

The background is a solid dark blue. In the corners, there are decorative white line art elements resembling circuit boards or neural networks. These elements consist of thin white lines that branch out and terminate in small white circles. The patterns are symmetrical, with similar designs in the top-left, top-right, bottom-left, and bottom-right corners.

# CANNABIS: MEDICAL, LEGAL AND UNKNOWN

RANDALL WEBBER, MPH, CADC

# CANNABIS OVERVIEW

- Addiction potential low to moderate
- Tolerance develops to some symptoms of intoxication
- Physical dependence withdrawal symptoms mild
- Immediate and long-term physical toxicity potential appears moderate to low
- Immediate psychiatric impairment potential low to moderate/chronic psychiatric impairment may be moderate for adolescents

# TIMETABLE OF CANNABIS LAW

- Countries where cannabis was illegal before it was banned in the U.S.
  - Greece
  - South Africa
  - Jamaica
  - Canada
  - Mexico
- 1937: U.S. illegalizes marijuana

LAU, N., GERSON, M., KORENSTEIN, D. ET AL. INTERNET CLAIMS ON THE HEALTH BENEFITS OF CANNABIS USE. J GEN INTERN MED (2021).

# TIMETABLE OF CANNABIS LEGALIZATION IN THE US

- 1996-1998: California, Oregon and Washington legalize medical marijuana
- 2012: California and Washington legalize recreational cannabis
- 2013: Illinois legalizes medical marijuana
- 2019: Illinois legalizes recreational marijuana

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# CANNABIS

- Species:
  - Sativa (stimulating)
  - Indica (sedating)
- Cannabinoids:
  - > 100
    - Psychoactive:  $\Delta^9$ -THC
    - Cannabidiol (CBD)

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# ENDOCANNABINOIDS

- Endocannabinoid receptors
  - CB<sub>1</sub> (THC)
  - CB<sub>2</sub> (CBD)

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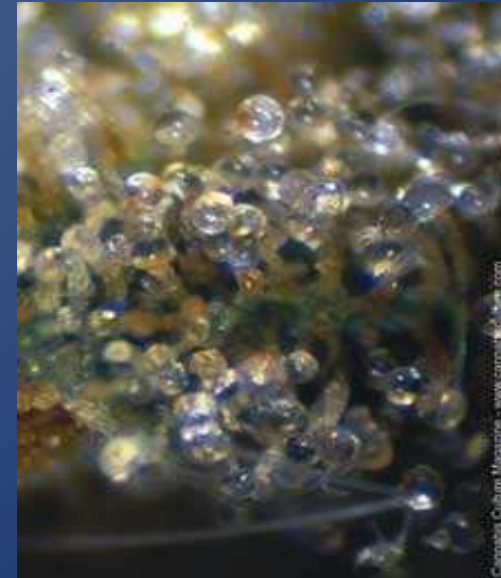
# CANNABIS (HEMP/LOW THC)



