

Medical Cannabis in Patients with Chronic Kidney Disease



Please note that this document is for general information on medical cannabis use only. It isn't a substitute for the advice of your physician or other health care professionals. Please consult your physician or pharmacist to discuss your individual needs.

- 1. What are Cannabinoids? [2](#)
- 2. What is Δ-9- tetrahydrocannabinol (THC) and cannabidiol (CBD)?..... [2](#)
- 3. What forms of cannabinoids are commercially available for medical use? [2](#)
- 4. What conditions or symptoms are likely to improve with cannabis use?..... [2](#)
- 5. When should patients consider cannabis as a treatment option? [2](#)
- 6. Will my health care team support me in using cannabis? [3](#)
- 7. What are the different methods of using cannabis? Is one preferred over others?..... [3](#)
- 8. Who should avoid using cannabis? [4](#)
- 9. What are common drug interactions with cannabis?..... [5](#)
- 10. What do I need to monitor for when I'm using cannabis? [6](#)
- 11. What are the side effects of cannabis? [6](#)
- 12. What happens and what should I do if I take too much cannabis? [7](#)
- 13. How can I minimize side effects of cannabis?..... [7](#)
- 14. Can I drive after taking cannabis? [7](#)
- 15. Can I take cannabis with me if I travel across borders?..... [8](#)
- 16. Will cannabis affect my work? Do I need to tell my boss if I am using medical cannabis? [8](#)
- 17. When is the best time to start, adjust, or switch cannabis products? [8](#)
- 18. Is cannabis addictive? What is cannabis use disorder (CUD)?..... [8](#)
- 19. When should I consider stopping cannabis? How do I stop it? Can I get withdrawal symptoms?..... [9](#)
- 20. Can cannabis affect my kidney function? [10](#)
- 21. As kidney function worsens, does the effect of the cannabis change?..... [10](#)
- 22. Does dialysis remove cannabis from my body? Do I need to change the timing of my dialysis? [10](#)
- 23. How do I get cannabis? [10](#)

Appendices

- Appendix 1. Comparison of Commercially Available Cannabis Products for Medical Use [12](#)
- Appendix 2. Cannabis Use and Symptom Diary [13](#)
- Appendix 3. Cannabis Use Disorder Screening Tool – Cannabis Use Disorder Identification TEST – Revised (CUDIT-R)²³ [14](#)

1. What are Cannabinoids?



Cannabis refers to a family of plants with properties that can affect the mind and body. The most common strains consumed are *Cannabis sativa*,

Cannabis indica, or a blend (hybrid) of these two types. Cannabis contains over 100 compounds called cannabinoids that interact with receptors in the body and brain to produce an effect.

2. What is Δ-9- tetrahydrocannabinol (THC) and cannabidiol (CBD)?

The two most common and well-understood cannabinoids are THC and CBD. THC produces medicinal effects such as to relieve pain, nausea and to stimulate appetite. However, THC is also responsible for most of cannabis' side effects including feeling "high", drowsiness, and an impaired memory, concentration or reaction time.^{1,2} The higher the amount of THC in a product, the greater the risk of side effects such as impairment. In contrast, CBD has less effects on the brain and can block the intoxicating effects of THC. It has pain-relieving, anti-inflammatory, and anti-anxiety effects.^{1,2} There are many other cannabinoids, but their effects aren't well understood.

3. What forms of cannabinoids are commercially available for medical use?

- **Natural** - cannabinoids from cannabis plants (such as dried cannabis, extracts)
- **Man-made** - cannabinoids that are made in a lab (such as nabilone)

Note: Some recreational drugs such as "K2" and "spice" are also made in a lab and may be referred to as "synthetics." However, they shouldn't be confused with man-made pharmaceutical medications such as nabilone.

4. What conditions or symptoms are likely to improve with cannabis use?

Limited research has been done on cannabis because it is new to the healthcare world. Studies that have been done show cannabis provides some benefit for:

- Chronic nerve pain and chronic pain such as cancer or palliative pain
- Nausea or vomiting (but only proven in studies when due to chemotherapy)

There is less evidence to support that cannabis is effective for treating extreme weight loss and muscle wasting due to HIV/AIDS, cancer, or end of life.²⁰

Although there may be many other conditions where there are claims that cannabis is effective, they haven't been studied or consistently proven in studies (e.g., sleep, anxiety). Cannabis has also not been shown to improve kidney function.

