Treating Stimulant Use Disorder – Updates from the ASAM/AAAP National Practice Guideline

Presented by:
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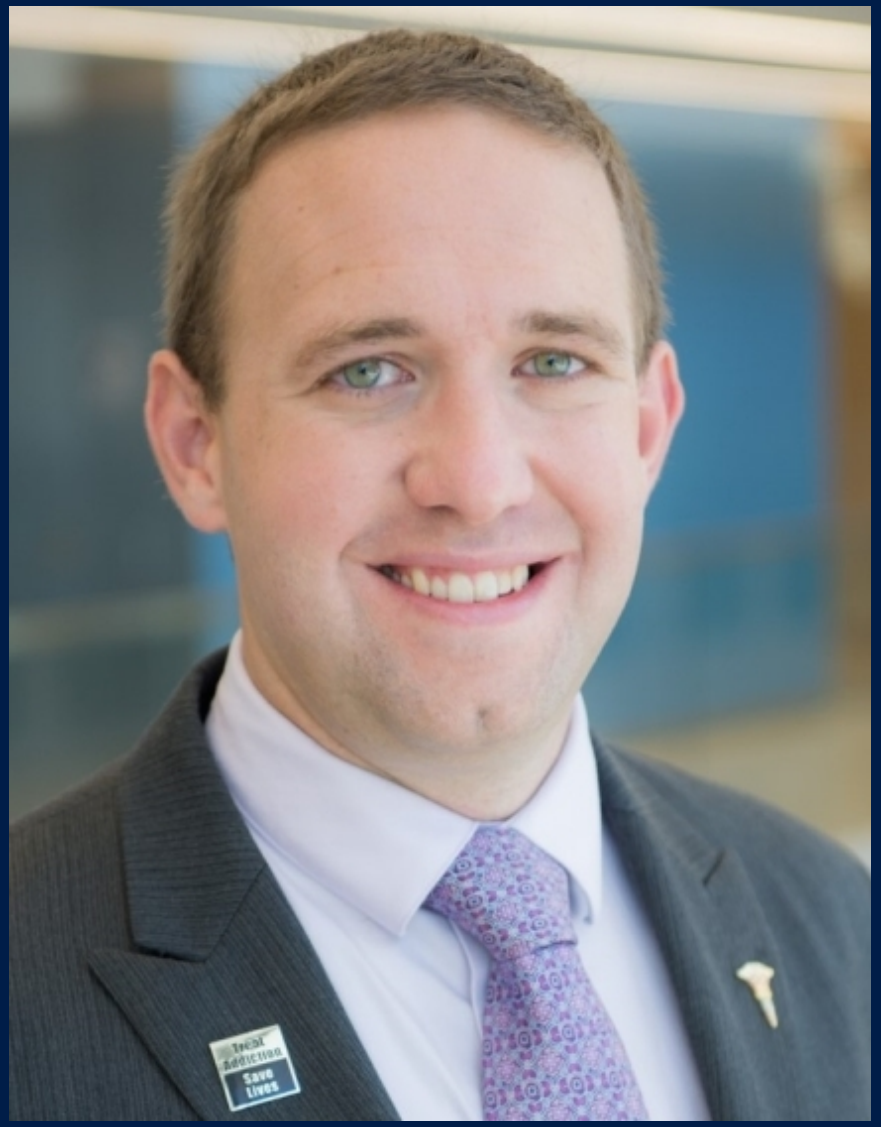

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Dr. Brian Hurley is an addiction physician and Medical Director of the Bureau of Substance Abuse Prevention and Control for the Los Angeles County Department of Public Health. He currently serves as President of the American Society of Addiction Medicine. Dr. Hurley is also a senior researcher at the Friends Research Institute and serves as the Co-Clinical Director of the Center for Care Innovations Addiction Treatment Starts Here Program. He is the program lead for LA County's Substance Abuse Mental Health Services Administration's Harm Reduction grant award and the Centers for Disease Control Overdose to Action Local grant award. He has also led numerous projects for Medications for Addiction Treatment Access in Los Angeles County.

Disclosure Information: No financial conflicts of interests

Brian is the President of the American Society of A

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Learning Objectives

I. Apply the key clinical takeaways for the treatment of StUD based upon the ASAM/AAAP Clinical Practice Guideline on the Management of Stimulant Use Disorder
II. Recognize the importance of strategies to reduce harms related to risky stimulant use
III. Identify acute complications associated with stimulant intoxication, and how to address them
IV. Recognize barriers and facilitators in the implementation of contingency management for stimulant use disorder
V. Identify the importance of close monitoring and ongoing assessment of risks and benefits when prescribing off-label medications for stimulant use disorder

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Agenda

- Guideline Methodology
- Screening Assessment
- Treatment Guidelines
- Population-Specific Applications
- Case Illustrations

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GUIDELINE METHODOLOGY

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Methodology Overview

- ASAM's Quality Improvement Council (QIC) – Oversight
- Institute for Research, Education and Training in Addictions (IRETA) – Technical Contractor
- Clinical Guideline Committee – 14 ASAM/AAAP members

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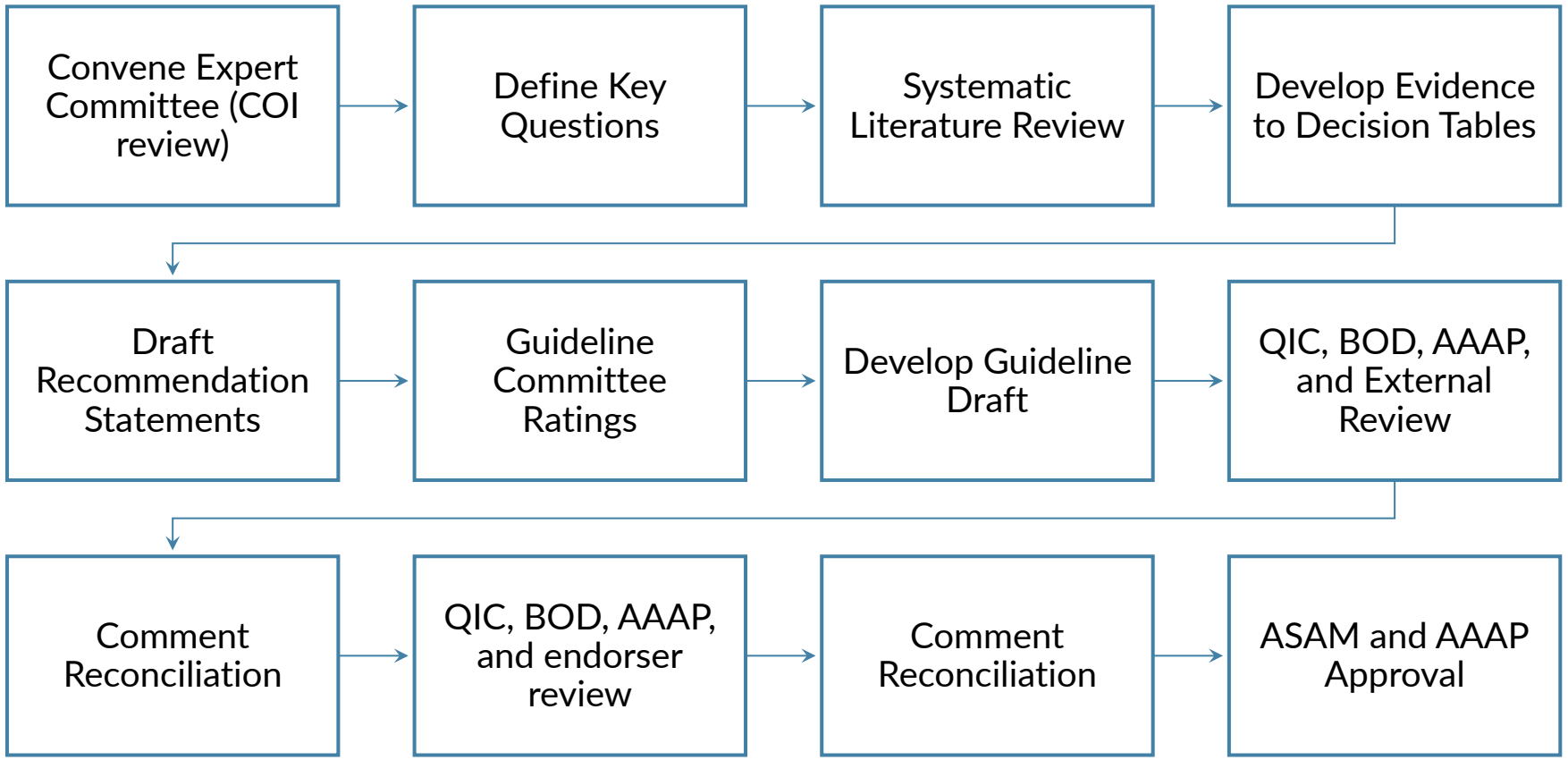
Methodology – CPG Development Process



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Methodology Committee

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- Brian Hurley, MD, MBA, DFASAM (*Co-Chair*)
- Dan Ciccarone, MD, MPH
- Scott E. Hadland, MD, MPH, FASAM
- Kimberly Kabernagel, DO, FASAM
- Richard Rawson, PhD (resigned after contributing to behavioral treatment recommendations)
- Siddarth Puri, MD
- Timothy Wiegand, MD, FACMT, FAACT, DFASAM

AAAP

- Larissa Mooney, MD (*Co-Chair*)
- Steven Batki, MD
- Frances Levin, MD
- James McKay, PhD
- Andrew Saxon, MD
- Kevin Sevarino, MD
- Kevin Simon, MD

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Scope and Key Questions (PICOS)

Population	• Individuals with StUD (including adolescents and pregnant individuals) • Individuals experiencing stimulant intoxication and/or withdrawal • Individuals at high risk for developing StUD
Interventions	• Pharmacotherapy for StUD (Non-stimulant medications; stimulant medications) • Behavioral treatment for StUD (Contingency Management, Cognitive Behavioral Therapy; Community Reinforcement Approach) • Intoxication and Withdrawal Management approaches • Secondary and Tertiary Prevention strategies
Comparisons	• Treatment as Usual
Outcomes	• Stimulant abstinence • Stimulant use reduction • Other substance use • Treatment retention/attrition • Adverse events • Risky behavior reduction
Setting	• Outpatient substance use treatment • Residential substance use treatment • Prenatal clinics • General medical settings • Emergency departments • Hospital

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Literature Review

- Systematic reviews and meta-analyses
- Primary literature search
- Gray literature search
- Literature extraction

GRADE Approach

Considerations

- Balance of benefits and harms of the intervention in question
- Certainty of evidence about the benefits and harms
- Values and preferences of the populations affected by the guideline
- Acceptability and feasibility of implementing the recommendation

Process

- Literature review
- Rating outcomes
- Rating quality of evidence
- Developing evidence to decision tables
- Developing recommendation statements
- Approving the recommendations
- Rating the strength of recommendations
- Developing the guideline document
- Engaging stakeholders

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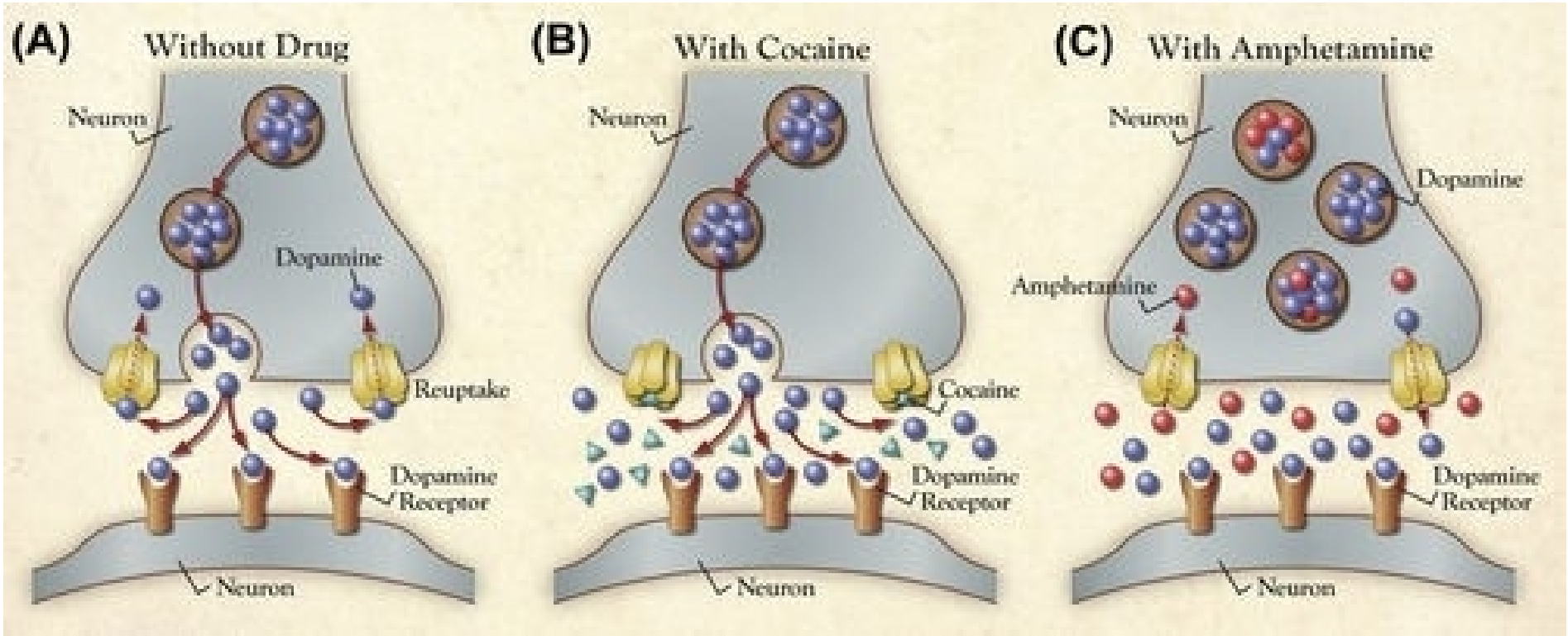
Pharmacologic Mechanisms of Stimulant Drugs

- Stimulate release and inhibit reuptake of dopamine, norepinephrine, serotonin
- Duration of Methamphetamine effects: 12-15 hours
- Duration of Cocaine effects: 20-30 minutes
- Duration of Cathinones: 2-7 hours



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SCREENING AND ASSESSMENT

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Screening

Stimulant misuse screening - When general healthcare providers screen adolescents or adults for risky substance use per USPSTF guidelines,[2] they should include screening for stimulant misuse (i.e., nonmedical or nonprescribed use; *Very low certainty*, *Strong Recommendation*).

