

Cannabis for Medical Purposes

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Learning Objectives

1. Describe the pharmacological effects of cannabinoids
2. Review types of cannabis products available
3. Summarize the current process for obtaining medical cannabis in Canada
4. Compare and contrast the risks and benefits of using medical cannabis
5. Review some of the challenges that hospitals may face when caring for patients who are using cannabis



Conflict of interest

- ▶ Nothing to disclose



The Patient

- ▶ People are using cannabis for a wide range of medical symptoms, but few have strong evidence of benefit.
- ▶ Despite this, use of cannabis for medical purposes continues to rise in Canada
 - ▶ >250,000 clients registered with Licensed Producers in 2017

The Patient Experience

- ▶ Patient's are looking for advice on cannabis use
- ▶ Main information sources available to patients are online, friends, family, news/tv
- ▶ Health Care Professionals may have little training on the topic
- ▶ Patient's may feel stigmatized
- ▶ Cost is a barrier





What is Cannabis?

Terminology

Cannabis: Commonly referred to as Marijuana or Marihuana; Refers to fresh or dried marijuana or the oil extracted from the marijuana plant.

- ▶ > 500 active components in the cannabis plant
- ▶ The principle active ingredients are **THC** and **CBD**

Cannabinoids: Compounds derived from or based on chemicals found in the Cannabis plant



Principle Active ingredients

Tetrahydrocannabinol (THC)

- ▶ Responsible for many of the physical and psychotropic effects of cannabis
- ▶ The average amount of THC in cannabis is approximately 10%, but can range from as low as 1% to as high as 30%.

Cannabidiol (CBD)

- ▶ Lacks psychoactive activity but shares some of the same therapeutic activity as THC.



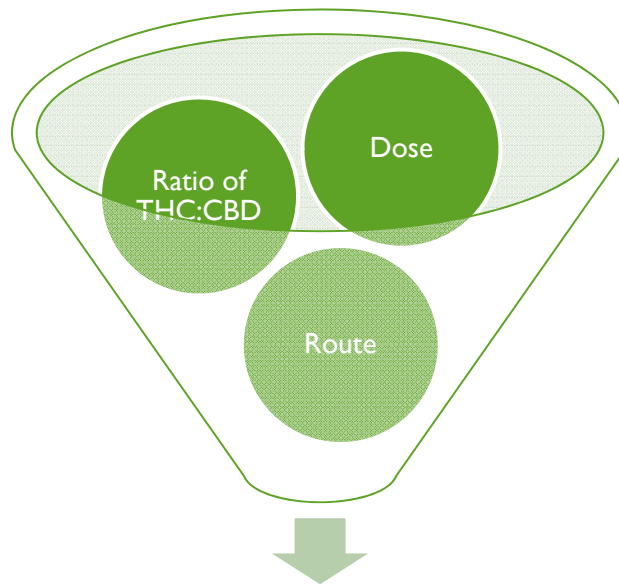
Principle Active Ingredients

THC (tetrahydrocannabinol)	CBD (cannabidiol)
Euphoric	Non-euphoric (opposes the action of THC. Makes “high” more tolerable)
<u>Mixture of stimulant and depressant effects:</u> <ul style="list-style-type: none">•elevated mood, relaxation, increased appetite•paranoia, depression, anxiety•Hypertension, tachycardia•Analgesic, antiemetic, anti spasticity properties	<ul style="list-style-type: none">•Anxiolytic, neuroprotective•Anticonvulsant, analgesic, antiemetic, and anti-inflammatory properties

Table above modified from: Canadian Healthcare Network (2018). Colloquium: The role for medical cannabis in chronic pain management. Available from: <http://www.canadianhealthcarenetwork.ca/pharmacists/clinical/health-index-therapeutics/pain-management/colloquium-the-role-for-medical-cannabis-in-chronic-pain-management-42952>

Principle Active ingredients

- ▶ The cannabis dose, the ratio of THC to CBD and the route of administration all play a role in terms of efficacy and adverse effects.
- ▶ Adjusting the THC to CBD ratio will change the effect that cannabis has on a patient.



Cannabis Products Available

- ▶ Dried plant product (marijuana)
- ▶ Oil
- ▶ Capsules
- ▶ Edibles (i.e. baked goods)
- ▶ Topical products



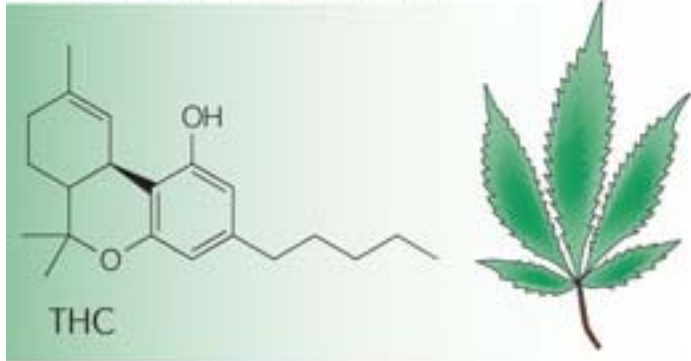
Mechanism of Action

- ▶ 2 Types of cannabinoid receptors:
 - ▶ **CB1** → Brain
 - ▶ **CB2** → Immune cells (peripherally)
- ▶ THC is an agonist at both CB1 and CB2
- ▶ CBD has little binding affinity to either CB1 or CB2.
 - ▶ Instead, it prevents the breakdown of endogenous cannabinoids
 - ▶ CBD also opposes the action of THC at the CB1 receptor, muting the psychoactive effects of THC