5. When should patients consider cannabis as a treatment option?

Talk with your healthcare team if you are considering cannabis as a treatment option. Cannabinoids or medical cannabis aren't considered first or second choice treatments for any condition. There

are often more effective and safer medications that should be tried first, but if those treatments don't provide full relief, cannabis may be helpful. In some situations, cannabis may have a role when used together with other treatments and may allow your health care provider to reduce the use of other medications. Like all medications, when using cannabis it is important to remember that the risk of side effects needs to be considered (see side effects on page 5).



6. Will my health care team support me in using cannabis?

If you are interested in medical cannabis or are already using it on your own, we encourage you to discuss its use with your health care provider. If cannabis is a good therapy for your condition, most health care providers will respect your choice and support your use of it. Using cannabis products responsibly will not affect your ability to be considered for a kidney transplant.

7. What are the different methods of using cannabis? Is one preferred over others?

Cannabis can be inhaled, ingested,

applied topically or sprayed and then absorbed through the lining of the mouth:⁸

- **Inhalation (e.g., smoking, vaping/e-cigarette, hand pipe, bong)** This is the most common way that cannabis has traditionally been used and produces the most rapid onset of effects (within 5-10 minutes). Most people will feel “high” within minutes of inhalation. While common in recreational use, this is the least preferred method for medical use, as smoking cannabis is a cancer risk factor, similar to smoking cigarettes.

Unlike smoking, vaping doesn't involve direct burning of cannabis, but inhalation of contaminants and other chemicals used in the vaping liquid of vape pens have been linked to severe lung injuries requiring hospitalization. To minimize this risk, always purchase vape pens with liquid cartridge refills from reputable sources such as licensed cannabis suppliers. While some vape pens don't require liquid cartridges (i.e., dry herb or wax vaporizers), it is still possible to inhale harmful contaminants that may be present in the dried products.

- **Ingestion (e.g., eating or drinking cannabis oil, nabilone, softgels, baked goods, candy, tea)** These products are often made using a fat or oil infused with cannabis that has been heated to ensure the cannabinoids are active when used. This method of cannabis use has a slower onset compared to inhalation (30-120 mins) and peak effects may take up to 4 hours to occur. Therefore, to avoid

experiencing severe side effects from high doses, it is important to wait for at least 4 hours after eating or drinking a cannabis product before taking more.

Remember to start low and go slow. In general, cannabis ingestion is preferred over inhalation as it bypasses the harmful effects of potentially inhaling harmful chemicals with smoking or vaping. For medical use, we recommend using products such as cannabis oil or nabilone (tablets) that have standardized concentrations and doses that allow for easy, consistent dosing. For instance, the CBD/THC content may be more variable between individual servings of baked goods and tea.

- **Oral-mucosal (e.g., Sativex oral-mucosal spray, tinctures)** This method involves applying or spraying a liquid cannabis extract under the tongue or into the mouth. The medication is then absorbed through the lining of the mouth. The onset of the effects can vary from 20-150 mins, but is usually quicker than ingestion (30-120 mins). Similar to ingestion, it is preferred over inhalation due to the lack of potential harmful effects to the lungs.
- **Topical (e.g., CBD oil, creams, lotions)** These products are usually in the form of a thick oil extract containing active cannabinoids, which are applied and absorbed through the skin. The effects of topical cannabinoids are localized and don't generally cause any intoxicating effects or side effects beyond the application site. This method is ideal for providing localized relief from pain.



For a more detailed comparison of different methods of cannabis use, including dosing, cost, and whether a prescription is required, please refer to [Appendix 1](#). For ongoing dose adjustment of cannabis to address individual needs, consider consulting a medical cannabis provider.

8. Who should avoid using cannabis?

Patients with the following conditions shouldn't use cannabis or cannabinoids:^{4,5,6}

- Personal or family history of mental health disorder(s), particularly schizophrenia
- Patients younger than 25 years of age due to concerns of a still-developing brain
- History of drug addiction or alcohol dependency
- Pregnancy, contemplating pregnancy, or breastfeeding
- Severe liver disease, including chronic hepatitis C.

