

INTRODUCTION TO CANNABIS

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Our Focus Today...



HISTORY OF CANNABIS:

- Cannabis referenced by early Chinese emperors (2900-2700 BC)
- Used as medicine in Egypt, Greece, India (1500-200 BC)
- Chinese physician Hua T'o used cannabis as an anesthetic to perform surgery (2nd century AD)
- 1850 cannabis listed in the US Pharmacopoeia as a cure for many ailments
- Early 1900's Squibb Company, Eli Lilly and Parke Davis were manufacturing tinctures produced from cannabis for use in migraines, muscle spasms, seizures and pain.

FEDERAL RESTRICTIONS:

- Passage of Marijuana Tax Act 1937- restriction of cannabis use and sales
- Legal penalties for possession 1951 & 1956 with Boggs and Narcotic Control Acts
- Limited research by restricting procurement by academic institutions
- Controlled Substances Act of 1970- Federal Prohibition
 - Marijuana Opportunity, Reinvestment and Expungement (MORE) Act to repeal the federal prohibition and criminalization of cannabis passed the House Judiciary Committee in 2021. Stalled in Senate
- Classified as a Scheduled 1 controlled substance – “no acceptable medical use, high abuse potential, and lack of accepted safety under medical supervision” ~ Heroin and LSD also in this class



CURRENT LEGAL STATUS:

- STILL FEDERALLY ILLEGAL and deemed a schedule 1 drug
- 1996 California became 1st state to permit medical cannabis for compassionate use
- As of February 2021, 39 states plus D.C. have legalized medical cannabis
- Maryland legalized medical cannabis in 2014
 - Recreational to begin 7/2023
- Hemp has been legal to grow and cultivate since 2018 Farm Bill



The Endocannabinoid System: (ECS)

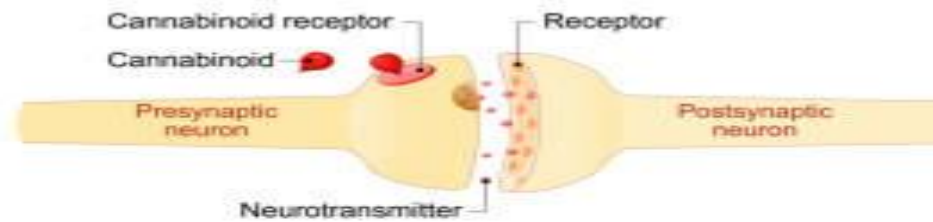
(Naturally occurring in our body)

- Complex cell signaling system
- Identified in 1988 – not fully understood
- Biologic network of receptors and signaling proteins

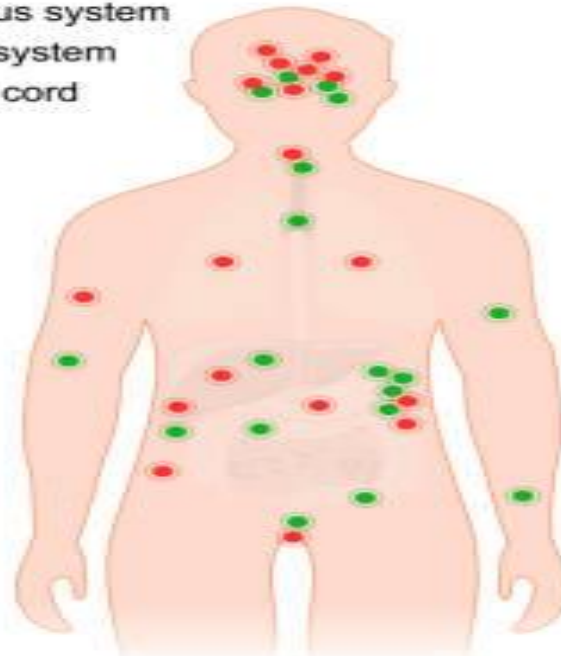
- Evolved 600 million years ago
- All mammals (and some others!) have a naturally occurring ECS
 - Composed of: Receptor sites
 - Activating molecules
 - Degrading enzymes
- Purpose is homeostasis – achieve balance – keeps internal functions stable such as sleep, appetite, mood – produce as needed
- "Lock and key" analogy
- 2 main receptor sites of direct action (so far) CB1 –densely concentrated in the CNS, but also located throughout the body

