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Medical Marijuana: What you should know

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Katie Arensmeyer, MSN, ANP-BC, AOCNP
University of Maryland Medical Center

Disclosure

This presenter has no financial interest or other relationships with manufacturers of commercial products, suppliers of commercial services, or commercial supporters.

Objectives

- Know the current state and federal laws regarding medical marijuana
- Identify the different types of Cannabis
- Have a working knowledge the Endocannabinoid System
- Identify the uses of medical Cannabis
- Working knowledge of dosing and routes of Cannabis
- Know the risks and side effects of Cannabis
- Understand the registration and certification process
- Be able to discuss Medical Marijuana with patients and families

History

Use of cannabis dates back at least 3,000 years

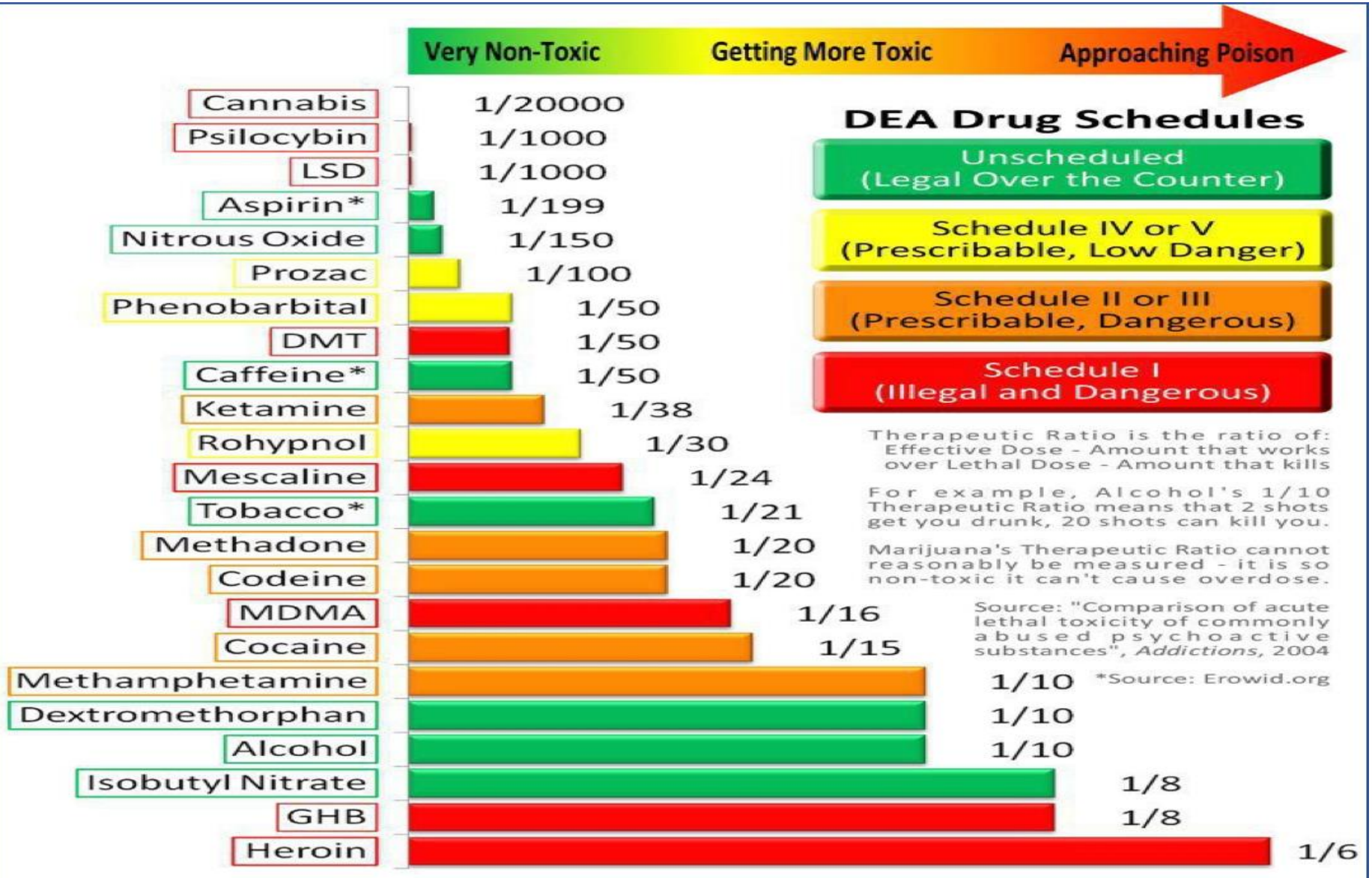
- **1839:** Introduced to Western World by W.B. O'Shaunessy after trip to India
  - Used for N/V, anorexia, anxiety and insomnia for 100 years
- **1937:** Marihuana Tax Act - $1/oz Medical Marijuana; $100/oz recreational
  - AMA opposed the tax as the providers were responsible
- **1942:** Cannabis removed from US Pharmaceuticals sales and listing

