



MASSACHUSETTS
GENERAL HOSPITAL

PSYCHIATRY ACADEMY

Substance Use Disorders: Part I

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Disclosures



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Neither I nor my spouse/partner has a relevant financial relationship with a commercial interest to disclose.



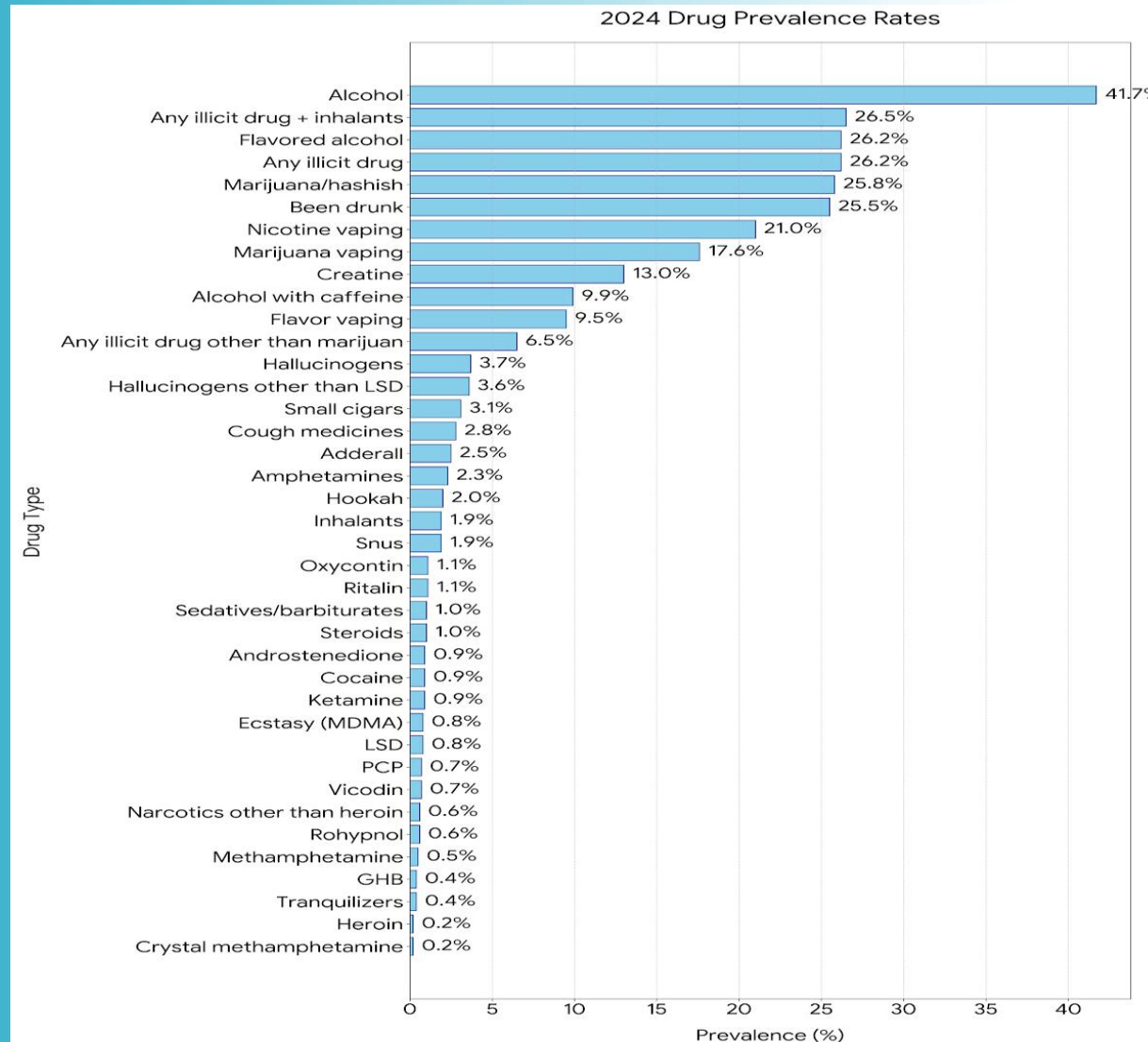
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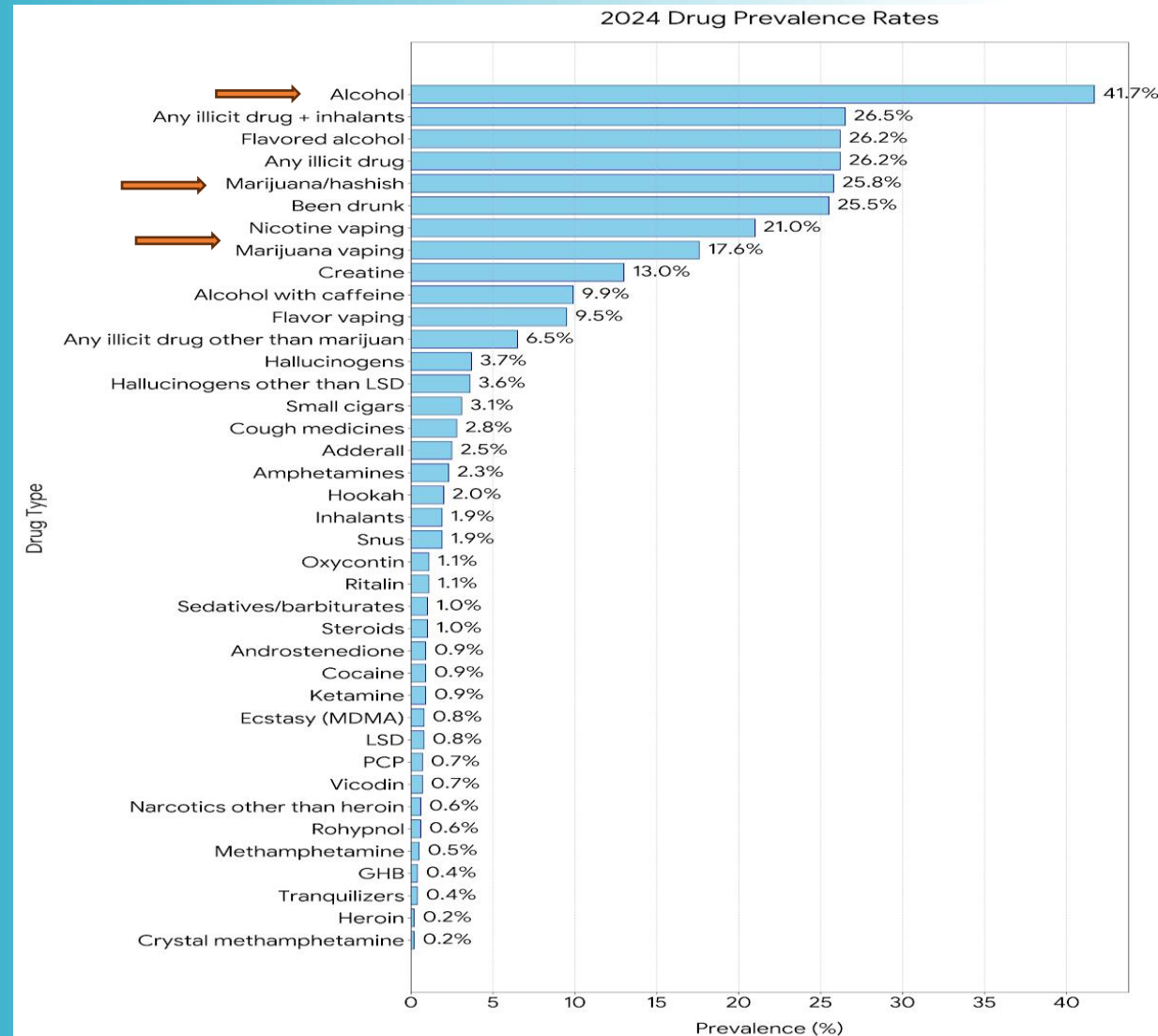
“I want to die high!”

