

LESSONS FROM CANNABIS LEGALISATION

USA

Plus additional commentary on **URUGUAY & CANADA** **2020**

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to Marijuana (SAM) NZ Coalition

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University of Colorado at Denver
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and more

Smart Approaches To Marijuana NZ (SAM-NZ) is an alliance of community organisations and leaders in New Zealand (including ex-addicts, educators, ex-police, addiction counsellors, health professionals and community workers). We oppose any attempt to legalise cannabis, based on reputable science and sound principles of public health and safety.

SayNopeToDope.org.nz/about-us

Smart Approaches to Marijuana (SAM) is an alliance of organisations and individuals dedicated to a health-first approach to marijuana policy. We are professionals working in mental health and public health. We are bipartisan. We are medical doctors, lawmakers, treatment providers, preventionists, teachers, law enforcement officers and others who seek a middle road between incarceration and legalization. Our commonsense, third-way approach to marijuana policy is based on reputable science and sound principles of public health and safety. SAM is led by Dr Kevin Sabet, a former advisor to three U.S. presidential administrations (Clinton, Bush and Obama Administrations) - the only drug policy staffer to have ever served as a political appointee in a Democrat and Republican administration.

LearnAboutSam.org/who-we-are

RESEARCH ON MARIJUANA HARMS

Scientific literature on the harms of marijuana use exists in abundance and will be discussed in this report. There are over 20,000 peer-reviewed research articles linking marijuana use to severe mental health outcomes, ranging from depression to psychosis, as well as consequences for physical health, and even negative outcomes for neonates exposed in utero and inhibited cognitive development. The connections between marijuana use and consequences to mental and physical health, and brain development, among other risks are often lost in conversations on legalisation.

The distinction between medical and recreational marijuana has been deliberately blurred by an industry with a heavy hand in both markets. A recent study found that in spite of evidence that lower THC dosage is more appropriate for medical purposes, the

medical marijuana products advertised in retail stores contain around the same amount of THC as recreational marijuana products—and generally contains upwards of 15% THC (Cash et al., 2020). Though there is potential for the medical use of certain components found within the marijuana plant, these components should be researched through well-designed clinical studies and under the guidance of the Ministry of Health.

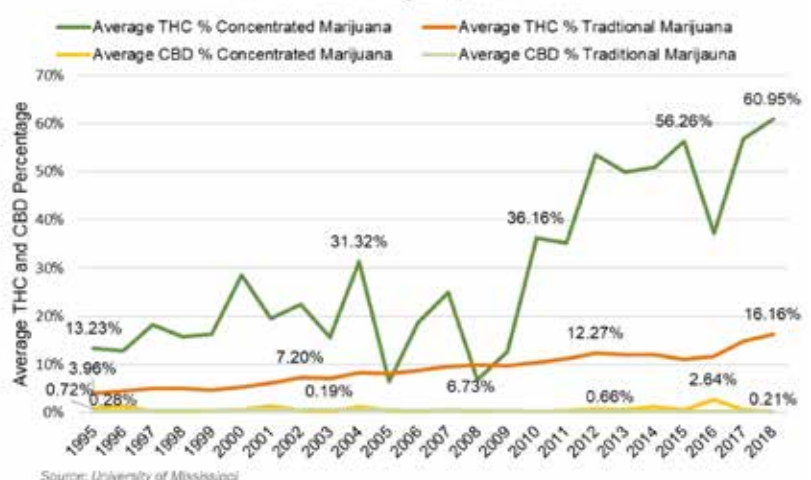
Adding to the danger of marijuana legalisation is the increasing market demand for high-potency products created by the combination of aggressive promotion and ever-increasing tolerance by heavy users.

Whatever the government bans in terms of product or THC-level, the gangs and the black market will quickly cater for.

With innovation, the cannabis industry in the U.S. responded to meet the demand it had created, modifying marijuana to increase its potency. The commonly conceived “Woodstock weed” had only 1–3% THC, the psychoactive intoxicant responsible for the high. According to recent studies, today’s average marijuana flower—touted by industry advocates as a harmless plant—contains around 17.1% THC, though independent studies in “legal” states found the percentage to be even higher. Concentrates and edibles pack a more potent punch, containing an average of 55.7% THC (Chandra et al., 2019). But these products can be even more potent than that. Many marijuana retailers promote, and profit from, products containing up to 95–99% THC (Prince & Conner, 2019).

THESE ARE JUST SOME EXAMPLES OF THE CONFLICT BETWEEN DATA-DRIVEN RESEARCH AND MARIJUANA NORMALISATION. THE SCIENCE IS CLEAR. YET LEGALISATION PROPONENTS MARCH FORWARD, EYEING PROFITS.

Figure 71. Average THC and Cannabidiol Potency of Traditional and Concentrated Marijuana, 1995 – 2018



KEY OUTCOMES

Like tobacco, the full consequences of marijuana legalisation will materialise over decades. However, we do not need to wait that long to understand some key outcomes. For example, the data in this report - and many others - show U.S. states that legalised marijuana have among the highest rates of marijuana use in the country, and use is sharply increasing in vulnerable demographics, like youth and young adults whose brains are still developing.

These states also have:

- Higher rates of marijuana-related driving fatalities.
- Issues with “legally” sold, but contaminated, marijuana vapes.
- More marijuana-related emergency department visits, hospitalisations, and accidental exposures.
- Expansive and lucrative criminal markets.
- Exacerbated racial disparities in marijuana industry participation and criminal justice enforcement.
- Increases in workplace problems, including labour shortages and accidents.

This report also looks at the two other countries that have legalised cannabis for recreational use:

URUGUAY legalised cannabis in 2013.

Research reveals that frequency of consumption has significantly increased, especially in the 15-24 age group. The perception of risk with drug use is low, and risky behaviours have increased with the frequency of consumption, including use of marijuana during pregnancy. The black market is alive and well. And the overwhelming support for the regulation among high-frequency marijuana users does not immediately translate into a willingness to comply with it. Of most concern is that monitoring and reporting of the effects of legalisation is minimal, and not made public. (read more - pages 36-37)

CANADA legalised cannabis at the end

of 2018. While it is too early to draw any significant conclusions, early results show some disturbing trends. A Canadian government study revealed increases in youth and overall use, and concerning trends in marijuana-impaired driving and workplace use. The black market in Canada is absolutely thriving. Statistics Canada reports that just 29% of cannabis users buy all of their product from a legal source. A quarter of Canadians aged 18 to 34 have driven after consuming cannabis or been a passenger in a vehicle driven by someone under the influence of cannabis. (read more - pages 38-39)



“I don’t want anyone to mistake what I’m saying as implying that these products are considered safe for general adult usage”.

U.S. Surgeon General, Jerome Adams (2019)

The legalisation of marijuana results in negative consequences for public health, social justice, and public safety, and results in the creation of a new and powerful addiction-for-profit industry. More and more people are using marijuana while remaining largely ignorant of its negative consequences and use rates are surging across the United States after years of declines. The alarming increase in use among young people, as well as pregnant women, in particular prompted U.S. Surgeon General Dr. Jerome Adams to issue a first-of-its-kind advisory on marijuana use (Office of the Surgeon General, 2019).

Though his advisory specifically addressed significant increases in use among youth and pregnant women, he does not shy away from cautioning against marijuana use more generally. At one congressional hearing, he told U.S. senators, “I don’t want anyone to mistake what I’m saying as implying that these products are considered safe for general adult usage” (Cornyn & Feinstein, 2019).

Dr. Adams continued to warn U.S. senators at the hearing of the “massive public health experiment,” telling them: “We need to learn from our mistakes and be careful of normalisation of behaviour” (Cornyn & Feinstein, 2019). The sudden emergence in all 50 states and some U.S. territories of mysterious lung illnesses tied to vaping represents a unique case study on the impact of marijuana legalisation.

New technology and rapid legalisation drove an increase in the popularity of marijuana consumption through vaping devices.

As demand increased, subsequent use increased - and with it an epidemic resulting in over 2,700 hospitalisations (and more than 60 deaths) at the time of this report’s publication (Centers for Disease Control, 2019a).

FOLLOW THE MONEY

Though marijuana proponents operate under the guise of up-and-comers, they are now well financed and advised by professionals from the tobacco industry. For example, the corporate owner of the Marlboro brand, Altria, purchased a 35% stake in Juul shortly after acquiring a 45% stake in Cronos, one of the largest international distributors of marijuana (LaVito & Hirsch, 2018).

The UK-based Imperial Brands invested around \$123 million CAD (~\$94M USD) in Auxly, a Canadian marijuana company. This partnership, which entitles Imperial Brands to a 20% stake in the company, will focus on utilising Imperial Brand's vaping technology to develop marijuana vaping products. **The marijuana industry has also caught the attention of Big Pharma and Big Alcohol.**

Former Purdue Pharma executive John Stewart left the pharmaceutical industry to create his own marijuana company (Murphy, 2016). Teva Pharmaceuticals signed an agreement to become a medical marijuana distributor in Israel (Helfand, 2016). And Sandoz, a subsidiary of Novartis, signed an agreement with Tilray to distribute marijuana products (RTT News, 2018).



Constellation Brands, maker of Corona, purchased a 9.9% stake in Canopy Growth for \$191 million, then upped the stake to 38% for \$4 billion in 2018. The company has the option to increase their investment and purchase up to 139.7 million new shares at a price of up to \$5 billion more (Sheetz, 2018).

Anheuser-Busch InBev announced an upcoming partnership with marijuana giant, Tilray, to explore the potential for marijuana-infused beverages. Molson Coors and Blue Moon also made substantial investments in the marijuana industry (T. Hughes, 2019; Miller, 2018).

ADVERSE HEALTH EFFECTS OF CANNABIS

Contrary to popular belief, cannabis is a harmful drug. **The main psychoactive ingredient in cannabis, THC, causes many different types of mental and physiological health problems – especially in children, young adults, and pregnant women.** Its addictive properties exacerbate its potential harms as marijuana users become dependent on the drug. Its potency has skyrocketed in recent years.

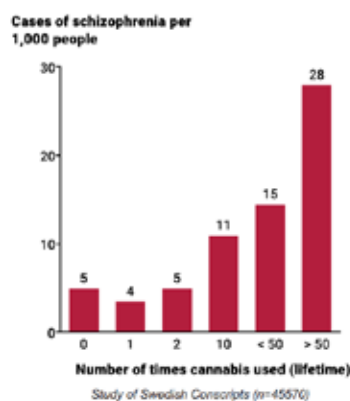
Researchers found that marijuana is an addictive drug (Volkow et al., 2014). Brain scans of marijuana users show changes in the structure of the brain's reward centre to be consistent with addiction (Gilman et al., 2014) and up to 47% of regular users experience withdrawal symptoms when they cease use (Hasin et al., 2008; Bahji et al., 2020). **The National Institute on Drug Abuse reports that around 30% of marijuana users have some form of marijuana use disorder and that people who begin using marijuana before the age of 18 are four to seven times more likely to develop a marijuana use disorder compared with those who start later** (National Institute on Drug Abuse, 2019b). One recent study on rats found that marijuana vaping may support "conditioned drug-seeking behaviour," cause for concern as vaporised marijuana gains popularity (Freels et al., 2020).

Studies found marijuana use can cause severe consequences for mental health. Marijuana is increasingly linked to the onset of psychosis and schizophrenia (Henquet et al., 2005; Marconi et al., 2016; Mustonen et al., 2018; Niemi-Pynttari et al., 2013) and shows a more modest association with depression and anxiety (Agrawal et al., 2017; Duperrouzel et al., 2018; Gobbi et al., 2019).

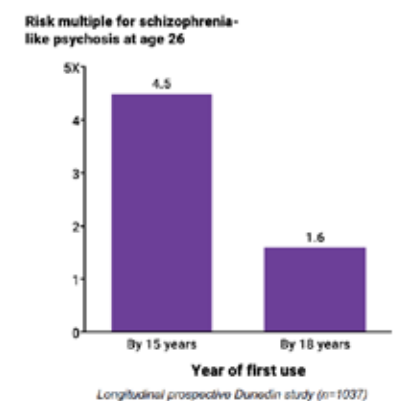
In one of the most comprehensive studies to date on marijuana and psychosis, Di Forti et al found that daily marijuana use is associated with an increased likelihood of developing psychosis. What's more, researchers reported a more than four-times odds of daily users of potent marijuana to develop psychosis (Di Forti et al., 2019).

