
NATIONAL OVERVIEW OF CANNABIS POLICY

MEDICAL USE OF CANNABIS IN HAWAI'I & HEMP-DERIVED CANNABIDIOL

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HISTORY OF MEDICAL CANNABIS LAWS

- CA: First state to pass with Prop. 215 in 1996
- Since then, 32 states, DC, Guam, PR and USVI have followed:
AK, AR, AZ, CO, CT, DE, FL, **HI**, IL, LA, ME, MD, MA, MI, MN, MO, MT, NV, NH, NJ, NM, NY, ND, OH, OK, OR, PA, RI, UT, VT, WA, WV (**33 states + 4 territories total**)
- 17 legal through legislation
HI *first*, CT, DE, IL, MD, MN, NH, NJ, NM, NY, OH, PA, RI, UT, USVI, VT, WV (and 1 through Dept. of Health regulation)
- 19 became legal through voter/ballot initiative process
- NCSL MMJ webpage: www.ncsl.org/default.aspx?tabid=19587

STATE MMJ PROGRAMS- NO TWO ARE ALIKE*

Some require or allow for:

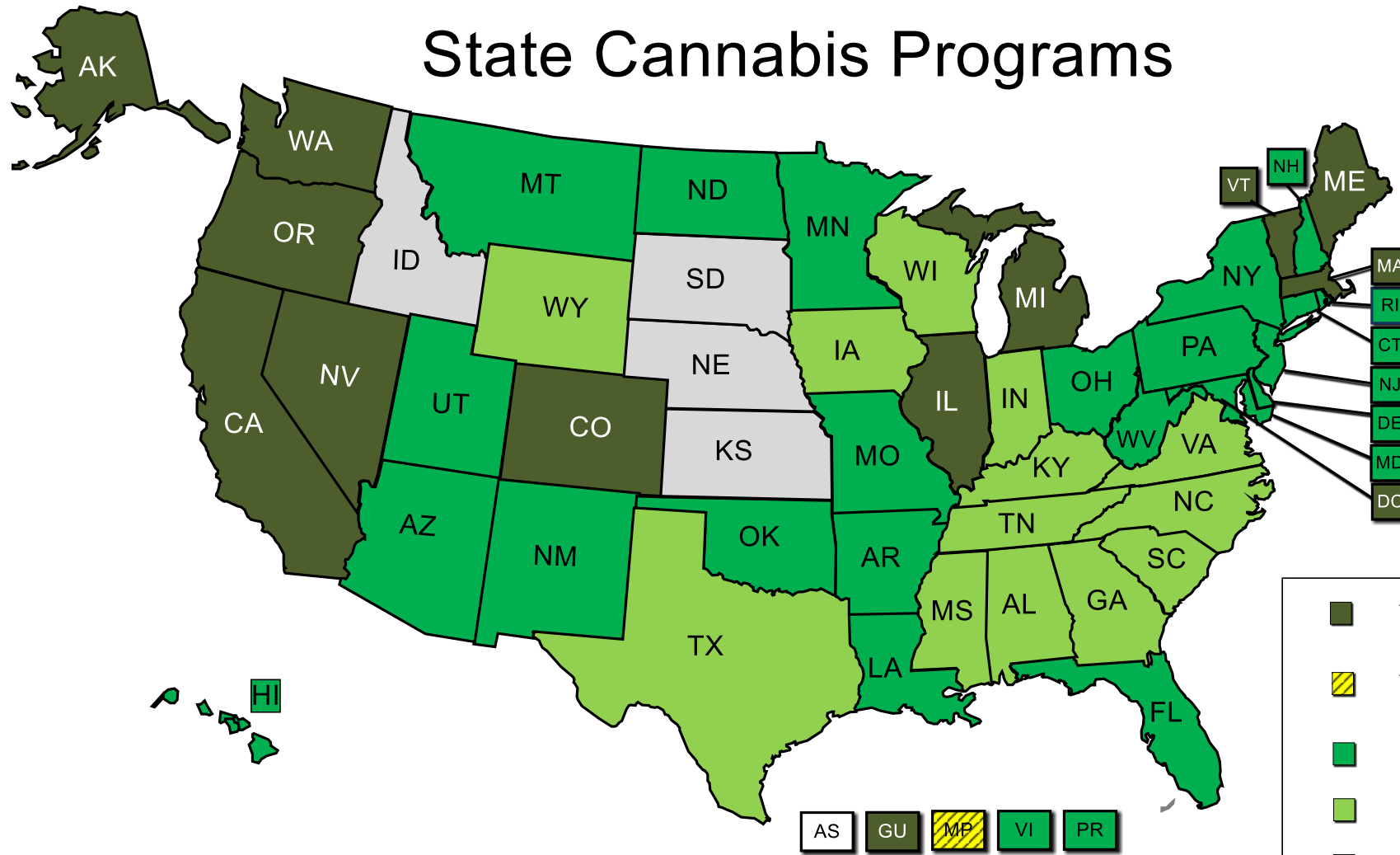
- Patient Registries: 33+
- Grower/Caregiver Registries and Limits: varies
- Dispensaries: 37~
- Purchasing limits: varies from 1oz.-8oz. 3-12 mature plants/seedlings
- Specific Conditions: 35+ and all CBD programs
- Recognize Patients from Other States: 12~
- Product Testing: varies

