

# Welcome!



Ensure we can identify you for attendance.



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Have your camera on, if possible.



We'll send you a copy of the slides.



Remain muted when not speaking.



Complete post-training eval within 2 weeks.



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If your behavior is inappropriate in any way, staff will immediately mute your microphone, stop your video and chat access, and place you in the waiting room to warn you that if the behavior continues, you will be removed from the session. If the behavior is serious enough, you will be immediately removed from the session, and your access to any future sessions may be withdrawn.

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# Cannabis 101: Youth

Megan Hudson, MSN, PMHNP-BC  
March 2026

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**CME:** Boston University Chobanian & Avedisian School of Medicine designates this live activity for a maximum of **1 AMA PRA Category 1 Credit(s)**<sup>™</sup>. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

**Nursing Contact Hours:** **1.00** of which **0** are eligible for pharmacology credit.

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# Accreditation Information



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**APA CE Designation Statement:** Continuing Education (CE) credits for psychologists are provided through the co-sponsorship of the American Psychological Association (APA) Office of Continuing Education in Psychology (CEP). The APA CEP Office maintains responsibility for the content of the programs.

## **New York State Psychology Credit:**

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**Community Health Worker:** Boston Medical Center Grayken Center for Addiction Training and Technical Assistance is approved by the Massachusetts Department of Public Health, Board of Community Health Workers to award community health workers who complete this training **1** continuing education credits.

# Objectives

- Describe the prevalence of cannabis use among youth in the United States.
- Compare at least three cannabis products and routes of use
- Describe symptoms associated with cannabinoid hyperemesis syndrome
- Describe two evidence-based interventions to support cannabis cessation in youth

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# Cannabis Overview

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# Terminology

**Cannabis** – general term referring to psychoactive substances produced by the *Cannabis sativa* plant

**Cannabinoids** – compounds structurally similar to THC or share many of the pharmacological properties of THC (includes synthetic THC)

**weed** (weed)

**marijuana** (mar-uh-wah-nuh)

**pot** (pot)

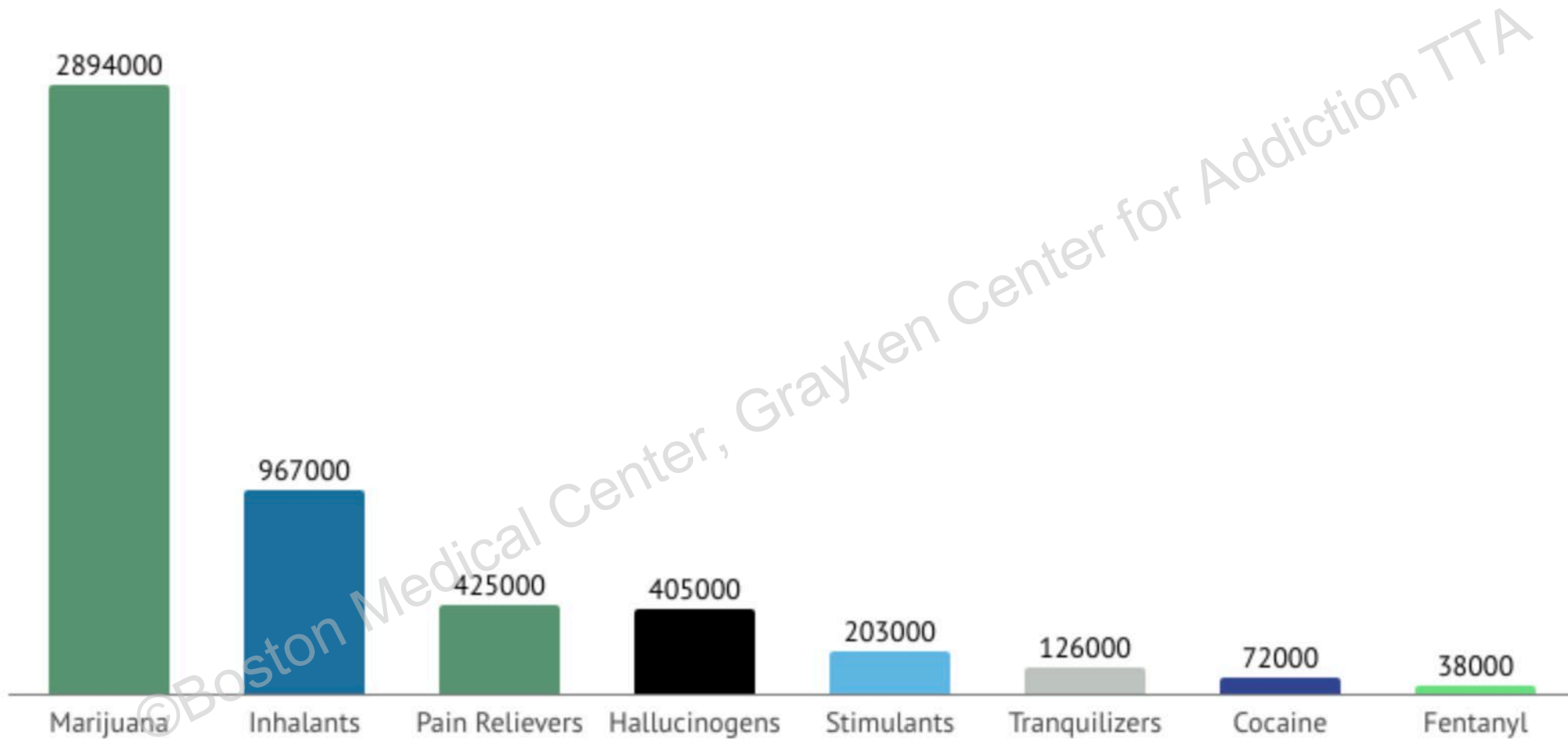
**chronic** (kron-ik)

**cannabis** (kan-uh-bis)

# Prevalence of Cannabis Use Among Youth

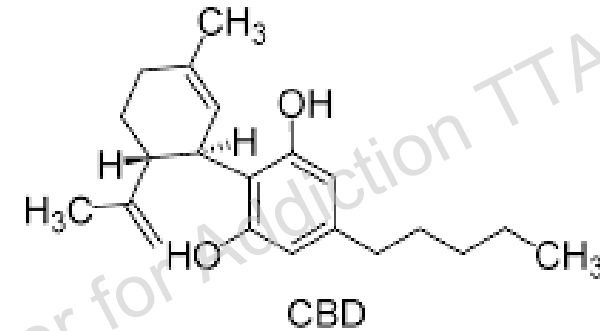
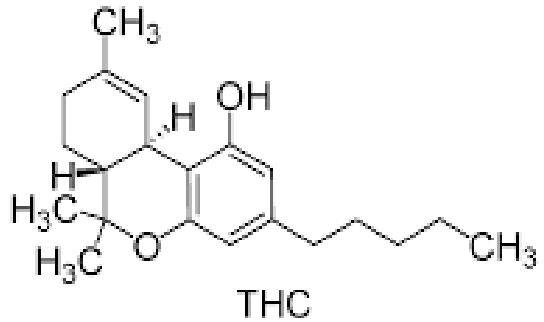
- Age of first use
  - 34.8% of high school seniors have reported trying cannabis
  - 31.4% of individuals who used cannabis for the first time in the past year were between the ages of 12 and 17
  - Nearly 5% of adolescents report first use before the age of 13
- Amount high school seniors
  - 5.6% continue to report daily use (about 1 in 20)
  - Perceive vaping cannabis as more harmful than regular cannabis use (46 vs 36%)
  - Those who viewed cannabis as dangerous declined from 58-36% from 2000-2024
- Compared with 12th graders, 8th graders are 111.8% more likely and 10th graders 70.6% more likely to perceive occasional cannabis use as dangerous

## Substance Abuse Among 12-17 Year-Olds by Drug



National Center for Drug Abuse Statistics source: Substance Abuse and Mental Health Services Administration (SAMHSA)

# Roles Of THC And CBD



## Tetrahydrocannabinol (THC)

- Psychoactive, appetite stimulant
- Dose-response relationship between THC and adverse (e.g., neurocognitive) effects
- Delta-9 THC isomer = most common
- \*Delta-8 THC naturally exists in small quantities, ~ 50-75% as psychoactive; Growing quasi-legal market.