Pot use is strongly correlated with psychosis

MORE MARIJUANA USE CORRELATES WITH HIGHER RATES OF SCHIZOPHRENIA



EARLIER AGE OF USE CORRELATES WITH INCREASED SCHIZOPHRENIA RISK



“Compared with never users, participants who used high-potency cannabis daily had **four-times higher odds of psychosis** in the whole sample.”

(Di Forti et. al., 2019)

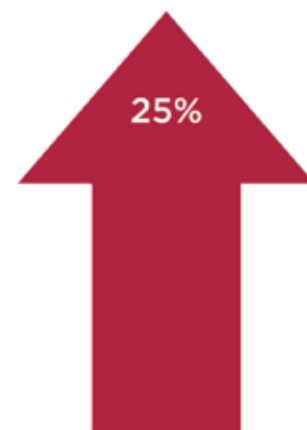
Chronic marijuana use increases the likelihood of anxiety in adults in their late twenties and older, and those who met the criteria for cannabis use disorder (CUD) had a high risk of all mental health symptoms across all ages (Leadbeater et al., 2019).

These studies are worth noting, particularly as marijuana is increasingly marketed as a solution for anxiety and other mental health ailments.

Frequency of marijuana use, as well as higher THC potency, is associated with the most severe impact on mental health, which is evidenced by psychosis, suicidality, reshaping of brain matter, and addiction (Cinnamon Bidwell et al., 2018; Di Forti et al., 2019; Fischer et al., 2017; Pierre et al., 2016). The increasing demand for high potency marijuana products and the coinciding prevalence of marijuana use disorder are indicative of a future maelstrom with unknown consequences for public health, especially as the industry engages in a concerted effort to undermine scientifically proven risks of marijuana use. The legalisation of marijuana coincides with a nationwide increase in marijuana use disorder. According to the Substance Abuse and Mental Health Services Administration's (SAMHSA) National Survey on Drug Use and Health (NSDUH), 4.4 million Americans reported marijuana use disorder in 2018, up from just over 4 million the previous year (SAMHSA, 2019a). One study comparing marijuana use of respondents before and after legalisation in their home state found a near 25% increase in people aged 12 to 17 who reported marijuana use disorder (Cerdá et al., 2020).

Marijuana is also linked to significant physical ailments. Researchers have found a connection between marijuana use and lung damage, as well as serious cardiovascular problems, including hypertension, myocardial infarction, cardiomyopathy, arrhythmias, stroke, and cardiac arrest (Bigay-Garné et al., 2018; Hall & Lynskey, 2016; Pacher et al., 2018).

Studies find marijuana to be linked to certain types of cancer (Liu et al., 2020), including testicular cancer (Ghasemiesfe et al., 2019; Gurney et al., 2015).



There was a 25% increase in Cannabis Use Disorder (CUD) among 12-17 year-olds in “legal” states.

(Cerdá et. al., 2019)

**FREQUENCY OF
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DEVELOPMENT.**

- JAMANETWORK.COM

Researchers at Boston University found that marijuana use among men may double the risk of partner miscarriage - regardless of the woman's use (McAlpine, 2019). Additionally, **marijuana use during pregnancy is accompanied by a host of risks for the baby.** Use during pregnancy may affect cognitive development by increasing the risk of hyperactivity, impulsivity, and inability to focus (Huizink & Mulder, 2006; G. S. Wang et al., 2017). Prenatal exposure to marijuana also predisposes offspring to neuropsychiatric disorders (Frau et al., 2019). A mother's marijuana use during pregnancy may also increase the risk of low birth weight and small for gestational age births, preterm births, and may also increase the risk of neonatal intensive care unit placement and developmental problems (Gunn et al., 2016; Kharbanda et al., 2020). Low birth weight and preterm birth

increase the risk of short- and long-term complications for the child (Mayo Clinic, 2017).

In the largest study of its kind, **Ottawa researchers have found that children whose mothers reported using cannabis during pregnancy were at greater risk of autism.** According to the study, women who use marijuana during pregnancy have a more than 50 percent greater chance to give birth to a child with autism versus non-users. The study also found the risk for other neurodevelopmental disorders was heightened. The findings were published in the prestigious medical journal Nature Medicine (Corsi, 2020).

Increasingly, government officials sound alarms on marijuana use during pregnancy after research and reports have revealed that more pregnant women are using the drug. In Alaska, for example, 9% of women who delivered a baby in 2017 reportedly used marijuana during their pregnancy (Alaska Department of Health and Social Services [ADHSS], 2020).

In fact, in Colorado, researchers found that 7 in 10 dispensaries recommended marijuana to women posing as pregnant women (Nedelman, 2018). Dr. Nora Volkow, the director of the National Institute of Health's National Institute on Drug Abuse, published a report in response to this alarming trend developing across the country of increased marijuana use during pregnancy and warned of the detrimental health risks of in utero cannabis exposure (Volkow et al., 2017).

In 2019, the U.S. Surgeon General issued an advisory on marijuana use during pregnancy (Office of the Surgeon General, 2019). In 2019, a newborn whose mother reportedly used marijuana while pregnant was found dead at just 11 days old and doctors believed the cause was acute marijuana toxicity (Bao & Bao, 2019).

The trend in marijuana use during pregnancy even prompted the U.S. Surgeon General to issue an advisory that warned women not to use marijuana to alleviate nausea during pregnancy (Office of the Surgeon General, 2019).

Legalisation advocates have also suggested that marijuana may help PTSD sufferers, a claim with important implications for veterans in particular. This may be a dangerous assumption. Two studies conducted on military personnel suffering from PTSD found an elevated risk for suicidal thoughts and behaviours among those using marijuana (Allan et al., 2019; Gentes et al., 2016).

ASSOCIATION WITH OTHER DRUGS

A body of research shows early marijuana use is associated with more than doubling the likelihood of non-marijuana drug use later in life (Olfson et al., 2018; Secades-Villa et al., 2015). In fact, according to the National Survey on Drug Use and Health, 95-97% of people who used cocaine or heroin started with marijuana (Substance Abuse and Mental Health Services Administration [SAMHSA], 2018). The scientifically validated relationship between substance abuse and marijuana use is difficult to ignore.

Rather than discouraging polysubstance use (the use of multiple drugs), marijuana legalisation is associated with further use, misuse, and dependence on other drugs. While the “gateway” effect of marijuana is sometimes considered outdated, the association between use of marijuana and other drugs is supported by the science. Marijuana use often predicts future drug use - ranging from tobacco and alcohol use, to opioid use.

Marijuana legalisation, normalisation, and misinformation pose a significant risk to public health as the science continues to be downplayed or dismissed. Dr. Elinore McCance-Katz, Assistant Secretary at the Department of Health and Human Services, repeatedly asserts that the dangers posed by marijuana are “settled science,” yet pushback from the industry inhibits wider acceptance of that fact.



THE VAPING EPIDEMIC

The vaping epidemic is the first national, marijuana-driven crisis in the U.S. and is a direct result of marijuana legalisation. The vaping of marijuana in THC oil pods or cartridges is a relatively new marijuana-industry innovation. **Vaping quickly delivers 70-90% THC concentrates to users by heating extracted oils so that they can be inhaled as vapour.** No studies on consumer safety were conducted prior to the mass marketing of vaporisers, which are also popular among tobacco users.

The ensuing crisis, dubbed EVALI (e-cigarette or vaping product use-associated lung injury) by the U.S. Centers for Disease Control and Prevention (CDC), has left nearly 70 dead and resulted in the hospitalisations of 2,739 as of the publishing of this report (Centers for Disease Control, 2020). Many of these victims suffered lung damage that their bodies will never recover from. One hospitalisation resulted in the double-lung transplant of a 17-year old (CNNwire, 2019).

Of EVALI cases, 52% of affected patients are under the age of 24. Victims killed by the vape-related lung illness ranged in age from 15 to 75. Cases of vaping illnesses have appeared in all 50 states as well as several U.S. territories (Centers for Disease Control, 2020). 15% of EVALI victims are under the age of 18 - and therefore under the legal age limit to buy a marijuana vape. This is in keeping with the unfortunate and fast-moving upward trend in youth marijuana vaping (Miech et al., 2019). (A similar age limit of 18 is proposed for New Zealand).

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HIGH POTENCY MARIJUANA

In the 1970s, “Woodstock Weed” contained roughly 1–3% THC (ElSohly et al., 2000), the psychoactive component of marijuana. Since then, products became increasingly potent, driven in large part by market demand as well as a shift in consumption methods.

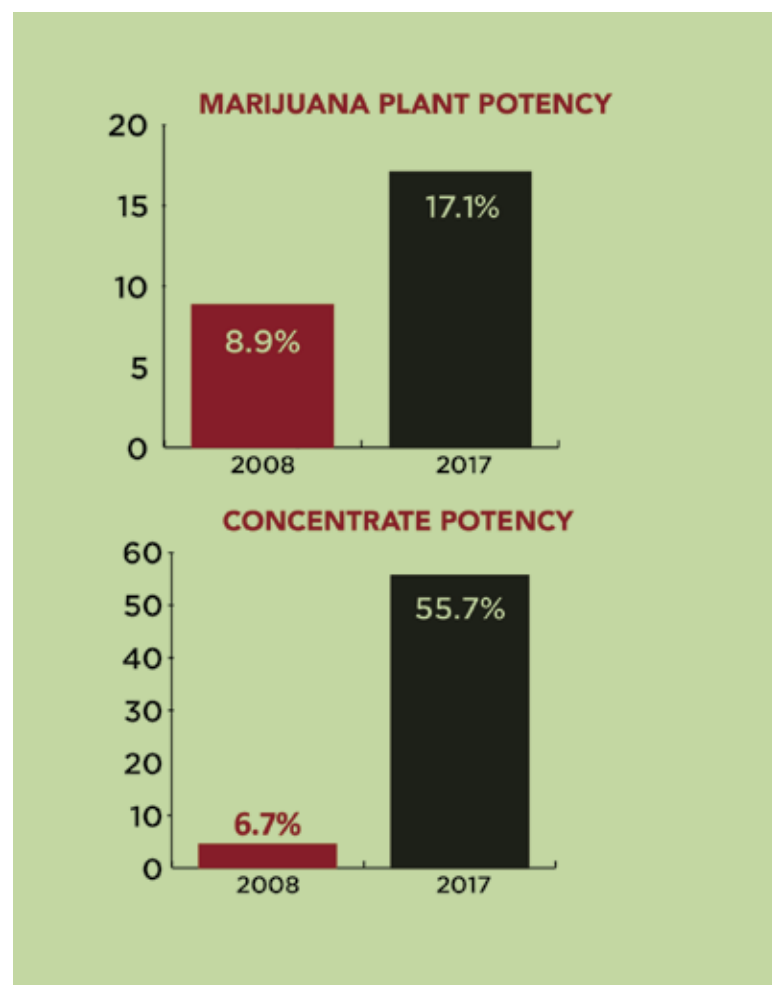
THC concentrates such as shatter, budder, and waxes - as well as gummies and edibles – are packed with more THC than joints ever were. Now, even the plant itself is genetically engineered to contain a greater percentage of THC. One study found that the average potency of the marijuana plant increased from 8.9% THC in 2008, to 17.1% THC in 2017. Concentrates which contained an average potency of 6.7% THC in 2008 contained an average potency of 55.7% in 2017 (Chandra et al., 2019). (See image right)

The market for marijuana flower hybrids and concentrates continues to rise with the increase in demand for products with higher THC potency levels. In Washington State, market share for flower products with 10–15% THC declined by 60.4% between 2014 and 2017, while the market share for flower products with more than 20% THC increased by 48.8% during that same period (Smart et al., 2017). (The proposed law for cannabis legalisation in New Zealand allows for flower products up to 15%.)

The demand for stronger marijuana is dangerous. High potency marijuana exacerbates many of the consequences of marijuana use. Frequent marijuana users and users of higher potency marijuana are more likely than regular users to develop schizophrenia and psychosis (Di Forti et al., 2019). Users of Butane Hash Oil (BHO), a marijuana concentrate that yields a potency of between 70-99% THC, are more likely to have lifetime diagnoses of depression and anxiety while being more likely to report other substance use (Chan et al., 2017).

The lucrative cash potential of high potency marijuana also emboldens illegal producers of BHO. Its production involves forcing raw marijuana and butane into a reaction chamber, which creates a highly combustible liquid that can easily explode when introduced to an ignition source. This has implications not only for public health but public safety as well.

Between 2012 and 2018, over 100 marijuana extraction labs were seized in Oregon. Over 30 fires and explosions related to the production of this kind of marijuana were reported in the state in that time period (ORIDHIDTA, 2020). The number of labs seized in the area reached a new high of 37 in 2017 (ORIDHIDTA, 2020).