Frequent checks - Clinicians should consider more frequent screening for stimulant misuse in patients who take prescribed psychostimulant medications (*Very low certainty*, *Strong Recommendation*).

Review PDMP - Clinicians should check their state's PDMP prior to prescribing psychostimulant medications (*Moderate certainty*, *Strong Recommendation*).

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Screening → Assessment

For patients who screen positive for stimulant misuse, clinicians should:

- Consider asking patients about:
  - the context of their stimulant use (e.g., chemsex, weight loss, academic or work performance, staying awake; *Clinical consensus*, *Strong Recommendation)*;
  - trauma (*Clinical consensus*, *Strong Recommendation)*, and
  - intimate partner violence (IPV; *Clinical consensus*, *Strong Recommendation)*.

- Evaluate complications using patient history and clinical exam and treat or refer as needed (*Very low certainty*, *Strong Recommendation)*;

- Conduct baseline laboratory testing based on clinical assessment of risk factors (see Assessment; *Clinical consensus*, *Strong Recommendation*).

Assessment – Initial Prioritization

When assessing patients for StUD, the first clinical priority should be to identify any urgent or emergent biomedical or psychiatric signs or symptoms, including acute intoxication or overdose, and provide appropriate treatment or referrals (*Clinical consensus*, *Strong Recommendation*).

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Assessment – Comprehensive Assessment

After first addressing any urgent biomedical or psychiatric signs or symptoms, patients should undergo a comprehensive assessment that includes:

- Assessment for StUD based on diagnostic criteria (e.g., current *DSM*, *Clinical consensus*, *Strong Recommendation)*;
- A StUD-focused history and physical examination (*Clinical consensus*, *Strong Recommendation)*;
- A mental status exam to identify co-occurring psychiatric conditions, such as signs and symptoms of psychoses, ADHD, mood disorders, cognitive impairment, and risk of harm to self or others (*Clinical consensus*, *Strong Recommendation*);
- A StUD-focused history and physical examination (*Clinical consensus*, *Strong Recommendation)*;
- Clinicians treating StUD should conduct routine baseline laboratory testing (*Clinical consensus*, *Strong Recommendation*);
- Clinicians should conduct other clinical tests as necessary based on each patient's clinical assessment findings (*Clinical consensus*, *Conditional Recommendation*).

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Assessment Recommendations

Risky patterns of stimulant use, including:

- Frequency and amount of use, including binge use (*High certainty, Strong Recommendation);*
- Use of stimulants with no one else present (*High certainty, Strong Recommendation);*
- Concurrent use of prescribed and nonprescribed medications and other substances, particularly opioids, alcohol, and other central nervous system depressants (*High certainty, Strong Recommendation);*
- History of overdose (*High certainty*, Strong Recommendation);

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Assessment Recommendations

- History of stimulant-related ED visits and hospitalizations (High certainty, Strong Recommendation);
- Routes of administration, particularly injection drug use (*Very low certainty, Strong Recommendation)*;
- Risky sexual behaviors (*High certainty, Strong Recommendation)*;
- Patients who engage in nonmedical use of prescription stimulants should be evaluated for ADHD, which may also require treatment (*Clinical consensus, Strong Recommendation).*

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Assessment – Comprehensive Assessment

When evaluating patients with long-term or heavy stimulant use, clinicians should exercise:

An elevated degree of suspicion for cardiac disorders (*Clinical consensus*, *Conditional Recommendation)*;

A lower threshold for considering ECG testing based on findings of the history and physical exam (*Clinical consensus*, *Conditional Recommendation*);

A lower threshold for considering creatine kinase (CK) testing for rhabdomyolysis based on findings of the history and physical exam (*Clinical consensus*, *Strong Recommendation*);

An elevated degree of suspicion for renal disorders (*Clinical consensus*, *Conditional Recommendation).*

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Setting Determination

- No studies were identified that addressed level of care determination when managing the risks associated with stimulant intoxication and withdrawal specific to Stimulant Use Disorder.

- Nonetheless, the Clinical Guideline Committee recommended the use of a multidimensional assessment—such as that described in The ASAM Criteria—to determine the appropriate clinical setting for the patient's treatment.

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Poll Question 1

A 32-year-old presents with signs of stimulant intoxication. The FIRST clinical priority should be to:

A. Conduct a urine drug screen
B. Assess for risky sexual behaviors
C. Evaluate for accompanying psychiatric disorders
D. Identify and address any urgent medical needs

PREVENTION

Secondary and tertiary prevention strategies should be used to reduce harms related to overdose risk, risky sexual practices, injection drug use, oral health, and nutrition.

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A Continuum of Substance Use Interventions

Youth Development & Health Promotion

- Programs at school- and community-level

Drug Use Prevention

- Universal, selected, and indicated prevention

Harm Reduction → Currently largely serves people who are using drugs and not yet interested in SUD treatment

- Low threshold services proven to reduce morbidity and mortality, including outreach, overdose prevention (naloxone and test strip distribution, etc), syringe services, peer services, linkages to SUD treatment and related services, etc.

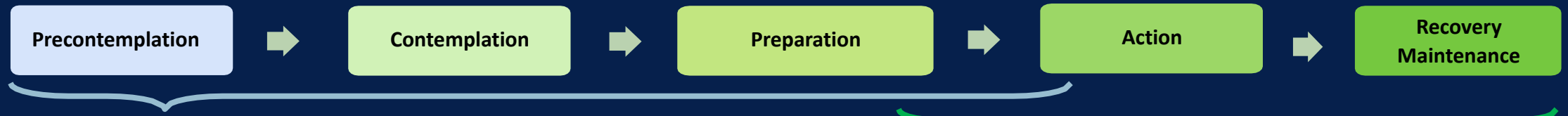
SUD Treatment & Recovery → Currently largely serves people who are ready for abstinence

- Involves a spectrum of settings: opioid treatment programs, outpatient, intensive outpatient, residential, inpatient, withdrawal management, Recovery Services, Recovery Bridge Housing, field-based services, care coordination and navigation, etc.

Surveillance of drug use and its community impact

Slide Credit: Adapted from Agència de Salut Pública de Barcelona

Stages of Change



Harm reduction programs

- Initial engagement
- Harm reduction supplies
- Skills development to reduce risks
- Linkage to health care and social services
- Outreach: street teams
- Low-threshold medications for addiction treatment

Recovery is Possible!

- Of those in the U.S. with a history of substance use disorder, 75% are in recovery.

Harm Reduction is Essential

- Harm reduction is practiced all across health care
- In the context of the worst overdose crisis in history, harm reduction reduces mortality risks, increases treatment access and access to other health and social services, and supports recovery.

Treatment programs

- Biopsychosocial treatment for substance use (including medication services, psychoeducation, individual and group therapies)
- Linkage to other medical and social services
- Crisis care

Aligning Services with Readiness

- Addiction is chronic and recurrent, and not all people are at the same stage of readiness to change.
- Only focusing on individuals in some stages of change as opposed to ALL stages of change limits service reach and impact → We need the widest service net possible

Slide Credit: Adapted from Agència de Salut Pública de Barcelona

TREATMENT RECOMMENDATIONS

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Behavioral Treatments

- Contingency Management (CM) should be a primary component of the treatment plan in conjunction with other psychosocial treatments for StUD (*High certainty, Strong Recommendation*).
- Three additional behavioral interventions have the most supportive evidence & are preferred *alongside* CM:
  - Community Reinforcement Approach (CRA) (*Low certainty, Conditional Recommendation);*
  - Cognitive Behavioral Therapy (CBT) (*Moderate certainty, Strong Recommendation*), and;
  - Matrix Model (*Moderate certainty, Conditional Recommendation).*

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Behavioral Treatments

- Clinicians can consider offering evidence-based behavioral interventions delivered via digital therapeutics or web-based platforms as add-on components to treatment for StUD, but they should not be used as standalone treatment (*Low certainty, Strong Recommendation*).
- Clinicians should consider using telemedicine to deliver behavioral treatment for StUD to patients who may face challenges accessing in-person care (*Moderate certainty, Strong Recommendation*).

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Contingency Management (CM)

Fundamentals of CM

- Behavior can be changed through incentives
- Incentives for modifiable patient behaviors
- Promotes retention and adherence

Key Implementation Factors

- Behavior to be modified (e.g., stimulant use) must be objectively measured
- Behavior to be modified (e.g., urine toxicology tests) must be monitored frequently
- Reinforcement must be immediate
- Penalties for unsuccessful behavior (e.g. +UDS) include withholding the reinforcer

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Contingency Management (CM)

Options for Behavioral Contingencies


Counseling attendance


Toxicology Verified Substance Use


Medication Adherence


Behavioral Plan Participation

Key: must be **objectively** measured

Reinforcers


Money / Gift Cards / Vouchers

- Can be an individualized menu of choices


Setting / Milieu Privileges


Take-home doses

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Contingency Management (CM)

Reinforcer Methods

- Fixed incentive vs. Fishbowl Method
  - In the fishbowl method, the incentive is a draw from the bowl.
- Incentive values escalate with ongoing successful behavior.
- Incentive value re-sets with unsuccessful behavior.
- Staffing and Training Considerations
- Availability in Health Care Settings

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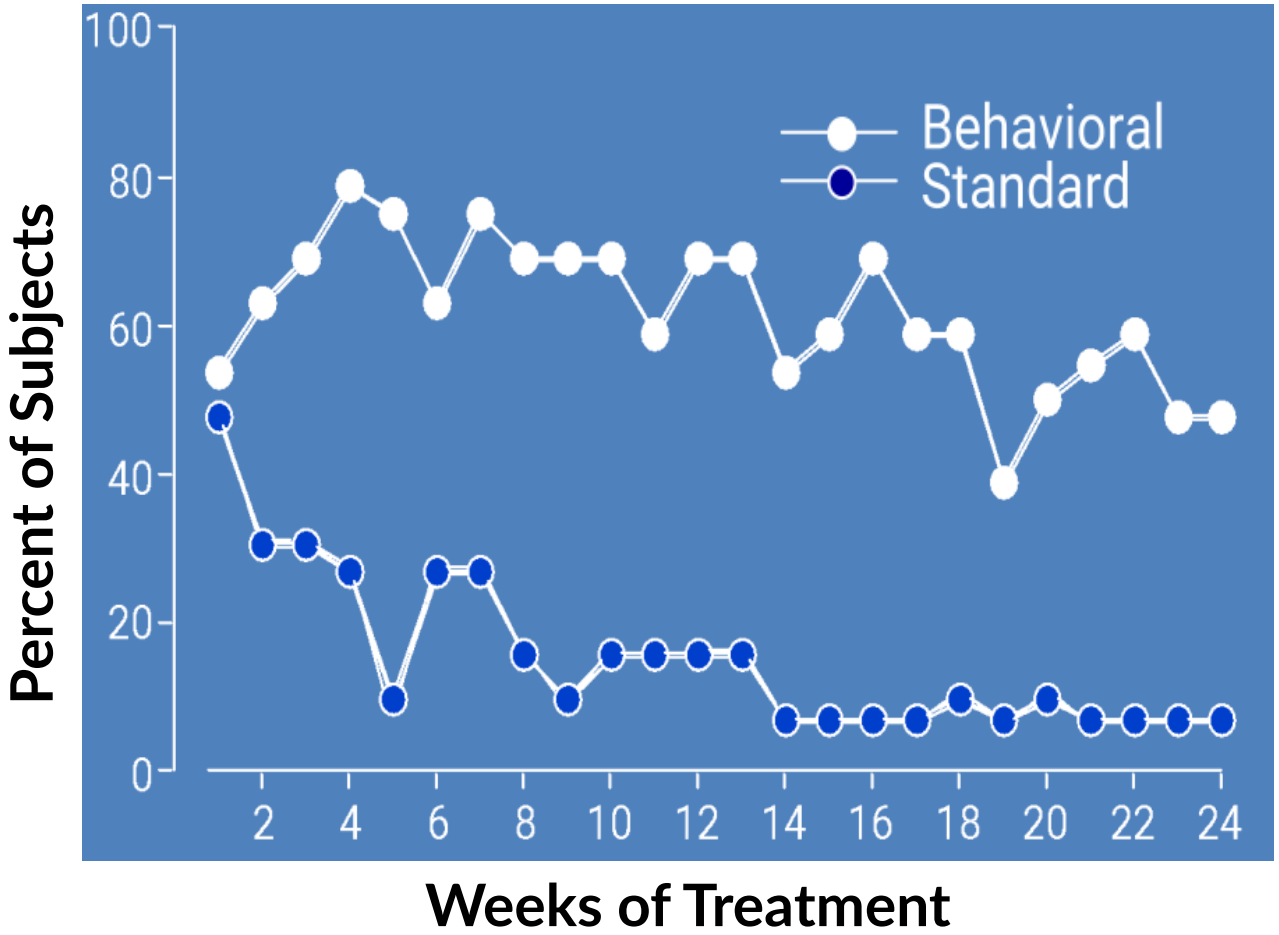
Voucher Incentives for Cocaine Use Disorder



Higgins ST, Budney AJ, Bickel WK, Foerg FE, Donham R, Badger GJ. Incentives improve outcome in outpatient behavioral treatment of cocaine dependence. Arch Gen Psychiatry. 1994 Jul;51(7):568-76. doi: 10.1001/archpsyc.1994.03950070060011. PMID: 8031230. Slide Credit: Maxine Stitzer, Ph.D. ctndisseminationlibrary.org/PPT/485Stitzer.ppt

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Contingency Management (CM) for Stimulant Use Disorder

- Contingency management reduces stimulant use.
- Longer inter-test intervals can allow use to go undetected → compromising the contingent reinforcement of abstinence.
- Longer interventions (studies up to 4 months) produced better outcomes; study protocols over four weeks are effective.