-ARMS patient, *16 years old*

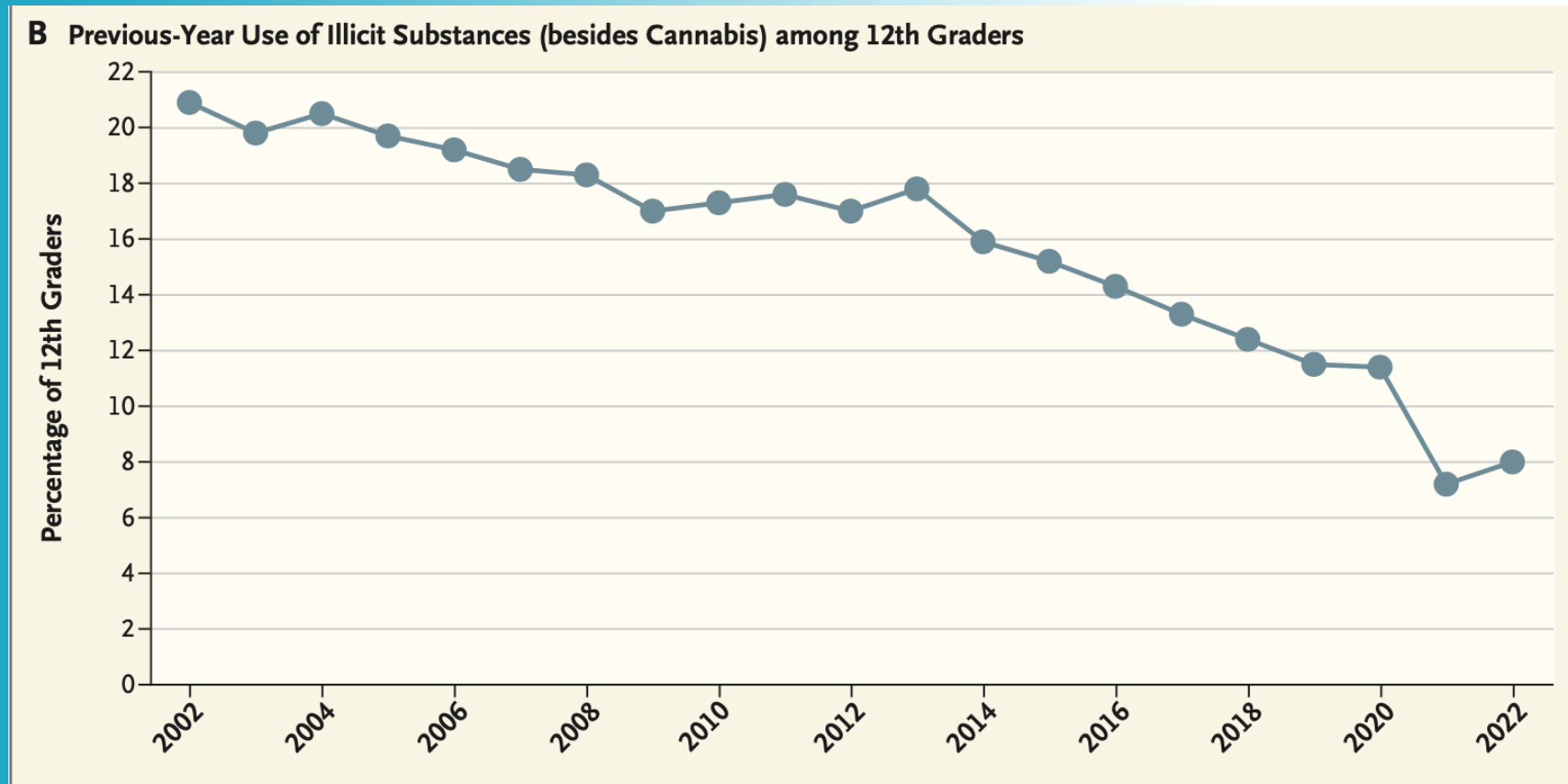
Reported past-year drug use by H.S. seniors



