



**UW PACC**

Psychiatry and Addictions Case Conference

UW Medicine | Psychiatry and Behavioral Sciences

# CANNABIS USE DISORDER

KENNETH CULLANDER

UW ADDICTION PSYCHIATRY FELLOW



# SPEAKER DISCLOSURES

- No financial conflicts to report

# TOPICS

- Cannabis basics
- Prevalence of cannabis use in the US
- Differences in cannabis products
- Cannabis intoxication
- Medications for cannabis withdrawal
- Medications for cannabis use disorder

# OBJECTIVES

- Name at least three forms of recreational/medical cannabis
- Understand key differences with synthetic cannabinoids versus plant-derived products
- Name all FDA approved medications for cannabis use disorder

# WHAT IS CANNABIS?

- Annual dioecious flowering herb<sup>1</sup>
  - Originated in Asia
  - Classically wind pollinated
- Female cannabis plants produce trichomes
- Trichomes contain cannabinoids
  - Smoked directly (flower)
  - Non-chemically concentrated (Hash, keef)
  - Chemically concentrated (Resins, tincture)
- (Kingdom) Plantae
  - (Phylum) Magnoliophyta
    - (Class) Magnoliopsida
      - (Order) Rosales
        - » (Family) Cannavacae
          - (Genus) Cannabis
            - Sativa
            - Indica
            - Ruderalis

# CANNABIS TRICHOMES

- Cannabis flower



- Mature trichomes



# PREVALENCE OF CANNABIS USE

- 2021 National Survey on Drug Use and Health<sup>1</sup>

- % Who use cannabis

	All Ages	12-17	18-25	26-49	50+	65+
Lifetime	45.7	13.2	49.9	54.7	44.0	35.3
Last Year	18.7	10.5	35.4	24.6	10.8	7.1
Last Month	13.0	5.8	24.1	17.5	7.6	4.7

- Average Days Used<sup>2</sup>

	All Ages	12-17	18+	26+
Per Year	145.5	88.9	148.6	150.1
Per Month	16.2	11.4	16.4	16.6

- 0.9% of people 12+ years will initiate cannabis use this year
- 1.7% of people “at risk” will initiate cannabis use

# “A ROSE BY ANY OTHER NAME...”

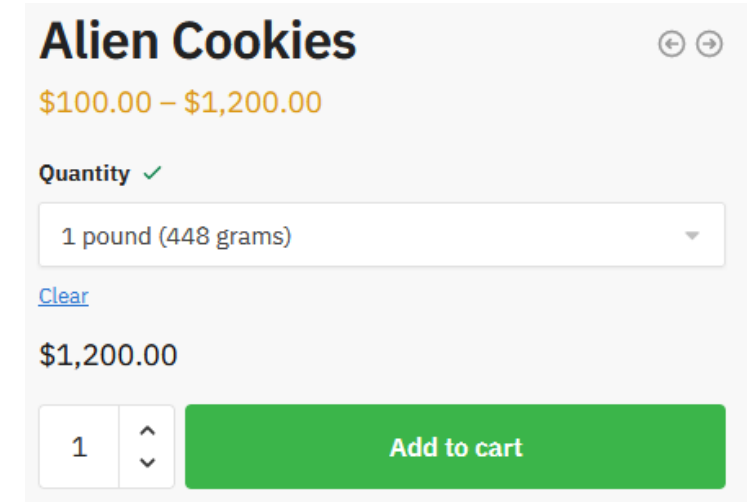
- Marijuana
- Weed
- Dank
- Cheeba
- Devil’s Lettuce
- Mary Jane
- Reefer
- Wacky Tobaccy
- Grass
- Cabbage
- Jazz Cigarette
- Hemp
- Broccoli
- Chronic
- Trees
- Pot
- Flower
- And more...



# STRAINS?

- Individual varieties of cannabis species
  - Can be hybrids of other commercial strains
  - Often marketed as % Indica/Sativa
- “Alien Cookies” – 21% THC <sup>1</sup>
  - “Happy and relaxing”
- “Blue Dream” – 17% THC
  - “Uplifting cerebral head high”
- “Cherry Punch” – 23% THC
  - “Rushing euphoria”
- “Green Crack” – 15% THC
  - “Spurs creativity... get things done”

- “Hindu Kush” – 32% THC
  - “Easing away any negative or racing thoughts”
- “Pineapple Express” – 25% THC
  - “Perfect for treating conditions such as depression, appetite loss, arthritis, and muscle spasms or cramps”



# METHODS OF USE

- Flower - dried cannabis flowers, typically smoked
  - Joints – Rolled cigarettes (0.5-1g)
  - Blunts – Cannabis filled cigars/cigarillos (1-2g)
- Non-chemical concentrates – typically smoked or eaten
  - Hash/Hashish/Rosin – Separated mechanically or via temperature change
  - Keef – Shaved trichomes from cannabis flower
  - “Solventless extracts” – Suspended in gelatin, distilled, etc
- Tincture – Cannabinoids extracted in a liquid organic solvent, typically ingested via dropper
  - “Tincture” often implies ethanol base
  - “Oil” suspended in liquid hydrocarbon solvent (eg. butane)
- Chemical concentrates – Solid extracts of cannabinoids, typically smoked or mixed into edibles
  - Shatter, badder, budder, sauce, wax, etc
  - Separated via multiple permutations of solvent, temperature, and gas environment
- Edibles – Concentrates mixed into food products
  - Gummies, cookies, butter, etc
- Topical – Cannabinoids suspended in cream, ointment, lotion, etc

