Ain’t No Honky Tonk:
Medical Cannabis for Pain Management

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PainWeek®

Disclosure

- Speakers Bureau: Salix, AbbVie (Allergan), Lilly
- Any unlabeled/unapproved uses of drugs or products referenced will be disclosed.
- Covering a very LARGE topic in a short amount of time.

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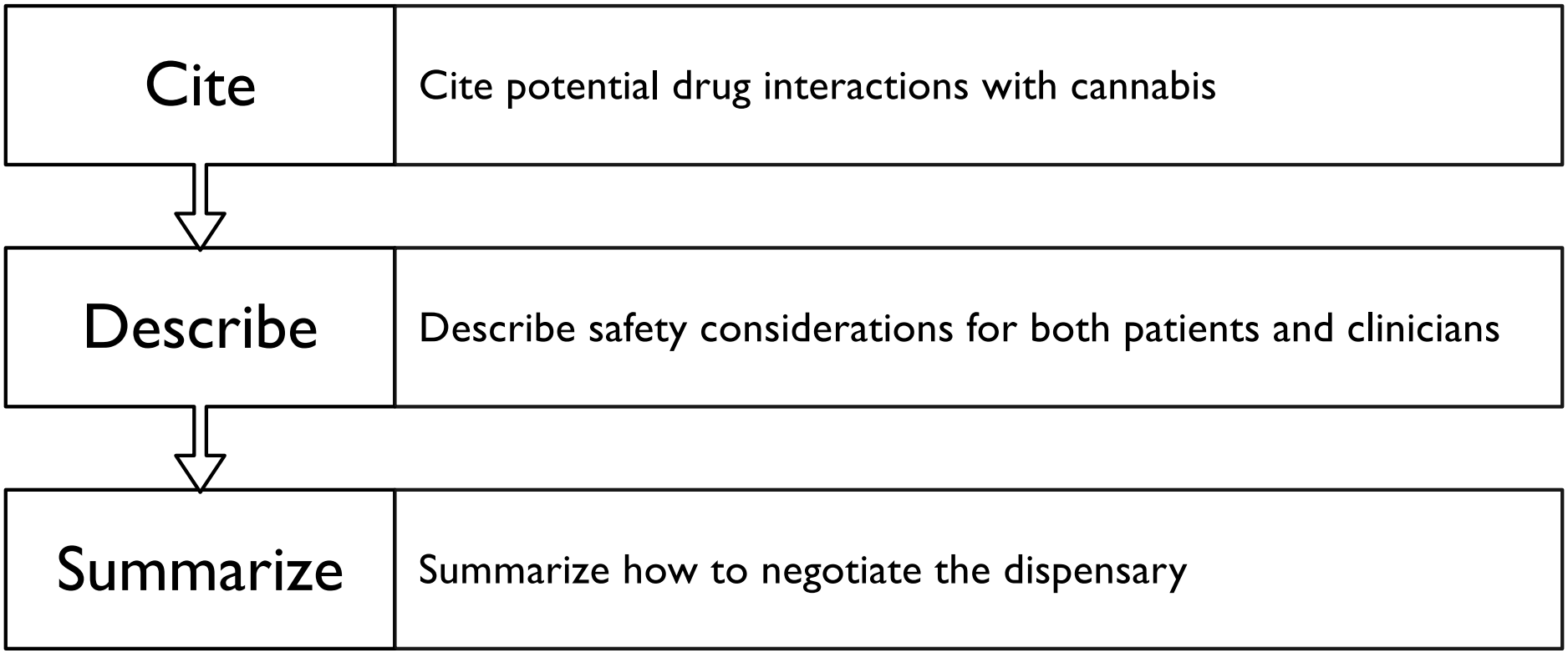
Learning Objectives



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Speaker's Expectations

- You have heard about cannabis.
- You know a little about the differences between THC & CBD.
- You have a vague grasp of the endocannabinoid system.
- Your patient wants to try/has questions about/likes to joke about/is using cannabis.
- You are "a busy clinician and have 15 (maybe 20) minutes to learn all that I need to know about cannabis."

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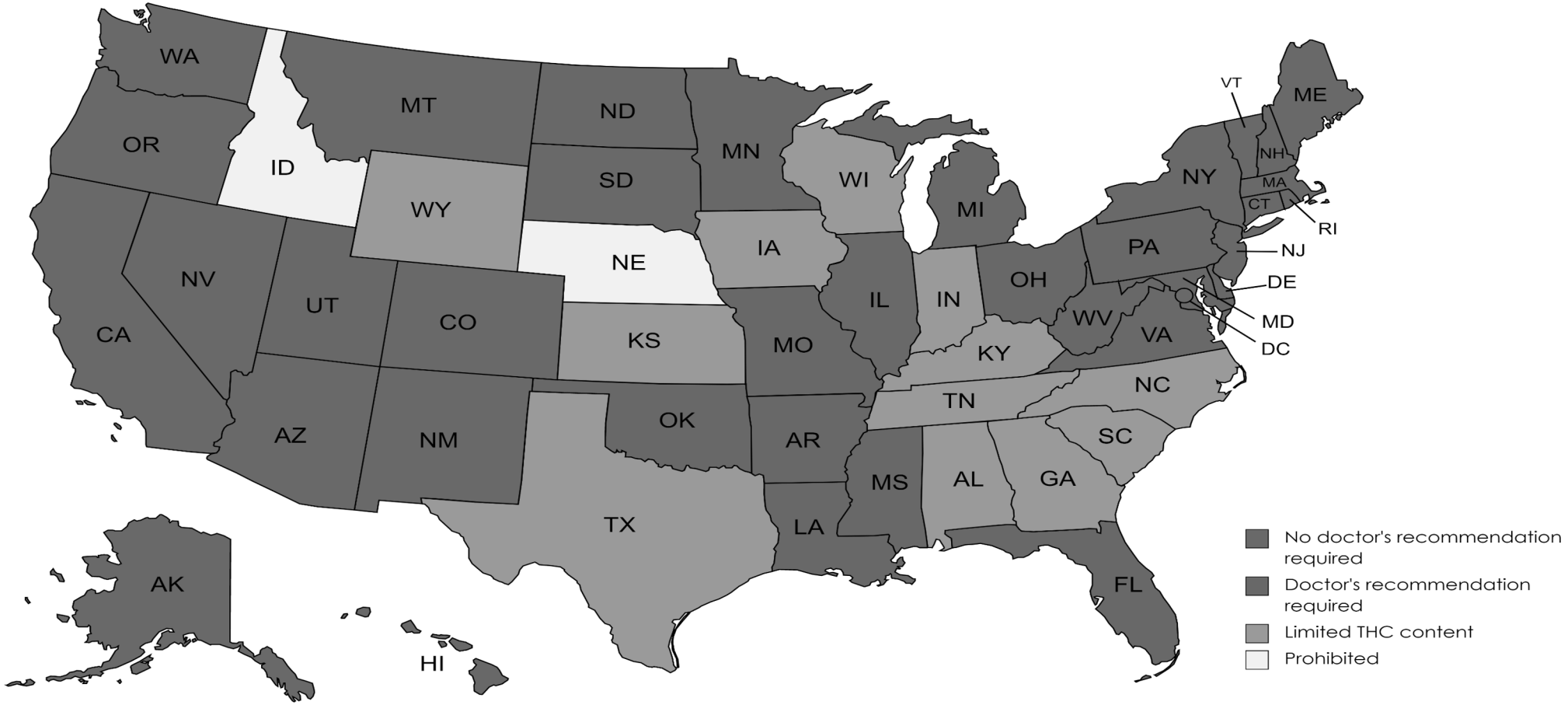
Where Does the Country Stand – as of June 2021