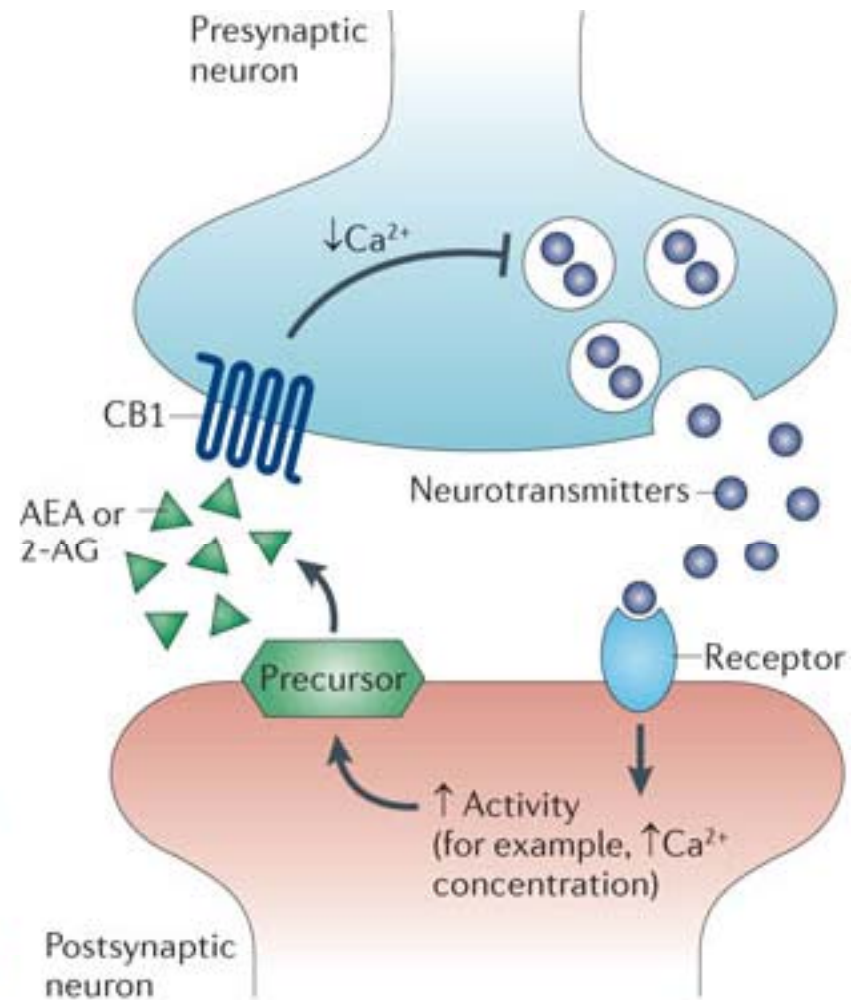
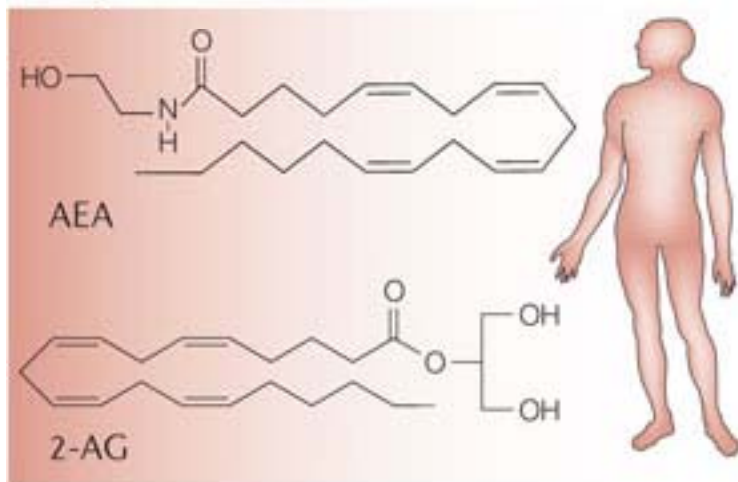


Mechanism of Action

Plant-derived cannabinoid



Endogenous cannabinoids



Nature Reviews | Cancer

Pharmacokinetics

Inhaled (smoking, vaporizing)

- ▶ Onset within a few min (peak 10 - 20 min)
- ▶ Duration 2-4 hours (up to 24 hours)

Oral (e.g. oils, foods, capsules)

- ▶ Onset 30 min (peak 2-4 hours)
- ▶ Duration 4-6 hours (up to 24 hours for adults and 36 hours for children)



