

SCHULICH SCHOOL OF MEDICINE & DENTISTRY

Medical Marijuana in For Family Physicians and Palliative Care Practitioners

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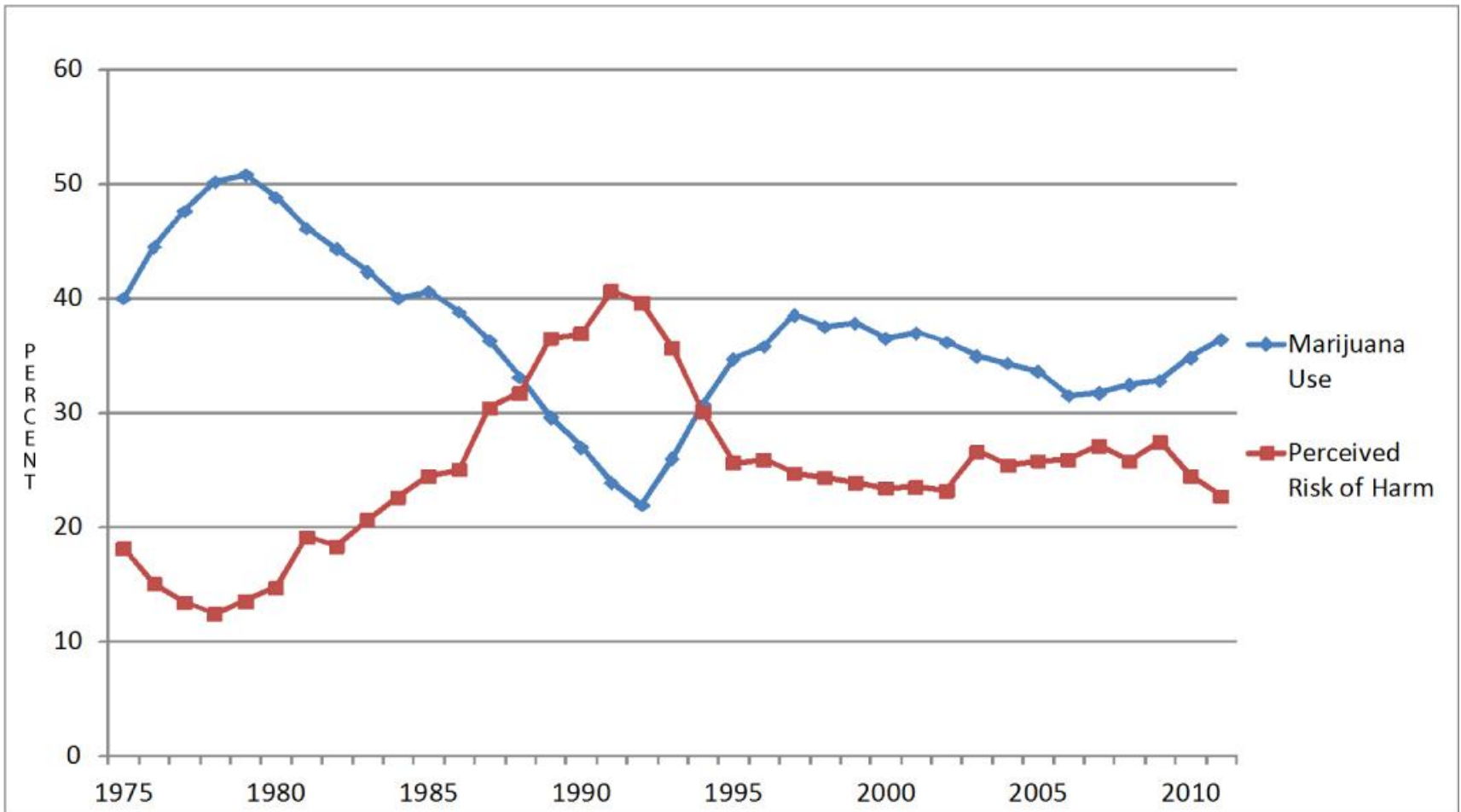
“NO COMMERCIAL SUPPORT”

Objectives:

- Understand CMA position
- Understand THE COLLEGE OF FAMILY PHYSICIANS OF CANADA guidelines and Recommendations
- Basic understanding of Complexity of Cannabinoids
- Considerations for use in Palliative Care and pain
- Understanding how to prescribe/when to and not to prescribe/monitoring and discontinuing medical marijuana

Grade 12 Students

Reference: American Society of Addiction Medicine: <http://www.asam.org/advocacy/find-a-policy-statement/view-policy-statement/state-level-proposals-to-legalize-marijuana>



Health Canada

<http://www.hc-sc.gc.ca/dhp-mps/marihuana/index-eng.php>

Dried marijuana is not an approved drug or medicine in Canada. The Government of Canada does not endorse the use of marijuana, but the courts have required reasonable access to a legal source of marijuana when authorized by a physician.

Health Canada's new regulations governing the use of marijuana for medical purposes came into force on April 1, 2014.