https://www.mpp.org/states/



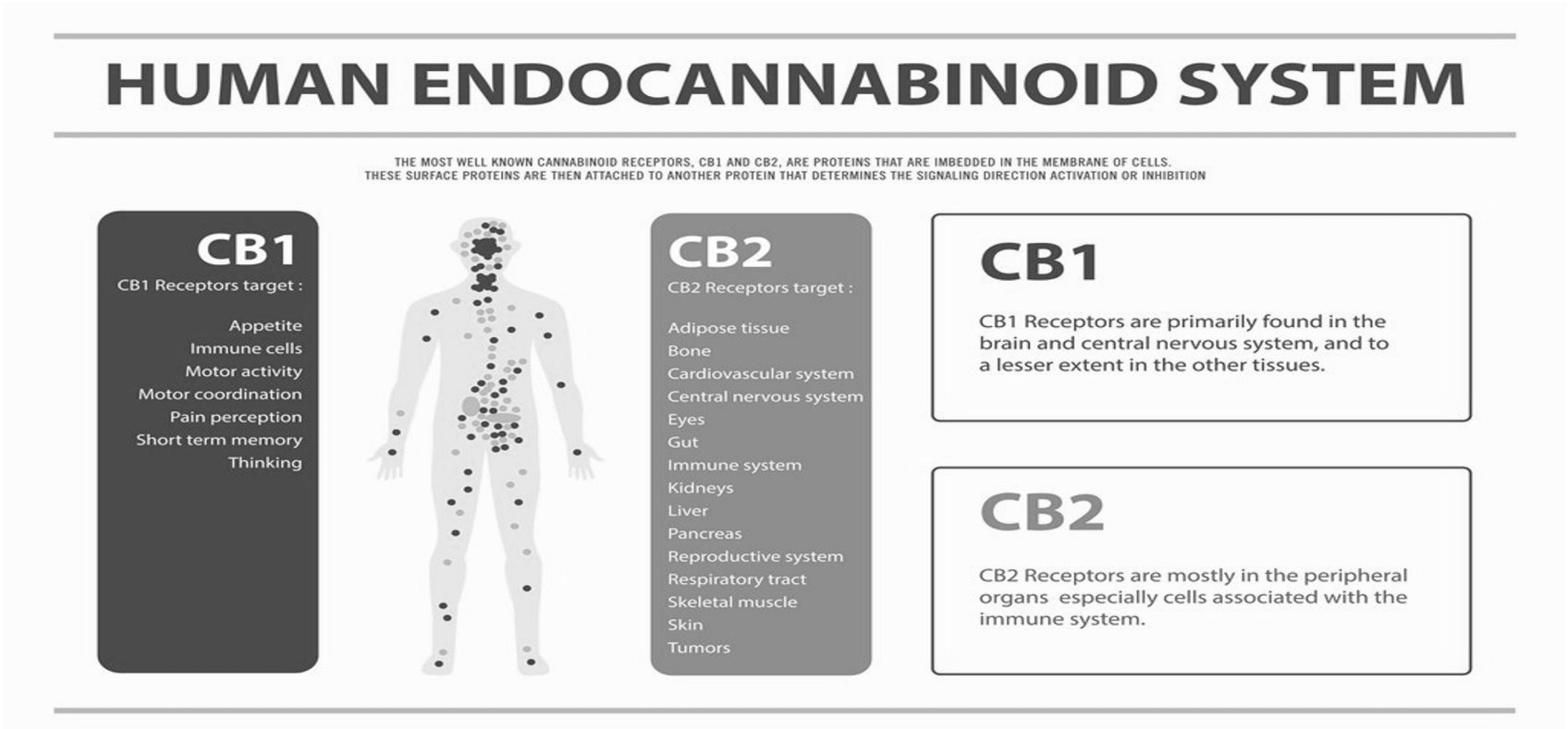
Agriculture Improvement Act/Hemp Farming Act 2018

- Removed hemp for the U.S. list of scheduled substances.
- Did not remove hemp derived cannabinoids from the list of scheduled I substances.
- Amended the definition of marijuana → included an exemption for hemp → defined as “any part” of the Cannabis sativa L. plant → containing no more than 0.3% THC.
- Ongoing legislation → federal & regulatory agency guidance.
- States setting their own rules for the hemp industry.
- USDA has broad regulatory “authority” over hemp industry.

Cannabis Administration & Opportunity Act 2021

- Senate Majority Leader Chuck Schumer (D-NY), Senate Finance Committee Chairman Ron Wyden (D-OR) & Sen. Cory Booker (D-NJ)
  - federally deschedule cannabis
  - expunge prior convictions
  - maintain the authority of states to set their own marijuana policies
  - impose a federal tax on marijuana products
  - social equity components
- The Marijuana Opportunity, Reinvestment & Expungement (MORE) Act passed the House but did not advance in the Senate under GOP control.
- Separately, a proposal to federally deschedule marijuana that does not include social equity components was recently filed by a pair of Republican congressmen.

Endocannabinoid System: Endogenous-Homeostatic regulatory system-Inherited by all mammals



Clinical Endocannabinoid Deficiency
Ethan Russo, MD (2004/2016)

- The eCS theory of disease.
- Lack of sufficient endocannabinoids/dysregulation of the eCS.
- Result in higher susceptibility (fibromyalgia, irritable bowel syndrome, depression, anxiety, migraine).
- Phytocannabinoids (THC, CBD) can bind to the cannabinoid receptor sites (CB1, CB2), and mimic the physiological processes seen with binding of the endocannabinoids.

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Genetic & Epigenetic Influences on eCS

- Seizures, nerve pain, sleep deprivation - ↑ CB1R in brain (Karlocai et al, 2011; Navarro et al, 2003; Siegling et al, 2001).
- Crohn's – ↑ CB1R in intestines (Izzo et al, 2001).
- Autistic children - ↑CB2R on white blood cells (Siniscalco et al, 2013).
- Depression/suicidality - ↑ CB1R (Hungund et al, 2004).
- Studies have looked at association between ADHD and a specific polymorphism of the cannabinoid CB1 receptor gene. (Lu et al, 2008).

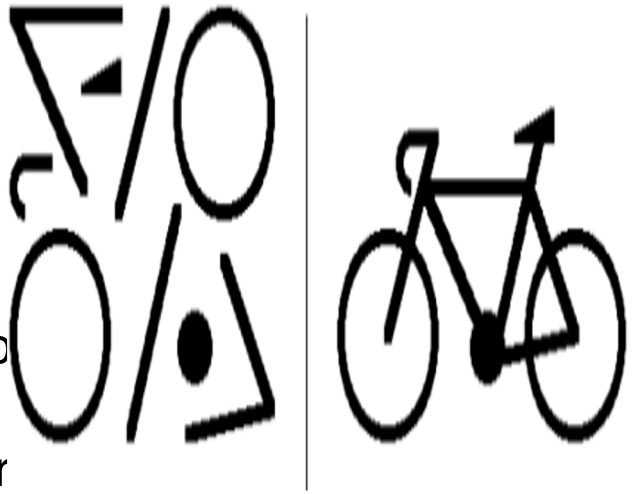
- A small fraction of cannabis users develop cannabis use disorder.
- A 2016 study conducted by the National Institute on Alcohol Abuse and Alcoholism (NIAAA), part of the National Institutes of Health, found that 2.5% percent of American adults—nearly 6 million people—experienced cannabis use disorder in the 12 months prior to the study, while 6.3% had met the diagnostic criteria for the disorder at some point in their lives.
- The new genome-wide association study (GWAS), a “meta-analysis” of 20 existing population samples - analyzed genome data of 20,196 individuals with cannabis use disorder and 363,116 controls.
  - cannabis use disorder is positively correlated, at the level of genetic variation, with other psychiatric disorders, including ADHD, major depression, & schizophrenia.

Entourage Effect: Sum of the Parts

- The entourage effect is a proposed mechanism by which cannabis compounds act synergistically to modulate the overall physiological effects of the plant.

- Example: CBD + THC = possibly mitigating some of the psychosis-like effects of THC.

