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Cannabis 301: The Great Unknown, Cannabis Use in Youth

Vanessa Loukas, MSN, FNP-C, CARN-AP

April 30, 2026

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Objectives

By the end of this training, participants will have the knowledge necessary to:

1. Recognize the role of THC and CBD in the potency of cannabis products used by youth.
2. Recall three health outcomes associated with youth cannabis use.
3. Identify potential risks and adverse health outcomes associated with cannabis use.
4. Develop a basic understanding of strategies to mitigate potential harms of youth cannabis use.

Basics of Cannabis in Youth

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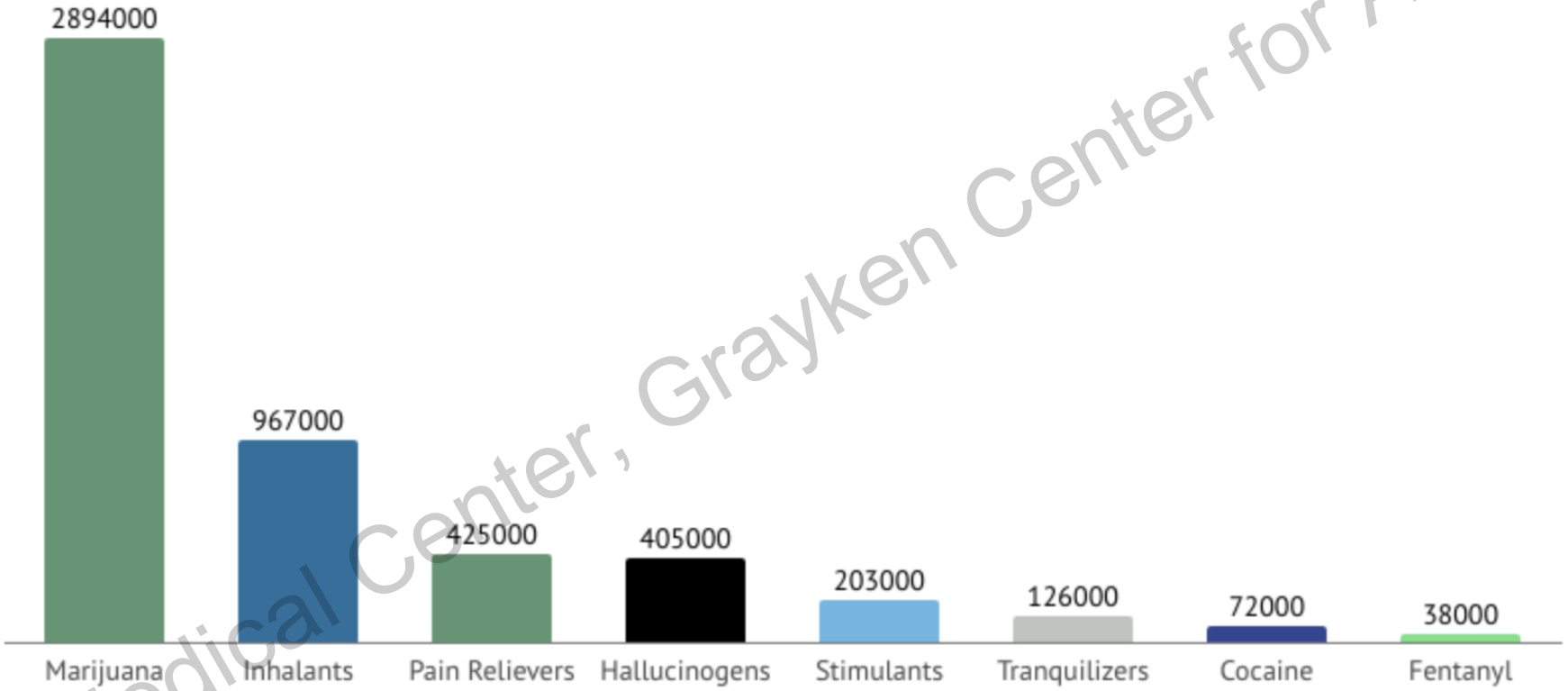
Substance Abuse Among 12-17 Year-Olds by Drug



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

(DrugAbuseStatistics.org, 2026)

Roles Of THC And CBD

Tetrahydrocannabinol (THC)	Cannabidiol (CBD)
• Psychoactive, appetite stimulant • Increased THC potency leads to increased adverse effects – including impaired cognition & adverse mental health outcomes in youth • Delta-9 THC isomer = most common • *Delta-8 THC naturally exists in small quantities, ~ 50-75% as psychoactive; Growing quasi-legal market.	• Less psychoactive, non-intoxicating • Neuroprotective, anti-inflammatory, and anticonvulsant effects. • Attenuates some of the neurocognitive and behavioral effects of THC • Few and mostly mild adverse effects of itself • May interact with medications (e.g. anesthesia, blood thinners)
Increased risk of impaired cognition and adverse mental health outcomes in youth due to increased potency	*CBD does not produce a "high" but not without risk in developing adolescent brains*

