CLINICAL GUIDELINES PROGRAM
NEW YORK STATE DEPARTMENT OF HEALTH AIDS INSTITUTE | HIV • HCV • STIs • SUBSTANCE USE • LGBTQ+ HEALTH

Clinical Guidance: Stimulant Use

Updates, Authorship, and Related Resources

Date of current publication	November 20, 2025
Highlights of changes, additions, and updates in the November 20, 2025 edition	Table 2: Medications and Factors to Consider for Stimulant Use Disorder Treatment in Nonpregnant Adults: Revised footnote c on the state and federal legal status of treating stimulant use disorder with psychostimulants.
Intended users	New York State clinicians
Lead authors	Judith Griffin, MD; William Supplee, MD
Writing group	Susan D. Whitley, MD; Timothy J. Wiegand, MD, FACMT, FAACT, DFASAM; Sharon L. Stancliff, MD; Brianna Norton, DO, MPH; Christopher J. Hoffmann, MD, MPH, MSc; Charles J. Gonzalez, MD
Author and writing group conflict of interest disclosures	There are no author or writing group conflict of interest disclosures.
Date of original publication	July 3, 2023
Committee	Substance Use Guidelines Committee
Developer and funder	New York State Department of Health AIDS Institute (NYSDOH AI)
Development process	See Supplement: Guideline Development and Recommendation Ratings
Related NYSDOH AI resources	**Guidelines** • Substance Use Harm Reduction in Medical Care • Substance Use Screening, Risk Assessment, and Use Disorder Diagnosis in Adults • Treatment of Opioid Use Disorder **Podcast** • Viremic—Cases in HIV

Clinical Guidance: Stimulant Use

Date of current publication: November 20, 2025
Lead authors: Judith Griffin, MD; William Supplee, MD
Writing group: Susan D. Whitley, MD; Timothy J. Wiegand, MD, FACMT, FAACT, DFASAM; Sharon L. Stancliff, MD; Brianna Norton, DO, MPH; Christopher J. Hoffmann, MD, MPH, MSc; Charles J. Gonzalez, MD
Committee: Substance Use Guidelines Committee
Date of original publication: July 3, 2023

Contents

Purpose of This Guidance 2
Commonly Used Stimulants: Characteristics and Adverse Effects 3
Screening, Assessment, and Counseling 5
Screening and Assessment 5
Counseling and Medical Care for Patients Who Use Stimulants 6
Treatment 7
References 10
Supplement: Guideline Development and Recommendation Ratings 13

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 their use.
- Provide strategies for talking with patients about stimulant use and the associated risks, including opioid overdose due to concomitant use of opioids and stimulants or to contamination of illicitly manufactured stimulants with synthetic opioids.
- 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 cathinone (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 cathinone) in the previous year[SAMHSA 2023]. Misuse or chronic use of stimulants can cause or worsen neuropsychiatric, cardiovascular, and other conditions[SAMHSA 2021], and stimulant injection has been associated with an increased incidence of HIV and hepatitis C virus[Cepeda, et al. 2020; Farrell, et al. 2019].

In addition, 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 2024]. In New York State from 2018 to 2022, drug overdose deaths involving synthetic stimulants increased from 180 to 664, and those involving cocaine increased from 1,276 to 2,880[OASAS 2024]. For more information, see the Office of Addiction Services and Supports Addiction Data Bulletin Stimulant Use and Stimulant Use Disorder In New York State. These dramatic increases in cocaine- and methamphetamine-related mortality have been characterized as a fourth wave of the U.S. overdose crisis[Ciccarone and Shoptaw 2022; Fischer, et al. 2021].

Much of the recent increase in mortality is attributed to concomitant use of fentanyl and stimulants. In 2021 in the United States, approximately 66% of overdose deaths were attributed to concomitant use of fentanyl and cocaine (16.6% of overdose deaths), fentanyl and methamphetamine (10.7%), and other opioids with stimulants (39.9%)[CDC 2025]. The presence of fentanyl as an adulterant in the supply of illicitly manufactured stimulants is correlated with this increase in mortality, although the extent of adulteration is unclear[Wagner, et al. 2023].

→ KEY POINTS

- Patterns of stimulant use may not be the same in rural and urban areas and may vary 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 conditions 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: Characteristics and Adverse Effects

"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 catecholamines, including dopamine, norepinephrine, and serotonin, to varying degrees, generally through either inhibition of reuptake (e.g., cocaine) or through a combination of reuptake inhibition and increased release (e.g., methamphetamine). Some stimulants are also inhibitors of monoamine oxidase (MAOIs). Table 1, below, summarizes the types and characteristics of commonly used stimulants.

Table 1: Characteristics of Commonly Used Stimulants

Characteristics	Patient-Reported Reasons for Use and Slang [a]
Cathinone, Synthetic [b]	
• **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 • **Onset of action:** 30 to 60 minutes (oral) • **Half-life:** 3 to 6 hours	• **Reasons for use:** Produces euphoria and alertness; designed to imitate the effects of other stimulants such as cocaine, MDMA, and methamphetamines (see below) • **Street names:** Bath salts, Molly
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 in acid solutions such as vinegar (acetic acid) or citric acid • **Onset of action:** Immediate • **Half-life:** 40 to 90 minutes	• **Reasons for use:** Sexual enhancement, 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, rock
MDMA	
• **Source and forms:** Synthetic; available as tablets, capsules, crystals, powder • **Administration:** Oral, intranasal insufflation, rectal ("boofing") • **Onset of action:** 20 to 60 minutes • **Half-life:** 8 to 9 hours	• **Reasons for use:** Sexual enhancement, improving depression (including in low doses), interpersonal relationship enhancement (empathogenic effects), co-use or collective use • **Street names:** Ecstasy, Molly, XTC, E, X, Miley Cyrus • **Slang for use:** Raving, rolling, ate up (for long-term use)