- Cannabis is a multimodal treatment. It can be used to treat multiple symptoms & conditions concurrently, which can therefore help to reduce polypharmacy bur



What is Cannabis Sativa (aka marijuana)?

It is a Plant w/over 400 different chemicals:

- >60 types of cannabinoids
  - delta-9-tetrahydrocannabinol (THC)
  - Cannabidiol (CBD)
  - Cannabinol (CBN)
  - Cannabichromene (CBC)
  - Cannabigerol (CBG)
  - Tetrahydrocannabivarin (THCV)
- Flavonoids, Terpenes, Terpenoids
- Fungus? Bacteria? Pesticides?
- Byproducts of manufacturing (solvents, heavy metals)

Current Reviews/Meta-analysis

Cochrane Library

Cochrane Database of Systematic Reviews

Cannabis-based medicines for chronic neuropathic pain in adults (Review) 2018

Mücke M, Phillips T, Radbruch L, Petzke F, Häuser W

META-ANALYSIS

Anesth Analg 2017;125:1638-52

Selective Cannabinoids for Chronic Neuropathic Pain: A Systematic Review and Meta-analysis

Howard Meng, MD,* Bradley Johnston, PhD,†‡§‖ Marina Englesakis, MLIS,¶ Dwight E. Moulin, MD,# and Anuj Bhatia, MBBS, MD, FRCPC, FRCA, FFPMRCA, FIPP, EDRA, CIPS*

JAMA. 2015;313(24):2456-2473. doi:10.1001/jama.2015.6358

The National Academies of
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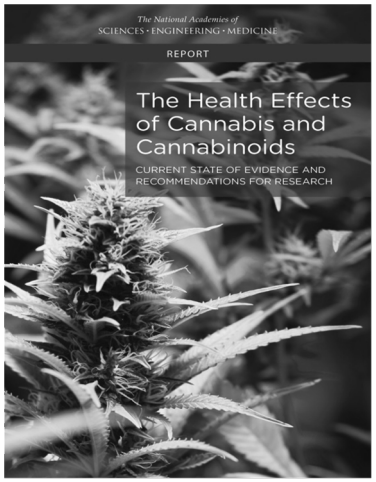
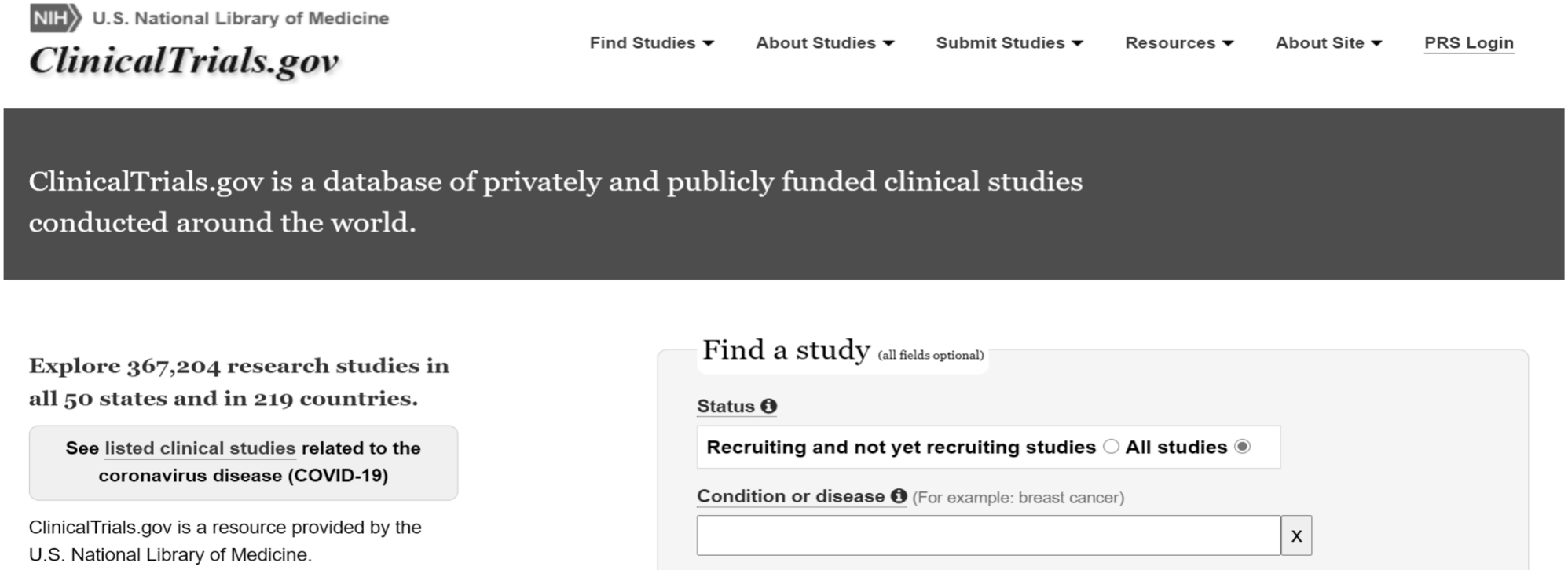


Original Investigation

Cannabinoids for Medical Use
A Systematic Review and Meta-analysis

Penny F. Whiting, PhD; Robert F. Wolff, MD; Sohan Deshpande, MSc; Marcello Di Nisio, PhD; Steven Duffy, PgD; Adrian V. Hernandez, MD, PhD; J. Christiaan Keurentjes, MD, PhD; Shona Lang, PhD; Kate Misso, MSc; Steve Ryder, MSc; Simone Schmidlkofer, MSc; Marie Westwood, PhD; Jos Kleijnen, MD, PhD

Can I Get My Patient Into a Clinical Trial?



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https://clinicaltrials.gov/

Tell me EVERYTHING I need to know in ≈20 minutes!

Important Talking Points

- Encourage open/non-judgmental dialogue.
- Driving “under the influence”.
- Recommend obtaining medical marijuana card
- Traveling considerations.
- Provide website resources.
- Share the extend of the research that is known .
- Discuss drug to plant interactions, side effects, addiction.
- Know what to look for in products.
- How to recognize who is behind the counter in the dispensary.

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Is Medical Cannabis Safe for My Patients?