In addition, patients with the following conditions should specifically avoid smoking cannabis, but may consider using other methods or forms, in discussion with their physician:

- Severe heart disease or stroke
- History of lung disease such as asthma or chronic obstructive pulmonary disease

Cannabis hasn't been well-studied in patients with severe kidney disease, therefore it should be taken cautiously with a full understanding of the benefits and harms. Cannabis mainly relies on the liver to be removed from the body, so it is unlikely that it would abnormally build up in the body if a patient has kidney disease (including in those patients receiving dialysis). If cannabis is used in chronic kidney disease, it is advised to start low and go slow.

9. What are common drug interactions with cannabis?

Please consult with a pharmacist or physician before starting any new medications (including cannabis), so that they can check for interactions and monitor the benefits or harms to you.

Due to the wide variety in products, strength, content of THC and CBD, methods of administration, and patient medical conditions, the significance and effects of drug interactions can be very hard to predict with cannabis and cannabinoids. Listed below and in the side bar are some of the more important drug interactions: ^{5, 7, 20}

- **Alcohol and medications that cause drowsiness (e.g., seizure medications, medications for mood or anxiety, opioids, sleeping pills, some nausea and allergy medications)**

Where possible, avoid taking cannabis along with these medications as this combination can further increase drowsiness, confusion, and impair your motor skills.

There are medication interactions that can both increase and decrease the effects of THC and CBD.



Warfarin

THC and CBD may increase the blood thinning effects of warfarin and increase the risk of bleeding. It is important to inform your doctor if you're using cannabis and to have your bloodwork (INR) monitored. Intermittent cannabis use may result in unsafe bleeding times if you do bleed.



Medications that can increase the effects of THC and CBD:

Clarithromycin, ketoconazole, itraconazole, posaconazole, voriconazole, fluoxetine, fluvoxamine, gemfibrozil, ritonavir, lopinavir, darunavir, atazanavir



Medications that can decrease the effects of THC and CBD:

Carbamazepine, phenytoin, St. John's wort, rifampin, phenobarbital

10. What do I need to monitor for when I'm using cannabis?

The type of monitoring your physician or pharmacist will provide (physical exam, blood test or other) depends on the reason for cannabis therapy. To help your care team determine if cannabis is safe and effective for you, consider keeping a cannabis diary to track your cannabis dose, response (e.g., use a scale of 1 to 10 to rate symptom), and unwanted effects you may be experiencing (see [Appendix 2](#) for a diary template). Share this diary with your health care provider.

11. What are the side effects of cannabis?



The known side effects of cannabis are described below. However, more long-term and rare effects of cannabis may still be unknown because most cannabis studies are small and short-term.^{8,20}

Note: There are additional side effects to consider with smoking cannabis compared to other methods. Side effects specific to smoking cannabis: coughing, development of chronic lung conditions such as chronic obstructive pulmonary disease (COPD), and fungal infection of the lung.²⁰ Although it isn't clearly shown that smoking cannabis causes cancer, cannabis smoke is known to contain the same cancer-causing and toxic substances as tobacco.

Also note that people who are exposed to second-hand cannabis smoke can have detectable levels of THC in their blood and urine. The impact of second-hand cannabis smoke may potentially have health risks and may be similar to second-hand tobacco smoke.

Very Common (> 10%)

- Drowsiness (50%)
- Dizziness (32%)
- Low mood, anxiety, paranoia, hallucinations (27%)
- Feeling "high" (35%)
- Impaired memory (11%)
- Diarrhea (20%)
- Vomiting (15%) with CBD
- Low appetite (22%) with CBD
- Rapid heart rate and changes in blood pressure

Common (1-10%)

- Loss of touch with reality or self
- Irritability or agitation
- Anger or aggression with CBD
- Blurred vision
- Dry mouth
- Mouth irritation (mouth spray)
- Increased appetite with THC
- Problematic cannabis use (e.g., difficulty cutting down, continued use, despite harm)

Uncommon (< 1%)

- Intense and prolonged vomiting
- Loss of motivation

12. What happens and what should I do if I take too much cannabis?

While overdoses with cannabis can occur, it is uncommon that this leads to death on its own. Cannabis consumed with other substances (alcohol, for instance) may result in harm. However, consuming too much cannabis can lead to hospitalizations and motor vehicle accidents, which can then result in serious injuries or death. The signs of using too much cannabis are similar to typical side effects of cannabis but more severe. These signs and symptoms may include significant confusion, delusions or hallucinations, anxiety, paranoia, fast heart rate, elevated blood pressure or severe nausea and vomiting. If you suspect that you may have overdosed on cannabis, it is important that you're in a safe and monitored environment. If needed, call 911 and seek medical attention. Don't operate any vehicles or dangerous machinery.

