



Medical and non-medical cannabis use in Canada: What nurses need to know

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Disclosures

- Dr. Balneaves has nothing to disclose beyond student support at UBC for Ms. Rielle Capler, PhD(c), through the Mitacs funding program and:
 - Canadian Association of Medical Cannabis Dispensaries (CAMCD)
 - Canadian Consortium for the Investigation of Cannabinoids (CCIC)
 - Aphria (Licensed Producer)

Learning Objectives

Nurses attending this workshop will:

- Learn about current and upcoming policies and regulations related to medical and non-medical cannabis in Canada
- Recognize the complex historical and social context surrounding cannabis as a medicine and drug
- Understand the current evidence regarding the risks and benefits of cannabis use, including non-medical and medical use
- Discuss the implications of medical and non-medical cannabis for nursing practice

Introduction to Cannabis

**What first comes to mind when you think
of “cannabis”?**



Rates of Non-medical Cannabis Use

- In 2013, **10.6%** of Canadian population 15+ yrs reporting using cannabis in the past year*
 - 24.4% in those 15-24 yrs
 - Rate is double for males vs. females
- 28% aged 15+ yrs who reported use in past 3 months used cannabis daily
 - Highest rate in BC (13%); lowest rate in SK (8%)

*Statistics Canada. (2015). Canadian Tobacco, Alcohol and Drugs Survey: Summary of results for 2013. Ottawa, Ont.: Author. [Healthycanadians.gc.ca/science-research-sciences-recherches/data-donnees/ctads-ectad/summary-sommaire-2013-eng.php](http://healthycanadians.gc.ca/science-research-sciences-recherches/data-donnees/ctads-ectad/summary-sommaire-2013-eng.php).

Rates of Medical Cannabis Use

- In 2011, **420,000 Canadians** reported using cannabis for medical purposes*
 - 1 in 5 adults (25+ yrs) reported using cannabis for medical purposes
 - Half used cannabis for chronic pain
- As of Sept 2017, **~201,400 Canadians** were registered under Health Canada's Access to Cannabis for Medical Purposes Regulations (ACMPR)**

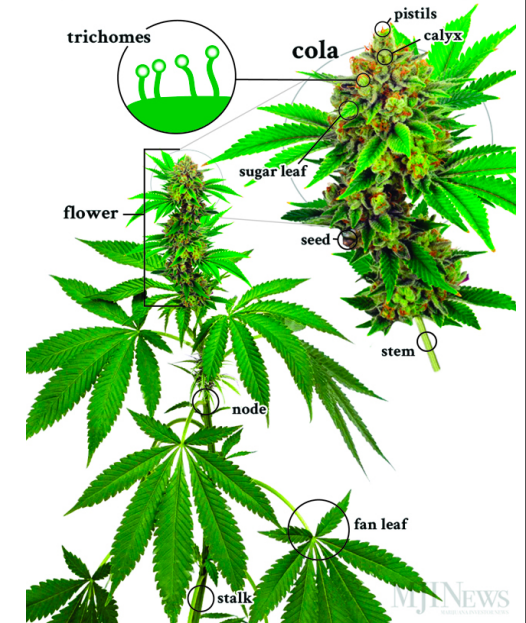
*Health Canada. Canada Alcohol and Drug Use Monitoring Survey http://www.hc-sc.gc.ca/hc-ps/drugs-drogués/stat/_2011/summary-sommaire-eng.php

**Health Canada. Market data. Ottawa, ON:Author. <http://www.hc-sc.gc.ca/dhp-mps/marihuana/info/market-marche-eng.php>

But what is cannabis?