European Journal of Internal Medicine 89 (2021) 10–18

Contents lists available at ScienceDirect

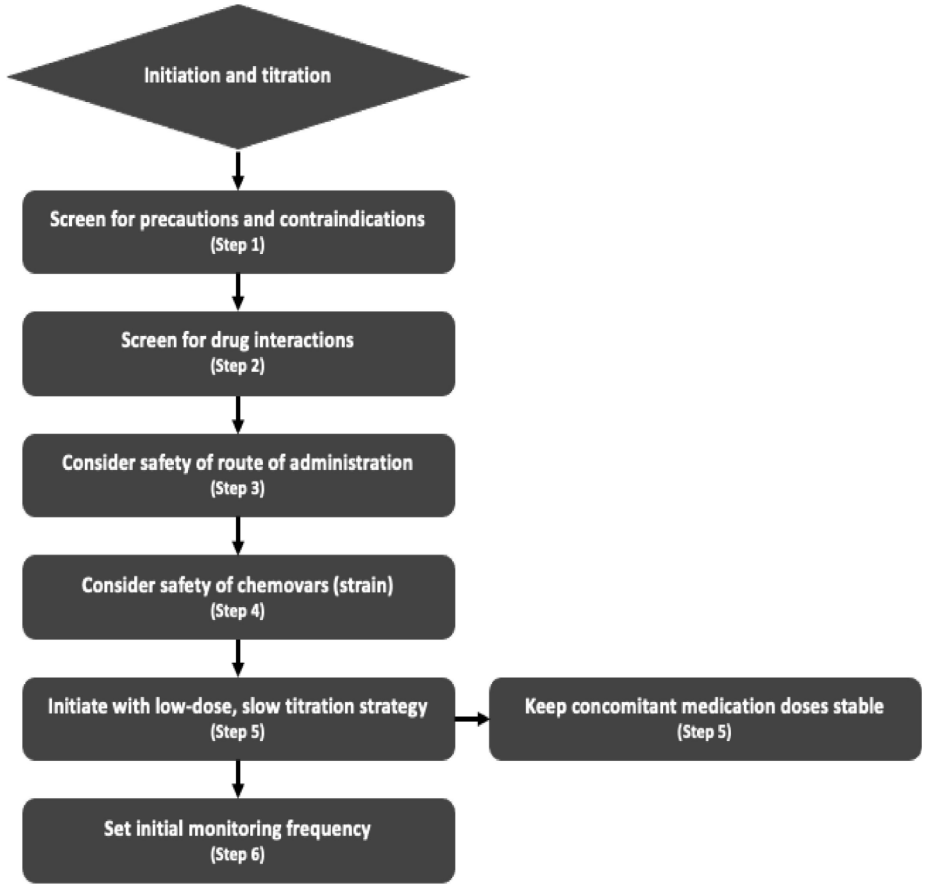
European Journal of Internal Medicine

journal homepage: www.elsevier.com/locate/ejim

Review Article

"*Is medical cannabis safe for my patients?*" A practical review of cannabis safety considerations

Caroline A. MacCallum [a,b,c,*], Lindsay A. Lo [d], Michael Boivin [e]



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Is Medical Cannabis Safe for My Patients?

Table 1. Precautions and Contraindications.

Considerations[A]	Precautions[B]	Relative Contraindications[C]	Contraindications[D*]
Immunocompromised **Chronic Kidney Disease** **Older adults** **Patients with concurrent medical conditions** **Polypharmacy** **Potential drug interactions**	Concurrent mood or anxiety disorder Have risk factors for cardiovascular disease Tobacco use E-cigarette use Severe liver dysfunction /disease Medications associated with sedation or cognitive impairment Driving or safety sensitive occupations	Under 25 years of age Current or past cannabis use disorder Current or past substance use disorder	Unstable cardiovascular disease Respiratory disease (if smoking cannabis) Personal or strong family history of psychosis/ bipolar Pregnant, planning on becoming pregnant, or breastfeeding

Interstate transportation of these products is federally illegal.

Traveling

- TSA security does not search for marijuana or other illegal drugs, but if any illegal substance is discovered during security screening, TSA will refer the matter to a law enforcement officer.
- Marijuana is illegal under federal law, & federal law governs airplane travel in this country.
- Recently, the TSA updated its rules for flying with medical marijuana, allowing travelers to now carry products like Cannabidiol (CBD) oil that contain < 0.3% THC. Passengers can bring products that are approved by the FDA in their checked or carry-on luggage.

Amtrak "The use or transportation of marijuana in any form for any purpose is prohibited, even in states or countries where recreational use is legal or permitted medically."

Greyhound bans alcohol/drugs "anywhere on the bus (including in your checked baggage)."

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Driving under the influence/Driving impaired

- Decreases reaction time.
- Feelings of drowsiness or inattention.
- Poor coordination affecting the mechanics of driving (steering, working, braking, etc.).
- Alters rational decision making.
- Alters the ability to judge car's position on the road, road signs, location of other vehicles/object/pedestrians.

- ANYTHING THAT A POLICE OFFICER DEEMS APPROPRIATE!

Tip: If documenting the discussion of cannabis use either recreationally or medicinally with a patient

DOCUMENT the advisement of risks with automobile usage.

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Drug Testing for Cannabis

Many factors:

- Route of administration (inhaled, oral, topical)
- Duration of use (acute v/s chronic usage)
- Blood, sweat, tears (hair, salvia)
- Sensitivity of the test (immunoassay – screening; v/s GC-MS – confirmatory)
- Genetics – CYP450 variations, adipose tissue

- In general, the detection time is longest in hair→ urine, sweat, oral fluid & blood.
- The average limit or cut-off level for testing positive on a drug test for marijuana (THC) is 50 ng/ml (15 ng/ml for GC-MS).

Drug Testing for Cannabis

Cannabinoid Test Results **12/01/2018**

Cannabinoid analysis utilizing High Performance Liquid Chromatography (HPLC, QSP 5-4-4-4)

	mg/g	%	LOD mg/g	LOQ mg/g
THC	ND	ND	0.000034	0.001
THCa	ND	ND	0.000066	0.001
CBD	10.797	1.0797	0.000057	0.001
CBDa	ND	ND	0.000038	0.001
CBN	ND	ND	0.000029	0.001
CBDV	0.049	0.0049	0.000065	0.001
CBDVa	ND	ND	0.00003	0.001
CBG	ND	ND	0.000086	0.001
CBGa	ND	ND	0.000072	0.001
THCV	ND	ND	0.000035	0.001
Δ8 - THC	ND	ND	0.000083	0.001
CBC	ND	ND	0.000095	0.001
Sum of Cannabinoids:	**10.846**	**1.0846**		**845.988 mg/Unit**
Total THC (Δ9THC+0.877*THCa)	ND	ND		ND
Total CBD (CBD+0.877*CBDa)	10.797	1.0797		842.166 mg/Unit

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Stirring the Pot: Potential Drug Interactions

- CYP450 → Main metabolic pathway for cannabinoids
- Studies of THC, CBD & CBN inhibition and induction of major human CYP-450 isoforms generally reflect a low risk of clinically significant drug interactions with most use, but specific human data are lacking. (Stout & Cimino, 2014)
- CNS depressants, antidepressants, central nervous system drugs – potentiate effects of THC.
- Any medications that are metabolized through the same pathways could result in less or more of the drug's effects.
- For scientific reviews: Drug Metabolism Reviews.
- Epocrates is a good quick reference for cannabidiol and synthetic THC.

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Enzyme	Interaction and effect	Drugs
CYP 3A4	**Inducers:** may decrease THC and/or CBD	Carbamazepine, phenobarbital, phenytoin, rifampin, St. John's wort
	Inhibitors: may increase THC and/or CBD	Azole antifungals, clarithromycin, diltiazem, erythromycin, grapefruit, HIV protease inhibitors, macrolides, mifepristone, verapamil
	Substrates: CBD is potential inhibitor of CYP3A4 and could increase 3A4 substrates. Caution with medications with smaller therapeutic index (e.g. tacrolimus). Unlikely to have effect on THC	Alprazolam, atorvastatin, carbamazepine, clobazam, cyclosporine, diltiazem, HIV protease inhibitors, buprenorphine, tacrolimus, cyclosporine, phenytoin, sildenafil, simvastatin, sirolimus, verapamil, zopiclone
CYP 1A1 and 1A2	**Substrates:** Smoking cannabis can stimulate these isoenzymes and increase the metabolism of these. medications.	Amitriptyline, caffeine, clozapine, duloxetine, estrogens, fluvoxamine, imipramine, melatonin, mirtazapine, olanzapine, theophylline
p-glycoprotein	**Substrates:** CBD may inhibit p-glycoprotein drug transport. Should monitor for toxicity. No effect from use of THC	Dabigatran, digoxin, loperamide
CYP 2C9	**Inducers:** may decrease THC concentration. Unlikely to have effect on CBD	Amiodarone, fluconazole, fluoxetine, metronidazole, valproic acid, sulfamethoxazole
	Inhibitors: may increase THC concentration. Unlikely to have effect on CBD	Carbamazepine, rifampin Warfarin, rosuvastatin, phenytoin
	Substrates: THC and/or CBD may increase drug levels, should monitor for toxicity	
CYP 2C19	**Inducers:** may decrease CBD and THC	Carbamazepine, rifampin, St. John's wort
	Inhibitors: may increase CBD and THC	cimetidine, omeprazole, esomeprazole, ticlopidine, fluconazole, fluoxetine, isoniazid
	Substrates: CBD may increase the level of medications metabolized by 2C19 such as norclobazam (active metabolite in clobazam). CBD may also prevent clopidogrel from being activated. Unlikely to have effect on THC	aripiprazole, citalopram, clopidogrel, diazepam, escitalopram, moclobemide, norclobazam, omeprazole, pantoprazole, sertraline