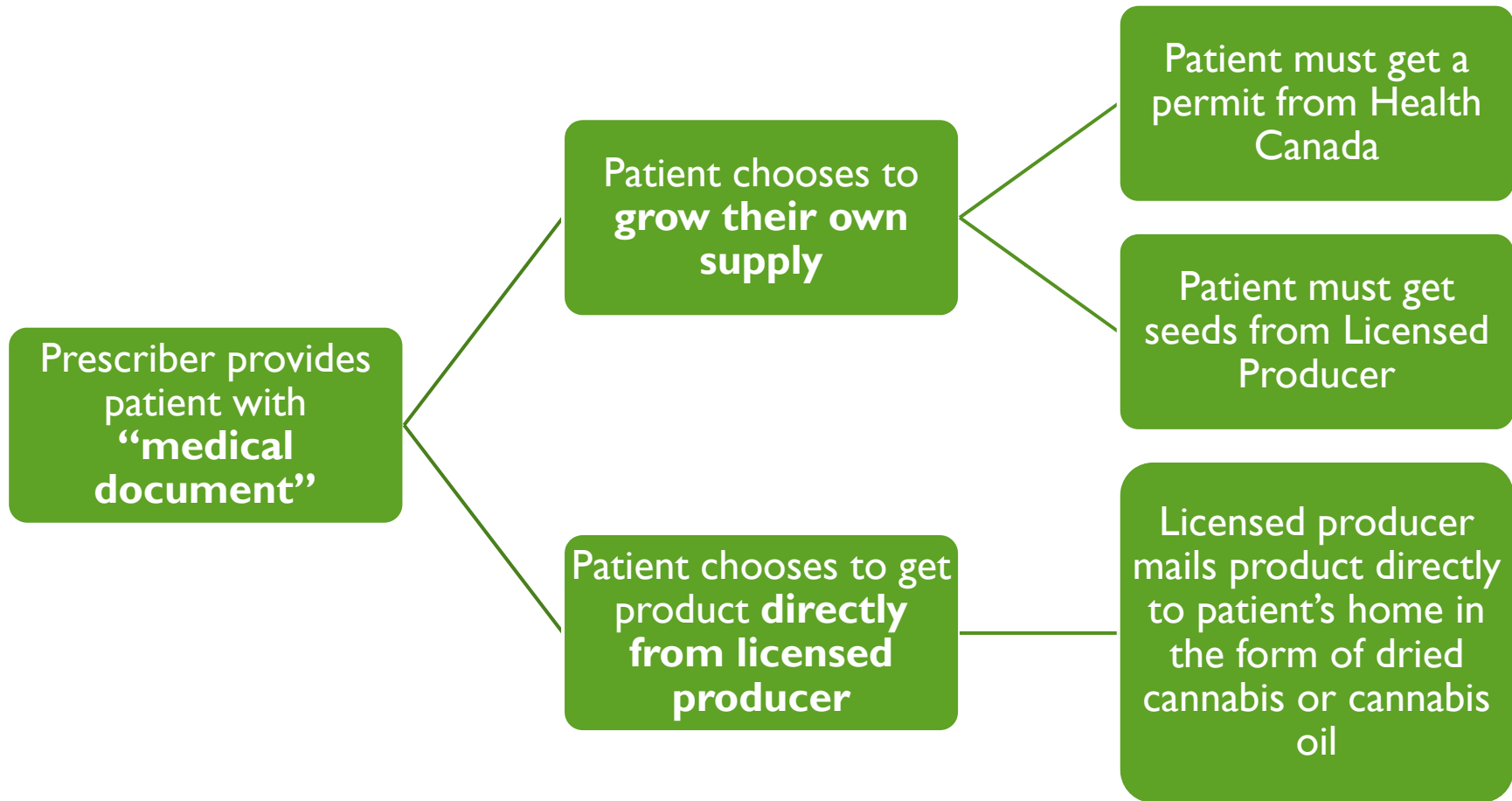
Cannabis in Canada

Canadian Regulations

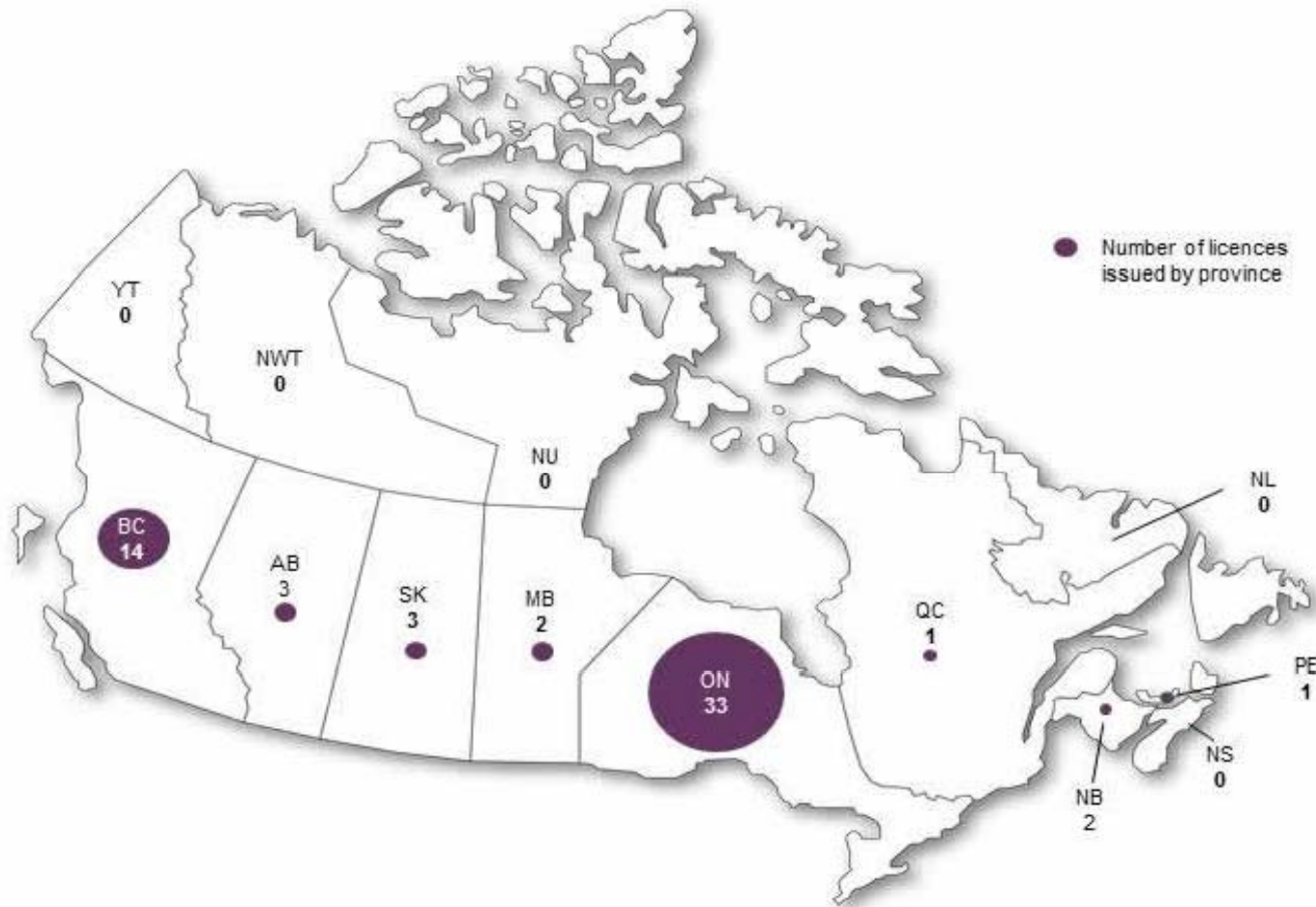
1. Marihuana Medical Access Regulations 2001
2. Marihuana for Medical Purposes Regulations 2014
3. Access to Cannabis for Medical Purposes Regulations 2016



Obtaining Cannabis for Medical Purposes



Medical Cannabis Licensed Producers



► Health Care Professionals' Forum (2016). Health Canada. Available at <http://www.ccic.net/picture/upload/File/Resources/Health%20Canada%20HCPs%20Forum%20May%2019%202016.pdf>

Non-medical Cannabis in PEI

Legal as of October 17th 2018

- ▶ Must be 19+ to buy, possess, or grow
- ▶ 4 plants per house (max)
- ▶ Adults 19+ can carry up to 30 grams of dried cannabis (or its equivalent) in public. There are no limits on how much cannabis you can have in your home (except for the number of plants)
- ▶ It is illegal to use cannabis in public places
 - ▶ Must be consumed at home





Is Cannabis Safe?

Adverse Effects

Side Effect	Most Common	Common	Rare
Drowsiness/fatigue	X		
Dizziness	X		
Dry Mouth	X		
Cough, Phlegm, bronchitis (smoking only)	X		
Anxiety	X		
Nausea	X		
Cognitive effects	X		
Euphoria		X	
Blurred Vision		X	
Headache		X	
Orthostatic hypotension			X
Toxic psychosis/paranoia			X
Depression			X
Ataxia/discoordination			X
Tachycardia			X
Cannabis hyperemesis			X
Diarrhea			X

Adapted from Table 2: Canadian Healthcare Network (2018). Colloquium: The role for medical cannabis in chronic pain management. Available from: <http://www.canadianhealthcarenetwork.ca/pharmacists/clinical/health-index-therapeutics/pain-management/colloquium-the-role-for-medical-cannabis-in-chronic-pain-management-42952>

Cannabis and Lung Cancer

- Conflicting evidence
- Contains same carcinogens as tobacco smoke
- People tend to inhale more marijuana smoke per puff and retain in lungs longer
- Many people who smoke marijuana also smoke tobacco cigarettes
- People tend to smoke less marijuana cigarettes per week than tobacco