- ***Cannabis sativa*** is a fibrous plant that has been used for clothing, paper, as well as a psychoactive drug for medical and non-medical purposes
- Over 110 active compounds called **cannabinoids**
- Also contains **terpenes** - aromatic oils that provide the characteristic smell of cannabis
 - Myrcene – sedative, anti-inflammatory, analgesic
 - Limonene – anti-inflammatory, anti-depressant
 - Pinene – may aid memory
- **Flavonoids** are phenolic compounds that may act as antioxidants

Cannabis Anatomy



Cannabinoids

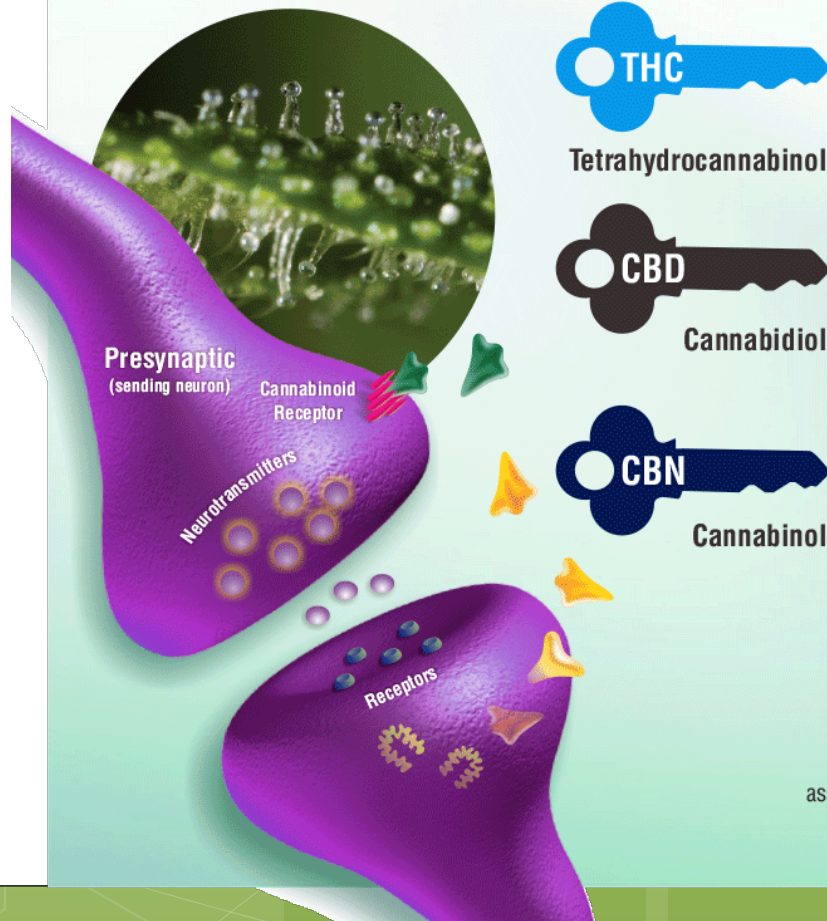
- ◉ **Delta-9-tetrahydrocannabinol (THC)** is most well known and causes the “high” most often associated with cannabis
- ◉ **Cannabidiol (CBD)** – non-psychoactive, anti-convulsant, anti-oxidants, and thought to have anti-inflammatory and analgesic effect
- ◉ **Cannabinol (CBN)** - weak psychoactive properties, thought to help with sleep
- ◉ Thought to work together in an **entourage effect**, however, research supporting this effect is limited (Russo, 2011)

Endocannabinoid System

- An endogenous system comprised of receptors (CB1 and CB2) that are located throughout the body
 - Nervous system, brain, organs, bones and joints (CB1)
 - Immune system, GI tract and peripheral nervous system (CB2)
- Endogenous cannabinoids:
 - anandamide
 - 2-arachidonoylglycerol (2-AG)
- Endocannabinoid-synthesizing and degrading enzymes:
 - Fatty acid amide hydrolase (FAAH)
 - Monoacylglycerol lipase (MAGL)

The Human Endocannabinoid System

CBD, CBN and THC fit like a lock and key into existing human receptors. These receptors are part of the endocannabinoid system which impact physiological processes affecting pain modulation, memory, and appetite plus anti-inflammatory effects and other immune system responses. The endocannabinoid system comprises two types of receptors, CB1 and CB2, which serve distinct functions in human health and well-being.