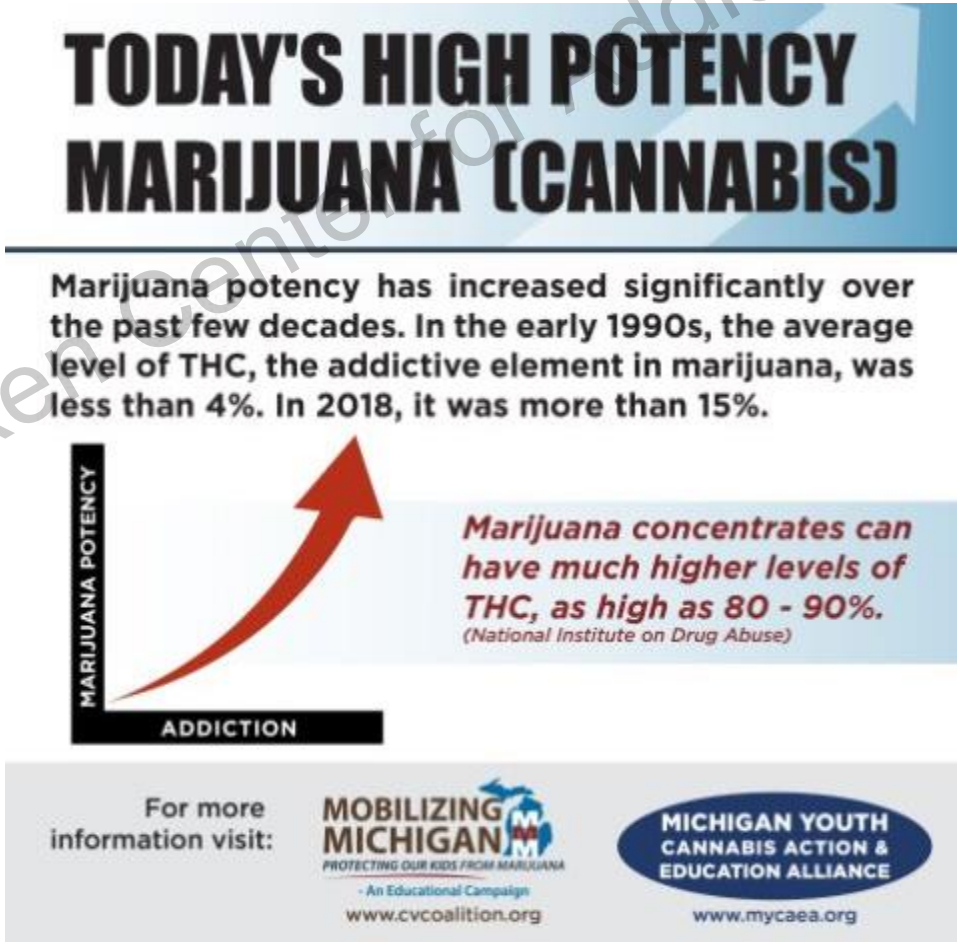
(Balachandran, Elsohly & Hill, 2021)
(LoParco et al., 2023)

Role of THC & CBD Potency in Youth

Youth exposure increasingly includes both THC and CBD products (e.g. vaping) highlighting the importance of understanding cannabinoid composition when assessing potency and risk

THC:CBD ratio is key to understanding potency.

- High THC, Low CBD = more potent, greater risk of acute intoxication and long-term harms
- **Low ratios don't negate risk in youth**



(Chung et al., 2025)
(Itriyeva, K., 2025)
(Rabinow, Dries & Hoffman, 2025)

Established Impacts of Cannabis in Youth

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Impact of Cannabis on Youth

Neurocognitive impairment

- Cannabis use in youth is associated with deficits in attention, memory, and executive function
- Potential impacts on academic performance and bain development

Mental health disorders

- Increased risk of anxiety, depression, and psychosis
- Higher prevalence with high-potency THC products, earlier initiation, and more frequent use

Cannabis use disorder

- Early initiation increases risk of developing CUD
- Presence of CUD can increase risk of development of other use disorders

Physical health conditions

- Use via inhalation can cause respiratory symptoms, any use can increase cardiovascular risk
- ~36% greater risk of MVA with acute cannabis use/intoxication

Cannabinoid hyperemesis syndrome

- Chronic use, particularly high-THC is associated with recurrent nausea, vomiting, and abdominal pain
- Only curative treatment at present includes cessation, supportive therapies may be indicated

(NIH, 2021)
(Hasin et al., 2022).
(SAMHSA, 2023)
(CDC, 2024)

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

(CDC, 2024)
(National Academies of Sciences, Engineering, and Medicine, 2017)