## Cannabidiol (CBD)

- Less psychoactive
- Neuroprotective, anti-inflammatory, and anticonvulsant effects.
- Attenuates some of the neurocognitive and behavioral effects of THC
- Few and mostly mild adverse effects of itself

# Routes Of Use

- **Smoking:** Combustion, burning
- **Vaping:** activating raw plant matter without combustion
- **Dabbing:** inhale cannabis vapor from potent THC concentrates or extracts through an “glass oil dab rig”
- **Ingestion:** Edibles, drinkables
- **Topicals:** oils, creams, primarily CBD

01 //



02 //



03 //



04 //



# Dabs, Vapes & Concentrates

- Highly concentrated THC product
- Potency: 80-100% THC vs 10-20%
- Types: Shatter, crumble, budder, batter, wax, others
- Method of extraction varies
- Often more economical

## Concentrates, Extracts & Wax



**Shatter**

Glass-like, brittle



**Wax / Budder**

Soft, crumbly texture



**Live Resin**

Fresh frozen extraction



**Rosin**

Solventless, pressed



**Crumble**

Dry, honeycomb consistency



**Sauce**

Viscous, terpene-rich extract



**THC Diamonds**

Pure THCA crystal extract



**Distillate**

Highly refined cannabis oil

## Common Consumption Methods



**Dab Rig**



**Vape Pen**



**Dab Cartridge**

# Youth-Specific Risks

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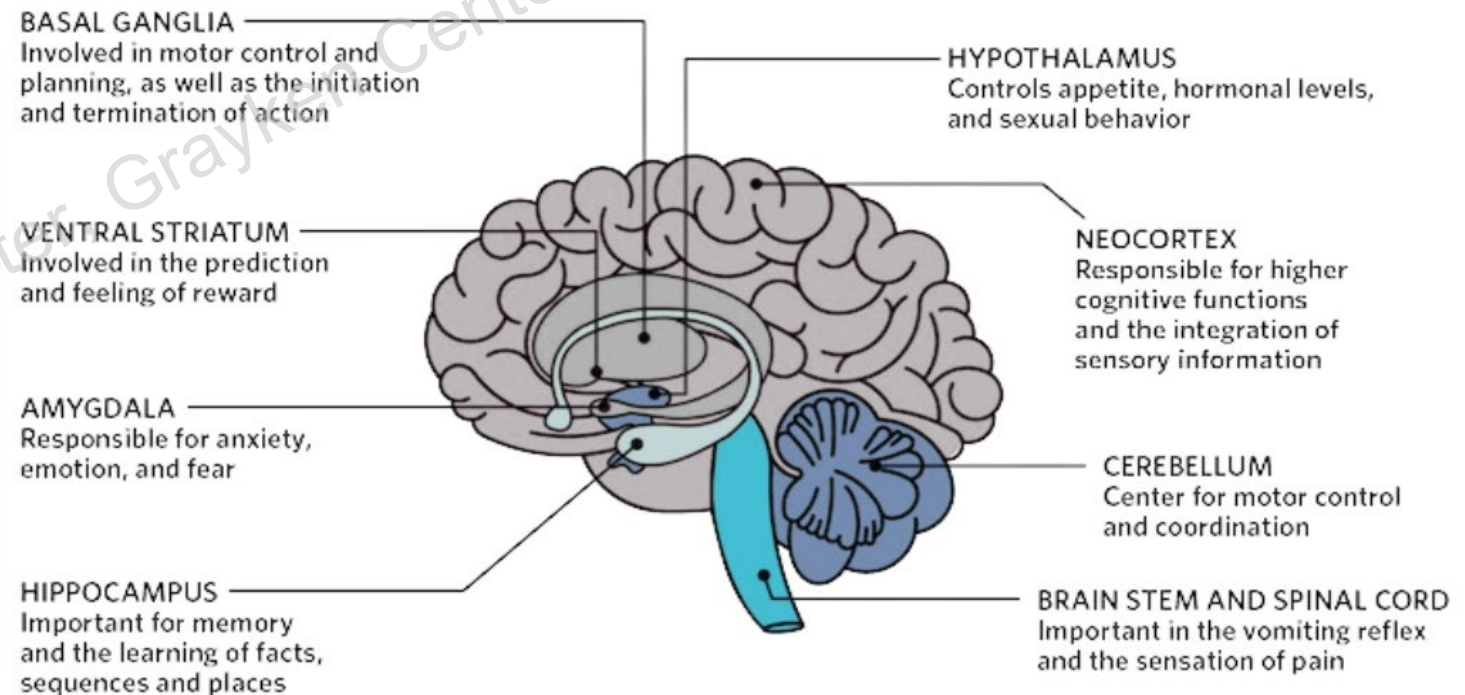
# Cannabis Impacts

- Tetrahydrocannabinol (THC) activates CB1 receptors in the brain
- CB1 part of the endocannabinoid system that regulates mood, memory, reward, and pain
  - Highly concentrated in the prefrontal cortex, hippocampus, basal ganglia, and cerebellum
  - Impacts attention, memory, decision-making, coordination, and perception

THC increases dopamine release in reward pathways, contributing to its reinforcing effects and potential for dependence.

Acute cannabis use may produce euphoria, relaxation, altered perception, impaired short-term memory, and slowed reaction time.

High-potency THC products or frequent use can trigger anxiety, paranoia or psychosis



# Risks of Cannabis Use

## Brain Development

- Impacts attention, executive functioning, & memory

## Impaired Driving

- Slower reaction time & increased risk of collision

## Higher Dependence Risk

- Earlier use = greater likelihood of CUD

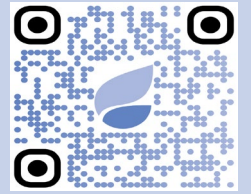
## Physical Health

- Respiratory irritation, cannabinoid hyperemesis syndrome, decreased athletic performance

# Mental Health Risks

## Get Sensible Resources

Variety of resources for patients, families and healthcare teams regarding cannabis use.