Table 1: Characteristics of Commonly Used Stimulants	
Characteristics	**Patient-Reported Reasons for Use and Slang [a]**
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 • **Onset of action:** Immediate • **Half-life:** 10 hours	• **Reasons for use:** Sexual enhancement, increased work duration and stamina, wakefulness, weight loss, improving depression, withdrawal avoidance, enhancement of other drug effects, improved function and self-image, sensory enhancement • **Street names:** Meth, crank, crystal, ice, Tina, speed, water • **Slang for use:** Tweaking, amping, spun, booty bumping (rectal administration)
Prescribed: Amphetamines, Amphetamine Derivatives, Methylphenidate, and Other Stimulants [c]	
• **Source and forms:** Synthetic medications that may be prescribed for treatment of ADHD or narcolepsy [d]. Includes: Dextroamphetamine-amphetamine (e.g., Adderall, generics), dextroamphetamine sulfate (e.g., Dexedrine, generics), lisdexamfetamine (e.g., Vyvanse), methylphenidate hydrochloride (e.g., Ritalin, Concerta, generics) [e] • **Administration:** Oral, intravenous, intranasal insufflation • **Onset of action:** 20 to 60 minutes • **Half-life:** 6 to 13 hours (depending on formulation)	• **Reasons for use:** Performance enhancement, weight loss, improving depression, reductions in use of other amphetamines • **Street names:** Addies, bennies, dexies, crank, pep pills, ice, speed, uppers, Superman, vitamin R • **Slang for use:** Speeding, tweaking, spun, amping
Abbreviations: ADHD, attention-deficit hyperactivity disorder; MDMA, 3,4-methylenedioxy-methamphetamine. **Notes:** a. Common names and slang for stimulants vary widely and evolve constantly. b. Cathinones are not routinely included in toxicology testing. c. Often purchased online; purchasers may not get pharmaceutically produced products. d. 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. e. Methylphenidate (e.g., Ritalin, Concerta, generics) is not an amphetamine. It is metabolized to ritalinic acid and will not be identified by laboratory testing for amphetamines.	

Common adverse effects: Common adverse effects of stimulant intoxication and chronic use are listed below[SAMHSA 2021]. See guidance section Screening, Assessment, and Counseling > Counseling and Medical Care for Patients Who Use Stimulants > Withdrawal for stimulant withdrawal symptoms. For adverse effects associated with stimulant use in pregnant individuals, see Stimulant Use in Pregnancy: An Under-Recognized Epidemic Among Pregnant Women[Smid, et al. 2019].

Stimulant intoxication:

- Neuropsychiatric: Grandiosity/egocentricity, hypervigilance, paranoia or psychotic symptoms (associated with higher doses), agitation/anxiety, choreoathetosis (abnormal body movements), insomnia, appetite suppression, mydriasis (dilated pupils), tremors, psychomotor agitation (excessive or animated rapid movements)
- Cardiovascular: Tachycardia, hypertension, chest pain, palpitations
- Constitutional: Hyperthermia, weight loss

Chronic stimulant use:

- Neuropsychiatric: Extreme fatigue and disrupted sleep, formication (sensation of bugs crawling on skin), paranoia or psychosis, depression, anhedonia, anxiety/panic attacks, choreoathetosis (abnormal body movements), headache, seizures
- Cardiovascular: Heart attack, arrhythmia, myocarditis, hypertensive crisis, heart failure, stroke (ischemic and hemorrhagic), renal infarction, ischemic bowel
- Constitutional: Malnutrition, cachexia, extreme weight loss, refeeding syndrome
- Respiratory: Chronic obstructive pulmonary disease, pneumonitis (especially with inhalation)

- Dermatologic: Secondary skin infections, excoriations (e.g., due to formication)
- Dental: Dental carries, teeth loss, gum disease, gingivitis, aphthous ulcers

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. Individuals experiencing these symptoms should be advised to hydrate, replenish electrolytes, and remain in a calm environment.

Screening, Assessment, and Counseling

Screening and Assessment

The NYSDOH AI evidence-based guideline Substance Use Screening, Risk Assessment, and Use Disorder Diagnosis 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 following tables 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 medical care, 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 screening, assure patients that the detailed questions are intended to help the care provider offer appropriate treatment and services. Remind patients that responses are voluntary but 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.

The experience of trauma is common among people with a substance use disorder[Bartholow and Huffman 2021; Karsberg, et al. 2021; Zarse, et al. 2019], and a trauma-informed approach is advised. See NYSDOH AI guideline Substance Use Harm Reduction in Medical Care > Trauma-Informed Care.

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: Talking With Patients About Substance Use

- 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 or during your next visit? I want to be sure to offer you every treatment or service that might be beneficial, help keep you out of harm's way, and improve your health and well-being.*
- Proactively destigmatize and normalize conversations about substance use with patients, e.g., *Have you ever felt discriminated against because of your drug use? If you experience anything that feels like discrimination here, please let me know.*
- Avoid making assumptions, ask open-ended and clarifying follow-up questions, as needed, and ask only for information relevant to a patient's current medical care. Discussing history related to substance use may be difficult for patients and should be asked about once rapport and trust are well established.
- Substance use language and terminology change often, and one term may refer to different substances, e.g., "dope" may refer to cannabis or heroin. Ask patients to define any unfamiliar terms and to correct any misuse of terms (see Table 1: Characteristics of Commonly Used Stimulants).
- Some modes of use carry stigma and patients may be reluctant to mention them. If clinicians ask specifically, it may encourage conversation, e.g., *How do you use (drug of choice)*? *Are you injecting, snorting, or smoking?* Mode(s) of use inform harm reduction strategies.
- The use of substances with sex may increase a patient's risk of acquiring HIV, hepatitis C virus, and other STIs. Clinicians may ask, e.g., *Do you use drugs with sex? Are there any drugs that you use only with sex? How do you use (drug of choice) with sex?* Some methods, such as rectal use of methamphetamine or cocaine, are associated with abrasions that increase the risk of exposure to HIV and other STIs during condomless sex.