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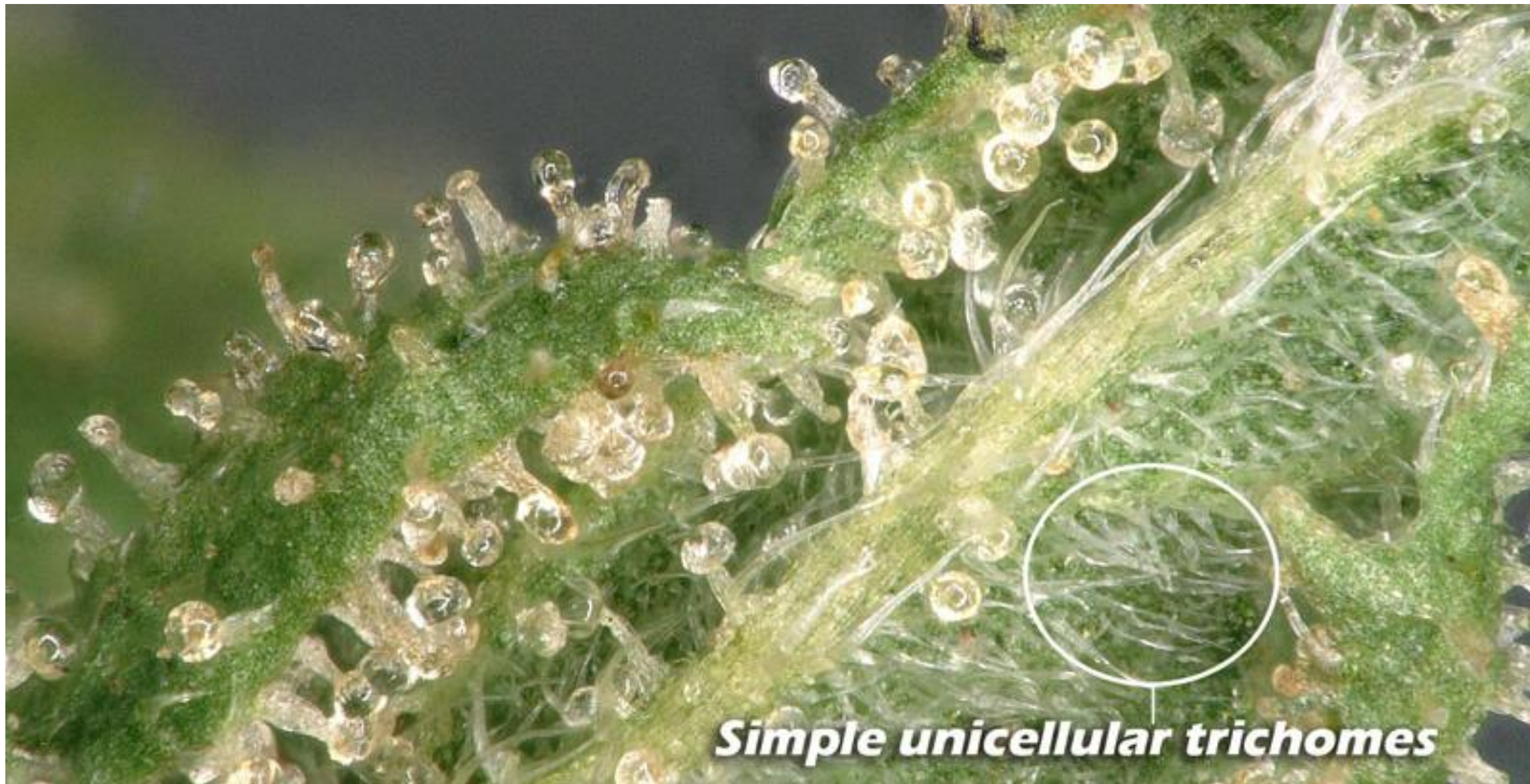
# CANNABIS (FLOWER/MARIJUANA)



TRICHOMES

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# HASHISH



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# HASH OIL



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# SHATTER



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# BUDDER



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# WAX



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# CANNABIS (DESIRED EFFECTS)

- euphoria
- excitation/stimulation
- relaxation
- altered perception (slowing) of time
- intensification of sensory stimuli
- hilarity/indiscriminate laughter
- increased *libido* (sex drive)

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# CANNABIS (UNDESIRED EFFECTS)

- Short-term memory impairment
- Impaired verbal skills/communication ability
- Depression
- Anxiety (More likely with high THC levels)
- Mental clouding

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# CANNABIS (UNDESIRE EFFECTS)

- Confusion
- Panic (More likely with high THC levels)
- Hallucinations
- Delusions

The background is a dark blue gradient with a series of concentric circles centered in the upper half. On the left and right sides, there are stylized white circuit board traces with small circles at the end of the lines, resembling a network or data flow.

# CANNABIS

WHAT DOES THE RESEARCH SAY?

# INTERNET CLAIMS ON THE TREATMENT OF MEDICAL PROBLEMS WITH CANNABIS\*

- |  |               |
|--|---------------|
| • Relieves pain                          | • Not true    |
| • Treats epilepsy                        | • Partly true |
| • Anti-nausea/vomiting from chemotherapy | • True        |
| • Cancer treatment                       | • Not true    |
| • Relief from anxiety                    | • Not true    |
| • Treatment of MS                        | • True        |

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# CANNABIS RESEARCH FINDINGS (NATIONAL ACADEMIES OF SCIENCE, ENGINEERING AND MEDICINE 2017)

# CANNABIS RESEARCH FINDINGS (NATIONAL ACADEMIES OF SCIENCE, ENGINEERING AND MEDICINE 2017)

- Substantial evidence:
  - Association between long-term cannabis smoking and worse respiratory symptoms and more frequent chronic bronchitis episodes  
**(Marijuana smoking most likely causes breathing problems and bronchitis)**