Mental Health Risks

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

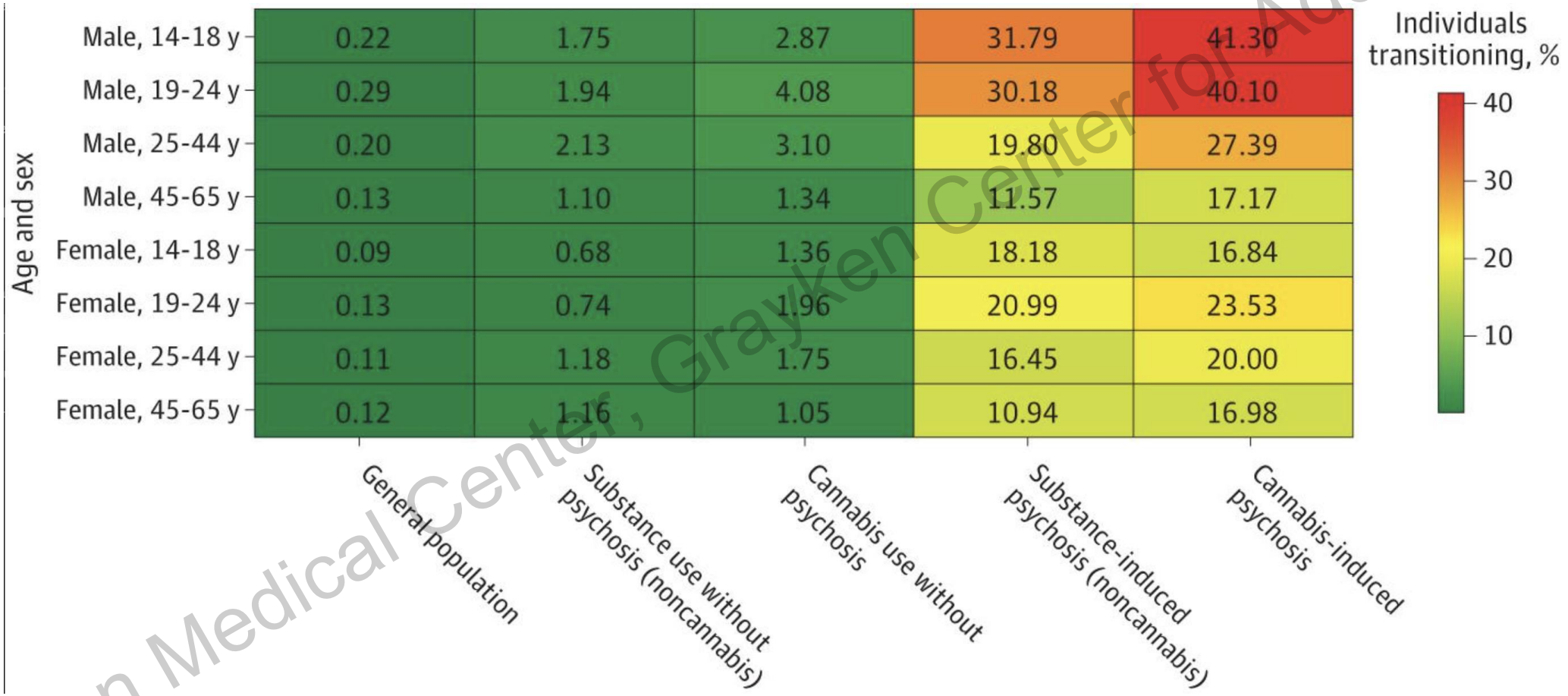
- The adolescent brain is undergoing active development until around the age of 25.
- Cannabis use during adolescence may harm the developing brain
  - Social anxiety
  - Depression
  - Brief substance-induced psychosis
  - Schizophrenia
  - Increased risk for development of a cannabis use disorder when 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

(CDC, 2024)

Risk of Transition to Schizophrenia



(Myran et al., 2023)

Treatment & Interventions

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Pharmacotherapy for Cannabis Use in Youth

No FDA-approved medications for cannabis use.

