

## Substance Use in Youth



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10/2/2023

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## DISCLOSURES

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

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## OVERVIEW OF TALK:

- Trends in use
- Review Alcohol, Nicotine, Opioids, & Cannabis
- Neurobiological impacts of Cannabis
- Health Effects of Cannabis
- Impact of Legalization of Cannabis
- Challenges with youth substance use
- Assessment and continuum of substance use
- Evidence-based Treatments
- Parental Role in Treatment

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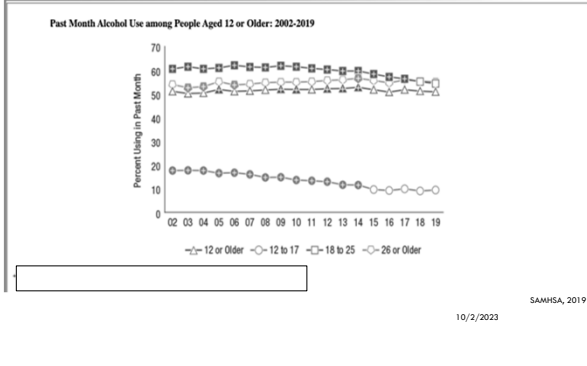
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### ALCOHOL USE TRENDS BY AGE



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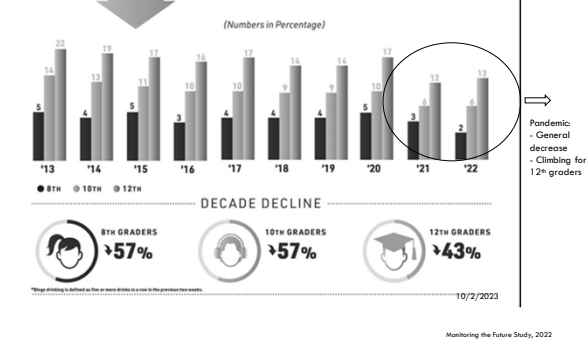
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### UNDERAGE BINGE DRINKING

DOWN ACROSS 8TH, 10TH AND 12TH GRADERS



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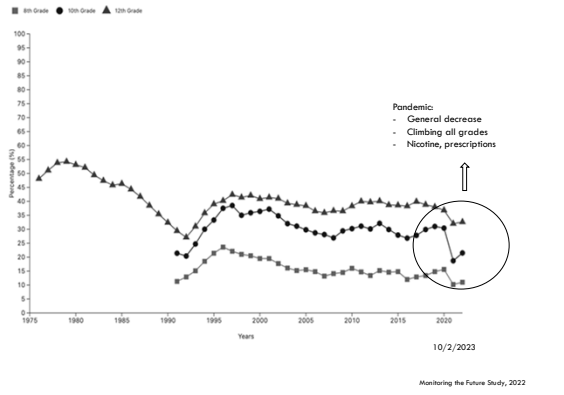
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### Any Illicit Drug: Trends in Last 12 Months Prevalence of Use in 8th, 10th, and 12th Grade



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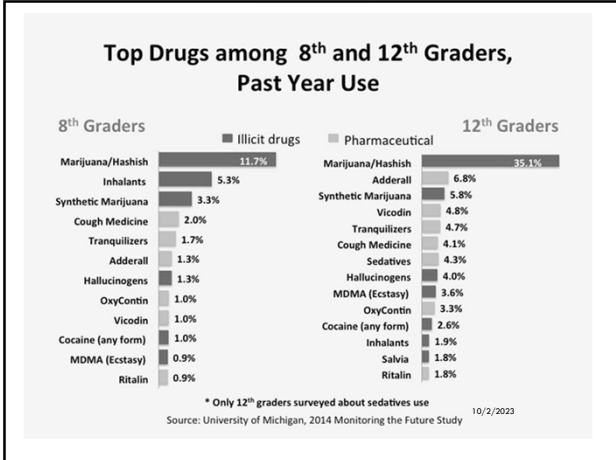
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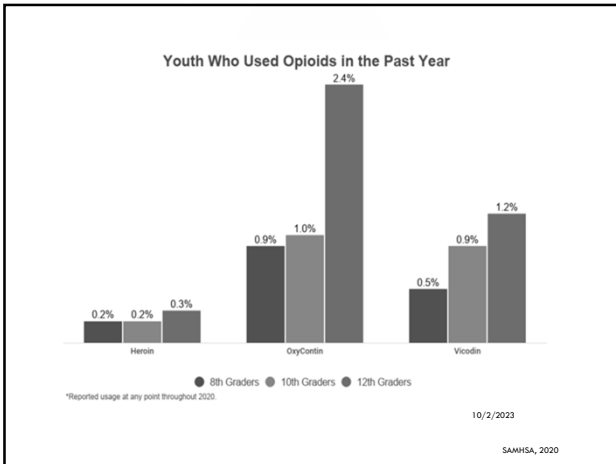
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### YOUTH & OPIATES

- Heroin average age onset 23.4
  - < 25 % of OUD in youth get tx
  - < 2% under 18 y/o on MAT
- Overall use rates dropping, but OD is rising
- Long-term outcome – Hser, 2015 Review:
  - 6-20 x mortality rate
  - 50% overdose; 22-25% die by overdose
  - Stable abstinence is low → Alc and MJ
  - Improved outcome: treatment, mutual help, +ve sober relationship, non-using rewarding activities

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Hser et al, 2015, Levy, 2019  
NIDA/NIJ NIDA, https://www.drugabuse.gov/news-events/nida-notes/2010/04/issue-reports-reporting-on-medical-use-participation-drug-abuse