Brown HD, DeFulio A. Contingency management for the treatment of methamphetamine use disorder: A systematic review. Drug Alcohol Depend. 2020 Nov 1;216:108307. doi: 10.1016/j.drugalcdep.2020.108307. Epub 2020 Sep 21. PMID: 33007699. http://pubmed.ncbi.nlm.nih.gov/33007699

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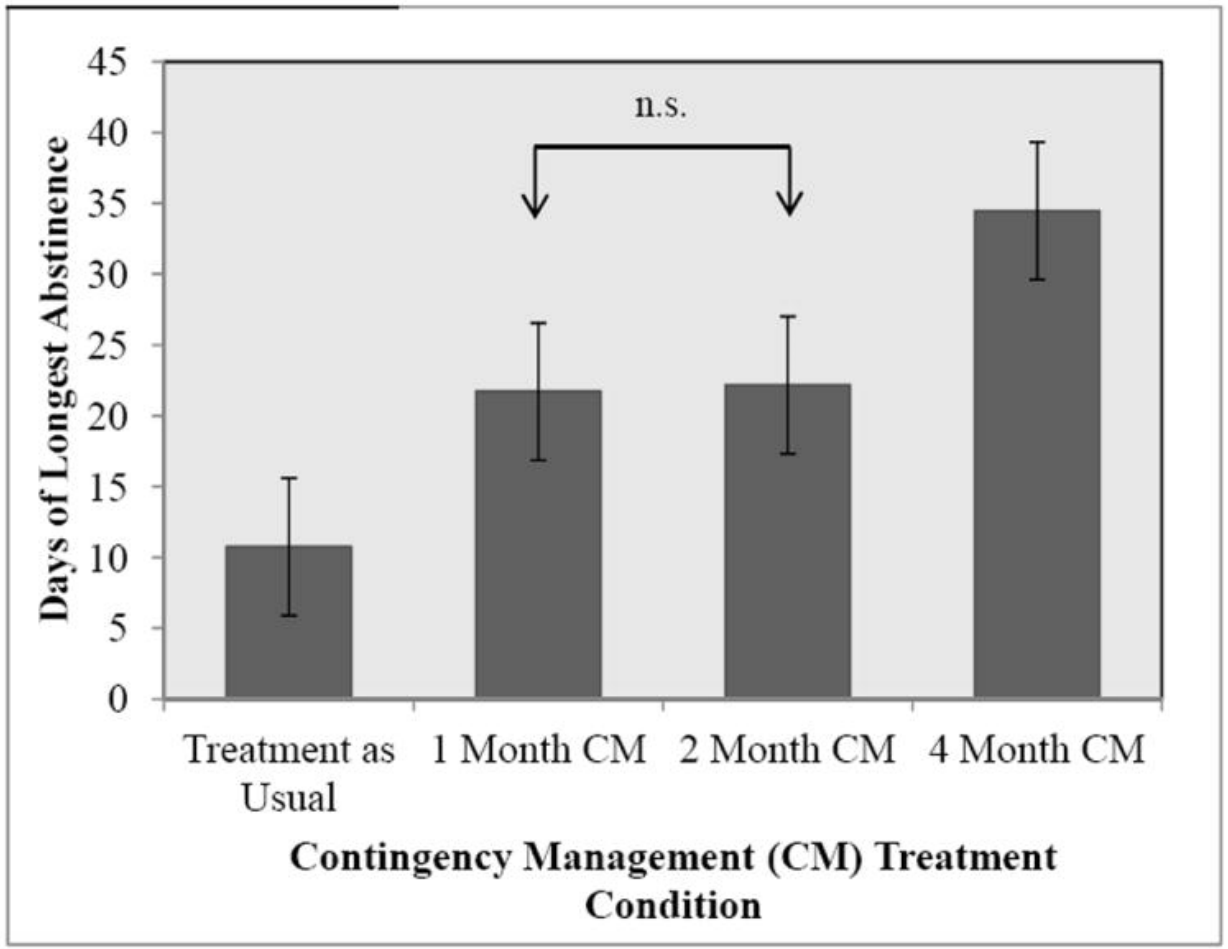
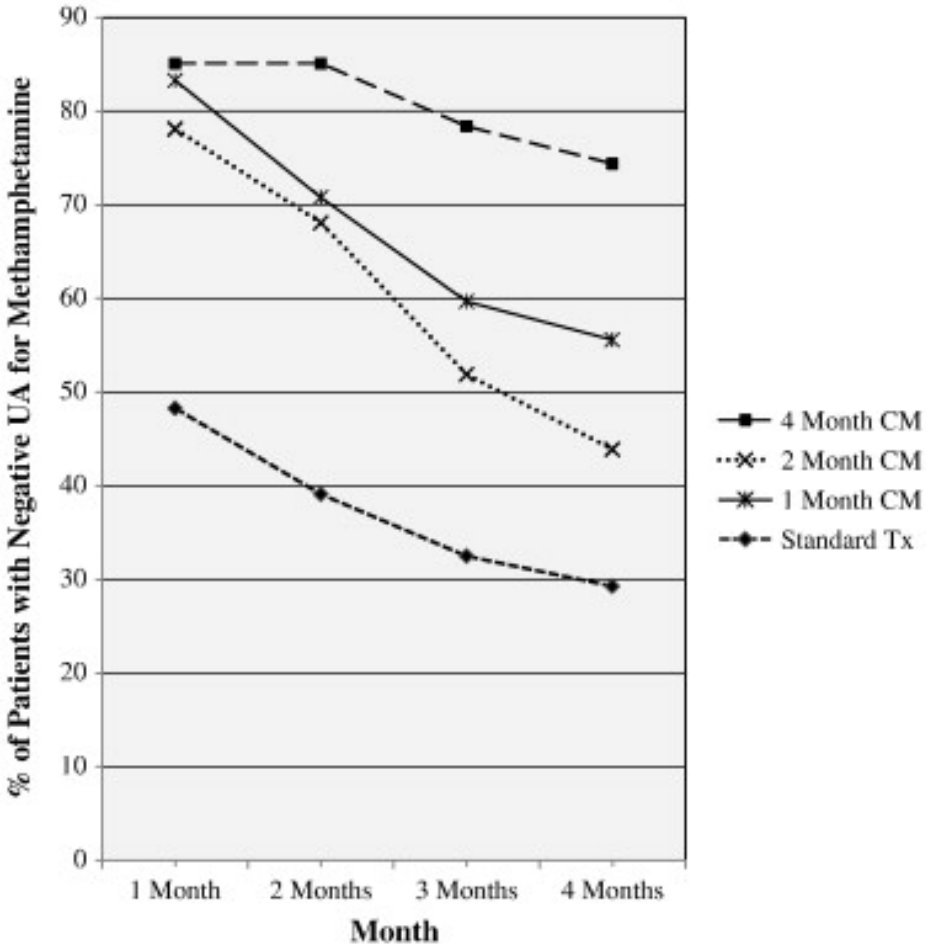
Duration of Contingency Management (CM) for Stimulant Use Disorder





Roll JM, Chudzynski J, Cameron JM, Howell DN, McPherson S. Duration effects in contingency management treatment of methamphetamine disorders. Addict Behav. 2013 Sep;38(9):2455-62. doi: 10.1016/j.addbeh.2013.03.018. Epub 2013 Apr 3. PMID: 23708468; PMCID: PMC3696502.
http://www.ncbi.nlm.nih.gov/pmc/articles/pmid/23708468

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Contingency Management for Stimulant Use Disorder

- 22% greater likelihood of abstinence (studied over 24 weeks on average) after reinforcement ended vs comparison treatments
- Longer reinforcement duration → Longer duration of abstinence after reinforcement ends
- CM equally efficacious in the long-term regardless of participant age, race, or gender

Ginley MK, Pfund RA, Rash CJ, Zajac K. Long-term efficacy of contingency management treatment based on objective indicators of abstinence from illicit substance use up to 1 year following treatment: A meta-analysis. J Consult Clin Psychol. 2021 Jan;89(1):58-71. doi: 10.1037/ccp0000552. PMID: 33507776; PMCID: PMC8034391. http://www.ncbi.nlm.nih.gov/pmc/articles/pmid/33507776

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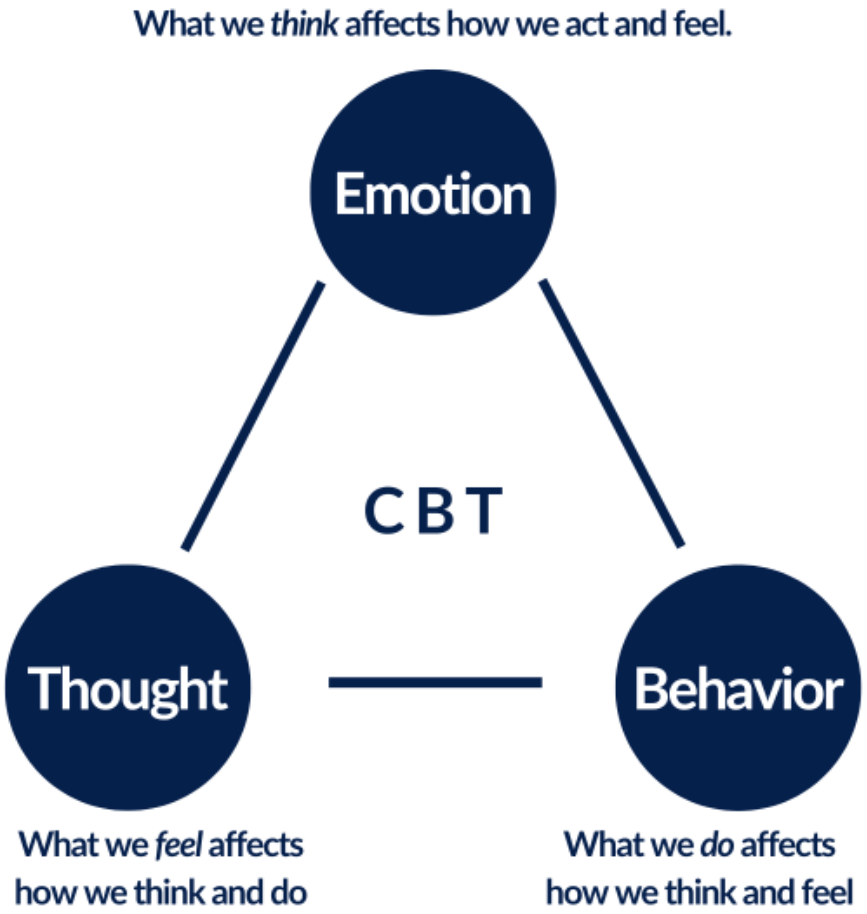
Cognitive Behavioral Therapy (CBT)

- Patients trained to evaluate faulty patterns of thinking, actions, and negative feelings associated with their drug use
- Tailored to the needs of the individual and their unique experiences with their stimulant use
- Standard therapeutic sessions last ~50 minutes
- Counseling periods last ~5-10 months