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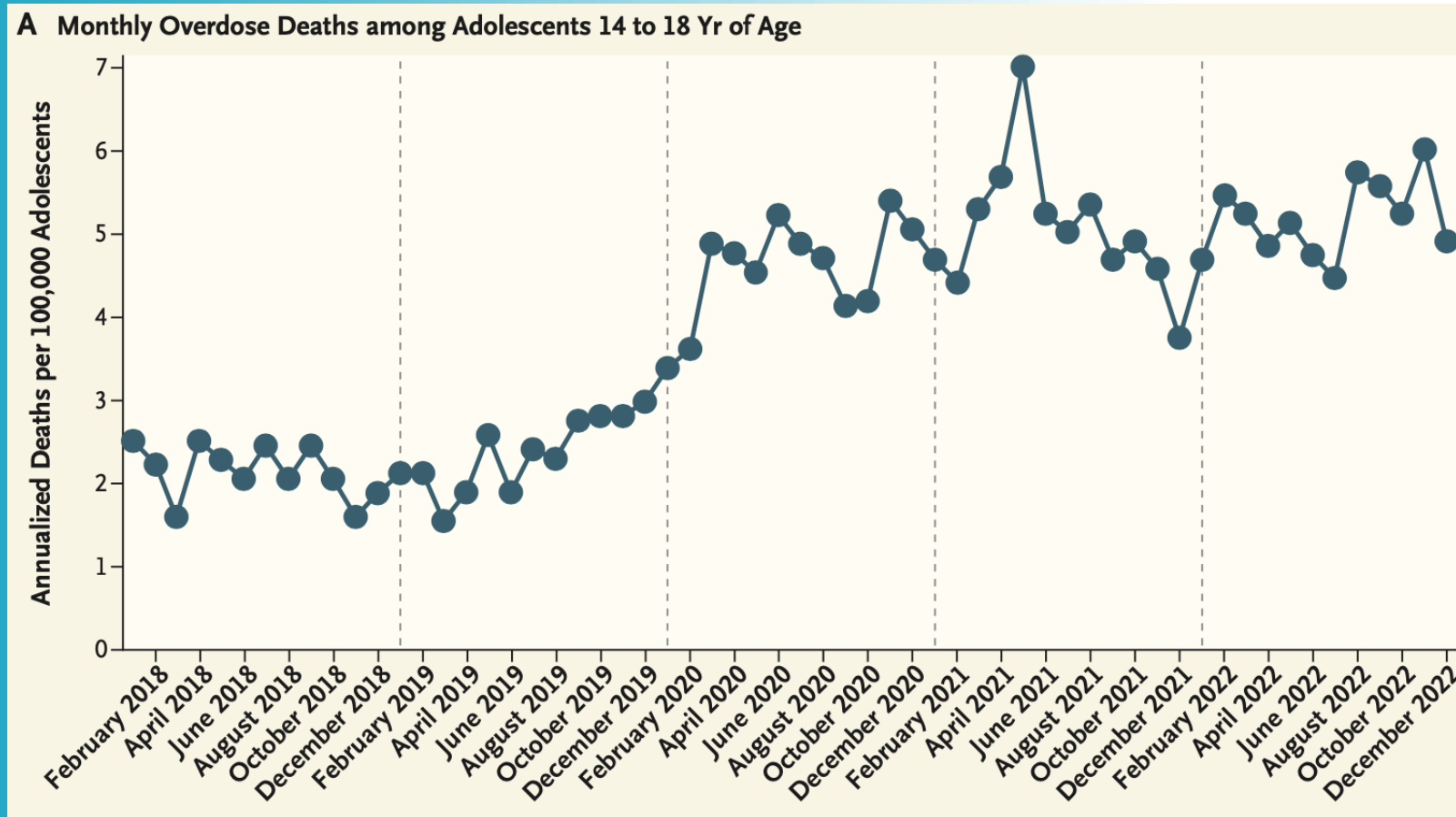