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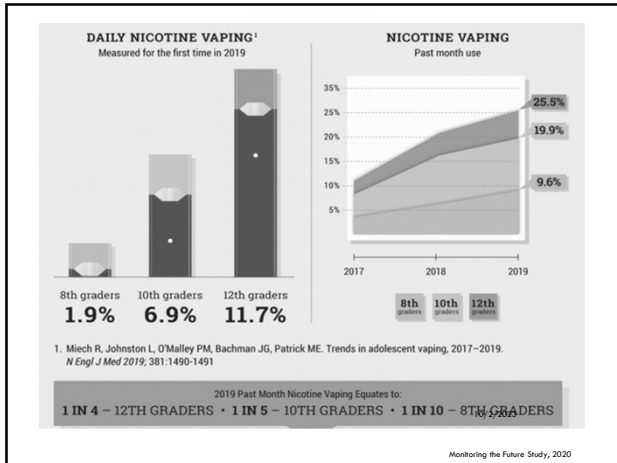
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### E-CIG/VAP - 101

- Introduced in 2007/2008
- 450+ types of device on the market
- Consist of:
  - a cartridge or reservoir
  - liquid solution (e-liquid or e-juice) – nicotine, CBD, THC, flavor
  - a heating element (atomizer)
  - a power source (usually a battery)
  - a mouthpiece that the person uses to inhale
- Puffing activates the battery-powered heating device, which vaporizes the liquid in the cartridge. The person then inhales the resulting aerosol or vapor (called vaping). It does not contain water – myth.
- Nicotine stimulates adrenal gland to release adrenaline and dopamine (effect lasts 10-30mins). 10/2/2023

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### E-CIG/VAP AND TEENS

- Most commonly used form of Nicotine
- E-Cig use by 9<sup>th</sup> grade predicts later Cigarette use
- E-Cig users 6-7 x more likely to use regular cigarettes, but cig users no more likely to use e-cig.
- Tobacco rates down, vaping rates up
- Nicotine and mental health:
  - Early onset psychopathology → increased risk
  - Nicotine use → more mood lability, worse depression
  - Higher medication dosage, more hospitalizations, greater symptoms compared mental illness + non-smoking. 10/2/2023

Morris et al, 2011; Fichter et al, 2012; NIDA, 2016

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### DO THEY HELP YOU QUIT?

• Lab based studies suggest:

- Harm reduction – fewer chemicals
- Can reduce cravings/urges
- May be equivalent to NRT
- Limited real-world examination



• Cochrane Review:

- May help quit in long-term but strength of evidence is low, esp in youth

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Brown et al, 2016; Kalkhoran et al, 2016; Harman-Boayce et al, 2016; Erku et al, 2020

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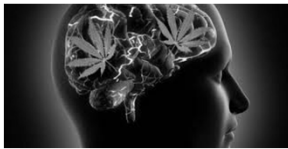
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## MARIJUANA



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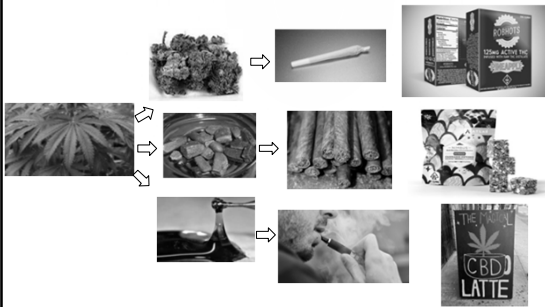
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### CANNABIS COMES IN ALL KINDS OF FORMS



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### CANNABIS DOSES

Toward standard cannabis doses

- 1 serving or dose of THC = 10mg - 1/2 of the dosage that can get naïve user high
- Average joint is 0.3 grams (300mg); a blunt (wrapped in tobacco paper) may be much larger
- 0.3 g joint containing 20% THC gives 60mg of THC (6 doses)
- Inhalation yields about 1/3 – 1/2 the amount of the THC → 2-3 doses per joint
- Yield varies by type of inhalation (vaping more effective, with 50% yield)

Joint (or spliff) versus blunt



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From: <https://www.healthline.com/health/cannabis-doses>

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### PHARMACOLOGY

Inhaled versus oral ingestion of THC

- Smoking or Vaping:
  - Onset seconds – minutes
  - Peak 30 minutes
  - Duration 1-3.5 hours
- Oral ingestion:
  - Onset 30 minutes – 2 hours
  - Peak 2-3 hours
  - Duration 5-8 hours (or longer)
- Edible serving size in commercial products varies and is confusing



Serving Size 1/2 cluster  
 (10.5 g) 10mg THC per serving, servings per container 8  
 Amount per serving: Calories 45, Calories from Fat 22.5, Total Fat 2.5g (4% DV), Saturated Fat 0.7g (14% DV), Trans Fat 0g (0% DV), Cholesterol 0mg (0% DV), Sodium 17.5mg (0.3% DV), Total Carbohydrate 4.5g (9% DV), Dietary Fiber 0.5g (2% DV), Sugar 3g, Protein 1g, Vitamin A (DV), Vitamin C (DV), Calcium 1.5% DV, Iron 2% DV

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### CBD PRODUCTS

- Increasing number of products available in stores or online that purport to contain CBD
- One study of “CBD” vaping products sold online found CBD + THC, synthetic cannabinoids (such as K2), and dextromethorphan.
- Only 30% of advertised vaping products had labeling that accurately reported their ingredients, and 21% contained unreported THC.
- Some products are Federally illegal and separate from state medical / recreational cannabis systems, so no oversight.