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# CANNABIS RESEARCH FINDINGS (NATIONAL ACADEMIES OF SCIENCE, ENGINEERING AND MEDICINE 2017)

- Moderate evidence:
  - *Cessation of cannabis smoking and improvements in respiratory symptoms* (**If you quit smoking marijuana, your breathing problems could get better**)

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# POLLING QUESTION #1

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# CANNABIS RESEARCH FINDINGS (NATIONAL ACADEMIES OF SCIENCE, ENGINEERING AND MEDICINE 2017)

- No statistical association between cannabis smoking and the incidence of lung cancer (There is no evidence of a connection between smoking marijuana and lung cancer).
- No statistical association between cannabis use and the incidence of head and neck cancers (There is no evidence of a connection between smoking marijuana and those cancer either)

# CANNABIS RESEARCH FINDINGS (NATIONAL ACADEMIES OF SCIENCE, ENGINEERING AND MEDICINE 2017)

- Limited evidence:
  - Statistical association between current, frequent, or chronic cannabis smoking and non-seminoma-type testicular germ cell tumors (There is some evidence of a connection between smoking marijuana and testicular cancer).

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# CANNABIS RESEARCH FINDINGS (NATIONAL ACADEMIES OF SCIENCE, ENGINEERING AND MEDICINE 2017)

- Limited evidence:
  - Association between occasional cannabis smoking and an increased risk of developing chronic obstructive pulmonary disease (COPD) when controlled for tobacco use (Even if people don't smoke tobacco, there is a possibility that they will develop COPD)

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# CANNABIS RESEARCH FINDINGS (NATIONAL ACADEMIES OF SCIENCE, ENGINEERING AND MEDICINE 2017)

- Insufficient evidence
  - To support or refute a statistical association between cannabis smoking and asthma development or asthma exacerbation (It's unknown whether marijuana smoking either causes or worsens asthma).
  - Esophageal, prostate, cervical, bladder, penile, anal cancer, non-Hodgkin lymphoma (It's unknown whether marijuana smoking causes those illnesses)

# IMMUNE SYSTEM

The immune system protects against diseases by detecting and responding to a wide variety of pathogens, from viruses to parasitic worms, as well as cancer cells and objects such as wood splinters, distinguishing them from the organism's own healthy tissue.

# CANNABIS RESEARCH FINDINGS (NATIONAL ACADEMIES OF SCIENCE, ENGINEERING AND MEDICINE 2017)

- There exists a paucity of data on the effects of cannabis or cannabinoid-based therapeutics on the human immune system (There isn't enough research to say one way or the other).
- Insufficient data to draw conclusions concerning the effects of cannabis smoke or cannabinoids on immune competence (Not enough research).

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# CANNABIS RESEARCH FINDINGS (NATIONAL ACADEMIES OF SCIENCE, ENGINEERING AND MEDICINE 2017)

- Limited evidence to suggest that regular exposure to cannabis smoke may have anti-inflammatory activity (Cannabis may have anti-inflammatory properties).
- Insufficient evidence to support or refute a statistical association between cannabis or cannabinoid use and adverse effects on immune status in individuals with HIV (There is not enough research to say one way or the other)

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# POLLING QUESTION # 2

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# CANNABIS RESEARCH FINDINGS (NATIONAL ACADEMIES OF SCIENCE, ENGINEERING AND MEDICINE 2017)

- Smoking cannabis during pregnancy is linked to lower birth weight in the infant
- The relationship between smoking cannabis during pregnancy and other pregnancy and childhood outcomes is unclear.

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# CANNABIS RESEARCH FINDINGS (NATIONAL ACADEMIES OF SCIENCE, ENGINEERING AND MEDICINE 2017)

- Recent cannabis use impairs the performance in cognitive domains of learning, memory, and attention. **Recent use may be defined as cannabis use within 24 hours of evaluation.**
- A limited number of studies suggest that there are impairments in cognitive domains of learning, memory, and attention in individuals **who have stopped smoking cannabis (Some research suggests that things can get better, but this is not known for sure).**

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# CANNABIS RESEARCH FINDINGS (NATIONAL ACADEMIES OF SCIENCE, ENGINEERING AND MEDICINE 2017)

- **Cannabis use during adolescence is related to impairments in subsequent academic achievement and education, employment and income, and social relationships and social roles (Teens and emerging adults should not smoke marijuana).**

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# CANNABIS RESEARCH FINDINGS (NATIONAL ACADEMIES OF SCIENCE, ENGINEERING AND MEDICINE 2017)

- Cannabis use prior to driving increases the risk of being involved in a motor vehicle accident (Don't drive high).
- In states where cannabis use is legal, there is increased risk of unintentional cannabis overdose injuries among children (Children often eat edibles).