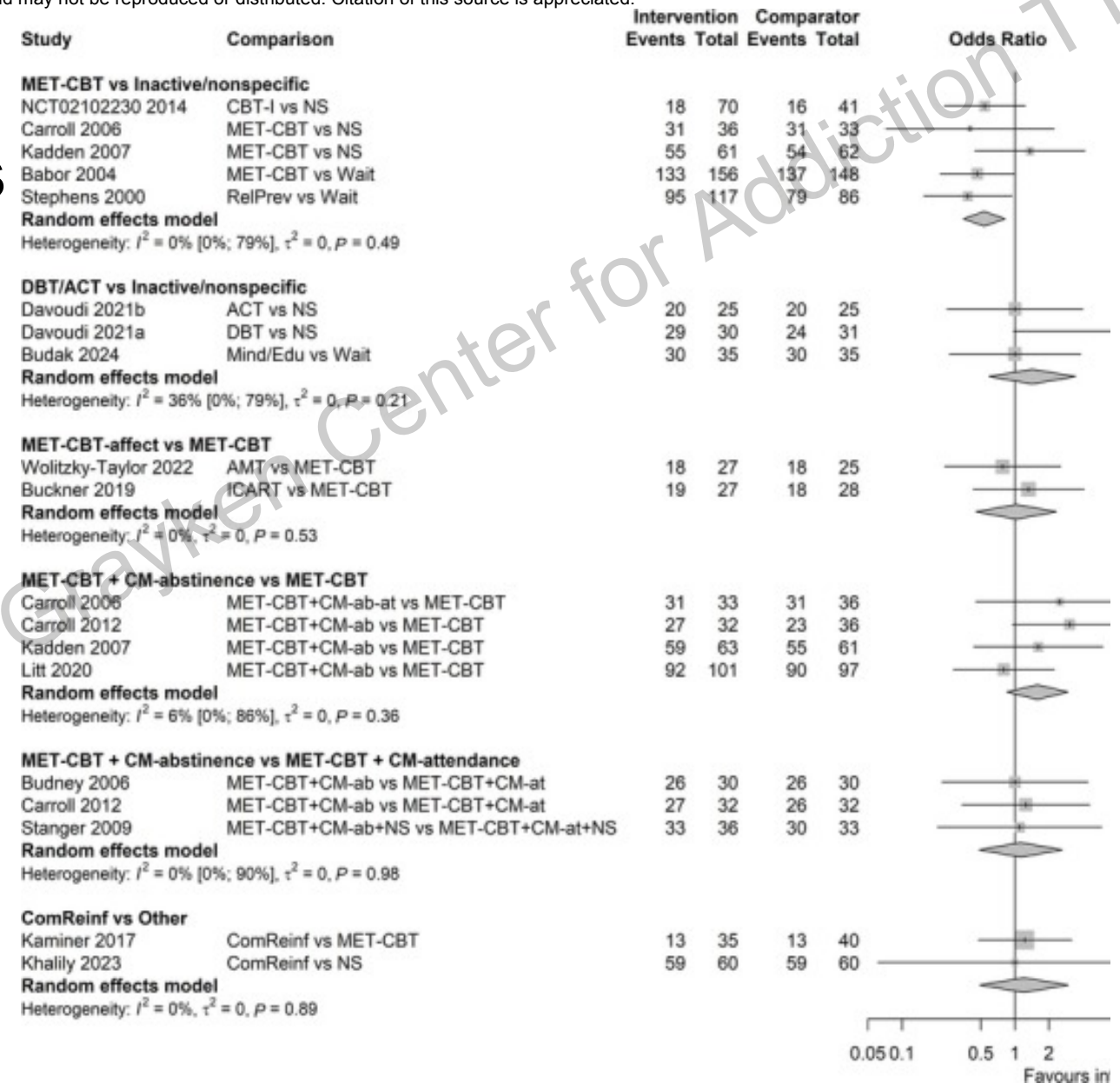
Medications with promise for maintenance:

- 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

(Gary et al., 2012)
(Gary et al., 2025)
(Miranda et al., 2016)