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<https://www.cannabis.com/health/cbd-products>  
<https://www.painpaper.com/Health/CBD-Latte-4496600>

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### FDA APPROVED CANNABINOID PREPARATIONS

Compound	Administration	FDA Status	Approved Locations	Purposes
Dronabinol (Marinol) THC analog	Oral capsule 2.5-5 mg QD	FDA-approved (1985)	USA, Germany	<ul style="list-style-type: none"> <li>Nausea &amp; vomiting related to cancer chemotherapy</li> <li>Wasting associated with AIDS</li> </ul>
Nabilone (Cesamet) THC analog	Oral capsule 1-2 mg BID	FDA-approved (1985) <small>*Marketed in the US in 2006</small>	USA, Canada, UK, Mexico	<ul style="list-style-type: none"> <li>Nausea &amp; vomiting related to cancer chemotherapy</li> </ul>
Nabiximols (Sativex) Extract (THC + CBD)	Chromococcal spray 1-6 sprays BID	Almost FDA-approved; late-stage clinical trials	Canada, UK, other European countries	<ul style="list-style-type: none"> <li>Multiple sclerosis spasticity</li> <li>cancer pain</li> <li>neuropathic pain</li> </ul>
Cannabidiol (Epidiolex) Extract	Oral solution 2.5-5 mg/kg BID	FDA-approved (2018)	USA	<ul style="list-style-type: none"> <li>Seizures (Lennox-Gastaut and Dravet Syndromes)</li> </ul>

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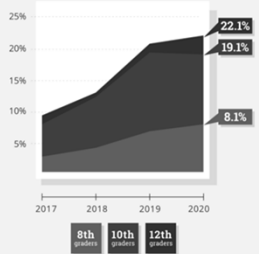
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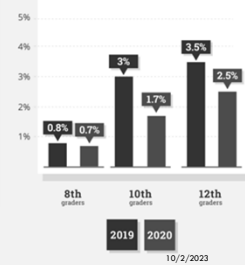
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### Past-Year Marijuana Vaping Holds Steady

#### Past-Year Marijuana Vaping



#### Daily or Near-Daily Marijuana Vaping Decreases Significantly Among 10th Graders



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Monitoring the Future Study, 2020

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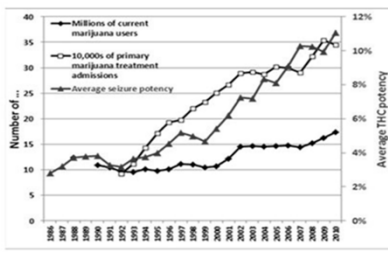
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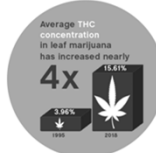
### Potency

MARIJUANA USERS, TREATMENT ADMISSIONS, AND AVERAGE POTENCY: 1986-2010



Sources: NSDUH, TEDS, National Seizure System

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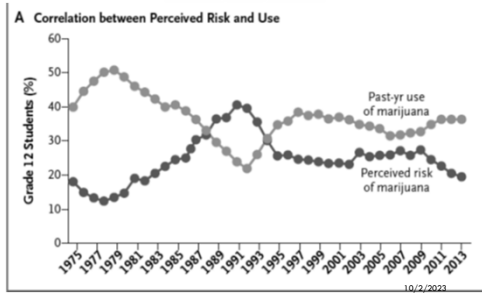
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**ADOLESCENT MARIJUANA USE IS INVERSELY RELATED TO PERCEIVED RISK**



Volkow 2014

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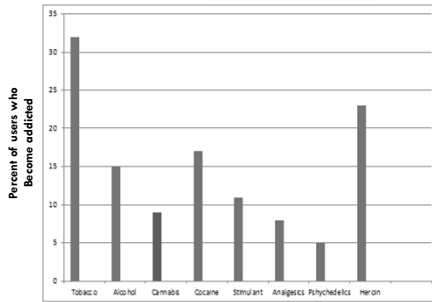
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**Comparative Prevalence of Dependence Among Different Drug Users**



About 9% of cannabis users may become dependent

BUT increases to 17% of those who start use in adolescence

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Anthony et al. Exp. Clin. Psychopharmacol. 2(3), pp.244-268 (1994)

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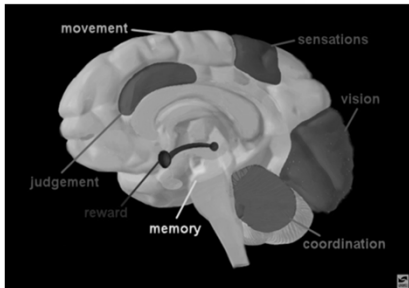
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**THC RECEPTORS ARE FOUND THROUGHOUT THE TEEN BRAIN**



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From NIDA website: A 360° Timeline Delineates The Role and Abuse of Opioids, Cocaine, and Marijuana

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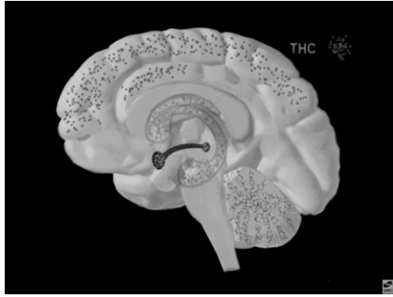
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THC RECEPTORS ARE FOUND THROUGHOUT THE TEEN BRAIN



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From NIDA website - A 360° Teaching Packet: The Brain and the Actions of Opioids, Cocaine, and Marijuana

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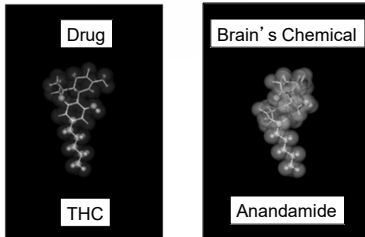
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DRUGS CAN BE CHEMICAL IMPOSTERS  
(THC MIMICS A NATURAL BRAIN CHEMICAL)