Most cases of cannabis overdose are associated with consuming too much cannabis in edibles because their effects don't occur soon enough. In an attempt to speed up such effects, there is a tendency for people to frequently dose and take large amounts of edibles, which actually doesn't impact how soon the effects occur. Peak effects of edibles can take up to four hours to occur and the dose shouldn't be increased until you are familiar with the effects of the initial dose that was taken. If a faster onset of cannabis effects is desired, other methods of administration such as oral-mucosal spray or inhaled method should be explored.

13. How can I minimize side effects of cannabis?

The higher the THC content in a product, the greater the risk of side effects such as feeling high. Products with lower THC content and equal or higher CBD content,⁹ which blocks the effects of THC, can lower the risk of side effects. A general recommendation is to limit THC to 30mg/day or less to avoid side effects that affect your mind. For oral cannabis, the effects may be delayed (e.g., 4 hours after consuming cannabis). To avoid taking too much, it is important to wait for up to 4 hours when peak effects have occurred before taking more.

14. Can I drive after taking cannabis?



Like driving after drinking alcohol, driving after consuming cannabis isn't safe. It is illegal to drive while impaired by drugs including cannabis, alcohol, or a combination of both.¹⁰ The risk of car crashes greatly increases when driving impaired from cannabis.⁵ Driving impaired by cannabis can also lead to very serious penalties including possible life imprisonment if a death is involved.¹¹

Some studies and experts suggest you avoid driving or operating dangerous machinery for at least 6 hours within using cannabis or 8 hours if you felt "high."^{5, 9, 15} However, since cannabis can impair each person differently depending on the method of consumption, quantity consumed and the variety of cannabis and its THC levels, these durations can potentially vary for different individuals. It is important to recognize that there is no

absolute guaranteed amount of cannabis that can be consumed before it is safe to drive or duration to wait to drive after consuming cannabis. It is safer to plan ahead and have a designated driver or take public transit, a cab or a ride sharing service.

15. Can I take cannabis with me if I travel across borders?

You cannot take cannabis in or out of Canada, even if the cannabis is prescribed by a physician. It is a criminal offense. “Don’t bring it in. Don’t take it out!” To learn more, go to www.cbsa-asfc.gc.ca/travel-voyage/cannabis-eng.html

You can take up to 30 grams of cannabis with you when travelling within Canada. The rules for use, however, vary by province. To learn more, go to www.canada.ca/en/health-canada/services/drugs-medication/cannabis/laws-regulations/provinces-territories.html.

16. Will cannabis affect my work? Do I need to tell my boss if I am using medical cannabis?

Cannabis can affect your ability to remember, concentrate, pay attention and react quickly. In addition, it may lower your motivation to complete tasks or cause drowsiness. To eliminate or reduce these effects, consider alternative therapies, avoid consuming cannabis before/during work hours, or use products with a lower THC and a higher CBD content, or CBD on its own.

While you don’t need to tell your boss what medications you use, there are situations where you should tell them that

your medication can affect your ability to function at work, for example, if your job involves driving or operating dangerous machinery that can pose a safety issue.

17. When is the best time to start, adjust, or switch cannabis products?

The best time to start or adjust your cannabis product is in the evenings right before you go to bed and right before a weekend or on days you don’t need to work or have medical treatment. This will allow you time to recover and adjust your cannabis dose in the event you develop any side effects. You should also do this in a safe and preferably monitored environment in case you become unaware of your surroundings. You should avoid making changes to your cannabis use during activities that require your full attention.

18. Is cannabis addictive? What is cannabis use disorder (CUD)?

It is estimated that 1 in 11 (9%) patients using recreational cannabis will develop addiction, and this increases to 1 in 6 (17%) for those who start using cannabis as a teenager. The highest risk is among those who smoke cannabis daily. In this group, the risk of addiction is 25 to 50%.¹² Although the risk of addiction from other administration methods hasn’t been studied, consuming higher levels of THC is known to be more addictive.¹³ Risk of addiction is also greater in those with a personal or family history of drug addiction.