- You are not obligated to authorize the use of marijuana by patients.
- The medical conditions and symptoms under which health care practitioners can support the use of marijuana for medical purposes have not changed.
- CMA: <https://www.cma.ca/En/Pages/medical-marijuana.aspx>

CMA Position

- The CMA still believes there is insufficient scientific evidence available to support the use of marijuana for clinical purposes. It also believes there is insufficient evidence on clinical risks and benefits, including the proper dosage of marijuana to be used and on the potential interactions between this drug and other medications. The CMA will continue to urge that Health Canada support development of rigorous research on the effects, both positive and adverse, that the use of marijuana for medical purposes will have.
- CMA: <https://www.cma.ca/En/Pages/medical-marijuana.aspx>

FDA Warning

The Endocannabinoid System

- The endocannabinoid system is an evolutionarily conserved, and ubiquitous lipid signaling system found in all vertebrates,
- appears to have important regulatory functions throughout the human body

Ref.:Health Canada: <http://www.hc-sc.gc.ca/dhp-mps/marihuana/med/infoprof-eng.php#chp10>

The Endocannabinoid System

- implicated in a very broad number of physiological as well as pathophysiological processes including:
- neural development,
- immune function,
- inflammation,
- appetite,
- metabolism and
- energy homeostasis,
- cardiovascular function,
- digestion,

Ref: Health Canada:<http://www.hc-sc.gc.ca/dhp-mps/marihuana/med/infoprof-eng.php#chp10>

The Endocannabinoid System

- bone development and bone density,
- synaptic plasticity and learning,
- pain,
- reproduction,
- psychiatric disease,
- psychomotor behaviour,
- memory,
- wake/sleep cycles,
- regulation of stress and emotional state

- Ref: Health Canada:<http://www.hc-sc.gc.ca/dhp-mps/marihuana/med/infoprof-eng.php#chp10>

Cannabinoid receptor expression and receptor distribution

- Most tissues contain a functional endocannabinoid system with the CB₁ and CB₂ receptors having distinct patterns of tissue expression.
- Ref: Health Canada:<http://www.hc-sc.gc.ca/dhp-mps/marihuana/med/infoprof-eng.php#chp10>

CB1 Receptors

- The CB₁ receptor is one of the most abundant G-protein coupled receptors in the **central and peripheral nervous systems**
- Ref: Health Canada: <http://www.hc-sc.gc.ca/dhp-mps/marihuana/med/infoprof-eng.php#chp10>

CB1 Receptors

- detected in the:
- cerebral cortex, hippocampus, amygdala, basal ganglia, substantia nigra, pars reticulata, internal and external segments of the globus pallidus and cerebellum (molecular layer)
- Ref: Health Canada: <http://www.hc-sc.gc.ca/dhp-mps/marihuana/med/infoprof-eng.php#chp10>

CB1 Receptors

- detected in the:
- **central and peripheral levels of the pain pathways:**
- including the periaqueductal gray matter, rostral ventrolateral medulla, the dorsal primary afferent spinal cord regions including the peripheral nociceptors, and the spinal interneurons
- Ref: Health Canada: <http://www.hc-sc.gc.ca/dhp-mps/marihuana/med/infoprof-eng.php#chp10>

CB1 Receptors

Expressed in many other organs and tissues:

- adipocytes, leukocytes, spleen, heart, lung, the gastrointestinal tract (liver, pancreas, stomach, and the small and large intestine), kidney, bladder, reproductive organs, skeletal muscle, bone, joints, and skin
- Ref: Health Canada: <http://www.hc-sc.gc.ca/dhp-mps/marihuana/med/infoprof-eng.php#chp10>

CB1 Receptors

Not detected in:

Medulla Oblongata

- Ref: Health Canada: <http://www.hc-sc.gc.ca/dhp-mps/marihuana/med/infoprof-eng.php#chp10>

CB2 Receptors

highly concentrated:

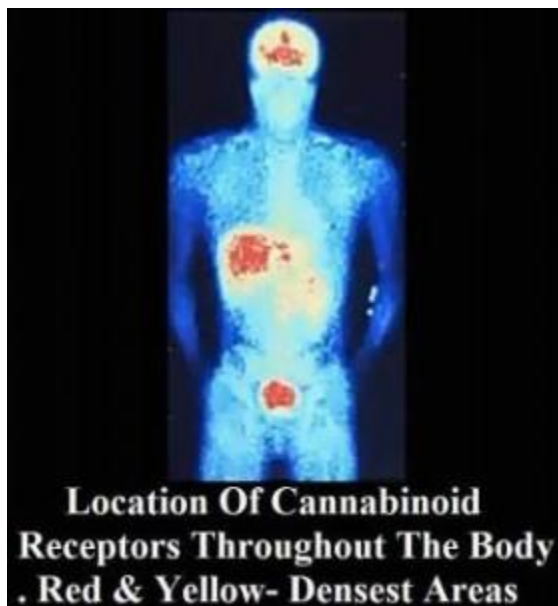
- tissues and cells of the **immune system** such as the **leukocytes** and the **spleen**,

Lesser concentration:

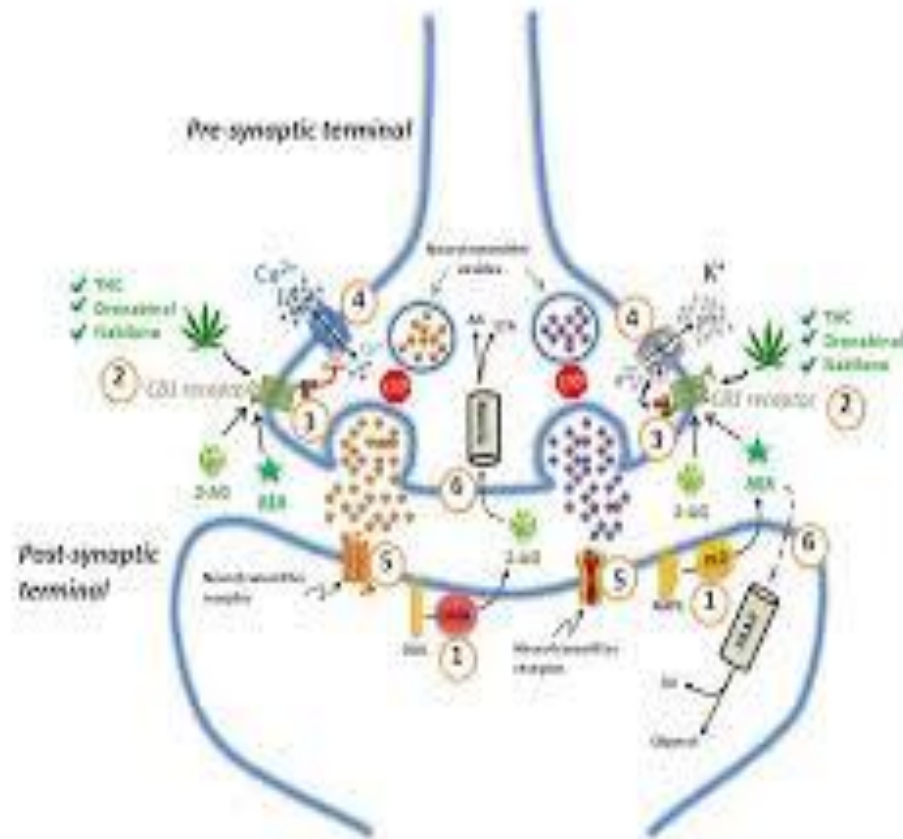
- in liver
- nerve cells including astrocytes, oligodendrocytes and microglia, and even some neuronal sub-populations