EMERGENCY AND HOSPITAL ADMISSIONS

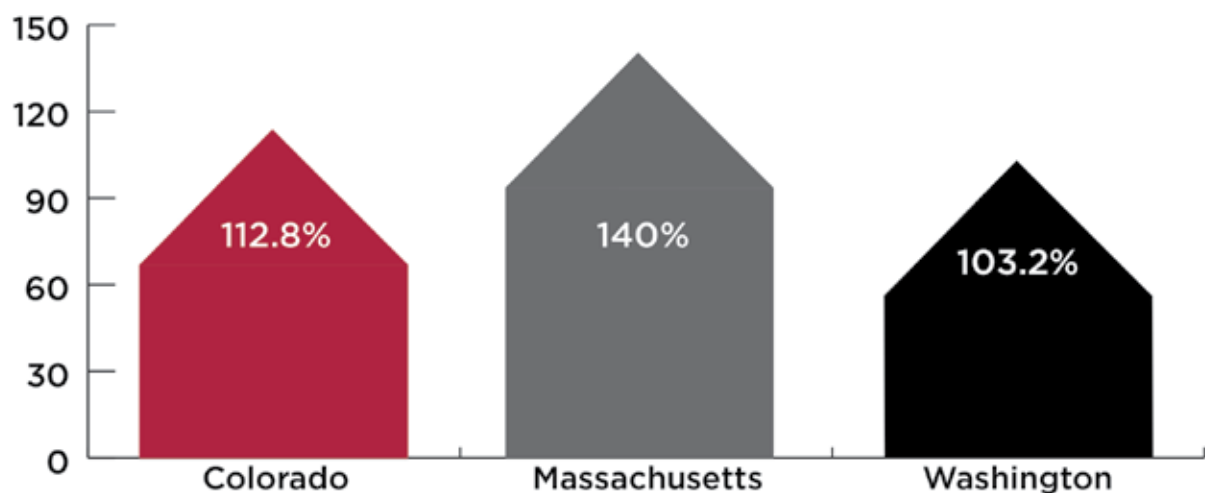
The widespread availability and accessibility of high potency marijuana due to legalisation has resulted in an increasing number of marijuana-related poison control calls, hospitalisations, and ER visits.

A 2020 study found that **recreational marijuana legalisation is associated with between 66–77% increase in marijuana exposures**. State-specific data shed greater light on this phenomenon (Shi & Liang, 2020).

In Colorado, the number of marijuana-related emergency department visits increased 54% from 2013 to 2017 (RMHIDTA, 2019). Yearly marijuana-related hospitalisations increased 101% in that same period (RMHIDTA, 2019). Calls to the poison control center for marijuana exposures also increased. In 2013, 125 calls were made for marijuana-related exposures. By 2018, that number jumped to 266, representing a 112.8% increase. Youth cases (instances of marijuana-related exposures of children aged 8 or younger) increased 126.2% from 2013 to 2018. In 2018, youth cases represented over half of all marijuana-related exposure calls (RMHIDTA, 2019).

A study by the Colorado Department of Public Health and Environment found that in 2018, over 23,000 homes in the state with children aged one to 14 years had marijuana products stored unsafely (Colorado Department of Public Health and Environment [CDPHE], 2018).

PERCENT INCREASE IN CALLS MADE TO THE POISON CONTROL CENTRE FOR MARIJUANA EXPOSURES FOLLOWING LEGALISATION IN THE STATE.



(Rocky Mountain HIDTA, 2019; Whitehill et al., 2019; Washington Poison Center, 2018)

In 2018, 60% of youth marijuana exposures involved edibles, compared with just 18% in 2016 (RMHIDTA, 2019). Even when packaging is compliant with Colorado's regulatory requirements, it fails to discourage or prevent children from accessing potent and dangerous marijuana.

Researchers who studied the impact of medical marijuana legalisation also found many paediatric marijuana exposure cases in the state, despite childproof packaging and warning labels (Whitehill et al., 2019). During the eight-year period studied, the Regional Center for Poison Control and Prevention (RPC) recorded a 140% increase in single-substance (marijuana) exposures, with 81.7% of these calls regarding marijuana exposures of 15- to 19-year olds.

A study conducted in Washington State found that the rate of paediatric exposures to marijuana (children aged 9 or under) was 2.3 times higher following "legal" retail sales than before legalisation (A. Thomas et al., 2019). Poison control center cases in Washington state have increased 103.2%. Cases for children aged 5 and younger increased in 176.5%. In 2018, there were 497 calls - compared with 245 when legalisation in the state began (Washington Poison Center, 2018).

In Alaska, 2017 there were a total of 3,296 inpatient discharges and 6,639 outpatient discharges related to marijuana (ADHSS, 2020).

In Illinois, just several days after legalisation, doctors reported a surge in emergency room visits and hospitalisations for marijuana, including several cases of marijuana-induced psychosis (McCall, 2020).

Though it is true that marijuana misuse does not result in the same kind of immediate overdose that other drugs may cause, **cases of Cannabis Hyperemesis Syndrome (CHS) - or sometimes CVS (Cannabis Vomiting Syndrome) - have increased significantly since legalisation.**

CHS is a disease that presents as episodes of screaming and vomiting, dubbed "scromiting," and the only effective treatment is the immediate stoppage of marijuana use. The disease appears to mainly affect heavy, daily users of marijuana.

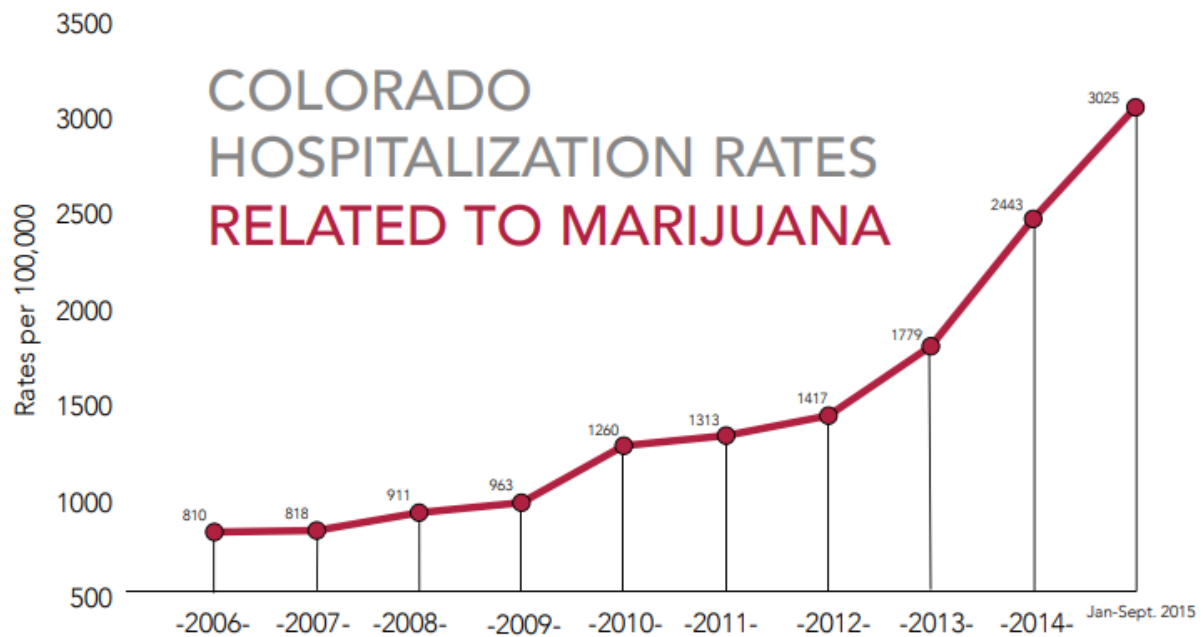
MARIJUANA HOSPITALISATION INCREASES SINCE LEGALISATION



(Colorado Department of Public Health and Environment, 2013-2017; Alaska Department of Health and Social Services, 2020).

From 2010 to 2014, researchers recorded a 46% increase in CHS cases in Colorado (Bhandari et al., 2019). Another study of CHS in Colorado found at least two deaths that were caused by CHS and recorded a third death that CHS is believed to have contributed to (Nourbakhsh et al., 2019). This is an entirely new phenomenon; the first case of CHS was recorded in 2004.

The dramatic increases in emergency cases related to marijuana exposure highlight the danger of legalisation. In many instances, the danger impacts unwitting children or people who mistakenly consume marijuana.



Source: Colorado Department of Public Health and Environment, Monitoring Health Concerns Related to Marijuana in Colorado: 2016



IMPACT ON YOUTH

- 9th grade U.S. = year 10 N.Z. (age 14-15)
- 10th grade = year 11 (15-16)
- 11th grade = year 12 (16-17)
- 12th grade = year 13 (17-18)

The legalisation of marijuana has had a profound impact on youth use of the drug as well as perceptions of its harms.

Years of playing catch-up to alcohol and tobacco normalisation have resulted in important downward trends in youth alcohol and cigarette use. But a new wave of substance use among children is rising. Given the relationship between marijuana use, alcohol, and cigarette use, it is important to note that use rates of all substances among youth may rise if the dangers of youth marijuana use go ignored.

While some marijuana industry proponents have suggested that a strict legal marijuana market would limit youth use, marijuana use among youth is rapidly increasing along with legalisation—while perceptions of risk associated with use are decreasing. Compounding this problem are the increasing use rates of adults. A 2019 study found that **parental marijuana use increases the likelihood of marijuana use among children in the household**, as well as increases their risk of tobacco use and opioid misuse (Madras et al., 2019).

In part, the ease of obtaining marijuana has contributed to youth use in “legal” states. **Restrictions on selling to minors have not stopped state-sanctioned sellers from selling the drug to underage consumers in “legal” states.** In 2018, 46% of young people nationwide aged 12 to 17 reported that they perceived marijuana to be easy or fairly easy to obtain (SAMHSA, 2019a).

“Children are our most precious resource. We should shield them from harm, not expose them to it. If we truly want more positive outcomes for our nation, we must develop public drug policies from a new starting point: ‘What’s in the best interests of kids?’”

**- Christian Thurstone, child and addictions psychiatrist and researcher,
University of Colorado Denver**



In Washington state, where marijuana is “legal,” this number is much higher, with 49% of 10th graders and 61% of 12th graders believing that marijuana was easy to obtain (Washington State Healthy Youth Survey [WSHYS], 2018).

In Washington state, marijuana violations have remained high since legalisation in 2014. As of December 2019, 3,220 violations have been documented. Violations pertaining to the sale or service of marijuana to a minor, or for allowing a minor to frequent a restricted area, comprised 16.3% of all of these violations (Washington State Liquor and Cannabis Board, 2020).

Among Oregon 11th graders who currently use marijuana, 67% reported obtaining marijuana from a friend (Oregon Health Authority, 2016). Furthermore, 37.2% of 8th and 49.5% of 11th graders reported being exposed to online marijuana advertisements in the past 30 days (Oregon Health Authority, 2017).

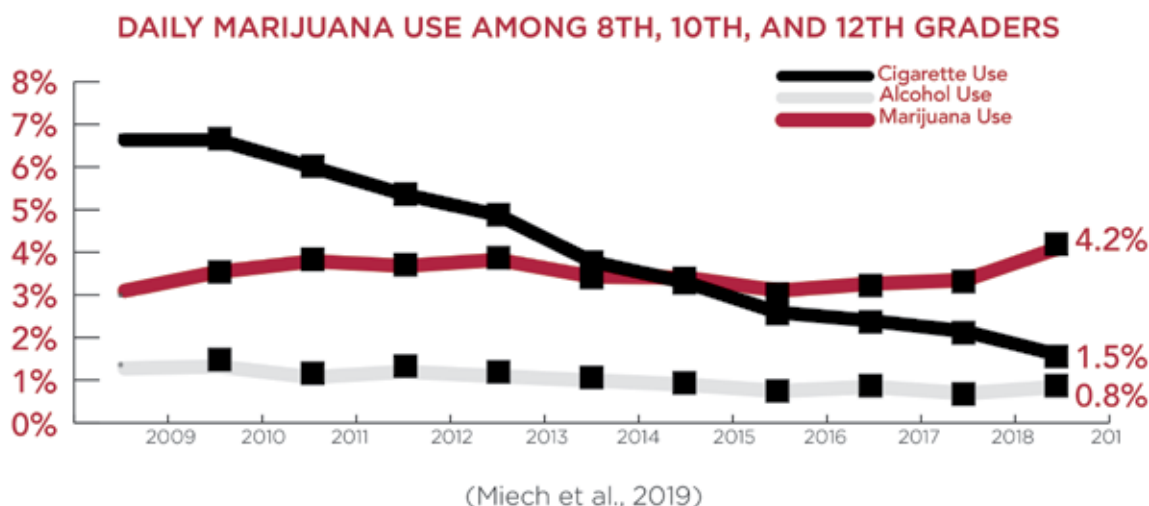
A recent study found that one in three youth living in a state where marijuana is “legal” engaged with marijuana promotions on social media. The same study found that youth who engaged with marijuana promotions were five times as likely to use marijuana (Trangenstein et al., 2019).