The evidence comparing cannabis to opioid addiction is currently limited. With prescription opioids, the risk of

addiction is estimated to be 5.5%.²⁰ The risk with medical cannabinoids is understudied, which makes it difficult to directly compare. Although the addiction risk with non-medical opioid use isn't known, it is likely higher than prescription use. Moreover, the risk of fatal overdose with prescription opioids is known to be higher than that of cannabis use, which is negligible in comparison.²⁰

Cannabis Use Disorder (CUD) refers to what was previously known as “cannabis dependence.” It describes the ongoing use of cannabis even when it causes unwanted side effects or affects day-to-day activities. To be diagnosed with CUD, you would need at least two of the following symptoms or behaviors within a 12-month period:¹³

- increased tolerance
- withdrawal
- consuming much more than intended
- unsuccessful attempts to quit
- a lot of time lost consuming or recovering
- reduced activities
- ongoing use despite persistent physical or psychological problems caused or worsened by cannabis use
- failure to fulfill major roles at work, school or home
- use in physically hazardous situations
- ongoing use, despite social or interpersonal problems caused or intensified by cannabis use

- Strong urges or cravings to use cannabis

If you experience at least two of the above situations with cannabis use, you may have possible CUD. Alternatively, the CUDIT-R cannabis screening tool can be used to determine if an individual is at risk of or has possible CUD (see [Appendix 3](#)). If you are concerned that you or someone you are caring for may be at risk of CUD or has possible CUD, consult your healthcare team.



19. When should I consider stopping cannabis? How do I stop it? Can I get withdrawal symptoms?

In addition to the risk of developing psychological dependence (see previous section), patients consuming cannabis can develop physical dependence, where the body is adapted to the effects of cannabis and immediately stopping it, or quickly reducing the dose, can lead to withdrawal. Withdrawal symptoms can include anxiety, loss of appetite, restlessness, inability to sleep, and low mood. Generally, these symptoms can occur in 1 to 2 days, peak at 2 to 6 days, and disappear in 1 to 2 weeks after stopping cannabis.²⁰

If you want to stop using cannabis because you feel that you are experiencing more harm than benefit from it, gradually weaning off it (gradually reducing it) instead of abruptly stopping it is strongly advised to avoid withdrawal symptoms. This is especially advised if you have been using cannabis daily for a few weeks to months. If you are using cannabis only occasionally, a gradual approach to weaning off it may not be needed.

Consult your physician or pharmacist to create a plan that works for you based on how much cannabis you use regularly. A general approach may be to reduce your dose by 25% every 1 to 2 weeks depending on how you feel.

20. Can cannabis affect my kidney function?

In one study, patients who used cannabis and already had diminished kidney function were at a higher risk of kidney disease progression compared to those who didn't use cannabis.¹⁴ However, patients with normal kidney function didn't experience any differences in kidney function compared to non-cannabis users. The cause of the kidney function decline is unknown, but it might be related to inhaling cannabis smoke. Cannabis by vaping or edibles may not present the same harm.

21. As kidney function worsens, does the effect of the cannabis change?

The effect of cannabis is related to the dose, method and variety of cannabis used. It is also related to the experience or "tolerance" of the person consuming it.

At this time, a decline in kidney function alone isn't thought to impact the effects of cannabis, since cannabis is mainly removed from the body by the liver.

22. Does dialysis remove cannabis from my body? Do I need to change the timing of my dialysis?

Cannabis is unlikely to be effectively removed from the body by hemodialysis or peritoneal dialysis. However, if you consume large and frequent amounts of cannabis, you may feel some withdrawal effects toward the end of a 4-hour hemodialysis session, depending on the timing and method of your last dose.

23. How do I get cannabis?

In BC, various forms of cannabis are available through prescription mail-order, licensed companies and unlicensed dealers.

Prescription licensed and regulated cannabis

is the safest way to get reliable, tested cannabis with advisors helping you find the cannabis type, method and amount that will work best for you. A prescriber (e.g., your family physician) will need to write a prescription to get you started. Some private insurance providers will cover this form of medicinal cannabis, so it is worthwhile checking. The advisors (licensed medical cannabis producers) can help you navigate the most cost-effective solution for you. Medicinal cannabis is only available by phone consult and delivered by mail. These companies typically have comprehensive websites to help you both choose and use wisely, with many helpful tools.