CB1 receptors are primarily found in the brain and central nervous system, and to a lesser extent in other tissues.

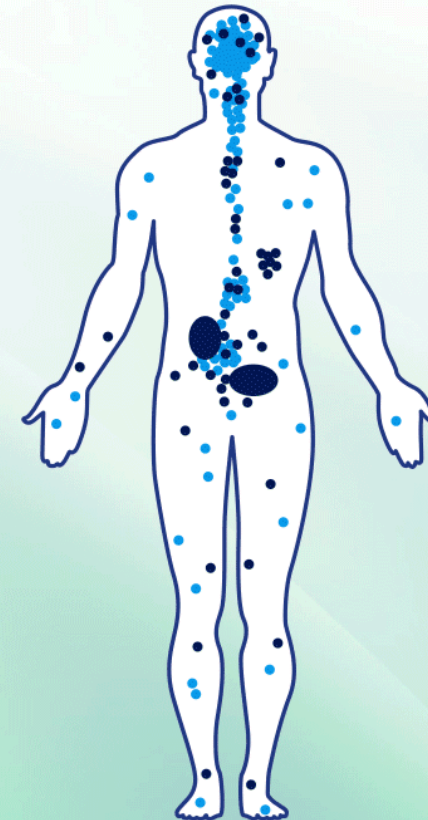


CBD does not directly "fit" CB1 or CB2 receptors but has powerful indirect effects still being studied.



CB2 receptors are mostly in the peripheral organs especially cells associated with the immune system.

Receptors are found on cell surfaces





Canadian Cannabis Policy: Past, Present and Future

Canadian Cannabis Legislation Timeline



Marihuana for
Medical
Purposes
Regulations
(MMPR)

2013



2001

Medical
Marihuana
Access
Regulations
(MMAR)



Court Injunctions

2016

Access to
Cannabis
for Medical
Purposes
Regulations
(ACMPR)

Access to Cannabis for Medical Purposes Regulations (ACMPR) (2016)

- ◉ **Source:** Personal or designated producers, and through licensed producers (N=55+)
 - ◉ Limited to 30-day supply (5 grams) or 150 grams
 - ◉ 5 indoor plants or 2 outdoor plants
 - ◉ Specific rules about production, access and storage to ensure public safety
- ◉ **Access:** Authorization from a physician/NP to use medical cannabis (dry/fresh cannabis or oil)

Canadian Cannabis Legislation Timeline



Marihuana for
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Court Injunctions



Bill 45: The
Cannabis
Act

2018

2016

Access to
Cannabis
for Medical
Purposes
Regulations
(ACMPR)

Bill C-45: The Cannabis Act

- ◉ **Focus on harm reduction:**

- ◉ Minimum age of 18 years
- ◉ Legal to possess 30 grams of legal cannabis (dry, fresh plant and oil)
- ◉ Restrictions on advertising similar to tobacco
- ◉ Stiff penalties for those selling/engaging youth
- ◉ Public education about risks and problematic use
- ◉ Price and tax that balances health protection with reduction of illicit market

Bill C-45: The Cannabis Act

- ◉ **Safe and responsible supply chain:**

- ◉ Regulation of cannabis at federal level, but distribution and retail sale will be decided at provincial level
- ◉ Access to direct-to-consumer mail order supported where no retail services are available
- ◉ Personal production allowed:
 - ◉ Limit of 4 plants/residence (NOT per person)
 - ◉ Grown from legal seed/seedling
 - ◉ Max 1m in height
 - ◉ Responsible growing and security measures

Bill C-45 in Saskatchewan

Questions still remain regarding:

- Age limits on cannabis sales
- Public consumption
- Taxation on cannabis sales
- Distribution and wholesaling
- Potential retail models, locations and rules
- Regulatory compliance
- The enforcement of the modified impaired driving laws