The good news: Declining rates of substance use (ex-cannabis) among high school seniors



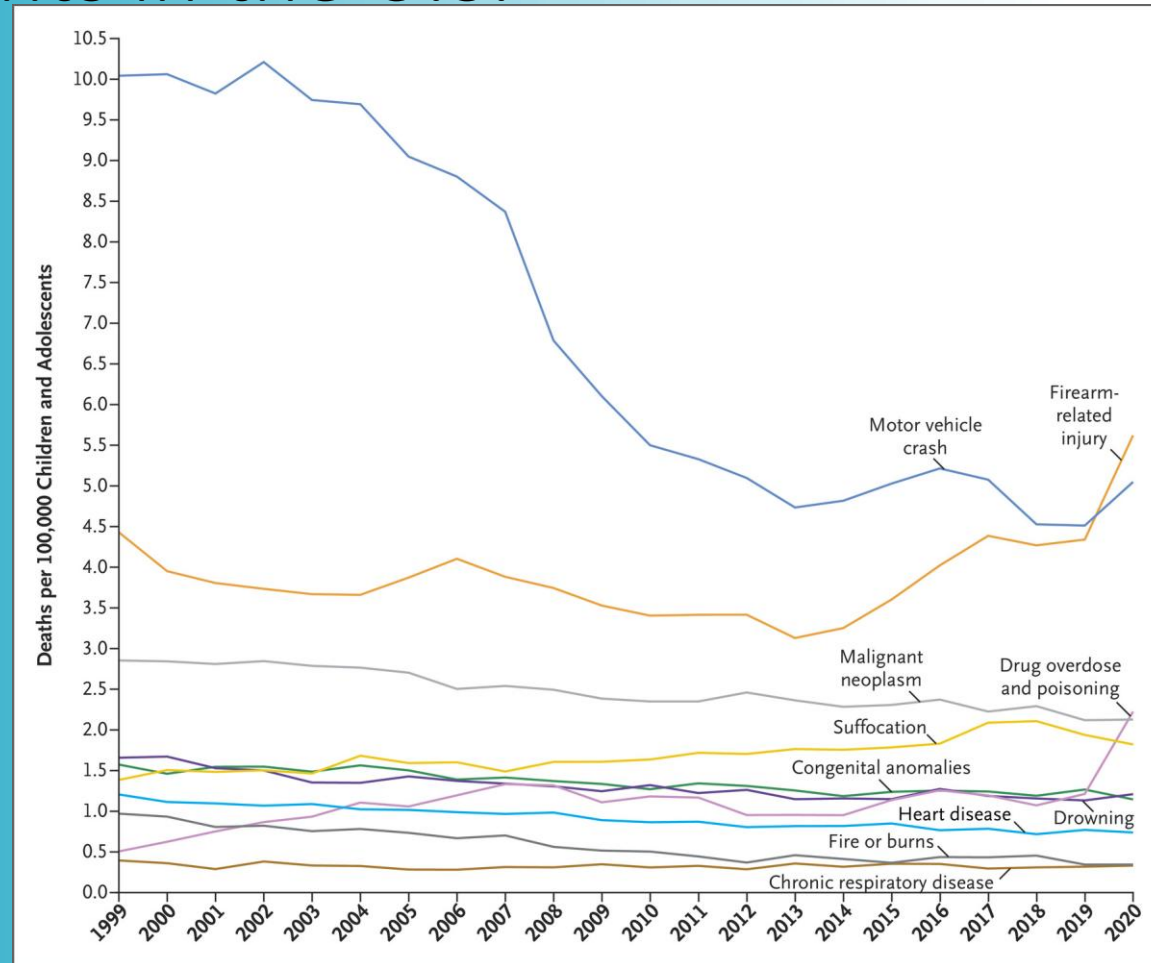
Friedman and Hadland. *The Overdose Crisis Among US Adolescents*. NEJM. Jan 2024.

The tragic news: Overdose deaths among adolescents (14-18) have increased by >100% since 2019



Friedman and Hadland. *The Overdose Crisis Among US Adolescents*. NEJM. Jan 2024.

Drug overdose and poisonings are now the third leading cause of death among children and adolescents in the U.S.



Goldstick et al. Current causes of death in children and adolescents in the United States. NEJM. May 2022.

A classroom of high school students died of an overdose *every week* in 2022



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- Fentanyl is now involved in 75% of OD deaths
- The vast majority of adolescent OD deaths are unintentional
- Fentanyl is now commonly found pressed into counterfeit pills (benzodiazepines, oxycodone, stimulants, etc.)
- Helpful to think about 3 broad categories of adolescents who are at elevated risk for opioid overdose:
 - 1) Adolescents with mental health problems who may experiment with substances
 - 2) Adolescents who use substances or have SUDs
 - 3) Adolescents with an OUD
- 41% of adolescents who died via overdose had received mental health care; only 11% had received substance use treatment
- **Screen for pill use, offer anticipatory guidance, increase access to naloxone (available over the counter)**