- Ref: Health Canada: <http://www.hc-sc.gc.ca/dhp-mps/marihuana/med/infoprof-eng.php#chp10>

Ref.: World Molecular Imaging Society: <http://www.wmis.org/whole-body-biodistribution-and-radiation-dosimetry-of-the-cannabinoid-type-2-receptor-ligand-11c-ne40-in-healthy-subjects/>



Ref: Health Canada: <http://www.hc-sc.gc.ca/dhp-mps/marihuana/med/infoprof-eng.php#chp10>



The principal cannabinoids

- delta-9-tetrahydrocannabinol (i.e. Δ^9 -THC, THC),
- cannabinol (CBN),
- cannabidiol (CBD)
- Ref: Health Canada: <http://www.hc-sc.gc.ca/dhp-mps/marihuana/med/infoprof-eng.php#chp10>

Phytocannabinoids

exist as both:

- inactive monocarboxylic acids (e.g. THCA) and
- active decarboxylated forms (e.g. THC);

- heating (at temperatures above 120 °C) promotes decarboxylation (e.g. THCA to THC) and results in biological activation

- Ref: Health Canada: <http://www.hc-sc.gc.ca/dhp-mps/marihuana/med/infoprof-eng.php#chp10>

Health Canada

<http://www.hc-sc.gc.ca/dhp-mps/marihuana/med/infoprof-eng.php>

- 1 Palliative Care..... 34
- 4.2 Nausea and vomiting..... 35
- 4.3 Wasting syndrome and loss of appetite in AIDS and cancer patients..... 37
 - 4.3.1 To stimulate appetite and produce weight gain in AIDS patients..... 37
 - 4.3.2 To stimulate appetite and produce weight gain in cancer patients..... 37
 - 4.3.3 Anorexia nervosa..... 38
- 4.4 **Multiple sclerosis, amyotrophic lateral sclerosis, spinal cord injury**..... 39
 - 4.4.1 Multiple sclerosis..... 39
 - 4.4.2 Amyotrophic lateral sclerosis..... 42
 - 4.4.3 Spinal cord injury (or spinal cord disease)..... 42
- 4.5 Epilepsy

THE COLLEGE OF FAMILY PHYSICIANS OF CANADA

Authorizing Dried Cannabis for Chronic Pain or
Anxiety: Preliminary Guidance

September 2014

A Must read

http://www.cfpc.ca/uploadedFiles/Resources/_PDFs/Authorizing%20Dried%20Cannabis%20for%20Chronic%20Pain%20or%20Anxiety.pdf

Recommendation 1

- 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).
- http://www.cfpc.ca/uploadedFiles/Resources/_PDFs/Authorizing%20Dried%20Cannabis%20for%20Chronic%20Pain%20or%20Anxiety.pdf

Recommendation 2

- If considering authorizing dried cannabis for treatment of neuropathic pain, the physician should first consider
 - a) adequate trials of other pharmacologic and nonpharmacologic therapies and
 - b) an adequate trial of pharmaceutical cannabinoids (Level I).
- http://www.cfpc.ca/uploadedFiles/Resources/_PDFs/Authorizing%20Dried%20Cannabis%20for%20Chronic%20Pain%20or%20Anxiety.pdf

Recommendation 3

- Dried cannabis is not an appropriate therapy for anxiety or insomnia (Level II).
- http://www.cfpc.ca/uploadedFiles/Resources/_PDFs/Authorizing%20Dried%20Cannabis%20for%20Chronic%20Pain%20or%20Anxiety.pdf

Recommendation 4

- Dried cannabis is not appropriate for patients who:
 - a) Are under the age of 25 (Level II)
 - b) Have a personal history or strong family history of psychosis (Level II)
 - c) Have a current or past cannabis use disorder (Level III)
 - d) Have an active substance use disorder (Level III)

Recommendation 4

- Dried cannabis is not appropriate for patients who:
- e) Have cardiovascular disease (angina, peripheral vascular disease, cerebrovascular disease, arrhythmias) (Level III)
- f) Have respiratory disease (Level III) or
- g) Are pregnant, planning to become pregnant, or breastfeeding (Level II)
- http://www.cfpc.ca/uploadedFiles/Resources/_PDFs/Authorizing%20Dried%20Cannabis%20for%20Chronic%20Pain%20or%20Anxiety.pdf

Recommendation 5

- Dried cannabis should be authorized with caution in those patients who:
- a) Have a concurrent active mood or anxiety disorder (Level II)
- b) Smoke tobacco (Level II)
- c) Have risk factors for cardiovascular disease (Level III) or
- d) Are heavy users of alcohol or taking high doses of opioids or benzodiazepines or other sedating medications prescribed or available over the counter (Level III)
- http://www.cfpc.ca/uploadedFiles/Resources/_PDFs/Authorizing%20Dried%20Cannabis%20for%20Chronic%20Pain%20or%20Anxiety.pdf