In Washington state, 22% of 6th and 8th graders believed there to be no or low risk from regular marijuana use, while 40% of 10th and 12th graders reported no or low risk from regular marijuana use. 67% of 10th and 12th graders in the state reported no or low risk of trying marijuana once or twice (WSHYS, 2018).

Additionally, near daily marijuana use - as reported by the University of Michigan’s Monitoring the Future (MTF) survey - increased dramatically from 2018 to 2019 with 6.4% of 12th graders, 4.8% of 10th graders, and 1.3% of 8th graders reporting near daily marijuana use in 2019. The increase in near-daily marijuana use among 8th graders is particularly concerning: 2019 near-daily use rates jumped 85.7% from 2018 to 2019 (Miech et al., 2019).

Youth marijuana vaping has added to the already-alarming trend of increasingly prevalent marijuana use among young people amid widespread legalisation. Trends in youth vaping have given way to a countrywide epidemic (Centers for Disease Control, 2019a) that present implications for youth marijuana use. Youth vaping of any kind (tobacco or flavours) has been shown in several studies to increase the likelihood of subsequent marijuana vaping or marijuana use generally (Chadi et al., 2019; Kowitt et al., 2019).

As youth vaping of any kind has increased, so too has youth marijuana vaping.



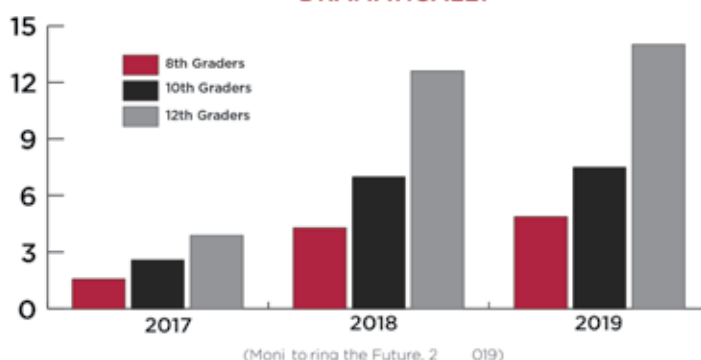
Past-year youth vaping of marijuana has increased dramatically since the MTF survey began recording data on the subject in 2017. As reported by this survey (Miech et al., 2019), lifetime, annual, and past-month marijuana vaping among 8th, 10th, and 12th graders have all dramatically increased in just one year. Past-month use among teenagers increased over 72% from 2018 to 2019. An average of 10% of teens reported past-month marijuana vaping in 2019. In 2019, MTF first recorded data on near-daily marijuana vaping and found that 2.4% of this age group vaped marijuana almost every day. That number exceeds near-daily cigarette and near-daily alcohol use among this group.

As marijuana legalisation advocates have argued that youth marijuana use falls in conjunction with legalisation, it is important to note trends in use in states that have legalised the drug. **More young people are using marijuana in “legal” states—and they are using it more frequently. These trends are driven by the decreased perception of risk as well as the increased availability of marijuana that accompanies legalisation.**

Nationally, fewer people, especially youth, perceive a risk from smoking marijuana.

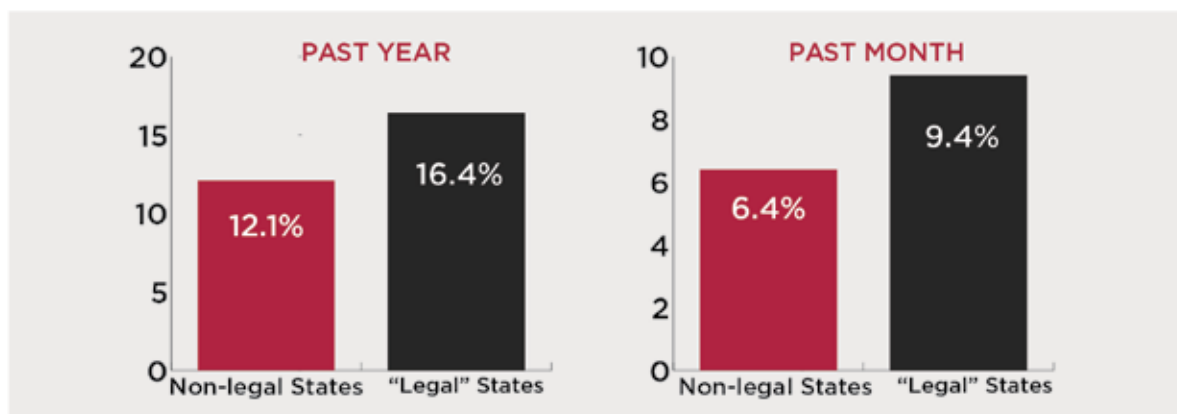
This downward trend is driven by the relaxed approach to marijuana in states where it’s “legal.” The perception of risk associated with smoking marijuana once a month fell over 7% from 2016/2017 to 2017/2018 in “legal” states (SAMHSA, 2019b). Only 17.4% of youth aged 12 to 17 in “legal” states reported perceiving a risk from smoking marijuana, a dramatically lower percentage compared with the national rate of over 27%. Consequently, marijuana use among this age group is up in those states.

YOUTH PAST MONTH MARIJUANA VAPING INCREASED DRAMATICALLY



Past-year as well as past-month marijuana use among 12- to 17-year olds in “legal” states increased from 2016/2017 to 2017/2018 (SAMHSA, 2019b). An average of 16.4% of 12- to 17-year olds in “legal” states reported past-year use in 2017/2018, and an average of 9.4% reported past-month use. In California, Colorado, Massachusetts, and Nevada, past-month marijuana use among young people jumped over 4% in each state from 2016/2017 to 2017/2018. In Washington state, use increased even more dramatically: 9.9% of young people reported past-month marijuana use, marking a near 11% increase in past-month use from 2016/2017. An independent report in Alaska found that 22% of high schoolers in the state reported past-30-day use in 2017 (ADHSS, 2020).

PAST MONTH AND PAST YEAR YOUTH USE IN “LEGAL” STATES OUTPACES SUCH USE IN NON-LEGAL STATES.



(NSDUH State Comparisons, 2019)

These increases far exceed marijuana use rates among youth aged 12 to 17 in states where marijuana remains illegal (SAMHSA, 2019b). According to 2017/2018 NSDUH state-specific data, 12.1% of youth in non-legal states reported past-year marijuana use and 6.4% of young people in those states reported past-month use. Use rates in “marijuana-legal” states sit around three percentage points higher.

The issue of marijuana use among youth in “legal” states is further elucidated by data taken on first-use rates - the percentage of young people initiating marijuana use in the past year (SAMHSA, 2019b). The average rate of first use in “marijuana-legal” states was 7.4% in 2017/2018, up from 6.8% the previous year. In California, first-use rates have increased 10% from 2016/2017 to 2017/2018. In states where marijuana remains illegal, first-use among 12- to 17-year olds in 2017/2018 was 5.4%.

Marijuana legalisation - and the subsequent normalisation of marijuana use - plays an important role in the increased marijuana use of young people. A 2017 study found that the longer duration of legalisation and higher dispensary density was associated with increased use of vaping (inhaling vaporised marijuana oils) and consumption of edibles by 14- to 18-year olds (Borodovsky et al., 2017). Marijuana dispensary density has been linked to more use among youth, with 16% of 11th graders reporting marijuana use in areas with less dispensary density compared to 24.3% of the same age group reporting use in more retail-dense areas (Hatch, 2017).

The legalisation of marijuana has also adversely impacted schools and youth academic performance. According to Joe Zawodny, director of secondary education for the Anchorage [Alaska] School District, “Because it’s legal in the community, I think, the stigma around marijuana use is decreasing. The data would seem to say there is increasing use” (Wohlforth, 2018). In Washington state, high schoolers reporting marijuana use also reported lower grades (more C’s, D’s, and F’s) than those of their peers who did not smoke marijuana (WSHYS, 2018).

Marijuana was cited in 23% of Colorado school suspensions, the highest of all documented school offenses. Further, between 2012 and 2014, the percentage of 10- to 14-year olds who once or twice tested positive for THC increased from 19% to 23%; those who tested positive three or more times increased from 18% to 25% (Munoz et al., 2017). In Alaska, the number of youth referred for marijuana-related crimes jumped to a high of 302 (ADHSS, 2020).

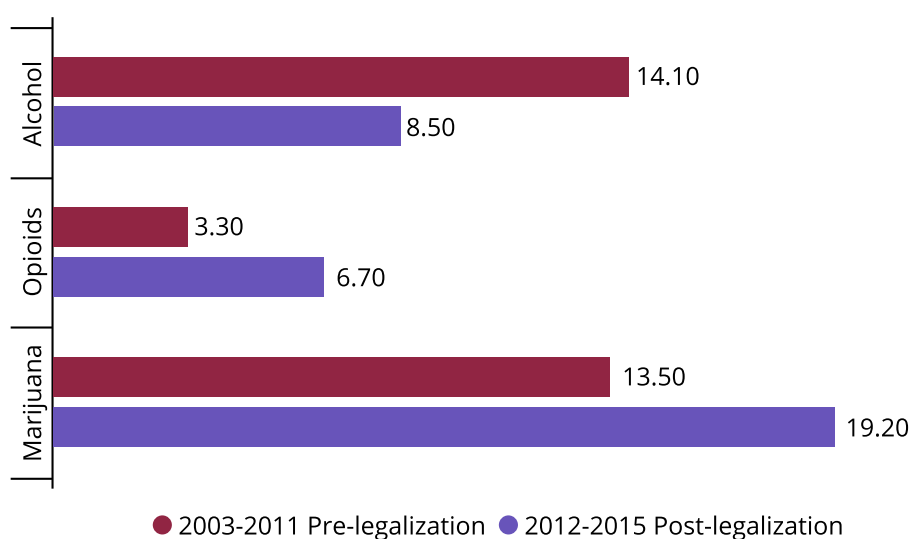
Marijuana use among youth in “legal” states also coincides with marijuana misuse and substance disorder. A 2019 study (Cerdá et al., 2020) found that recreational marijuana legalisation was followed by an 25% increase in adolescent cannabis use disorder (CUD). This trend speaks to the prevalence of higher potency of marijuana products. In Washington state, a 2018 youth survey showed that 13% of 8th and 10th graders, and 19% of 12th graders reported dabbing marijuana (WSHYS, 2018). **Dabbing involves heating marijuana concentrate, often of unspecified potency that can reach up to 99% THC, and inhaling the vapor.** One study on dabbing found that the process may deliver significant amounts of additional toxins, such as methacrolein and benzene (Meehan-Atrash et al., 2017).

There are intense ramifications to marijuana use by youth. Young, developing brains are especially susceptible to the negative effects of marijuana use and young users have demonstrated changes in grey matter volume, indicating negative consequences for brain development (Orr et al., 2019). Young users are also at a greater risk for mental health problems, dependence on marijuana, and future substance abuse of other drugs (Coffey & Patton, 2016). Chronic adolescent marijuana use has been correlated with cognitive impairment and worsened academic or work performance (Arria et al., 2015; Meier et al., 2012; Meier et al., 2015; Salmore & Finn, 2016; Schuster et al., 2018; Silins et al., 2014).

Youth marijuana use poses a significant risk for depression and suicide (Gobbi et al., 2019; Silins et al., 2014). In Colorado, where teen suicides have become the cause of one in five adolescent deaths (Daley, 2019), youth suicide toxicology reports have demonstrated this devastating effect. **In 2013, marijuana was present in 10.6% of suicide toxicology reports for young people aged 15 to 19 years; in 2017, marijuana was present in over 30%¹ of suicide toxicology reports for young victims between the ages of 15 and 19 years (CDPHE, 2019).**

The efforts to legalise marijuana are playing out with devastating effects on youth across the country while public health agencies are ill-equipped to mitigate the consequences. But youth are not the only group at risk.