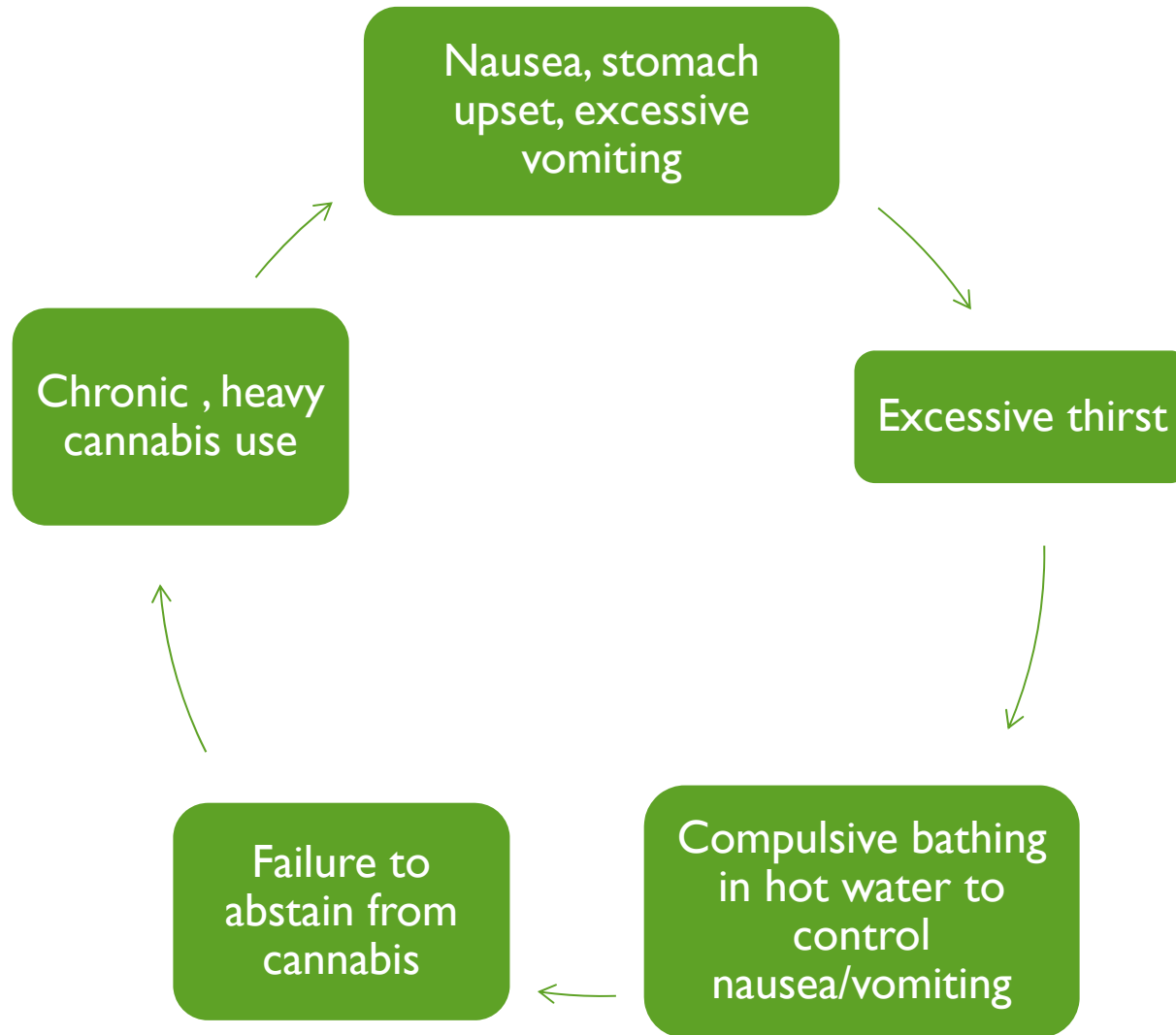


Canadian Cancer Society
Société canadienne du cancer

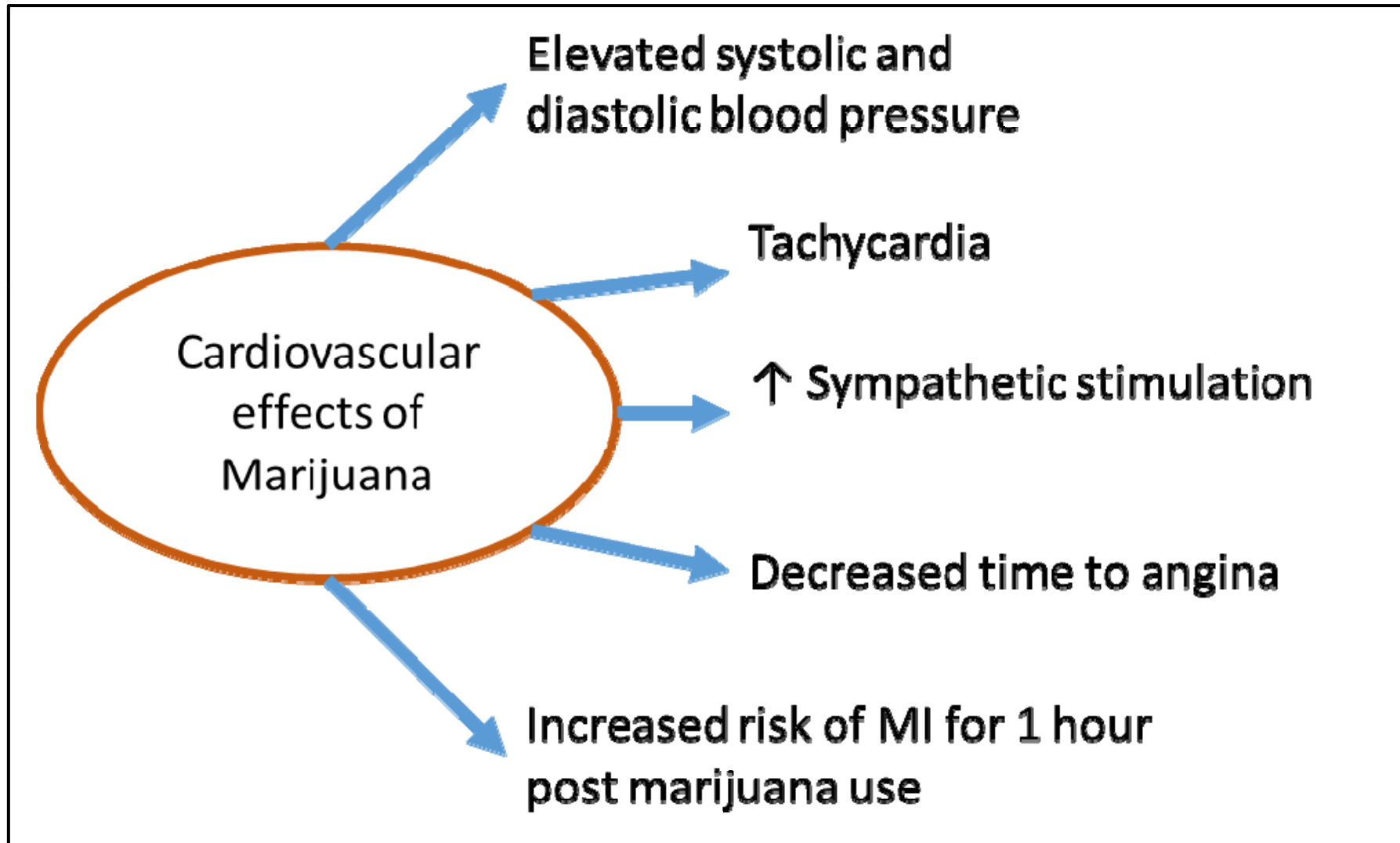
Vaporizers



Cannabinoid-Induced Hyperemesis Syndrome



Cardiovascular effects



Cannabis use disorder

Mild: Repeated pattern of use and intoxication that develops over an extended period of time and leads to harmful consequences such as recurrent failure to fulfill major role responsibilities or persistent social problems.

Moderate to severe: Behavioral and physiologic symptoms resulting from compulsive use that may continue despite ongoing physical or psychological problems caused by cannabis use. Features include using larger amounts of cannabis over longer periods of time, unsuccessful efforts to limit use, tolerance, and possibly physiologic withdrawal.

Cannabis withdrawal

3 or more of the following signs and symptoms develop within approximately one week after the cannabis cessation:

- Irritability, anger, or aggression
- Nervousness or anxiety
- Sleep difficulty (eg, insomnia, disturbing dreams)
- Decreased appetite or weight loss
- Restlessness
- Depressed mood
- At least one of the following physical symptoms causing significant discomfort: abdominal pain, shakiness/tremors, sweating, fever, chills, or headache

Who should avoid cannabis?

Contraindications:

