CLINICAL GUIDELINES PROGRAM
NEW YORK STATE DEPARTMENT OF HEALTH AIDS INSTITUTE | HIV · HCV · SUBSTANCE USE · LGBT HEALTH

Clinical Guidance: Stimulant Use

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Contents

Purpose of This Guidance

The New York State Department of Health AIDS Institute (NYSDOH AI) developed this guidance for primary care and other clinicians with patients who use stimulants to:

- Inform clinicians about different types of stimulants and current terminology for describing stimulants and stimulant use.
- Provide strategies for talking with patients about stimulant use and the associated risks, including opioid overdose.
- Summarize the treatment options for stimulant use disorder.

The guidance focuses on nonprescription stimulant substances, including cocaine and crack; methamphetamine, 3,4-methylenedioxy-methamphetamine (MDMA; hallucinogen with stimulant effects); and synthetic cathinones (bath salts).

Rising use and mortality: The results of the U.S. 2021 National Survey on Drug Use and Health indicate that among people aged ≥12 years, 4.8 million had used cocaine, 2.5 million had used methamphetamines, 2.2 million had used MDMA, and 107,000 had used synthetic stimulants (including cathinones) in the previous year [SAMHSA 2023]. In addition to overdose, misuse or chronic use of stimulants can cause or worsen psychosis, anger, paranoia, and cardiac and gastrointestinal problems [NIDA 2023; Duflou 2020; Paulus and Stewart 2020; Reddy, et al. 2020; Kevil, et al. 2019; McKetin, et al. 2019; McKetin, et al. 2013; Darke, et al. 2008; Zweben, et al. 2004]. Stimulant injection has been associated with an increased incidence of HIV and hepatitis C virus [Cepeda, et al. 2020; Farrell, et al. 2019].

In the United States, drug overdose deaths involving methamphetamine increased from 547 in 1999 to 23,837 in 2020, and drug overdose deaths involving cocaine increased from 5,419 in 2014 to 19,447 in 2020 [NIDA 2023], leading some to characterize the rising cocaine- and methamphetamine-related mortality as a fourth wave of the U.S. overdose crisis [Ciccarone and Shoptaw 2022; Fischer, et al. 2021]. In 2021 in the United States, approximately 66% of overdose deaths were attributed to concomitant use of stimulants and opioids: fentanyl with cocaine (16.6% of overdose deaths), fentanyl with methamphetamine (10.7%), and other opioids with stimulants (39.9%) [CDC 2023]. Much of the recent increase in mortality is attributed to concomitant use of fentanyl and stimulants and possibly to use of illicitly manufactured stimulants that contain fentanyl, although the extent of adulteration is unclear. In New York State, overdose deaths involving cocaine increased from 388 in 2010 to 1,320 in 2019, and 65% of the deaths in 2019 involved synthetic opioids [NYSDOH 2023]. Similarly, in New York City, fentanyl was present in 81% of cocaine overdoses and 66% of amphetamine-involved overdoses in 2020 [NYC Health 2021].

→ KEY POINTS

- Patterns of stimulant use may not be the same in rural and urban areas and may vary greatly across different demographic groups (see Substance Abuse and Mental Health Services Administration: Treatment Improvement Protocol (TIP) 33: Treatment for Stimulant Use Disorders > Treatment Considerations for Special Populations).
- Structural and systemic issues such as violence, racism, stigma, housing insecurity, and chronic stress underlie the prevalence and effects of stimulant use disorder [British Columbia Centre on Substance Use 2022; Goulian, et al. 2022; Arum, et al. 2021; Cano, et al. 2020; Aldridge, et al. 2018; Semple, et al. 2012].

Commonly Used Stimulants

"Stimulants" is the general term used to describe the many synthetic or naturally occurring substances that elevate mood and increase alertness, attention, and energy. These substances increase catecholamine levels and agonist activity at adrenergic receptors, which increases the release of dopamine and norepinephrine. Table 1, below, summarizes the types and characteristics of commonly used stimulants.