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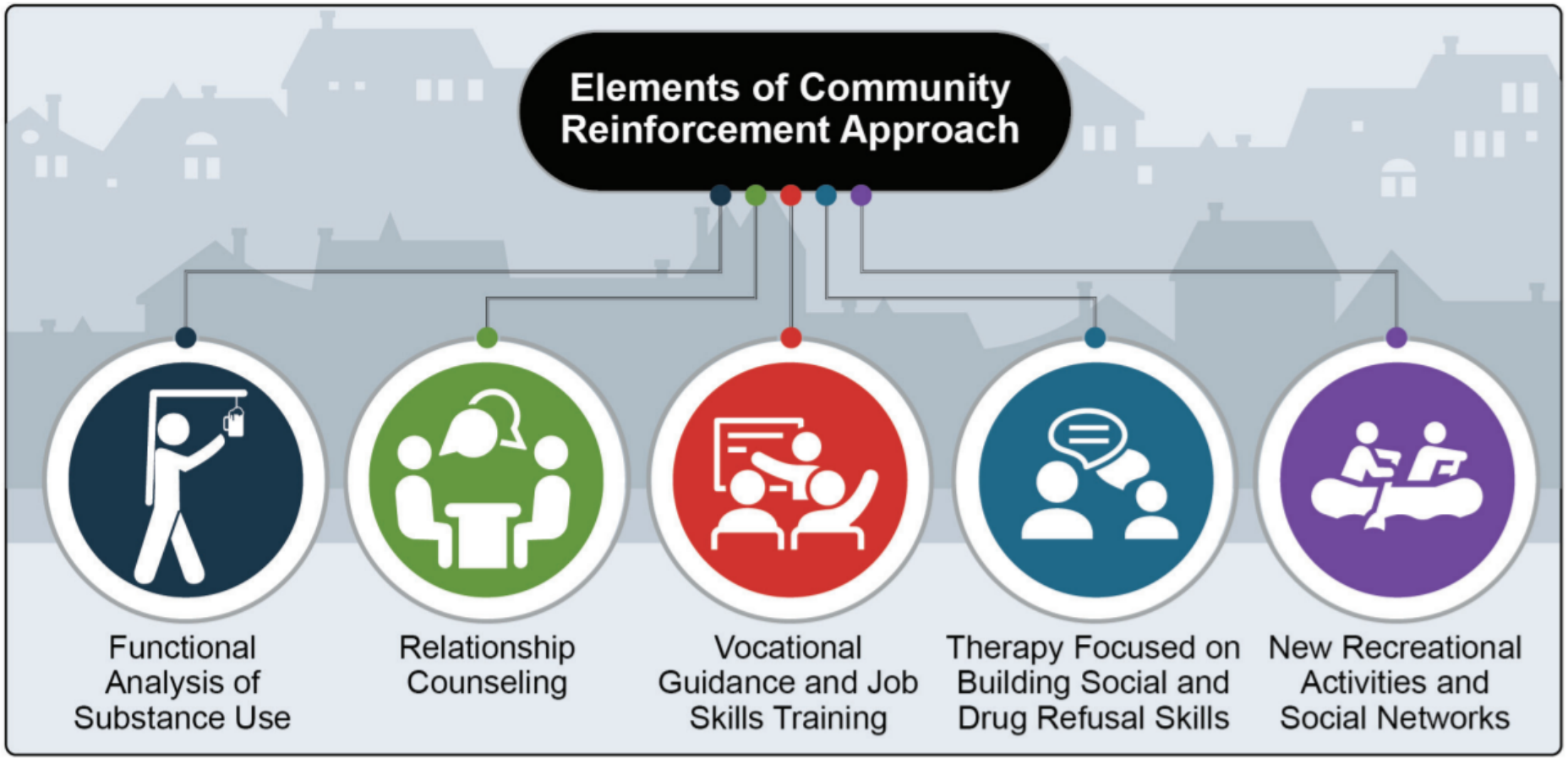
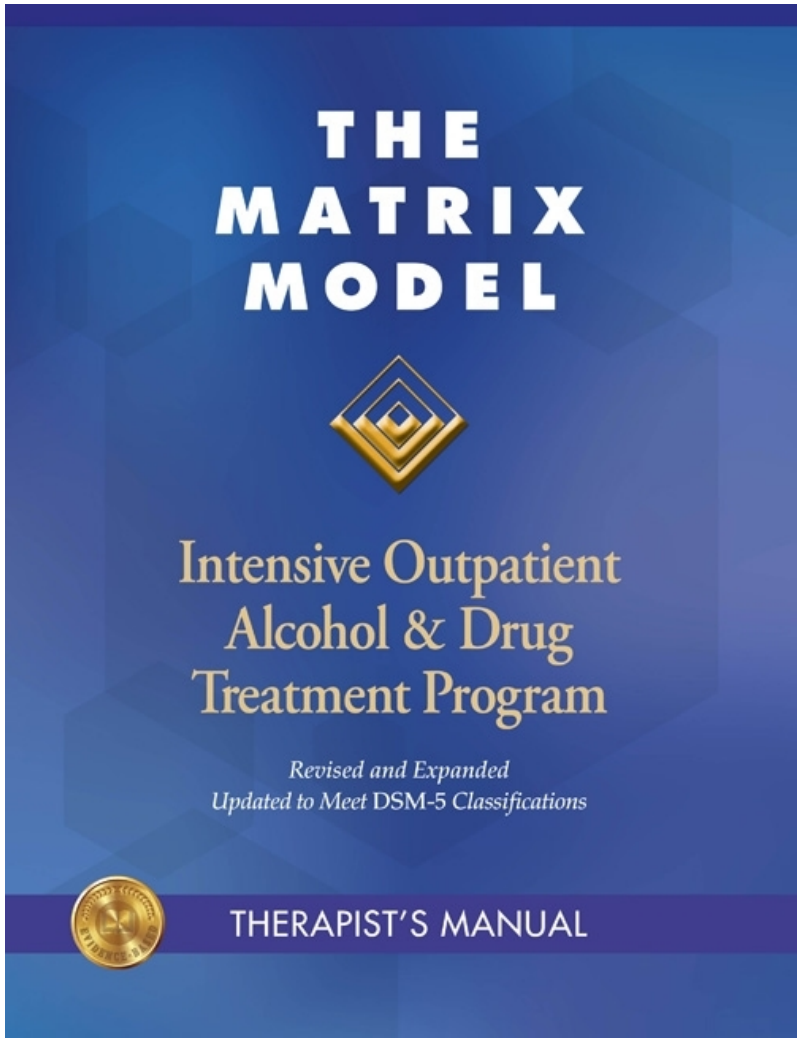
Community Reinforcement Approach



Matrix Model

Structured IOP Curriculum

- Early recovery skills groups
- Relapse prevention groups
- Psychoeducation groups
- Social support groups
- Mutual self-help encouragement
- Family education
- Individual counseling
- Urine and breath testing



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Motivational Interviewing (MI)

- A particular way of talking with people about change and growth to strengthen their own motivation and commitment
- Selectively respond to change talk
- MI does not have a prescribed time period

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Poll Question 2

Contingency Management for stimulant use disorder is associated with which of the following:

A. No impact on rates of abstinence
B. Compromised contingent reinforcement with shorter inter-test intervals
C. Better outcomes with interventions less than 4 weeks
D. Increased likelihood of abstinence 24 weeks after reinforcement ends

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Poll Question 3

What key component of treatment for stimulant use disorders focuses on resolving an individual's ambivalence about change?

A. Relapse prevention groups
B. Motivational interviewing
C. Matrix model
D. Cognitive behavioral therapy

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Medication Treatments

- Pharmacotherapies, including psychostimulant medications, may be utilized off-label to treat StUD
- When prescribing controlled medications, clinicians should closely monitor patients and perform regular ongoing assessments of risks and benefits for each patient
- Psychostimulant medications should only be prescribed to treat StUD by:
  - *Physician specialists who are board certified in addiction medicine or addiction psychiatry; and*
  - *Physicians with commensurate training, competencies, and capacity for close patient monitoring.*

ASAM/AAAP (2023). Clinical Practice Guideline on the Management of Stimulant Use Disorder. http://www.asam.org/quality-care/clinical-guidelines/stimulant-use-disorders

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Methamphetamine Use Disorder Pharmacotherapy

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Medications for Methamphetamine Use Disorder (MUD)

- Bupropion (signal for lower frequency MA use)
  - Additional consideration for tobacco use d/o, depression
- XR-Naltrexone injection + high dose bupropion XL
- Mirtazapine (two small studies)
  - Additional consideration for depression
- Topiramate (low-level MA use)
  - Additional consideration for AUD
- Methylphenidate-ER (higher frequency MA use)
  - Additional consideration for ADHD

None are FDA-approved

XR-Naltrexone Injection Plus Bupropion XL

- Medications: XR-NTX 380mg via intramuscular injection **every three weeks** in combination with bupropion XL titrated to 450mg daily
- 12-week, 2 stage trial (N= 403 Stage 1, N= 225 Stage 2)
- Response defined as at least three MA-negative urine samples out of four during the final two weeks; urine collected twice weekly
- Weighted avg response 13.6% with XR-NTX–bupropion vs 2.5% with placebo
- Treatment effect: between-group difference in overall weighted response (11.1%)

Trivedi et al., 2021, *Addiction*

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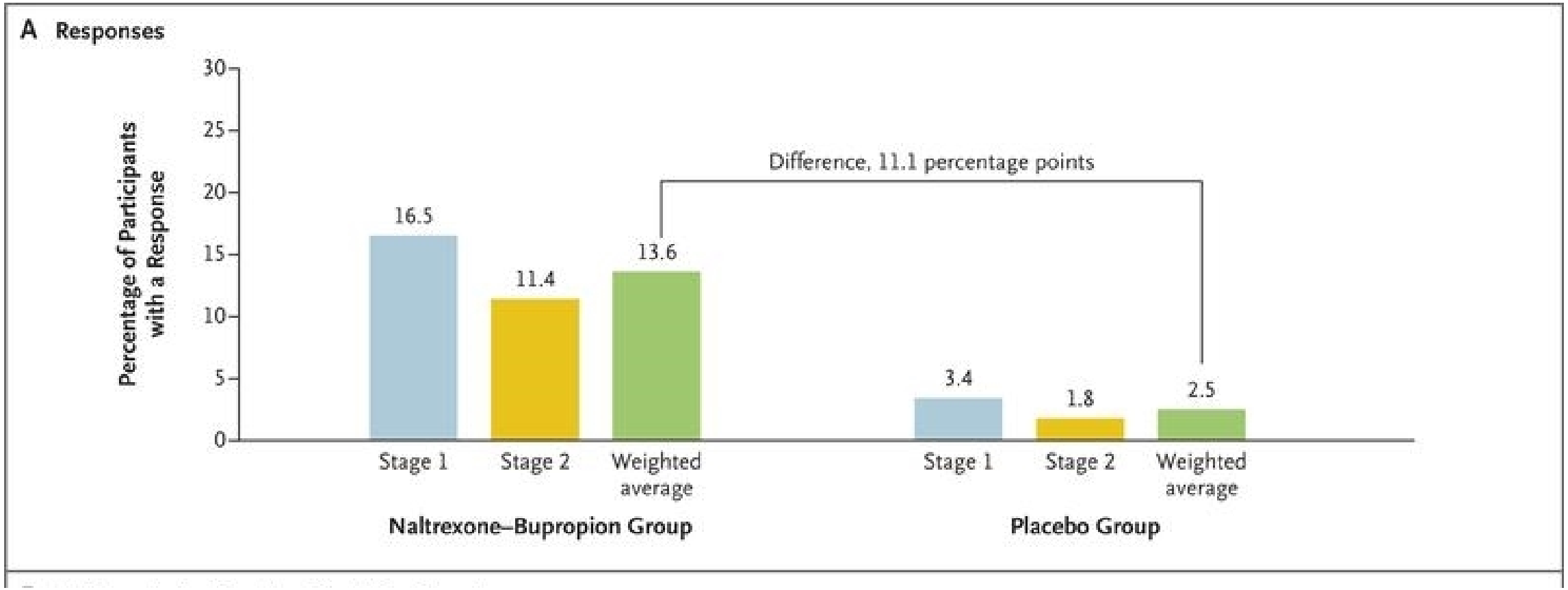
ER Naltrexone Inj & Bupropion ER 450mg



Trivedi MH, Walker R, Ling W, Dela Cruz A, Sharma G, Carmody T, Ghitza UE, Wahle A, Kim M, Shores-Wilson K, Sparenborg S, Coffin P, Schmitz J, Wiest K, Bart G, Sonne SC, Wakhlu S, Rush AJ, Nunes EV, Shoptaw S. Bupropion and Naltrexone in Methamphetamine Use Disorder. N Engl J Med. 2021 Jan 14;384(2):140-153. doi: 10.1056/NEJMoa2020214. PMID: 33497547; PMCID: PMC8111570. http://www.ncbi.nlm.nih.gov/pmc/articles/pmid/33497547