Abbreviation: STI, sexually transmitted infection.

Counseling and Medical Care for Patients Who Use Stimulants

Based on the clinical expertise of the authors and this committee, the strategies below can help clinicians engage patients in a 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 positively and negatively, e.g., *How does meth make you feel? Are there negative effects?* Understanding patients' drug use experience can inform harm reduction and treatment goals.

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]. 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.

Stimulant use may worsen pre-existing anxiety and depression and may cause or worsen other symptoms including mania, paranoia, and delusions[McKetin, et al. 2019; McKetin, et al. 2013; Darke, et al. 2008; Zweben, et al. 2004]. A clinician might say, "*I'm concerned that meth might be increasing your anxiety,*" or ask, "*Some people who use ICE can have paranoia or believe things that aren't real. Has that happened to you?*"

In assessing the effects of stimulant use, avoid prematurely attributing symptoms to a patient's substance use and perform indicated routine and symptom-related clinical evaluation. Treatment for conditions such as hypertension should not be withheld or delayed in patients who continue to use stimulants.

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].

Sexualized stimulant use: Specific psychoactive drugs, such as methamphetamine, gamma-hydroxybutyrate (GHB), gamma butyrolactone (GBL), and mephedrone, may be used to enhance sex, most commonly by men who have sex with men (MSM). "Chemsex" or "party and play" often refers to sexualized stimulant use during sex with anonymous partners or group sex, over an extended period, that is arranged using digital apps[Harm Reduction International 2021]. "Slam sex" refers to the use

of injected stimulants during sex[Schreck, et al. 2021]. In MSM, sexualized stimulant use has been associated with condomless sex, sex with multiple partners, and injection drug use, all of which increase the risk of exposure to or transmission of HIV and other sexually transmitted infections[Strong, et al. 2022; Curtis, et al. 2020; Guerra, et al. 2020; Tomkins, et al. 2019]. For patient education resources, see ChemSex Harm Reduction: Safer Chemsex & Safer Sex Guides and Tweaker: Crystal Meth.

Harm reduction: In counseling patients, clinicians should take a nonjudgmental and supportive approach to the potential risks of stimulant use and strategies. For example, people who use stimulants are at high risk of dental problems, including caries, abscesses, and poor dentition[ASAM 2023], and harm reduction can include encouraging regular dental care and referrals to dental care when required.

→ KEY POINT

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

All patients who use stimulants should be encouraged to make an overdose prevention plan. Individuals who use stimulants, even if only occasionally or episodically, may underestimate their opioid overdose risk.

Overdose prevention strategies: Counsel patients to:

- Assume all drugs obtained without their own prescription may contain fentanyl or other highly potent synthetic opioids; this includes heroin, other opioids, counterfeit pills, stimulants, nonopioid sedatives, and other substances.
- When possible, test substances with fentanyl test strips and consider other drug-checking strategies. Online sources include MATTERS (for New York State residents and programs, no charge), DanceSafe, and BTNX. Some New York State Authorized Syringe Exchange Sites provide fentanyl test strips and other drug checking strategies.
- Avoid using substances alone whenever possible. If using alone, arrange for someone to check in or use phone- and web-based apps (e.g., Never Use Alone at 1-877-696-1996).
- Start with a small amount (low dose) when using any substance.
- 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 such as NEXT Distro. NLX is covered by New York State Medicaid and most private insurers.
- Encourage friends and contacts to perform an assessment of and support airway and breathing (e.g., head tilt, chin lift maneuver, rescue breathing) and give NLX in an overdose situation.
  - The New York State 911 Good Samaritan Law protects the person who calls 911 and the person who overdosed from many potential charges associated with substance use.

See the NYSDOH AI guideline Substance Use Harm Reduction in Medical Care > Box 1: Harm Reduction Resources in New York State (January 2025).

Treatment

Stimulant use disorder (StUD): If a patient is diagnosed with StUD, discuss harm reduction strategies, assess readiness to change behavior, and advise on available evidence-based behavioral and pharmacologic treatments. A collaborative approach will help identify the treatment options best suited to a patient's life circumstances and preferences. Also helpful are discussions about barriers to care (e.g., housing, transportation, competing priorities) and positive supports and experiences that may facilitate treatment success.

Goals of treatment: Abstinence from stimulants may not be achievable in the short term, and more feasible treatment goals can lead to substantial improvements in the health and lives of patients 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. Develop a plan in collaboration with the patient using the principles of shared decision-making and schedule a follow-up appointment to reassess progress. A patient's treatment goals may change over time and should be reassessed periodically.

Concomitant opioid use disorder (OUD) treatment: Stimulant use or StUD has been associated with lower rates of OUD treatment initiation and retention in care[Frost, et al. 2021]. Continue medication for OUD treatment in patients who also use stimulants. If a StUD 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 StUD.

Behavioral treatment options: Evidence supports contingency management (CM) as the primary component of a behavioral treatment plan for patients with StUD, in conjunction with a community reinforcement approach, cognitive behavioral therapy (CBT), and the Matrix Model[ASAM 2023]. 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 CBT, 12-step groups, and other behavioral strategies for StUD[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; barriers include regulatory obstacles, cost, stakeholder buy-in, and program resources[ASAM 2023; SAMHSA 2021].