AVERAGE TOXICOLOGY OF SUICIDES AMONG ADOLESCENTS AGES 10-19 YEARS OLD (WITH KNOWN TOXICOLOGY)



SOURCE: Colorado Department of Public Health and Environment (CDPHE), Colorado Violent Death Reporting System

JUST RELEASED

A new survey just released by the state of Colorado at time of publishing this report has found that marijuana use has increased in the last two years with nearly 21% of young people in the state reporting past month use. Notably, **use in young teens (aged 15 and younger) has significantly increased by 14.8% from 2017**, the last time data was collected (Colorado Department of Public Health & Environment, 2020).

According to the data, part of the Healthy Kids Colorado Survey, since 2017, past month marijuana use among 16 or 17-year-olds has increased 3.0%, and 18 or older has increased 1.9%. Overall, marijuana use amongst all age groups has risen 6.2%.

In a disturbing development, **teens report an alarming increase in their use of ultra-potent cannabis products in the form of dabs and vapes.** More than half of high school students (52%) who use marijuana reported that they dab marijuana to get high - up from 34.4% just two years ago. This is based on surveys of over 53,000 middle and high school students state-wide in Colorado last year.

1. Data taken from Colorado Department of Public Health and Environment's website was presented differently in several CDPHE resources. Should this conflict be resolved, this report will be updated.

“Dabbing” is a method of inhaling highly concentrated THC (commonly referred to as hash oil, wax or shatter) using a blow torch-heated delivery system commonly referred to as a dab rig. THC is the main high-inducing chemical in marijuana.

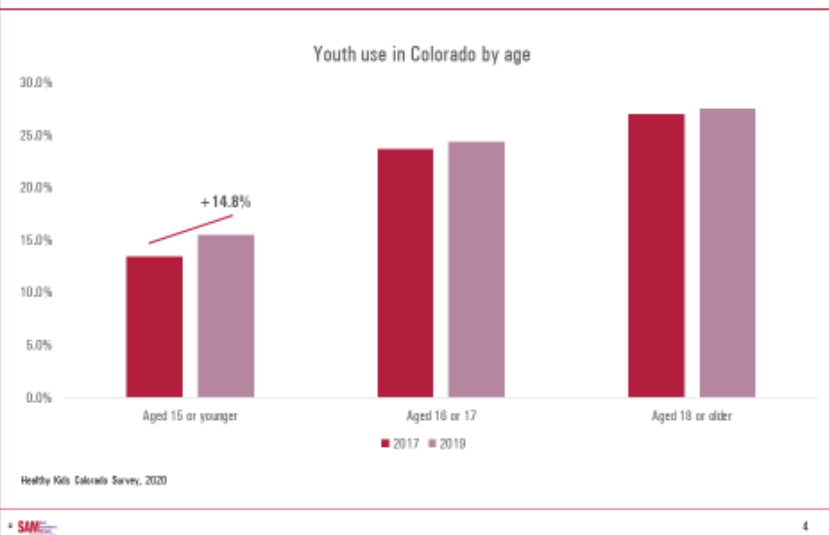
The survey results also show a 69% increase in students vaping marijuana in two years.

Among high school students who used marijuana in the past 30 days, 34.3% reported vaping it, up from 20.3% in 2017.

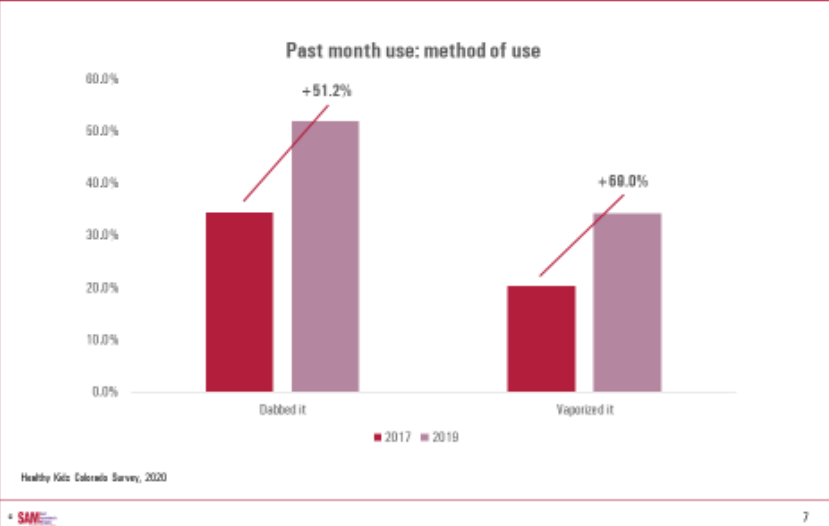
In addition to highlighting the increases in dabbing and vaping, the Colorado Department of Public Health and Environment noted that the percentage of youth who drove after using marijuana more than tripled in two years. According to the state, **32.4% of youth drove a vehicle after using marijuana in the past month, a statistically significant increase from 9% in 2017.**

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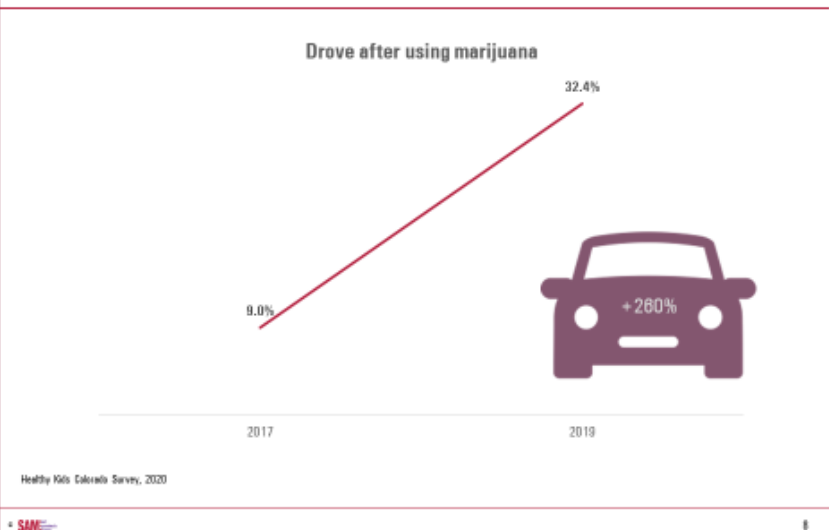
Changes in past month youth use from 2017 to 2019



Of young people who reported past month use, more are dabbing and vaping marijuana



A significant percentage of students surveyed reported driving in the past month after using marijuana



IMPACT ON HOMELESSNESS

Though the extent to which a correlation in the increasing homeless population may have with the marijuana legalisation is unclear, some trends in this area are notable.

In Colorado, the homelessness rate appears to have increased with the expansion of recreational marijuana. The U.S. Department of Housing and Urban Development reported a 13% increase in Colorado's homeless population from 2015 and 2016, while the national average decreased 3% (Burke & Acuna, 2017). Business owners and officials in Durango, Colorado, have testified that the resort town "suddenly became a haven for recreational pot users, drawing in transients, panhandlers, and a large number of homeless drug addicts" (Kolb, 2017).

A 2018 study, conducted by the Colorado Division of Criminal Justice, surveyed seven Colorado jail populations. It yielded results that further link homelessness and marijuana use (CDCJ, 2018). The study, though small, found that 50.8% of respondents reported using marijuana 30 days prior to their time in jail. Additionally, 54.9% of respondents who were homeless prior to their jail time reported marijuana use 30 days prior to it (compared with 36.1% reporting alcohol use).

The study also found that of the respondents, 38.5% were Colorado natives and 61.5% were not. Of the non-Colorado natives surveyed, 35.1% reported marijuana as his or her reason for moving to Colorado after it was legalised in 2012 (CDCJ, 2018).

Considering the impact of homelessness on communities - and the resources required to help those impacted by it - it's worth investigating the correlation between homelessness and legalisation.



IMPACT ON YOUNG ADULTS

Though the legal age for marijuana consumption in “legal” states is 21 (New Zealand is proposing a legal age limit of 20), marijuana use during young adulthood carries a host of adverse effects. **Marijuana has a particularly strong impact on developing brains, which continue to develop through a person’s late twenties.** Still, marijuana use in this age group is higher than that of any other.

The low perception of risk associated with marijuana use, as well as the highest use rates of all age categories, make marijuana an unexamined issue for many young adults.

According to data recorded by SAMHSA’s national NSDUH survey (SAMHSA, 2019a), in 2018 young adults across the country had the lowest percentages of perception of risk associated with marijuana use. Only 12% of young adults believed that smoking marijuana once a month was risky and only 15.4% perceived a great risk from smoking marijuana once or twice a week. This is far lower than the perception of risk of people aged 12 or older: 25% perceive great risk from smoking once a month and 30.6% perceive a great risk from smoking once or twice a week.

Young adult marijuana use outpaces other age groups in the United States. Young adults aged 18 to 25 reported lifetime, past-year, and past-month use in much higher numbers compared to other age groups at 51.1%, 34.8%, and 22.1%, respectively. Use reported among people aged 12 or older sits at 45.3%, 15.9%, and 10.1%, respectively (SAMHSA, 2019a).



"Seeing whānau members who can't go without cannabis every day for 40-50 years. Seeing 15 year-olds who just want to use cannabis every day. It is insidious, it is damaging, and it is powerful in our communities. [Cannabis legalisation] is not the magical cure people often portray it as. Because the underlying reasons for that treatment of Māori, that institutional bias in criminal justice, remains... we need to fix those first."

DR HIRINI KAA

Māori and Pacific Advisor

Faculty of Arts, University of Auckland.

Source of Quote: NZ Herald 25 April 2020

Higher instances of marijuana use disorder have been reported by people aged 18 to 25, coinciding with higher rates of marijuana use. In 2018, after years of decreases, 5.9% of people aged 18 to 25 reported marijuana use disorder, marking an 11% increase from 2017 (SAMHSA, 2019a).

These trends in use are most dramatic in states that have legalised marijuana (SAMHSA, 2019b). The percentage of young adults, aged 18 to 25, reporting past-year and past-month use have increased significantly from 2016/2017 to 2017/2018. An average of 46.3% of young adults in these states reported past-year use in 2017/2018 and 31.6% reported past-month use in 2017/2018. In Nevada, for example, past-year and past-month young adult use jumped by 18.9% and 24.1% respectively from 2016/2017 to 2017/2018.

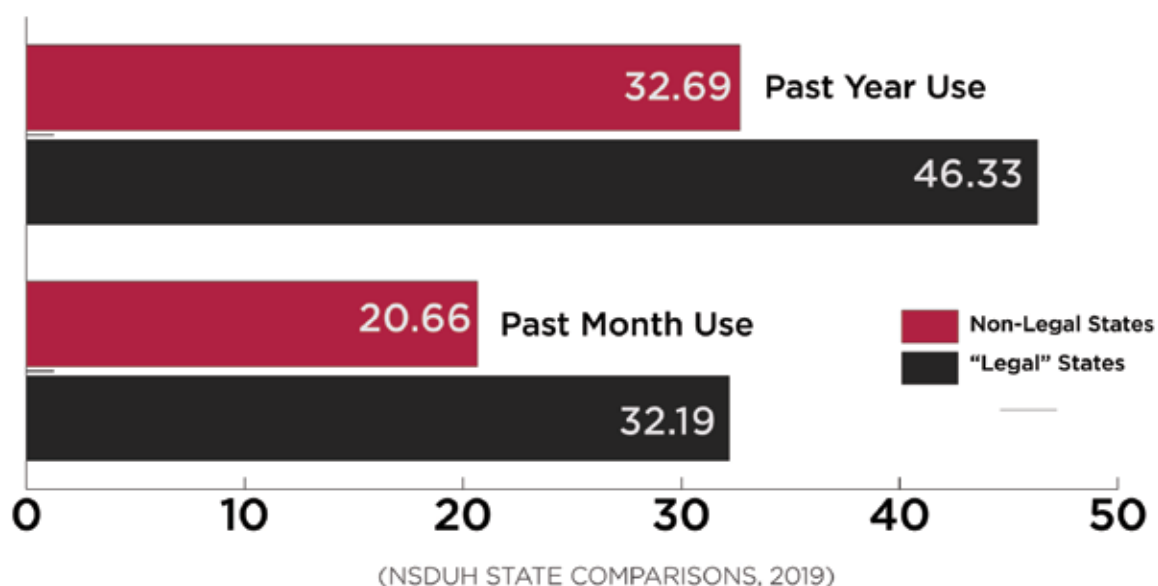
Use rates among this age group in “legal” states far exceed those of states where marijuana is illegal (SAMHSA, 2019b), with 32.7% and 20.7% of 18- to 25-year olds reporting past-year and past-month use in not “legal” states: a difference of more than 10 percentage points compared with “legal” state-use rates. Legalisation has not reduced use; it has encouraged and accelerated it.