Mental Health

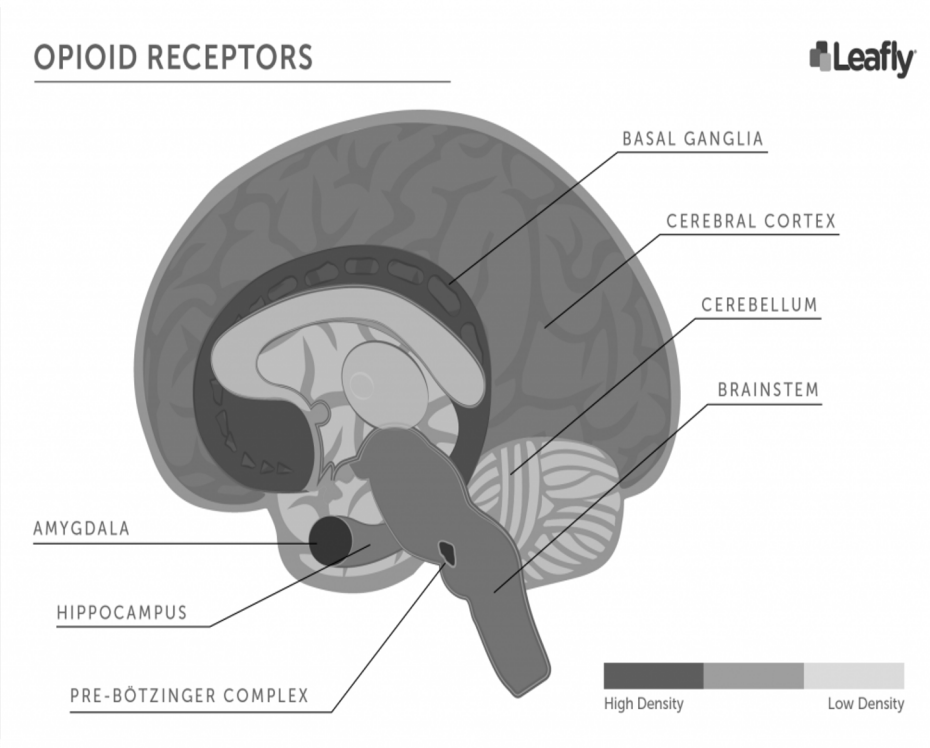
Cannabis (THC) appear to affect the same reward system as alcohol, cocaine, opioids.

Evidence for cannabis physiological & psychological dependence:

- –irritability, anxiety, disturbed sleep, craving

Mental wellness

- –Worsen sub-clinical, stable mental illness
- –Effects on motivation
- –Psychosis in genetically susceptable individuals



Tolerance & Adverse Effects (AEs)

Tolerance

- –Mood, sleep
- –Psychomotor performance
- –Arterial pressure
- –Antiemetic properties

Common AEs

- ➢**Anticholinergic effects** (dry mouth, blurry vision, urinary retention, tachycardia, constipation, hypertension).
- ➢**CNS effects** (ataxia, cognitive dysfunction, hallucination).

Cannabis Hyperemesis Syndrome

At The Dispensary: virtual/in-person/www

The “Budtenders” aka “Who’s Behind the Counter”

- 158 budtenders, 56% had received formal training to become a budtender.
- For workplace characteristics, trained budtenders were
  - more likely to report budtender as their primary job (74% vs 53%)
  - practice more than 5 years (34% vs 11%)
  - receive sales commission (57% vs 16%)
  - less likely to perceive medical decision-making as very important (47% vs 68%) & have a patient-centered philosophy (77% vs 89%)
- Budtenders who are formally trained exhibit significantly different patterns of interaction with medical cannabis patients.
  - they were significantly more likely to exchange information with patients through e-mail (58% vs 39%), text message (46% vs 30%), mobile app (33% vs 11%), video call (26% vs 3%) & social media (51% vs 23%).
  - had significantly lower Internet usage

(Peiper, et al., 2017)

The “Budtenders” aka “Who’s Behind the Counter”

- 55 dispensary staff, 55% reported some formal training, with 20% reporting medical/scientific training.
- 94% indicated that they provide specific cannabis advice.
- Staff trended toward recommendations of Indica for anxiety, chronic pain, insomnia, nightmares & Tourette's syndrome.
- Indica/hybrid plants for post-traumatic stress disorder (PTSD)/trauma and muscle spasms.
- Dispensary staff were most likely to recommend a 1:1 ratio (THC):(CBD) for patients suffering from anxiety, Crohn's disease, hepatitis C, and PTSD/trauma
- Patients seeking appetite stimulation were most likely to be recommended THC.
- High CBD for arthritis and Alzheimer's disease & a high CBD or 1:1 ratio for ALS, epilepsy, and muscle spasms.

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- Conclusions: Although many dispensary staff are making recommendations consistent with current evidence, some are recommending cannabis that has either not been shown effective for, or could exacerbate, a patient's condition.

- Findings underscore the importance of consistent, evidence-based, training of dispensary staff who provide specific recommendations for patient medical conditions.

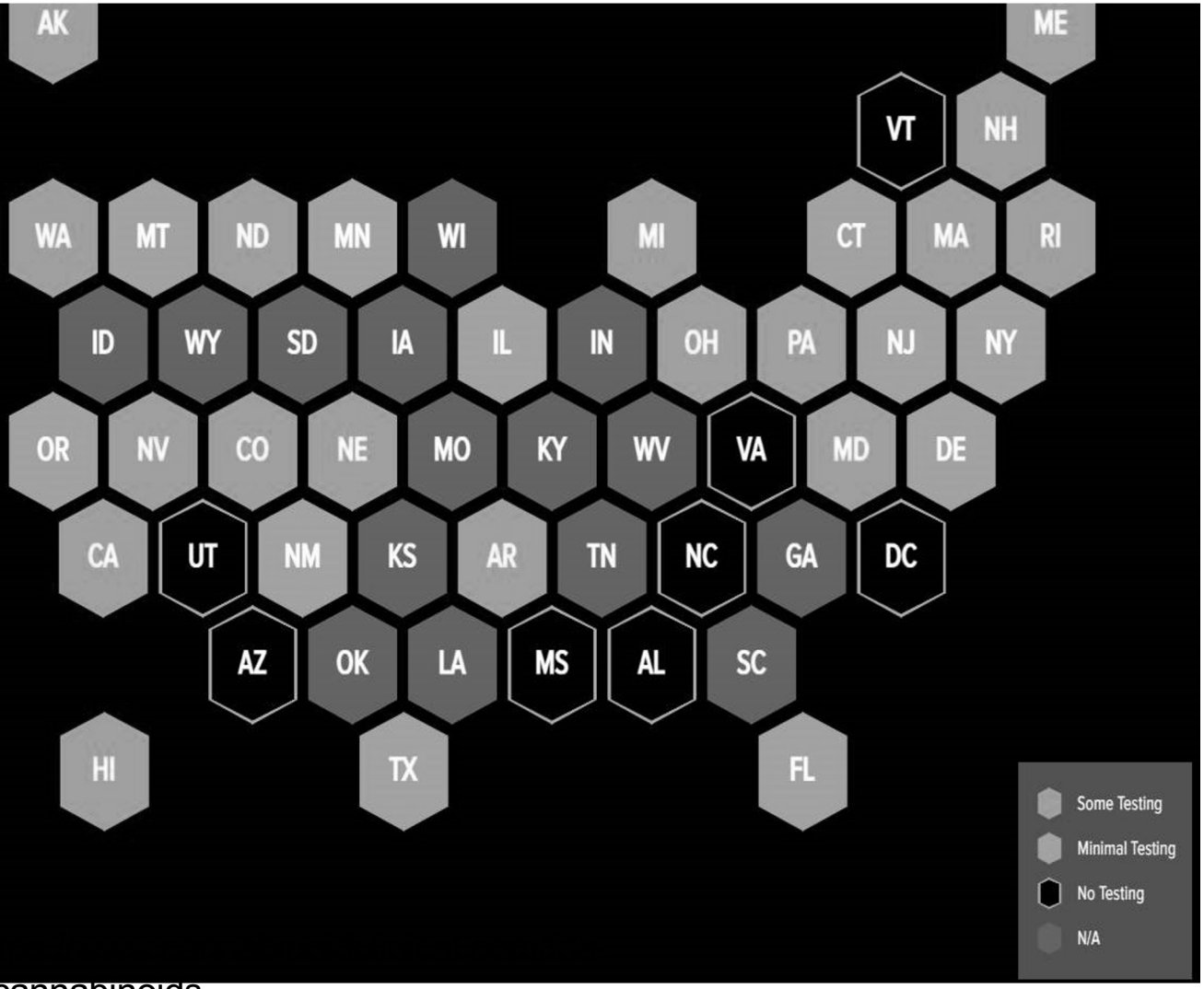
(Haug, et al., 2016)

