

# A Provider's Guide to Medical Cannabis: THC and CBD

## Putting the Evidence to Work for Improved Patient Care

### What is Medical Cannabis?

- Cannabis is a genus of flowering plants. It produces a resin containing several different cannabinoids
- Delta-9-tetrahydrocannabinol (or THC) is the main active cannabinoid in Cannabis
- Cannabidiol (CBD) is the main active cannabinoid in Hemp. Hemp is Cannabis with <0.3% THC concentration
- THC is responsible for the mood altering effects of cannabis
- THC is used by patients with pain, anxiety, insomnia, chemotherapy induced nausea, muscle spasticity, and reduced appetite
- CBD is used by patients with seizures, pain, inflammation, anxiety, insomnia, nausea, and IBD

### Clinical Evidence: Why would you recommend medical cannabis for your patients?

In 2017, an ad hoc committee of the National Academies of Science, Engineering, and Medicine published the report *The Health Effects of Cannabis and Cannabinoids: The Current State of Evidence and Recommendations for Research*. In the report, the committee presented nearly 100 conclusions related to the health effects of medical cannabis. Some of their conclusions include:

There is **conclusive or substantial evidence** that cannabis or cannabinoids are **effective**:

- For the treatment for **chronic pain** in adults (cannabis)
- Antiemetics in the treatment of **chemotherapy-induced nausea and vomiting** (oral cannabinoids)
- For improving patient-reported **multiple sclerosis spasticity symptoms** (oral cannabinoids)

There is **moderate evidence** that cannabis or cannabinoids are **effective** for:

- Improving short-term sleep outcomes in individuals with **sleep disturbance** associated with obstructive sleep apnea syndrome, fibromyalgia, chronic pain, and multiple sclerosis (cannabinoids, primarily nabiximols)

There is **limited evidence** that cannabis or cannabinoids are **effective** for:

- **Increasing appetite** and **decreasing weight loss associated with HIV/AIDS** (cannabis and oral cannabinoids)
- Improving clinician-measured multiple sclerosis spasticity symptoms (oral cannabinoids)
- Improving symptoms of **Tourette syndrome** (THC capsules)
- Improving **anxiety** symptoms, as assessed by a public speaking test, in individuals with **social anxiety disorders** (cannabidiol)
- Improving symptoms of **posttraumatic stress disorder** (nabilone; one single, small fair-quality trial)

#### Chronic Pain

- Evidence shows there is synergistic analgesia with greater-than-additive effects between cannabinoids and opioids<sup>1</sup>
- There is no enhancement of cardiorespiratory suppression with combination treatment<sup>1,2</sup>
- The treatment of chronic pain in this open-label, prospective cohort resulted in improved pain and functional outcomes, and a significant reduction in opioid use<sup>9</sup>
- Use of marijuana for chronic pain, neuropathic pain, and spasticity due to multiple sclerosis is supported by high-quality evidence<sup>3</sup>

#### Anxiety

- Existing preclinical evidence strongly supports CBD as a potential treatment for generalized anxiety disorder, panic disorder, social anxiety disorder, obsessive-compulsive disorder, and post-traumatic stress disorder when administered acutely<sup>6</sup>
- When co-administered with THC, CBD was able to attenuate the anxiogenic effect of high doses of THC. CBD was able to reduce post-stress anxiety in healthy subjects submitted to simulated public speaking<sup>7</sup>
- Cannabis consumption affects anxiety-related behaviors in a dose-dependent manner<sup>6,7</sup>

#### Sleep Disturbance

- In patients with unremitted PTSD, treatment with orally absorbable THC had beneficial effects on global symptom severity, sleep quality, frequency of nightmares, and PTSD hyperarousal symptoms<sup>7</sup>
- CBD may hold promise for REM sleep behavior disorder and excessive daytime sleepiness, while nabilone may reduce nightmares associated with PTSD and may improve sleep among patients with chronic pain<sup>8</sup>

# THC

THC is a CYP450 inhibitor - 2C9 and 3A4.

FDA approved synthetic THC\*

- Dronabinol— oral chemotherapy induced nausea/vomiting and weight loss in patients with HIV
- Nabilone— oral chemotherapy induced nausea/vomiting

## Adverse Effects

**THC:** orthostatic hypotension, tachycardia, decreased intra-ocular pressure, nystagmus, conjunctival injection, lethargy, decreased concentration, psychomotor impairment, euphoria, acute panic or paranoid reaction, altered motivation, increased appetite, tolerance

## Vermont Medical Cannabis Dispensaries

- Champlain Valley Dispensary— Burlington, South Burlington
- Southern Vermont Wellness— Brattleboro, Middlebury
- Grassroots Vermont— Brandon
- PhytoCare Vermont— Bennington

Start with 2mg of THC. Increase by 0.5mg every 2 days until symptom relief is achieved.