- The adolescent brain is undergoing active development until around the age of 25.
- Cannabis use during adolescence may harm the developing brain
  - Social anxiety
  - Depression
  - Brief substance-induced psychosis
  - Schizophrenia
  - Increased risk for development of a cannabis use disorder when age of onset is in adolescence
- General negative mental health symptoms include:
  - Difficulty thinking and problem-solving
  - Difficulty with memory and learning
  - Impaired coordination
  - Difficulty concentrating
  - Trouble with school and social life
- Teens who use cannabis are more likely to stop high school or not get a college degree compared to those who do not use cannabis

# Cannabinoid Hyperemesis Syndrome

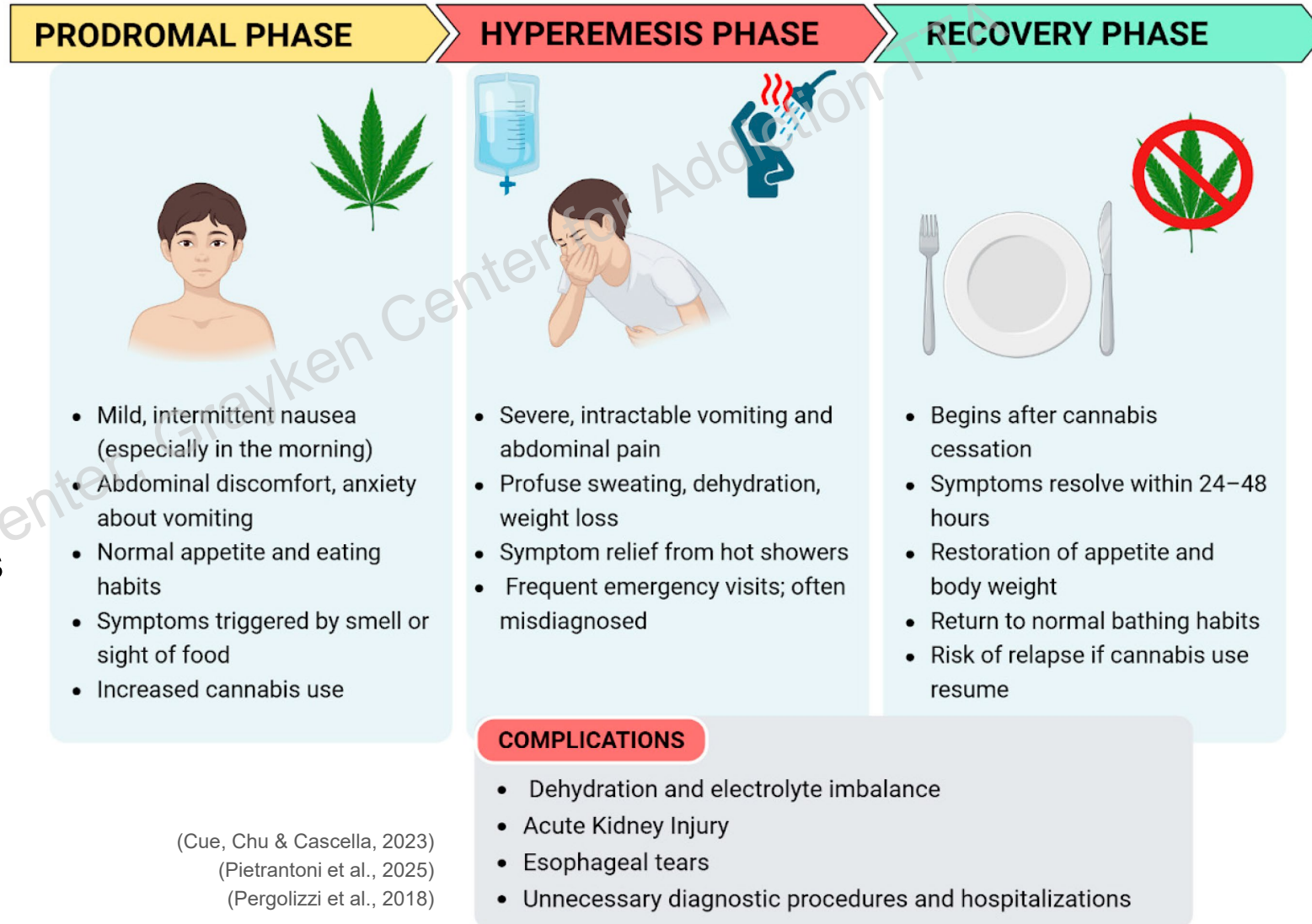
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# Cannabinoid Hyperemesis Syndrome

Increased risk among youth compared to adult counterparts

The exact cause is not fully understood:

- Long-term cannabis use may affect the body's nausea and vomiting control system
- Cannabinoids can disrupt signals in the brain and digestive tract
- Over time, the body may become more sensitive to cannabis instead of less



# Supportive Care and Treatment Options

## Immediate Supportive Care

- IV fluids and electrolyte correction
- Antiemetics
- Haloperidol or droperidol
- Topical capsaicin to the abdomen
- Benzodiazepines with agitation/anxiety

## Definitive Treatment

- Complete cessation of cannabis use
- If cannabis use resumes, symptoms typically resume
- Symptoms typically resolve within days to weeks after cannabis cessation

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# Youth Specific Interventions

## Prevention

- Engaging parents, teachers and youth in education to highlight risks of chronic cannabis use

## Early ID/Dx

- Screening for CHS
- Differentiating between eating disorders and other GI conditions

## Interventions

- Hydration/electrolyte repletion
- Supportive care
- Adjunctive pharmacological treatments

## Research & Guidelines

- Need for more research and clinical guidelines for treatment

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# Cannabis Dependency & Withdrawal

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# Cannabis Dependency

Considered a chronic, recurring condition similar to other SUDs

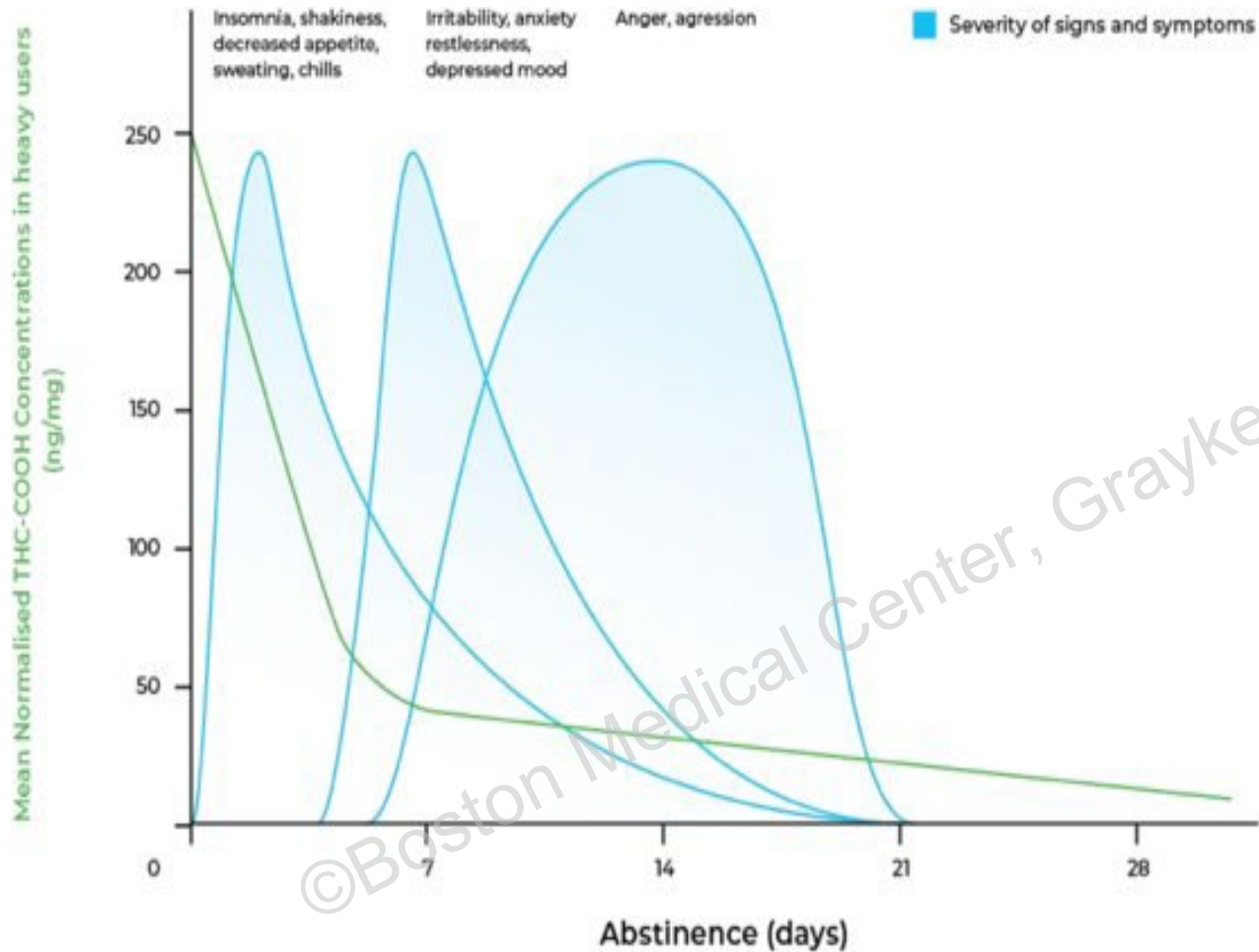
Diagnosis with DSM-5 criteria including severity of symptoms