Recommendation 6

- Physicians should follow the regulations of their provincial medical regulators when authorizing dried cannabis
- http://www.cfpc.ca/uploadedFiles/Resources/_PDFs/Authorizing%20Dried%20Cannabis%20for%20Chronic%20Pain%20or%20Anxiety.pdf

Recommendation 7

- Physicians should assess and monitor all patients on cannabis therapy for potential misuse or abuse (Level III).
- http://www.cfpc.ca/uploadedFiles/Resources/_PDFs/Authorizing%20Dried%20Cannabis%20for%20Chronic%20Pain%20or%20Anxiety.pdf

Recommendation 8

- Before signing a medical document authorizing dried cannabis for pain, the physician should do all of the following:
 - a) Conduct a pain assessment (Level II)
 - b) Assess the patient for anxiety and mood disorders (Level II)
 - c) Screen and assess the patient for substance use disorders (Level II)
- http://www.cfpc.ca/uploadedFiles/Resources/_PDFs/Authorizing%20Dried%20Cannabis%20for%20Chronic%20Pain%20or%20Anxiety.pdf

Recommendation 9

- The physician should regularly monitor the patient's response to treatment with dried cannabis, considering the patient's function and quality of life in addition to pain relief (Level III). The physician should discontinue authorization if the therapy is not clearly effective or is causing the patient harm (Level III).
- http://www.cfpc.ca/uploadedFiles/Resources/_PDFs/Authorizing%20Dried%20Cannabis%20for%20Chronic%20Pain%20or%20Anxiety.pdf

Recommendation 10

- Patients taking dried cannabis should be advised not to drive for at least:
 - a) Four hours after inhalation (Level II)
 - b) Six hours after oral ingestion (Level II)
 - c) Eight hours after inhalation or oral ingestion if the patient experiences euphoria (Level II)
- http://www.cfpc.ca/uploadedFiles/Resources/_PDFs/Authorizing%20Dried%20Cannabis%20for%20Chronic%20Pain%20or%20Anxiety.pdf

Recommendation 11

- When authorizing dried cannabis therapy for a patient, the physician should advise the patient of harm reduction strategies (Level III).

Recommendation 12

- The physician should manage disagreements with patients about decisions around authorization, dosing, or other issues with unambiguous, evidence-based statements (Level III).
- http://www.cfpc.ca/uploadedFiles/Resources/_PDFs/Authorizing%20Dried%20Cannabis%20for%20Chronic%20Pain%20or%20Anxiety.pdf

CAGE-AID Tool

Answer :Yes/ No

- Have you ever felt you ought to Cut down on your drinking or drug use?
- Have people Annoyed you by criticizing your drinking or drug use?
- Have you ever felt bad or Guilty about your drinking or drug use?
- Have you ever had a drink or used drugs first thing in the morning (Eye-opener) to steady your nerves, get rid of a hangover, or get the day started?

- Scoring: One positive response indicates the need for further assessment.
- A urine drug screen (UDS) is also suggested.
- Source: Brown RL et al. Wis Med J 1995;94:135-140

Advice for patients about safety and harm reduction

- Use the lowest dose necessary.
- Do not “breath hold” or take more cannabis than the dose your doctor has specified.
- We recommend you ingest (that is, eat) your cannabis or take it using a vaporizer instead of smoking it, to reduce your risk of exposure to toxins that result from burning the cannabis in a cigarette. This is important to help protect you from heart or lung disease.

Advice for patients about safety and harm reduction

- Do not use dried cannabis with alcohol or other sedating drugs.
- If you are smoking cannabis, do not mix tobacco into the cigarette.
- Do not give or sell your cannabis to others—it is both dangerous and illegal.
- Store your dried cannabis in a locked container, out of reach of children and hidden from visitors and from adolescents at home.

Advice for patients about safety and harm reduction

- Avoid smoking cannabis in your house, to limit exposure of family members to second-hand smoke.
- Do not drive for at least four hours after any use by any route, and for at least six hours after oral ingestion. Do not drive for at least eight hours after using cannabis if you experience euphoria when you use it.
- Do not use cannabis of any kind if you are pregnant or plan to become pregnant, or if you are breastfeeding.

Recommendation 13

- The physician who is authorizing cannabis for a particular clinical indication must be primarily responsible for managing the care for that condition and following up with the patient regularly (Level III). Physicians seeking a second opinion on the potential clinical use of cannabis for their patient should only refer to facilities that meet standards for quality of care typically applied to specialized pain clinics (Level III). In both instances, it is essential that the authorizing physician, if not the patient's most responsible health care provider, communicate regularly with the family physician providing ongoing comprehensive care for the patient (Level III).
- http://www.cfpc.ca/uploadedFiles/Resources/_PDFs/Authorizing%20Dried%20Cannabis%20for%20Chronic%20Pain%20or%20Anxiety.pdf

Recommendation 14

- Given the weak evidence for benefit and the known risks of using cannabis, the only sensible advice for physicians involved with authorizing dried cannabis is the maxim “Start low, and go slow” (Level III).
- http://www.cfpc.ca/uploadedFiles/Resources/_PDFs/Authorizing%20Dried%20Cannabis%20for%20Chronic%20Pain%20or%20Anxiety.pdf

Recommendation 15

- Although it is not required by the MMPR, physicians should specify the percentage of THC on all medical documents authorizing dried cannabis, just as they would specify dosing when prescribing any other analgesic
- http://www.cfpc.ca/uploadedFiles/Resources/_PDFs/Authorizing%20Dried%20Cannabis%20for%20Chronic%20Pain%20or%20Anxiety.pdf