-Paul Jerard, PA-C.

Vermont Cannabinoid Clinic

## Dosing Recommendations:

### THC

**Chronic Pain:** 2mg—10mg

**Sleep Disturbance:** 2mg—5mg

**Anxiety:** 2mg—25mg

**MS Spasticity:** 2mg—5mg

**Anti-emetic:** 2mg—25mg

# Cannabinoids

## Pharmacology

- Cannabinoids binds to CB1 receptors in the CNS and CB2 receptors, mostly expressed in cells of the immune system, with varying affinity.
- THC is a stronger agonist than CBD.
- Clinically significant drug-drug interactions due to CYP450 inhibition by medical cannabis have not been reported.
- \*Synthetic cannabinoids are associated with more morbidity and mortality than phytocannabinoids (naturally occurring cannabinoids)

## Relative Contraindications to Medical Cannabis

- Pregnant or breast feeding mothers—possible link between smoking cannabis during pregnancy and low birth weight
- Adolescents— heavy users show disadvantages attention, learning, and processing speed. Resolves within 3 months of abstinence
- Children—possibility for severe disorientation, confusion, and anxiety. Long term studies have not been done
- Cannabis Hyperemesis Syndrome

## Routes of Administration

- **Smoking**—fastest onset < 5 mins, duration 2-3 hours
- **Vaping**—onset < 5 mins, duration 2-3 hours
- **Concentrates**—wax, shatter, distillate. Most potent products with the highest levels of cannabinoids. Used in smoking or vaping or creation of infused products
- **Edibles/Capsules**—longest onset 60-90 minutes, duration 6-8 hours
- **Tinctures**—most accurate dosing method, onset 15-30 minutes sublingually or 60-90 minutes when ingested, duration 4-6 hours
- **Transdermal Patches/Gel Pens**—quick onset, long duration of effect
- **Creams/Ointments**—regional pain relief, onset 30 minutes, duration 2-4 hours

## Dosing Recommendations: THC/CBD combo\*

For the cannabinoid naïve patients, START LOW and suggest 1:1 products of THC:CBD

**Chronic Pain:** 2mg/10mg—10mg/25mg

**Sleep Disturbance:** 2mg/10mg—5mg/40mg

**Anxiety:** 2mg/10mg—10mg/25mg

**MS Spasticity:** 2mg/20mg—5mg/50mg

\*The combination of THC and CBD increases clinical efficacy while reducing adverse events<sup>4</sup>

# CBD

CBD is a CYP450 inhibitor—2C19 and 3A4

CBD is a weak partial agonist and can antagonize the effect of THC at CB receptors

FDA approved synthetic CBD\*

- Epidiolex—oral. Seizures associated with Lennox-Gastaut Syndrome or Dravet Syndrome in patients 2years of age or older

## Adverse Effects

**CBD:** fatigue, diarrhea, weight change<sup>10</sup>

## Ensuring Your CBD is Good Quality

- Choose CBD products made with American grown hemp (VT, CO, OR, WA, KY, TN)
- Choose “full spectrum” CBD-rich hemp extracts
- Look for labels that indicate the amount of THC/CBD per serving, not whole bottle
- Beware of companies that make explicit health claims— this is illegal
- Seek out CBD-rich products derived from high-resin cannabis grown sustainably
- Avoid vape cartridge products with thinning agents— propylene glycol and ethylene glycol
- Beware companies claiming to source CBD from seed or stalk

## Dosing Recommendations: CBD

**Chronic Pain:** 10mg—25mg

**Sleep Disturbance:** 10mg—40mg

**Anxiety:** 10—25mg

**MS Spasticity:** 20mg—50mg

**IBD:** 200-300mg BID

## Resources for Providers:

-Vermont Cannabinoid Clinic: Medical Guidance for Medicinal Cannabis

Paul Jerard, PA—C    [pbj@vtclinic.com](mailto:pbj@vtclinic.com)

-Ada Puches, Community Outreach Coordinator

Champlain Valley Dispensary and Southern Vermont Wellness

[ada@cvdvt.org](mailto:ada@cvdvt.org)

-Vermont Marijuana Registry— <http://medicalmarijuana.vermont.gov>

-Project CBD— [projectCBD.org](http://projectCBD.org)

California-based nonprofit dedicated to promoting and publicizing research into the medical uses of cannabidiol (CBD)

-The University of Vermont's Free Cannabis Speakers Series—

[learn.uvm.edu/com/program/cannabis-speaker-series-from-botany-to-medicine/](http://learn.uvm.edu/com/program/cannabis-speaker-series-from-botany-to-medicine/)

-The Society of Cannabis Clinicians—[cannabisclinicians.org](http://cannabisclinicians.org)

-United Patient's Group—[unitedpatientsgroup.com](http://unitedpatientsgroup.com)

-Healer.com

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