

Part V: Cannabis

Introduction

Cannabis is the most widely used illicit substance worldwide. In Canada, cannabis is second only to alcohol as the most widely used psychoactive substance. Among adolescents, Canadian teens have the highest use of cannabis, with more than 20% reporting use in the past year, compared to 10% in other developed countries (77). There has been an increase in cannabis use disorder in the United States over the last ten years, especially in states where cannabis use has been decriminalized (78). It is estimated that 9% of people who use marijuana will become dependent on it at some point in their lives (77).

An additional factor is the Health Canada regulation allowing health care providers to authorize the use of cannabis for medical purposes. This, combined with the high number of users, the risk of dependency, and the possible legislative changes that may be on the horizon in Canada, makes it crucial for primary care providers to be able to communicate with their patients about cannabis. This section outlines the essentials of managing patients' cannabis use, both medical and recreational.

Harms associated with cannabis use

Route of delivery

- Smoking is most common route.
 - Smoking creates hundreds of chemical by-products, some of which are carcinogenic and atherogenic.
- Vaporizing avoids the toxic byproducts of smoking.
- With both smoking and vaporizing, THC rapidly enters the CNS in high concentrations, increasing the risk of cognitive impairment.
- THC absorption is slow with the oral route, but food products sometimes contain large amounts of THC, which can cause severe intoxication.

Long-term effects and complications

- Cognitive impairment
 - Can impact impulse control, working memory, decision-making, executive function (79)
- Psychiatric
 - Can trigger and exacerbate psychosis (80)
 - Cannabis use disorder (81)
 - Association between cannabis use and anxiety and mood disorders, though directionality is not entirely clear (82)
 - Risks greater under the age of 25

- Cannabis hyperemesis syndrome (83)
 - Difficult to diagnose, but often characterized by long-term cannabis use, cyclical vomiting, and a compulsive need for hot bathing
 - Can also be accompanied by reduced oral intake, abdominal pain, weight loss, dehydration
 - Condition resolves within 1–3 months of cannabis cessation; a return to cannabis can lead to recurrence
- Respiratory
 - Chronic bronchitis
 - Possible risk factor for lung cancer
- Cardiac
 - Tachyarrhythmias
 - Very high doses can precipitate myocardial infarction
- Reproductive
 - Neurodevelopmental delays in infants of women who use cannabis during pregnancy

Cannabis use during adolescence

- Canadian adolescents (age 11–15) have highest rate of cannabis use among 29 most developed countries (84).
- French study showed that a positive first exposure to cannabis may increase risk of developing cannabis dependence at age 18–21 (85).
- Other risks of cannabis use during adolescence:
 - Increase in social dysfunction (86).
 - Vulnerability of the adolescent brain to regular cannabis exposure (drop in IQ by 5–8 points) with changes persisting into midlife even after cessation (87, 88).
 - Heavy use may increase risk for developing psychosis (89).

Cannabis use and driving

- Cannabis use impairs performance of cognitive and motor tasks that are necessary for driving safely.
- Use of cannabis increases risk of a motor vehicle collision, with the risk increasing with driving after cannabis use and with using more than once weekly (90, 91).
- A meta-analysis of studies that looked at acute cannabis use and motor vehicle collisions found an almost doubling of risk for drivers involved in a collision that resulted in serious injury or death (92).
- Inform your patients that you have a duty to report to the Ministry of Transportation if you have concerns about safety and driving.
- Criteria for reporting to the Ministry of Transportation:
 - Patient or family member reports that patient is using cannabis before driving.
 - Patient reports that they are using cannabis throughout the day and also reports that they are driving.

Screening and assessment

Drug history

- Ask all adolescent and adult patients at baseline and annual physical about their use of all recreational substances, including cannabis.
- Ask about weekly **frequency** of cannabis use and typical **amount** they use in a day.
 - An average joint contains about 500 mg of dried cannabis; an average bowl contains about 250 mg of dried cannabis.
 - If patient is not sure how much they smoke in a week, ask them how much they purchase at a time and how long it takes them to go through it.
- Patients who use cannabis more than **3 times per week** or use more than **2 g per day** should have further assessment.

Screening questionnaire

- The CAGE-AID (CAGE Adapted to Include Drugs) questionnaire has been validated as a screening tool for substance use disorders (93).
- CAGE-AID is well suited to use in primary care, as it is quick and can be easily incorporated into a medical history or office visit.
- A score of 1+ indicates a need for further evaluation for cannabis use disorder (CUD).

CAGE-AID

In the last three months...

- Have you felt you ought to **CUT DOWN** or stop drinking or using drugs?
- Has anyone **ANNOYED** you or gotten on your nerves by telling you to cut down or stop drinking or using drugs?
- Have you felt **GUILTY** or bad about how much you drink or use drugs?
- Have you been waking up wanting to have an alcoholic drink or use drugs (**EYE-OPENER**)?

Managing cannabis use

Patients in certain risk categories should be discouraged from using cannabis regularly, whether or not they are identified as having a cannabis use disorder. Other patients who are not identified as having a cannabis use disorder should be given advice on harm reduction and reducing their use.