Endocannabinoid Receptor Sites

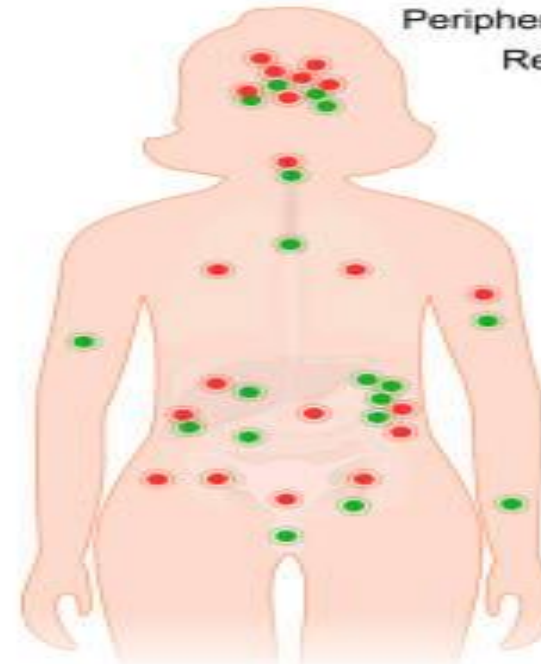
Endocannabinoid system



- Peripheral nervous system
- Central nervous system
- Brain and Spinal cord
- Digestive tract
- Pituitary gland
- Thyroid gland
- Adrenal gland
- Muscle cells
- Liver cells
- Fat cells
- Placenta
- Ovaries
- Kidneys
- Retina
- Lungs
- Sperm



- Peripheral nervous system
- Reproductive system
- Adipose tissue
- Digestive tract
- Thymus gland
- Bone marrow
- Immune cells
- Pancreas
- Kidneys
- Spleen
- Tonsils
- Bones
- Brain
- Liver
- Skin
- Eye