Treatment Options: Behavioral Therapies

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



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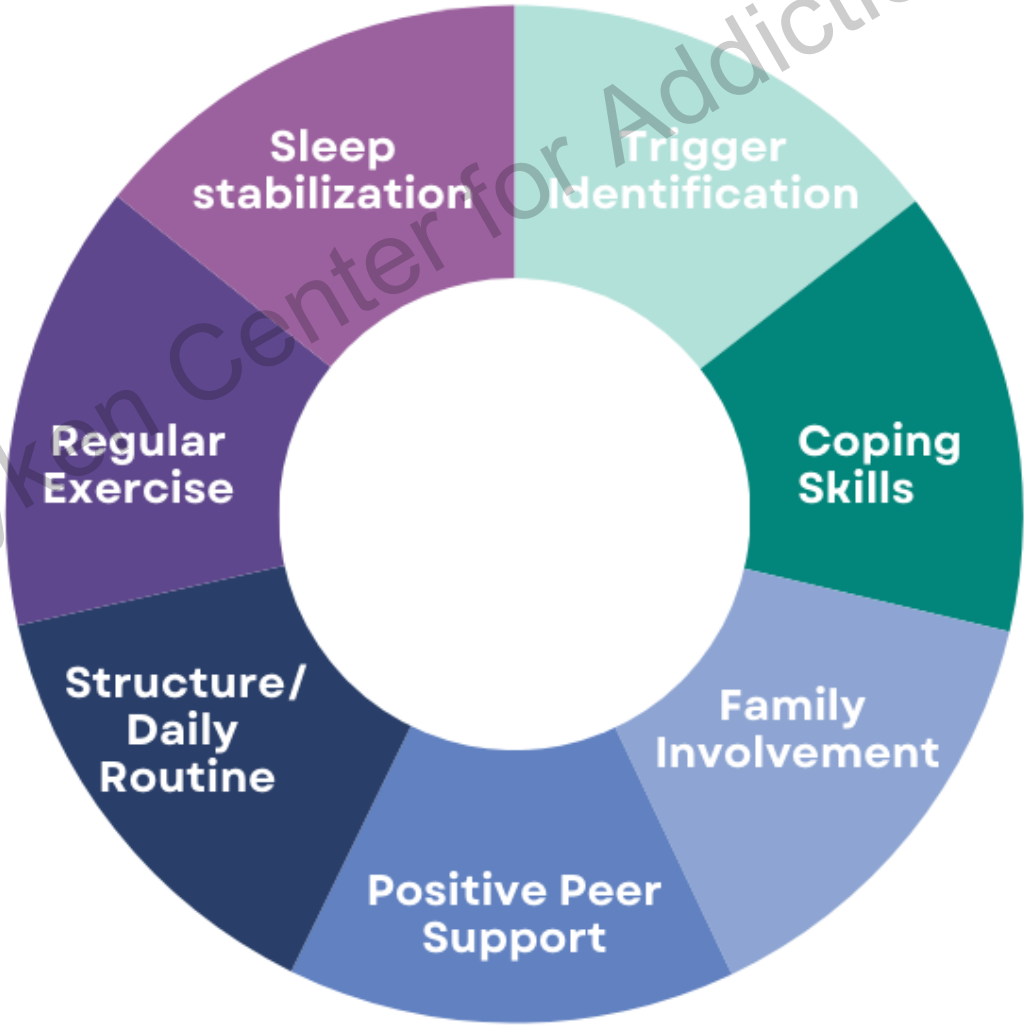
(Halicka et al., 2025)

Lifestyle Supports

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



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The Great Unknowns

What we don't know and why it matters

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Knowledge Gaps in Adolescent Cannabis Research

Neurobiological/Individual Level Unknowns

- Reversability of brain changes
  - Neuroimaging shows prefrontal cortical thinning, but reversability of these structural changes remains unclear
- Critical windows of vulnerability
  - Cannabis initiation at ages 14-19 vs 19-22 produces different brain changes, but precise windows of maximum vulnerability remain unclear
- Causality vs. Confounding factors
  - Associations with psychosis, depression, and cognitive deficits are well-documented, but establishing causation is limited by confounding factors

(Albaugh et al., 2021)
(Hammond, 2022)
(Hurd, 2025)
(Page et al., 2020)
(Wade et al., 2026)

Knowledge Gaps in Adolescent Cannabis Research

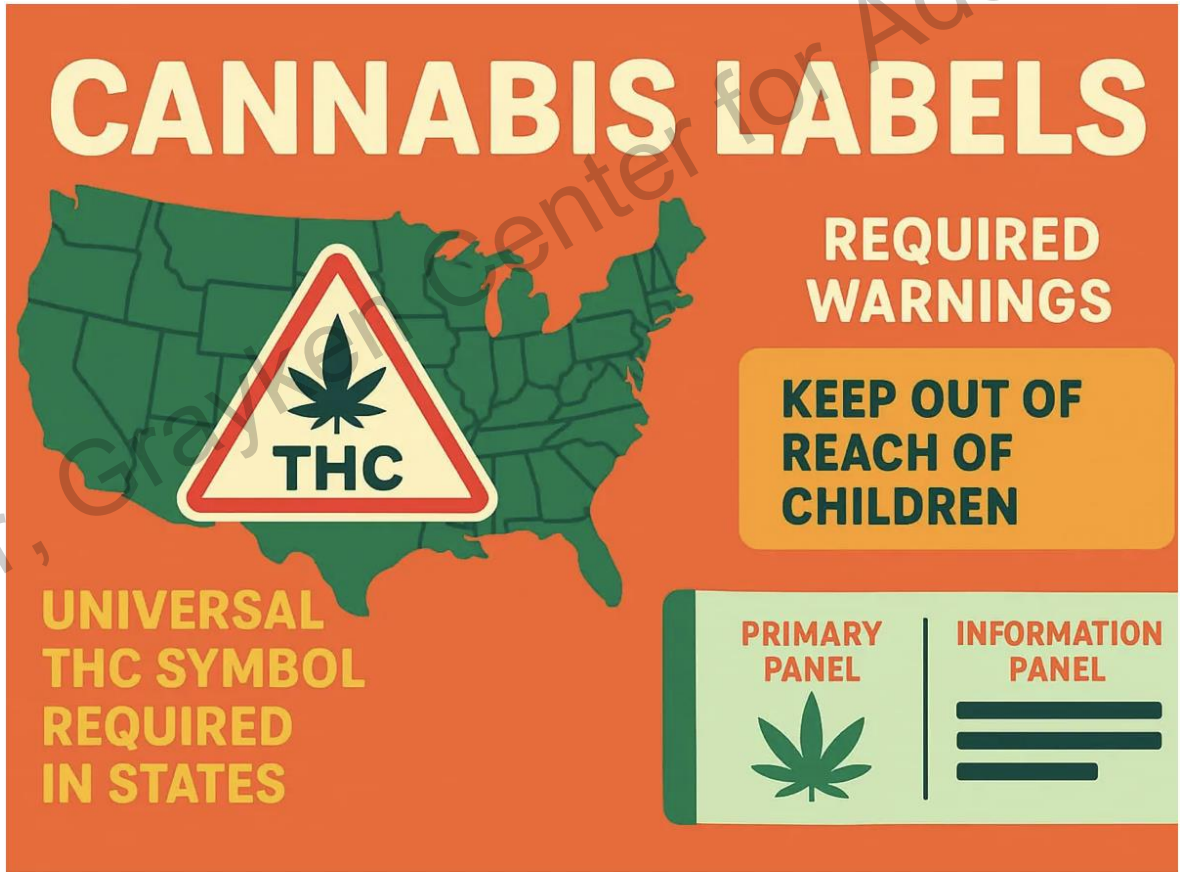
Product/Outcome/Population Level Unknowns