Discourage regular use

The following patients should be strongly discouraged from engaging in regular cannabis use:

- Patients under the age of 25.
- Patients who are pregnant or trying to become pregnant.
- Patients with a current, past, or strong family history of psychosis.
- Patients with a current, past, or strong family history of problematic substance use.
- Patients with a current anxiety or mood disorder.
- Patients with a respiratory or cardiac illness.

Advice on reducing cannabis use and avoiding cannabis-related harms

- Do not combine cannabis with alcohol or opioids.
- Do not drive for at least 6 hours after using (or at least 8 hours if you experience a subjective high).
- Use a vaporizer rather than smoking.
- Use very small amounts of edibles, as they can contain large amounts of THC.
- Abstain from cannabis at least 2 days per week.
- Set a weekly goal for cannabis use and keep a daily record of the amount used.
- Purchase smaller amounts and make smaller joints.
- Wait 10 minutes between puffs and 20–30 minutes between joints.
- Do not inhale deeply or hold your breath.

Cannabis use disorder

Patients scoring 1+ on the CAGE-AID screening questionnaire should be assessed for cannabis use disorder (CUD).

Diagnostic criteria

The DSM-V defines a CUD as a “problematic pattern of cannabis use leading to clinically significant impairment or distress, as manifested by at least two of the following, occurring within a 12-month period” (17):¹⁰

- (a) Cannabis taken in larger amounts or over a longer period of time than intended.
- (b) Repeated unsuccessful efforts to reduce use.

¹⁰ Please refer to the DSM-V pp.509–510.

- (c) Significant amount of time spent obtaining or using cannabis, or recovering from its effects.
- (d) Strong cravings or urges to use cannabis.
- (e) Recurrent use resulting in a failure to fulfill responsibilities.
- (f) Continued cannabis use despite recurrent social or interpersonal problems.
- (g) Reduction of major activities because of cannabis use (e.g., missing work, spending less time with children or spouse).
- (h) Continued cannabis use in situations or activities where it is dangerous.
- (i) Continued use despite knowledge of cannabis-related physical or psychological problems.
- (j) Tolerance (need to use more cannabis to achieve the same effect, or diminished effects with continued use of the same amount of cannabis).
- (k) Withdrawal (e.g., irritability, anxiety, sleep difficulty, decreased appetite, abdominal pain, sweating, headache).

Patients who meet two or three of these criteria have a **mild** CUD, four to five criteria indicate a **moderate** CUD, and six or more indicate a **severe** CUD.

Clinical features of CUD

- Baseline risk factors: younger, current psychiatric disorder, current or past problematic use of alcohol or other substances
- Smokes cannabis daily in large doses (e.g., 2–3+ grams)
- Spends a significant amount of time smoking every day
- Poor psychosocial function (family, work, school)
- Strong resistance to discontinuing cannabis
- Believes that cannabis is essential to relieve anxiety
- Concern expressed by family members

Patient intervention

- Tell patient that you believe that their cannabis use is harmful to them.
- Explain that, while cannabis intoxication may temporarily relieve anxiety, in the long term it makes mood worse, and mood, function, and relationships will improve if cannabis use is reduced or stopped.
- Use a motivational interviewing approach with patients who are ambivalent about treatment (94):
 - Explore patient's own reasons for change with the goal of encouraging **change talk**.
 - Ask: "What are some of the good things about using cannabis? What are some of the not-so-good things? How does using cannabis fit in with your goals? What are some of the good things about **not** using cannabis? What are some of the not-so-good things? How would you like your life to be different? Where do you go from here?"
 - Reflect back patient's motivations in order to strengthen commitment to change.
 - Non-confrontational, patient-centred approach that elicits higher levels of change talk and lower levels of resistance in patients than other approaches.
- Ask if patient is willing to commit to a goal (abstinence or reduced use).
- If patient is not ready to commit, ask about cannabis use and readiness to change at each visit.
- If ready to commit, negotiate a goal:
- If reduced use is chosen, offer advice on reducing use and harms (see page 89). Treat concurrent mood or anxiety disorders.

- Encourage healthy lifestyle choices:
 - Work with your clinician to quit tobacco (if applicable).
 - Avoid friends who use cannabis regularly.
 - Avoid social situations involving cannabis use.
 - Find alternative activities, such as exercise and spending time with friends.
 - Find someone you can talk to about your cannabis use.
- Offer pharmacotherapy to treat withdrawal symptoms and cravings:
 - Some preliminary evidence for nabilone, gabapentin, and over-the-counter N-acetylcysteine (NAC) (95).
 - Nabilone: Starting dose **1 mg tid**; titrate to effect
 - Gabapentin: 1200 mg daily
 - NAC: 1200 mg daily
- Refer to psychosocial treatment if available.
- Arrange regular follow-up to discuss progress.
- Perform urine drug screens in follow-up visits to encourage patient accountability and monitor cannabis use (96).
 - A single use can produce a positive urine drug screen up to 1 week after use.
 - Long-term users can have positive urine drug screens up to 46 days after last use.