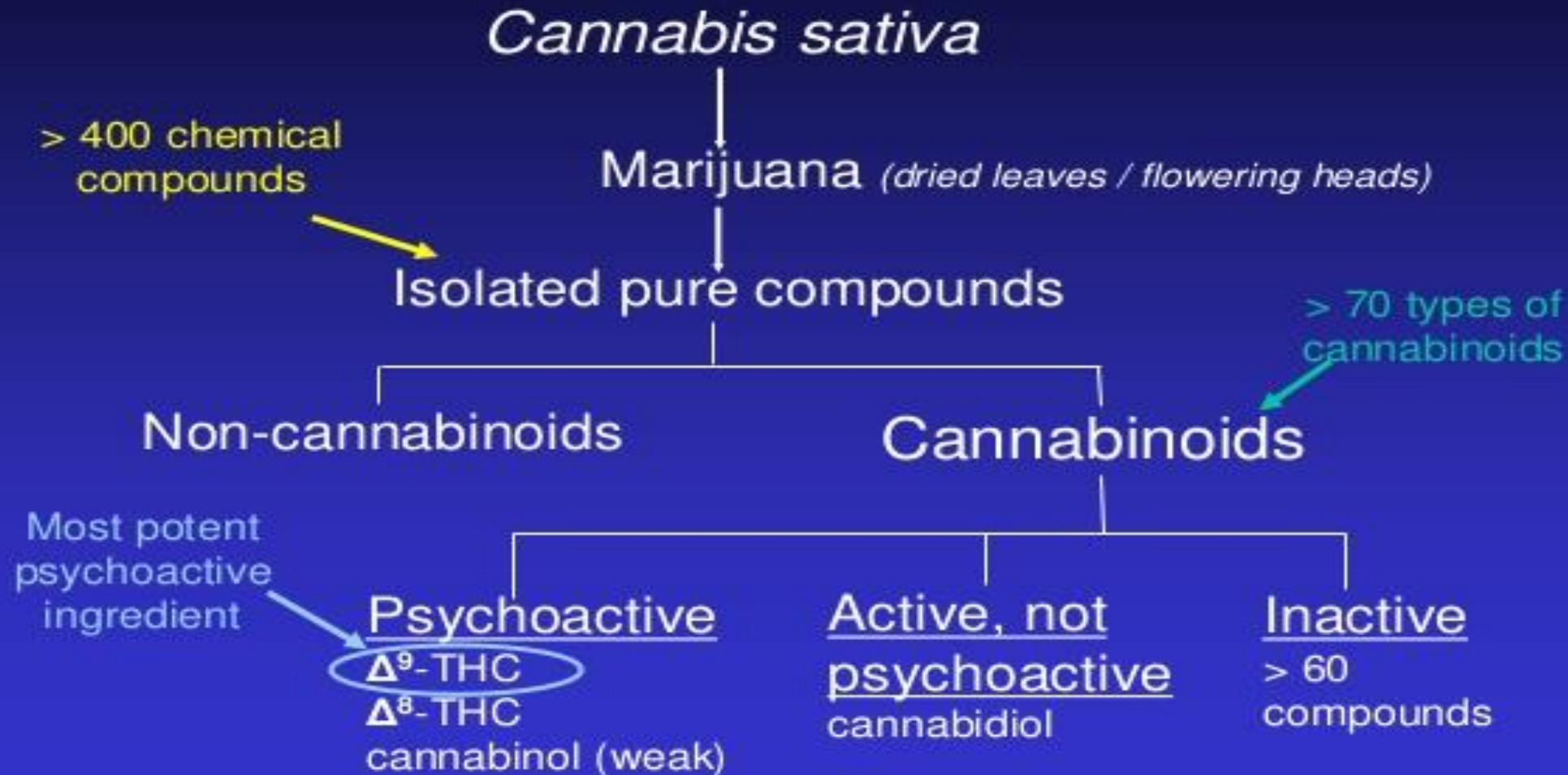


Marijuana - Key Facts



- Cannabis refers to dried leaves, buds, flower, stems and seeds of the Cannabis Sativa plant
- The plant contains about 540 chemical substances ~ cannabinoids and non cannabinoids
- The two main cannabinoids are THC (delta-9-tetrahydrocannabinol) and CBD (cannabidiol)
 - ❖ THC most psychoactive and works primarily on the CB1 receptors
 - ❖ CBD acts on CB2 receptors and does not have significant psychoactive effects that THC has.
 - May mitigate psychoactive effects of THC
- Hemp and Marijuana from same species of plant- Significant variation though
 - ❖ Hemp contains .03% or less THC
 - ❖ No restrictions in growing and cultivating since Farm Bill of 2018
 - ❖ Used mostly in textiles, paper, building materials and body care. Some food products.

Marijuana: What's in it?



OTHER ACTIVE PHYTOCHEMICALS

- 70+ cannabinoids including THC, CBN, CBD, CBC, CBG, THCV.
- Terpenoids (oils) and Flavonoids (phenols) also have therapeutic properties.
- Antioxidant, antimicrobial and anti-inflammatory properties
- Must understand the entourage effect!