* Some approved program details TBD

HISTORY OF LIMITED MEDICAL LAWS

- New “low THC” or “high cannabidiol” (CBD) medical programs: currently 13 states
- Vary widely by source of CBD products, % of CBD or THC, research, distribution, conditions, etc...
- Nebraska CBD Pilot Study- not a broad publicly available program
- Industrial Hemp legalized in Farm Bill- **Federal regulations forthcoming!**
- NCSL MMJ webpage: <http://www.ncsl.org/default.aspx?tabid=19587>

State Cannabis Programs



Vermont adult use law signed Jan. 22, 2018. Effective July 1, 2018
 Limited adult possession and growing allowed, no regulated production or sales: DC, VT

August 1, 2019

LEGALIZED ADULT USE IN 11 STATES, DC, GUAM, NO. MARIANA ISLANDS

- 2012: Colorado (A 64-2012) and Washington (I 502-2012)
- 2014: Alaska, Oregon, DC-limited personal growing and sharing allowed (not regulated)
- 2014: Oregon
- 2016: California, Maine, Massachusetts, Nevada (all at ballot box)
- 2018: Vermont* limited personal growing starting July 1, until further notice (by legislature, no commercial regulation yet)
- 2018: Commonwealth of Northern Mariana Islands (by legislature, NO MEDICAL program)
- 2018: Michigan, Nov. 2018
- 2019: Guam, Illinois



SIGNIFICANT LEGISLATION*

- States/territories with proposals to legalize and regulate adult use: “similar to alcohol” in 2019 : 28~
AZ, CT, DE*, FL, HI, IL, IN, IA, KY, LA, MD, MN, MS, MO, MT, NH*, NJ, NM, NY*, NC, PA, RI, TN*, VA, WV, WI, N. Mariana Isl., Guam.
- States with bills to create comprehensive medical marijuana programs in 2019: 15~
AL, GA, IA (vetoed), IN, KS*, KY, MS, NE*, NC, SC*, TN*, TX, WI, WY, USVI,
- 2018-2019 Ballot Initiatives
Adult-use: MI, ND Medical: MO, OK, UT
- 2019-2020 Bills or Ballot Estimates: Adult- 15+: AZ, AR, CT, DE, FL, MD, MN, MS, NE, NJ, ND, PA, RI, SD, VT
Medical- 10+: ID, KS, KY, MS, NE, NC, SC, SD, TN, WI

**new and/or potential for carry-over as of Sept.1, 2019
Does NOT include bills to change current programs.*

REGULATIONS AND OVERSIGHT- ADULT USE

- Colorado: Dept. of Revenue, Marijuana Enforcement Division (MED)
- Washington: Washington State Liquor and Cannabis Control Board
- Oregon: Oregon Liquor Control Commission
- Alaska: Alcoholic Beverage Control Board/Marijuana Control Board
- California- Bureau of Marijuana Control within the Dept. of Consumer Affairs
- Maine- Dept. of Agriculture, Conservation and Forestry
- Massachusetts- The Cannabis Control Commission
- Nevada- Department of Taxation
- Michigan- Marijuana Regulatory Agency, Department of Licensing and Regulatory Affairs
- DC & Vermont- limited personal growing currently allowed (not regulated YET)
- Similarities: ALL 21+, lot of variations otherwise

REGULATIONS AND OVERSIGHT- MEDICAL

- Varies by state, usually department of health with some assistance from other enforcement agencies like justice, public safety, agriculture, etc.
 - Arizona: Dept. of Health Services, Public Health Licensing Services
 - Colorado: Dept. of Revenue, Marijuana Enforcement Division (MED) and Department of Public Health & Environment
 - Hawai'i: Department of Health
 - Illinois: Department of Public Health
 - Michigan: Bureau of Marijuana Regulation at Michigan Dept. of Licensing and Regulatory Affairs
 - Minnesota: Dept. of Health
- Similarities: ALL 18+ with some exceptions for minors with parental and physician approval.
- Variations: Possession, cultivation, purchasing, facility limits, licensing fees and limits, tracking, reporting, testing, labeling, taxes, local control, etc...