Risk factors include early initiation of cannabis use, high-potency THC products, frequent use, co-occurring mental health disorders, and other SUDs

Dependency may result in report of symptom exacerbation with cessation or when trying to cut back

(Foll et al., 2024)  
(Health Canada, 2018)  
(Davidson et al., 2024)  
(Le Foll et al., 2024)  
(Cue, Chu & Cascella, 2025)

# Cannabis Withdrawal



## Symptom Progression:

- Onset 24-48 hours
- Peak 2-6 days
- Subside 3 weeks

As with other substances, incremental and slow reduction may reduce the probability and severity of withdrawal

- Short-term symptomatic treatment may be used when clinically indicated
- Assess & treat co-occurring medical (e.g. pain), mental health or substance use disorders that may complicate withdrawal

# Management Strategies for Withdrawal

## First line strategies:

- Psychoeducation
- Motivational Interviewing
- Cognitive Behavioral Therapy (CBT)
- Family-based therapy
- Contingency management

## Medications for symptom relief:

- Sleep: melatonin, trazodone, hydroxyzine, mirtazapine
- Anxiety/irritability: hydroxyzine, clonidine/guanfacine, mirtazapine
- Nausea: ondansetron
- Headache/pain: NSAIDs

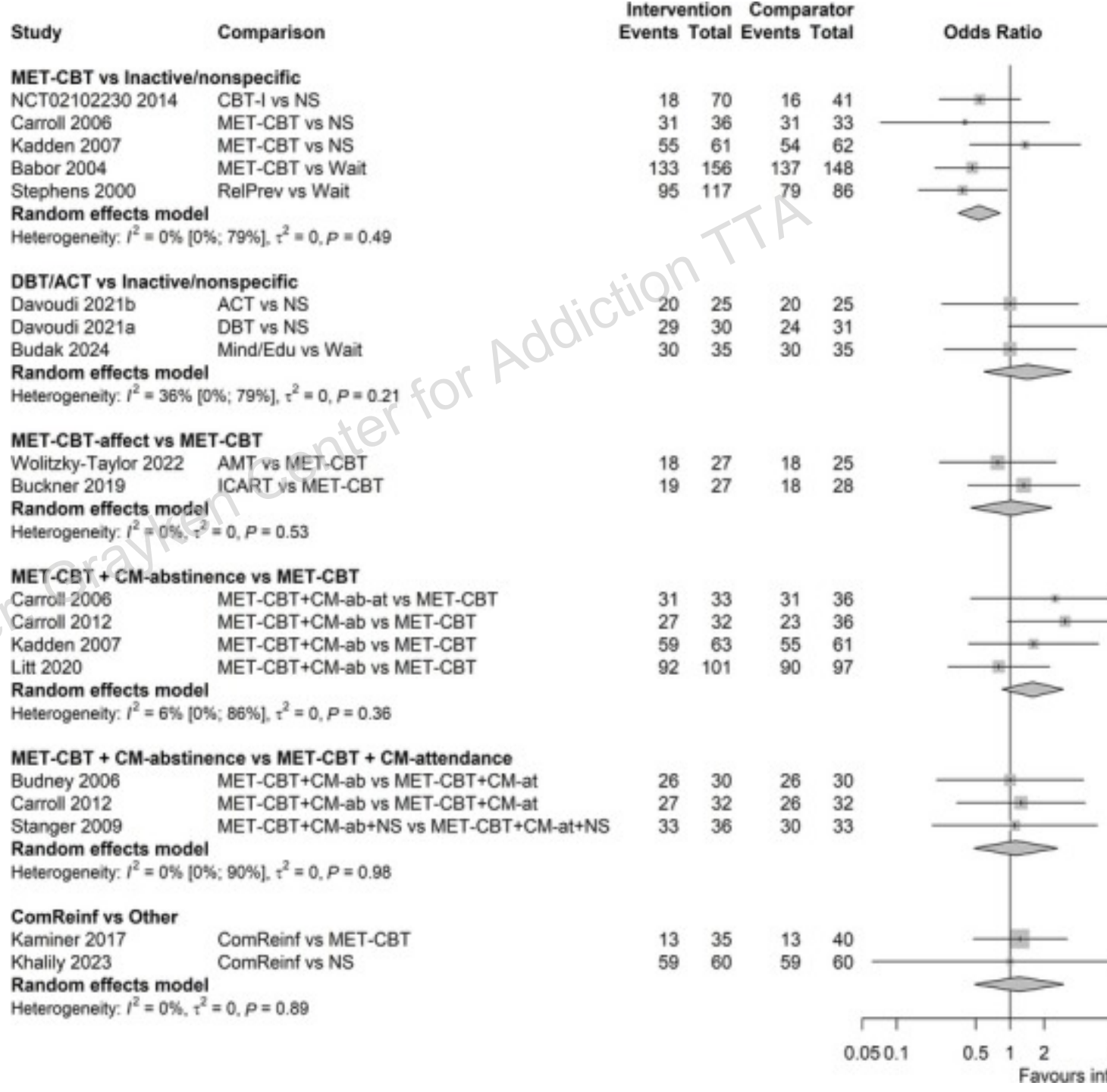
Adolescents withdrawing from cannabis have a higher risk of depression, anxiety, suicidal ideation, and psychosis