Potential Impact of Legalization on Medical Cannabis

- While a separate medical cannabis system is maintained under Bill 45, there are some concerns:
 - Cost
 - Quality and type of cannabis
 - Stigma associated with cannabis use
 - Health and education services available to consumers
 - Shift in focus re: medicinal properties of cannabis



Potential Risks and Benefits of Cannabis



Important Caveats:

- Most of the research on benefits is from pharmaceutical forms of cannabis
- Most of the research on risks is from high-use, recreational users of cannabis

Health Effects of THC and CBD

Effect	THC	CBD
Anti-inflammatory	++	+/-
Anticonvulsant	+	++
Muscle relaxant	++	+
Anxiolytic	+/-	++
Psychotropic	++	-
Antipsychotic	-	++
Short-term memory problems	+	-
Antiemetic	++	++
Sedation	+	-
GI motility (↓)	++	+
Appetite	+	-
Hypertension/ tachycardia	+	-

Potential Risks of Cannabis

- **Physiological effects:**

- Cardiovascular effects - increase BP, HR, arrhythmias
- Nausea (hyperemesis - rare)
- Lung - irritate bronchial tubes, worsen asthma
- Contaminants - pesticides/herbicides, street drugs
- Early pregnancy failure, birth defects

- **Interactions with other medication**

- THC processed through CYP2C9 and CYP3A4
- CBD processed through CYP3A4 and CYP2C19
- May potentiate other forms of sedatives (alcohol, barbiturates, but not opioids(?)) (Abrams, 2011)

Potential Risks of Cannabis

- **Cognitive functioning**

- Concentration
- Short-term memory
- Motivation
- IQ – data is contradictory re: effect

- **Mental health issues**

- Abuse/tolerance/dependence (seen in approximately 9% of cannabis users)
- Anxiety
- Psychosis
- Schizophrenia

Potential Risks of Cannabis

- **Public Safety:**

- Psychomotor Impairment

- Driving – 2-6x more likely to be in an accident
 - Work safety (e.g., construction)

- Personal production

- Home fires
 - Mold
 - Home invasions
 - Access by minors



Bill C-46 – Impaired Driving

- Law enforcement authorized to demand oral fluid sample if they “reasonably suspect a driver has drugs in their body.”
 - A positive reading would result in “reasonable grounds” leading to drug evaluation
- Proposed levels of THC to be an offense:
 - 2 > 5ng of THC within 2 hours of driving (summary conviction and \$1,000 fine)
 - 5+ng of THC within 2 hours of driving (fine/incarceration)
 - 2.5+ng plus 50mg of alcohol within 2 hours of driving (fine/ incarceration)



Cannabis and Youth

- 28% of Canadian youth (11-15 years) have used cannabis in past year (UN Children Fund, 2013)
- Unique concerns due potential negative impact of cannabis on brain development and related effect on educational and work attainment
 - Concerns increase with use in early adolescence
- Increased risk of cannabis use disorder and psychosis
- Recommendation is to limit use until after age 25 years



Potential Benefits of Cannabis

○ Pain management

- THC and CBD have analgesic effect - Sativex is approved for cancer and MS-related pain
 - Smoked/vaporized cannabis effective in managing neuropathic pain in HIV and following surgery (Aggarwal, 2013; Boychuck et al., 2015; Ware, 2010; Wilsey, 2009)

○ Nausea and vomiting

- THC and CBD helps manage nausea secondary to chemotherapy in cancer as well as HIV/AIDS (Sharkey et al., 2014; Smith et al., 2015)
- Cannabis and cannabinoids are approved in Canada

○ Appetite stimulation

- THC and CBD may help stimulate appetite, but limited efficacy in restoring tissue mass in AIDS patients

Potential Benefits of Cannabis (cont.)