CANNABIS MEDICATIONS CURRENTLY IN USE:

AGENT	CANNABIS ELEMENT	INTENDED INDICATIONS	STATUS
EPIDIOLEX (CBD)	CBD	FDA APPROVED; TREATING SEIZURES..Dravet Syndrome & Lennox-Gastaut Syndrome	CLASSIFIED AS SCHEDULE V
MARINOL (DRONABINOL) ORAL CAPSULE	SYNTHETIC THC	FDA APPROVED FOR TREATING ANOREXIA & TREATMENT RESISTANT N/V ASSOCIATED WITH CANCER CHEMOTHERAPY	CLASSIFIED AS SCHEDULE III
CESAMET (NABILONE) ORAL CAPSULE	SYNTHETIC CANNABINOID SIMILAR TO THC	FDA APPROVED FOR TREATING TREATMENT-RESISTANT N/V ASSOCIATED WITH CANCER CHEMOTHERAPY	CLASSIFIED AS SCHEDULE II
SATIVEX (THC AND CBD) OROMUCOSAL SPRAY	THC AND CBD	<u>NOT</u> APPROVED BY FDA APPROVED IN OTHER COUNTRIES FOR SYMPTOM IMPROVEMENT IN ADULTS WITH TREATMENT-REFRACTORY MS SPASTICITY	NOT APPROVED IN U.S. Also CALLED "NABIXIMOLS" ONLY CANNABIS-BASED MEDICATION INTENDED FOR USE IN PAIN MANAGEMENT

DOSING AND ROUTES OF ADMINISTRATION

ORAL AND SUBLINGUAL GOOD OPTIONS

- ~Remember that oral preparations go through first pass metabolism
- ~Patients may want another option if taste is bothersome

THC INTOXICATION

- ~Be aware that high levels of THC may cause nausea
- ~CBD, at ratios 10:1(THC) May limit adverse effects of high THC

KNOW THY PATIENT

- ~Is the patient cannabis naïve?
- ~The psychoactivity of THC usually diminishes after a few days.
- ~Data suggests to start with no more than 2.5mg THC and titrate

~START LOW & GO SLOW~

CERTAIN PATIENT GROUPS

- ~Pregnant and lactating women are not encouraged to utilize cannabis

VAPING AND SMOKING

- ~Allows for easy titration
- ~Data suggests starting with 2.5 mg THC
- ~If no effect ,wait 15 minutes before second inhalation



Medical Cannabis vs Allopathic Medicine

01 Replaces Harmful Pain meds

02 Prescribed by a Medical Professional

03 Personalize Medicine

04 Specific Disease Recommendations



Medical Cannabis

Absolutely

Providers do not prescribe
They can recommend treatment options

Extremely personalized depending on disease state, need, preferences experience, "Go slow, start low" Monitoring!

Dependent on each State
Legalization of specific diseases
May include cancer, chronic pain, epilepsy, PTSD, glaucoma



Allopathic Medicine

Questionable offerings to do so

Health Care Providers prescribe

Providers find applicability in medicine available
Align with FDA indications

Mostly aligned with FDA indications, Scientific evidence

Medical Cannabis vs Allopathic Medicine



Medical Cannabis

05 Dosing Option based on Patient need

YES
Options include
Smoking, vaping,
Oral (edibles)
Tinctures,
Topicals
Levels of recommended dosing THC & CBD based on many factors

Limited to FDA indications unless off-label use

06 Insurance/ Cost concerns

Currently no third party payer is covering cost. Out of pocket expenses can be prohibitive

Drugs may or may not be covered by Patients Commercial, Medicare, or Medicaid insurance Often based on formulary

07 Adverse Events

Potential for dry mouth, dizziness, nausea, vomiting Irritability, interaction with prescription drugs

Need to see package insert for listing of all Adverse Events. Can be expansive

08 Pharmacy vs Dispensary "Stock"

Patient may be recommended a particular chemovar, but may be limited to dispensary stock available

Most pharmacy's have access to any FDA approved medication



Allopathic Medicine

Use in pain – A Systematic Review

- A systematic review of randomized controlled trials was conducted examining cannabinoids in the treatment of chronic noncancer pain, including smoked cannabis, oromucosal extracts of cannabis-based medicine, nabilone, dronabinol, and a novel THC analogue.
- Pain conditions included neuropathic pain, fibromyalgia, rheumatoid arthritis, and mixed chronic pain.
- Fifteen of the 18 included trials demonstrated a significant analgesic effect of cannabinoids compared with placebo.
- Cannabinoid use was generally well tolerated; adverse effects most commonly reported were mild to moderate in severity.
- Overall, evidence suggests that cannabinoids are safe and moderately effective in neuropathic pain with preliminary evidence of efficacy in fibromyalgia and rheumatoid arthritis.