Given what we know about marijuana’s effects on the developing brain, young adults should be discouraged from using it, but the legalisation of marijuana instead heavily promotes the use - with no warnings about the risks. The same health risks faced by teen marijuana users affect young adult users. For example, marijuana use during young adulthood carries a higher risk of developing psychosis (Borodovsky et al., 2017; Leadbeater et al., 2019).

Co-use also presents a compounded harm to young-adult users. As this age group (18-19 years old) goes off to college, where drinking, drug use, and other kinds of experimentation are prevalent, marijuana may be used in conjunction with a host of other drugs, presenting a risk for future substance use disorder. Researchers from Oregon State University found that **college students who were binge drinkers before the age of 21 saw relatively large increases in marijuana use after legalisation** (Kerr et al., 2017).

College students who were binge drinkers before the age of 21 saw relatively large increases in marijuana use after legalisation.

PAST YEAR AND PAST MONTH YOUNG ADULT (18-25 YR OLD) USE IN “LEGAL” STATES OUTPACES SUCH USE IN NON-LEGAL STATES.

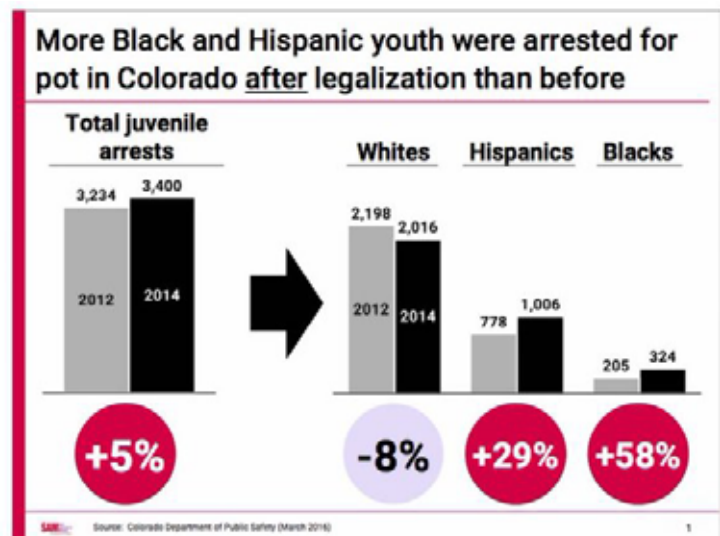


SOCIAL INJUSTICE:

IMPACT ON COMMUNITIES OF COLOUR AND LOW-INCOME POPULATIONS

Marijuana legalisation poses a significant threat to low-income and minority communities. Though industry proponents suggest that marijuana legalisation will alleviate injustices against socioeconomically disadvantaged populations, **disparities in use and criminal offense rates have persisted in states that legalised marijuana.**

While it is important to evaluate the impact of incarceration within certain communities, it is also important to understand the impact of marijuana legalisation on those same communities. **It is inappropriate to suggest that only through marijuana legalisation will social justice be achieved or criminal justice inequity remedied.** In fact, no such effect has been demonstrated in the states where marijuana was made “legal.”



Instead of fixing social justice disparities in one fell swoop, legalisation merely changes the nature of the arrest in lower income and minority communities. What's more, the marijuana industry has recognised an important new consumer base.

An early study of medical marijuana implementation in California found that **marijuana dispensaries were disproportionately located within areas where the demand for marijuana was higher, where there were higher rates of poverty as well as a greater number of alcohol outlets** (Morrison et al., 2014). In other words, when choosing where to locate dispensaries, owners followed the data to low-income communities. Further studies of Los Angeles marijuana dispensaries found that the majority of dispensaries have opened primarily in African American communities (Thomas & Freisthler, 2017). And an overlay of socioeconomic data with the geographic location of pot shops in Denver shows marijuana stores are disproportionately located in disadvantaged neighbourhoods (Hamm, 2016). In Oregon, the state conducted an analysis on the distribution of state-sanctioned dispensaries and found that sites were concentrated among low-income and historically disenfranchised communities (McVey, 2017; Smith, 2017).

As a result, the harms associated with marijuana dispensary locations (such as increased use and substance misuse, normalisation, hospitalisations, etc.) are disproportionately concentrated within particularly vulnerable communities.

The importance of this cannot be overstated. Historically, disadvantaged communities lack many of the resources to combat this kind of targeting by industry and also often lack adequate access to proper drug treatment

facilities, thereby exposing community members to an increased likelihood of substance abuse with limited resources to combat the consequences (Kneebone & Allard, 2017). What the country has seen in the fallout of the opioid epidemic and the expansion of Big Tobacco (Truth Initiative, 2018) is being replicated by Big Marijuana.

Perceptions of risks associated with marijuana use among young people of colour fall well below the national rates (SAMHSA, 2019a). Nationally, 34.9% of youth aged 12 to 17 perceived a great risk from using marijuana once or twice a week. Only 31.9% of African American youth, and 28.9% of American-Indian Alaska-Native (AIAN) youth perceive a great risk from using marijuana once or twice a week. As stated previously, frequent marijuana use among young people exacerbates the damaging health consequences associated with it.

The decreased perceptions of risk translate to increases in use. In 2018, past-year and past-month use among minority young people was higher than the average, as reported by SAMHSA (SAMHSA, 2019a) Past-month and past-year marijuana use among youth aged 12 to 17 years was more prevalent among African Americans and AIAN youth. For example, nationally, 6.7% of young people aged 12 to 17 reported past-month marijuana use, with 6.8% of Caucasian youth using in the past month.

Comparatively, 7.5% of African American youth and 9.4% of AIAN youth reported past-month marijuana use. Young people of colour face enormous risks.

The decreased perception of risk associated with marijuana use during pregnancy has a particularly damaging impact on socioeconomically disadvantaged communities. A study by the American College of Obstetricians and Gynaecologists reported that young, urban women from lower income levels have a 15–28% rate of marijuana use during pregnancy (American College of Obstetricians and Gynaecologists, 2017). As previously stated, marijuana use during pregnancy has a host of dangerous consequences for neonates.

From an economic standpoint, advocates of the marijuana industry often argue that any detrimental effects of marijuana will be offset by the cash potential of the drug. Proponents of legalisation suggest that the new industry presents previously disenfranchised groups with new economic opportunities. In reality, though some states have attempted to use legislation to protect and provide for minority marijuana business owners, the industry is largely bereft of diversity. Nationally, fewer than 2% of all marijuana businesses are owned by minorities (Schoenberg, 2018).

In Chicago, Illinois, where not one of the 11 existing growers licensed to sell recreational marijuana was African American, the city council's Black Caucus pushed back. Soon after the state legislature's legalised recreational marijuana, local African American legislators took issue with the obvious discrepancy (Koziarz, 2019). Still, Chicago Mayor Lori Lightfoot, who received \$123,000 from the marijuana industry in

her contentious bid for mayor, suggested that those council members take the issue up with the state legislators in Springfield. Legalisation was implemented on schedule.

"Seeing firsthand how drugs eviscerate urban communities – and understanding how marijuana legalization will impact the health, education, economics, business, liability and litigation complexities of our densely-populated, metropolitan-bookended state – I fully oppose it"

New Jersey State Senator, Ronald Rice (2019)



Legalisation is not a blanket solution to social injustice. In fact, it may perpetuate it.

IMPACT ON THE WORKPLACE



In the U.S., marijuana legalisation has had serious ramifications for businesses. Increased marijuana availability and use has increased the number of employees testing positive for marijuana in the workforce.

The latest U.S. data released in August 2020 found that rates of marijuana positivity in the workforce have sharply risen both over the last year (2018-2019) and since legalisation was implemented. Furthermore, Quest Diagnostics also reported that workforce drug positivity hit a sixteen-year high in 2019. Marijuana positivity has increased nearly 29% since 2015, and is the most commonly detected substance and has the highest drug positivity rate among all other tested substances (Quest Diagnostics, 2020).

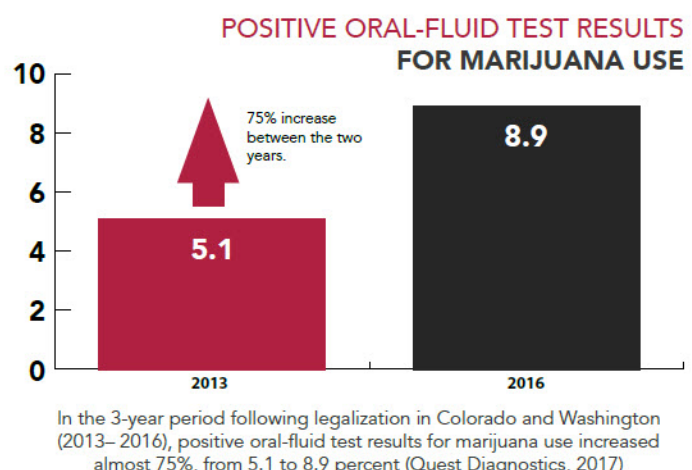
Among the top-ranking industries for the highest rates of positive marijuana testing, **transportation** and **warehousing** was number one with 33.3%. Meanwhile the **construction industry** had an average of 26.7% positive marijuana testing (Quest Diagnostics, 2018).

In the three-year period following legalisation in Colorado and Washington, positive oral-fluid test results for marijuana use increased almost 75%, from 5.1% to 8.9%. Marijuana urine test results in Washington and Colorado are now double the national average (Quest Diagnostics, 2017).

One in four marijuana users who are employed admit to getting high at work within the past year, according to a new survey of cannabis consumers in Washington, Oregon and Colorado, three states where recreational weed is legal. **The survey shows that after legalisation, many cannabis consumers increased their usage** (Balk, 2019).

Workforce marijuana-positivity rates in all “legal” states but one (Alaska) are above the national average. For example, 2018 positivity rates in Maine (5.0%), Oregon (4.3%), Nevada (4.0%), Massachusetts (3.3%), Colorado (3.0%), California (2.5%), and Washington (2.4%) are higher than the national average (2.3%) (Quest Diagnostics, 2019). **Most states that have legalised marijuana show an increasing trend in positivity rates.**

This growing usage of marijuana has made it difficult to find employees who can pass a pre-employment drug test (The Gazette, 2015). **The issue is further complicated by pro-marijuana advocates who are pushing to eliminate workplace drug testing policies** – essentially stating that regardless of the outcome, employees should be permitted to use marijuana without the risk of professional consequences.



IMPACT ON IMPAIRED DRIVING

Driving while under the influence of marijuana has proved an increasingly damaging phenomenon due to the legalisation and normalisation of marijuana in the United States. The Centers for Disease Control and Prevention found that, in 2018, 12 million U.S. residents reported driving under the influence of marijuana. This represents 4.7% of the driving population (Azofeifa et al., 2019).

In Michigan, a survey found that 51% of medical marijuana users admitted to driving while “a little high,” and one in five of those surveyed admitted to driving while very high (CBS Morning Rounds, 2019). The reduced perception of risk and the prevalence of stoned drivers on the road bear consequences for road safety and raise questions for legislators and law enforcement going forward.

Driving under the influence of marijuana is dangerous. The National Institute on Drug Abuse holds that marijuana use impairs driving in a number of ways: by slowing reaction time, decreasing coordination, and impairing judgment of time and distance. Polysubstance use - using marijuana along with alcohol or another drug - compounds the risk of a vehicle crash more than the drugs being used alone (National Institute on Drug Abuse, 2019a). Nevertheless, marijuana-impaired driving is rising while the perception of its negative consequences is decreasing.

The downward trend in perception of risk has coincided with an increased percentage of marijuana-impaired drivers on the road.



A survey conducted by AAA found that only 70% of drivers perceived driving within an hour of using marijuana as extremely dangerous or very dangerous, compared with 95.1% who felt that driving under the influence of alcohol above the legal limit was extremely or very dangerous (AAA Foundation for Traffic Safety, 2019). 7.4% of respondents completely or somewhat approving of driving shortly after using marijuana, compared with 1.6% who completely or somewhat approved with driving under the influence of alcohol above the legal limit. The answers from younger drivers were even more alarming. Of respondents between the ages of 19 and 24, only 57.9% believed that driving under the influence of marijuana was extremely or very dangerous. Among drivers between the ages of 19 and 24, 20.4% completely or somewhat approved of driving shortly after using marijuana (AAA Foundation for Traffic Safety, 2019). **The downward trend in perception of risk has coincided with an increased percentage of marijuana-impaired drivers on the road.**

In 2018, 16% of 12th graders drove after using marijuana and 24% rode with a driver who was using marijuana.