For a detailed discussion of behavioral treatment for StUD, including online or mobile applications, see the ASAM/AAAP Clinical Practice Guideline on the Management of Stimulant Use Disorder.

→ KEY POINTS

For patients with StUD, clinicians who are not specialists in substance use treatment are encouraged to:

- Discuss harm reduction strategies, including overdose prevention.
- Evaluate patient's readiness to engage in treatment; if ready, collaborate with patient on treatment goals.
- Refer patient for behavioral therapy based on availability and patient preference. Evidence indicates that, overall, CM and other behavioral approaches are more effective than pharmacologic treatment for StUD[ASAM 2023].
- Consult with or refer patient to a substance use treatment specialist for pharmacologic treatment.
  - CEI Line: 1-866-637-2342
  - University of California San Francisco National Clinical Consultation Center

Pharmacologic treatment options: The U.S. Food and Drug Administration has not approved any medications for the treatment of StUD. 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[Brandt, et al. 2021; Trivedi, et al. 2021; Coffin, et al. 2020; Levin, et al. 2020; Nuijten, et al. 2016; Shoptaw, et al. 2008]. Treatment response rates are generally low, and results are complicated by multiple factors, including low adherence, high dropout rates, comorbid substance use disorders, and the use of abstinence as a primary outcome[Brandt, et al. 2021].

Table 2, below, lists medications that may benefit some patients with StUD with factors from the ASAM/AAAP Clinical Practice Guideline on the Management of Stimulant Use Disorder to consider when reviewing pharmacologic treatment options. There is little evidence to guide clinicians; consultation with or referral to a substance use treatment specialist is strongly encouraged.

Table 2: Medications and Factors to Consider for Stimulant Use Disorder Treatment in Nonpregnant Adults From the ASAM/AAAP Clinical Practice Guideline on the Management of Stimulant Use Disorder [a]
Note: No medications are approved by the FDA for the treatment of stimulant use disorder.

Medication(s)/Key Citations	Considerations [ASAM 2023]
Amphetamine or Methamphetamine Use Disorder	
Mirtazapine [Coffin, et al. 2020; Colfax, et al. 2011]	• May also treat co-occurring depressive disorders • May reduce stimulant-associated sexual risk behaviors in MSM; may reduce insomnia • Adverse effects include weight gain and drowsiness
Injectable XR naltrexone plus XR oral bupropion [b] [Trivedi, et al. 2021; Mooney, et al. 2016]	• May also treat co-occurring AUD, tobacco use, and depression • Injectable XR naltrexone is contraindicated in patients taking opioids or experiencing opioid withdrawal symptoms. For all contraindications, see prescribing information.

Table 2: Medications and Factors to Consider for Stimulant Use Disorder Treatment in Nonpregnant Adults From the ASAM/AAAP Clinical Practice Guideline on the Management of Stimulant Use Disorder [a]
Note: No medications are approved by the FDA for the treatment of stimulant use disorder.

Medication(s)/Key Citations	Considerations [ASAM 2023]
Bupropion [b] [Siefried, et al. 2020; Chan(b), et al. 2019]	• Consider for treatment of patients with <18 days use per month; may also treat co-occurring tobacco use or depression • More effective for treatment of cocaine use disorder than amphetamine use disorder
Methylphenidate (MPH) [c] [Siefried, et al. 2020; Lee, et al. 2018]	• Refer patient to an addiction specialist to consider use • Consider for treatment of patients who use ≥10 days per month; may also treat co-occurring ADHD • May require dosing at or above the maximum FDA-approved dose for ADHD treatment
Topiramate [Siefried, et al. 2020; Lee, et al. 2018; Elkashef, et al. 2012]	• May also treat co-occurring AUD • Adverse effects (brain fog, appetite suppression) limit efficacy
Cocaine Use Disorder	
XR mixed amphetamine salts [c] **and topiramate** [Levin, et al. 2020; Tardelli, et al. 2020]	• Refer patient to an addiction specialist to consider use • May also treat co-occurring AUD or ADHD
Sustained-release dextroamphetamine [c] [Nuijten, et al. 2016]	• Refer patient to an addiction specialist to consider use • May also treat co-occurring ADHD and may require dosing at or above the maximum FDA-approved dose for ADHD treatment
Modafinil [c] [Sangroula, et al. 2017; Castells, et al. 2016]	• Refer patient to an addiction specialist to consider use • Avoid in patients with co-occurring AUD or history of pre-existing or substance-induced psychosis • May be particularly helpful in helping a patient achieve abstinence early in treatment or for highly motivated and treatment-adherent patients with frequent use upon treatment initiation
Bupropion [b] [Shoptaw, et al. 2008; Poling, et al. 2006]	• May also treat co-occurring AUD or tobacco use • In 2 RCTs, bupropion combined with CBT or contingency management was superior to placebo for sustained abstinence.
Topiramate [Pearl, et al. 2023; Chan(a), et al. 2019; Baldaçara, et al. 2016; Johnson, et al. 2013]	• May also treat co-occurring AUD • Adverse effects (brain fog, appetite suppression) limit efficacy

Abbreviations: ADHD, attention-deficit hyperactivity disorder; AUD, alcohol use disorder; ASAM/AAAP, American Society of Addiction Medicine/American Academy of Addiction Psychiatry; CBT, cognitive behavioral therapy; FDA, U.S. Food and Drug Administration; DEA, U.S. Drug Enforcement Agency; MSM, men who have sex with men; RCT, randomized clinical trial; XR, extended-release.