STATE TAX RATES - ADULT USE (AS OF SEPT. 1 2019)

- Alaska- Wholesale Flower: \$50/oz, Trim \$15/oz, NO retail or state sales tax
- California- \$9.25 per oz. cultivation tax for flowers and \$2.75 per oz. for leaves. 15% sales tax on gross receipts, some state tax of 7.25% returned to localities with sales
- Colorado- Wholesale excise 15%, Retail excise 15%, local sales taxes vary up to 6%
- Illinois-Wholesale excise 7%, Retail excise flower 10%, products 20%, (higher potency 25%)
- Maine- Flower/mature plants: \$335/lb, Trim \$94/lb, Seedlings \$1.50, Seed: \$.30, retail sales tax 10%
- Massachusetts- 10.75% state excise tax, 6.25% state sales tax, up to 3% local sales tax
- Michigan- Retail excise tax 10%, sales tax 6%.
- Nevada- 15% excise tax on wholesale, 10% retail excise tax, sales tax 6.85%, local sales up to 1.25%
- Oregon- Retail excise 17%, local sales up to 3%.
- Washington- Retail excise 37%, state sales tax 6.5%, local sales taxes up to 3.9%
- Vermont and DC- commercial sales not regulated/taxed (YET)

OTHER CONCERNS AND QUESTIONS

- Influence on driving while impaired statistics
- Roadside sobriety test for THC/impairment
- Training Drug Recognition Experts
- Financial Services for Industry
- Impact on youth, crime, social and other health issues
 - Calculating any financial gains vs. social costs



FAQs

- Driving while impaired concerns/Roadside sobriety test
 - Training Drug Recognition Experts
- Financial Services for Industry
- Influence of legalization on youth, crime, social and other health issues...
 - Calculating any potential financial gains vs. social costs
 - Colorado's third report on monitored health effects is here:
<https://www.colorado.gov/pacific/cdphe/news/2018-marijuana-report>
- How much diversion out of established medical and adult-use programs?
- What's the data say about.... ?
- What are the current bills and which seem likely to pass?

CONTACT INFORMATION

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Health Risks of Unregulated CBD

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Risks associated with unregulated hemp-derived CBD

- Hemp remediates contaminated soil of heavy metals, certain pesticide residues, radioactive isotopes
- Cheap CBD isolate powder from Eastern Europe and China are often used in over-the-counter CBD products sold online or in retail outlets in the USA
- An untrained novice with a high school chemistry kit and simple set of instructions could very easily create **delta-9-THC from CBD** in a home lab environment.

CBD Unknowns

- **Cumulative exposure** - What happens if CBD-infused food is consumed, a CBD skin cream is used along with an inhaled CBD product? What if these products are used daily over a long period of time?
- **Effects on special populations** - seniors, children, adolescents, pregnant or lactating women.
- **Optimal dosing** - How much is effective? How much is too much?
- **Side effects** - FDA reports lethargy, sleepiness, decreased appetite, diarrhea, elevated liver enzymes, insomnia, poor quality sleep, depression, anxiety and feeling of aggression as possible side effects.

Over-the-counter products are often mislabeled for CBD content

- 52 people in Utah were sickened in 2018 after ingesting a “CBD product” containing harmful synthetic cannabinoids
- Analytical testing of CBD products sold OTC demonstrated as much as 25 percent of these products contain less CBD than labeled
- According to the FDA, federal guidance for CBD products may take years to develop

“The CBD craze is getting out of hand. The FDA needs to act.”

--former FDA commissioner Scott Gottlieb

The 2018 Farm Bill explicitly preserved the FDA’s authority to regulate products containing cannabis-derived compounds.

CBD may not be sold as a dietary supplement and it is prohibited to provide or sell or any CBD-containing food through interstate commerce.

The FDA is also warning CBD sellers to stop making unproven health claims.



CBD Regulatory Status: Iowa

- Medical Cannabis managed by the Dept. of Public Health and industrial Hemp under the Dept. of Agriculture
- The Office of Medical Cannabidiol (OMC) at the Iowa Dept. of Public Health operates a compliant medical CBD program for Iowa residents with approved medical conditions
- Hemp cannot be legally grown in Iowa until the USDA's federal rulemaking process is complete, (late 2019) and the USDA has approved the state's plan
- Only licensed cannabis manufacturers may produce CBD products and only licensed medical dispensaries may sell CBD products in the state
- Iowa Dept. of Inspections & Appeals (DIA) issued a regulatory notice to retailers confirming they are prohibited from selling CBD products intended for human consumption

CBD Regulatory Status: Kentucky

- Grows more hemp than any other state; their senior senator Mitch McConnell successfully legalized hemp cultivation nationally through the 2018 Farm Bill
- HP 136 related to Medical Marijuana stalled in 2019, so KY has no medical cannabis program
- Hemp-derived CBD products are legal in Kentucky (40 KRS 218.A.010 (27) under the oversight of their Dept. of Agriculture (DOA) and requires testing hemp only to determine levels of THC, CBD and other cannabinoids.
- The KY Department for Public Health has no infrastructure for evaluating, licensing and regulating botanical remedies of any kind.