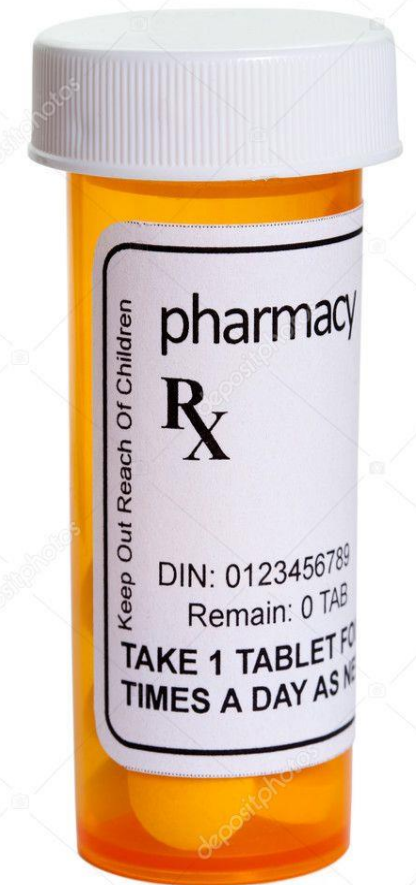
Lynch ME, Campbell F. Cannabinoids for treatment of chronic noncancer pain: a systematic review of randomized trials. *Br J Clin Pharmacol*. 2011;72:735–744

Care Philosophy

Standard of care should be the same as for any specialty!

❖ Referring HCP's MUST fulfill the following:

- Comprehensive medical history
- Complete physical
- Review of medical records
- Medication review
- Cannabis education
- Risks /benefits
- Communication with other healthcare providers
- Ongoing monitoring



Caution with Cannabis Formulations

- ❖ Not consistent from batch to batch or geographical area
- ❖ CBD and THC content and ratios vary from growers & processors
- ❖ Absorption may vary from batch to batch
- ❖ Distribution may vary from batch to batch
- ❖ Metabolism varies from batch to batch and patient to patient



❖ **LET US NOT FORGET PATIENT ERROR!!**

Different Risks for Users

- Some people are more vulnerable than others to the potential negative effects of high THC cannabis.
- Adolescent and young adults who use recreationally are especially susceptible because their brains are still developing and are sensitive to drugs in general
- Marijuana use among adolescents affects cognition — especially memory and executive functions, which determine mental flexibility and ability to change our behavior.
- Medical cannabis users can face unexpected and unwelcome effects from potent strains. It's very important for people to understand that they may not get the response they anticipated.
- Cannabinoid Hyperemesis Syndrome...Patients that consume high content THC chronically come to the emergency department with a syndrome where they can't stop vomiting and with intense abdominal pain.

POSSIBLE SIDE EFFECTS FROM CANNABIS –

Typically from high doses of THC

Agitation

Anxiety

Blood pressure drop

Confusion

Cough / bronchitis

Dependency

Depression

Dizziness

Drowsiness

Dry mouth

Fatigue

Feelings of euphoria

Headache

Impaired motor skills

Impaired vision

Inability to concentrate

Increased heart rate

Memory loss

Numbness

Paranoia

Sexual impotence

Shortness of breath

Slowed reaction time

~ Start low and go slow!