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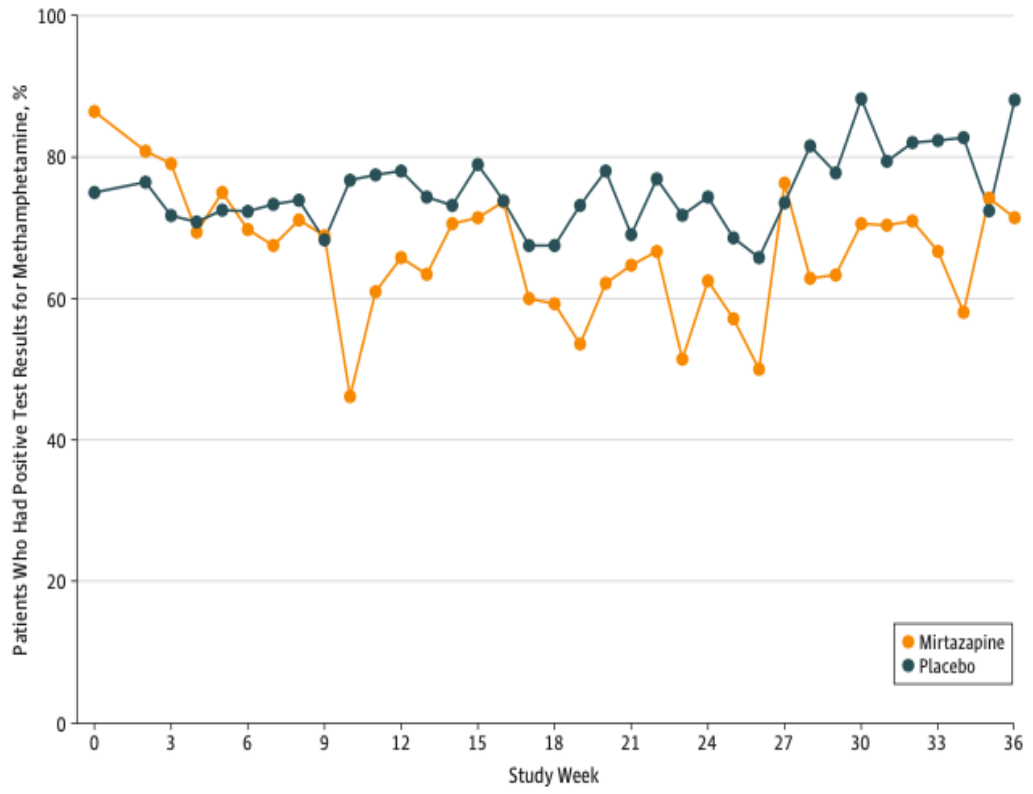
Mirtazapine for Methamphetamine Use Disorder

Figure 2. Proportion of Participants With Positive Urine Test Results for Methamphetamine During Follow-up, by Arm



Coffin PO et al. (2019) ***JAMA Psychiatry***

Summary:

- Double blind, RCT, n=120 cis men, transgender men, transgender women, who have sex with men and MA use disorder, actively using MA
- Mirtazapine 30 mg vs placebo, plus counseling, for 24 weeks and 12 weeks of f/u
- ~40% adherence in both groups (used WisePill dispenser)
- Significant reductions in MA-positive UDS in the mirtazapine group at all time points

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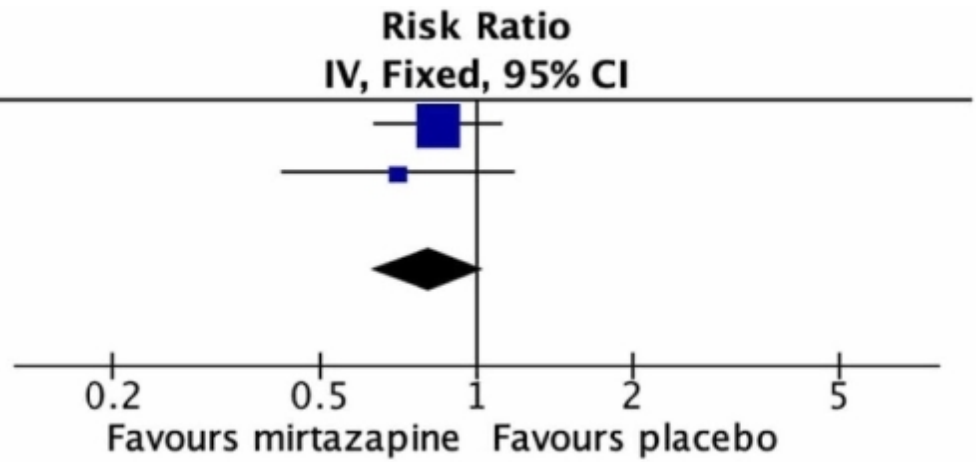
Mirtazapine for Methamphetamine UD

Odds of continued methamphetamine use via toxicology testing

Study or Subgroup	Mirtazapine Events	Mirtazapine Total	Placebo Events	Placebo Total	Weight	Risk Ratio IV, Fixed, 95% CI
Coffin et al 2019	25	38	32	41	76.8%	0.84 [0.64, 1.12]
Colfax et al 2011	12	27	17	27	23.2%	0.71 [0.42, 1.18]
Total (95% CI)		**65**		**68**	**100.0%**	**0.81 [0.63, 1.03]**
Total events	37		49			

Heterogeneity: $Chi^2 = 0.36$, df = 1 (P = 0.55); $I^2 = 0\%$

Test for overall effect: Z = 1.69 (P = 0.09)



Naji L, Dennis B, Rosic T, Wiercioch W, Paul J, Worster A, Thabane L, Samaan Z. Mirtazapine for the treatment of amphetamine and methamphetamine use disorder: A systematic review and meta-analysis. Drug Alcohol Depend. 2022 Mar 1;232:109295. doi: 10.1016/j.drugalcdep.2022.109295. Epub 2022 Jan 11. PMID: 35066460. http://pubmed.ncbi.nlm.nih.gov/35066460

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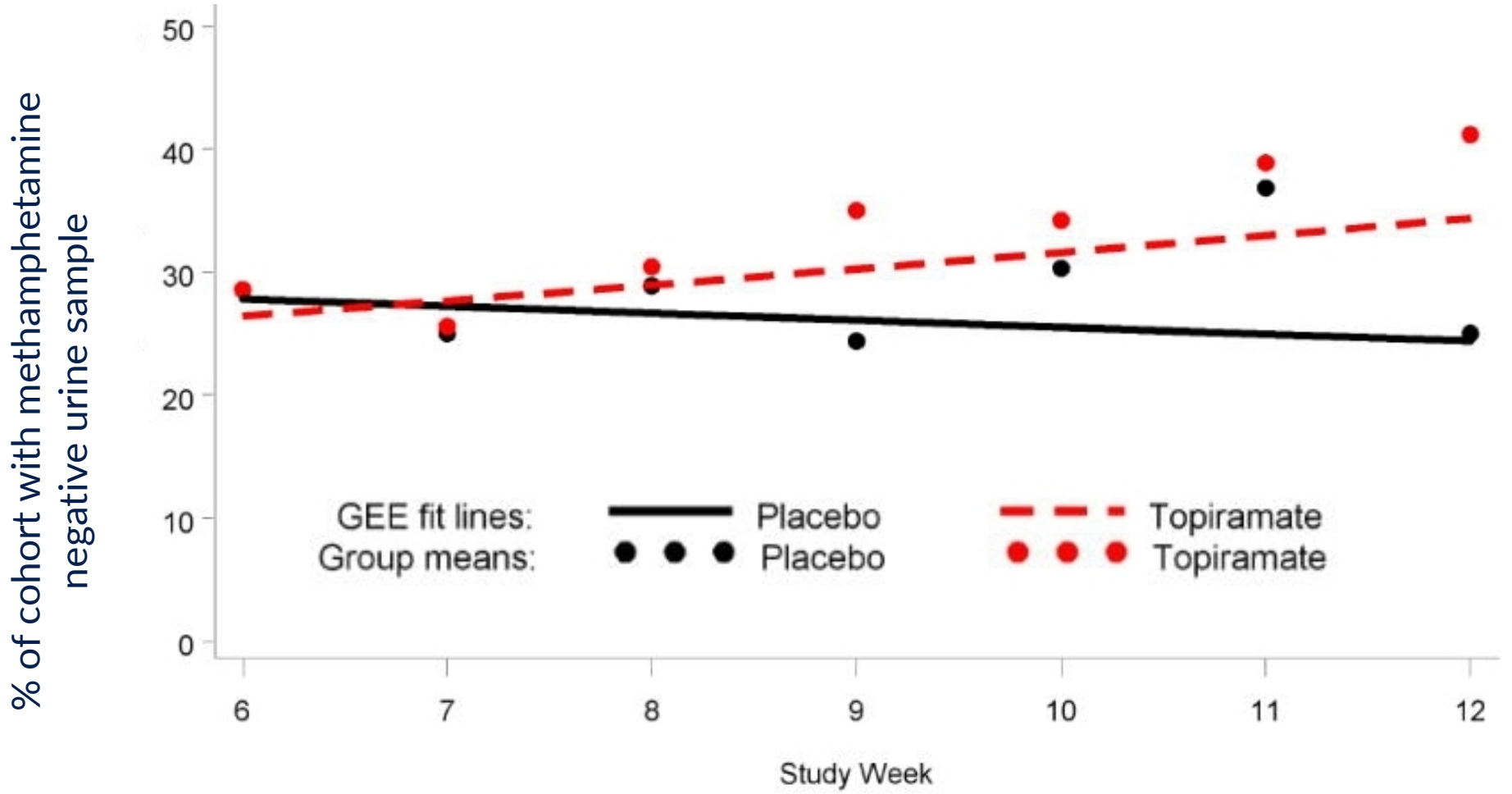
Topiramate for MUD

- More participants randomized to topiramate reduced MA use compared with placebo; (no statistically significant difference in MA use cessation)
- Dosing: start 25 mg qHS and titrate up in 25 to 50mg increments as tolerated until 200mg/day or until the patient's maximum tolerated dose is reached
- Discuss/provide contraception

Siefried KJ, Acheson LS, Lintzeris N, Ezard N. Pharmacological Treatment of Methamphetamine/Amphetamine Dependence: A Systematic Review. CNS Drugs. 2020 Apr;34(4):337-365. doi: 10.1007/s40263-020-00711-x. PMID: 32185696; PMCID: PMC7125061 http://www.ncbi.nlm.nih.gov/pmc/articles/pmid/32185696

Singh M, Keer D, Klimas J, Wood E, Werb D. Topiramate for cocaine dependence: a systematic review and meta-analysis of randomized controlled trials. Addiction. 2016 Aug;111(8):1337-46. doi: 10.1111/add.13328. Epub 2016 Apr 1. PMID: 26826006. http://pubmed.ncbi.nlm.nih.gov/26826006

Topiramate for Methamphetamine UD



Rezaei F, Ghaderi E, Mardani R, Hamidi S, Hassanzadeh K. Topiramate for the management of methamphetamine dependence: a pilot randomized, double-blind, placebo-controlled trial. Fundam Clin Pharmacol. 2016 Jun;30(3):282-9. doi: 10.1111/fcp.12178. Epub 2016 Mar 4. PMID: 26751259. http://pubmed.ncbi.nlm.nih.gov/26751259

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Sustained-Release Methylphenidate for MUD

- Sustained-release methylphenidate (MPH) titrated to 54mg/day (N=110)
- 10 weeks active med (MPH vs. PLB), then 4 weeks single-blind PLB
- CBT platform with motivational incentives (MA-neg UDS)
- MPH was associated with significantly fewer self-reported days of MA use and reduced cravings over the active treatment period than PLB in participants with >10 days of use in the past 30 days at baseline (no difference for 1° outcome)
- MPH group reduced MA use > PLB from baseline to end of active phase (6.5 vs. 3.5 days)
- No difference in the proportion of +UDS across active med period

Ling et al, 2014. ***Addiction***

Poll Question 4

What strategies are recommended for monitoring patients prescribed psychostimulants to treat stimulant use disorder (StUD)? (Check all that apply)

- ❑ Frequent contact and follow-ups
- ❑ Random pill counts
- ❑ Urine or serum drug testing
- ❑ Checking prescription drug monitoring program (PDMP)
- ❑ No specific monitoring needed
- ❑ Relying on patient self-reports

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Cocaine Use Disorder Pharmacotherapy

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Medications for Cocaine Use Disorder (CUD)

- Modafinil (without co-occurring AUD)
- Topiramate (lower frequency cocaine use)
  - Additional consideration for AUD
- Mixed Amphetamine Salts-ER + Topiramate
  - Additional consideration for AUD, ADHD
- Mixed Amphetamine Salts-ER
- Bupropion (best when combined with CM)