Notes:

a. For treatment considerations in pregnant patients, see ASAM/AAAP Clinical Practice Guideline on the Management of Stimulant Use Disorder > Population-Specific Considerations > Pregnant and Postpartum Patients.
b. Bupropion is a cathinone and can cause a false positive result for amphetamines/methamphetamines[FDA 2025].
c. Although treating stimulant use disorder with psychostimulants is not currently a standardized evidence-based practice, it is legal for professionally licensed, DEA-registered providers to prescribe psychostimulants for this purpose under federal and New York State laws. Referring to an addiction specialist and following the ASAM/AAAP guidelines are recommended.

◊ RESOURCES

- ASAM/AAAP Clinical Practice Guideline on the Management of Stimulant Use Disorder (2023)
- Increasing Overdose Deaths Related to Cocaine and Other Stimulants: Guidance from the New York State Office of Addiction Services and Supports, Medical Advisory Panel (2020)
- SAMHSA: Treatment Improvement Protocol (TIP) 33: Treatment for Stimulant Use Disorders (2021)

References

Aldridge RW, Story A, Hwang SW, et al. Morbidity and mortality in homeless individuals, prisoners, sex workers, and individuals with substance use disorders in high-income countries: a systematic review and meta-analysis. *Lancet* 2018;391(10117):241–50. [PMID: 29137869] https://pubmed.ncbi.nlm.nih.gov/29137869

Arum C, Fraser H, Artenie AA, et al. Homelessness, unstable housing, and risk of HIV and hepatitis C virus acquisition among people who inject drugs: a systematic review and meta-analysis. *Lancet Public Health* 2021;6(5):e309–23. [PMID: 33780656] https://pubmed.ncbi.nlm.nih.gov/33780656

ASAM. The ASAM/AAAP clinical practice guideline on the management of stimulant use disorder. 2023 Nov. https://downloads.asam.org/sitefinity-production-blobs/docs/default-source/quality-science/stud_guideline_document_final.pdf [accessed 2024 Mar 11]

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. [PMID: 27046312] https://pubmed.ncbi.nlm.nih.gov/27046312

Bartholow LA, Huffman RT. The necessity of a trauma-informed paradigm in substance use disorder services. *J Am Psychiatr Nurses Assoc* 2021;10783903211036496. [PMID: 34334012] https://pubmed.ncbi.nlm.nih.gov/34334012

Bentzley BS, Han SS, Neuner S, et al. Comparison of treatments for cocaine use disorder among adults: a systematic review and meta-analysis. *JAMA Netw Open* 2021;4(5):e218049. [PMID: 33961037] https://pubmed.ncbi.nlm.nih.gov/33961037

Brandt L, Chao T, Comer SD, et al. Pharmacotherapeutic strategies for treating cocaine use disorder-what do we have to offer? *Addiction* 2021;116(4):694–710. [PMID: 32888245] https://pubmed.ncbi.nlm.nih.gov/32888245

British Columbia Centre on Substance Use. Stimulant use disorder: practice update. 2022 Jun. https://www.bccsu.ca/wp-content/uploads/2022/06/Stimulant-Use-Disorder-Practice-Update_June2022.pdf [accessed 2023 May 15]

Cano M, Oh S, Salas-Wright CP, et al. Cocaine use and overdose mortality in the United States: evidence from two national data sources, 2002-2018. *Drug Alcohol Depend* 2020;214:108148. [PMID: 32702620] https://pubmed.ncbi.nlm.nih.gov/32702620

Castells X, Cunill R, Pérez-Mañá C, et al. Psychostimulant drugs for cocaine dependence. *Cochrane Database Syst Rev* 2016;9(9):CD007380. [PMID: 27670244] https://pubmed.ncbi.nlm.nih.gov/27670244

CDC. SUDORS dashboard: fatal overdose data. 2025 Nov 12. https://www.cdc.gov/overdose-prevention/data-research/facts-stats/sudors-dashboard-fatal-overdose-data.html [accessed 2023 May 1]

Cepeda JA, Vickerman P, Bruneau J, et al. Estimating the contribution of stimulant injection to HIV and HCV epidemics among people who inject drugs and implications for harm reduction: a modeling analysis. *Drug Alcohol Depend* 2020;213:108135. [PMID: 32603976] https://pubmed.ncbi.nlm.nih.gov/32603976

Chan(a) B, Kondo K, Freeman M, et al. Pharmacotherapy for cocaine use disorder-a systematic review and meta-analysis. *J Gen Intern Med* 2019;34(12):2858–73. [PMID: 31183685] https://pubmed.ncbi.nlm.nih.gov/31183685

Chan(b) B, Freeman M, Kondo K, et al. Pharmacotherapy for methamphetamine/amphetamine use disorder-a systematic review and meta-analysis. *Addiction* 2019;114(12):2122–36. [PMID: 31328345] https://pubmed.ncbi.nlm.nih.gov/31328345

Ciccarone D, Shoptaw S. Understanding stimulant use and use disorders in a new era. *Med Clin North Am* 2022;106(1):81–97. [PMID: 34823736] https://pubmed.ncbi.nlm.nih.gov/34823736

Coffin PO, Santos GM, Hern J, 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):246–55. [PMID: 31825466] https://pubmed.ncbi.nlm.nih.gov/31825466

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. [PMID: 22065532] https://pubmed.ncbi.nlm.nih.gov/22065532

Curtis TJ, Rodger AJ, Burns F, et al. Patterns of sexualised recreational drug use and its association with risk behaviours and sexual health outcomes in men who have sex with men in London, UK: a comparison of cross-sectional studies conducted in 2013 and 2016. *Sex Transm Infect* 2020;96(3):197–203. [PMID: 31744928] https://pubmed.ncbi.nlm.nih.gov/31744928