According to the biological results of Washington's Roadside Survey, "nearly one in five daytime drivers may be under the influence of marijuana, up from less than one in 10 drivers prior to the implementation of marijuana retail sales" (Grondel et al., 2018).

The reduced perception of risk has reached young drivers in "legal" states as well. The Washington State Healthy Youth Survey found that in 2018, 16% of 12th graders drove after using marijuana and 24% rode with a driver who was using marijuana (WSHYS, 2018). In Alaska, one in 10 high school students had driven after using marijuana (ADHSS, 2020).

In Colorado, DUIDs (driving under the influence of drugs) have risen in recent years. The percentage of drivers testing THC-only positive increased 16.1% from 2016 to 2017. Of these drivers in 2017, 39.4% were under the age of 18. What's more, the percentage of drivers testing positive for alcohol with THC increased 10.9% in a single year from 2016 to 2017 (CDCJ, 2019a).



"AAA opposes the legalization of marijuana for recreational use because of its inherent traffic safety risks and because of the difficulties in writing legislation that protects the public and treats drivers fairly."

AAA Foundation for Traffic Safety (2020)

Vehicle crashes and traffic fatalities have surged after the legalisation of marijuana.

Research by the Highway Loss Data Institute found that the legalisation of recreational marijuana in Colorado, Oregon, and Washington coincided with an increase in collision claims (Highway Loss Data Institute, 2018).

In Colorado, traffic fatalities increased over 31% since 2013. The rise in state-wide traffic fatalities has coincided with a rise in instances of traffic fatalities where the driver tested positive for marijuana (active THC in the bloodstream). The number of traffic fatalities involving drivers who tested positive for marijuana in Colorado rose from 55 deaths in 2013 to 115 deaths in 2018. In 2018, 18.2% of all traffic fatalities in Colorado involved a driver who tested positive for marijuana (RMHIDTA, 2019).

In 2018, 18.2% of all traffic fatalities in Colorado involved a driver who tested positive for marijuana.

A recent report released by AAA found that the number of drivers who tested positive for marijuana after a fatal crash doubled after legalisation in Washington state. Researchers found that in the five years prior to legalisation in the state, marijuana-impaired drivers comprised around 8.8% of all drivers implicated in traffic fatalities. In the years following, the rate jumped to around 18% (Stratton, 2020). The AAA writes, "AAA opposes the legalisation of marijuana for recreational use because of its inherent traffic safety risks and because of the difficulties in writing legislation that protects the public and treats drivers fairly" (Stratton, 2020).

Compounding the risk of an increasingly stoned driving population is the difficulty posed to law enforcement officers who attempt to stop and detain marijuana-impaired drivers. The smell of marijuana in a suspected driver's car is no longer enough to make an arrest in many states, even in states that have not yet legalised marijuana (Romo, 2019). Technology to determine THC levels is under-developed and lacks the certainty of traditional breathalysers. The quick metabolism of THC renders it difficult to detect and tests must be administered quickly in suspected cases.

Additionally, many states have struggled to create a standard level of impairment when THC is detected (Queally & Parvini, 2018). Studies are mixed on what level of THC constitutes impairment. Recently, scientists found that drivers may still be impaired from marijuana use well after intoxication, demonstrating an increased likelihood of poor driving performance, increased accidents, and decreased rule-following (Dahlgren et al., 2020).

Many of the marijuana "legal" states failed to establish laws or guidance prior to legalising marijuana, leaving law enforcement officers in the dark as legislators played catch-up to dangerous trends. As a result, road safety is compromised.

A recent report released by AAA found that the number of drivers who tested positive for marijuana after a fatal crash doubled after legalisation in Washington state.



BLACK MARKET CONTINUES

Many marijuana proponents argued that a slew of benefits would result from the legalisation of marijuana. Two of these were that **legal weed would drive out the black market** and that **taxed marijuana would provide money-dry states with much needed revenue**. Both have yet to pan out.

Regulated marijuana is not the revenue cash cow for states that industry advocates promised. California's projected marijuana tax revenue by July 2019 was nearly half of what was originally expected when the state permitted retail sales in 2018 (Blood, 2019; Fuller, 2019). In Colorado, marijuana tax revenue represented nine tenths of one percent of Colorado's 2018 state-wide budget (RMHIDTA, 2019). Even still, marijuana license holders complain that "marijuana-legal" states are too regulated and that taxes on the drug are too high (Alfosni, 2019). They go as far as to say that regulation and taxes are the reason the black market continues to dominate.

That contention is ill-founded for several reasons. The regulatory and compliance systems instituted in the "legal" states were instituted with little foresight. State compliance officials are left on their heels while various regulatory and compliance issues become exposed. The Oregon Liquor Control Commission wrote in a 2018 report that, "due to the legally required rapid implementation of the recreational program, OLCC has not been able to implement robust compliance monitoring and enforcement controls and processes for the recreational marijuana program" (OLCC, 2018).

The lack of oversight also bears consequences for consumer safety. An independent investigation in San Diego found that nearly 30% of marijuana samples purchased from licensed retailers in Southern California tested positive in labs for pesticides (Grover & Corral, 2019). **States are ill-equipped to handle marijuana testing and even states with the most stringent regulatory requirements have demonstrated significant lapses, which has allowed contaminated marijuana products to reach the market** (Crombie, 2017). As a result, the states themselves are blurring the lines between "legal" and illegal marijuana, by allowing "legal" operators to skirt regulation. Licensed marijuana retailers are not incentivised to comply with the law and they benefit from that leeway while continuing to point fingers at the black market when problems arise.



Illicit activity has proliferated with marijuana legalisation, much of it tied to “state-legal” marijuana. Many pro-marijuana figures have suggested the black market causes problems because other states have not legalised marijuana. This is not true. **The unfettered black market will always be able to undercut the “legal” market.**

The unchecked proliferation of the marijuana industry has abetted some of these significant problems. The market saturation and overproduction permitted and written into law by “marijuana-legal” states have caused tremendous problems for regulators and law enforcement.

It is estimated that Oregon has a production capacity of approximately 2 million pounds, well over the estimated consumption capacity of the state, which is approximately 275,000 pounds (ORIDHIDTA, 2018).

The unfettered black market will always be able to undercut the “legal” market.

A 2019 audit by Oregon’s Secretary of State found that the volume of marijuana produced in Oregon is nearly 7 times its local consumption (Oregon Secretary of State, 2019). Adding to this issue, the same Oregon audit found that black market marijuana fetches prices several times higher than “legal” marijuana. As the U.S. Attorney in Oregon reported in 2018, the state has “an identifiable and formidable marijuana overproduction and diversion problem” (Flaccus, 2018). Still, marijuana proponents in numerous states seek faster license approvals and more marijuana licenses (Alfosni, 2019).

In California, according to recent reports, the black market outsells the “legal” marijuana market at a rate of three to one. **These illicit sellers have brazenly set up shop in cities across the state, hiding in plain sight and giving way to a perpetual game of “whack-a-mole,” as one law enforcement officer described it.** These companies also advertise on the popular marijuana website, Weedmaps, blending in with “legal” sellers. When the state warned Weedmaps to stop permitting illegal operators to advertise, CEO Chris Beals complained that the problem was not his company’s fault but rather a result of the state prohibiting more retail marijuana licenses (Romero, 2019).

In “legal” states, illegal grow operations have easily blended their production facilities with “legal” ones and have taken advantage of rural cover to hide from law enforcement. Okanogan (WA) County Chief Criminal Deputy Steve Brown told NPR reporters that prior to legalisation, operations of the kind he continues to uncover were “hidden up in the hills.” Now he finds some just off of roads, within sight of neighbours. Other investigations have uncovered illegal operations run by people who were licensed in other “marijuana-legal” states (Kaste, 2018).

In a *60 Minutes* story on marijuana in California, Sheriff Tom Allman took reporter Sharyn Alfonsi in a helicopter to survey a very obvious illegal grow site in “the emerald triangle” - an area of California known for marijuana. He was not surprised that the operation wasn’t hidden. “Allman explained since Prop 64 and the legalisation of marijuana, the black-market suppliers try to blend in with legal pot farmers sometimes on the same property” (Alfosni, 2019).

Another major promise of marijuana proponents was that a “legal” market would eliminate black market weed and allow law enforcement officials to focus on other things. Allman laughed at the idea and told Alfonsi that he was “looking forward to that day” (Alfosni, 2019). The very creation of the “legal” marijuana market in California has ushered a more powerful illicit market that had never existed before. What’s more, Allman believes that his department lacks resources to combat the illegal operations. He estimates that it only has the capacity to handle 10% of the illegal grows.

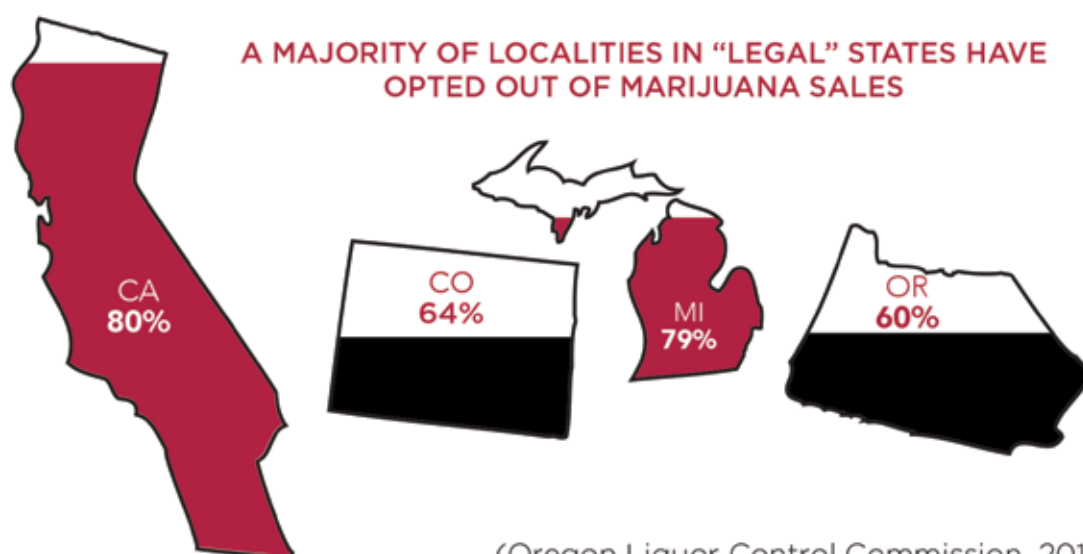
NO THANKS – NOT IN OUR COMMUNITY

Though marijuana legalisation has passed through ballots in several states, the picture at the local level is very different. **The perception that legalisation is welcomed by the citizens of marijuana-friendly states is not accurate.**

Proposition 64, the marijuana ballot measure in California, received just over 57% of the vote when it appeared on the ballot in 2016. Yet **80% of California localities have denied marijuana businesses from setting up shop** (Alfosni, 2019). This means that the approximately 630 stores licensed by the state are concentrated within 20% of the towns and cities.

What's more, licensed operators have expressed frustration with the restrictive policies of the localities, prompting one legislator to craft a law that would require towns that opted out to permit at least one marijuana business for every four bars or restaurants. According to a Los Angeles Times report, that would result in nearly 2,200 new marijuana shops across the state (McGreevy, 2019). The legislation runs counter to what the citizenry was promised in the ballot initiative.

The shocking discrepancy has been replicated across the country. When it comes to ballot measures regarding adult-use marijuana, voters may think marijuana is not a big deal. The picture changes when legalisation hits home. Voters choose to opt-out on marijuana in their communities in large numbers. This raises questions about the political process of legalisation.



(Oregon Liquor Control Commission, 2019)

In Michigan, where recreational marijuana sales began in December of 2019, more than 1,400 of Michigan's 1,773 municipalities opted out of recreational marijuana - with 40 of 83 counties reporting none of their municipalities allowing the sale of medical marijuana (WXYZ Detroit, 2019). That amounts to around 79% of the state's municipalities opting out of marijuana. Detroit voted to extend its ban on marijuana sales through at least March 31, 2020 (Williams, 2020).