None are FDA-approved

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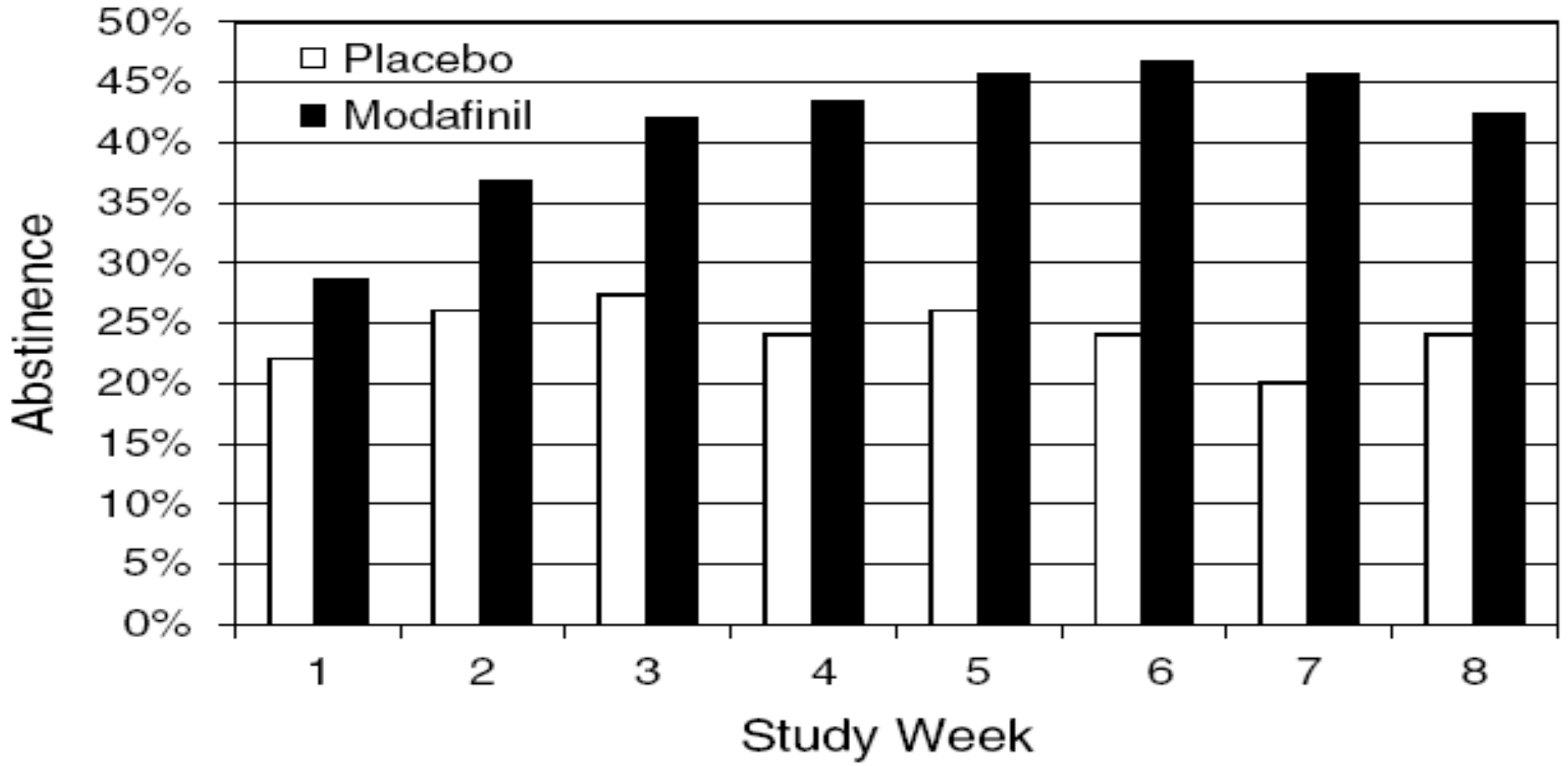
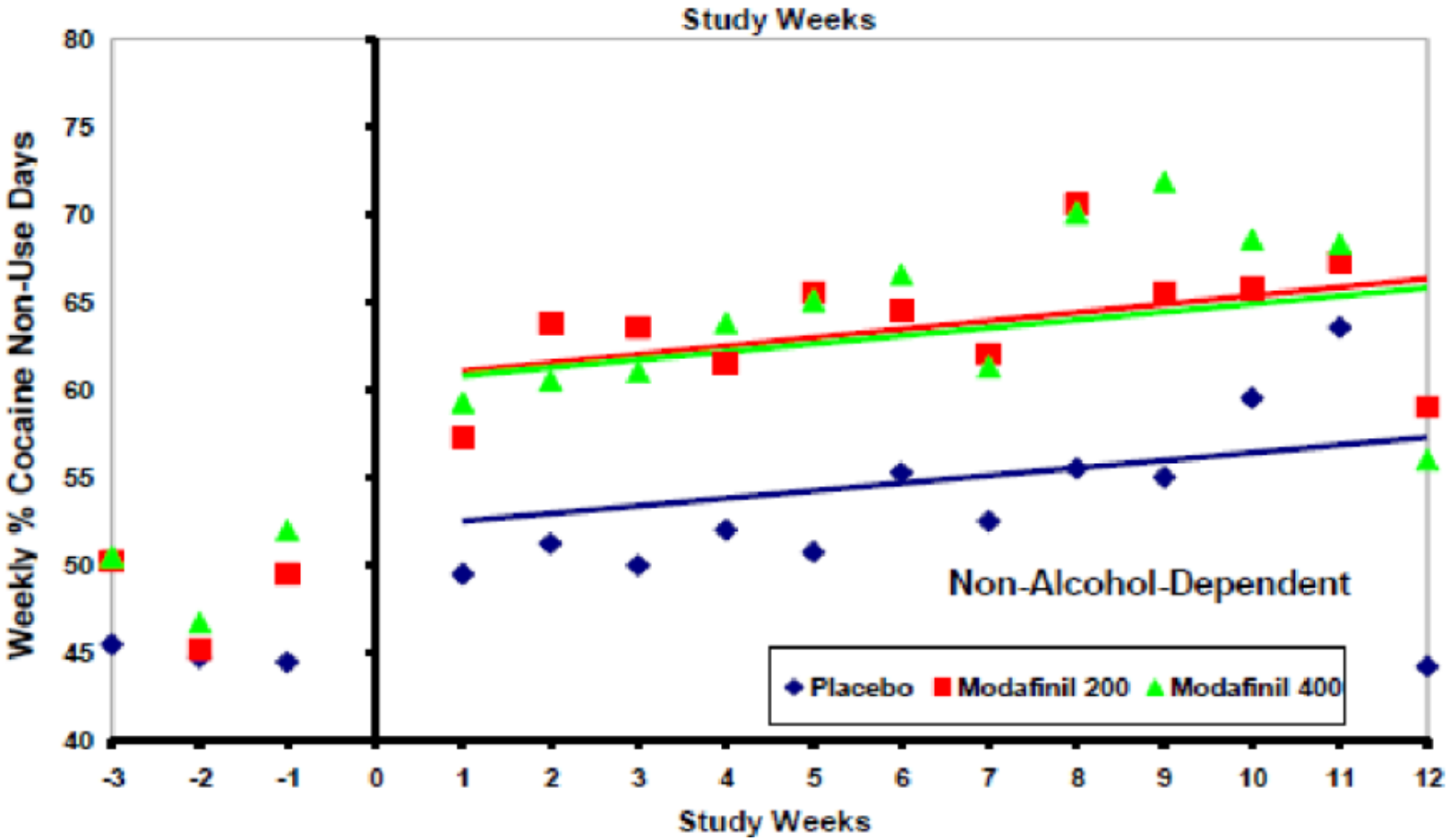
Modafinil for Cocaine Use Disorder (CUD)



Dackis, et al 2005 (30), ***Neuropsychopharmacology***

Weekly Non-use Days-Non-Alcohol Dependent



Anderson et al., 2009, Drug and Alcohol Dep

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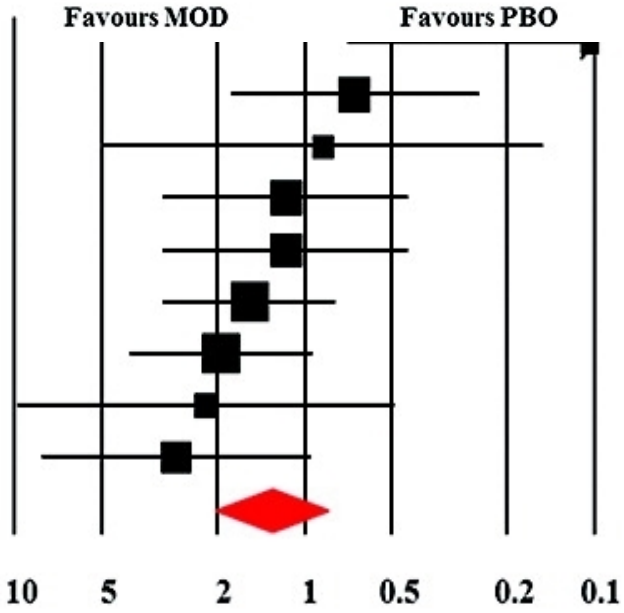
Modafinil for Cocaine Use Disorder (abstinence rates)

Study name	Risk ratio	Lower limit	Upper limit	p-Value	Total	Relative weight
Karila (2016)	0.103	0.015	0.706	0.021	27	4.47
Schmitz (2012)	0.667	0.248	1.791	0.421	36	12.27
Dackis (2012) A	0.854	0.149	4.880	0.859	102	5.28
Anderson A (2009)	1.148	0.432	3.050	0.782	105	12.44
Anderson B (2009)	1.148	0.432	3.050	0.782	105	12.44
Dackis (2005)	1.541	0.774	3.068	0.219	62	18.12
Morgan (2016)	1.929	0.928	4.006	0.078	57	17.14
Dackis (2012) B	2.171	0.485	9.715	0.310	108	6.76
Kampmann (2015a)	2.750	0.943	8.022	0.064	94	11.07
Overall	1.259	0.813	1.949	0.302	696	

Statistics for each study

Risk ratio and 95% CI



Sangroula D, Motiwala F, Wagle B, Shah VC, Hagi K, Lippmann S. Modafinil Treatment of Cocaine Dependence: A Systematic Review and Meta-Analysis. Subst Use Misuse. 2017 Aug 24;52(10):1292-1306. doi: 10.1080/10826084.2016.1276597. Epub 2017 Mar 28. PMID: 28350194.
http://pubmed.ncbi.nlm.nih.gov/28350194

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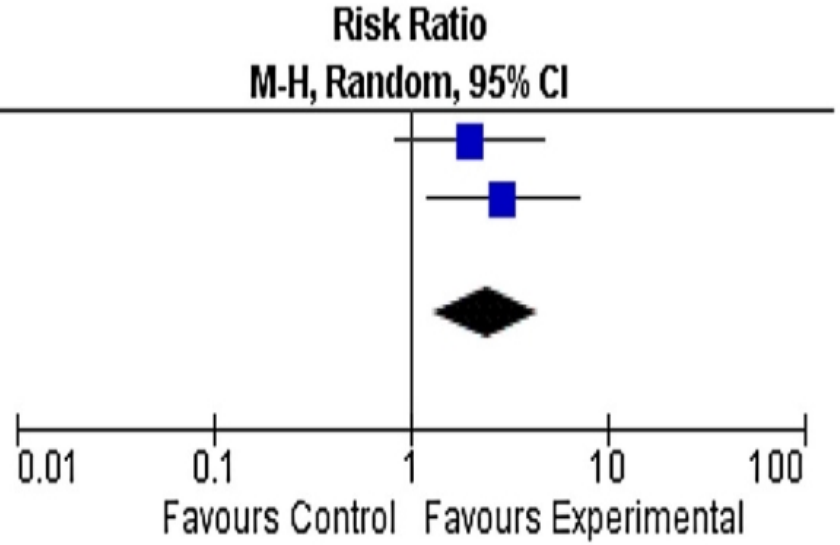
Topiramate for Cocaine Use Disorder

b) Continuous Abstinence

Study or Subgroup	Experimental Events	Experimental Total	Control Events	Control Total	Weight	Risk Ratio M-H, Random, 95% CI
Kampman et al. 2004	10	20	5	20	50.2%	2.00 [0.83, 4.81]
Kampman et al. 2013	17	83	6	87	49.8%	2.97 [1.23, 7.17]
Total (95% CI)		**103**		**107**	**100.0%**	**2.43 [1.31, 4.53]**
Total events	27		11			

Heterogeneity: Tau² = 0.00; Chi² = 0.40, df = 1 (P = 0.53); I² = 0%

Test for overall effect: Z = 2.81 (P = 0.005)

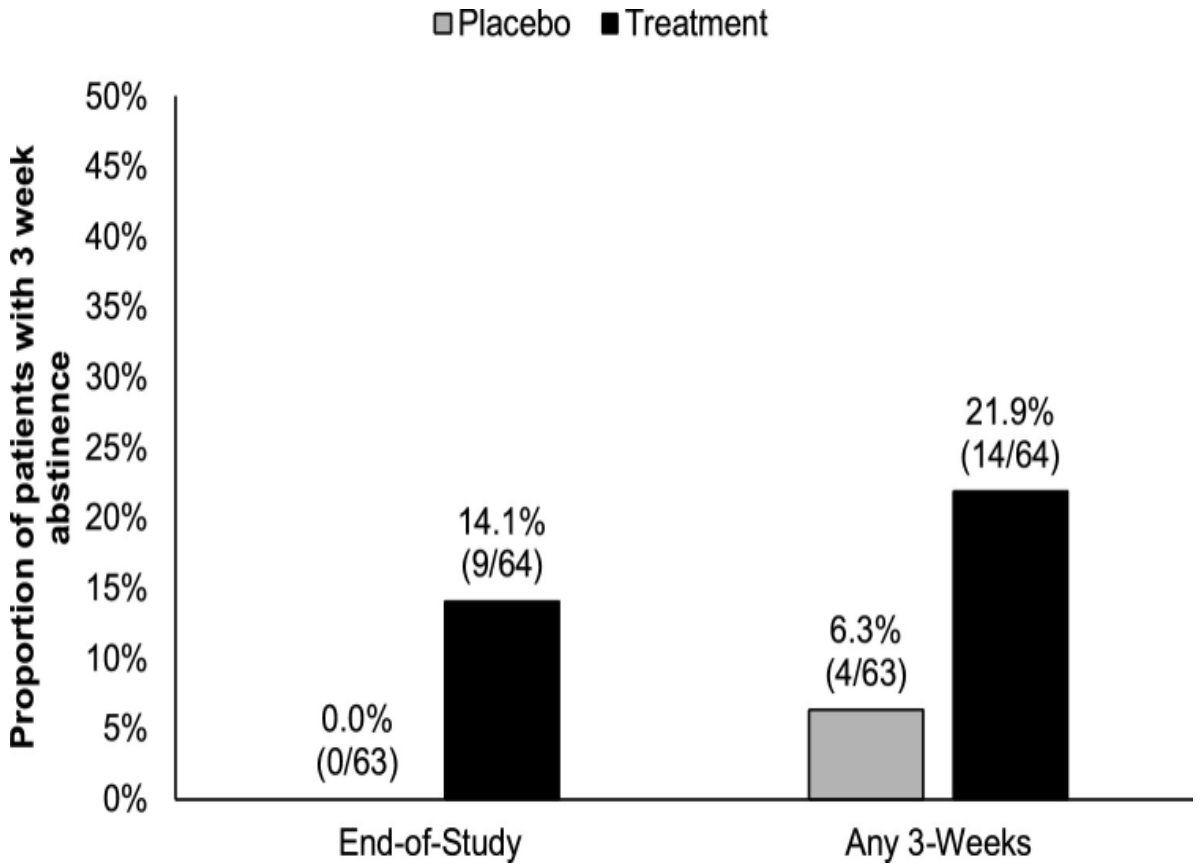


Singh M, Keer D, Klimas J, Wood E, Werb D. Topiramate for cocaine dependence: a systematic review and meta-analysis of randomized controlled trials. Addiction. 2016 Aug;111(8):1337-46. doi: 10.1111/add.13328. Epub 2016 Apr 1. PMID: 26826006. http://pubmed.ncbi.nlm.nih.gov/26826006