- Dose-response product-specific effects
- Non-disordered vs. Disordered use
  - Risks at lower, non-disordered levels of cannabis use remain largely unstudied
- Long-term functional outcomes
  - Most longitudinal data extend only to young adulthood
    - Impacts on educational attainment, occupational success, and quality of life in adulthood are unknown
- Sex/gender differences
  - Females may be more susceptible to cannabis-induced depression, males may be more susceptible to cannabis-induced psychosis

(Albaugh et al., 2021)
(Hammond, 2022)
(Hurd, 2025)
(Page et al., 2020)
(Wade et al., 2026)

Cannabis Label Discrepancies

- Because cannabis has not been legalized across the country, the FDA does not regulate labels.
  - Cannabis flower potency is 23-36% lower than label claims on average
  - Only 7% of CBD beverages are appropriately labeled
  - 35% of hemp-derived topical products contain detectable THC, even when not on label



(Limbacher et al., 2025)
(Giordano et al., 2025)
(Schawbe et al., 2023)
(Spindle et al., 2022)

Policy Changes & Implications

On April 23, 2026, the Department of Justice reclassified cannabis as schedule I (no accepted medical use), to schedule III (accepted medical use).

- Re-classification is expected to increase research capabilities
  - Safety and efficacy data, standardized dose ranges
- Accuracy of labels for medical cannabis is expected to improve with increased FDA & Federal Trade Commission (FTC) oversight
  - May take several years, limited to medical

Concerns exist that this re-classification will increase the normalization and decreased perception of harm among youth.

(FDA, 2026)

Strategies to Mitigate Risks of Cannabis in Youth

Delay initiation & reduce frequency	Choose lower-risk products	Avoid high-risk modes of use	Promote safer use behaviors
• Early initiation and higher frequency are associated with greater risk to adolescent brain development	• Emphasize avoiding high-THC products to reduce risks of acute intoxication and adverse mental health effects.	• Discourage vaping and high-potency concentrates to reduce rapid and strong delivery of THC	• Encourage not mixing cannabis with alcohol or other substances, avoid operating machinery when using, using in safer environments

(CDC, 2024)
(Hammond et al., 2022)
(Hines et al., 2022)
NASEM, 2022)
(SAMSGA. 2023)

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

Clinical Framework for Navigating Unknowns in Practice

- Assume variability in exposure
- Anchor risk assessment to developmental state
- Screen for bidirectional mental health & cannabis use
  - "What does cannabis help with? What makes it worse? Why do you use cannabis?"
- Risk stratify based on individual clinical presentation and history
  - Incorporate motivational interviewing, normalize ambivalence
- Universal counseling for prevention/interventions, even without clarity of diagnoses
  - Identify uncertainty of evidence around treatment interventions with patients
  - Align interventions with patient goals
- Longitudinal AND episodic assessment

References

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Resources

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Additional Resources: Cannabis

Promoting Wellness Resources

To access cannabis resources including short videos on cannabis use, click here or scan the QR code.

Get Sensible Resources

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

Cannabis HR Guideline

Fischer B, Robinson T, Bullen C, et al. Lower-Risk Cannabis Use Guidelines (LRCUG) for reducing health harms from non-medical cannabis use: A comprehensive evidence and recommendations update. *Int J Drug Policy*. 2022;99:103381. doi:10.1016/j.drugpo.2021.103381

Understanding your Risk for Cannabis Use Disorder

To access this resource from the Centers of Disease Control and Prevention, click here or scan the QR code.