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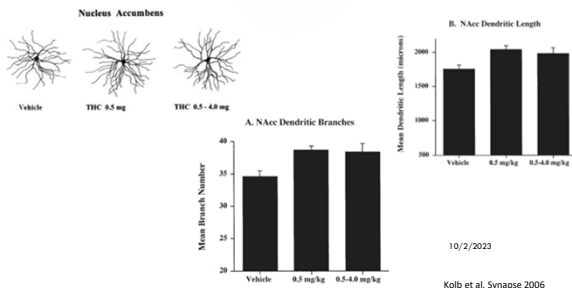
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EFFECTS OF THC ON BRAIN STRUCTURE: ANIMAL STUDIES

- Structural changes occur in brain regions after exposure to THC, especially in the nucleus accumbens (NAC)




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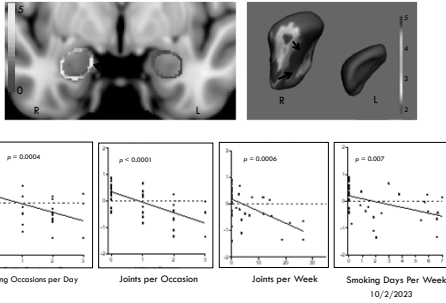
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BRAIN SHAPE IS DEFORMED IN YOUNG MJ USERS VS. CONTROLS AND ASSOCIATED WITH FREQUENCY AND HEAVINESS OF USE: AMYGDALA



Gilman et al, 2014

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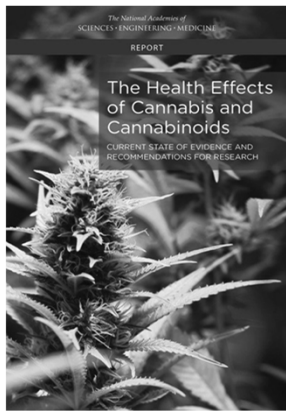
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- 2017
- National Academy of Sciences
- Comprehensive review of health and psychiatric effects
- Highlights gaps in knowledge

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<p>REPORT</p> <p>THE HEALTH EFFECTS OF CANNABIS AND CANNABINOIDS</p> <p>CURRENT STATE OF EVIDENCE AND RECOMMENDATIONS FOR RESEARCH</p>			
<p><b>Executive Summary</b></p> <p>1. Introduction</p> <p>2. Methods</p> <p>3. Findings</p> <p>4. Conclusions</p> <p>5. Recommendations</p>	<p><b>1. Introduction</b></p> <p>1.1 Background</p> <p>1.2 Scope</p> <p>1.3 Objectives</p>	<p><b>2. Methods</b></p> <p>2.1 Study Design</p> <p>2.2 Data Sources</p> <p>2.3 Analysis</p>	<p><b>3. Findings</b></p> <p>3.1 Physical Health</p> <p>3.2 Mental Health</p> <p>3.3 Social Functioning</p> <p>3.4 Cognitive Functioning</p>
<p><b>4. Conclusions</b></p> <p>4.1 Summary of Findings</p> <p>4.2 Limitations</p> <p>4.3 Implications</p>	<p><b>5. Recommendations</b></p> <p>5.1 Research</p> <p>5.2 Policy</p> <p>5.3 Clinical Practice</p> <p>5.4 Public Health</p>	<p><b>Appendix A</b></p> <p>Appendix B</p> <p>Appendix C</p>	<p><b>References</b></p> <p>10/2/2023</p>