History

- **1951:** Boggs Act: included Cannabis with narcotics
- **1970:** Passage of Controlled Substance Act
  - Marijuana identified as Schedule 1: high risk of addiction with no medical benefit (heroin, LSD)
- **1978-1992:** Compassion Use Program allowed use for cancer patients and glaucoma
- **1996:** California became 1st state to legalize Medical Marijuana
- **2019:** 30 States, District of Columbia, Puerto Rico and Guam have legalized Medical Marijuana
- **STILL NOT LEGAL PER THE FEDERAL GOVERNMENT**

History

STILL NOT LEGAL PER THE FEDERAL GOVERNMENT


Very Non-Toxic
Getting More Toxic
Approaching Poison
Cannabis 1/20000
Psilocybin 1/1000
LSD 1/1000
Aspirin* 1/199
Nitrous Oxide 1/150
Prozac 1/100
Phenobarbital 1/50
DMT 1/50
Caffeine* 1/50
Ketamine 1/38
Rohypnol 1/30
Mescaline 1/24
Tobacco* 1/21
Methadone 1/20
Codeine 1/20
MDMA 1/16
Cocaine 1/15
Methamphetamine 1/10
Dextromethorphan 1/10
Alcohol 1/10
Isobutyl Nitrate 1/8
GHB 1/8
Heroin 1/6
DEA Drug Schedules
Unscheduled (Legal Over the Counter)
Schedule IV or V (Prescribable, Low Danger)
Schedule II or III (Prescribable, Dangerous)
Schedule I (Illegal and Dangerous)
Therapeutic Ratio is the ratio of: Effective Dose - Amount that works over Lethal Dose - Amount that kills
For example, Alcohol's 1/10 Therapeutic Ratio means that 2 shots get you drunk, 20 shots can kill you.
Marijuana's Therapeutic Ratio cannot reasonably be measured - it is so non-toxic it can't cause overdose.
Source: "Comparison of acute lethal toxicity of commonly abused psychoactive substances", Addictions, 2004
*Source: Erowid.org

Types of Cannabis

- Cannabis Sativa “Industrial Hemp”
  - Non flowering, male plant
  - Low THC, non-psychoactive plant
  - 400 chemical components and 60 cannabinoid compounds
  - Enhances focus, creativity, energy and serotonin levels

- Cannabis Indica “Marijuana”
  - Flowering, female plant
  - Higher THC, >1.5%
  - Used for Medicinal, Spiritual and Social

- Dronabinol (Marinol): Synthetic THC cannabinoid (appetite/N/V)
- Nabilone: Synthetic THC cannabinoid analog (N/V)

Cannabis

Indica

Description:
- dark green
- short and dense
- short, wide fan leaves

Effects:
- Has a relaxing effect
- Experience a "body buzz"
- Preferred for night use

Sativa

Description:
- light green
- tall and lean
- long, narrow fan leaves

Effects:
- People feel more energetic
- Hallucinogenic
- Preferred for day use

Cannabis

- Hybrids

  Combination of Indica and Sativa – most common in US

- THC – measured in grams
  - Primary psychoactive component
  - Weak partial agonist on CB1 and CB2

- CBD
  - Non-psychoactive
  - Whole body, relaxing
  - Oils

- Terpenes
  - Aromatic and Flavor

Cannabis

HEMP OIL vs CANNABIS OIL

THE DIFFERENCE BETWEEN CBD FROM HEMP AND CBD FROM CANNABIS STRAINS

HEMP OIL

Product
Hemp bi-product.

Labels
Must state that is made from hemp.

Testing
Due to lax testing outside the U.S. some products may be highly contaminated.

Ingredients
GMO's, tranfats & additives.

Extraction
BHO, propane, hexane, hydrocarbons or CO_2.

Hemp
Typically low in cannabinoid content. A huge amount of hemp is required to extract a small amount of CBD, raising the risk of contaminants because hemp, a bioaccumulator, draws toxins from the soil.