In Colorado, another state known to be marijuana-friendly, 64% of jurisdictions banned both recreational and medical marijuana sales (RMHIDTA, 2019). As a result, nearly 59% of licensed medical and recreational marijuana locations are concentrated in four counties: Denver (345), El Paso (125), Boulder (68), and Pueblo (58) (Colorado Department of Revenue, 2019).

Over 60% of municipalities and counties in Oregon have opted out of marijuana sales. Though some of those jurisdictions voted after shops set up in their cities, no new marijuana retail stores are permitted. As such, 50% of Oregon dispensaries are concentrated in three counties, with a whopping 196 of the total 666 dispensaries located in the county of Multnomah (OLCC, 2020).

In Illinois, similar debates are raging, with more community mobilisation than many legislators and community organisers have ever seen, according to a report by the Chicago Tribune (McCoppin et al., 2019). The wave of anti-marijuana sentiment surprised some, since the measure passed fairly easily in the state legislature. That being said, an investigative report by Illinois-based newspapers found that - from January of 2017 to the spring of 2019 - marijuana companies, executives, and lobbyists donated over \$630,000 to various politicians in the state (Grace, 2019).

While it may pay to gain the favour of legislators, localities are far less certain about “legal” marijuana taking over their hometowns.

“Of the many cultural touchstones born on the streets of Compton, one of the most lasting is ‘The Chronic.’ Dr. Dre’s classic 1992 album brought the nickname for high-grade cannabis into the mainstream, and, to the disdain of many Compton residents, cemented the city as the home of West Coast gangsta rap... But if you’re looking to buy the chronic legally, don’t come to Compton.” (Jennings, 2018)



Compton residents James and Charmaine Hays put together a volunteer-based, grass-roots campaign to stop efforts to allow marijuana sales in their city. (Luis Sinco / Los Angeles Times)

URUGUAY



In 2013, Uruguay became the first country in fully regulating the marijuana market that now operates under state control.

STATE CONTROL – HOW IT WORKS

There are three ways to legally obtain cannabis in Uruguay (Boidi, 2015). **The first alternative** is autocultivo, which allows individuals to grow up to six marijuana plants per household and yield an annual crop of 480 grams per year, or 40 grams per month. All individuals must register with the government agency for the regulation and control of cannabis—called the Instituto de Regulación y Control de Cannabis (Cannabis Regulation and Control Institute) to grow these plants in their home and no person may register more than one location for domestic growth.



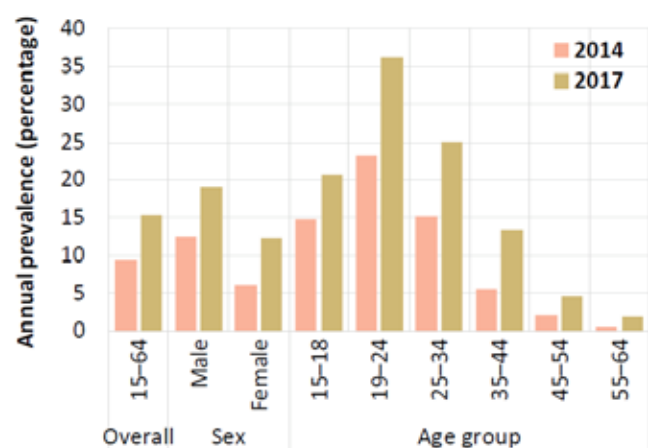
The second alternative is the Cannabis Club, which allows between 15 to 45 members of a duly-registered civil association to farm up to 99 marijuana plants in specific locations. Each club may not supply any individual with more than 480 grams of marijuana per year.

The third alternative is sale through pharmacies. This alternative will allow a registered consumer to buy up to 40 grams of marijuana per month and 480 per year in person from pharmacies that are registered with the IRCCA and the Ministry of Public Health. On July 19, 2017, Uruguay launched the last remaining stage of the cannabis law, with sales finally beginning in 16 pharmacies across the country.

PUBLIC USAGE

- In 2001, **5.3%** of the population admitted to having consumed marijuana. By 2014, **life prevalence had quadrupled** with 22.1% of Uruguayans acknowledging some consumption. (AmericasBarometer, 2014).
- Since Uruguay legalised the sale of marijuana, underage use increased from 14% to 21%.
- Use by those aged 19 to 24 increased from 23% to 36%
- Those aged 25 to 34 increased from 15% to 25%.

FIG. 28 Cannabis use in Uruguay, by sex and age group, 2014 and 2017



Source: UNODC "Cannabis and Hallucinogens" World Drug Report 2019

NON-COMPLIANCE

As at February 2018, 8,125 individuals and 78 cannabis clubs with a total of 2,049 members were registered in addition to the 20,900 people registered through pharmacy sales for cannabis. The system potentially provides cannabis to around 30,000 of the 140,000 past-month cannabis users estimated in Uruguay in 2014 (UNODC, 2018). A recent survey found that **almost 40% said they would probably or definitely flout the law which requires registration** (19.6% state that it is not probable that they will register, and another 19.6% said that they are certain that they will not register) (Boidi, 2015).

PRODUCTS

A recent study of marijuana consumers in Montevideo found that users had consumed it in several different ways during the past year, including vaporisers (15.7%), edibles, such as brownies, cakes, cookies (26.4%), and drinks, such as mate, milkshakes, daiquiris (9.4%). (Boidi, M., Queirolo, R., & Cruz, J., 2015).

PERCEPTION OF RISK

The study of marijuana consumers in Montevideo also found that users had a very low perception of risk associated with undertaking several activities while under the influence of marijuana. For instance: 21.4% of respondents **drove a car under the influence of marijuana; 28.4% rode a motorcycle; 11.2% operated heavy equipment. More than half of the respondents (55.4%) declared that they consumed marijuana and went to work before four hours had passed.** More than one in every four of those women who were pregnant (26.1%) reported to having continued **consuming marijuana while pregnant.** (Boidi, M., Queirolo, R., & Cruz, J., 2015).

BLACK MARKET

Three years after legalisation, **seven out of every ten cannabis consumers still acquire the product on the black market.** Authorities admit that “street selling points have multiplied in recent years, along with criminal acts related to micro trafficking.” (Minterior.gub.uy, 2016). Marcos Baudeán, a member of the study group Monitor Cannabis Uruguay, suggests it may be worse than that: “Consider the fact that there are 55,000 regular consumers who are responsible for 80% of the marijuana consumption in the country, but currently only 10% are consuming from the legal market, the rest are buying the drug off the illegal market.” Others have pointed to the very low concentration of THC in the legal drug as another reason why some users may turn to the black market (Fernando Soriano, 2017).

Though the price may be higher - a gram of high-potency illegal marijuana can cost as much as \$20 - some users may be willing to pay this premium in exchange for access to a more powerful drug. Because sales to tourists are prohibited, some Uruguayan homegrowers and clubs have attempted to get around the ban by offering ‘cannabis tours’, which are framed more as social and educational experiences, in which participants are free to sample cannabis while on a paid tour. Others simply sell directly to tourists behind closed doors, a grey market quietly operating via word of mouth (Hudak, J., et al 2018).

SUMMARY

What we have learned from the data so far indicates that frequency of consumption has significantly increased, especially in the 15-24 age group. The perception of risk with drug use is low, and risky behaviours have increased with the frequency of consumption, including use of marijuana during pregnancy. The black market is alive and well. And the overwhelming support for the regulation among high-frequency marijuana users does not immediately translate into willingness to comply with it. Of most concern is that monitoring and reporting of the effects of legalisation is minimal, and not made public.

CANADA



Canada's law introduced in October 2018 has huge variations of how the law will apply throughout the country.

According to a recent report in the *New Zealand Herald*, cannabis inventories came to almost 400 tonnes at the end of August, enough to cover two-and-a-half years of demand (Meyer, G. 2019). Meanwhile the price of the drug has slumped as legal and illegal cannabis distributors grapple for market share. The stockpile suggests that one year after Canada became the first large economy to allow nationwide recreational use of cannabis, **the industry has overestimated how much the country's pot-smokers can burn through - and underestimated the illegal market's ability to respond to competition.** Canada's UCP (Alberta) budget projects that cannabis income will remain negative over the next four years, despite previous estimates it would make the province money by 2020. After a year of legalisation, it appears the black market cannabis industry is still thriving since it isn't subject to legal sector demands.

A Canadian government study in 2019 showed disturbing trends as a result of legalising marijuana, including increases in youth and overall use, and concerning trends in marijuana-impaired driving and workplace use. The Canadian federal study found that approximately 646,000 Canadians have reported trying marijuana for the first time in the last three months after legalisation, an amount almost double the 327,000 that admitted to trying the drug for the same time period last year prior to legalisation (Statistics Canada, 2019).

Other concerning trends include:

- 15% of marijuana users got behind the wheel of a car within two hours of using the drug.
- daily users were more than twice as likely to believe that it was safe for them to operate a vehicle within three hours of ingesting the drug.
- 20% of Canadians who reported driving under the influence of marijuana admitted to also consuming alcohol at the same time.
- about 13%, or half a million, of Canadian workers who are active marijuana users admitted to using the drug either prior to or during work.

This report comes on the heels of government data showing that the black market in Canada is absolutely thriving, with 54% of marijuana sales in the first quarter of 2020 occurring outside the legal market (Banares, 2020). **Statistics Canada reports that just 29% of cannabis users buy all of their product from a legal source** (Statistics Canada, 2019).

DRUG DRIVING

A quarter of Canadians aged 18 to 34 have driven after consuming cannabis or been a passenger in a vehicle driven by someone under the influence of cannabis, in a new survey released in December 2019 by the Canadian Automobile Association (CAA) (Canadian Press, 2019). 86% of young Canadians said it is important to find alternative ways to get home when they drink alcohol, but only 70% of them believe it is important to do so after using cannabis.

Diane Kelsall, editor in chief of the *Canadian Medical Association Journal*, called the 2018 launch, “a national, uncontrolled experiment in which the profits of cannabis producers and tax revenues are squarely pitched against the health of Canadians” (Canadian Medical Association Journal, 2018).

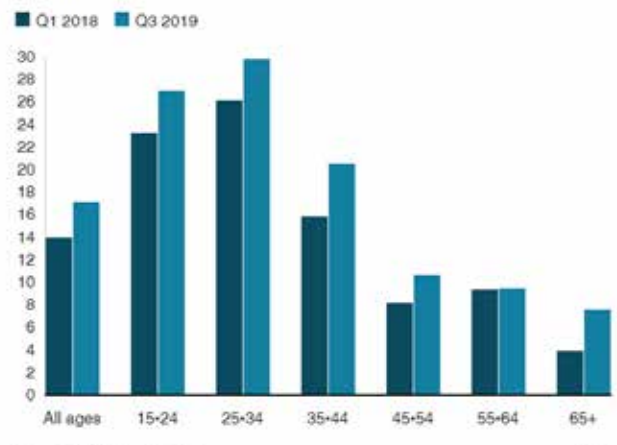
USAGE FOR YOUNGER PEOPLE

Past year use: Past 12-month use of cannabis among people aged 16 to 19 years was 44% (an **increase** from 36% in 2018) and those aged 20 to 24 was 51%, (an **increase** from 44% in 2018) (Health Canada, 2019).

Past 3-months use: In terms of very recent use, the 15-17 age bracket has almost **halved** from 19.8% to 10.4%, but there has been an **increase** in the older teens and 20's age bracket (18-24) from 30.9% to 33.3% (Statistics Canada, 2020).

Therefore, claims that overall rates of teenage use of cannabis have fallen in Canada since legalisation do not tell the full story.

Cannabis use by age, self reported



Source: Statistics Canada

BBC

(Source: “Why Canada’s cannabis bubble burst”, BBC, 29 Dec 2019.)

More Canadians reported using Cannabis in the past three months



Percentage of Canadians 15 years and older who have consumed cannabis in the past three months.

Source: First quarters, 2018 and 2019.

(Source: Statistics Canada, 2019)

HEALTH MINISTRY ADVICE

Ironically, the Canadian government legalised a drug for non-medical purposes – despite their health watchdog making the following statement:

When the product should not be used

Cannabis should not be used if you:

- are under the age of 25
- are allergic to any cannabinoid or to smoke
- have serious liver, kidney, heart or lung disease
- have a personal or family history of serious mental disorders such as schizophrenia, psychosis, depression, or bipolar disorder
- are pregnant, are planning to get pregnant, or are breast-feeding
- are a man who wishes to start a family
- have a history of alcohol or drug abuse or substance dependence

(Health Canada, 2016).

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