◉ Anti-spasticity

- ◉ Smoked cannabis and nabiximols have been found to reduce frequency of spasms and related pain in MS (Corey-Bloom 2012; Koehler et al., 2014; Zajicek 2003, 2005, 2012)
- ◉ THC/CBD preparations may be needed to reduce adverse effects

◉ Anti-seizure

- ◉ There has been persuasive case studies with pediatric epilepsy patients that CBD-rich cannabis products may reduce seizure frequency (Devinsky et al., 2016)
- ◉ Clinical trials are currently underway

◉ Sleep problems

- ◉ THC and CBD may play role in insomnia, sleep latency, sleep apnea, and nightmares secondary to PTSD (Babson et al., 2017)



Potential Benefits of Cannabis (cont.)

○ **Cancer**

- Cell studies have supported role of cannabinoids in promoting cancer cell death, preventing growth, migration, and angiogenesis
- Two small trials with glioblastoma patients has shown reduction of tumour size and prolonged life (Guzman et al. 2006; unpublished Sativex trial)

○ **Inflammatory bowel disease**

- Beginning research suggests smoked cannabis may improve symptoms of ulcerative colitis and Crohn's disease (Irving et al, 2015; Naftali et al., 2013)

○ **Anti-anxiety/PTSD**

- Improvement in PTSD symptoms (nightmares, excessive arousal, conditioned fear response) (Fraser 2009; Greer et al., 2014; Walsh et al., 2017)
- CBD may have anti-anxiety effect – insufficient research

Potential Benefits of Cannabis (cont.)

- **Substance use disorders**

- Beginning interest in the role of cannabis, particularly CBD, in easing withdraw symptoms in cannabis and tobacco use
- Survey of dispensary users found cannabis being used as substitute for alcohol, prescription drugs and illicit drugs (Lucas et al., 2013)
- Reduction in cigarette use (Morgan 2013)



WANTED! - More Research

- Underlying mechanism of action
- Role of herbal cannabis in variety of health conditions and populations
 - Different strains and THC/CBD ratios
 - Dosages
 - Routes of administration
- Comparative effectiveness studies
- Cannabis as an exit drug out of addiction
 - Management of withdrawal symptoms
 - Substitution



Implications for Nursing



Nurses' Roles - Cannabis

1. Prescribing/authorizing
2. Administering cannabis
3. Providing harm reduction strategies
4. Engaging in education and research
5. Developing health policy



Nurses' Roles - Medical Cannabis

1. Prescribing/Authorizing

- Growing number of provinces/territories allow NPs to prescribe controlled substances, including pharmaceutical forms of cannabis
- Ontario in April 2017 became 1st province to officially allow NPs to authorize herbal cannabis
 - AB, SK, NS, BC still caution NPs against authorizing medical cannabis
- Must use evidence in making clinical decision to authorize and inform patient of risks/benefits

Prescription Cannabinoids in Canada

- **Nabiximols** (Sativex® - 2.5mg THC + 2.7mg CBD)
 - Oromucosal spray
 - Approved for multiple sclerosis-associated neuropathic pain, spasticity and advanced cancer pain
- **Nabilone** (Cesamet® - 0.25 - 1.0mg)
 - Oral capsule
 - Approved for chemotherapy-induced nausea and vomiting
- **Dronabinol/THC** (Marinol® - 2.5 - 10mg)
 - Oral capsule
 - Approved for chemotherapy-induced nausea and vomiting and anorexia associated with HIV/AIDS

(Slide by Dr. Mark Ware, McGill University)

Essential elements of clinical care

- Complete evaluation of patient
- *Bona fide* relationship; informed consent
- Communication with other members of health care team
- Screen for contraindications and precautions
 - Psychosis, heart disease, pregnancy/breastfeeding
 - Legal issues, substance abuse history, prior cannabis use
- Establish all other options tried or considered
- Set and monitor meaningful treatment goals
- Adequate documentation

(Slide by Dr. Mark Ware, McGill University)