- ▶ Known sensitivity to cannabis, THC, CBD, or any other cannabinoid
- ▶ Pregnant or breastfeeding women
- ▶ Individuals <25 years of age to reduce harm to the developing brain

Warning/Precautions:

- ▶ Those with a personal or family history of psychosis or schizophrenia
- ▶ Avoid the use of cannabis in those with a current or past cannabis use disorder or other substance use disorder.
- ▶ Use with caution in those with respiratory conditions (e.g. asthma and COPD), cardiac conditions, and liver disease

Drug Interactions

Most significant

- ▶ Medications that also cause sedation (e.g. sedatives, anxiolytics, opioids, alcohol).

Pharmacokinetic drug interactions

- ▶ THC is metabolized by CYP2C9, 2C19, and 3A4.
- ▶ THC and CBD inhibit CYP1A1, 1A2, and 1B1.
- ▶ This may affect drugs like fluoxetine, ketoconazole, diltiazem, and HIV protease inhibitors (see Canadian Pharmacists Association Monograph on Cannabis).



Is Cannabis Effective?

Evidence Based Indications for Cannabis Use

- Neuropathic pain
- Spasticity from multiple sclerosis
- Pediatric treatment-resistant seizure disorders

Limitations of available data

- Small studies of short duration
- Difficult to target symptom without possibility of psychoactivity with cannabis or THC
- No controlled trial comparing inhaled marijuana with oral THC (nabilone) or with other analgesic agents