Recreational licensed and regulated cannabis retailers sell tested and licensed products in store or online. While this may be a convenient way to buy safe cannabis, it is difficult to find the variety, dose and method that works best for you. Insurance providers typically will not cover recreationally purchased cannabis. Licensed cannabis may be more expensive than unlicensed cannabis but carries quality assurance and is legal. Make sure the retailer is licensed by the BC Liquor Distribution Branch.

Unlicensed and unregulated cannabis usually doesn't undergo rigorous testing for purity, strength and composition. Concentration of active ingredients may vary from batch to batch. This is the least preferred method for obtaining cannabis. It remains illegal, may be of poorer quality and is unregulated. Be aware that sometimes the strain or variety may be different than labelled. There is also a risk of harm from potential exposure to contaminants such as lead, pesticides or other drugs (e.g., fentanyl) in unregulated dried cannabis products.

Other useful guides for the patient:
[Cannabis 101- University of Waterloo](#)



Appendix 1. Comparison of Commercially Available Cannabis Products for Medical Use

Prescription Cannabinoids		Medical Cannabis	
Nabilone (Cesamet)	Nabiximols (Sativex)	Dried Cannabis	Cannabis Oil
Manufactured THC	Natural extract of THC & CBD	Natural	Natural extract of CBD ± THC
Oral capsules	Mouth spray given under tongue or on side of cheek	<ul style="list-style-type: none"> Smoke (joints, bongs, pipes, etc.) Vape (cannabis is heated with a device into aerosol and inhaled) 	Oil that can be swallowed or applied on the skin
<p>Preferred over medical cannabis.</p> <ul style="list-style-type: none"> Product is standardized and regulated, making it easy to dose and a safer product to use (i.e., tested for contaminants). 		<ul style="list-style-type: none"> Smoking isn't recommended. Cannabis smoke contains cancer-causing agents and can affect the lungs.^{15, 16} Vaping may have less harmful chemicals than smoking but has been linked to serious lung injury. This is likely due to the use of modified chemicals in vaping devices. If used, consider Health Canada approved devices. Inhalation from vaping is stronger than from smoking. Concentrations and effects of dried cannabis can vary quite a bit, making it hard to dose. 	<p>Preferred over dried cannabis.</p> <ul style="list-style-type: none"> No harmful effects to the lungs. Easier to dose (sold as specific concentration).
60-90 mins to work Lasts 8-12 hrs ²⁰	20-150 mins to work Lasts 6-8 hrs ²⁰	Works quickly, within 5-10 mins Effects lasts 2-6 hrs ^{17, 20}	30-120 mins to work Effects lasts 4-12 hrs ^{17, 20}
<p>Starting dose: 0.25-0.5mg once daily at bedtime²⁰</p> <p>Usual dose for nerve pain: 1mg twice daily</p>	<p>Starting dose: 1 spray under the tongue at bedtime²⁰</p> <p>Usual dose: 1 spray under the tongue every 4 hours (up to 12 sprays/day)</p>	<ul style="list-style-type: none"> No standard recommended dose or ratio. Dose usually based on CBD to THC ratio THC and CBD may be measured in mg/g or %. <p>Starting dose: If you are new to cannabis, try a product that is 10% THC (100mg/g) or less with an equal or higher amount of CBD.¹⁷</p> <p>Start with 1 inhalation and wait 15 mins. Then, may increase by 1 inhalation every 15-30 mins until desired symptom control is achieved.⁹</p> <p>1 puff of joint = 1-10mg THC, strength varies depending on THC %, joint size, how deep you inhale.²⁰</p> <p>THC as low as 2.5-3mg/dose may have medicinal benefit with little intoxicating effect.^{18,19}</p>	<p>Starting dose (oral): 2-3mg of CBD +/- THC at bedtime (e.g., 0.1mL of 20mg/mL CBD),²⁰ then increase slowly as tolerated to desired effect over few days.</p> <p>Note: It may take up to 4 hours to feel peak effects from eating or drinking cannabis. Taking more within this time period can cause severe side effects.¹⁷</p> <p>Topical cannabis isn't well studied and there is no available dosing recommendation.</p>
<p>Cost: \$22-112/30d using above doses</p> <p>Covered by Pharmacare and occasional private insurance coverage</p>	<p>Cost: \$84-1008/30d Using above doses</p> <p>Not covered by Pharmacare, but occasional private insurance coverage</p>	<p>Cannabis oil- \$20-45/bottle²¹ (minimum \$7-15/30d based on above starting dose) Dried cannabis- \$7-11/g, average daily dose for medical purposes= 0.65-3g²² (~\$135-1000/30d, depending on daily dose)</p> <p>Not covered by Pharmacare. Coverage available for some with Veteran's Affairs or private insurance if purchased with a prescription. No coverage if purchased in retail without prescription.</p>	