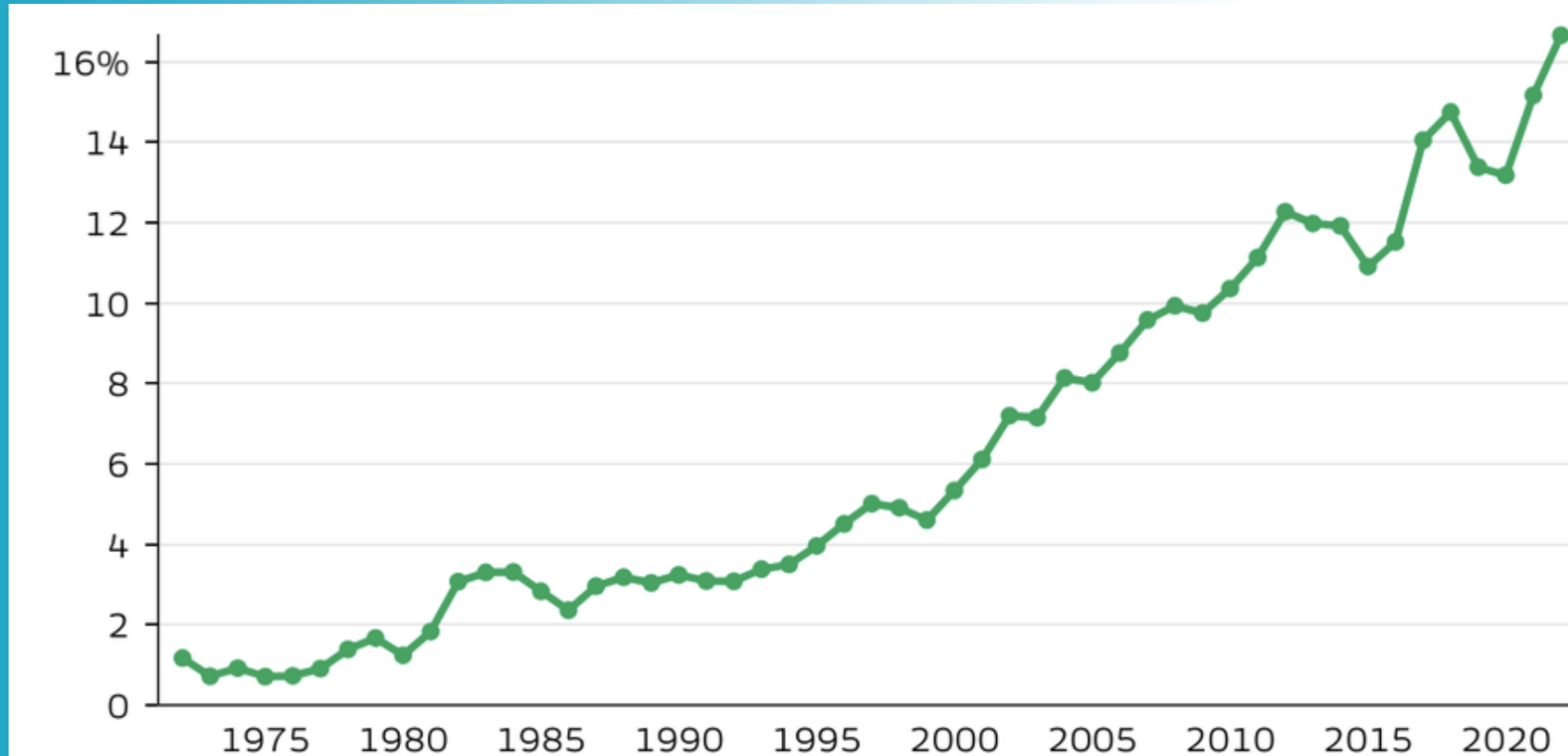
Friedman and Hadland. The overdose crisis among US adolescents. NEJM. Jan 2024.

Not your parents' cannabis: THC potency has increased by >1,000% since the 1970s



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*****Between 2004-2011, 100% increase in cannabis associated ED visits*****