Darke S, Duflou J, Kaye S. Prevalence and nature of cardiovascular disease in methamphetamine-related death: a national study. *Drug Alcohol Depend* 2017;179:174–79. [PMID: 28787694] https://pubmed.ncbi.nlm.nih.gov/28787694

Darke S, Kaye S, McKetin R, et al. Major physical and psychological harms of methamphetamine use. *Drug Alcohol Rev* 2008;27(3):253–62. [PMID: 18368606] https://pubmed.ncbi.nlm.nih.gov/18368606

De Crescenzo F, Ciabattini M, D'Alò GL, et al. Comparative efficacy and acceptability of psychosocial interventions for individuals with cocaine and amphetamine addiction: a systematic review and network meta-analysis. *PLoS Med* 2018;15(12):e1002715. [PMID: 30586362] https://pubmed.ncbi.nlm.nih.gov/30586362

Elkashef A, Kahn R, Yu E, et al. Topiramate for the treatment of methamphetamine addiction: a multi-center placebo-controlled trial. *Addiction* 2012;107(7):1297–1306. [PMID: 22221594] https://pubmed.ncbi.nlm.nih.gov/22221594

Farrell M, Martin NK, Stockings E, et al. Responding to global stimulant use: challenges and opportunities. *Lancet* 2019;394(10209):1652–67. [PMID: 31668409] https://pubmed.ncbi.nlm.nih.gov/31668409

FDA. Wellbutrin XL (bupropion hydrochloride extended-release) tablets, for oral use. 2025 Nov. https://www.accessdata.fda.gov/drugsatfda_docs/label/2025/021515s049lbl.pdf [accessed 2023 May 5]

Fischer B, O'Keefe-Markman C, Lee AM, et al. 'Resurgent', 'twin' or 'silent' epidemic? A select data overview and observations on increasing psycho-stimulant use and harms in North America. *Subst Abuse Treat Prev Policy* 2021;16(1):17. [PMID: 33588896] https://pubmed.ncbi.nlm.nih.gov/33588896

Frost MC, Lampert H, Tsui JI, et al. The impact of methamphetamine/amphetamine use on receipt and outcomes of medications for opioid use disorder: a systematic review. *Addict Sci Clin Pract* 2021;16(1):62. [PMID: 34635170] https://pubmed.ncbi.nlm.nih.gov/34635170

Goulian A, Jauffret-Roustide M, Dambélé S, et al. A cultural and political difference: comparing the racial and social framing of population crack cocaine use between the United States and France. *Harm Reduct J* 2022;19(1):44. [PMID: 35550157] https://pubmed.ncbi.nlm.nih.gov/35550157

Guerra FM, Salway TJ, Beckett R, et al. Review of sexualized drug use associated with sexually transmitted and blood-borne infections in gay, bisexual and other men who have sex with men. *Drug Alcohol Depend* 2020;216:108237. [PMID: 33091811] https://pubmed.ncbi.nlm.nih.gov/33091811

Harding RW, Wagner KT, Fiuty P, et al. "It's called overamping": experiences of overdose among people who use methamphetamine. *Harm Reduct J* 2022;19(1):4. [PMID: 35034643] https://pubmed.ncbi.nlm.nih.gov/35034643

Harm Reduction International. Chemsex and harm reduction for gay men and other men who have sex with men. 2021 Jul. https://hri.global/wp-content/uploads/2022/10/HRI_Briefing_Chemsex_July_2021_Final-1.pdf [accessed 2023 Jun 27]

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. [PMID: 24132249] https://pubmed.ncbi.nlm.nih.gov/24132249

Karsberg S, Hesse M, Pedersen MM, et al. The impact of poly-traumatization on treatment outcomes in young people with substance use disorders. *BMC Psychiatry* 2021;21(1):140. [PMID: 33685430] https://pubmed.ncbi.nlm.nih.gov/33685430

Kevil CG, Goeders NE, Woolard MD, et al. Methamphetamine use and cardiovascular disease. *Arterioscler Thromb Vasc Biol* 2019;39(9):1739–46. [PMID: 31433698] https://pubmed.ncbi.nlm.nih.gov/31433698

Lee NK, Jenner L, Harney A, et al. Pharmacotherapy for amphetamine dependence: a systematic review. *Drug Alcohol Depend* 2018;191:309–37. [PMID: 30173086] https://pubmed.ncbi.nlm.nih.gov/30173086

Lerner A, Klein M. Dependence, withdrawal and rebound of CNS drugs: an update and regulatory considerations for new drugs development. *Brain Commun* 2019;1(1):fcz025. [PMID: 32954266] https://pubmed.ncbi.nlm.nih.gov/32954266

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. [PMID: 31753736] https://pubmed.ncbi.nlm.nih.gov/31753736

McKetin R, Leung J, Stockings E, et al. Mental health outcomes associated with of the use of amphetamines: a systematic review and meta-analysis. *EClinicalMedicine* 2019;16:81–97. [PMID: 31832623] https://pubmed.ncbi.nlm.nih.gov/31832623

McKetin R, Lubman DI, Baker AL, et al. Dose-related psychotic symptoms in chronic methamphetamine users: evidence from a prospective longitudinal study. *JAMA Psychiatry* 2013;70(3):319–24. [PMID: 23303471] https://pubmed.ncbi.nlm.nih.gov/23303471

Mooney LJ, Hillhouse MP, Thomas C, et al. Utilizing a two-stage design to investigate the safety and potential efficacy of monthly naltrexone plus once-daily bupropion as a treatment for methamphetamine use disorder. *J Addict Med* 2016;10(4):236–43. [PMID: 27379819] https://pubmed.ncbi.nlm.nih.gov/27379819