# Treatment Options

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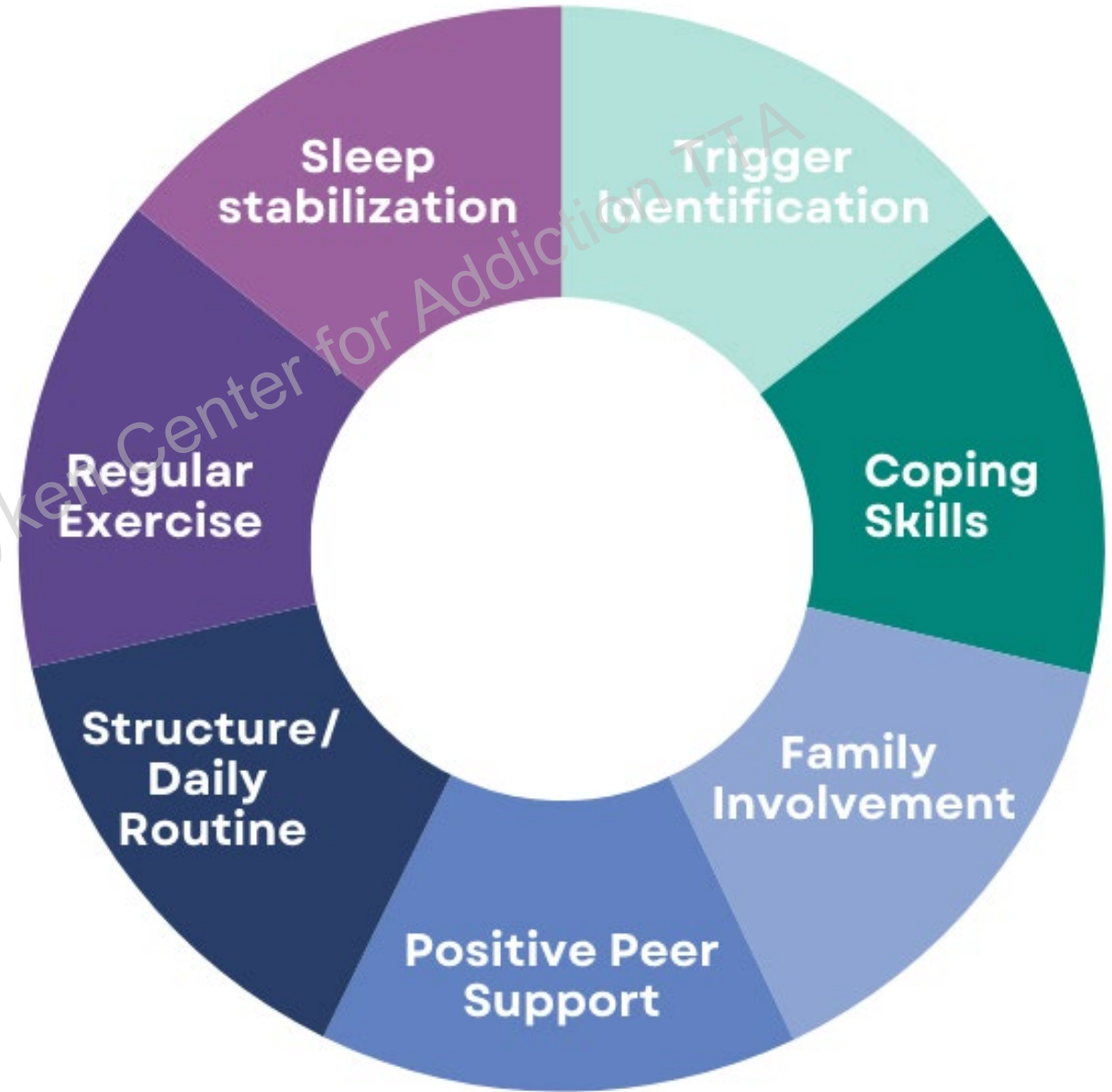
# Treatment Options: Behavioral Therapies

- Most data supports:
  - Cognitive-Behavioral Therapy (CBT)
  - Motivational Enhancement Therapy (MET)
- Supplement with
  - Contingency Management (CM)
  - Therapeutic living
  - A-CRA



# Lifestyle Supports

Integrate available social and community supports for youth with cannabis use disorder to increase support.



# Pharmacotherapy for Cannabis Use in Youth

No FDA-approved medications for cannabis use

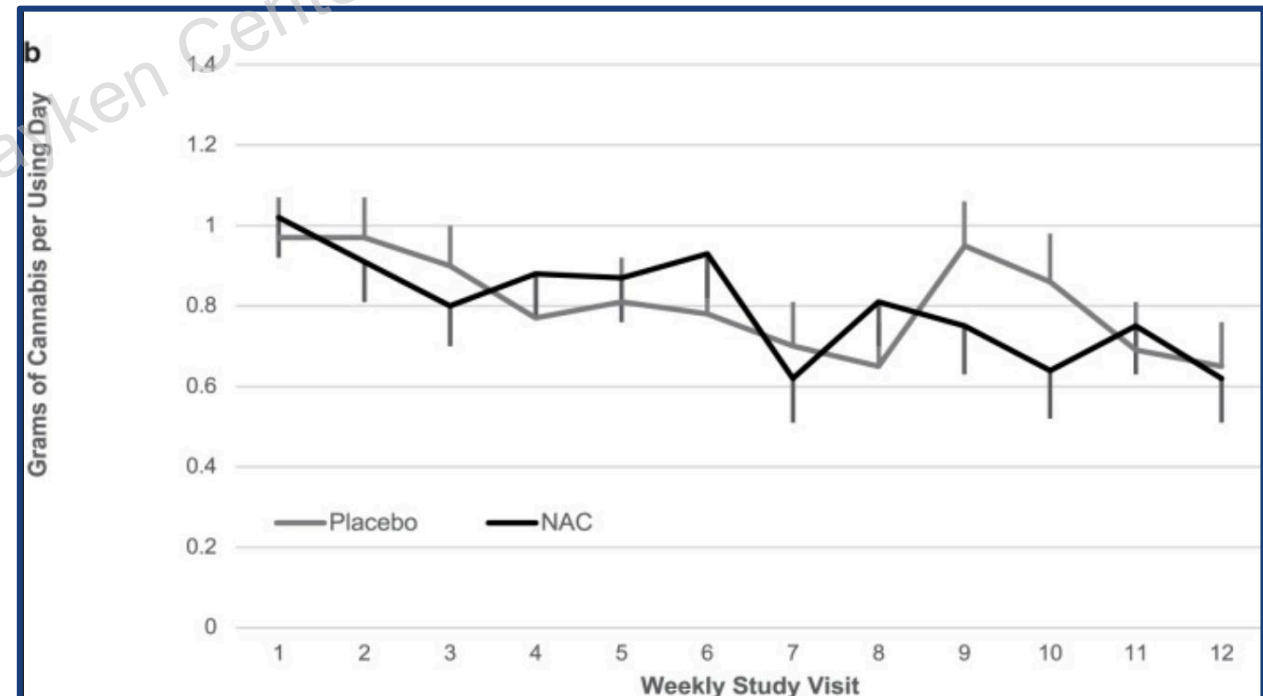
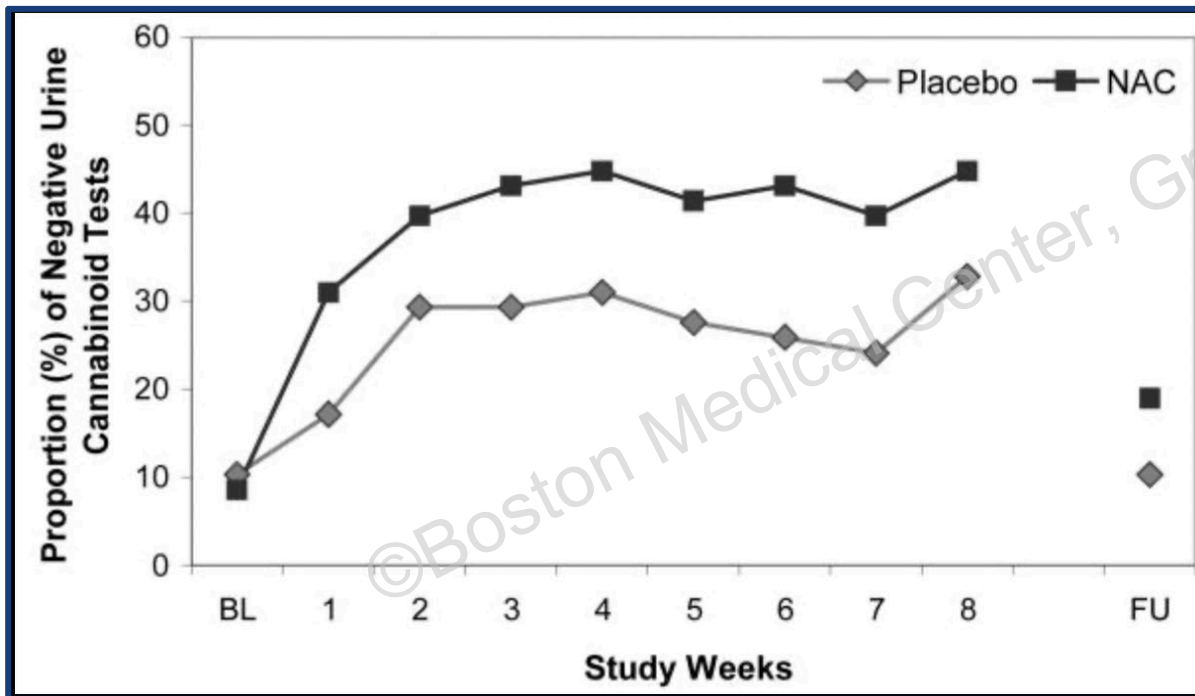
- Medications with promise for maintenance:
  - N-Acetylcysteine (NAC) for adolescents
    - Sentinel article demonstrated benefit with NAC, though repeat was negative
  - Topiramate
    - Supporting evidence for reduced use, though limited by side effects
  - Cannabinoid agonist (i.e. dronabinol)
    - May be more helpful for retention in treatment and withdrawal management than cessation of use