CBD Regulatory Status: Hawai'i

- Medical Cannabis regulated by the Dept. of Health (HDOH); Industrial Hemp pilot program regulated by the Dept. of Agriculture (HDOA)
- HDOA regulates only industrial hemp cultivation; it does not regulate processing of CBD
- HDOH's Food & Drug Branch oversees CBD; Hawai'i law prohibits adding any cannabis-derived substance to food, beverages or cosmetics for manufacture, distribution or sale.
- May 2019, HDOH issued this advisory: "CBD products sold without a prescription and outside of licensed medical cannabis dispensaries may be pulled from sale by health inspectors at any time due to public concerns or reported adverse health effects."

Current Regulatory Environment-Hawai'i

Hawai'i DOH: “Products containing CBD are not generally considered safe; illegal to add CBD to food, beverages and cosmetics manufactured, distributed and sold in-state; and may not be not be marketed by asserting health claims or sold as a “dietary supplement.”

Regulator for Hemp Derived-CBD

Hawai'i DOH Oversight: Food & Drug Branch

“To protect and improve the health of all Hawai'i residents by assuring that foods, drugs, medical devices and certain other consumer products are safe and are not adulterated, misbranded or falsely advertised.”

POTENTIAL HEALTH HAZARDS OF UNREGULATED CBD

A PHARMACIST'S PERSPECTIVE

Jaclyn L. Moore, Pharm.D.

Big Island Grown

September 12, 2019

CBD SOURCES IN HAWAI'I



DOH Medical Cannabis Program



FDA-Approved Medication



Unregulated OTC Retailers

CONCERNS WITH UNREGULATED CBD

Pesticide testing ?

Eagle 20 (Myclobutanil)

General use pesticide, stable @ room temp, which converts to hydrogen cyanide if heated past 205°C (MSDS)

Heavy metal testing ?

Hemp can be used to remediate soil

Microbiological testing?

Yeast, mold, aspergillus

Labeling & ingredient concerns

CBD vape oils (IRCCMH press release Nov. 16, 2018)

CONCERNS WITH UNREGULATED CBD



May 15, 2019

Accessed the largest test results and analysis on CBD products in market.

Labs tested top-selling 240 hemp-derived CBD products for 300 contaminants and truth in labeling.

70 percent were “highly contaminated” with:

Lead

Glyphosphate (Round-up)

BPA

Arsenic

Pesticides

Toxic Mold

Some products had no CBD whatsoever; others contained 5-6 times more CBD than claimed.

CONCERNS WITH UNREGULATED CBD

Another research study analyzed

84 products from 31 different companies:

[Marcel O. Bonn-Miller, PhD et al, 2017](#)

- 42 percent of products were under-labeled for CBD
- 26 percent were over-labeled for CBD
- Only 31% were labeled accurately
- THC was detected in 18 of the 84 products

DRUG INTERACTION STUDIES

Warfarin

THC and CBD increase Warfarin levels

(Yamaori et al 2012)

Frequent cannabis use has been associated with increased INR

Clobazam

In children treated with CBD for epilepsy, CBD increased Clobazam levels

(Geffrey et al 2015)

COMMON PRESCRIPTION + OTC MEDS

Cannabinoid	Enzyme Produced by Human Body	Type of Interaction	Prescription Drug Name Over The Counter Drug Name	Effect
CBD	CYP2C19	Major Inhibitor	Omeprazole (Prilosec), Lansoprazole (Prevacid), Diazepam (Valium), Carisoprodol (Soma), Nelfinavir (Viracept).	This combination can increase levels of Over The Counter Drugs and Prescription Drugs.
CBD	CYP2C9	Moderate Inhibitor	NSAIDS, Celecoxib (Celebrex), Amitriptyline (Elavil), Warfarin (Coumadin), Glipizide (Glucotrol), Losartan (Cozaar).	This combination can potentially increase levels of Over The Counter Drugs and Prescription Drug.
CBD	CYP3A4	Moderate Inhibitor	Zonisamide (Zonegran), Alprazolam (Xanax), Amlodipine (Norvasc), Fexofenadine (Allegra).	This combination can potentially increase levels of Over The Counter Drugs and Prescription Drug.

Source: Natural Medicines - Databases, naturalmedicines.therapeuticresearch.com/databases.aspx.