NIDA. Drug overdose deaths: facts and figures. 2024 Aug. https://nida.nih.gov/research-topics/trends-statistics/overdose-death-rates [accessed 2021 Dec 20]

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. [PMID: 27015909] https://pubmed.ncbi.nlm.nih.gov/27015909

OASAS. Addication data bulletin: stimulant use and stimulant use disorder in New York State. 2024 Feb. https://oasas.ny.gov/system/files/documents/2024/01/addiction-data-bulletin-2024-02.pdf [accessed 2024 Mar 12]

Pearl NZ, Babin CP, Catalano NT, et al. Narrative review of topiramate: clinical uses and pharmacological considerations. *Adv Ther* 2023;40(9):3626–38. [PMID: 37368102] https://pubmed.ncbi.nlm.nih.gov/37368102

Poling J, Oliveto A, Petry N, et al. Six-month trial of bupropion with contingency management for cocaine dependence in a methadone-maintained population. *Arch Gen Psychiatry* 2006;63(2):219–28. [PMID: 16461866] https://pubmed.ncbi.nlm.nih.gov/16461866

Reddy PK, Ng TM, Oh EE, et al. Clinical characteristics and management of methamphetamine-associated cardiomyopathy: state-of-the-art review. *J Am Heart Assoc* 2020;9(11):e016704. [PMID: 32468897] https://pubmed.ncbi.nlm.nih.gov/32468897

SAMHSA. Treatment improvement protocol (TIP) 33: Treatment for stimulant use disorders. 2021 Oct 13. https://www.ncbi.nlm.nih.gov/books/NBK576541/ [accessed 2023 May 1]

SAMHSA. 2021 National Survey on Drug Use and Health (NSDUH) annual national report. 2023 Jan 4. https://www.samhsa.gov/data/report/2021-nsduh-annual-national-report [accessed 2023 May 1]

Sangroula D, Motiwala F, Wagle B, et al. Modafinil treatment of cocaine dependence: a systematic review and meta-analysis. *Subst Use Misuse* 2017;52(10):1292–1306. [PMID: 28350194] https://pubmed.ncbi.nlm.nih.gov/28350194

Schreck B, Victorri-Vigneau C, Guerlais M, et al. Slam practice: a review of the literature. *Eur Addict Res* 2021;27(3):161–78. [PMID: 33279895] https://pubmed.ncbi.nlm.nih.gov/33279895

Semple SJ, Strathdee SA, Zians J, et al. Factors associated with experiences of stigma in a sample of HIV-positive, methamphetamine-using men who have sex with men. *Drug Alcohol Depend* 2012;125(1-2):154–59. [PMID: 22572209] https://pubmed.ncbi.nlm.nih.gov/22572209

Shoptaw S, Heinzerling KG, Rotheram-Fuller E, et al. Bupropion hydrochloride versus placebo, in combination with cognitive behavioral therapy, for the treatment of cocaine abuse/dependence. *J Addict Dis* 2008;27(1):13–23. [PMID: 18551884] https://pubmed.ncbi.nlm.nih.gov/18551884

Siefried KJ, Acheson LS, Lintzeris N, et al. Pharmacological treatment of methamphetamine/amphetamine dependence: a systematic review. *CNS Drugs* 2020;34(4):337–65. [PMID: 32185696] https://pubmed.ncbi.nlm.nih.gov/32185696

Smid MC, Metz TD, Gordon AJ. Stimulant use in pregnancy: an under-recognized epidemic among pregnant women. *Clin Obstet Gynecol* 2019;62(1):168–84. [PMID: 30601144] https://pubmed.ncbi.nlm.nih.gov/30601144

Stone EM, Kennedy-Hendricks A, Barry CL, et al. The role of stigma in U.S. primary care physicians' treatment of opioid use disorder. *Drug Alcohol Depend* 2021;221:108627. [PMID: 33621805] https://pubmed.ncbi.nlm.nih.gov/33621805

Strong C, Huang P, Li CW, et al. HIV, chemsex, and the need for harm-reduction interventions to support gay, bisexual, and other men who have sex with men. *Lancet HIV* 2022;9(10):e717–25. [PMID: 35926550] https://pubmed.ncbi.nlm.nih.gov/35926550

Tardelli VS, Bisaga A, Arcadepani FB, et al. Prescription psychostimulants for the treatment of stimulant use disorder: a systematic review and meta-analysis. *Psychopharmacology (Berl)* 2020;237(8):2233–55. [PMID: 32601988] https://pubmed.ncbi.nlm.nih.gov/32601988

Tomkins A, George R, Kliner M. Sexualised drug taking among men who have sex with men: a systematic review. *Perspect Public Health* 2019;139(1):23–33. [PMID: 29846139] https://pubmed.ncbi.nlm.nih.gov/29846139

Trivedi MH, Walker R, Ling W, et al. Bupropion and naltrexone in methamphetamine use disorder. *N Engl J Med* 2021;384(2):140–53. [PMID: 33497547] https://pubmed.ncbi.nlm.nih.gov/33497547

Tsai AC, Kiang MV, Barnett ML, et al. Stigma as a fundamental hindrance to the United States opioid overdose crisis response. *PLoS Med* 2019;16(11):e1002969. [PMID: 31770387] https://pubmed.ncbi.nlm.nih.gov/31770387

van Boekel LC, Brouwers EP, van Weeghel J, et al. Stigma among health professionals towards patients with substance use disorders and its consequences for healthcare delivery: systematic review. *Drug Alcohol Depend* 2013;131(1-2):23–35. [PMID: 23490450] https://pubmed.ncbi.nlm.nih.gov/23490450