Table 1: Characteristics of Commonly Used Stimulants in Nonpregnant Adults [a]

Stimulant Type [b]	**Characteristics** [c,d]
Cathinone, Synthetic	
• **Source and forms:** Synthetic substance chemically similar to natural cathinone (khat plant); available as a white or brown crystal-like powder; less expensive substitute for cocaine and amphetamines • **Administration:** Intravenous, oral, intranasal insufflation, smoking • **Patient-reported reason for use:** Produce euphoria and alertness; designed to imitate the effects of cocaine, MDMA, and methamphetamines (see below) • **Street name:** Bath salts	• **Onset of action:** 30 to 60 minutes (oral) • **Half-life:** 3 to 6 hours • **Symptoms of intoxication:** Paranoia, hallucinations, excited delirium, panic attacks, dehydration, rhabdomyolysis, parkinsonism, bruxism, increased temperature, and chest pain • **Effects of chronic use:** Limited data are available [Riley, et al. 2020]. • Not routinely included in toxicology tests
Cocaine	
• **Source and forms:** Hydrochloride salt derived from the coca plant; available as a powder. Freebase cocaine (crack) is a form of cocaine boiled with another substance, usually baking soda; available as a powder or rock • **Cocaine administration:** Intravenous, intranasal insufflation, vaginal or rectal as a solution • **Freebase cocaine (crack) administration:** Can be smoked as a powder or rock; injectable if dissolved • **Patient-reported reason for use:** Attenuate sedation from other substances (heroin, fentanyl, alcohol), mood enhancement, work enhancement, withdrawal avoidance, euphoria • **Street names:** Blow, bump, C, candy, coke, girl, perico, piedra, scotty, and rock	• **Onset of action:** Immediate • **Half-life:** 40 to 90 minutes • **Symptoms of intoxication:** Hypersensitivity to sight, sound, and touch; increased temperature; increased pulse rate; blood vessel constriction; tremor; twitching; myocardial infarction; and arrhythmia • **Effects of chronic use:** Cardiomyopathy, coronary artery disease, weight loss, nutritional deficiencies, erectile dysfunction, menstrual irregularities, chest pain, fatigue, paranoia, confusion, insomnia, depression, deficiencies in attention and response inhibition

Table 1: Characteristics of Commonly Used Stimulants in Nonpregnant Adults [a]	
Stimulant Type [b]	**Characteristics** [c,d]
MDMA	
• **Source and forms:** Synthetic; available as tablets, capsules, crystals, powder • **Administration:** Oral, intranasal insufflation • **Patient-reported reason for use:** Sexual enhancement, improving depression (including in low doses), interpersonal relationship enhancement co-use or collective use • **Street names:** Ecstasy, Molly, XTC, E, X, and Miley Cyrus • **Slang for use:** Raving, rolling, ate up (for long-term use)	• **Onset of action:** 20 to 60 minutes • **Half-life:** 8 to 9 hours • **Symptoms of intoxication:** Excessive perspiration, dehydration, hypotension, panic attacks, seizures, loss of consciousness, altered mood and perception, bruxism, tachycardia, urinary retention, nausea, vomiting, fever, tachypnea, dry mouth, serotonin syndrome – "Mid-week blues" or "Tuesday blues" may be experienced 3 to 5 days after use and include depressed mood, fatigue, and decreased appetite [Sessa, et al. 2019]. • **Effects of chronic use:** Neurotoxicity, cognitive deficits, depression, anxiety, aggression, impaired coping, increased suicide risk, insomnia, vascular problems, valvular heart disease, cardiomyopathy • Potential for harms associated with cocaine, methamphetamine, or methcathinone if cut with those substances
Methamphetamine	
• **Source and forms:** Synthetic; available as a white or clear odorless substance (powder, crystals, or pressed pills) that dissolves easily in water or alcohol • **Administration:** Intravenous, intranasal insufflation, smoked, oral ingestion, vaginal or rectal as a solution • **Patient-reported reason for use:** Sexual enhancement, increased work duration and stamina, wakefulness, weight loss, depression, withdrawal avoidance, enhancement of other drug effects, improved function and self-image, sensory enhancement • **Street names:** Meth, crank, crystal, ice, Tina, speed, water, dope, and ice cream • **Slang for use:** Tweaking, amping, spun, booty bumping (rectal use of dissolved methamphetamine)	• **Onset of action:** Immediate • **Half-life:** 10 hours • **Symptoms of intoxication:** Euphoria, increased alertness, hypertension, chest pain, tachycardia, seizures, paranoid reactions, aggressive behavior, psychosis, hallucinations (shadows, auditory and visual), grandiosity, delusions, formication, elevated temperature, severe liver damage, overdose • **Effects of chronic use:** Hypertension, acute coronary syndromes, pulmonary hypertension, cardiomyopathy, skin abscesses, paranoia, anxiety, insomnia, social and occupational deterioration • Bupropion is a cathinone and can cause a false positive result for amphetamines/methamphetamines [FDA(b) 2017].
Prescribed: Amphetamines and Amphetamine Derivatives	
• **Source and forms:** Synthetic medications that may be prescribed for treatment of ADHD or narcolepsy [e]. Includes: Dextroamphetamine-amphetamine (e.g., Adderall, generics), dextroamphetamine sulfate (e.g., Dexedrine, generics), lisdexamfetamine (e.g., Vyvanse), methylphenidate hydrochloride (e.g., Ritalin, Concerta, generics) • **Administration:** Oral, intravenous, intranasal insufflation • **Patient-reported reason for use:** Performance enhancement, weight loss, treating depression • **Street names:** Addies, bennies, dexies, crank, pep pills, ice, speed, uppers, Superman, vitamin R • **Slang for use:** Speeding, tweaking, spun	• **Onset of action:** 20 to 60 minutes • **Half-life:** 6 to 13 hours (depending on formulation) • **Symptoms of intoxication:** Increased attention, alertness and energy, anorexia, insomnia, weight loss, headache, nausea, vomiting, increased blood pressure and heart rate, motor tics, tremor, agitation, dry mouth, bruxism, irritability • **Effects of chronic use:** Appetite loss, headache, GI distress, tolerance • Often purchased online