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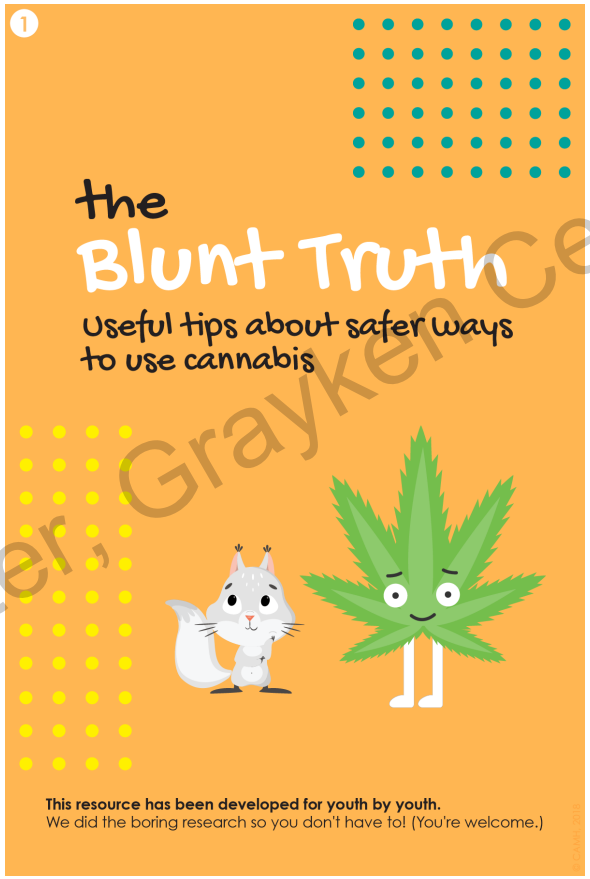
Resources for Cannabis in Youth



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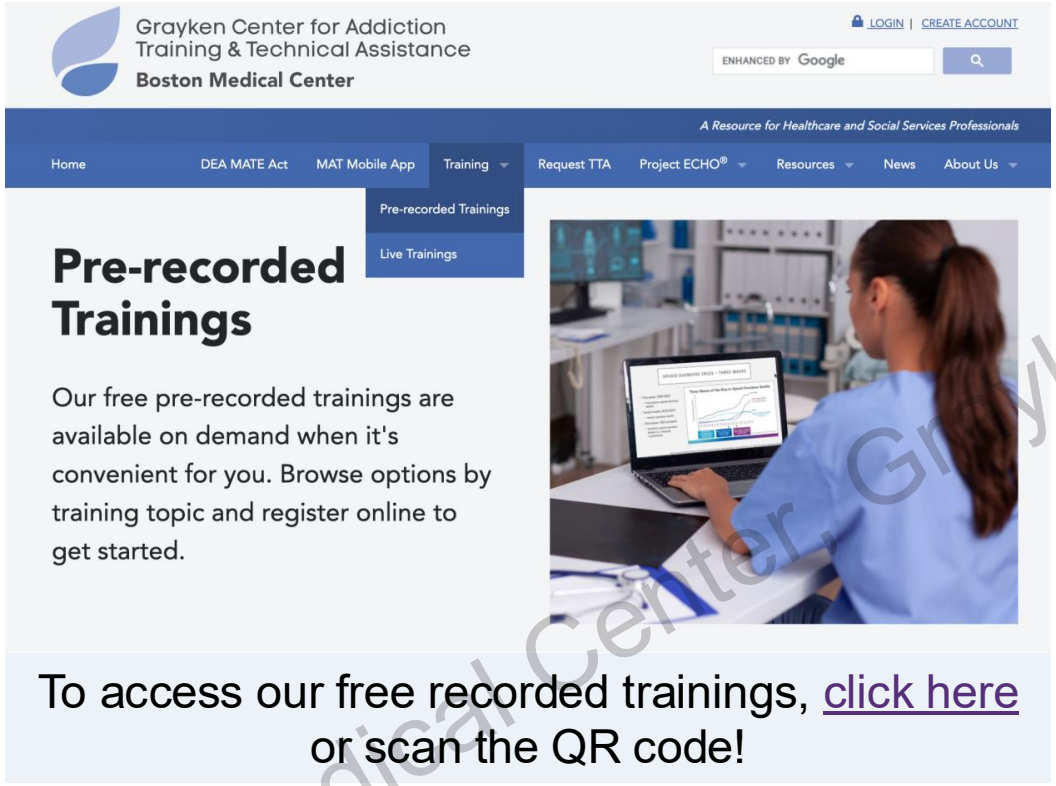