Cannabis withdrawal

- Onset: Several days after daily heavy use
- Symptoms: Anxiety, irritability, depression, insomnia, abdominal discomfort, sweating, headache

Cannabis therapy

Health Canada allows health care providers to authorize the use of cannabis for medical purposes for their patients; however, cannabis is **not** an approved therapeutic product in Canada, nor has any medical regulator endorsed or approved cannabis as a safe and effective therapy. This means that, in the event that a patient experiences harm from medical cannabis, the authorizer cannot claim that they were prescribing according to approved medical standards. Primary care providers receiving requests for cannabis authorization should keep the following guidelines in mind:

- Health care providers are not obligated to authorize cannabis.
- Health care providers should monitor all patients on cannabis therapy for indications of harm, including misuse.
- Health care providers should stop authorizing cannabis to patients when there is evidence of harm.

Although Health Canada regulations allow the sale of dried cannabis, fresh cannabis, and cannabis products (e.g., oils), the only clinical trials on the therapeutic effect of cannabinoids have involved inhaled cannabis and synthetic products (e.g., nabilone); as well, inhaling remains the most common delivery route, and dried cannabis is the most widely available product from Canadian licensed producers. This section will therefore focus exclusively on medical authorization for the consumption of dried cannabis.

Evidence for cannabis therapy for pain

- Evidence very weak (97):
 - Five placebo-controlled RCTs on subjects with neuropathic pain.
 - Trial durations ranged from 1–5 days, total of 226 subjects.
 - Functional outcomes not assessed.
 - Subjects in cannabis group experienced dose-dependent cognitive impairment and intoxication.
- Nabilone (oral pharmaceutical cannabinoid) and nabiximols (buccal THC/cannabidiol spray) both have greater evidence of safety and effectiveness for pain than dried cannabis (98).

Evidence for cannabis therapy for anxiety

- Observational studies have shown that cannabis use worsens anxiety and PTSD symptoms; stopping cannabis use improves anxiety and PTSD symptoms (99, 100).
- Pure cannabidiol (with no THC) may have some therapeutic benefit in treating anxiety (101).

Evidence for cannabis therapy for nausea

- Small review of state clinical trials (102) showed that smoked cannabis has some benefit in reducing chemotherapy-related nausea and vomiting. However, these trials are of varying quality, with some results consisting entirely of patient satisfaction.
- Systematic review (103) found that synthetic cannabinoids have a slightly better antiemetic effect in patients with cancer than conventional antiemetics, but also have more side effects.

Evidence for cannabis therapy for epilepsy

- A recent RCT (104) found that synthetic cannabidiol reduced the frequency of seizures in children and adolescents with drug-resistant Dravet syndrome (a form of epileptic encephalopathy), although it was also associated with adverse events.

Indications

- Severe neuropathic pain condition (e.g., HIV, diabetes) that has failed to respond to an adequate trial of all standard analgesics (opioids, anticonvulsants, antidepressants, pharmaceutical cannabinoids).
- Not indicated for fibromyalgia, low back pain, or other common pain conditions seen in primary care.
- Not indicated for anxiety, PTSD, insomnia, or depression.

Contraindications and precautions

- Age under 25
- Current, past, or strong family history of psychosis (80)
- Cardiovascular or respiratory disease
- Current, past, or strong family history of problematic substance use
- Current, active mental illness (anxiety, depression, PTSD)
- Pregnant or planning to get pregnant

Authorizing cannabis therapy

Dosing

- Authorizers must complete a medical document specifying the daily amount of dried cannabis and the period of use (maximum one year).
- No legal restriction on the amount of cannabis authorized.
- Possession limit: the lesser of the equivalent of 150 g or 30 times the daily amount authorized.
- While not legally required, authorizers should also specify the THC and cannabidiol concentrations.
- Maximum recommended daily dose of dried cannabis:
400 mg with maximum 9% THC
 - Maximum dose used in controlled trials (105)
 - Recommended by College of Family Physicians of Canada guidance document (106)
- Acute and long-term adverse effects are related to the dose of THC:
 - Cannabidiol may mitigate against the harmful psychoactive effects of THC.
 - Prescriptions should specify a cannabidiol concentration at least as great as THC.

Management of requests for dried cannabis

- If dried cannabis is not indicated or contraindicated:
 - Explain that standard treatments are safer and more effective.
 - Explain that dried cannabis carries serious risk of harm, especially in higher doses, when it is contraindicated.
 - Assess patient for a cannabis use disorder, especially if patient is persistent or aggressive.

Medical cannabis clinics

- Use **caution** when referring patients to medical cannabis clinics.
- Some clinics authorize excessive amounts of cannabis (e.g., 2–3 g per day) for non-indicated conditions for patients at high risk for cannabis-related harms.
- Do not refer to medical cannabis clinics unless they have released a **detailed clinical summary** of their authorizing practices (assessment, indications, contraindications, dosing, and monitoring).