    - Clearing the Smoke on Cannabis: Highlights – An Update (series)
    - Vaping Linked with Severe Lung Illnesses
- New Cannabis Products
    - Edible Cannabis, Cannabis Extracts and Cannabis Topicals: A Primer on the New Cannabis Products
    - Inhaling vs Ingesting: What Is the Difference?
    - 7 Things You Need to Know about Cannabis Extracts
- Youth and Cannabis
    - Talking Pot with Youth: A Cannabis Communication Guide for Youth Allies
    - The Effects of Cannabis Use during Adolescence
- Costs of Cannabis Use
- Canadian Perceptions and Trends
    - Canadian Youth Perceptions on Cannabis
- Driving Under the Influence of Cannabis
    - Collisions Attributable to Cannabis: Estimating the Harms and Costs in the Canadian Provinces
    - Cannabis Use and Driving
    - Cannabis and Driving
    - Impaired Driving in Canada
    - Key Issues in Drug-impaired Driving

W In 2018, some changes were made to the way in which some data in the Uniform Crime Reporting Survey are collected and they should be taken into account when considering 2018 data in comparison with previous years.

X Beyond differentiating between alcohol and drugs, the type of drug or drugs identified in police reported incidents is not collected in the Uniform Crime Reporting Survey.

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