EMPLOYMENT PROTECTIONS FOR REGISTERED CANNABIS PATIENTS IN OTHER JURISDICTIONS

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STATES AND CANNABIS PATIENTS

- According to recent NCSL research:
 - In nearly all states with medical cannabis programs, employers have complete discretion over whether or not they allow employees to consume marijuana (medical or recreational) **while on the job**.
 - Basic protections typically exist for patients (next slide)
 - Nevada is the only exception as their policy requires any employer to allow the medical use of marijuana in the workplace as long as it does not pose a threat of harm or danger to persons or property.
 - Otherwise, employers in industries with particular public health and safety concerns or those that receive federal funding/follow federal law on the issue across all states, even in adult-use permitted states, may prohibit employees from medical use while on the job.



REGISTERED MEDICAL CANNABIS PATIENT PROTECTIONS- EMPLOYMENT

- At least 20 states have laws to protect law-abiding registered patients at a basic level (housing, employment, etc.):
 - Arizona, Arkansas, Connecticut, Delaware, Illinois, Maine, Maryland, Massachusetts, Michigan, Minnesota, Nevada, New Jersey*, New York, North Dakota, Oklahoma, Oregon, Pennsylvania, Rhode Island, Utah, and West Virginia.
 - Generally, patients **cannot be punished, hired or fired solely for being a patient or simply having a positive drug test,** with some exceptions for sensitive positions.
 - ***Lots of gray areas for positive THC tests while on the job**
 - Nevada notably deviates from this trend and requires any employer to allow for the medical use of marijuana in the workplace as long as it does not pose a threat of harm or danger to persons or property. |
- Employers:
 - generally do NOT need to accommodate use during work hours or on the job site.
 - are allowed to take action against an employee if their use denies employer income or federal funding.
 - are generally allowed to drug test if process is applied equally across all employees.
 - Colorado Supreme Court Case Coats vs. Dish Network- Wrongful termination decision upheld due to “lawful activity” extending to state AND FEDERAL law.



REVIEW OF INTRASTATE TRANSPORT OF MEDICAL CANNABIS STATE & FEDERAL LAWS

MEDICAL USE OF CANNABIS IN HAWAI'I & HEMP-DERIVED CANNABIDIOL

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INTRASTATE TRANSPORTATION OF CANNABIS- FEDERAL LAW

Electronic Code of Federal Regulations (e-CFR) Title 14. Aeronautics and Space Chapter I. FEDERAL AVIATION ADMINISTRATION, DEPARTMENT OF TRANSPORTATION

Subchapter F. AIR TRAFFIC AND GENERAL OPERATING RULES Part 91. GENERAL OPERATING AND FLIGHT RULES Subpart A. General

- Section 91.19. Carriage of narcotic drugs, marihuana, and depressant or stimulant drugs or substances.
- **14 CFR § 91.19 - Carriage of narcotic drugs, marihuana, and depressant or stimulant drugs or substances.**
- (a) Except as provided in paragraph (b) of this section, no person may operate a civil aircraft within the United States with knowledge that narcotic drugs, marihuana, and depressant or stimulant drugs or substances as defined in Federal or State statutes are carried in the aircraft.
- (b) Paragraph (a) of this section does not apply to any carriage of narcotic drugs, marihuana, and depressant or stimulant drugs or substances authorized by or under any Federal or State statute or by any Federal or State agency.

INTRASTATE TRANSPORT OF CANNABIS- STATE LAWS

■ Mass. ALS 55 Section 2. (HB 3818 2017)

... (4)The lawful possession, cultivation, transfer, transport, distribution or manufacture of medical use marijuana as authorized by this section shall not result in the forfeiture or seizure of any property.

(c) A medical marijuana treatment center and its employees registered with the commission shall not be penalized or arrested for acquiring, possessing, cultivating, processing, transferring, transporting, selling, distributing or dispensing medical use marijuana and related supplies and educational materials to qualifying patients or their personal caregivers.

(d) The commission shall issue a cultivation registration to a qualifying patient applying for such registration whose access to a medical marijuana treatment center is limited by verified financial hardship, a physical incapacity to access reasonable transportation or the lack of a medical marijuana treatment center within a reasonable distance of the qualifying patient's residence. The commission may deny a registration based on the provision of false information by the applicant. Such registration shall allow the qualifying patient or the qualifying patient's personal caregiver to cultivate a limited number of plants, sufficient to maintain a 60-day supply of marijuana, and shall require cultivation and storage only in an enclosed, locked area.



INTRASTATE TRANSPORT OF CANNABIS- STATE LAWS

- Alaska has practices to allow distribution to isolated villages and islands lacking cultivation or retail facilities.
 - Alaska has no special state law, but airport police allow small amounts of cannabis through security checkpoints in Anchorage and Fairbanks. TSA may call the police, who then allow travelers to continue through the checkpoint with cannabis. Juneau PD takes a hands-off approach, leaving it up to the discretion of TSA.