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THERAPEUTIC FINDINGS	
<b>CONCLUSIVE OR SUBSTANTIAL</b>	
<ul style="list-style-type: none"> <li>Chronic pain</li> <li>Antiemetics for chemo-induced nausea/vomiting</li> </ul>	<ul style="list-style-type: none"> <li>MS spasticity symptoms</li> </ul>
<b>MODERATE</b>	
<ul style="list-style-type: none"> <li>↑ short-term sleep in obstructive sleep apnea syndrome, fibromyalgia, chronic pain, MS</li> </ul>	
<b>LIMITED</b>	
<ul style="list-style-type: none"> <li>↑ appetite and ↓ weight loss associated w/ HIV/AIDS</li> <li>↓ symptoms of Tourette syndrome</li> </ul>	<ul style="list-style-type: none"> <li>↓ anxiety in social anxiety disorders</li> <li>↓ PTSD symptoms</li> <li>Improve outcomes (i.e. disability) after traumatic brain injury</li> </ul>
<b>NO OR INSUFFICIENT</b>	
<ul style="list-style-type: none"> <li>Cancers, including glioma</li> <li>Cancer-associated anorexia cachexia syndrome and anorexia nervosa</li> <li>Symptoms of irritable bowel syndrome</li> <li>Epilepsy</li> <li>ALS symptoms</li> <li>Dystonia</li> </ul>	<ul style="list-style-type: none"> <li>Chorea and certain symptoms associated w/ Huntington's</li> <li>Motor system symptoms associated w/ Parkinson's disease</li> <li>Spasticity in patients w/ paralysis due to spinal cord injury</li> <li>Abstinence in the use of addictive substances</li> <li>Outcomes in individuals w/ schizophrenia</li> </ul>
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MEDICAL RISKS	
<b>CONCLUSIVE OR SUBSTANTIAL</b>	
<ul style="list-style-type: none"> <li>↑ respiratory symptoms and chronic bronchitis episodes</li> </ul>	<ul style="list-style-type: none"> <li>↑ motor vehicle crashes</li> <li>↑ lower birth weight of offspring</li> </ul>
<b>MODERATE</b>	
<ul style="list-style-type: none"> <li>↑ overdose injuries, including respiratory distress, among pediatric populations</li> </ul>	
<b>LIMITED</b>	
<ul style="list-style-type: none"> <li>↑ prediabetes</li> <li>↑ COPD</li> <li>↑ acute MI or stroke</li> <li>↑ pregnancy complications</li> </ul>	<ul style="list-style-type: none"> <li>non-seminoma-type testicular tumors</li> <li>↓ production of several inflammatory cytokines</li> <li>↑ admission of infant to neonatal ICU</li> <li>↓ metabolic syndrome and diabetes</li> </ul>
<b>NO OR INSUFFICIENT</b>	
<ul style="list-style-type: none"> <li>Esophageal, bladder, prostate, cervical, penile, and anal cancer; malignant gliomas, non-Hodgkin lymphoma, Kaposi's sarcoma, leukemia, rhabdomyosarcoma, astrocytoma, or neuroblastoma in offspring</li> <li>Asthma development or asthma exacerbation</li> </ul>	<ul style="list-style-type: none"> <li>Hospital admissions for COPD</li> <li>All-cause mortality</li> <li>Occupational accidents or injuries</li> <li>Death due to cannabis overdose</li> <li>Later outcomes in offspring (e.g., sudden infant death syndrome, cognition/academic achievement, and later substance use)</li> </ul>
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MENTAL HEALTH RISKS	
<b>CONCLUSIVE OR SUBSTANTIAL</b>	
<ul style="list-style-type: none"> <li>↑ schizophrenia or other psychoses, w/ highest risk among most frequent users</li> </ul>	
<b>MODERATE</b>	
<ul style="list-style-type: none"> <li>↑ Impairment in learning, memory, and attention</li> <li>↑ Bipolar symptoms</li> <li>↑ Depression</li> <li>↑ suicidal ideation/attempts/completion w/ higher incidence among heavier users</li> </ul>	<ul style="list-style-type: none"> <li>↑ social anxiety disorder</li> <li>↑ negative symptoms of schizophrenia (e.g., blunted affect)</li> <li>Better cognitive performance among individuals w/ psychotic disorders and a history of cannabis use vs. those w/out history of cannabis use</li> </ul>
<b>LIMITED</b>	
<ul style="list-style-type: none"> <li>↓ academic achievement</li> <li>↑ unemployment/low income rates</li> <li>↓ social functioning and developmentally appropriate social roles</li> <li>Sustained abstinence continues to be associated ↓ cognitive domains of learning, memory, and attention</li> </ul>	<ul style="list-style-type: none"> <li>↑ positive symptoms of schizophrenia (e.g., hallucinations)</li> <li>↑ anxiety symptoms</li> <li>↑ PTSD severity</li> <li>↑ development of bipolar or any anxiety disorder, except social anxiety disorder</li> </ul>
<b>NO OR INSUFFICIENT</b>	
<ul style="list-style-type: none"> <li>Development of PTSD</li> </ul>	<ul style="list-style-type: none"> <li>Changes in course of depressive disorders</li> </ul>
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**PROBLEM CANNABIS USE ASSOCIATIONS**

**CONCLUSIVE OR SUBSTANTIAL**  
 ↑ Risk to develop problem cannabis use

- Initiating cannabis use at earlier age
- Increases in cannabis use frequency
- Being male and smoking cigarettes

Stimulant treatment of ADHD during adolescence is NOT a risk factor for the development of problem cannabis use

**MODERATE**  
 Risk Factors To Develop Problem Cannabis Use

- Exposure to combined use of abused drugs
- Male
- Major depressive disorder
- In Adolescents: cannabis use frequency, oppositional behaviors, younger age of first alcohol use, nicotine use, parental substance use, poor school performance, antisocial behaviors, and sexual abuse

- ↑ PTSD severity
- ↑ substance use related disorders

NOT Associated w/ Developing Problem Cannabis Use

- Neither alcohol nor nicotine dependence alone
- Anxiety, personality disorders, or bipolar disorders
- Adolescent ADHD

**LIMITED**

- The initiation of tobacco use
- Changes in use patterns of other substances

- Childhood anxiety / depression are risk factors for development of problem cannabis use

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**Marijuana and Youth Aggression**



- Anecdotal in clinic & schools – Yes
- Data is mixed
  - White, 1998: 4 waves of data – assessed 12 y/o → 28 years
    - Adolescent MJ predicted later aggression
    - Early aggression didn't predict later MJ use
  - Lui, 2013: Early aggression, in boys, predicts MJ use only
  - Ansell, 2015: Smartphone readings: MJ and Aggression not related
  - McKowen et al 2022: higher self-report anger → THC concentration, usage, CUD dx
- During withdrawal phase: more supportive data:
  - Budney, 2003: During withdrawal – peak 2-6 days up to 20 days
  - Millin 2008: 13-19 y/o, anger increased in 1<sup>st</sup> two weeks, up to 3<sup>rd</sup> week.



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**Adolescent Cannabis Use Increases the Risk for Adult Psychosis in Genetically Vulnerable Individuals**

COMT Genotype	no adolescent cannabis use (%)	adolescent cannabis use (%)
Met/Met	~4	~4
Val/Met	~2	~6
Val/Val	~2	~13

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Caspi, A. et al., 2005.