The State of Cannabinoid Testing

Of the thousands of cannabinoid products being sold in the market, only a handful undergo testing for quality, safety, and effectiveness.
This map shows how cannabinoid products are regulated by each state, in comparison to FDA-approved medications.

FDA APPROVAL PROCESS

Valid as of August 25, 2019. Check a state's website for the most up-to-date information.



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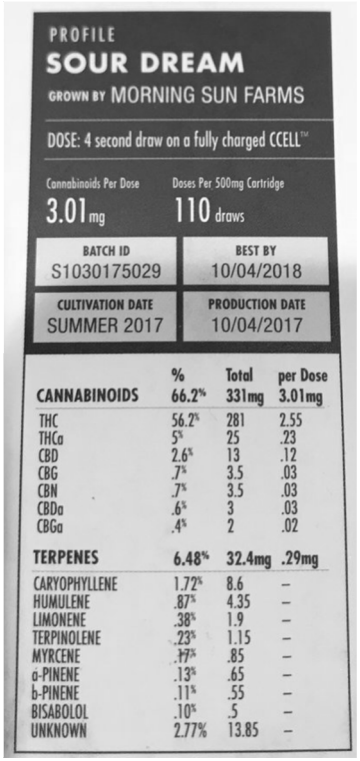
regulation-cannabinoids

Recommend Only Products that Are Properly Labeled

- Label information should include the ingredients and the milligrams of each cannabinoid per dose.
- Recommend only products from companies that test for potency, pesticides, mold, and bacteria.
- Mindful of byproducts of production (e.g., solvents).



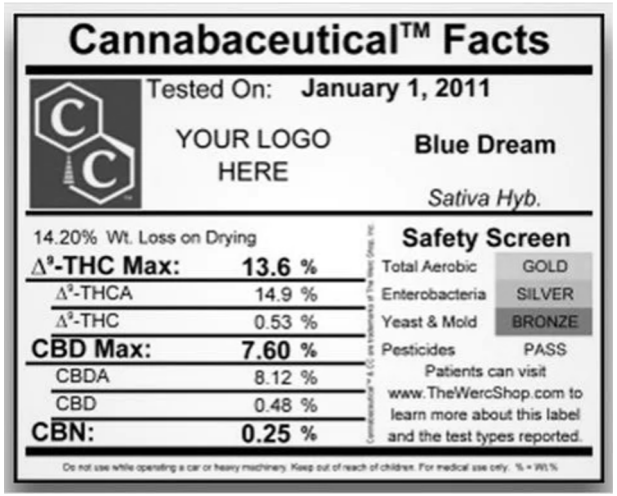
PROFILE
SOUR DREAM
GROWN BY MORNING SUN FARMS

DOSE: 4 second draw on a fully charged CCELL™

Cannabinoids Per Dose	Doses Per 500mg Cartridge
3.01 mg	110 draws

BATCH ID	BEST BY
S1030175029	10/04/2018
CULTIVATION DATE	**PRODUCTION DATE**
SUMMER 2017	10/04/2017

CANNABINOIDS	% 66.2%	Total 331mg	per Dose 3.01mg
THC	56.2%	281	2.55
THCa	5%	25	.23
CBD	2.6%	13	.12
CBG	.7%	3.5	.03
CBN	.7%	3.5	.03
CBDa	.6%	3	.03
CBGa	.4%	2	.02
TERPENES	**6.48%**	**32.4mg**	**.29mg**
CARYOPHYLLENE	1.72%	8.6	–
HUMULENE	.87%	4.35	–
LIMONENE	.38%	1.9	–
TERPINOLENE	.23%	1.15	–
MYRCENE	.17%	.85	–
a-PINENE	.13%	.65	–
b-PINENE	.11%	.55	–
BISABOLOL	.10%	.5	–
UNKNOWN	2.77%	13.85	–



Cannabaceutical™ Facts

Tested On: January 1, 2011

YOUR LOGO HERE

Blue Dream

Sativa Hyb.

14.20% Wt. Loss on Drying

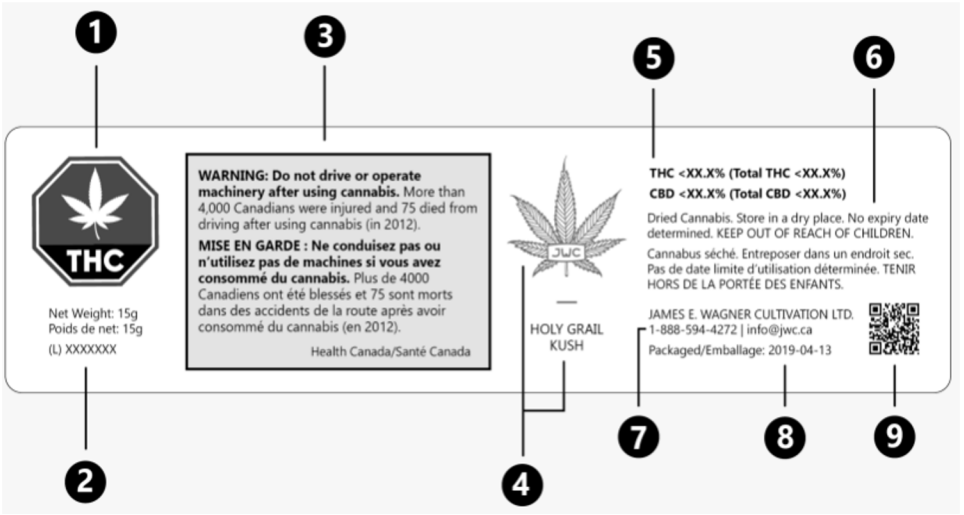
Δ⁹-THC Max:	**13.6 %**
Δ⁹-THCA	14.9 %
Δ⁹-THC	0.53 %
CBD Max:	**7.60 %**
CBDA	8.12 %
CBD	0.48 %
CBN:	**0.25 %**

Safety Screen

Total Aerobic	GOLD
Enterobacteria	SILVER
Yeast & Mold	BRONZE
Pesticides	PASS

Patients can visit www.TheWercShop.com to learn more about this label and the test types reported.