Authorizing Cannabis Use

- o **Medical document must include:**

- o Name/contact information/license# of practitioner
- o Patient's full name and DOB
- o Address where consultation occurred
- o Daily quantity of dried cannabis (grams) authorized
- o Period of use – days/weeks/months not exceeding 1 year
- o Signed with attestation

Medical Cannabis in Canada

- **Available product through LPs:**
 - Dried or fresh cannabis or cannabis oil
- **THC:CBD ratio**
 - LP's offer range of concentrations
 - High THC, CBD or balanced formulas
- **Cannabis strains**
 - Patients and growers typically refer to 3 types:
 - **Indica** - sedative
 - **Sativa** – stimulating
 - **Hybrids** - combination
 - Limited research on clinical outcomes of different strains - anecdotal evidence only



Routes of Cannabis Administration

- **Smoked**

- Herbal cannabis using joints or pipes
- Onset in 5 min; duration 2-4 hrs

- **Vaporized**

- Herbal cannabis or oil heated to release cannabinoids but without burning and release of particulates
- Onset in 5 min; duration 2-4 hrs

- **Oral/buccal**

- Tinctures, edible products (e.g., brownies, gummies), sublingual spray
- Onset 30-60 min; duration 8-12 hrs

- **Topical**

- Balms, lotions and salves

Dose

- Much research needed to provide evidence-based dosing schedules for various health conditions
- Health Canada data suggests majority of Canadians are using 2.6 grams a day
 - Average joint can range from .32 to .75 grams of cannabis (Ridgeway & Kilmer, 2016)
 - Vaporization result in same dose and plasma concentration levels as smoking
 - Titration is a key aspect of cannabis use
 - ***“Start low, go slow”***

%THC	mg THC per 750 mg dried plant material in average joint
1	7.5
2.5	18.75
5	37.5
10	75
15	112.5
20	150

2. Administering Cannabis

- **Under the ACMPR:**

- RNs/LPNs are allowed to possess cannabis to assist an authorized individual in taking medical cannabis
- Require competence and authority to assist a client in using medical cannabis
 - Order needed?
 - Institutional and WCB policies re: smoking/vaping/edibles?
 - Documentation of cannabis use and administration
 - Appropriate storage and disposal

Recommendations from the Canadian Nurse Protective Society

“Given that the ACMPR is recent, there has been little opportunity for its clauses to be tested or interpreted in the courtroom. In light of the explicit authorization given to physicians and NPs to administer the substance, the corresponding lack of legislative authorization given to RNs to do so and the use of the phrase “providing assistance in the administration” of cannabis, **it is recommended that RNs do not directly administer cannabis to patients at this time, even when they are provided with a valid medical document issued by an NP or a physician.**”

<https://www.canadian-nurse.com/en/articles/issues/2017/january-february-2017/cannabis-for-medical-purposes-legal-implications-for-nurses>

Recommendations from the Canadian Nurse Protective Society (cont.)

NPs who contemplate authorizing the use of or administering cannabis will first consider whether they have sufficient knowledge and competency to do so. This includes:

- Proper understanding of the substance in its various forms,
- Knowing how the form of the substance (e.g., dried or oil) may have an impact on the dosage,
- Evaluating its effectiveness,
- Identifying and managing any adverse effects.

Should also be familiar with their employer's policies on the administration of cannabis, if such policies exist.

3. Providing Harm Reduction Strategies

“Harm reduction is any program or policy designed to reduce drug-related harm without requiring the cessation of drug use” (Strang, 1993)

- Respect for individual decision-making and responsibility is key and avoids stigma
- Despite good safety profile and low-moderate risk for dependency, there are safety concerns associated with cannabis
- Nurses are well situated to assess for problematic use and to provide education and support

Lower Risk Cannabis Use Guidelines for Canada (Fisher et al. 2011)

1. The simplest way of avoiding any risks from cannabis use is to abstain from use; for those who use cannabis it is important to recognize that risks may be affected by patterns of use and individual circumstances
2. The risks of dependence and other key problems related to use is higher for those who initiate use early, so it would be desirable to delay use until later adolescents (16+) or better yet, early adulthood (18+)
3. Frequent use (i.e., daily) is associated with most severe problems and should be avoided
4. Frequent users who experience difficulties controlling their use should attempt to cease use; they should seek professional help if unable.