Qualifying Conditions to Become a Cannabis Patient in Maryland

- Cachexia (wasting syndrome)
- Severe, debilitating, or chronic pain
- Severe nausea
- Seizures, including those characteristic of epilepsy
- Severe and persistent muscle spasms
- Multiple sclerosis
- PTSD
- Crohn's disease
- Alzheimer's
- Cancer
- Glaucoma
- HIV/AIDS
- Hepatitis C

Patient Requirements/Processes to Obtain Medical Cannabis



- Must live in state of Maryland
- HCP recommends for qualifying medical condition
- Must register application through the Maryland Medical Cannabis Commission (State oversight Agency)
- Online application – need valid email address
- Need valid id (drivers license, State issued id, Military id, US Passport)
- An electronic recent photo must be submitted
- Once approved MUST visit an approved Health Care Provider
 - HCP will provide a valid certificate for patient to take to dispensary
 - HCP needs to recertify patient yearly
- Then, and only then, can you purchase cannabis from a LICENSED DISPENSARY

Patient Requirements/Processes to Obtain Medical Cannabis – Other Considerations

- Patients may only purchase a maximum of 30 day supply (4oz/30 days)
- State of Maryland does not recognize patients from other states
- Growing cannabis at home is illegal in the state of Maryland.



Caregiver Requirements Serving Adult Patients



- Caregivers, once registered with the MMCC , can purchase medical cannabis from a licensed dispensary on behalf of the patient
 - Must be 21 years of age
 - Register with the Maryland Medical Cannabis Commission(online only)
 - Receive approval
 - Purchase an ID card for \$50
 - Once approved, Patient must go on their portal and designate a Caregiver
 - In case of a minor patient, the parents or legal guardians and 2 others can be registered as Caretakers
 - One can serve as a Caretaker for up to 5 patients
 - Must renew registration every 2 years

POTENTIAL CHALLENGES TO ACCESS

AFFORDABILITY

- No coverage by health insurance
- Out of pocket costs of registration & cannabis may be prohibitive

TECH LIMITATIONS

- Registration, provider lists and dispensary locations are all online.
- Patients may have limited tech abilities to access sites and complete tasks

STIGMA OF USE

- Patient's current HCP may not be supportive of cannabis use
- Patient may not be aware of all clinical evidence (EBM) for disease states

ACCESS TO QUALIFIED PROVIDER

- Patients may be unaware of how to identify a licensed Provider who can recommend a treatment plan using medical cannabis

Solutions To Improve Access



AFFORDABILITY

- Potential for Payers to cover cannabis on insurance formularies - continued advocacy
- Discounts given on registration and product for Veterans and Seniors



TECH LIMITATIONS

- MMCC could identify volunteers to help with online registration and processes
- Patients need to identify advocate (family, friend or caregiver) to help navigate process



STIGMA OF USE

- Medical professionals need Professional education on benefits of medical cannabis and EBM.
- Could start with local societies like MSRD(Md Society of Rheumatologists)
- Pt education and awareness programs through media and patient advocacy groups



ACCESS TO QUALIFIED PROVIDER

- MMCC needs to make provider list more accessible- possibly sent directly to pts.
- Lists could be sent out to all primary care providers to share with their patients



FINAL THOUGHTS:

DRUG-DRUG INTERACTION

Assess patient's current medications to determine if any contraindication exists

PATIENT EDUCATION

Provide patients with educational material on topic of concern (cannabis and nausea & vomiting)

Be sure to train on ROA

DEVELOP MONITORING PLAN

Be sure to create a monitoring plan to assess efficacy and toxicity of cannabis treatment

COMMUNICATION

Decide how best to communicate with patient to determine if any adverse effects are occurring.

Plan to communicate with referring provider as well

References:

American For Safe Access(2021, June)State of the States Report. pg62.

<https://www.safeaccessnow.org/maryland>

Maryland Medical Cannabis Commission Website

<https://mmcc.maryland.gov/Pages/home.aspx>

NORML (National Organization for the Reform of Marijuana Laws)

<https://norml.org>