POLICY OVERVIEW: HEMP-DERIVED CBD POLICY: FDA & BEST PRACTICES FROM OTHER JURISDICTIONS

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FDA & STATE HEMP-DERIVED CBD POLICIES

- FDA: As of the 2018 Farm Bill, Food Safety agencies were unprepared for people to be ingesting CBD, regardless of the source (hemp or higher THC cannabis).
 - Congressional Research Service- Defining Hemp, A Fact Sheet: <https://fas.org/sgp/crs/misc/R44742.pdf>
- CBD from Hemp plants (below .3% THC) is now federal legal.
- HOWEVER, the FDA had not previously considered hemp as an edible product but they are rapidly drafting regulations to allow it as an ingredient and not to be altered.
- States are faster than feds, who may need to modify their standards to reflect state actions.
 - California A 228- pending hold
 - Maine HP 459- enacted March, 2019
 - Utah SB 130 Cannibidiol Product Act 2018.



EXAMPLE FROM CA A 228 (2019)

- CA A 228 would...
- ... require a manufacturer of food that includes industrial hemp to be able to demonstrate that all parts of the plant used in their food come from a state or country that has an established and **approved industrial hemp program**, as defined, that inspects or regulates hemp under a **food safety program** to ensure safety for human consumption and the industrial hemp cultivator or grower to be in good standing and compliance with the governing laws of the state or country of origin.
- ... state that a food, beverage, or cosmetic **is not adulterated** by the inclusion of industrial hemp or cannabinoids, extracts, or derivatives from **industrial hemp**, and would prohibit restrictions on the sale of items just because they contain hemp, cannabinoids, extracts or other derivatives.
- ... require the **label of any package** of a food, beverage, or cosmetic product containing cannabidiol derived from industrial hemp to **include a specified statement**.
- ... **prohibit a manufacturer, distributor, or seller** of an industrial hemp product from including on the label, or publishing or disseminating in advertising or marketing, **a health-related statement**, as defined, **that is untrue or tends to mislead about health effects**.
- ... **prohibit a raw hemp product**, as defined, from being distributed or sold in this state without a certificate of analysis from an independent testing laboratory, as defined, that confirms specified information, **including that the tested batch of industrial hemp does not contain contaminants** that are unsafe for human consumption.
- ... state that an **entity that is licensed to engage in commercial cannabis activity** pursuant to MAUCRSA **is not prohibited from manufacturing, distributing, or selling products that contain industrial hemp or cannabinoids, extracts, or derivatives from industrial hemp grown in compliance** with the registration requirements for growers.

EXAMPLE FROM MAINE H 459 (2019)

- ME H 459 (2019)
- AN ACT defining hemp, relative to its growth and use in New Hampshire, establishing a committee to study the federal guidelines on growing hemp
- Enacted as CHAPTER 439-A
- HEMP 439-A:1 Purpose. The intent of this chapter is to define hemp so that farmers and other businesses in the New Hampshire agricultural industry can take advantage of this market opportunity afforded by the passage of the Agricultural Improvement Act of 2018.
 - Defines hemp separately from marijuana
 - Establishes a committee to study the administrative mechanisms for permitting hemp in NH in accordance to 2018 Farm Bill.
 - Determine: state regs or to follow federal regs, labeling, potentially other regs, etc.
 - File a report.

EXAMPLE FROM UTAH SB 130 (2018)

Utah Cannabidiol Product Act (for HEMP produced products used in medical program)

- authorizes the Department of Agriculture and Food to **make rules regarding cannabidiol**;
- authorizes the **cultivation, production, and possession of hemp and the sale and use of cannabidiol products** under certain circumstances;
- directs the Department of Agriculture and Food to **issue licenses and enforce operating requirements**;
- **grants** the Department of Agriculture and Food, the Division of Occupational and Professional Licensing, the Department of Financial Institutions, and the Department of Health **rulemaking authority**;
- **creates an exemption from sales and use tax** for sales of cannabidiol products;
- **imposes a special tax** on the sale of cannabidiol products;
- creates the **Cannabinoid Product Restricted Account**;
- ... and other provisions.



Benefits of Medical Cannabis Therapy in Opiate Dependency

Me Fuimaono-Poe, FNP-BC

Opiate Use Disorder

- Taking larger amounts or over a longer period of time than intended.
- Unsuccessful efforts to cut down or control opioid use
- A great deal of time is spent in activities necessary to obtain the opioid
- Use the opioid, or recover from its effects, craving, or a strong desire to use opioids
- Recurrent opioid use resulting in failure to fulfill major role obligations at work, school or home (DSMV)
- This group is at a higher risk of death from accidental overdose during relapse
- Those with **Opioid Use Disorders** are hypersensitive to physical and psychic pain, putting them at higher risk of relapse

Opiates in United States

- We are in the depths of an opiate epidemic
opiate overdoses are the leading cause of
accidental death in both the United States and
Canada
- 70,237 United States in 2017
- 9.6% from 2016 (19.8 per 100,000) to 2017
(21.7 per 100,000). Opioids
- Fentanyl and other synthetic opioids (other
than methadone) are currently the main driver
of drug overdose deaths
- (CDC, 2019)