ER Mixed Amphetamine Salts + Topiramate for CUD

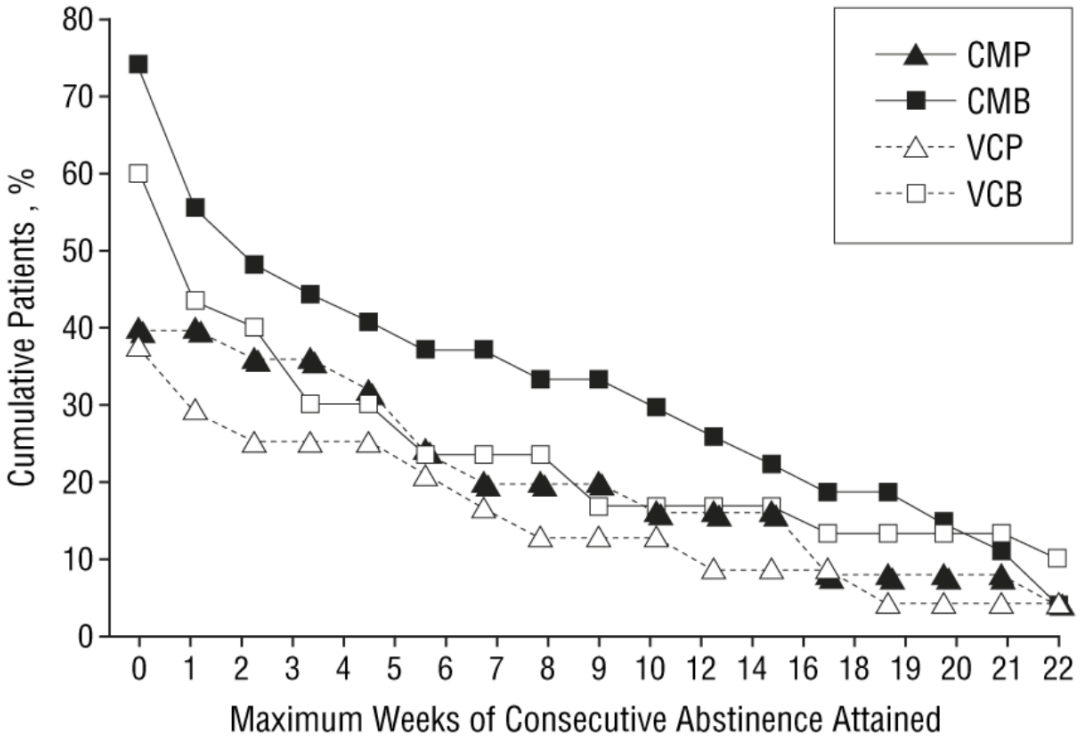
- N=81 adults with CUD
- Randomized to extended-release mixed amphetamine salts (MAS-ER) + topiramate (TOP) vs. PLB for 12 weeks
- MAS-ER titrated to 60 mg/day; TOP titrated to max 150 mg BID
- Primary outcome of 3 consecutive weeks of abstinence was significant for MAS-ER+TOP
  - Effect moderated by days of cocaine use at baseline

Mariani et al., 2012, Biol Psych



Levin F et al., 2020, Drug and Alcohol Dependence

Bupropion for Cocaine Use Disorder



Poling J, Oliveto A, Petry N, Sofuoglu M, Gonsai K, Gonzalez G, Martell B, Kosten TR. Six-month trial of bupropion with contingency management for cocaine dependence in a methadone-maintained population. Arch Gen Psychiatry. 2006 Feb;63(2):219-28. doi: 10.1001/archpsyc.63.2.219. PMID: 16461866. http://pubmed.ncbi.nlm.nih.gov/16461866

- Methadone-maintained population (N=106)
- Dosing: titrated to 300mg daily
- Effect on consecutive abstinence weeks when combined with CM
- The average maximum numbers of consecutive abstinence weeks 3.04 for voucher control + placebo (VCP), 4.28 for CM + placebo (CMP), 4.9 for voucher control + bupropion (VCB), and 6.74 for CM + bupropion (CMB).

- *Give extra consideration for tobacco use disorder and depressive disorders*

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Insufficient Evidence For…

Intervention Type	Intervention
Technology-based interventions	Text messaging interventions for StUD
Technology-based interventions	Noninvasive brain stimulation for StUD
Alternative interventions	Exercise as standalone or add-on treatment for StUD
Alternative interventions	Auricular acupuncture for ATS use disorder
Pharmacotherapy	Topiramate and mixed amphetamine salts for ATS use disorder
Pharmacotherapy	Bupropion and naltrexone for cocaine use disorder
Pharmacotherapy	Modafinil for ATS use disorder
Pharmacotherapy	Mirtazapine for cocaine use disorder
Pharmacotherapy	Disulfiram
Pharmacotherapy	Naltrexone
Pharmacotherapy	Naltrexone and N-acetylcysteine

ATS, amphetamine-type stimulants; StUD, stimulant use disorder

ASAM/AAAP (2023). Clinical Practice Guideline on the Management of Stimulant Use Disorder.
http://www.asam.org/quality-care/clinical-guidelines/stimulant-use-disorders

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POPULATION SPECIFIC APPLICATIONS

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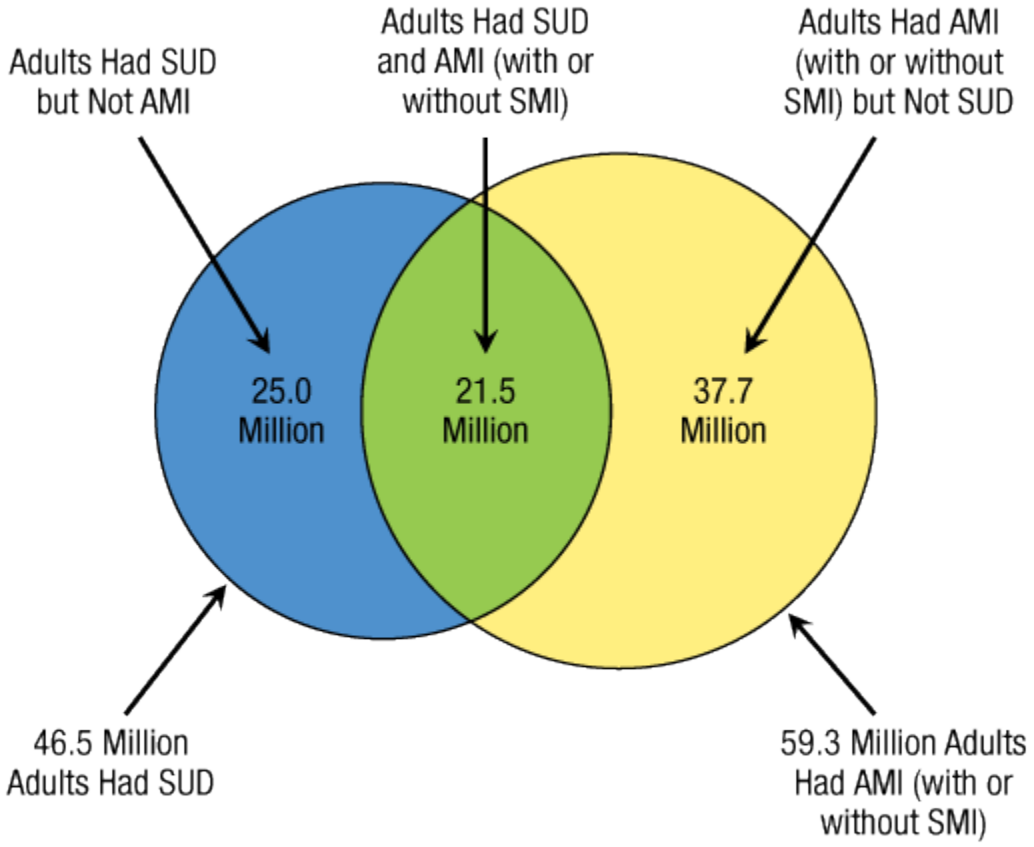
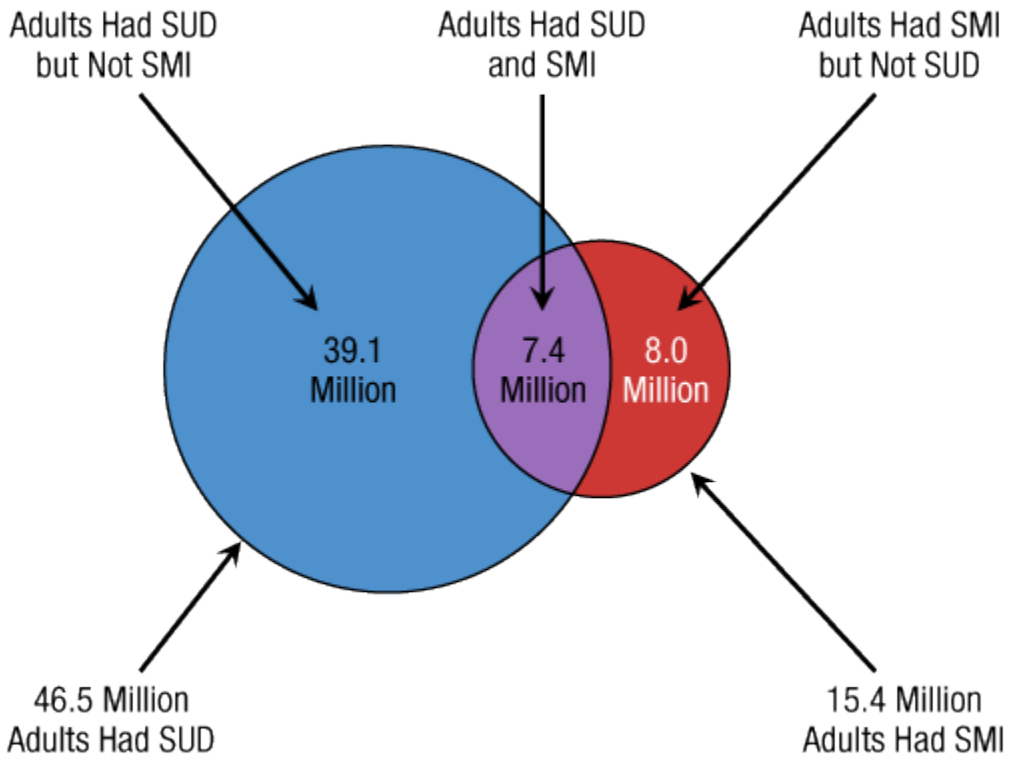
Co-Occurring Disorders



84.2 Million Adults Had Either SUD or AMI (with or without SMI)



54.4 Million Adults Had Either SUD or SMI

Substance Abuse and Mental Health Services Administration. (2023). *Key substance use and mental health indicators in the United States: Results from the 2022 National Survey on Drug Use and Health* (HHS Publication No. PEP23-07-01-006, NSDUH Series H-58). Center for Behavioral Health Statistics and Quality, Substance Abuse and Mental Health Services Administration. http://www.samhsa.gov/data/report/2022-nsduh-annual-national-report

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Co-Occurring Disorders

- Treat both StUD and co-occurring disorder(s) concurrently (*Very low certainty*, *Strong Recommendation*);
- Use an integrated behavioral treatment approach that addresses both conditions when available (*Very low certainty*, *Strong Recommendation)*;
- Otherwise, tailor recommended behavioral therapy for StUD (e.g., CM, CBT, CRA) to address possible interactions between a patient's StUD and co-occurring disorder(s) (*Very low certainty*, *Strong Recommendation*).

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Co-Occurring Disorders

- Review the patient's existing treatment plan, ideally in coordination with the patient's existing treatment provider(s) (*Clinical consensus*, *Strong Recommendation*);
- Continue current medications as appropriate (*Clinical consensus*, *Strong Recommendation*), with consideration for safety in the context of the patient's potential continued use of stimulants and other substances (*Clinical consensus*, *Strong Recommendation*).