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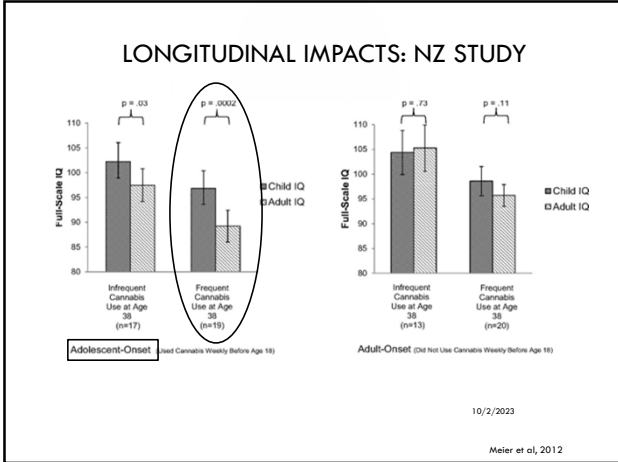
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### SUMMARY OF CANNABIS IMPACTS ON EXECUTIVE FUNCTION

Executive Function Measured	Acute Effects (0-6 hrs)	Residual Effects (7hrs-20 days)	Long-Term Effects (21 days +)
Attention/Concentration	Impaired (light users) Normal (heavy users)	Mixed findings	Largely normal
Decision Making & Risk Taking	Mixed findings	Impaired	Impaired
Inhibition/Impulsivity	Impaired	Mixed findings	Mixed findings
Working Memory	Impaired	Normal	Normal
Verbal Fluency	Normal	Mixed findings	Mixed findings

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Crean, et al, 2011

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### LEGALIZATION




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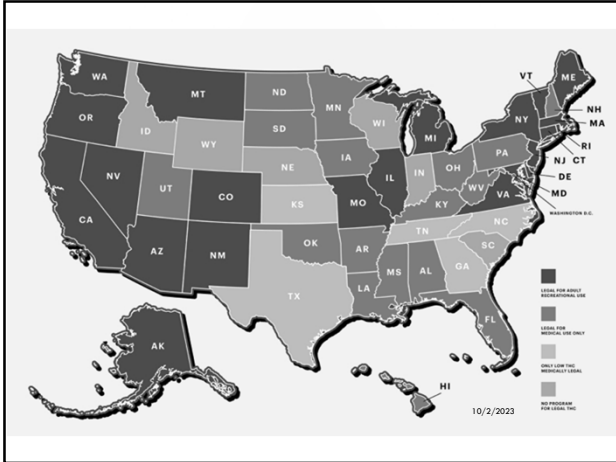
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### LEGALIZATION IN MASSACHUSETTS

#### Criminalization-- 1911

- MA becomes the first state to criminalize recreational use of cannabis
- By 2000, possession of small amount of cannabis penalized with up to 6 mo in jail and a \$500 fine

#### Decriminalization-- 2008

- Passed by ballot initiative
- \$100 fine for possessing < 1g of cannabis, without other repercussions
- Minors have to notify their parents, take a course, and do community service
- No change in laws re: growing, trafficking, or driving under the influence

#### Medical legalization-- 2012

- Passed by ballot initiative (63% in favor)
  - No penalty for possession of up to 60 day supply of cannabis with certification by a physician; 18 y/o + two physician sign off
  - Approved medical conditions (tax exempt)
  - No mailing, selling, use in public
- #### Recreational legalization-- 2016
- Passed by ballot initiative
  - Individuals >21 y/o allowed to buy and possess up to 1oz flower, 5g concentrate outside home, 10 oz in home. Give 1 oz to another 18+ y/o.
  - Households may grow 6-12 plants
  - No use in public
  - Cannabis Control Commission (CCC), tasked with organizing recreational sales

CBD: Hemp derived – anyone can buy,  
Cannabis derived, need MMC or at RC

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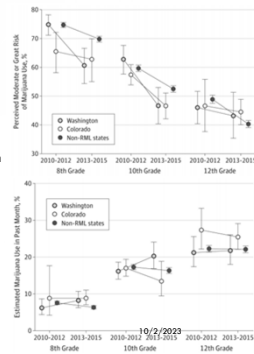
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### IMPACTS ON YOUTH: IT'S COMPLICATED!

- Mixed evidence of increased use among teens after legalization in US, Europe, Canada, and Latin America.
- Proximity to stores may increase use
- Teens do access medical cannabis
- Price of street cannabis tends to fall as much as 25-40%
- Decrease in alcohol consumption-- interchangeable use?
- Increase in pediatric unintentional consumption, and traffic accidents with alcohol + cannabis
- Unclear effect on use of other drugs



Cerdas et al 2017 JAMA Pediatrics, Avantsinghkomchai et al, 2023 Curr Opin Psych

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### CHALLENGES WITH YOUTH



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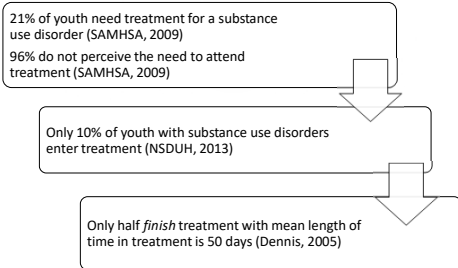
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### VERY FEW TEENS/YOUNG ADULTS ENGAGE IN TREATMENT



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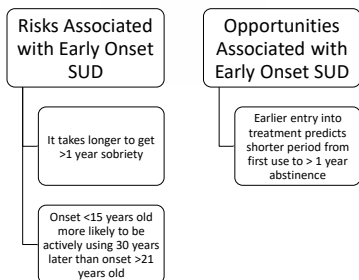
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### THERE ARE UNIQUE RISKS AND OPPORTUNITIES ASSOCIATED WITH EARLY ONSET SUBSTANCE USE DISORDERS



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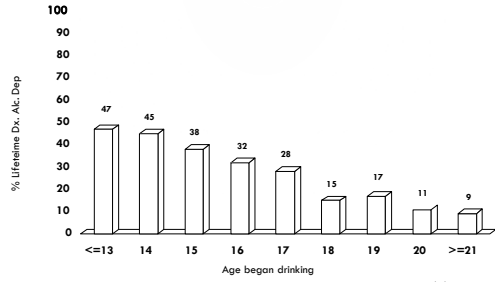
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**PREVALENCE OF LIFETIME DIAGNOSIS OF ALCOHOL DEPENDENCE BY AGE OF ONSET OF DRINKING**