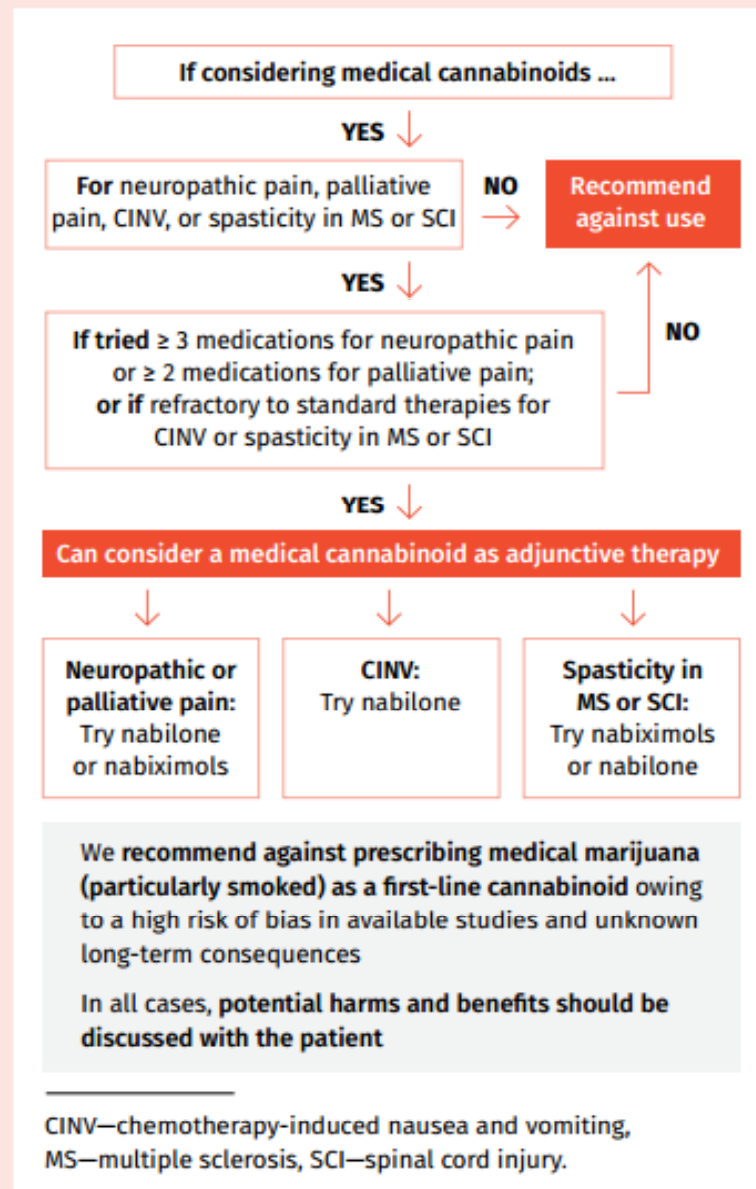


Recommendations from The College of Family Physicians Canada

“There is no research evidence to support the authorization of dried cannabis as a treatment for pain conditions commonly seen in primary care, such as fibromyalgia or low back pain (Level III). Authorizations for dried cannabis should only be considered for patients with neuropathic pain that has failed to respond to standard treatments (Level I)”

“Dried cannabis is not an appropriate therapy for anxiety or insomnia (Level II).”

Figure 1. Medical cannabinoid prescribing algorithm



▶ Allan, GM et al. (2018). Simplified guidelines for prescribing medical cannabinoids in primary care. Available from: <http://www.cfp.ca/content/cfp/64/2/111.full.pdf>