Appendix 3. Cannabis Use Disorder Screening Tool – Cannabis Use Disorder Identification TEST – Revised (CUDIT-R)²³

- Have you used any cannabis over the past six months? **YES / NO**
- If **YES**, please answer the following questions about your cannabis use. Circle the response that is most correct for you in relation to your cannabis use over the past six months:

1.	How often do you use cannabis?				
	Never 0	Monthly or less 1	2-4 times a month 2	2-3 times a week 3	4 or more times a week 4
2.	How many hours were you “stoned” on a typical day when you had been using cannabis?				
	Less than 1 0	1 or 2 1	3 or 4 2	5 or 6 3	7 or more 4
3.	How often during the past 6 months did you find that you were not able to stop using cannabis once you had started?				
	Never 0	Less than monthly 1	Monthly 2	Weekly 3	Daily or almost daily 4
4.	How often during the past 6 months did you fail to do what was normally expected from you because of using cannabis?				
	Never 0	Less than monthly 1	Monthly 2	Weekly 3	Daily or almost daily 4
5.	How often in the past 6 months have you devoted a great deal of your time to getting, using, or recovering from cannabis?				
	Never 0	Less than monthly 1	Monthly 2	Weekly 3	Daily or almost daily 4
6.	How often in the past 6 months have you had a problem with your memory or concentration after using cannabis?				
	Never 0	Less than monthly 1	Monthly 2	Weekly 3	Daily or almost daily 4
7.	How often do you use cannabis in situations that could be physically hazardous, such as driving, operating machinery, or caring for children:				
	Never 0	Less than monthly 1	Monthly 2	Weekly 3	Daily or almost daily 4
8.	Have you ever thought about cutting down, or stopping, your use of cannabis?				
	Never 0		Yes, but not in the past 6 months 2		Yes, during the past 6 months 4

- **Scores of 8 or more indicate hazardous cannabis use.**
- **Scores of 12 or more indicate a possible cannabis use disorder, for which further intervention may be required.**

1. Ho C, Martinusen D, Lo C. A review of cannabis in chronic kidney disease symptom management. *Can J Kidney Health Dis.* 2019; 6: 2054358119828391.
2. Lucas CJ, Galettis P, Schneider J. The pharmacokinetics and the pharmacodynamics of cannabinoids. *Br J Clin Pharmacol.* 2018 Nov; 84(11): 2477–2482.
3. National Academies of Sciences, Engineering, and Medicine. 2017. *The Health Effects of Cannabis and Cannabinoids: The Current State of Evidence and Recommendations for Research.* Washington, DC: The National Academies Press. <https://doi.org/10.17226/24625>.
4. Authorizing Dried Cannabis for Chronic Pain or Anxiety. Preliminary Guidance. [Internet]. Mississauga: College of Family Physicians of Canada; 2014 [cited 22 March 2021]. Available from: <http://www.cfpc.ca/uploadedFiles/Resources/PDFs/Authorizing%20Dried%20Cannabis%20for%20Chronic%20Pain%20or%20Anxiety.pdf>
5. Information for Health Care Professionals: Cannabis (marihuana, marijuana) and the cannabinoids [Internet]. 2018 [cited 22 March 2021]. Available from: <https://www.canada.ca/en/health-canada/services/drugs-medication/cannabis/information-medical-practitioners/information-health-care-professionals-cannabis-cannabinoids.html>
6. Andrews CN, Devlin SM, Le Foll B, Fischer B, Tse F, Storr M et al. Canadian Association of Gastroenterology Position Statement: Use of Cannabis in Gastroenterological and Hepatic Disorders. *Can Assoc Gastroenterol.* 2019 Apr;2(1):37-43.
7. Antoniou T, Bodkin J, Ho JMW. Drug interactions with cannabinoids. *CMAJ.* 2020 Mar 2;192(9):E206
8. Grindrod K, Beazely M. Cannabis 101 [Internet]. University of Waterloo Faculty of Science School of Pharmacy; 2018 [cited 2 April 2021]. Available from: <https://static1.squarespace.com/static/52dc09bee4b00bd4279bf2de/t/5b1a7699758d469d6946160b/1528460966140/Cannabis+Infographic+%282+sided%29.pdf>
9. MacCallum CA, Russo EB. Practical considerations in medical cannabis administration and dosing. *Eur J Int Med.* 2018; 49:12-19.
10. Driving while impaired by a drug [Internet]. Canada.ca. 2019 [cited 3 April 2021]. Available from: <https://www.canada.ca/en/health-canada/services/substance-use/talking-about-drugs/driving-impaired-drug.html#s2>
11. Impaired Driving Laws [Internet]. Department of Justice. 2019 [cited 3 April 2021]. Available from: <https://www.justice.gc.ca/eng/cj-jp/sidl-rlcfa/index.html>
12. Addiction to Cannabis [Internet]. Canada.ca. 2019 [cited 3 April 2021]. Available from: <https://www.canada.ca/en/health-canada/services/drugs-medication/cannabis/health-effects/addiction.html>
13. CPHA Cannabis Basics Fact Sheet [Internet]. Canadian Public Health Association-Resources. 2017 [cited 25 March 2021]. Available from: <https://www.cpha.ca/sites/default/files/uploads/resources/cannabis/cannabis-basics-2018-fact-sheets-e.pdf>
14. Rein J, Wyatt C. Marijuana and cannabinoids in ESRD and Earlier Stages of CKD. *Am J Kid Dis* 71(20) 267-