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Hingson et al., 2006

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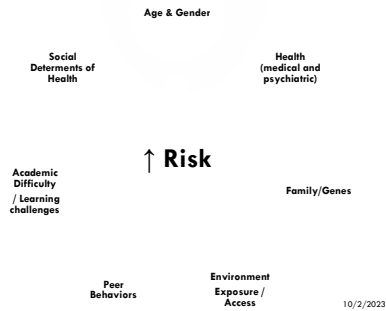
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**WHO IS AT RISK?**



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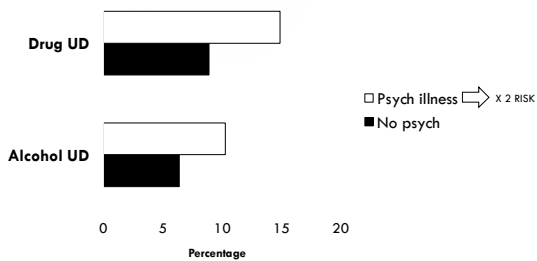
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**LIFETIME PREVALENCE OF SUD IN ADOLESCENTS WITH & WITHOUT PSYCH ILLNESS**



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Conway, 2016 NCA-A

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ASSESSMENT

CHECK EVALUATE

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### ADOLESCENT SCREENING TOOLS



- CRAFFT
  - Can be self administered or clinician administered
  - Primary-care and schools (7&10<sup>th</sup> G)
  - Yes to 2 or more of the CRAFFT questions → patient is at high risk and needs further assessment for SUD
    - Sensitivity 92%, Specificity 82% for need for SUD treatment (Knight JR 1999)
- DAST-20 – drug screen
- Opioid Risk Screening Tool 10/2/2023

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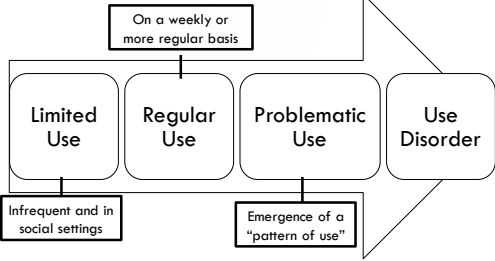
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### SUBSTANCE USE PATTERNS ARE ON A CONTINUUM



On a weekly or more regular basis

Limited Use Regular Use Problematic Use Use Disorder

Infrequent and in social settings

Emergence of a "pattern of use"

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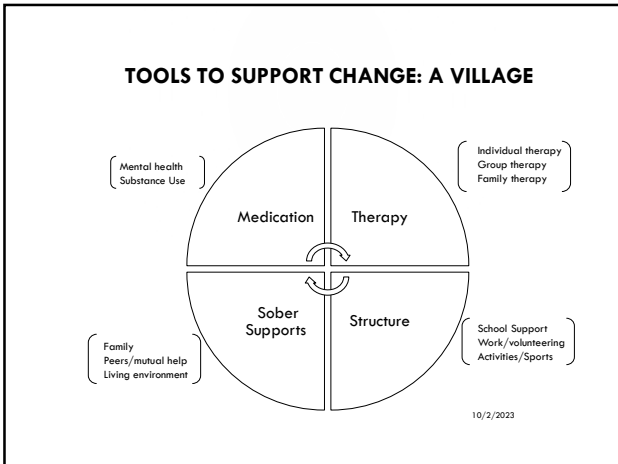
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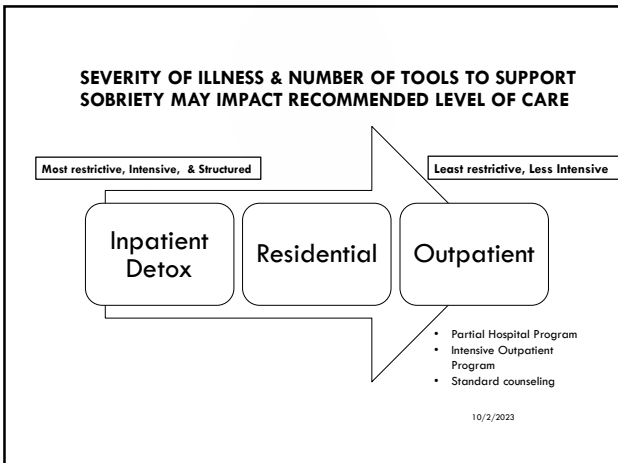
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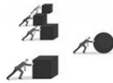
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### EFFECTIVENESS OF LOC:



- Inpatient / Section 35 (Involuntary 3-90 days)
  - Lower incidence of suicide attempts & absconding
  - Section 35: 7 studies showed negative outcomes & 2 positive
  - Involuntary admission 1.4 x more likely to die of OD (issue of treatment initiation pre-d/c)
  - No systematic evidence in youth – not yet sufficient evidence-based treatment
- Residential (Voluntary 24 hrs – 30 days+)
  - Effective in reducing severity, craving, & improving MH
  - Limited data on length of sustained effect

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Gray & Argez, 2019 CADTH, SAMHSA, 2020; Uliaszek et al 2019, Section 35 Commission, 2019; Vuong et al., 2019

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### CONT'D



- Outpatient:
  - Partial Hospital Program (Daily, 9-2pm ish)
  - Intensive Outpatient Program (9 Hrs p/w)
  - Outpatient (< 9 hrs p/w)



Systemic review of 12 studies:

- Strong evidence all outpatient LOC are effective, some review suggest PHP and IOP equivalent to residential LOC
- Caveats:
  - EBT and pharm intervention key
  - Limited data on racial/ethnicity differences

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McCarty et al, 2014 Psychiatric Serv.