Table 1: Characteristics of Commonly Used Stimulants in Nonpregnant Adults [a]	
Stimulant Type [b]	**Characteristics** [c,d]

Abbreviations: ADHD, attention-deficit hyperactivity disorder; GI, gastrointestinal; HBV, hepatitis B virus; HCV, hepatitis C virus; MDMA, 3,4-methylenedioxy-methamphetamine; SAMHSA, Substance Abuse and Mental Health Services Administration.

Notes:

a. For information on the effects of stimulant use on pregnancy, see SAMHSA: Treatment Improvement Protocol (TIP) 33: Treatment for Stimulant Use Disorders > Treatment Considerations for Special Populations > Women (Including Those Who Are Pregnant) and Stimulant Use in Pregnancy: An Under-Recognized Epidemic Among Pregnant Women [Smid, et al. 2019].
b. Common names and slang for stimulants vary widely and evolve constantly (see Resources, below, for online resources for current information on stimulants, trends in use, and language).
c. Sources: SAMHSA: Treatment Improvement Protocol (TIP) 33: Treatment for Stimulant Use Disorders and Novel Psychoactive Treatment UK Network: NEPTUNE Guidance on the Clinical Management of Acute and Chronic Harms of Club Drugs and Novel Psychoactive Substances.
d. Sharing of drug-use equipment and stimulant use with sex may increase the risk of acquiring and transmitting HIV, HCV, HBV, and other sexually transmitted and bloodborne diseases.
e. Concerta is indicated for ADHD treatment, not narcolepsy. Lisdexamfetamine (Vyvanse) is also indicated for the treatment of moderate to severe binge eating disorders in adults.

◊ RESOURCES

- Center for Forensic Science Research and Education: Novel Psychoactive Substances (NPS) Discovery > Open-access drug early warning system
- National Institute on Drug Abuse: DrugFacts and Research Reports
- University of Florida: National Drug Early Warning System (NDEWS)

Screening, Assessment, and Counseling

Screening and Assessment

The NYSDOH AI evidence-based guideline Substance Use Screening and Risk Assessment in Adults recommends annual substance use screening for all adult patients. A positive screening result for stimulant use or a history of stimulant use disorder or overdose should prompt an assessment of the patient's level of risk. Stimulant use disorder is defined as the continued use of amphetamine-type substances, cocaine, or other stimulants leading to clinically significant impairment or distress; diagnosis is based on the Diagnostic and Statistical Manual of Mental Disorders (DSM-5-TR) criteria. See the tables listed below in the NYSDOH AI guideline Substance Use Screening, Risk Assessment, and Use Disorder Diagnosis in Adults:

- Table 1: Recommended Validated Tools for Use in Medical Settings to Screen for Alcohol and Drug Use in Adults
- Table 2: Brief, Validated Risk Assessment Tools for Use in Medical Settings with Adults ≥ 18 Years Old
- Table 3: DSM-5-TR Criteria for Diagnosing and Classifying Substance Use Disorders

→ KEY POINTS

- Stigma among clinicians against people who use substances has been well documented [Stone, et al. 2021; Tsai, et al. 2019; van Boekel, et al. 2013] and may prevent individuals from seeking or receiving substance use treatment and harm reduction services.
- The NYSDOH AI evidence-based guideline Substance Use Harm Reduction in Medical Care recommends that clinicians:
  - Actively examine their assumptions and decisions for personal bias that may adversely affect their ability to provide effective care for individuals who use substances.
  - Use nonjudgmental language that respects individuals' dignity, and avoid language that perpetuates stigma.