# FORMS OF CANNABIS



Super Lemon Haze Shatter

\$10.00 - \$2,100.00

amount ✓

180 grams \$2100

[Clear](#)

\$2,100.00

1

# CANNABIS CONCENTRATES



# SYNTHETIC CANNABINOIDS

- Synthetically derived cannabinoid mixtures
- Not exclusively THC, CBD, CBN, etc
- Sold as liquid or sprayed onto plant material
- Higher risk of psychotic symptoms with use<sup>3</sup>
- Can be sold as incense, potpourri, and other “not for human consumption” products



# MECHANISM OF ACTION

- Two primary cannabinoid receptors
- Type 1 (CB1)
  - Widely expressed in the brain<sup>2</sup>
  - Functionality not consistent with receptor density<sup>1</sup>
  - Often modulate GABA release or Glutamate suppression
  - Associated with THC psychoactive effects
- Type 2 (CB2)
  - Most prominent in blood and immune cells<sup>1</sup>
  - Found on microglia in the CNS<sup>4</sup>
  - May influence dopamine release from cocaine use<sup>3</sup>

# CANNABIS INTOXICATION

- Psychoactive effects to sensory perception
- Alterations in mood and thought content
- Tachycardia/palpitations
- Dry mouth (“cotton mouth”)
- Conjunctiva irritation (“red eye”)
- Appetite stimulation (“munchies”)
- Hypertension
- Tachypnea
- Decreased coordination and reaction

# PROBLEMATIC USE VS USE DISORDER

- DSM-5 use disorder criteria similar to alcohol
  - Tolerance and withdrawal alone do not qualify for use disorder
- Cannabis can be medically prescribed and taken as directed
- Cannabis can be perceived as “safer” due to low risk of overdose
- Use disorder met if intoxication and/or withdrawal cause negative impact on functioning eg:
  - Cannabis Hyperemesis Syndrome/Cyclic Vomiting Syndrome
  - DUI/arrest
  - Social conflict
  - Job loss



# MEDICATIONS FOR CANNABIS USE DISORDER

- No FDA approved medications for Cannabis Use Disorder
- Withdrawal treatment is symptom focused
- Agitation/Psychosis
  - Verbal de-escalation
  - Benzodiazepines before antipsychotics
- For severe autonomic symptoms consider:
  - Synthetic cannabinoids
  - Concurrent use of stimulants
  - Sedative withdrawal
  - Alternate physiologic causes

# MEDICATIONS FOR CANNABIS USE DISORDER

- THC replacement (dronabinol and nabilone) show mixed evidence for abstinence<sup>1,2,4</sup>
- CBD may reduce intensity of cannabis use and increase abstinence from THC use<sup>5</sup>
- SSRIs and buspirone do not improve abstinence<sup>1</sup>
- N-acetylcysteine (NAC)
  - 1200mg BID may increase abstinence in adolescents (OR = 2.4 after 4 weeks)<sup>6</sup>
  - 1200mg BID did not increase abstinence in adults (OR = 1.0 after 12 weeks)<sup>7</sup>
- Varenicline (Chantix) may increase abstinence (17.1% vs 5.4% after 6 weeks)<sup>8</sup>
- Gabapentin 1200mg (300/300/600mg) reduced use and withdrawal symptoms after 12 weeks<sup>9</sup>

# ADJUNCTIVE MEDICATIONS (OFF LABEL)

- Sleep disruption
  - Z-drugs associated with decreased disruption with less side effects compared to benzodiazepines
  - Mirtazapine 7.5-15mg
- Hypertension/tremor/diaphoresis
  - Gabapentin 1200mg total daily dose
  - Clonidine 0.1mg Q6H PRN
- Nausea
  - Ondansetron, metoclopramide, lorazepam
  - Fluid repletion
  - Droperidol, haloperidol, prochlorperazine
  - Capsaicin 0.025-0.1% cream to the abdomen<sup>1</sup>
- Appetite suppression
  - Mirtazapine 7.5-15mg

# SUMMARY

- Cannabis comes in many forms
  - Ask your patients about use beyond smoking
  - Encourage patients to bring in empty dispensary containers
- Monthly users report using ~50% of days
- You can buy a pound of cannabis online
- Synthetic cannabinoids have high rates of psychotic features with just one use
- No FDA approved medication for Cannabis Use Disorder exists
  - Weak evidence of moderation or taper with prescription cannabis capsules/solution
  - Potential for reduced use and/or withdrawal effects with NAC and gabapentin with less side effects
- Support withdrawal with symptomatic medications

# QUESTIONS?