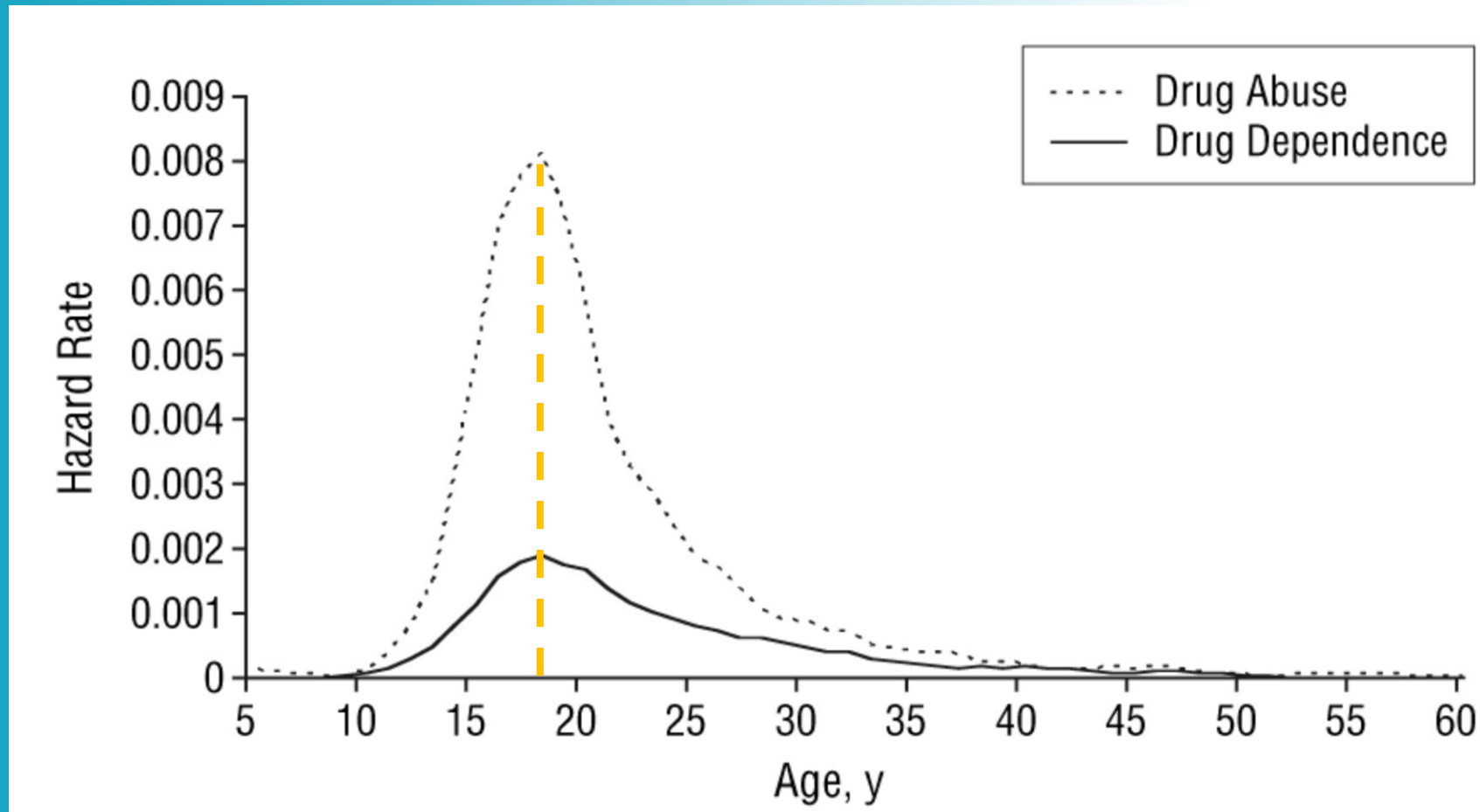
Alexis Wnuk. Is cannabis today really much more potent than 50 years ago? New Scientist. 11 October 2023.

Drug abuse and dependence starts in youth



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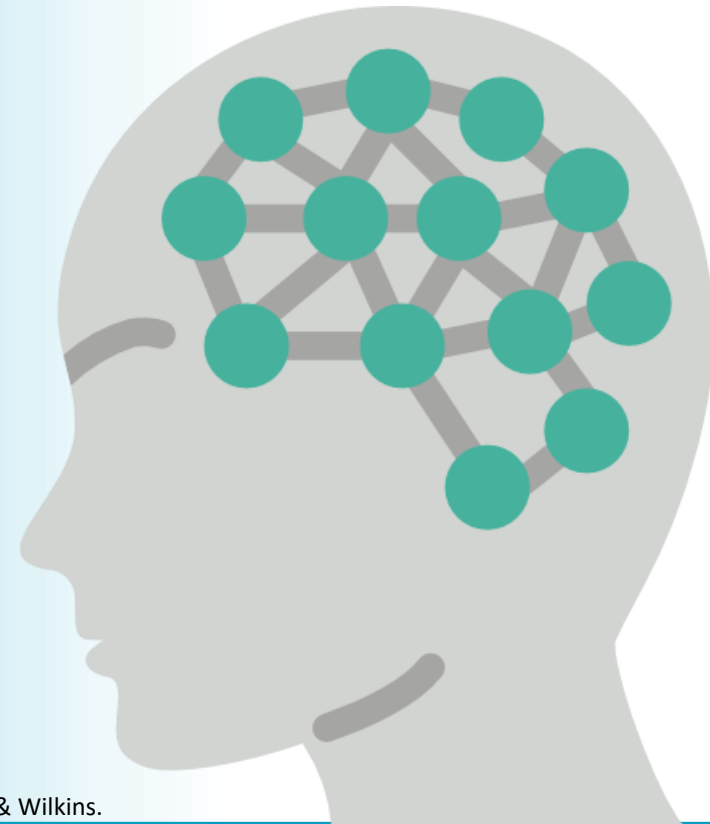


Slide adapted with permission from Dr. Tim Wilens. Compton et al. Prevalence, correlates, disability, and comorbidity of DSM-IV of drug abuse and dependence in the united states. JAMA Psychiatry. May 2007



The adolescent brain

- Brain development continues well into third decade of life
- Major “critical period”
 - Synaptic refinement
 - Myelination
- Limbic system (reward/emotion) develops early
- Prefrontal cortex develops later
 - Executive function
 - Attentional control
 - Working memory
 - Impulse inhibition
 - Risk/benefit appraisal