Patients may be concerned that substance use disclosure will bias their clinicians and have a negative effect on their care, or they may have previous experience with healthcare bias and legal ramifications. Before asking screening questions, assure

patients that the detailed questions are intended to help clinicians offer appropriate treatment and services, and remind patients that responses are voluntary. Advise patients that answers will be documented in the medical record and available to the healthcare team. Medical records will not be released without the patient's signed consent, except when subpoenaed by a court.

Box 1, below, describes an approach to talking with patients about substance use during the screening and assessment processes and ongoing conversations that may help to build trust in the clinician-patient relationship.

Box 1: Communicating With Patients About Stimulant and Other Substance Use [a]

- Normalize discussions of substance use by linking them to discussions of tobacco and alcohol use in a nonjudgmental manner.
- Ask permission to talk about substance use (e.g., *"Would it be okay if we discussed this today? What about your next visit? I want to make sure we are offering you every treatment or service that may be beneficial to you/keep you out of harm's way/lower any risks you may face/improve your health and wellbeing."*)
- Proactively destigmatize and normalize conversations about substance use with patients (e.g., *"Many people who use substances face stigma and discrimination in society and even when accessing medical care. No matter what you are going through, I want to make sure you receive high-quality care you can count on in a welcoming environment."*)
- Avoid making assumptions and use open-ended questions. Ask clarifying follow-up questions, as needed, and only ask for information that is relevant to current clinical care. Discussing history related to substance use may be difficult for patients and should only be obtained once rapport and trust are well established.
- The language and terminology around substance use are frequently evolving, and the same term can be used to describe different substances (e.g., "dope" can refer to cannabis or heroin in different contexts). Ask patients to clarify if they use an unfamiliar term and remain open to (or solicit) feedback, correction, or redirection when appropriate (see Table 1: Characteristics of Commonly Used Stimulants in Nonpregnant Adults).
- The mode of use may carry stigma and also affect a patient's risk of complications related to stimulant use. When asking about mode of use, clinicians may simply ask, "*How do you use ___ (e.g., cocaine)*?" or "*Are you injecting, snorting/sniffing, or smoking?*"
- The use of substances during sex may affect a patient's risk of HIV, hepatitis C virus, and other sexually transmitted infections. Ask patients, *"Do you use drugs during sex?" "Do you use some drugs only during sex?"*

Note:

a. Trauma is more common among people with a substance use disorder [Bartholow and Huffman 2021; Karsberg, et al. 2021; Zarse, et al. 2019], and it is important for clinicians to recognize the signs of trauma and avoid retraumatizing patients (see NYSDOH AI guideline Substance Use Harm Reduction in Medical Care > Trauma-Informed Care).

Counseling and Medical Care for Patients Who Use Stimulants

Based on the clinical expertise of the author and the Substance Use Guidelines Committee, the strategies below can help clinicians engage patients in discussion of their stimulant use, harm reduction, and recommended medical care.

Effects of stimulant use: Ask patients who use stimulants about how the substance affects them negatively and positively and any harmful effects or symptoms that may be related. Understanding patients' drug use experience can inform harm reduction and treatment goals. Clinicians can simply ask, *"How do you think meth use is affecting you?"*

Explore the effect of stimulant use on underlying medical and mental health conditions or symptoms in an objective, nonjudgmental manner. For example, stimulant use may cause or worsen cardiovascular conditions [Reddy, et al. 2020; Kevil, et al. 2019; Darke, et al. 2017], and asking patients about symptoms associated with stimulant use (e.g., chest pain, shortness of breath, or headache) may help clinicians engage patients in a conversation focused on harm reduction or prevention. Examples include "*Stimulants can raise your blood pressure*" and "*Have you experienced any shortness of breath?*"

Stimulant use may worsen preexisting anxiety and depression and may cause or worsen psychotic symptoms including mania, paranoia, and delusions [McKetin, et al. 2019; McKetin, et al. 2013; Darke, et al. 2008; Zweben, et al. 2004]. Clinicians can state, "*I am concerned that the meth use may be increasing your anxiety,*" or ask, "*Other people using ICE sometimes experience paranoia/delusions…have you experienced that*?"