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# THE CANNABIS POTENCY PROBLEM

- Marijuana for research only available from U.S. government's marijuana farm
- Government marijuana averages 6% THC
- Street marijuana (and marijuana in dispensaries) can reach 30% THC or more

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# **(ILLINOIS) COMPASSIONATE USE OF MEDICAL CANNABIS PILOT PROGRAM ACT**

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OF CANNABIS USE. J GEN INTERN MED (2021).



# MEDICAL MARIJUANA CARD

- Physician certifies that patient has qualifying condition
- Fingerprinting
- Photo
- Criminal background check
- Application to Illinois Dept of Public Health
- Good for two years

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# PRESCRIPTION VS CERTIFICATION

- Patient is not prescribed medical cannabis
- Physician certifies that patient has one of the qualifying conditions

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# PATIENTS AND CAREGIVERS

- Patient = Personal allowed to purchase and possess medical cannabis and cannabis products
- Designated caregiver = A person who is selected by a qualifying patient as the person who is authorized, on their behalf, to possess, obtain from a certified medical cannabis dispensary, dispense and assist in the administration of medical cannabis. Caregivers may only serve one patient, and **may not receive any payment or compensation for their services.**

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# MEDICAL MARIJUANA ACT: QUALIFYING CONDITIONS

- Cancer
- Glaucoma
- Positive status for HIV
- Acquired immune deficiency syndrome/AIDS
- Hepatitis C
- Amyotrophic lateral sclerosis (ALS/Lou Gerig's Disease)

# MEDICAL MARIJUANA ACT: CONDITIONS

- Crohn's disease
- Agitation of Alzheimer's disease
- Cachexia/wasting syndrome
- Muscular dystrophy
- Severe fibromyalgia
- Spinal cord disease, including but not limited to arachnoiditis

# MEDICAL MARIJUANA ACT: CONDITIONS

- Tarlov cysts
- Hydromyelia
- Syringomyelia
- Rheumatoid arthritis
- Fibrous dysplasia

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# MEDICAL MARIJUANA ACT: CONDITIONS

- Spinal cord injury
- Traumatic brain injury
- Post-concussion syndrome
- Multiple Sclerosis
- Arnold-Chiari malformation and Syringomyelia
- Spinocerebellar Ataxia (SCA)

# MEDICAL MARIJUANA ACT: CONDITIONS

- Myoclonus
- Dystonia
- Reflex Sympathetic Dystrophy, RSD (Complex Regional Pain Syndromes Type I),
- Causalgia, CRPS (Complex Regional Pain Syndromes Type II),
- Neurofibromatosis

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# MEDICAL MARIJUANA ACT: CONDITIONS

- Polyneuropathy
- Sjogren's syndrome
- Lupus
- Interstitial Cystitis
- Myasthenia Gravis

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# MEDICAL MARIJUANA ACT: CONDITIONS

- Hydrocephalus
- Nail-patella syndrome
- Residual limb (Phantom limb) pain

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# MEDICAL MARIJUANA ACT: CONDITIONS

- Seizures (including those characteristic of epilepsy)
- Post-traumatic stress disorder (PTSD)
- **Opioid alternative program:** Patients who would otherwise be prescribed an opioid can now choose to seek relief with medical cannabis and are eligible to apply for a 90-day renewable medical cannabis card

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# CANNABIS AND NON-MEDICAL OPIOID USE

- “Cannabis Use Appears to Encourage, Not Replace, Non-medical Opioid Use”
  - *Addiction*, Oct 20, 2020
- Subjects:
  - Predominantly male
  - Urban
  - Unemployed
  - Unmarried
  - Had a high previous prevalence of substance misuse and pain.