Clinical features of cannabis use disorder in patients with chronic pain

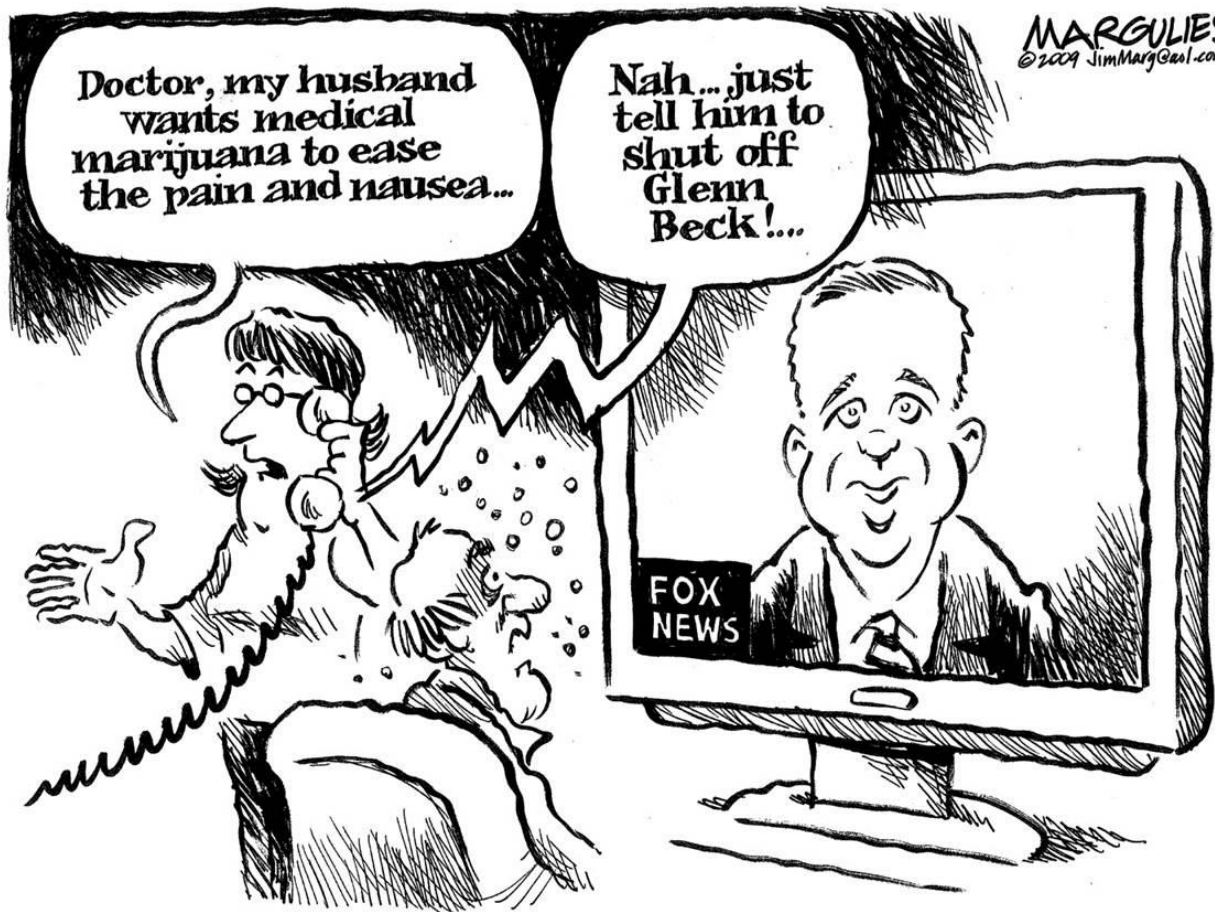
- Insists on a medical document for dried cannabis rather than trying other treatments known to be effective for his or her condition
- Uses cannabis daily or almost daily, spending considerable non-productive time on this activity
- Has poor school, work, and social functioning
- Is currently addicted to or misusing other substances (other than tobacco)

Clinical features of cannabis use disorder in patients with chronic pain

- Has risk factors for cannabis use disorder: is young, has current mood or anxiety disorder or a history of addiction or misuse
- Reports having difficulty stopping or reducing use
- Reports cannabis withdrawal symptoms after a day or more of abstinence: intense anxiety, fatigue
- Has friends or family members concerned about his or her cannabis use

The authorization for cannabis should be discontinued if the patient

- Runs out early or uses cannabis from other sources
- Begins to use alcohol, opioids, or other drugs problematically
- Begins to show signs of a cannabis use disorder



Doctor, my husband
wants medical
marijuana to ease
the pain and nausea...

Nah... just
tell him to
shut off
Glenn
Beck!...

MARGULIES
©2009 JimMarg@aol.com

FOX
NEWS

Side effects

- dizziness,
- sedation,
- transient impairment of sensory and perceptual functions,
- clumsiness,
- dry mouth,
- hypotension
- Tachycardia

Ref.: Health Canada:<http://www.hc-sc.gc.ca/dhp-mps/marihuana/med/infoprof-eng.php#chp70>

Long Term Use

Implicated in

- poor motivation
 - Memory deficits
 - Decreased sperm count
 - Menstrual dysfunction
 - **Hyperemesis**
-
- Ref.: <http://www.hc-sc.gc.ca/dhp-mps/marihuana/med/infoprof-eng.php#chp70>
 - http://www.cfpc.ca/uploadedFiles/Resources/_PDFs/Authorizing%20Dried%20Cannabis%20for%20Chronic%20Pain%20or%20Anxiety.pdf

Sample treatment agreement

- Because we take our responsibilities to authorize and supervise the medical use of marijuana (dried cannabis) very seriously, we ask you to read, understand, and sign this form.
- 1. I request Dr _____, MD, to sign a medical document for me under the Health Canada MMPR legislation, so that I may legally use marijuana to treat my medical condition.
- 2. I agree to receive a medical document for marijuana only from one physician, Dr _____, MD.
- 3. I agree to consume no more marijuana than the doses authorized for me by Dr _____, MD. I will not request a refill before the agreed-upon refill date.
- 4. I agree to not distribute my marijuana to any other person, for personal use or for sale. I am aware that redistribution of any marijuana for sale is an illegal activity.
- 5. I am aware that using marijuana is associated with psychosis in persons who are still undergoing neurodevelopment (brain growth). Therefore, I will ensure that no person under the age of 25 years has access to my marijuana.