Do not assume symptoms are solely due to substance use and do not forego any clinical evaluation or treatment as routinely indicated. It is important to provide appropriate medical care for other conditions and symptoms in patients with ongoing stimulant use (e.g., initiating or continuing treatment for hypertension even if the patient continues to use stimulants).

The term "overamping" may be used by patients to describe the negative effects of overusing stimulants. Symptoms associated with overamping vary between individuals and include anxiety, paranoia, psychosis, seizure, palpitations, hypertension, hyperthermia, and cardiac and cerebrovascular events [Ciccarone and Shoptaw 2022; Harding, et al. 2022]. Overamping may not be an acute or discrete event, and different patients may define and experience it differently. Treatment for overamping includes symptom management (e.g., hypertension) and supportive care. Patients should be advised to hydrate, replenish electrolytes, and remain in a calm environment.

Withdrawal: Stimulant withdrawal symptoms may include fatigue, irritability, insomnia, poor concentration, anxiety, depression, and decreased ability to perform daily activities [Ciccarone and Shoptaw 2022]. Although stimulant withdrawal is not itself life-threatening, symptoms may persist for days or weeks in individuals who have a history of chronic use. Of note, there is also an increased risk of self-harm and suicide due to symptoms of depression and dysphoria related to stimulant withdrawal [SAMHSA 2021; Lerner and Klein 2019].

Stimulant use with sex: Asking patients if and how they use stimulants before or during sex can inform harm reduction counseling. Sexualized stimulant use among men who have sex with men (MSM) is associated with engaging in behaviors that increase the risk of acquiring and transmitting HIV and other sexually transmitted and bloodborne infections (e.g., condomless sex, sex with multiple partners, and injection drug use) [Strong, et al. 2022; Curtis, et al. 2020; Guerra, et al. 2020; Tomkins, et al. 2019]. "Chemsex" or "party and play" is one type of sexualized drug use and involves the use of specific psychoactive drugs—commonly methamphetamines, γ-hydroxybutyrate (GHB), γ-butyrolactone (GBL), and mephedrone—by MSM to enhance sex [Strong, et al. 2022]. In general, chemsex is an event that involves casual or anonymous partners or group sex, lasts for an extended time, and is often arranged using digital apps [Harm Reduction International 2021]. "Slam sex" refers to the injection of methamphetamines or other stimulants during sex [Schreck, et al. 2021].

For patient education resources, see ChemSex Harm Reduction: Safer Chemsex & Safer Sex Guides and Tweaker: Crystal Meth.

For information about HIV prevention see NYSDOH AI guidelines PEP to Prevent HIV Infection and PrEP to Prevent HIV and Promote Sexual Health; for information about STI prevention and treatment, see CDC STI Treatment Guidelines, 2021.

Harm reduction: In counseling patients, clinicians should take a nonjudgmental and supportive approach about the potential risks of stimulant use, including overdose, and strategies to reduce the risks. Patients who use stimulants, including those with occasional or episodic stimulant use, may underestimate their opioid overdose risk; all patients who use stimulants should be engaged in harm reduction counseling and encouraged to make a plan to prevent overdose.

Overdose prevention strategies: Counsel patients to:

- Assume all illicitly manufactured opioids will contain fentanyl or other high-potency synthetic opioids, and stimulants and counterfeit pills may contain these agents.
- When possible, test drugs with fentanyl and xylazine test strips or other drug-checking systems. Online sources include MATTERS (for New York State residents and programs, no charge), DanceSafe, and BTNX. Some NYS Authorized Syringe Exchange Sites may provide fentanyl test strips and other drug-checking systems.
- Avoid using drugs alone. Arrange for someone to check in; use phone- and web-based apps (e.g., Never Use Alone Inc. at 800-484-3731).
- When using any drug, start with a small amount.
- Carry naloxone (NLX), learn how to use it to reverse an opioid overdose, and encourage friends and contacts to do the same. The 4 mg NLX nasal spray formulation is available at pharmacies, at NYSDOH-Registered Opioid Overdose Prevention Programs (no charge), and through online resources including MATTERS (for NYS programs and residents, no charge) and NEXT Distro. NLX is covered by NYS Medicaid and the majority of private insurers.