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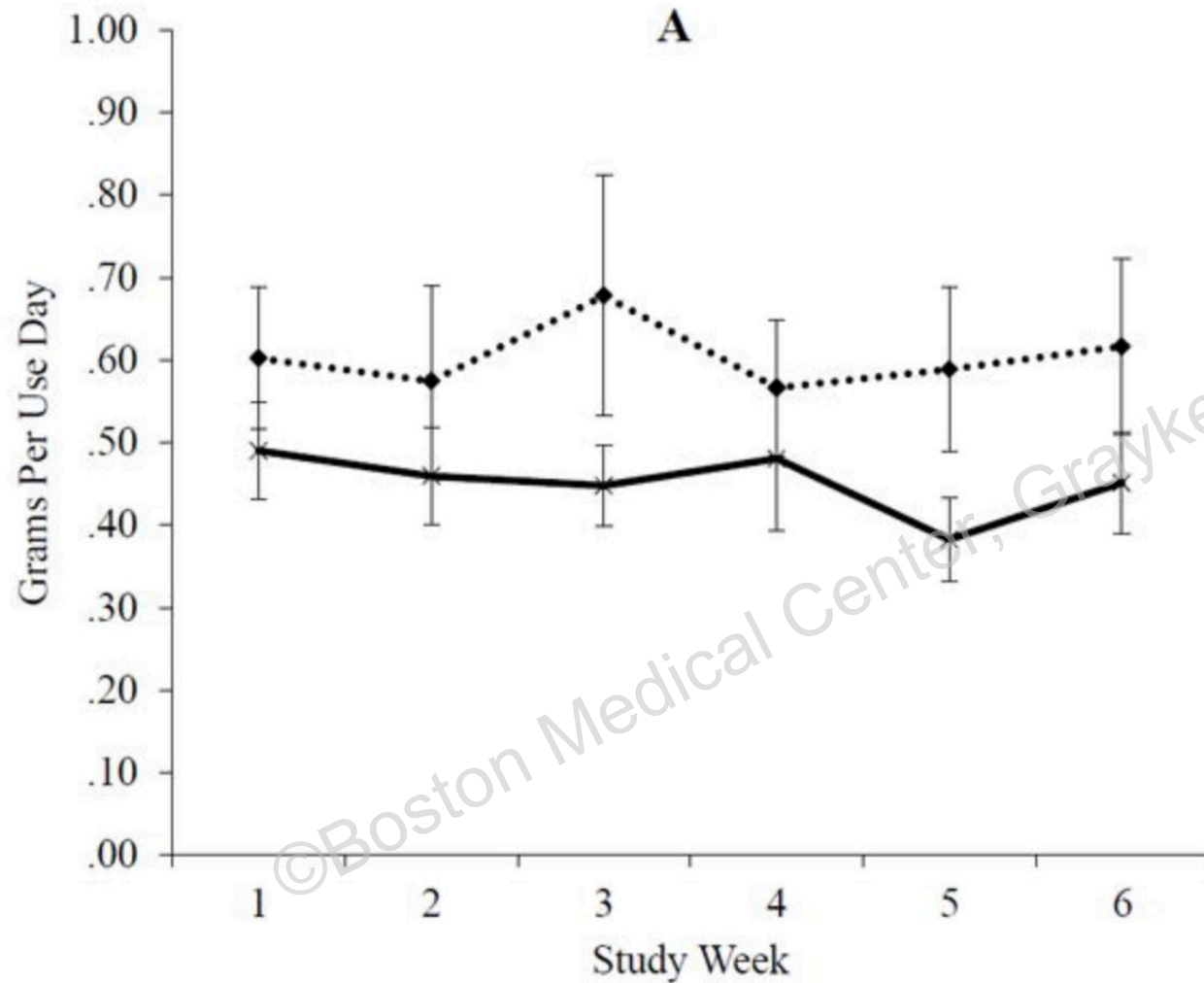
# N-Acetylcysteine (NAC) for THC in Adolescents

Studies showing use of NAC in combination with counseling or contingency management for treatment of cannabis use in adolescents

- 2012: 2400mg total daily dose of NAC + contingency management
- 2025: 2400mg totaily daily dose NAC + counseling



# Topiramate & MET for CUD in Youth



- Compared MET alone to MET combined with topiramate
- Randomized trial demonstrated decreased cocaine use in youth
- Study was limited by participant drop out due to reported side effect burden

# THC Potency Reduction

Gradually reducing THC potency instead of reducing frequency of cannabis intake can decrease dependency and withdrawal symptoms in a manageable way

- Reduces risks of higher THC-potency products
- Supports moving towards reduction of overall use or abstinence based on patient's goal

## Example Reduction Plan

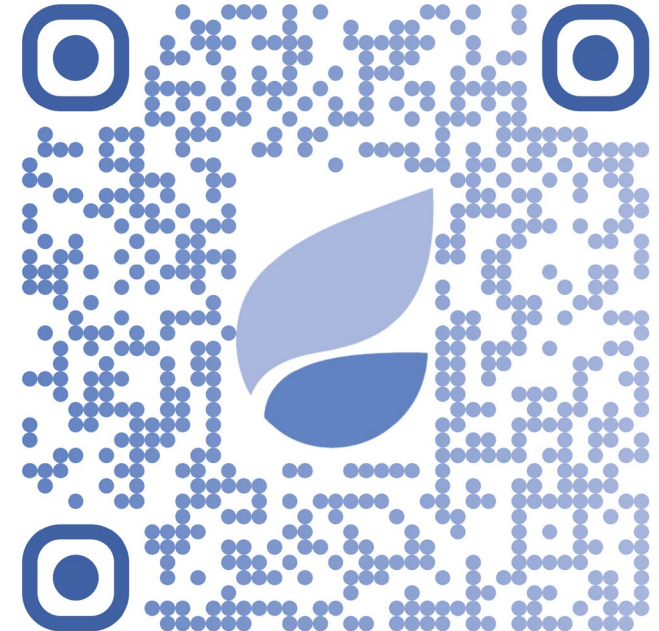
- Step 1: Know your potency/product
- Step 2: Choose a lower potency option over the next several weeks
  - Week 1: 40-50% THC
  - Week 2: 30-40%
  - Week 3: 20-30%
- Step 3: Track how you feel

# Cannabis Risk Reduction



## Resource:

Watch Grayken TTA's short animated educational video, "Harm reduction strategies for cannabis use". [Click here](#) or scan the QR code to access:



# Resources

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# Virtual Drop-in Office Hours

*Monthly opportunities to ask your addiction-related questions*



To learn more and join an upcoming session, [click here](#) or scan QR code!