Hawai'i Statistics

- Hawai'i lower rates of opioid deaths
- 2017, there were 53 drug overdose deaths involving opioids
- 3.4 deaths per 100,000 persons
- In 2017, 37.0 opioid prescriptions for every 100 persons
- U.S. rate of 58.7 prescriptions lowest rates in the United States that year
- (NIH,2019)

Chronic Pain

- Chronic pain, one of the most common reasons adults seek medical care
- Restrictions in mobility and daily activities
- **Dependence on opioids**
- Anxiety and Depression
- Poor perceived health or reduced quality of life
- Population-based estimates of chronic pain among U.S. adults range from 11% to 40%
- 2017 National Academy of Sciences, comprehensive literature review and found that Cannabis is a safe and effective way to treat pain, both acute and chronic
- Pain is the leading qualifying condition for cannabis in Hawai'i

Cannabis and Opiates

- 2017 National Academy of Sciences, comprehensive literature review and found that Cannabis is a safe and effective way to treat pain, both acute and chronic
- Cannabis can be used in conjunction with Opiates and can decrease opiate use
- Cannabis is opiate sparing and doesn't decrease respirations
- Cannabis can also be combined with opiates to treat patients with advanced cancer and hard to treat pain

Cannabis and Opiates

- In 2018 JAMA published a study showing that in states where medical cannabis was available Opiate prescriptions decreased by 5.88% in Medicaid enrollees
- In states where adult-use cannabis is available, opiate prescriptions in Medicaid enrollees decreased by 6.38%
- States with Medical Cannabis laws (MCL) saw a decrease in opiate deaths by 24% from 1990-2010

Cannabis and MAT (Medication Assisted Therapy)

- MAT or Medication Assisted Treatment (for opiate use) Results suggest that cannabis use strengthens, rather than weakens, the relationships between pain and depression and pain and anxiety.
- 2016 showed that women who used cannabis while on a MAT program had better treatment outcomes

Cannabis and Symptoms of Opiate Withdrawal

- **Anxiety**
- Temperature changes
- **GI upset, Abdominal pain**
- **Restlessness**
- **Bone or joint aches**
- Sweating, Runny nose/Tearing Tremor, Gooseflesh
- Yawning, Pupil size, Pulse rate, Systolic Blood pressure

Cannabis and Symptom Withdrawal

- **Anxiety:** Cannabis in preclinical and clinical trials has shown some efficacy as an anxiolytic. Cannabis CBD is showing potential in fear extinction, assisting in compulsion, and aiding in stress-induced anxiety (11). In a 2019 study, Dr. Hurd showed that CBD can reduce the craving for heroin and decrease anxiety in drug abstinent heroin users over placebo. (12)
- **Nausea:** Cannabis has been used for thousands of years for nausea and it continues to be used for nausea in several settings. Patients receiving chemotherapy often experience debilitating nausea. Cannabis has similar outcomes when compared to other medications in controlling nausea for patients receiving chemotherapy (14). Cannabis blocks both acute and delayed nausea, and can be more effective than many modern drugs (15)

Cannabis Use as an Alternative for Opioids

- Medical cannabis patients consistently report using cannabis as a substitute for prescription medications. From a survey conducted in Colorado in 2016
Of 1000 adult-use only customer respondents
- 65% reported taking cannabis to relieve pain
- 74% reported taking cannabis to promote sleep.
- Among respondents taking cannabis for pain, 80% reported that it was very or extremely helpful, and most of those taking over-the-counter pain medications (82%) or opioid analgesics
- (88%) reported reducing or stopping use of those medications.