See NYSDOH AI guideline Substance Use Harm Reduction in Medical Care > Box 1: Harm Reduction Resources in New York State (September 2023).

Treatment

Stimulant use disorder: If a patient is diagnosed with a stimulant use disorder, assess their readiness to change behavior, and advise them on the types of behavioral and pharmacologic treatment approaches that have been studied. Collaboration on treatment options best suited to the individual's life and preferences is essential. It can be helpful to discuss barriers to care (e.g., housing, transportation, competing priorities) and positive supports and experiences that may facilitate treatment success. Develop a plan in collaboration with the patient using the principles of shared decision-making. Consider planning a feasible goal (e.g., reduced level of use, safer use) and schedule a follow-up appointment to reassess progress. A patient's treatment goals may change over time and should be reassessed periodically.

Goals of treatment: Abstinence from stimulants may not be achievable for many individuals in the short term, and alternative treatment goals can lead to substantial improvements in the health and lives of those who use stimulants. With a harm reduction approach, treatment goals may include staying in care; treating co-occurring medical conditions; reducing use; reducing risky behaviors; improving mental health, and improving quality of life and other social indicators, such as employment, stable housing, and reduced risk of incarceration.

Treatment options: Evidence supports motivational interviewing, contingency management (CM), a community reinforcement approach, and cognitive behavioral therapy for the treatment of stimulant use disorder [SAMHSA 2021]. A prescription digital therapeutic app for stimulant and other substance use disorders (ReSET) has been approved by the U.S. Food and Drug Administration (FDA) as part of combination treatment [Maricich, et al. 2022; FDA(a) 2017]. These products are software applications for smartphones designed to deliver cognitive therapy and CM.

Systematic reviews and meta-analyses indicate that CM is more effective than other treatments for cocaine use disorder [Bentzley, et al. 2021] and more effective than cognitive behavioral therapy, 12-step groups, and other behavioral strategies for stimulant use disorder [De Crescenzo, et al. 2018]. The goal of CM is to increase desired behavior (i.e., reducing substance use) by providing immediate reinforcing incentives, such as cash or vouchers when the target behavior occurs. However, providing a CM intervention in a real-world setting can be difficult [SAMHSA 2021]. In 2022, the Centers for Medicare and Medicaid Services (CMS) approved a CM pilot program for Medicaid enrollees in California.

There is not sufficient evidence on which to base general pharmacologic treatment recommendations, and no medications are approved by the FDA for the treatment of stimulant use disorder. In randomized, placebo-controlled clinical trials, several treatment regimens have been associated with reductions in stimulant use in some individuals with cocaine or methamphetamine use disorder (see Table 2, below). However, treatment response rates are generally low, and results are complicated by multiple factors, including low adherence rates high dropout rates, comorbid substance use disorders, and the classic use of abstinence as a primary outcome [Brandt, et al. 2021].

Table 2: Pharmacologic Treatment of Stimulant Use Disorder: Selected Randomized Controlled Clinical Trials [a]

Study Medication(s)	Study Publication/NCBI Abstract or Full-Text Link
Amphetamine or Methamphetamine Use Disorder	
Mirtazapine [Coffin, et al. 2020; Colfax, et al. 2011]	• Coffin PO, Santos GM, Hern J, Vittinghoff E, et al. Effects of mirtazapine for methamphetamine use disorder among cisgender men and transgender women who have sex with men: a placebo-controlled randomized clinical trial. *JAMA Psychiatry* 2020;77(3):246-255. DOI: 10.1001/jamapsychiatry.2019.3655; PMID: 31825466; PMCID: PMC6990973. Go to full-text article. • Colfax GN, Santos GM, Das M, et al. Mirtazapine to reduce methamphetamine use: a randomized controlled trial. *Arch Gen Psychiatry* 2011;68(11):1168-75. DOI: 10.1001/archgenpsychiatry.2011.124; PMID: 22065532; PMCID: PMC3437988. Go to full-text article.
Injectable XR naltrexone plus XR oral bupropion [Trivedi, et al. 2021]	• Trivedi MH, Walker R, Ling W, et al. Bupropion and naltrexone in methamphetamine use disorder. *N Engl J Med* 2021;384(2):140-153. DOI: 10.1056/NEJMoa2020214; PMID: 33497547; PMCID: PMC8111570. Go to full-text article.