Do not use while operating a car or heavy machinery. Keep out of reach of children. For medical use only. % = W/%



Chemical Varieties/"chemovars"

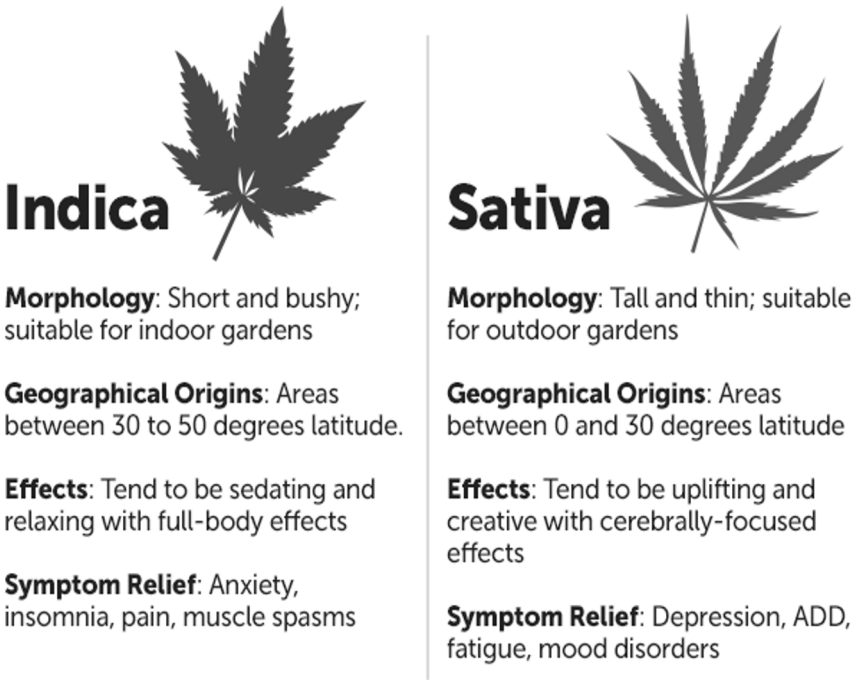
Though cannabis is biologically classified as a single species: *Cannabis Sativa*, there are at least three distinct plant varieties:

- Cannabis Sativa
- Cannabis Indica
- Cannabis Ruderalis

(Pennisi, 2017)

www.leafly.com

www.safeaccessnow.org/using_medical_cannabis



⇩THC ⇧CBD

⇧THC ⇩CBD

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Practical Dosing

Regardless of the specific physiological system, the effects of cannabis are dependent on many factors:

- Dose, variety
- Route (Inhalation, oral, transmucosal, transdermal, topical)
- Timing
- General health (medical co-morbidities), Age
- Use of other substances/medications
- Chronic user of cannabis versus naive

https://www.colorado.gov/pacific/sites/default/files/MED%20Equivalency_Final%2008102015.pdf

Lack of Standardization Makes Dosing a Challenge for Patients & Practitioners

Overconsumption:

- Re-dosing too soon
- Delayed on-set with oral dosing (>120 minutes)
- Hostile behavior/erratic speech/mild psychosis

The L.E.S.S. Method: A measured approach to oral cannabis dosing

Start **L**ow

- **E**stablish potency
- Go **s**low
- **S**upplement as needed (Erowid & Erowid, 2011)

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Oral vs Inhaled

	INHALED	ORALLY INGESTED
Peak Blood Levels (min)	3-10	60-120
Bioavailability (%)	10-40	<15
Time to peak psychoactive activity (min)	20	120-240

Practical Dosing

Average adult dosing of THC:

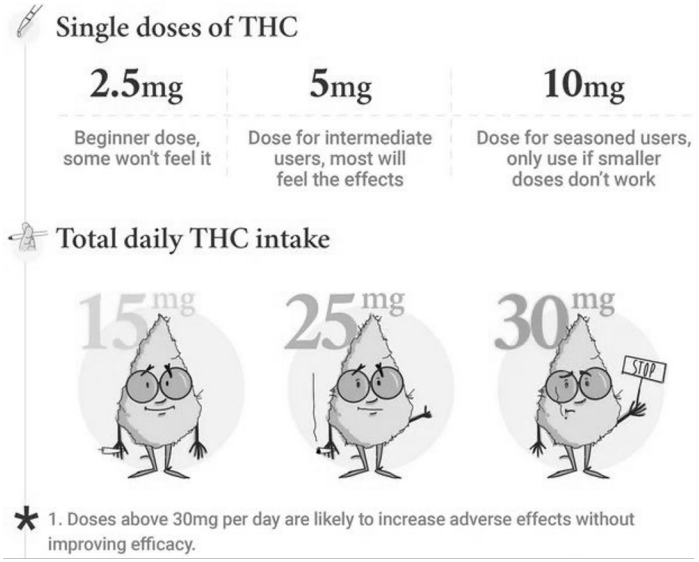
- Cannabis-naïve individuals 2.5-5 mg
- Daily - weekly users 10-20 mg
- Daily+ 25 mg+

- Doses exceeding 20–30 mg/day may increase adverse events or induce tolerance without improving efficacy.

https://www.leafly.com/news/cannabis-101/cannabis-edibles-dosage-guide-chart
(MacCallum & Russo, 2018)

- Average adult dosing of CBD:
  300-1500 mg/day

https://www.webmd.com/vitamins/ai/ingredientmono-1439/cannabidiol
(MacCallum & Russo, 2018)



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Practical Dosing

- Sativex® (1:1 THC/CBD): Spasticity due to multiple sclerosis.

➢2.7mg/2.5mg BID

(max 32.4mg/30mg/day)

https://www.medicines.org.uk/emc/product/602

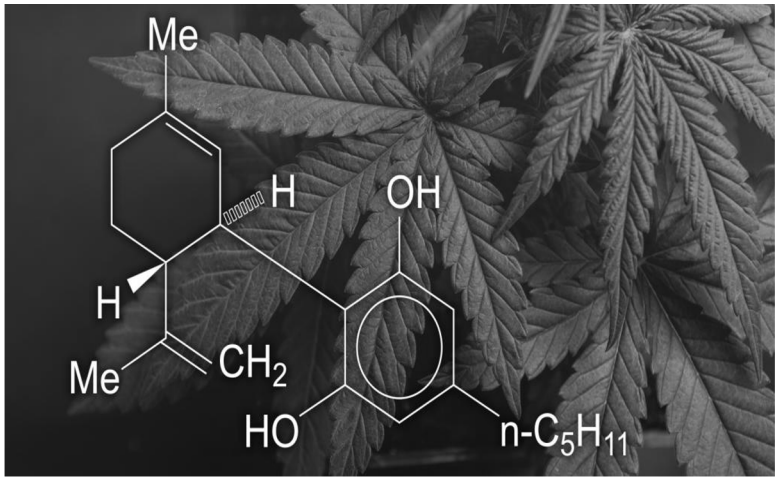
- Epidiolex® (CBD): Seizures (Dravet/Lennox-Gastaut)

➢5 mg/kg oral BID

(max 20 mg/kg/day)

https://www.epidiolex.com/sites/default/files/EPIDIOLEX_Full_Prescribing_Information.pdf

Cannabidiol (CBD)



Defining Terms:

- CBD from Hemp (↑contaminants, ↓THC)
- CBD from cannabis sativa (↑THC, ↑purity)
- Hemp Oil (seeds of hemp plant, little/no CBD, no THC, +essential fatty acids, +omega three)

Research:

- Epidiolex®
- Other - preliminary research included studies of anxiety, cognition, movement disorders, and pain (anti-inflammatory).
- Efficacy most antidotal (discuss current animal studies).

Safety: Dosing toxicity? Anti-inflammatory effects? CYP450 metabolism.

Side Effects: Fatigue, diarrhea, changes of appetite/weight, dry mouth. Transaminase elevations (reported in Epidiolex studies).

Consumer Brands Association (CBA)

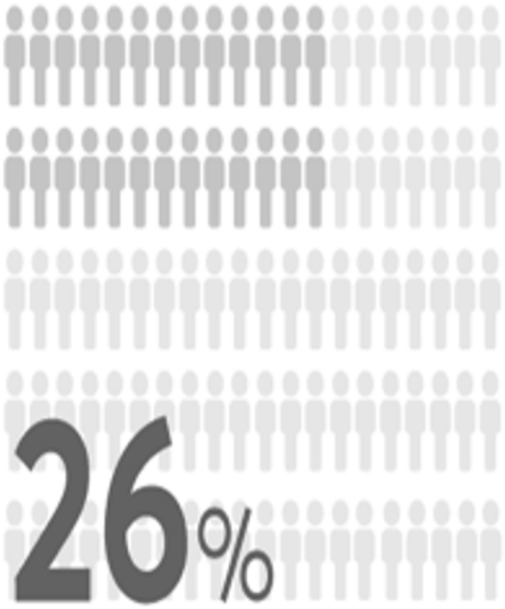
To enhance safety & ensure appropriate regulation of CBD products.