Lower Risk Cannabis Use Guidelines for Canada (cont.)

5. In order to reduce respiratory, bronchial and cancer risks, users who insist on cannabis smoking should:
 - Avoid smoking cannabis with tobacco
 - Avoid deep inhalation or breath holding
 - Use vaporizers rather than smoking joints, blunts or water pipes
6. Use of high potency cannabis products may lead to more intense impairment or acute problems like psychotic symptoms, unless users titrate the THC dose. Users should exercise caution with regards to cannabis substances consumed, especially when using an unfamiliar cannabis product, and learn to limit their intake to the minimum amount needed to achieve the desired psychoactive effects.

Lower Risk Cannabis Use Guidelines for Canada (cont.)

7. Given the evidence of acute cannabis impairment on MVA risk (and the lack of definable 'low risk' levels of use), users should not drive for conservatively 3-4 hours after use, or longer if large doses are used or the effects of acute impairment exist.
8. The possibility of cannabis use-related problems is elevated in the following groups, who should consider entirely abstaining from use:
 - Pregnant women
 - Middle-aged or older men with cardiovascular problems
 - Individuals with a history of psychosis
 - First degree relative with a history of psychosis

Assessing for Problematic Use

- Cannabis Abuse Screening Test (CAST) (Legleye et al., 2012)
 - Adolescents and young adults
- Cannabis Use Disorders Identification Test - Revised (CUDIT-R) (Adamson et al., 2010)
 - Adults and adolescents
- Cannabis Problems Questionnaire (CPQ) (Copeland et al, 2005)
 - Adult and adolescent versions
- Need to consider impact of screening and context of cannabis use

Harm Reduction Resources

- **Canadian Centre on Substance Use and Addiction (CCSUA)**

- Guide to Facilitate Discussions about Youth Cannabis Use in Your Community
- Drug-impaired Driving in Canada Educator Toolkit
- <http://www.cclt.ca/Eng/topics/Marijuana/Pages/default.aspx>


- **Centre for Addiction and Mental Health (CAMH)**

- http://www.camh.ca/en/hospital/health_information/a_z_mental_health_and_addiction_information/marijuana/Pages/about_marijuana.aspx

Harm Reduction in Youth


- Take Care with Cannabis (UVic and VCH)

- <https://www.uvic.ca/research/centres/carbc/assets/docs/take-care-with-cannabis.pdf>



People all over the world have used cannabis for thousands of years for social, medical and spiritual reasons. People use cannabis to enhance their quality of life when they feel its effects are beneficial.

Whether eating, vaporizing, smoking, using a tincture or a topical preparation, cannabis affects everyone differently. This information outlines potential risks and gives suggestions for how to take care of yourself if you choose to use cannabis.



to learn more, please visit
www.carbc.ca
www.vch.ca



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WITH CANNABIS

Other Resources

- Health Canada - Practitioner Guide

- <https://www.canada.ca/en/health-canada/services/drugs-health-products/medical-use-marijuana/information-medical-practitioners/information-health-care-professionals-cannabis-marihuana-marijuana-cannabinoids.html#chp31>

- Canadian Consortium for the Investigation of Cannabinoids

- <http://www.ccic.net/index.php?home&lng=en>

- American Cannabis Nurses Association

- <http://americancannabisnursesassociation.org/>

Conclusion

- Cannabis is a growing health issue in Canada
- Nurses will play leading role in supporting safe consumption and helping Canadians make informed decisions about medical and non-medical cannabis use
- Legalization will bring new challenges and opportunities - nurses must be prepared!
- Seek education and training to ensure have the necessary competency and skills
- Recognize evidence is rapidly changing - stay current!