Sample treatment agreement

6. I agree to the safe storage of my marijuana.

7. I am aware that taking marijuana with other substances, especially sedating substances, may cause harm and possibly even death. I will not use illegal drugs (eg, cocaine, heroin) or controlled substances (eg, narcotics, stimulants, anxiety pills) that were not prescribed for me.

8. I will not use controlled substances that were prescribed by another doctor unless Dr _____, MD, is aware of this.

9. I agree to testing (eg, urine drug screening) when and as requested by my physician.

10. I agree to have an office visit and medical assessment at least every _____ (months or weeks).

Sample treatment agreement

11. I understand that Health Canada has provided access to marijuana by signed medical document from a physician for the treatment of certain medical conditions, but despite this, Health Canada has not approved marijuana as a registered medication in Canada.
12. I understand that my physician may not be knowledgeable about all of the risks associated with the use of a non-Health Canada approved substance like marijuana.
13. I agree to communicate to my physician, Dr _____, MD, any experiences of altered mental status or possible medical side effects of the use of marijuana.
14. I accept full responsibility for any and all risks associated with the use of marijuana, including theft, altered mental status, and side effects of the product.
15. I am aware that marijuana use is not advisable during pregnancy and breastfeeding. I agree to inform my physician,

Sample Treatment Agreement

- 15. I am aware that marijuana use is not advisable during pregnancy and breastfeeding. I agree to inform my physician, Dr _____, MD, if I am pregnant.
- 16. I am aware that smoking any substance can cause harm and medical complications to my breathing and respiratory status. I will avoid smoking marijuana. I will avoid mixing marijuana with tobacco. I agree to use my marijuana only by vaporizer or as an edible product.
- 17. I am aware that my physician may discontinue authorizing marijuana for my condition if he or she assesses that the medical or mental health risk or side effects are too high.
- 18. I agree to see specialists or therapists about my condition at my physician's request.

Sample Treatment Agreement

- 19. I agree to avoid driving a vehicle or operating heavy machinery for at least 4 hours after the use of marijuana, and for longer if I feel any persistent negative effects on my ability to drive.
- 20. As per the Health Canada MMPR legislation, I agree to purchase my marijuana only from a licensed producer. I am aware that possession of marijuana from other sources is illegal.
- 21. I am aware that any possible criminal activity related to my marijuana use may be investigated by legal authorities and criminal charges may be laid. During the course of an investigation, legal authorities have the right to access my medical information with a warrant.

Sample Treatment Agreement

- 22. Following the terms of this contract is one of the conditions I must meet to access marijuana for treatment. I understand that if I violate any of this agreement's terms, my physician may stop authorizing my use of cannabis.
- 23. Dr _____, MD, has the right to discuss my health care issues with other health care professionals or family members if it is felt, on balance, that my safety outweighs my right to confidentiality.
- Patient's printed name Patient's signature
- Practitioner's Printed Name /Signature
- Date

- Patient's printed name Patient's signature
- Date Practitioner's signature

Tolerance, dependence, and withdrawal symptoms

Withdrawal

- The most common symptoms include anger or aggression, irritability, anxiety, nightmares/strange dreams, insomnia/sleep difficulties, craving, headache, restlessness, and decreased appetite or weight loss
- Other symptoms appear to include depressed mood, chills, stomach pain, shakiness and sweating
- Ref.: <http://www.hc-sc.gc.ca/dhp-mps/marihuana/med/infoprof-eng.php#chp70>

Medical Marijuana in Palliative Care

Focus is on

- individual choice,
 - patient autonomy,
 - empowerment,
 - comfort
 - **quality of life**
-
- Green, A. J. and De-Vries, K. (2010). Cannabis use in palliative care - an examination of the evidence and the implications for nurses. *J.Clin.Nurs.* 19: 2454-2462.

Role in Palliative Care

Intractable nausea and vomiting associated with chemotherapy or radiotherapy, anorexia/cachexia,

- Sutton, I. R. and Daeninck, P. (2006). Cannabinoids in the management of intractable chemotherapy-induced nausea and vomiting and cancer-related pain. *J.Support.Oncol.* 4: 531-535.

Role in Palliative Care

Severe intractable pain, severe depressed mood, and insomnia

- Pisanti, S., Malfitano, A. M., Grimaldi, C., Santoro, A. and others. (2009). Use of cannabinoid receptor agonists in cancer therapy as palliative and curative agents. *Best.Pract.Res.Clin.Endocrinol.Metab.* 23: 117-131.

Anticipatory nausea remain more poorly controlled and the use of cannabis/cannabinoids may provide some measure of benefit in certain cases

- Parker, L. A., Rock, E., and Limebeer, C. (2010). Regulation of nausea and vomiting by cannabinoids. *Br.J.Pharmacol.* 163: 1411-1422.
- Soderpalm, A. H., Schuster, A., and de, Wit H. (2001). Antiemetic efficacy of smoked marijuana: subjective and behavioral effects on nausea induced by syrup of ipecac. *Pharmacol.Biochem.Behav.* 69: 343-350

Anorexia/Cachexia

While it is anecdotally known that smoking cannabis can stimulate appetite, the effects of smoking cannabis on appetite and weight gain in patients with cancer cachexia have not been studied.