Table 2: Pharmacologic Treatment of Stimulant Use Disorder: Selected Randomized Controlled Clinical Trials [a]	
Study Medication(s)	**Study Publication/NCBI Abstract or Full-Text Link**
Cocaine Use Disorder	
Topiramate [Baldaçara, et al. 2016; Johnson, et al. 2013]	• Baldaçara L, Cogo-Moreira H, Parreira BL, et al. Efficacy of topiramate in the treatment of crack cocaine dependence: a double-blind, randomized, placebo-controlled trial. *J Clin Psychiatry* 2016;77(3):398-406. DOI: 10.4088/JCP.14m09377; PMID: 27046312. Go to abstract. • Johnson BA, Ait-Daoud N, Wang XQ, et al. Topiramate for the treatment of cocaine addiction: a randomized clinical trial. *JAMA Psychiatry* 2013;70(12):1338-46. DOI: 10.1001/jamapsychiatry.2013.2295; PMID: 24132249. Go to abstract.
XR oral mixed amphetamine salts [b] and topiramate [Levin, et al. 2020; Mariani, et al. 2012]	• Levin FR, Mariani JJ, Pavlicova M, et al. Extended-release mixed amphetamine salts and topiramate for cocaine dependence: a randomized clinical replication trial with frequent users. *Drug Alcohol Depend* 2020;206:107700. DOI: 10.1016/j.drugalcdep.2019.107700; PMID: 31753736; PMCID: PMC6980777. Go to full-text article. • Mariani JJ, Pavlicova M, Bisaga A, et al. Extended-release mixed amphetamine salts and topiramate for cocaine dependence: a randomized controlled trial. *Biol Psychiatry* 2012;72(11):950-6. DOI: 10.1016/j.biopsych.2012.05.032; PMID: 22795453; PMCID: PMC3648884. Go to full-text article.
Sustained-release dextroamphetamine [b] [Nuijten, et al. 2016]	• Nuijten M, Blanken P, van de Wetering B, et al. Sustained-release dexamfetamine in the treatment of chronic cocaine-dependent patients on heroin-assisted treatment: a randomised, double-blind, placebo-controlled trial. *Lancet* 2016;387(10034):2226-34. DOI: 10.1016/S0140-6736(16)00205-1; PMID: 27015909. Go to abstract.
Disulfiram [Pani, et al. 2010]	• Pani PP, Trogu E, Vacca R, et al. Disulfiram for the treatment of cocaine dependence. *Cochrane Database Syst Rev* 2010;(1):CD007024. DOI: 10.1002/14651858.CD007024.pub2; PMID: 20091613. Go to abstract.

Abbreviations: NCBI, National Center for Biotechnology Information; XR, extended-release.

Notes:

a. No medications are approved by the U.S. Food and Drug Administration for the treatment of stimulant use disorder.
b. The use of psychostimulants to treat stimulant use disorder is controversial and has regulatory considerations.

→ KEY POINT

- All patients who inject stimulants or other substances should be counseled in safer use of drug equipment. Licensed pharmacies, healthcare facilities, and healthcare providers can sell or furnish hypodermic needles or syringes to individuals ≥18 years old without a patient-specific prescription; drug equipment is also available at the New York State Authorized Syringe Exchange Sites.

Concomitant OUD treatment: Continue medication for opioid use disorder (OUD) in patients who also use stimulants, and counsel patients that OUD medications do not treat stimulant use. Stimulant use or use disorder has been associated with lower rates of OUD treatment initiation and retention in care [Frost, et al. 2021]. If a stimulant use disorder is adversely affecting OUD treatment, have a nonjudgmental discussion with the patient, reassess their treatment and harm reduction goals and strategies, counsel them to continue OUD treatment, and consider treatment for stimulant use disorder.

◊ RESOURCES

- Increasing Overdose Deaths Related to Cocaine and Other Stimulants: Guidance from the New York State Office of Addiction Services and Supports, Medical Advisory Panel
- SAMHSA: Treatment Improvement Protocol (TIP) 33: Treatment for Stimulant Use Disorders
- British Columbia Centre on Substance Use: Stimulant Use Disorder Practice Update (2022)

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