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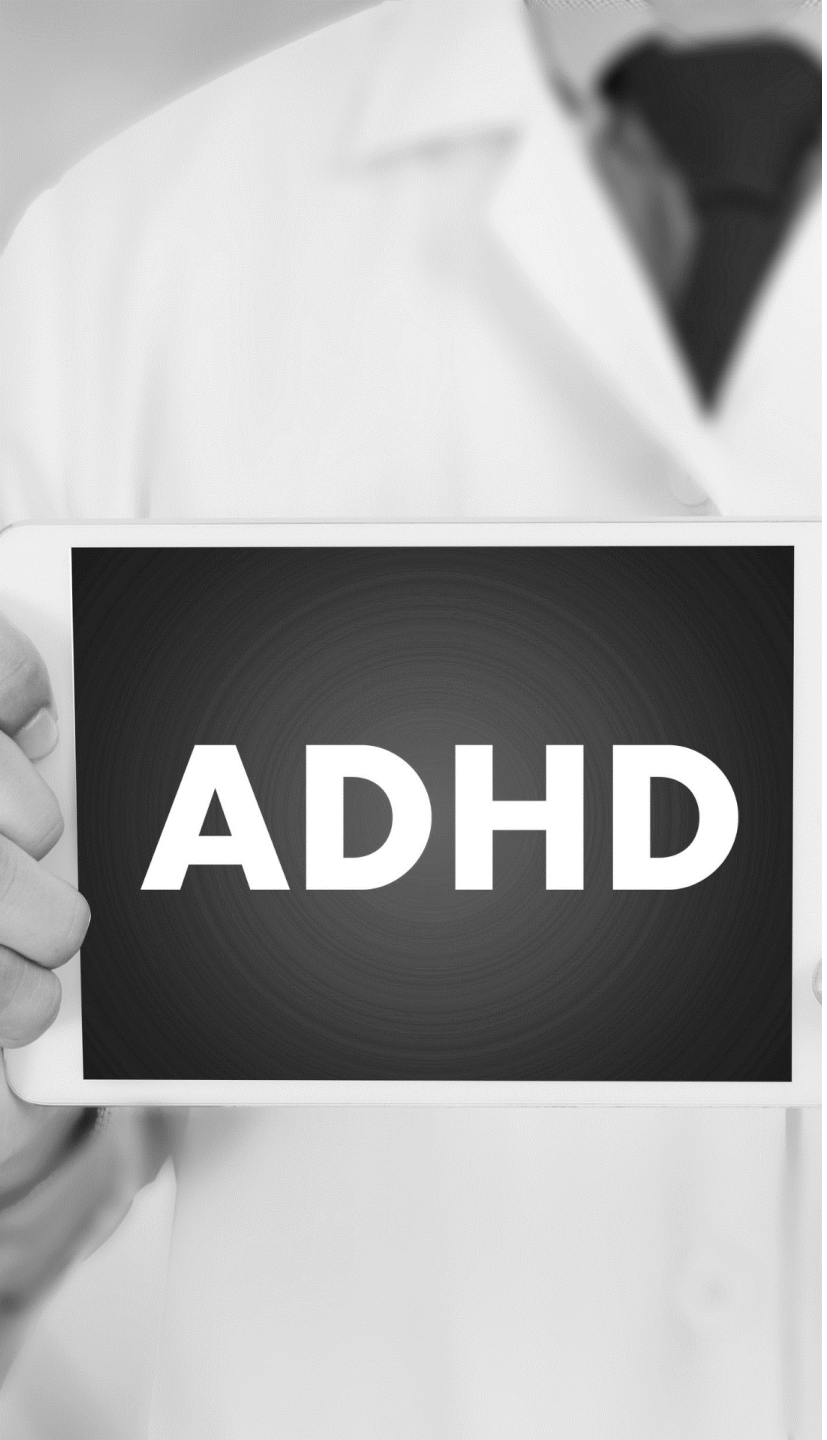
Co-Occurring Psychiatric Disorders

- Treat both StUD and CODs concurrently. *(Strong Rec)*
- Treat symptoms of mania or psychosis with pharmacotherapy.
  - Consider tapering off antipsychotic after a period of sx remission.
- Tailor pharmacotherapy for depression, anxiety, or insomnia based on symptom duration and severity.
  - Consider the phase of MA use (e.g., intoxication, withdrawal).
- Typically, continue prior med for COD when initiating StUD treatment (consider risks/benefits).



ADHD + StUD

- Consider psychostimulant medications when the benefits outweigh the risks.
- Consider non-stimulant medications when the benefits do not outweigh the risks.
  - Consider behavioral treatment approaches.
- Use extended-release formulations.
- Monitor as appropriate based on pt risk profile (PDMP, urine drug screens).
- For adolescents: counsel families on safe storage; consider arranging for direct medication observation.

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Adolescent / Young Adult Treatment Recommendations

Clinicians should:

- Avoid routine drug testing to screen adolescents and young adults for StUD (*Clinical consensus*, *Strong Recommendation)*;
- When considering drug testing in patients under the age of 18, ask patients for permission to test, even if parental/guardian consent was given, unless obtaining assent is not possible (e.g., loss of consciousness; *Clinical consensus*, *Strong Recommendation)*;
- Pay particular attention to signs or symptoms of ADHD and eating disorders in adolescent and young adult patients (*Clinical consensus*, *Strong Recommendation)*;
- Refer adolescent and young adult patients to age-specific treatment and support programs to address identified biopsychosocial needs if available (*Clinical consensus*, *Strong Recommendation)*.

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Adolescent / Young Adult Treatment Recommendations

- Consider behavioral interventions that have been demonstrated to be effective in the treatment of other SUDs in adolescents and young adults (e.g., CM, CBT, CRA, family therapy) and in treating StUDs in adults (e.g., CM, CBT, CRA); (*Low certainty*, *Strong Recommendation)*.
- Use an adolescent- and young adult-specific treatment model (e.g., adolescent CRA [A-CRA]) or tailor existing treatments to be developmentally responsive (*Moderate certainty*, *Strong Recommendation)*.
- Use peer-age groups for behavioral treatment in group formats when possible and avoid incorporating adolescents and young adults into group behavioral treatment with older adults (*Very low certainty*, *Strong Recommendation)*.
- Consider treating adolescents and young adults with StUD with the off-label pharmacotherapies detailed in the Pharmacotherapy section when the developmentally contextualized benefits outweigh the harms (*Very low certainty*, *Weak Recommendation)*.

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Adolescent / Young Adult Tx Recommendations

- Counsel parents/guardians not to conduct home drug tests to assess stimulant use in adolescents and young adults without clinician oversight. (*Clinical consensus*, *Strong Recommendation).*
- Recognize that involving family members is often beneficial in treating adolescent/young adults with SUDs; involve them/trusted adults when appropriate.(*Clinical consensus*, *Strong Recommendation).*
- Be familiar with state laws on minors' ability to consent to addiction treatment. In some states minors can proceed without parental involvement, while in others parental consent may be required.(*Clinical consensus*, *Strong Recommendation).*
- While parental consent is not needed for young adults, discuss with them whether involving a trusted adult could enhance their treatment. (*Clinical consensus*, *Strong Recommendation).*

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Pregnant and Postpartum Patients

Incorporate additional elements into the comprehensive assessment of StUD for patients who are pregnant, including:

- Providing referrals to prenatal care providers if not already established (*Low certainty, Strong Recommendation)*;
- Reviewing eligibility criteria for locally available programs that specifically address biopsychosocial needs related to pregnancy and parenting (e.g, childcare, WIC programs; (*Low certainty, Strong Recommendation)*;
- Coordination of prenatal care and treatment of StUD is encouraged (*Low certainty, Strong Recommendation)*.

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Pregnant and Postpartum Patients

- When screening for acute issues, complications, and sequelae associated with stimulant use in patients who are pregnant, clinicians should pay particular attention to factors that impact pregnancy and fetal development (*Low certainty*, *Strong Recommendation).*
- Because positive drug test results can carry greater consequences for pregnant patients compared to the general population, clinicians should take additional steps prior to conducting drug testing with this group, including:
  - Know their state's requirements on mandatory reporting and ramifications of reporting (*Clinical consensus*, *Strong Recommendation);*
  - Weigh the potential benefits with the risks of utilizing drug testing in this population (*Clinical consensus*, *Strong Recommendation);*
  - Obtain informed consent, unless there is immediate clinical need and obtaining consent is not possible (e.g., loss of consciousness; *Clinical consensus*, *Strong Recommendation).*

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Pregnant and Postpartum Patients

- Risk versus benefit to the fetus or infant should be considered when medications are used to manage StUD, stimulant intoxication, or stimulant withdrawal (*Very low certainty, Strong Recommendation)*.
- Wherever possible, clinicians should incorporate psychosocial treatments targeted toward meeting the additional needs of patients who are pregnant (*Clinical consensus, Strong Recommendation)*, including:
  - Parent-focused treatment modalities (e.g, parenting skills training; *Clinical consensus, Strong Recommendation)*, and;
  - Family-based treatment modalities (*Clinical consensus, Strong Recommendation)*.

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Pregnant and Postpartum Patients

- Consider CM to incentivize attendance at prenatal appointments, if feasible, in addition to usual targets (e.g., stimulant abstinence (*Low certainty*, *Strong Recommendation)*;
- Consider providing additional treatment support around the time of birth, as the postpartum period may be a time of increased stress and risk of return to stimulant use (*Very low certainty*, *Conditional Recommendation)*;
- Educate patients who use stimulants on the risks of use while breastfeeding and counsel patients not to breastfeed if they are actively using stimulants (except as prescribed (*Very low certainty*, *Strong Recommendation)*.

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Sexual Orientation and Gender Identity

Clinicians should consider referring sexual and gender minoritized (SGM) patients with StUD to SGM-affirming programs when their history and/or behavior suggest they may not be comfortable fully participating in a general population setting (e.g., distress related to their identities, difficulties discussing drug-related sexual activities, inner conflicts, trauma histories) (*Low certainty, Strong Recommendation).*

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Patients Involved in the Criminal and/or Legal System

- Initiation of treatment for StUD is recommended for individuals in the criminal and/or legal systems, including within jails and prisons (*Clinical consensus*, *Strong Recommendation*).

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Patients Experiencing Homelessness or Unstable Housing

- For patients experiencing homelessness, housing insecurity, food insecurity, and/or poverty, clinicians might consider:
  - Case management services or a referral to a case manager or other appropriate service provider(s) who can help the patient navigate health and social safety net resources (*Clinical consensus*, *Strong Recommendation)* and;
  - A recovery residence based on the patient's needs (*Clinical consensus*, *Strong Recommendation)*.

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Poll Question 5

When initiating treatment for stimulant use disorder (StUD) in an adolescent patient, parental/guardian consent is:

A. Always required before starting any treatment
B. Sometimes required depending on state laws
C. Never required as long as the patient consents
D. Only required for medication treatment, not counseling

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Case Presentations

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Case #1: 23yo Cisgender Man Using Methamphetamine, Nicotine, Cannabis

- Mr. Brown is a 23-year-old HIV-negative male who smokes methamphetamine in 2–3-day binges two to four times a month.
- His methamphetamine use is typically concurrent with group sexual activity, and he is sexually active with both men and women. He is prescribed PREP, which he takes consistently.
- He reports no history of chronic medical conditions or taking non-PREP medications. During his methamphetamine binge episodes, he typically does not sleep. After these episodes, he sleeps for over twenty hours and feels depressive symptoms including deflated self-attitude.
- He vapes 5mg of nicotine daily (a 20mg pod lasts four days) and smokes cannabis daily. He denies consuming alcohol, using opioids, and denies any other substance use.
- He's not ready to stop using methamphetamine, vaping, or using cannabis.

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Case #2: 32yo Cisgender Woman Using Cocaine

- Ms. Green is a 32-year-old HIV-negative cisgender woman who recently became homeless after the end of a relationship. She began using cocaine to maintain alternateness overnight in the encampment where she has been staying.
- She was brought in by ambulance to a local hospital with symptoms of acute agitation; EMS brought her into the emergency room after she became behaviorally disruptive at her encampment.
- On interview in the emergency department, she reported feeling as though everyone in her encampment was plotting against her and began feeling the sensation of insects crawling underneath her skin. She usually experiences these symptoms when she uses cocaine, but they resolve within a few hours of her last cocaine use.
- Urine labs obtained in the emergency room were positive for benzoylecgonine and positive for human chorionic gonadotropin (HCG).

Case #3: 42yo Transgender Woman Using Methamphetamine, Cocaine, and Alcohol

- Ms. Black is a 42-year-old HIV-positive transgender woman who works as an interstate truck driver. During long-haul drives, she will use methamphetamine to maintain alertness overnight.
- During days off she binge drinks alcohol typically two days each week and uses cocaine with alcohol typically twice a month. She arranges her use to avoid using cocaine or methamphetamine the three days prior to scheduled drug checked required by her employer.
- She takes efavirenz / emtricitabine / tenofovir, spironolactone, and 17-beta estradiol daily. She takes no other medications.
- As a result of recently experiencing palpitations during these drives, Ms. Black goes to the clinic 'for a heart check.'
- She is open to changing her substance use if her substance use might be causing health problems.

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Q&A

THANK YOU.

References