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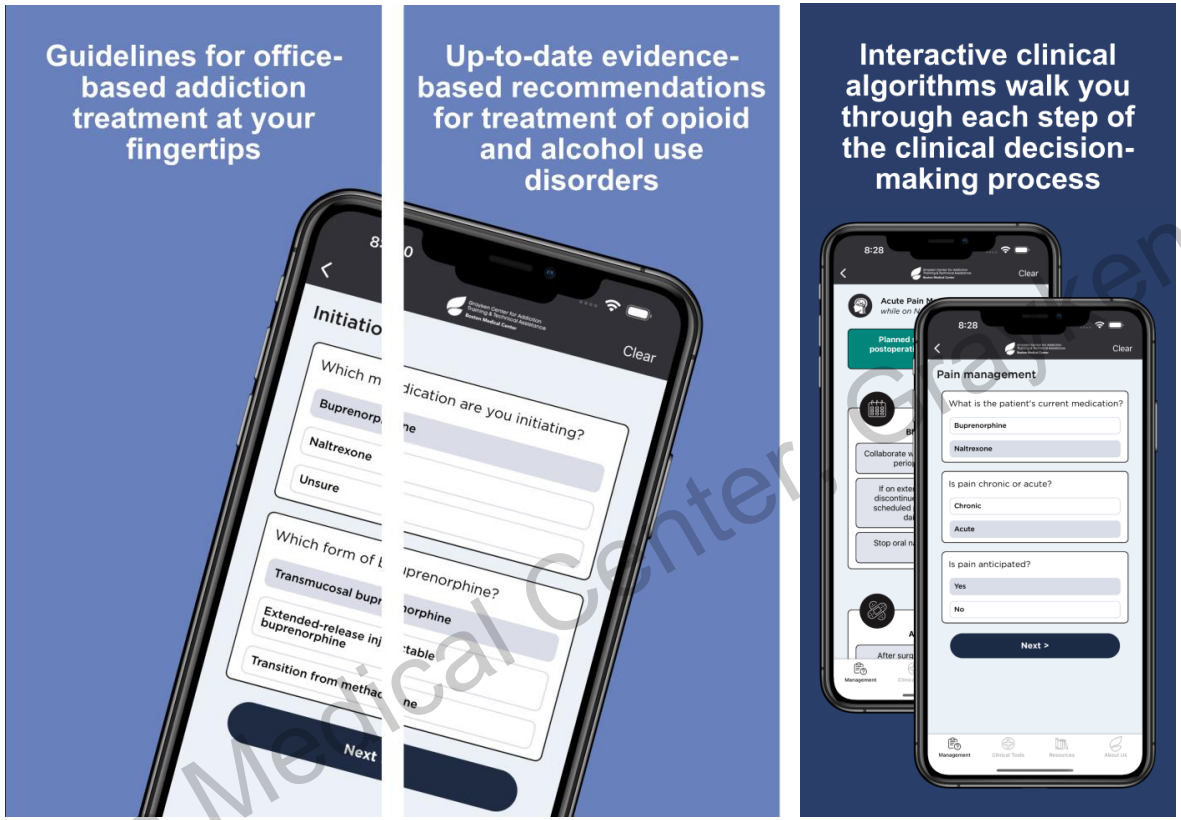
BMC MAT Quick Start App

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



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.

Download on the App Store

GET IT ON Google Play

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.

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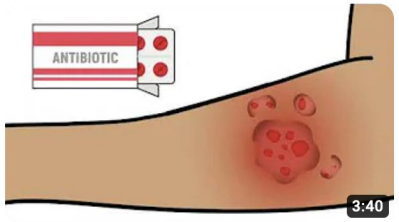
Short Explainer Videos

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



Xylazine 102: Focus on Wound Care

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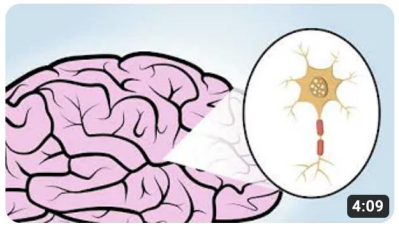

Pharmacodynamics of Medications for Opioid Use Disorder

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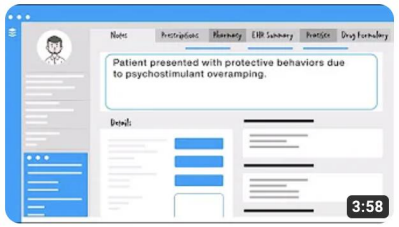
Harm reduction strategies for cannabis use

1.2K views • 4 months ago

Adolescent e-cigarette use: Clinical conversation tools

514 views • 5 months ago

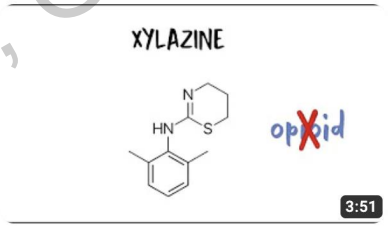


Reframing and responding to protective behaviors associated with stimulant use

1.2K views • 7 months ago

How to use an overdose prevention helpline

1.1K views • 7 months ago



Xylazine 101

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Information impacts action: Debunking myths about the family and recovery

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