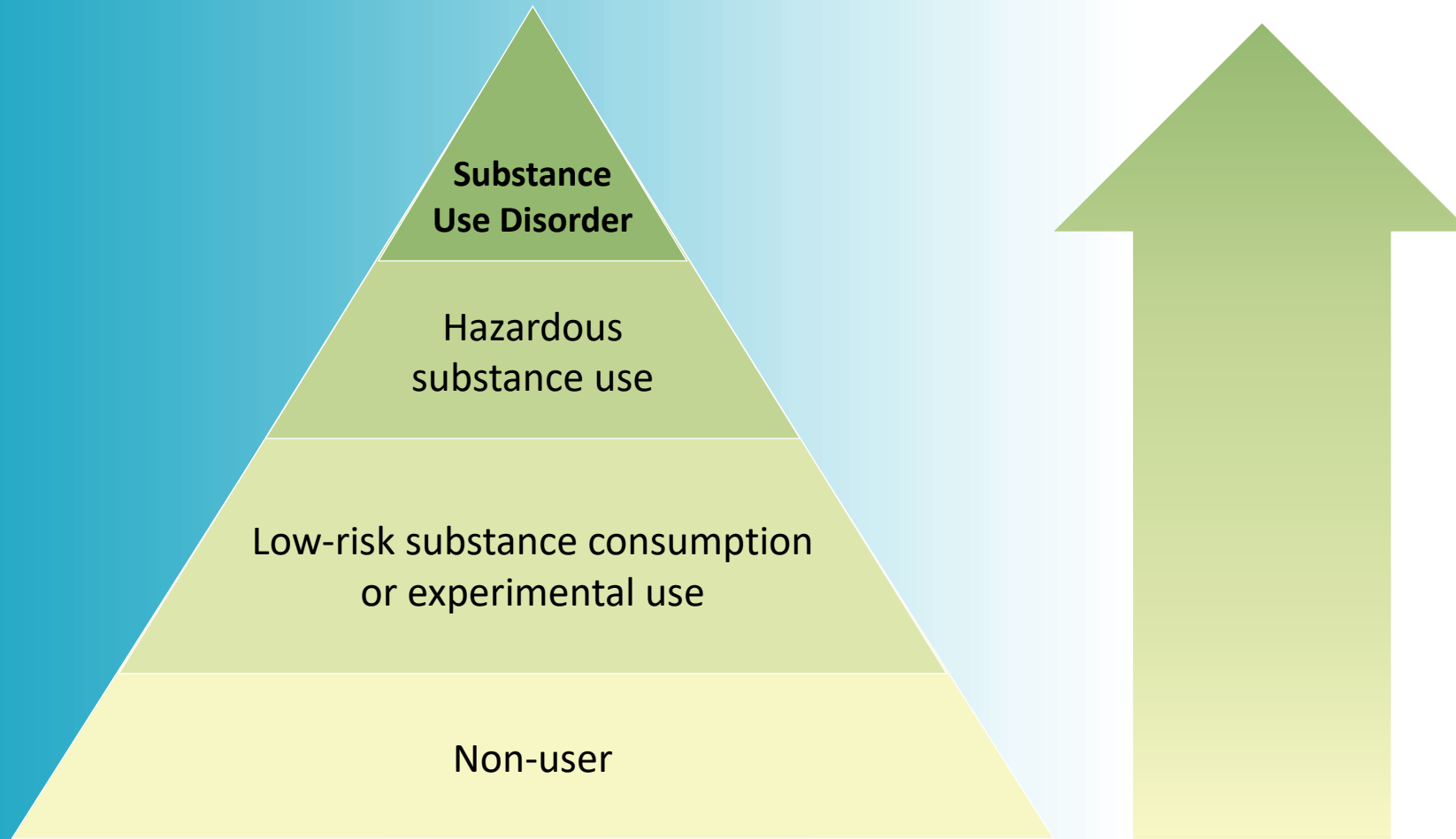


Is this developmentally normative behavior or an addiction?