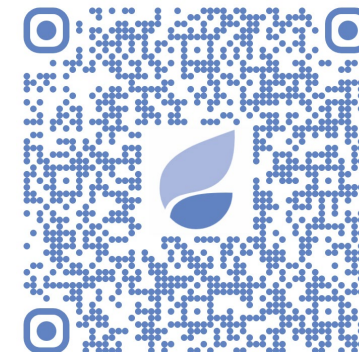
## General Office Hours:

2<sup>nd</sup> Thursday of each month from 5 – 6pm EST

## Stimulant-Focused Office Hours:

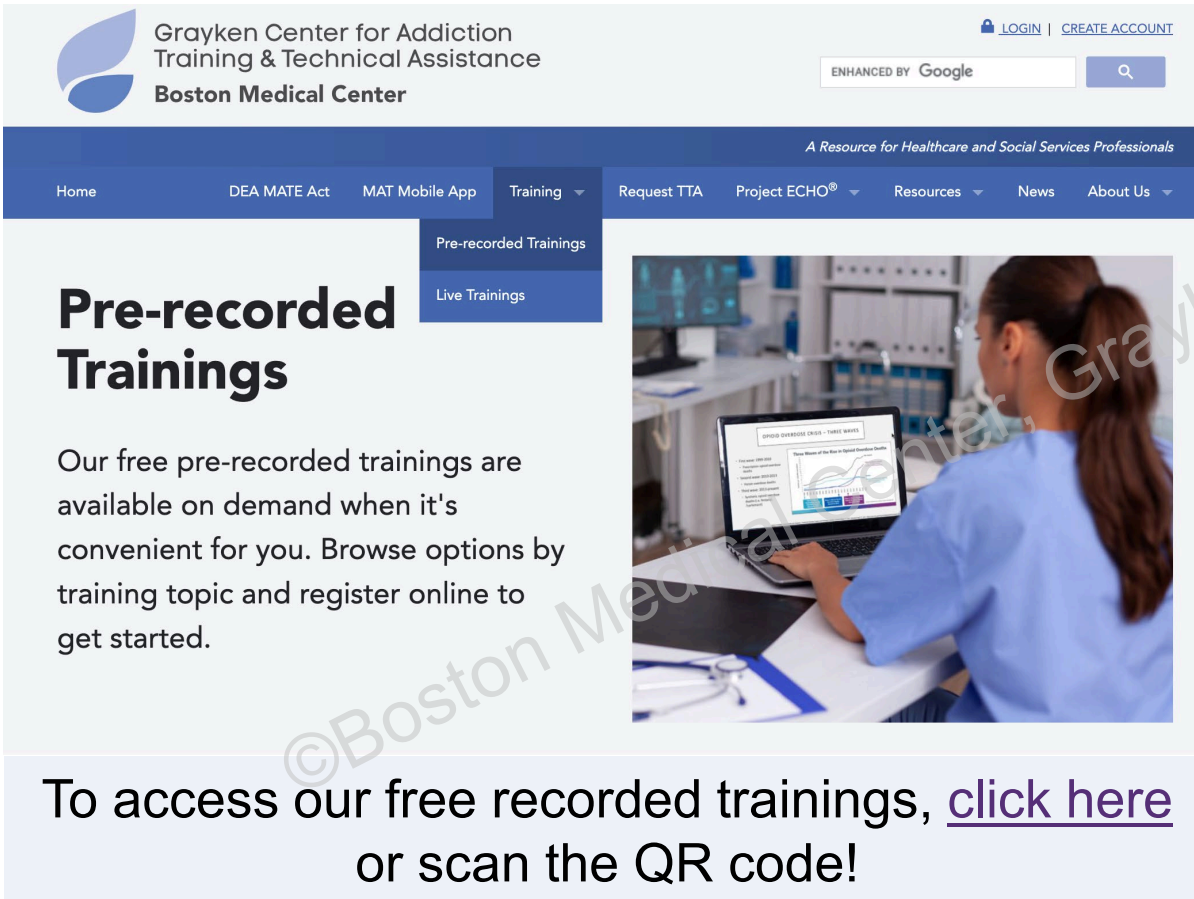
3<sup>rd</sup> Thursday of each month from 5– 6pm EST

- Hosted by BMC Grayken TTA Clinical Educators
- Open to all clinical providers and staff supporting those with substance use



# FREE Pre-Recorded Trainings

*Advancing Addiction Treatment: Building Knowledge of Substance Use & Specialty Topics; Substance Use Disorders 101; Nuts & Bolts of Buprenorphine Treatment*



The screenshot shows the website header for the Grayken Center for Addiction Training & Technical Assistance at Boston Medical Center. It includes a search bar, navigation menu, and a main section titled "Pre-recorded Trainings" with a sub-menu for "Live Trainings". A photo of a healthcare professional at a computer is also visible.

Grayken Center for Addiction Training & Technical Assistance  
Boston Medical Center

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Pre-recorded Trainings  
Live Trainings

## Pre-recorded Trainings

Our free pre-recorded trainings are available on demand when it's convenient for you. Browse options by training topic and register online to get started.

To access our free recorded trainings, [click here](#) or scan the QR code!

- ✓ 20 separate trainings on various **specialty topics**
- ✓ Count towards **DEA MATE Act** requirement
- ✓ **FREE CME/CE** & completion certificates
- ✓ **On-demand 24/7**