Anorexia/Cachexia

- Marihuana Medical Access Regulations (MMAR) allow the use of dried marihuana in the context of anorexia, cachexia and weight loss associated with cancer in patients who have either not benefited from, or would not be considered to benefit from, conventional treatments
- Minister of Justice, Government of Canada. Marihuana Medical Access Regulations. 2011.

Anorexia/Cachexia

- **HIV/AIDS**-associated anorexia, cachexia, and weight loss in patients who have either not benefited from, or would not be considered to benefit from, conventional treatments
- Minister of Justice, Government of Canada. Marihuana Medical Access Regulations. 2011.

Cancer Pain

- In Canada, nabiximols (Sativex[®]) is approved (with conditions) as an adjunctive analgesic in adults with advanced cancer who experience moderate to severe pain during the highest tolerated dose of strong opioid therapy for persistent background pain

- GW Pharmaceuticals. Sativex Product Monograph. 2010.

Cancer Pain

- Medical Marijuana may be of benefit in advanced cancer pain
- Noyes, R., Jr., Brunk, S. F., Baram, D. A., and Canter, A. (1975). Analgesic effect of delta-9-tetrahydrocannabinol. *J.Clin.Pharmacol.* 15: 139-143.
- Noyes, R., Jr., Brunk, S. F., Avery, D. A., and Canter, A. C. (1975). The analgesic properties of delta-9-tetrahydrocannabinol and codeine. *Clin.Pharmacol.Ther.* 18: 84-89.

Multiple Sclerosis

- Marijuana Medical Access Regulations (MMAR) allow the use of dried marijuana in the context of
- **severe pain** and
- **persistent muscle spasms** associated with MS in patients who have either not benefited from, or would not be considered to benefit from, conventional treatments

- Corey-Bloom, J., Wolfson, T., Gamst, A., Jin, S. and others. (2012). Smoked cannabis for spasticity in multiple sclerosis: a randomized, placebo-controlled trial. CMAJ. 184: 1143-1150.
- Minister of Justice, Government of Canada. Marijuana Medical Access Regulations. 2011.

ALS

- Decreased muscle cramps
 - Decreased fasciculations
-
- Amtmann, D., Weydt, P., Johnson, K. L., Jensen, M. P. and others. (2004). Survey of cannabis use in patients with amyotrophic lateral sclerosis. *Am.J.Hosp.Palliat.Care.* 21: 95-104.
 - Weber, M., Goldman, B., and Truniger, S. (2010). Tetrahydrocannabinol (THC) for cramps in amyotrophic lateral sclerosis: a randomised, double-blind crossover trial. *J.Neurol.Neurosurg.Psychiatry.* 81: 1135-1140.

Spinal Cord Injury

- may alleviate **neuropathic pain** associated with spinal cord injury
- Falenski, K. W., Carter, D. S., Harrison, A. J., Martin, B. R. and others. (2009). Temporal characterization of changes in hippocampal cannabinoid CB(1) receptor expression following pilocarpine-induced status epilepticus. *Brain Res.* 1262: 64-72.
- Romigi, A., Bari, M., Placidi, F., Marciani, M. G. and others. (2010). Cerebrospinal fluid levels of the endocannabinoid anandamide are reduced in patients with untreated newly diagnosed temporal lobe epilepsy. *Epilepsia.* 51: 768-772.
- Wallace, M. J., Martin, B. R., and DeLorenzo, R. J. (2002). Evidence for a physiological role of endocannabinoids in the modulation of seizure threshold and severity. *Eur.J.Pharmacol.* 452: 295-301.

Safety and Testing of Medical Marijuana

- **NO** pesticides.
- **Irradiated** to destroy potentially harmful bacteria
- moisture level, or “water activity,” to ensure appropriateness for stability and usability
- microbial purity (total bacterial and fungal activity), ensuring the product is free of *E. coli*, *Salmonella* and *S. aureus*
- the presence of any metals and mycotoxins (Aflatoxin B1, B2, G1, G2 and Ochratoxin A)
- thoroughly tested to meet requirements of the Food and Drugs Act for: appropriate cannabinoid concentration (THC and CBD)

Name of licensed producer	Phone number	Email (if applicable)	Website (if applicable)
Bedrocan Canada Inc.	1-855-420-7887	info@bedrocan.ca	Bedrocan
Canna Farms Ltd.	1-855-882-0988	info@cannafarms.ca	Canna Farms
CanniMed Ltd.	1-855-787-1577	info@cannimed.com	CanniMed
Delta 9 Bio-Tech Inc.	1-855-245-1259	info@delta9.ca	Delta 9 Bio-Tech Inc.
In The Zone Produce Ltd.	1-800-420-1707	info@inthezoneproduce.com	In The Zone Produce Ltd.
Mettrum Ltd.	1-844-638-8786 (METTRUM)	info@mettrum.com	Mettrum Ltd.
MedReleaf Corp.	1-855-4-Relief (73-5323)	askus@medreleaf.com	MedReleaf Corp.
OrganiGram Inc.	1-855-961-9420	info@organigram.ca	OrganiGram Inc.
The Peace Naturals Project Inc	1-888-64-PEACE (73223)	info@peacenaturals.com	The Peace Naturals
ThunderBird Biomedical Inc.	1-778-588-9528	info@thunderbirdmedical.ca	ThunderBird Biomedical
Tilray	1-844-TILRAY1 (845-7291)	tilray@tilray.ca	Tilray
Tweed Inc.	1-855-55-TWEED (89333)	hi@tweed.com	Tweed
Whistler Medical Marijuana Corp.	1-604-962-3440	info@whistlermedicalmarijuana.com	Whistler Medical Marijuana Corp.