# MEDICAL MARIJUANA ACT: SUPPLY

- 2.5 ounces every 14 days

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# CANNABIS REGULATION AND TAXATION ACT

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# IMPACT OF LEGAL MARIJUANA ACT ON CRIMINAL JUSTICE SYSTEM

- Expungement of up to nearly 800,000 cannabis convictions

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# IMPACT OF LEGAL MARIJUANA ACT ON MINORITY COMMUNITIES:

- Promote diversity in the largely white cannabis industry
- Provide grants and loans to minority cannabis business owners.
- Funnel 25% of cannabis tax revenue through “Restore, Reinvest and Renew” program to support minority communities impacted by the War on Drugs
- Ensure 20% percent of new licenses for social use sales will go to people of color
- Make \$30 million available to help minority business owners

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# CANNABIS REGULATION AND TAXATION ACT

- Starting January 1, 2020, adults 21 and older may possess cannabis and purchase cannabis products in licensed stores. Possession is limited to:
  - 30 grams of raw cannabis
  - Cannabis-infused product or products containing no more than 500 mg of THC
  - Five grams of cannabis product in concentrated form.
- Non-residents may purchase half that amount, or 15 grams of cannabis, 250 mg of THC in a cannabis-infused product, and 2.5 grams of concentrated cannabis product.

# PROBLEMS SINCE LEGALIZATION

- Colorado:
  - More ER visits
    - Edibles 0.32% of sales, but 11% of ER visits
    - Children who consume their parents' cannabis
    - People with mental illness who consume cannabis
    - Cannabis hyperemesis
    - Visitors to Colorado: 50% higher rate of ER visits compared to residents
    - Higher THC levels
  - Fires and explosions due to people trying to make cannabis concentrates
  - Increase in auto accidents/fatalities unclear
  - Increase in petty crime



# CANNABIS AND DRIVING

- Conflicting studies:
- (*Addiction*, May 2019)
  - In the year following implementation of recreational cannabis sales in Colorado, Washington and Oregon (and neighboring states), traffic fatalities temporarily increased by an average of one additional traffic fatality per million residents
  - After 1 year, traffic fatalities decreased to pre-legalization levels

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# PROBLEMS SINCE LEGALIZATION

JAMA Pediatrics July 2019

(*JAMA Pediatr.* 2019;173(9):879-881.  
doi:10.1001/jamapediatrics.2019.1720)

- Adolescent experimentation and frequent use down in states that have legalized cannabis
- No change in states that have legalized medical cannabis

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# POLLING QUESTION # 3

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# CANNABIS USE DISORDER TREATMENT

- Cannabis dependence is real
- There are cannabis withdrawal symptoms
- Current approaches:
  - Motivational enhancement therapy (MET)
  - Cognitive behavioral therapy (CBT)
  - Contingency management
  - Group treatment may be more effective

**(NIDA: Evidence-Based Approaches to Drug  
Addiction Treatment)**



# CANNABIS USE DISORDER: REASONS FOR USE

- Anxiety (GAD)
- Panic disorder
- Depression
- Insomnia
- Pain
- Low libido
- Boredom
- Socialization

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# CANNABIS: REASONS FOR QUITTING

- Spending too much money
- Significant other objects
- Trouble with memory/concentration
- Cannot cut down on use
- Coughing/respiratory symptoms
- Legal problems (DUI, etc.)

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# CANNABIS WITHDRAWAL SYMPTOMS

- Craving
- Feelings of anger, irritability, and/or aggressiveness
- Nervousness or anxiety
- Sleep disturbances



# CANNABIS WITHDRAWAL SYMPTOMS

- Decrease in appetite
- Restlessness
- Depression
- ***Possible:***
  - Abdominal pain
  - Fever
  - Chills
  - Sweating
  - Headache
  - Tremors or shakiness

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# COGNITIVE DEVELOPMENT AND CANNABIS USE IN ADOLESCENTS



# DISCUSSION QUESTIONS

- How have we managed clients who have medical marijuana cards?
  - Will we drug test for cannabis now that it's legal?
  - Will cannabis use disorders (CUD) increase after legalization?
  - Are we prepared to treat CUD?
- 
- 
- 

The background is a solid dark blue. In the four corners, there are decorative white line art elements resembling circuit boards or neural networks. These elements consist of thin white lines that branch out and terminate in small white circles, creating a symmetrical, geometric pattern in each corner.

THANK YOU FOR YOUR ATTENTION!

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