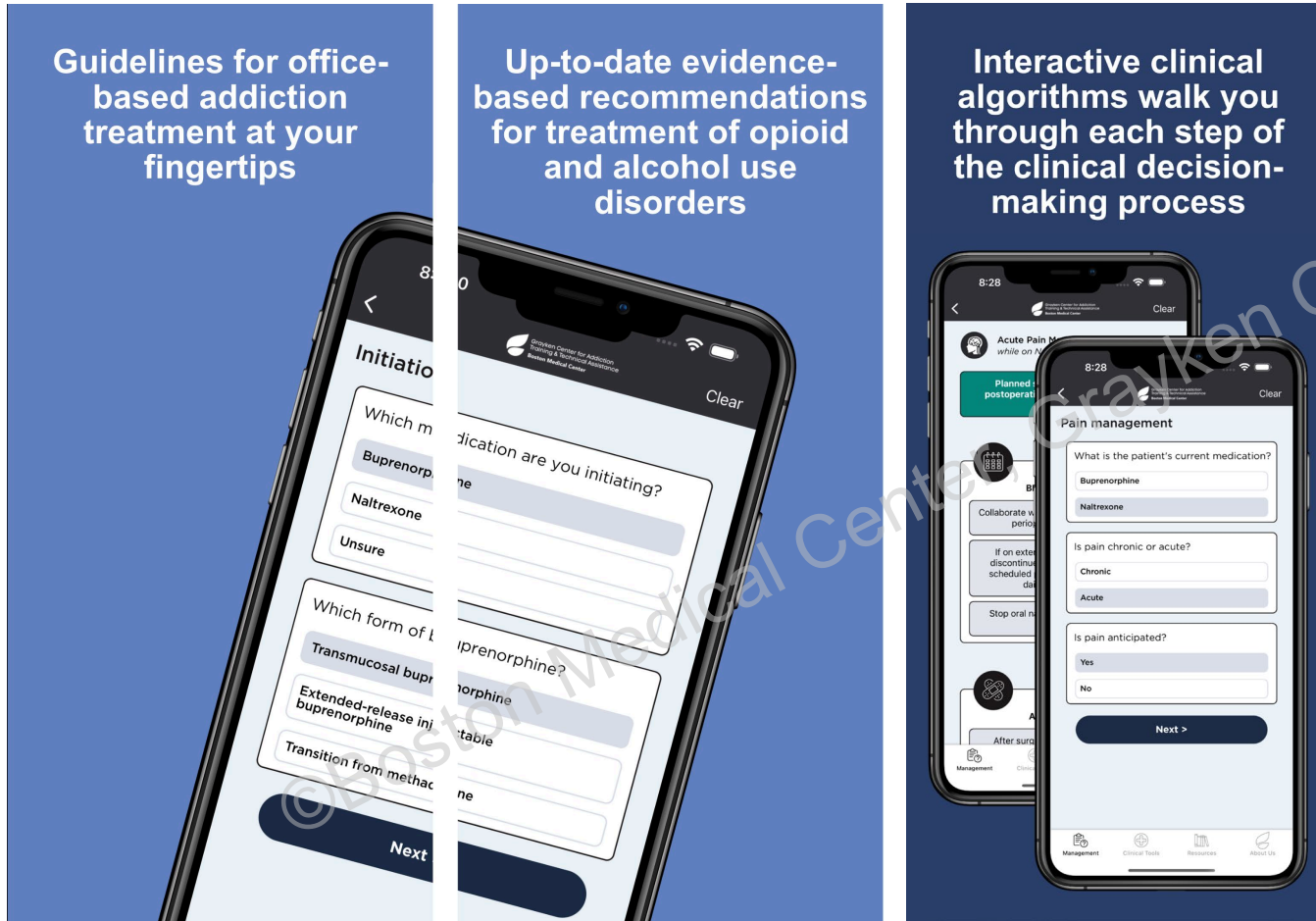
# BMC MAT Quick Start App

Free interactive clinical tools, decision trees, treatment protocols & resources

Guidelines for office-based addiction treatment at your fingertips

Up-to-date evidence-based recommendations for treatment of opioid and alcohol use disorders

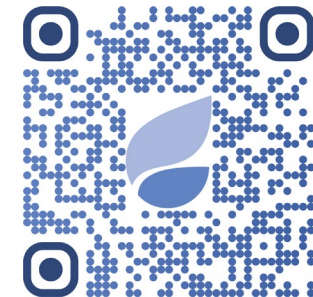
Interactive clinical algorithms walk you through each step of the clinical decision-making process



Provides real-time access to:

- ✓ Latest evidence-based guidance for treating opioid and alcohol use disorders
- ✓ Decision-making trees for initiation of buprenorphine and naltrexone
- ✓ Interactive tools, treatment protocols, and patient messaging features

Available for download on [iOS](#) and [Android](#), free of charge! [Web version](#) also available.



*This initiative was made possible with funding from the SAMHSA Opioid Response Network and the Massachusetts Department of Public Health. This app is not a substitute for individualized patient care and treatment decisions. It is the responsibility of the treating clinician to rely on their own experience and knowledge about their specific patient to determine dosages and the best treatment for that patient.*

# Empowering Loved Ones of People with Addiction

## *An Educational Group*

*Empowering Loved Ones* is a FREE educational program for family members, partners, and friends of people who use substances problematically. Information given to families can, directly and indirectly, impact the course of a loved one's substance use disorder. Just as the course of a loved one's substance use disorder can, directly and indirectly, impact family members and their wellbeing.

The group offers education, up-to-date information, and skill-building to promote the health of those impacted by a loved one's substance use.

**When?** 2nd and 4th Wed of every month  
7:00 to 8:30 PM EST

**Where?** Virtual via Zoom

**Who?** This group is only for family members, partners, and friends impacted by the substance use of a loved one.

### To sign up

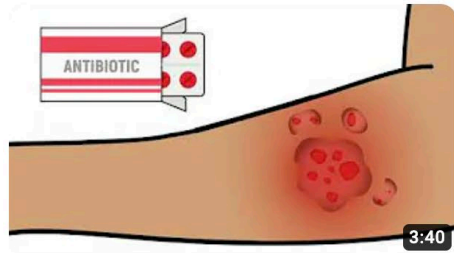
**Email:** [EmpoweringFamilies@bmc.org](mailto:EmpoweringFamilies@bmc.org)

Once added to our listserv, session registration and other resources will be emailed.



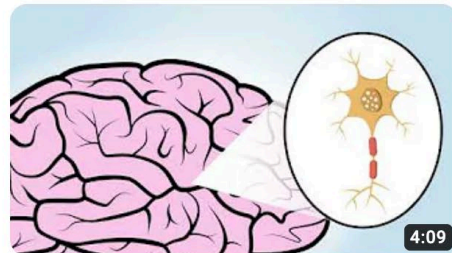
# Short Explainer Videos

Expert-authored short videos covering a variety of substance use disorder topics



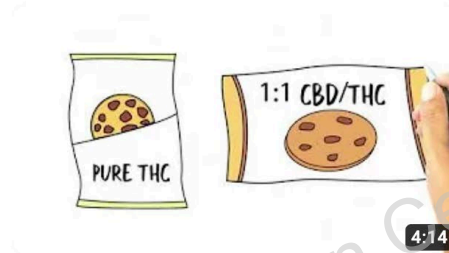
Xylazine 102: Focus on Wound Care

1.7K views • 2 months ago



Pharmacodynamics of Medications for Opioid Use Disorder

1.8K views • 3 months ago



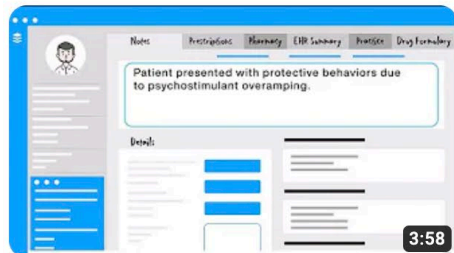
Harm reduction strategies for cannabis use

1.2K views • 4 months ago



Adolescent e-cigarette use: Clinical conversation tools

514 views • 5 months ago



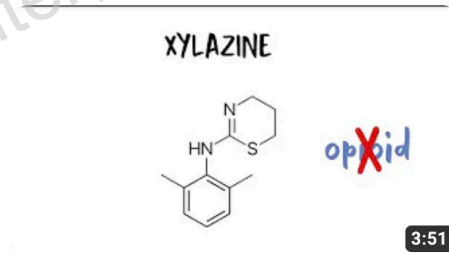
Reframing and responding to protective behaviors associated with stimulant use

1.2K views • 7 months ago



How to use an overdose prevention helpline

1.1K views • 7 months ago



Xylazine 101

9.7K views • 9 months ago



Information impacts action: Debunking myths about the family and recovery

3.8K views • 1 year ago

Available on:

[YouTube](#)



[addictiontraining.org](http://addictiontraining.org)



# Harm Reduction Short Videos

*we're excited to announce our new*

## **HARM REDUCTION SHORT VIDEO SERIES**



The new Harm Reduction Educational Series is a collection of **15 short videos** now available as part of our virtual harm reduction toolkit developed to equip healthcare professionals and community partners with **practical harm reduction skills to better support patients who use substances**. Topics covered include **safer smoking**, **injecting**, **sniffing**, **booty bumping**, and **overdose prevention and reversal**.



[Click here](#) or scan  
QR code to watch!



# More from Grayken Center for Addiction TTA

*A free education, support and capacity building resource on best practices for caring for patients with substance use disorder*



Register for free [live](#) and [recorded](#) trainings



Access free [resources](#)



[Join our mailing list](#) to stay in touch and informed about our offerings!

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