CANNABIS OIL

Product
High level CBD. For maximum therapeutic impact, choose both CBD and THC product.

Labels
Show ratio of CBD/THC, a manufacturing date and batch number.

Testing
Varies by state. Tested for consistency.

Ingredients
No corn syrup, GMO's, tranfats or additives

Extraction
Supercritical CO_2, butane, ethanol, non-toxic.

Cannabis
The robust terpene profile of whole plant cannabis enhances the therapeutic benefits of CBD and THC.

Proven Effectiveness

Per Clinical Trials

Moderate to High Quality Evidence of effectiveness in:

- Cachexia
- Chemo Induced Nausea and Vomiting (CINV)
- Pain (Cancer and Rheumatoid Arthritis)
- Chronic Pain
- Neuropathy (DM, HIV/AIDS, MS)
- Spasticity (MS, Spinal Cord Injury)

- Single study with evidence of Effectiveness:
  - Reduction in the frequency of seizures (Charlotte's Web)
  - Decreased symptoms from PTSD
  - Improvement in tics (Tourette Syndrome)

Proven Effectiveness

- Medical Cannabis, used in combination, noted a decrease in:
  - Opioids by 42.88%
  - Antidepressants by 17.64%
  - Mood Stabilizers by 33.33%
  - Benzodiazepines by 38.89%

- 2016 Retrospective study by Boehnke, Litina and Clau:
  - Patients using Medical Marijuana self reported:
    - Decrease in opioid use by 64%
    - Decrease in number of adverse effects
    - Increase in Quality of Life

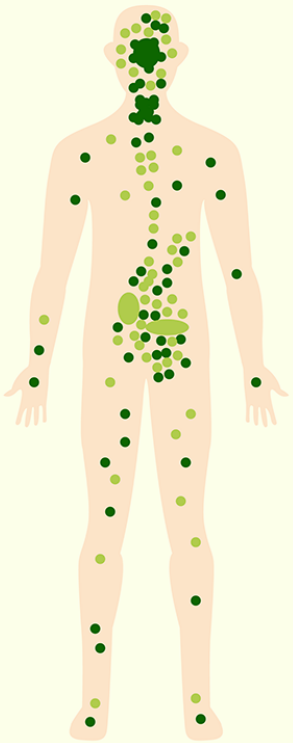
HUMAN ENDOCANNABINOID SYSTEM

THE MOST WELL KNOWN CANNABINOID RECEPTORS, CB1 AND CB2, ARE PROTEINS THAT ARE IMBEDDED IN THE MEMBRANE OF CELLS.
THESE SURFACE PROTEINS ARE THEN ATTACHED TO ANOTHER PROTEIN THAT DETERMINES THE SIGNALING DIRECTION ACTIVATION OR INHIBITION

CB1

CB1 Receptors target :

Appetite
Immune cells
Motor activity
Motor coordination
Pain perception
Short term memory
Thinking



CB2

CB2 Receptors target :

Adipose tissue
Bone
Cardiovascular system
Central nervous system
Eyes
Gut
Immune system
Kidneys
Liver
Pancreas
Reproductive system
Respiratory tract
Skeletal muscle
Skin
Tumors

CB1

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

CB2

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

Endocannabinoid System

- https://vimeo.com/322868489

Mechanism of Symptom Management

- CB1 Receptors are primarily in the Brain
  - THC: Psychoactive
    - Pain, nausea, spasticity/spasms, appetite stimulation, anxiety, depression, PTSD, insomnia
- CB2 Receptors are primarily in the immune system and bones
  - CBD
    - Analgesic, anti-inflammatory, anti-anxiety, anti-psychotic

Pathways and Dosing for Symptom Management

- Acute Pain (CB1)
  - Higher THC
- Chronic Pain (CB2)
  - Higher CBD
- Neuropathic Pain (CB1 and CB2)
  - Equal THC and CBD

Pathways and Dosing for Symptom Management

- Nausea and Vomiting (CB1): via 5HT3 pathway
  - Higher THC
- Appetite (CB1): Endogenous Cannabinoid system may regulate appetite
  - Higher THC
- Anxiety (CB2): Endocannibinoid system believed to be involved in the regulation of mood
  - Higher CBD

“Start low, go slow and stay low”

Starting Doses:

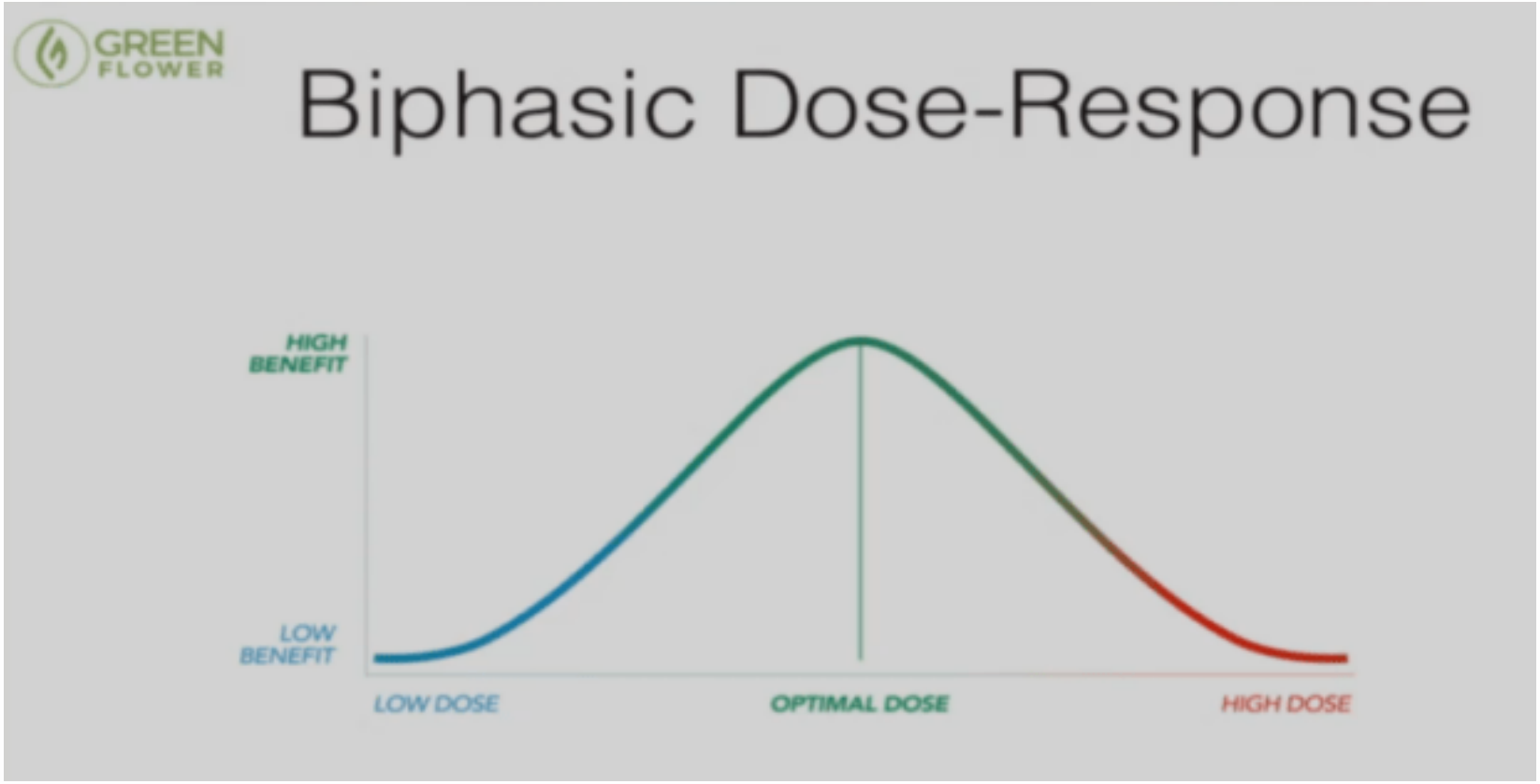
Naïve:	1-5mg
Novice:	5-10mg
Pro:	10-15mg

SLOWLY TITRATE DOSE UP EVERY 2-3 DAYS

Code of Maryland Regulations (COMAR) defines the 30-day supply of dried flower as 120 grams or 36 grams of THC in processed products.

If more than the 120 grams is ordered – the script must detail why the increased amount is needed.

Dosing



Recommend Dosage Diary be kept daily

Can usually obtain book from dispensary

Dosing

Dosing

- Determine Goal of Medical Marijuana
- Determine combination of THC/CBD
  - Limit THC to 30mg DAILY at the most

Driving/Work Safety:

- **CBD** (DAY) predominant preparations during working hours
- **THC** (NIGHT) predominant preparations after work/ before sleep

Route of Administration

- Smoking – Fast acting
- Vaping – Fast acting
- Edible – Slow acting, longer duration
- Oil – sublingual
- Topical

Adverse Effects

Cannabinoid Receptors are not located in brain stem cardiorespiratory center.