Benefits of Medical Cannabis Therapy in Opiate Dependency

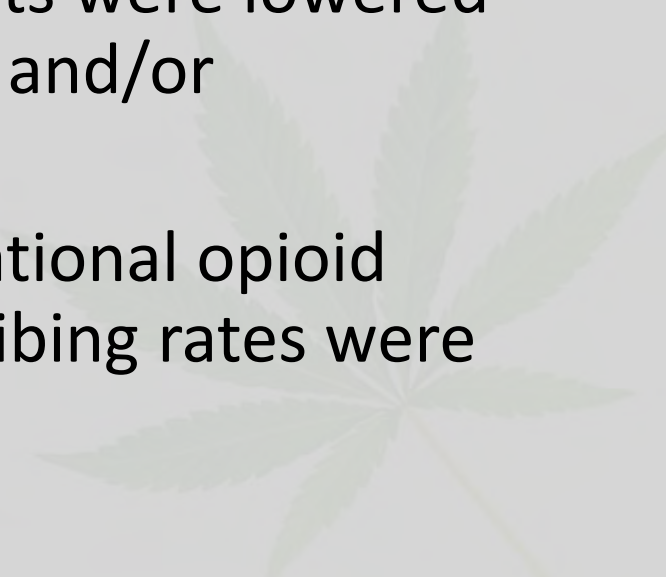
Michael Backes

Medical Cannabis Researcher, Industry Consultant

Author, *Cannabis Pharmacy*

Contributor, www.projectcbd.com

Cannabis and opioids

- National Academies of Sciences, Engineering, and Medicine (2017) recognized legal medical cannabis as an option that provides some therapeutic value in treating chronic pain.
 - Bradford and Bradford (2016) observed how the total number of opioid prescriptions filled by Medicare Part D recipients were lowered in states with legalized access to cannabis for medical and/or recreational purposes
 - McMichael, Van Horn, and Viscusi (2018) observed national opioid prescribing practices and found that per capita prescribing rates were 6.1% lower in states with medical cannabis laws.
- 

CBD and drug dependence, including opioids

- CBD does not exacerbate adverse effects associated with intravenous fentanyl. Co-administration of CBD and opioids is safe and well tolerated. These data provide the foundation for future studies examining CBD as a potential treatment for opioid abuse. (NIH study)
- CBD has anti-addictive effects in animal models using opiates/opioids and methamphetamine
- CBD reduces symptoms of Cannabis Use Disorder
- Given CBD's promising anti-addictive effects, there is a need to perform randomized, controlled clinical trials with CBD for opioid dependency.

POLICY OVERVIEW: EXAMPLES OF DUAL USE JURISDICTIONS

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STATE MEDICAL PROGRAMS MAY EVOLVE WITH ADULT USE LEGALIZATION

- All adult-use states and territories except for one has an existing medical program.
- Medical programs are typically operated independently or differently from adult use programs, with coordination over time (licensure, testing products, packaging, etc...).
- It is up to the state's regulatory structure (legislature, commission, etc.) to determine how they will (or not) coordinate programs.
- Patient groups, medical professionals and researchers have vested interests in maintaining medical programs.
- Early adopting states have various models of evolution:
 - Colorado has largely coordinated licensing and oversight from different agencies, but taxes differently.
 - Alaska and Washington no longer have separate medical dispensaries but allow medical purchases at adult-use dispensaries.
 - Newer states may change their programs over time in similar or new ways.



Policy Overview: Examples of Dual Use Jurisdictions

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Dual Use States Overview

- Cannabis Economics: black market vs. regulated markets
- Avoiding a “green plutonium” regulatory environment
- Product safety – the need for teeth
- Product education – the need for truth
- Medical programs and adult recreational use
- Don’t harm the patients

A large, faint biohazard symbol is centered on the right side of the slide. Below the symbol, the word "BIOHAZARD" is written in a light green, sans-serif font.

BIOHAZARD

Colorado

- Adult recreational use started in January 2012
- Regulated by Colorado Dept. of Revenue Marijuana Enforcement Division
- 2018: cannabis sales were \$1.5 billion, generating \$266 million in state revenue;
- Taxes on recreational sales are 15% + 2.9% + local taxes; Medical sales are 2.9% state sales tax + local taxes (no special tax for medical use).
- Unexpectedly, legalization resulted in a more robust black market to compete with legal operators; in 2000 voters passed Amendment 20 that allowed medical marijuana patients to grow as many plants as their physician recommended. Illegal growers exploited this law to operate out of law enforcement's reach. While the plant maximum has since been reduced to 12, illicit activity continue to proliferate.
- Medical revenues softened when recreational use became legal

Oregon

- Legal adult use began in October 2015
- Dept. of Revenue issued five tiers of production licenses up to 13,800 plants per license. Regulated by the Oregon Liquor Control Commission, over-licensing created a product glut and multiple problems
- Surplus prompted some licensed businesses to illegally sell products on the streets or out-of-state; others simply went out of business
- Oregon lawmakers responded with SB 582, authorizing the governor to make deals with other states to 'export' Oregon grown-marijuana if, and when, interstate commerce okayed by the Feds.
- Massive amounts of oversupply continue to be manufactured into products intended for illicit sales within, and outside, of Oregon.

California

- Adult social use became legal on Jan. 1, 2018
- Cannabis businesses require state approval AND from the city in which they want to operate; just 89 of 482 California cities allow retail dispensaries to sell cannabis for adult recreational use
- Regulated businesses struggle to compete with a large illicit market, unburdened by high taxes and licensing fees
- Post-legalization boom caused prices to plummet, incentivizing growers to sell illegally and out-of-state. A pound of marijuana that sold for \$1,200 in 2015, now sells for \$300
- FY 2019 excise tax estimates from cannabis sales lowered to \$288 million from \$355 million due mostly to black market competition

Mahalo

Index of Resources used in all of today's presentations is available after the briefing.

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