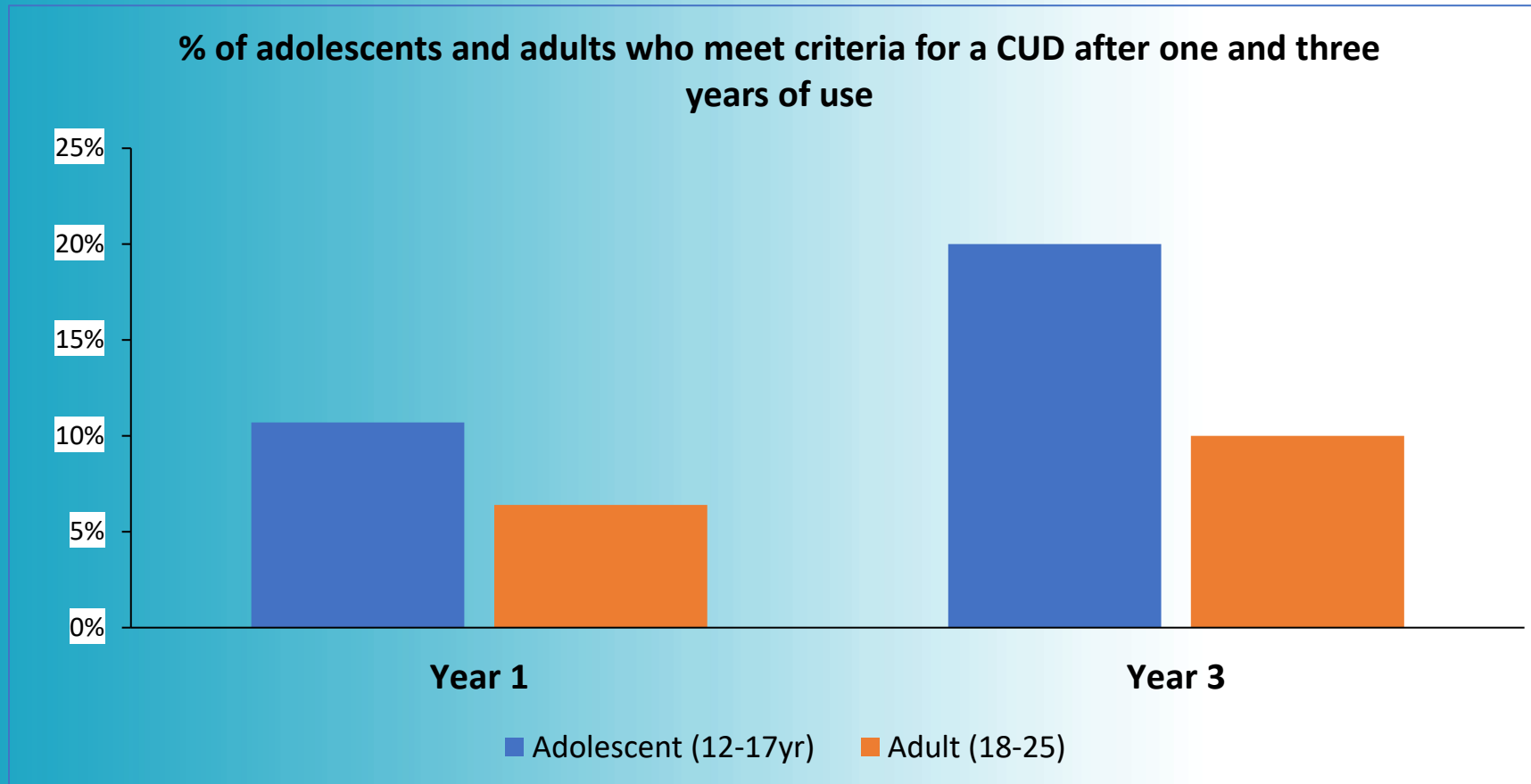


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Risk of progression to cannabis use disorder is twice as high among adolescents compared to young adults



Volkow et al. Prevalence of substance use disorders by time since first substance use among young people in the US. JAMA Peds. 2021.

Screening instruments for substance use in adolescents and adults



Name	Population age (years)	Number of questions	Description
CRAFFT (Car, Relax, Alone, Forget, Family or Friends, Trouble)	12 to 21	3 to 9, depending on answers	Screens for patients at risk of drug or alcohol problems; does not distinguish between alcohol and other drug use; does not screen for tobacco use or assess frequency of substance use
Brief Screener for Tobacco, Alcohol, and other Drugs (BSTAD)	12 to 17	6 to 38, depending on answers	Screens for frequency of alcohol, tobacco, cannabis, and other substance use in both respondents and their friends; asks about use in the past 30, 90, 365 days; does not ask specifically about hazardous use or symptoms of dependence
Screening to Brief Intervention (S2BI)	12 to 17	3 to 7, depending on answers	Screens for the frequency of alcohol, tobacco, cannabis, prescription, and other substance use in the past year; does not ask specifically about hazardous use or symptoms of dependence
Alcohol Use Disorders Identification Test (AUDIT)	18+	10	Screens for quantity and frequency of alcohol consumption, symptoms of dependence, and associated risky behaviors; does not screen for tobacco or other substance use
Drug Abuse Screening Test (DAST)	18+	10, 20, 28, depending on version	Asks about consequences associated with drug use in the past 12 months; does not screen for alcohol or tobacco use
Tobacco, Alcohol, Prescription medication, other Substance use (TAPS)	18+	4 in part 1; 9 to 27 in part 2, depending on answers	2-part tool: part 1 asks about tobacco, alcohol, illicit substance use, and medication misuse in the past year; part 2 assesses for quantity of use, difficulties with control, and concerns by others over the past 3 months

Quiggle, Burke, and Wilens. Substance use among adolescents and young adults. Psychiatric Times. 2023.

DSM-5: Substance use disorders exist on a spectrum



Mild: 2-3 Moderate: 4-5 Severe: 6+

“A problematic pattern of substance use leading to clinically significant impairment or distress, as manifested by at least two of the following, occurring within a 12-month period”

Impaired control

Social impairment

Risky use

Physiologic dependence



(Non-specific) signs of substance use disorders in adolescence

- Sudden shift in peer group
- Drop in grades
- Social problems
- Loss of interest in extracurriculars
- Increased secrecy

What have we learned?



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- SUDs often begin in adolescence/emerging adulthood
- Adolescent risk is shaped, in part, by the mismatch between a highly sensitive reward system and still-developing executive control center
- Overall substance use rates are declining among high school students, but overdose deaths among adolescents have risen sharply, largely driven by *fentanyl contamination* and *unintentional exposures*
- Cannabis use remains common, with dramatically increased THC potency increasing risks of addiction, psychosis, cannabinoid hyperemesis syndrome
- Screening tools exist, and are underutilized; SUD diagnosis is dimensional and can include impaired control, social impairment, risky use, and physiologic dependence