- CBA is NOT a government agency
  https://consumerbrandsassociation.org/

Grocery Manufacturers Association (GMA): survey of 2,056 U.S. adults (age 18 and older)
https://progressivegrocer.com/gma-consumers-confused-about-cbd

- 1:3 of Americans use a CBD product
- 76% assume that CBD products are subject to federal regulations and safety oversight
- 66% believe CBD is safe
- >50% pain, anxiety, sleep
- 39% believe that CBD is just another name for marijuana

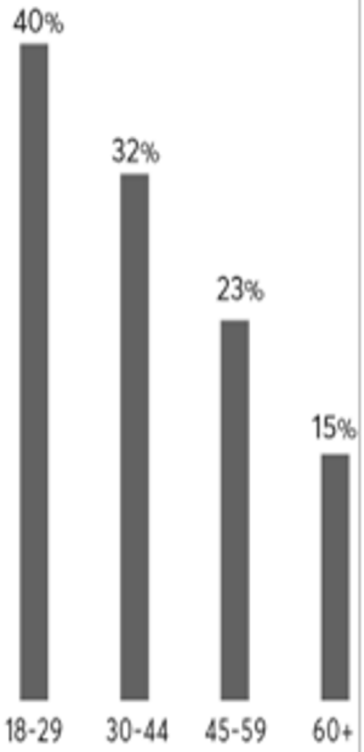
Who Uses CBD?



26%

of Americans have tried CBD at least once in the past two years.

How Old They Are



What Do People Use CBD For?

		Extremely or very effective	Slightly or not at all effective
Reduce stress or anxiety or help you relax	37%	63%	16%
Help with joint pain	24%	38%	27%
For fun or recreation	11%	24%	22%
Better sleep	10%	52%	16%

How CBD Use Differs by Age

CR Consumer Reports

Source: January 2019 CR national representative survey.

Practical Discussion in the Office

- Patient provider treatment agreement (if for medicinal use).

https://adai.uw.edu/mcacp/docs/treatmentagreement.pdf

- Requirement of patient obtaining a state issued medical cannabis card.
- Documentation of counseling if recreational use discussion.
- It is not illegal to have a discussion and provide counseling.
- Having the discussion, does not meaning your endorsement or condoning of behavior.
- Provide resources

PAINWEEK®

The Medicinal Cannabis Treatment Agreement: Providing Information to Chronic Pain Patients via a Written Document (Wilseya, et al., 2015)

- Obligation to understand and inform patients on key issues of the evidence base on cannabinoid therapeutics.
- One way to fulfill this obligation might be to use of a written agreement to describe & minimize risks.
- Method of educating patients in a manner analogous to other treatment agreements.

Final Takeaways

- Familiarize yourself with
  - THC, CBD dosing
  - drug : drug (plant) interactions, side effects, withdrawal
  - local dispensaries & counsel patient to accordingly

- **Consider The Treatment Agreement**
- Continue to remember “marijuana” is Federally illegal
- Informed about state laws
- Mindful of addiction, abuse, mental health issues

Thank You

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Resources

Dispensary Information: Patient Focused Certification

http://patientfocusedcertification.org/certification/

- Addresses product & distribution safety.
- Based on quality standards for medical cannabis products and businesses issued by the American Herbal Products Association (AHPA) and the American Herbal Pharmacopoeia (AHP) Cannabis monograph.

http://camcd-acdcm.ca/

- More and more states are mandating certification and regulated licensures from dispensaries (e.g. FL).

Resources

Canadian Consortium for the Investigation of Cannabinoids (CCIC): www.ccic.net

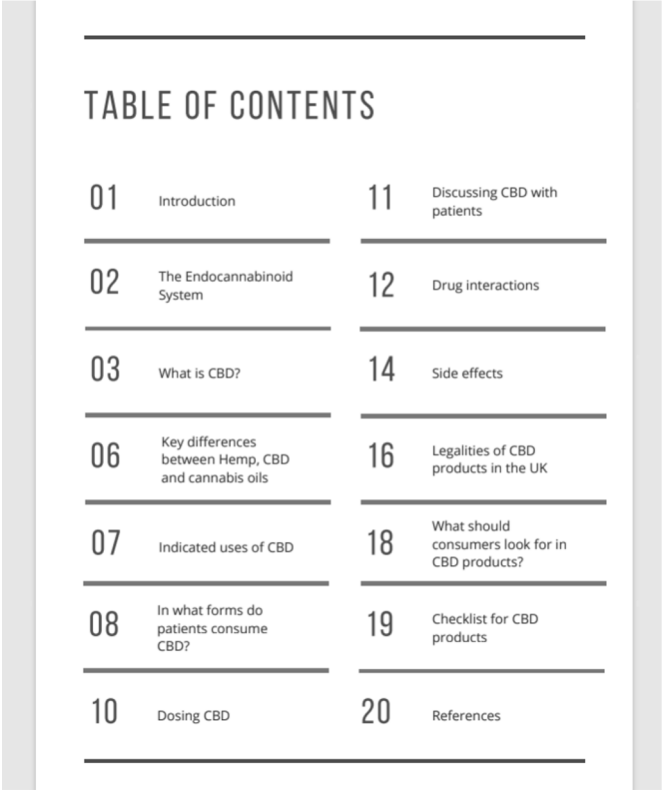
- Accredited cannabinoid education (ACE) programs
- Informed by needs assessments, expert faculty

- International Cannabinoid Research Society (ICRS): https://icrs.co/
- International Association for Cannabinoid Medicine (IACM): www.cannabis-med.org
- University of Washington & Alcohol and Drug Abuse Institute (ADAI)
- http://adai.uw.edu/mcacp/index.htm
- Society of Cannabis Clinicians: www.cannabisclinicians.org
- https://www.cannabinoidclinical.com/cannabinoid-resource (site sponsored by Greenwich Biosciences, Inc.)

PAINWEEK

Resources

https://www.ukmccs.org/wp-content/uploads/2020/06/A-Clinicians-Guide-to-CBD-v1-June-2020.pdf



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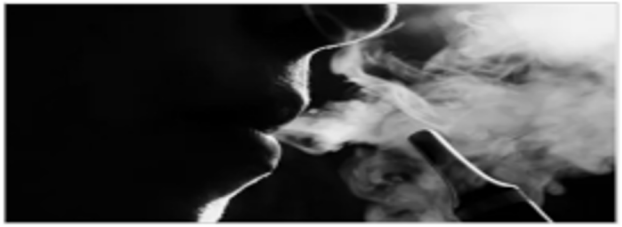
Your Guide to CBD

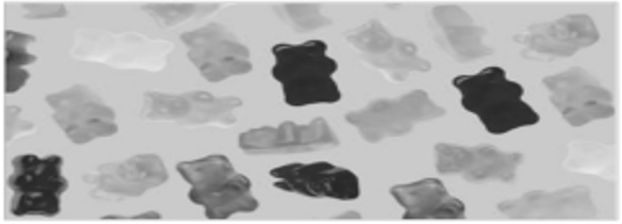
A Guide to CBD and Cannabis for Older Adults



Is It Safe to Vape CBD?

CBD Goes Mainstream

How to Shop for CBD



How to Safely Use CBD: Should You Inhale, Spray, Apply, or Eat It?

CBD May Be Legal, But Is It Safe?

CR Consumer Reports

https://www.consumerreports.org/cbd/cannabis-and-cbd-guide/

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