Strains Containing 9% or less by Licensed Producer

- Bedrocan Bediol: 6.5%
- Bedrolite: 0.5%
- Canna Farms No strains 9% or less
- Cannimed Cannimed 9.9: 9% Cannimed 1.13: 0.7%
- Delta 9 biotech Does not list % THC on website
- In the Zone Does not list % THC on website
- Mettrum Purple #2: 7.9% Green #1, 5: 5.5% Green #2: 5.5% MedReleaf Corp
Avidekel: 1.1%
- Organigram Not listed
- Peace Naturals Harvest Moon: 9% Nina: 8%
- Thunderbird Not listed Tilray No strains 9% or less
- Tweed Argyle: 5%
- Whistler No strains 9% or less

*Information compiled May 2014. Source: Health Canada, Authorised licensed producers under the MMPR, 2014

Dosing

- Start Low and go slow:
- 0.5 gram to 3 grams of dried marihuana
- http://www.cfpc.ca/uploadedFiles/Resources/_PDFs/Authorizing%20Dried%20Cannabis%20for%20Chronic%20Pain%20or%20Anxiety.pdf

What is that in Joints

- typical joint contains between 0.5 and 1.0 gram of cannabis plant matter.
- Ref.: World Health Organization (WHO). Cannabis: a health perspective and research agenda. 1997
- a daily amount of 3 grams will result in approximately 3 to 6 joints or equivalent

Too much

>5 grams per day may increase risks with respect to:

- effect on cardiovascular, pulmonary and immune systems and psychomotor performance, as well as
- potential drug dependency.
- http://www.cfpc.ca/uploadedFiles/Resources/_PDFs/Authorizing%20Dried%20Cannabis%20for%20Chronic%20Pain%20or%20Anxiety.pdf

CFPC Recommendations

- physician should note on the medical document to “Supply dried cannabis containing 9% THC or less. Send information on % THC composition directly to physician’s office. Notify physician of any change in THC concentration of product given to patient.”

Cost

- \$5.00-\$40 per day + shipping
- Shipping: 2-5 days

Prescribing Tips

- 1-3 grams per day
- Start with a 3 month trial
- If beneficial prescribe for 1 year
- Must be renewed every year

Smoke vs Vapourize

CMA does not recommend any form of smoking
any plant

<https://www.cma.ca/En/Pages/medical-marijuana.aspx>

Smoke vs Vapourize

Patients should be advised to consider using vaporized cannabis over smoked cannabis.

http://www.cfpc.ca/uploadedFiles/Resources/_PDFs/Authorizing%20Dried%20Cannabis%20for%20Chronic%20Pain%20or%20Anxiety.pdf

Top Convection Vaporizers



1

2

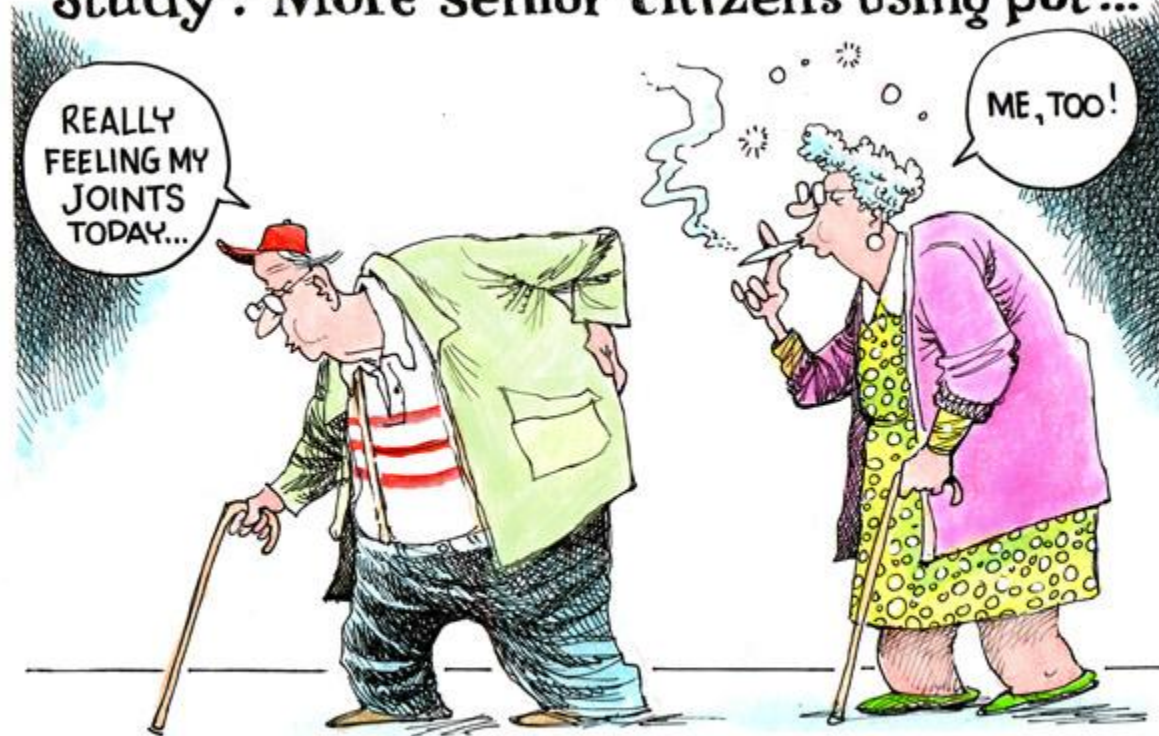


3



Toronto Vaporizer
THE CANADIAN CONNOISSEURS

Study: More senior citizens using pot ...



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Conclusion

- If you prescribe medical marijuana do so with caution
- select your patients carefully
- monitor them continually
- Discontinue if concerned



THANK YOU