274. DOI: 10.1053/j.ajkd.2017.06.020
15. Allan GM, Ramji J, Perry D, Ton J, Beahm NP, Crisp N et al. Simplified guideline for prescribing medical cannabinoids in primary care. *Canadian Family Physician*. 2018 Feb 1;64(2):111-20.
 16. Kahan M, Srivastava A, Spithoff S, Bromley L. Prescribing smoked cannabis for chronic noncancer pain. Preliminary recommendations. *Can Fam Physician* 2014;60:1083-90.
 17. Health Canada, 2019. *Consumer Information-Cannabis*. [ebook] Government of Canada. Available at: <<https://www.canada.ca/en/health-canada/services/drugs-medication/cannabis/laws-regulations/regulations-support-cannabis-act/consumer-information.html>> [Accessed 21 March 2021].
 18. Ware MA, Wang T, Shapiro S, Robinson A, Ducruet T, Huynh T et al. Smoked cannabis for chronic neuropathic pain: a randomized controlled trial. *CMAJ*. 2010 Oct 5;182(14):E694-E701.
 19. Eisenberg E, Ogintz M, Almog S. The pharmacokinetics, efficacy, safety, and ease of use of a novel portable metered-dose cannabis inhaler in patients with chronic neuropathic pain: a phase 1a study. *Pain Palliat Care Pharmacother*. 2014 Sep;28(3):216-25.
 20. Crawley, A., LeBras, M., Regier, L. and Jensen, B., 2018. *RxFiles*. 11th ed. [ebook] Saskatoon: Saskatoon Health Region. Available at: <<https://www.rxfiles.ca/rxfiles/uploads/documents/CANNABINOIDS-Newsletter-CHT-QandA-RxFiles.pdf>> [Accessed 21 March 2021].
 21. BC Liquor Distribution Branch, 2021. *Oils and capsules*. [online] BC Cannabis Stores. Available at: <<https://www.bccannabisstores.com/collections/oil-and-capsules>> [Accessed 21 March 2021].
 22. Health Canada, 2016. *Access to Cannabis for Medical Purposes Regulations - Daily Amount Fact Sheet (Dosage)*. [online] Available at: <<https://www.canada.ca/en/health-canada/services/drugs-medication/cannabis/information-medical-practitioners/cannabis-medical-purposes-regulations-daily-amount-fact-sheet-dosage.html>> [Accessed 21 March 2021].
 23. Adamson S, Kay-Lambkin F, Baker A, Lewin T, Thornton L, Kelly B et al. An improved brief measure of cannabis misuse: the cannabis use disorders identification test-revised (CUDIT-R). *Drug Alcohol Depend*. 2010 Jul 1;110(1-2):137-43