Does not decrease respirations

NO OVERDOSE HAS BEEN REPORTED

If develop Tachycardia, Anxiety, Irritability, Insomnia – increase the percentage of CBD

Withdrawal:

Irritability, anger, aggression, nervousness, anxiety, insomnia, weight loss, depression, physical symptoms: abdominal pain, sweating, chills, fever

- Anecdotal evidence that mild symptoms may occur after >7 days of THC 20mg q 3-4 H

Adverse Effects

Common Side Effects: **Usually early and transient**

- Dizziness
- Fatigue/Somnolence
- Tachycardia
- Xerostomia
- Vertigo

Rare:

- Cannabinoid Hyperemesis Syndrome – usually found in young, long term, recreational users

Adverse Effects

Interactions:

- Concurrent use of the CNS depressants with cannabis **- Over sedation**
- Warfarin with **CBD – Bleeding**
- Oral chemotherapies with **CBD - Toxicities**
- Limited studies done so not all interactions may be known

CONTRAINDICATIONS:

- Pregnancy
- Psychosis

Risks:

- OTC CBD: not regulated and often contaminated (cyanide)
- Recreational Marijuana and/or states that are not strictly regulated: contamination, poorly defined percentages of THC and CBD (fungus, pesticides)

Vaping Lung Injuries

On October 9, 2019 MMCC shared an October 4 vaping related advisory from Maryland Department of Health and FDA warning consumers not to use vaping products containing THC. MMCC discouraged the use of vaping products.

- **Over 1,000 individuals nationwide have developed severe lung injuries after vaping, including at least 23 cases in Maryland.**
  - #1 risk factor identified to date – vaping pre-filled cartridges of cannabis-derived products like THC
- Vaping ANYTHING is NEVER safe for adolescents or for pregnant women
- No clear link between any product or substance has been identified as common component in all of the lung injury cases.

Facts related to Vaping Lung Injuries may be found at: https://phpa.health.Maryland.gov/OEHFP/EH/Pages/VapingIllness.aspx

Provider Certification

Provider must Register to Order Medical Cannabis

- Maryland Medical Cannabis Commission
  - https://mmcc.health.maryland.gov/Registry
  - 2 Hour education course
  - Must have Provider (Medical or AP) License and DEA number
  - Certification good for 2 years – renew on line

Patient Card

https://mmcc.health.maryland.gov/Registry/LandingPage.aspx

- **Submit Application online – need a valid email**
  - THIS INDICATES PATIENT IS REGISTERED
  - Registration is valid for 2 years

- **Obtain Certification (Physician or NP/PA)**
  - MUST HAVE written certification from provider
  - Certification is valid for 1 year
  - If not used in a legal dispensary within 120 days will need to obtain certification again
  - Cost approximately $100-200

- **ID Card**
  - Obtain after received the written certification
  - $50 with state

- Can purchase medical marijuana prior to obtaining ID Card as long as have the registration and certification

Six Principals of Essential Knowledge

- Working knowledge of the current state of legalization of medical and adult use cannabis
- Working knowledge of the jurisdiction's medical cannabis program
- An understanding of the Endocannabinoids system, the receptors, ligands, enzymes, and the intersections among them
- An understanding of cannabis pharmacology and the research associated with the medical use of the cannabis
- Be able to identify the safety considerations for patient use of cannabis
- Approach the patient without judgement regarding the patient's choice of treatment or preferences in managing pain and other symptoms

National Council of the State Board of Nursing: Journal of Nursing Regulation 2018

Patient Discussion

- Self Awareness
- Social Stigma
- Goals of Treatment

Summary

- Medical Marijuana is legal for medicinal use in MD but still not FEDERAL
- Effective due to Endocannabinoid System and receptors
- Marijuana is made up of THC and CBD
- Start with Low dose and slowly titrate up
- Most effective in combination – percentages will depend of reason for use
- Routes are varied – safest at this time are edible and topical
- Side effects and contraindications are present – still much we do not know
- Patients must be registered, get physician certification for use and only buy from registered dispensaries
- Risks with vaping, OTC CBD, non-regulated dispensaries

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QUESTIONS?

THANK YOU