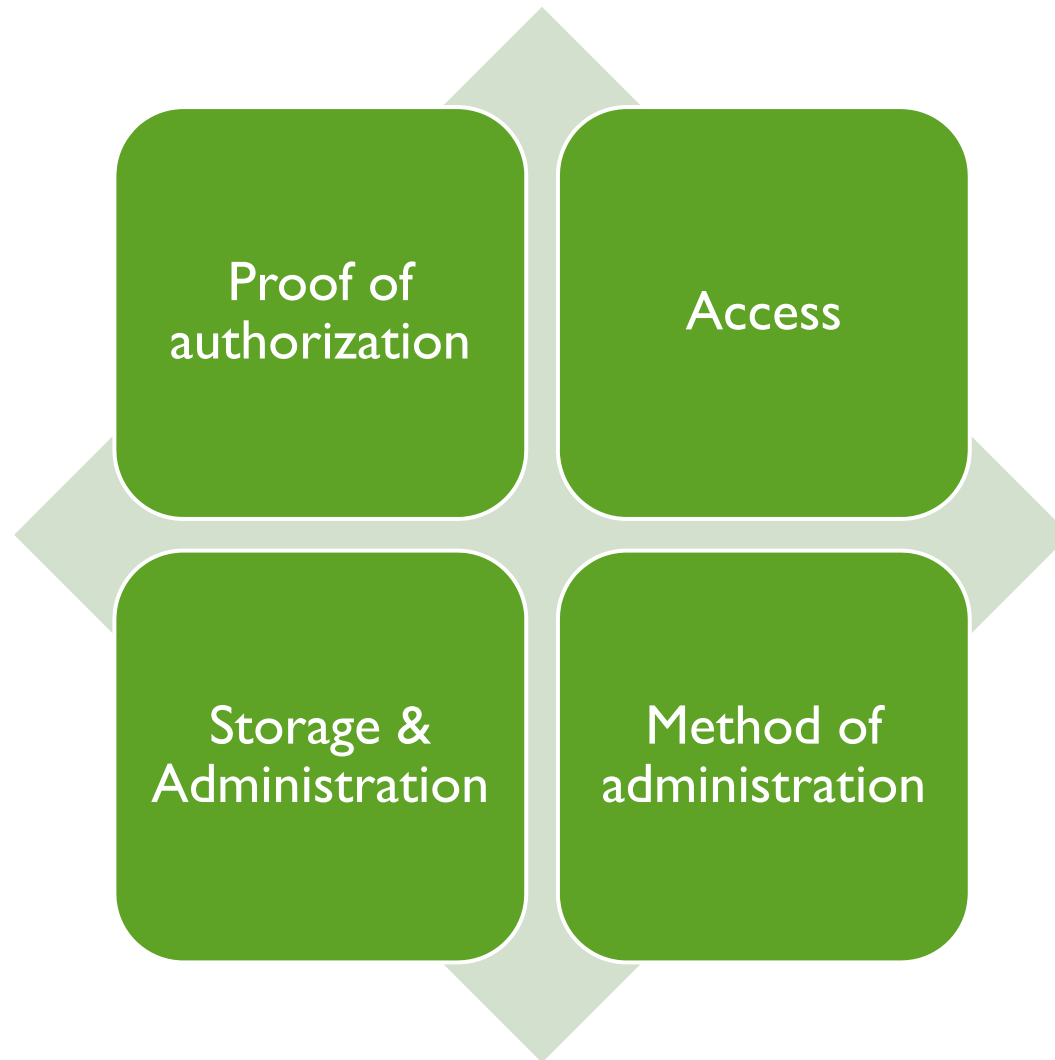
Dosing of Medical Cannabis

- Start **LOW** go **SLOW** (Higher THC % ≠ better pain control)
- 2g/day on average (HC suggests 1-3 g/day)
 - Equivalent to 4 joints/day
 - 1 joint is 0.5 g – approximately 1/2 size of a cigarette
- Literature supports a daily dose of 100–700 mg of up to 9% THC content dried cannabis.
 - Ex: 2g/day of 9% THC = 180 mg of THC
- Start with 1 puff at bedtime and titrate. Oil is typically dosed once or twice daily.
- Licensed producer can help with % and THC/CBD ratio, how to consume, not to drive, security measure, how to travel, etc



Cannabis use in Hospital

Cannabis Use in Hospital - Challenges



Cannabis Use in Hospital

Ask **ALL** patients about cannabis use:

You'll want to know:

- ▶ Indication
- ▶ Medical authorization
- ▶ Amount authorized
 - ▶ Health Canada suggests 1-3 grams per day
- ▶ Product (THC/CBD ratio)
- ▶ Method of administration
- ▶ Source of product (licensed producer or grown at home)



Cannabis use in Hospital

Monitor for:

- ▶ Adverse effects
- ▶ Progress of treatment goals
- ▶ Signs of withdrawal

Document:

- ▶ Medical cannabis use on the BPMH
- ▶ Non medical cannabis use in other areas of the chart such as social history

Communicate with:

- ▶ Colleagues in the community
- ▶ Patient (reassure patients that they can speak openly about their cannabis use)



Tips to minimize harm

- ▶ Choose lower potency products (less THC content)
- ▶ Vaporization is preferred over smoking because less noxious chemicals are released into the lungs.
- ▶ Oral dosage forms are also considered safer than smoking but keep in mind that the effect is delayed and longer lasting.
- ▶ Cannabis should not be used when driving or operating machinery.
- ▶ Advise patients under age 25 to avoid using THC-containing products, to reduce harm to the developing brain.

Resources for Health Care Professionals

- ▶ Health PEI Staff Resource Centre
 - ▶ <http://www.healthpei.ca/src/cannabis>
- ▶ Canadian Pharmacists Association Medical Cannabis CE and Medical Cannabis Q&A
 - ▶ <https://www.pharmacists.ca/education-practice-resources/professional-development/medical-cannabis-ce/>
- ▶ Canadian Pharmacists Associated Cannabis product monograph
 - ▶ <http://www.e-cps.ca>
- ▶ The Canadian Consortium for the Investigation of Cannabinoids (www.ccic.net)
- ▶ Health Canada's Access to Cannabis for Medical Purposes Regulations
 - ▶ <http://laws-lois.justice.gc.ca/eng/regulations/SOR-2016-230/FullText.html>
 - ▶ <https://www.canada.ca/en/health-canada/services/drugs-health-products/medical-use-marijuana/information-medical-practitioners.html>
- ▶ The College of Family Physicians of Canada
 - ▶ Authorizing Dried Cannabis (Medical Marijuana) for Chronic Pain or Anxiety: Preliminary Guidance:
https://www.cfpc.ca/uploadedFiles/Resources/_PDFs/Authorizing%20Dried%20Cannabis%20for%20Chronic%20Pain%20or%20Anxiety.pdf
- ▶ Canada's Lower Risk Cannabis Use Guidelines:
 - ▶ https://www.cma.ca/Assets/assets-library/document/en/advocacy/cma_policy_canadas_lower_risk_cannabis_use_pd16-06-e.pdf
- ▶ Prescribing Medical Cannabinoids in Primary Care
 - ▶ <http://www.cfp.ca/content/cfp/64/2/111.full.pdf>
- ▶ Toward Optimized Practice - Medical Cannabinoid Clinical Practice Guideline 2018
 - ▶ <http://topalbertadoctors.org/cpgs/2757327>
- ▶ University of Waterloo. Pharmacy 5in5 Resources.
 - ▶ <https://uwaterloo.ca/pharmacy/pharmacy5in5-resources>



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Thank you!

Please direct any questions to Fiona Mitchell at
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