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### EVIDENCE BASED THERAPY INTERVENTIONS

Strong Empirical Evidence:

- Motivational Enhancement Therapy (MET)
- Contingency Management (CM)
- CBT Individual and Group therapy (CBT-I/G)
- Brief Strategic Family Therapy (BSFT)
- Behavioral Couples Therapy (BCT)
- Twelve Step Facilitation (TSF) – Emerging evidence
- Integrated Dual Disorders Treatment (IDDT) – in CJS



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MANY YOUTH DO NOT THINK THEY HAVE A PROBLEM AND CERTAINLY DO NOT NEED TREATMENT!



**Engage Them in Care:**

- Motivational Interviewing
- Harm Reduction
- Contingency Management
- ACRA therapy → CBT
- Family & Parent training - CRAFT

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**TREATMENT FOR ALCOHOL UD**



**Naltrexone  
Acamprosate  
Topriamate  
(Non-FDA)**

**Disulfiram**

Okay if less committed to sobriety

Need high commitment to sobriety

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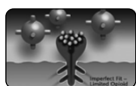
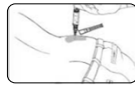
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**TREATMENT FOR OPIOID UD**



**Naltrexone/  
Vivitrol**

**Buprenorphine/  
naloxone & XR  
Injection 1 x  
month**

**Methadone**

FDA approved  
18 years +

FDA approved  
16 years+

Generally  
18 years +

Least structured, Less restricted

Very structured,  
Very restricted

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**OTHER PHARM TREATMENTS:**

- Cannabis
  - No FDA approved medications
  - NAC, Naltrexone, gabapentin, SSRI (weak evidence)
  - Dronabinol (maybe for w/d) (limited data)
  - Nabilone (some help w/ anxiety) (limited data)
  
- Cocaine
  - No FDA approved medications
  - Modafinil and Topamax (limited evidence)
  
- Benzodiazepines
  - Management of w/drawal and taper schedule 10/2/2023

Brett et al, 2015 Aust Presc; Kampman et al 2019 Sci Adv

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**PHARMACOLOGICAL CANNABIS INTERACTIONS**

- THC can impact effectiveness of medications by reducing or potentiating their effects:
  - Sedatives: Ambien, Lunesta, Benadryl
  - Anti-anxiety: Xanax, Valium, Librium, clobazam
  - Anti-depressant: Zoloft Prozac, Lexapro
  - Anti-psychotic: Halopreidol, Olanzapine, Clozapine
  - Pain medication: Codeine, Percocet, Vicodine
  - Anti-convulsant: Tegretol, Topamax, Depakene
  - Anti-coagulants – coumadin, Herpainr, Plavix



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Antoniou et al, 2020 JAMA

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**MUTUAL HELP ORGANIZATIONS AND YOUTH**

- AA/NA attendance significantly and independently predicted more days abstinent in adolescents engaged in outpatient SUD treatment
- Youth attending AA & NA feel safe at meetings
- Youth with co-occurring SUD and psychiatric illness benefit equally from AA as youth with SUD only



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Bergman, 2014; Kelly 2010, 2011

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### WHAT ABOUT PARENTS?




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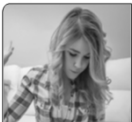

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### STRAIN ON FAMILIES:

- Ordinary people faced with coping with an enormous stressor – typical coping is compromised
- Lee, 2011 – compared to controls: greater levels of depression, stress, & isolation
- Oreo, 2007 - Parents have “grief reaction” – avoidance, distress, all leading to worse parent-child interaction
- Handley, 2008 – youth addiction worsens parent substance use in those with low parent social support

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### FAMILY/WRAP-AROUND EVIDENCE-BASED THPX

- Multidimensional Family Therapy (MDT)
- Functional Family Therapy (FFT)
- Multi-systemic Therapy (MST)
- Brief Strategic Family Therapy (BSFT)
- Behavioral Couples Therapy (BCT)
- Community Reinforcement and Family Training (CRAFT)

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**COMMUNITY REINFORCEMENT AND FAMILY TRAINING (CRAFT)**



- Targeted to caregivers to help motivate youth with SUD to engage in treatment
- **Goals:**
  - Empower with knowledge and a plan
  - Improve communication, problem-solving, understanding
  - Teach principals of contingency management to reinforce behavioral change
  - Enhance parental self-care

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Meyers 1996

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**MGH: ARMS PROGRAM**

- Recovery Management Philosophy
- Treats teens – 26 year olds and their parents
- Patient centered care: motivational model & harm reduction
- Evidence-based psychosocial treatments
- Medication Treatment
- Recovery Coach
- Parent Program




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**ENGAGING YOUTH AT ARMS**

**Referral**

- Rapidly engage – capitalize on motivational window
- Risk Adjusted Intake Process – dual dx evaluation
- "Meet and greet" option
- Modify intake length/content
- Bio-psycho-social assessment
- Recovery coach initial engagement

**Treatment**

- Evidence-base youth treatments – ACRA, CBT, DBT, HR
- Therapy and group (< 18 and > 18 yrs)
- Match treatment to readiness
- Support functional goals not just substance outcome
- Medication: suboxone/vivitrol/psychiatric medications
- Parent services
- Recovery Coach

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**ARMS**

- Youth aged <26 years and/or their parents
- Intake Appointment: 617-643-4699
- Insurance-based program including Mashealth
- <http://www.massgeneral.org/psychiatry/arms/home.aspx>
- Email: [mgh-arms@partners.org](mailto:mgh-arms@partners.org)

**THANK YOU!**

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