Wagner KD, Fiuty P, Page K, et al. Prevalence of fentanyl in methamphetamine and cocaine samples collected by community-based drug checking services. *Drug Alcohol Depend* 2023;252:110985. [PMID: 37826988] https://pubmed.ncbi.nlm.nih.gov/37826988

Zarse EM, Neff MR, Yoder R, et al. The adverse childhood experiences questionnaire: two decades of research on childhood trauma as a primary cause of adult mental illness, addiction, and medical diseases. *Cogent Medicine* 2019;6(1):1581447. https://doi.org/10.1080/2331205X.2019.1581447

Zweben JE, Cohen JB, Christian D, et al. Psychiatric symptoms in methamphetamine users. *Am J Addict* 2004;13(2):181–90. [PMID: 15204668] https://pubmed.ncbi.nlm.nih.gov/15204668

Supplement: Guideline Development and Recommendation Ratings

Table S1: Guideline Development: New York State Department of Health AIDS Institute Clinical Guidelines Program	
Developer	New York State Department of Health AIDS Institute (NYSDOH AI) Clinical Guidelines Program
Funding source	NYSDOH AI
Program manager	Clinical Guidelines Program, Johns Hopkins University School of Medicine, Division of Infectious Diseases. See Program Leadership and Staff.
Mission	To produce and disseminate evidence-based, state-of-the-art clinical practice guidelines that establish uniform standards of care for practitioners who provide prevention or treatment of HIV, viral hepatitis, other sexually transmitted infections, and substance use disorders for adults throughout New York State in the wide array of settings in which those services are delivered.
Expert committees	The NYSDOH AI Medical Director invites and appoints committees of clinical and public health experts from throughout New York State to ensure that the guidelines are practical, immediately applicable, and meet the needs of care providers and stakeholders in all major regions of New York State, all relevant clinical practice settings, key New York State agencies, and community service organizations.
Committee structure	• Leadership: AI-appointed chair, vice chair(s), chair emeritus, clinical specialist(s), JHU Guidelines Program Director, AI Medical Director, AI Clinical Consultant, AVAC community advisor • Contributing members • Guideline writing groups: Lead author, coauthors if applicable, and all committee leaders
Disclosure and management of conflicts of interest	• Annual disclosure of financial relationships with commercial entities for the 12 months prior and upcoming is required of all individuals who work with the guidelines program, and includes disclosure for partners or spouses and primary professional affiliation. • The NYSDOH AI assesses all reported financial relationships to determine the potential for undue influence on guideline recommendations and, when indicated, denies participation in the program or formulates a plan to manage potential conflicts. Disclosures are listed for each committee member.
Evidence collection and review	• Literature search and review strategy is defined by the guideline lead author based on the defined scope of a new guideline or update. • A comprehensive literature search and review is conducted for a new guideline or an extensive update using PubMed, other pertinent databases of peer-reviewed literature, and relevant conference abstracts to establish the evidence base for guideline recommendations. • A targeted search and review to identify recently published evidence is conducted for guidelines published within the previous 3 years. • Title, abstract, and article reviews are performed by the lead author. The JHU editorial team collates evidence and creates and maintains an evidence table for each guideline.
Recommendation development	• The lead author drafts recommendations to address the defined scope of the guideline based on available published data. • Writing group members review the draft recommendations and evidence and deliberate to revise, refine, and reach consensus on all recommendations. • When published data are not available, support for a recommendation may be based on the committee's expert opinion. • The writing group assigns a 2-part rating to each recommendation to indicate the strength of the recommendation and quality of the supporting evidence. The group reviews the evidence, deliberates, and may revise recommendations when required to reach consensus.

Table S1: Guideline Development: New York State Department of Health AIDS Institute Clinical Guidelines Program	
Review and approval process	• Following writing group approval, draft guidelines are reviewed by all contributors, program liaisons, and a volunteer reviewer from the AI Community Advisory Committee. • Recommendations must be approved by two-thirds of the full committee. If necessary to achieve consensus, the full committee is invited to deliberate, review the evidence, and revise recommendations. • Final approval by the committee chair and the NYSDOH AI Medical Director is required for publication.
External reviews	• External review of each guideline is invited at the developer's discretion. • External reviewers recognized for their experience and expertise review guidelines for accuracy, balance, clarity, and practicality and provide feedback.
Update process	• JHU editorial staff ensure that each guideline is reviewed and determined to be current upon the 3-year anniversary of publication; guidelines that provide clinical recommendations in rapidly changing areas of practice may be reviewed annually. Published literature is surveilled to identify new evidence that may prompt changes to existing recommendations or development of new recommendations. • If changes in the standard of care, newly published studies, new drug approval, new drug-related warning, or a public health emergency indicate the need for immediate change to published guidelines, committee leadership will make recommendations and immediate updates and will invite full committee review as indicated.

Table S2: Recommendation Ratings and Definitions		
Strength	**Quality of Evidence**	
A: Strong B: Moderate C: Optional	1	Based on published results of at least 1 randomized clinical trial with clinical outcomes or validated laboratory endpoints.
	*	Based on either a self-evident conclusion; conclusive, published, in vitro data; or well-established practice that cannot be tested because ethics would preclude a clinical trial.
	2	Based on published results of at least 1 well-designed, nonrandomized clinical trial or observational cohort study with long-term clinical outcomes.
	2†	Extrapolated from published results of well-designed studies (including nonrandomized clinical trials) conducted in populations other than those specifically addressed by a recommendation. The source(s) of the extrapolated evidence and the rationale for the extrapolation are provided in the guideline text. One example would be results of studies conducted predominantly in a subpopulation (e.g., one gender) that the committee determines to be generalizable to the population under consideration in the guideline.
	3	Based on committee expert opinion, with rationale provided in the guideline text.