Chemsex: Questions and Answers

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Contents

What is chemsex?

Chemsex, a term used predominantly among some subsets of men who have sex with men (MSM) and transgender individuals, refers to the use of drugs before or during sex with the intent of enhancing or altering the experience[Coronado-Munoz, et al. 2024; Ivey, et al. 2023; Sang, et al. 2021; Evers, et al. 2019; Lawn, et al. 2019; Sewell, et al. 2019]. It is a phenomenon in which drug use and sex have a specific interplay, sometimes influenced by co-occurring sexual compulsivity[Carrico, et al. 2012; Grov, et al. 2010; Kelly, et al. 2009], and can include various types of sex (e.g., oral sex, anal or vaginal penetrative sex, masturbation, online sex, group sex). Although chemsex is most closely associated with stimulants like methamphetamine (MA), it can involve a variety of substances. Alcohol use before sex is common, but alcohol use alone is generally not considered chemsex.

Individual experiences of chemsex vary, but there is often a shared language and culture (see Table 1, below). The shared language and practices of chemsex and its occurrence in marginalized communities differentiate it from other forms of sexualized drug use. Some individuals find sex partners through geosocial networking apps (e.g., Grindr, Scruff), which have their own chemsex language and symbols (emojis). The prevalence of chemsex behaviors is difficult to estimate; most epidemiologic studies of chemsex rely on samples of treatment-seeking individuals [UNAIDS 2024; Harm Reduction International 2021] and likely underestimate prevalence.

Table 1: Common Terms Used To Describe Chemsex	
Colloquial/Slang Term(s)	**Meaning**
(parTy) favors	Typically methamphetamines or cocaine
Bump, booty bump, boof	Use intrarectally or intravaginally
G, dose, Gina	GHB, flunitrazepam
G-out	Overdose on GHB or pass out
Hit	Sniff or smoke (i.e., inhale)
Host, travel	Whether or not you are able to go to another location for sex
K, special K	Ketamine
K-hole	A type of ketamine overdose resulting in a dysphoric dissociative state
Overamping	Unpleasant or undesired physical or emotional symptoms from overusing stimulants
parTy, PnP, party n play	To use drugs and have sex
Poppers	Amyl nitrates or nitrites
Rock, hard	Crack cocaine
Slam	Use intravenously
Swirl	Initial intoxication/high
Tina, T	Methamphetamines
Abbreviation: GHB, gamma hydroxybutyrate.	

Why do people engage in chemsex?

People may engage in chemsex for a variety of reasons, including to:

- Enhance sexual satisfaction
- Reduce inhibitions or engage in sexual encounters and activities that might feel more intimidating when not under the influence of substances
- Make social connections, especially with other MSM
- Feel sexually desired
- Cope with stigma related to HIV status, sexual orientation, or gender identity; stigma-related victimization; negative body image; loneliness; or social isolation [Jaspal 2022; Ahuja, et al. 2021; Bohn, et al. 2020; Hickson 2018; Pollard, et al. 2018]
- Offset adverse sexual effects associated with prescribed medications or chronic use of substances such as MA

For individuals engaged in sex work, chemsex participation may be influenced by financial considerations, such as to satisfy a client's request or enhance or sustain sexual performance (e.g., to increase pain tolerance or facilitate longer sessions).

What substances are commonly used during chemsex?

Although substances used during chemsex differ regionally, MA is the most widely used chemsex drug among MSM and transgender women in the United States and is often used in combination with other substances[Rivera, et al. 2021; Nerlander, et al. 2018]. Individuals engaging in chemsex often use multiple substances. For example, a stimulant may be paired with a depressant and a hallucinogen, or cocaine may be paired with sildenafil to address cocaine-induced erectile dysfunction. Benzodiazepines or opioids may be used to counteract post–drug use crash or overamping (i.e., unpleasant/undesired physical or emotional symptoms) from stimulant use. Alcohol and GHB may be used to blunt the

effects of stimulants and reduce inhibitions. Opioids may also be used to delay ejaculation or orgasm and to help "come down" from the effects of a stimulant. Synthetic peptides may be used to enhance sexual desire, prolong erections, or counteract drug-induced erectile dysfunction.

Drugs commonly used during chemsex include:

- MA (as mentioned above)
- 3,4-Methylenedioxymethamphetamine (MDMA)
- Prostaglandin E1 (PGE1) inhibitors (e.g., sildenafil, tadalafil)
- Ketamine
- Gamma hydroxybutyrate (GHB)
- Gamma butyrolactone (GBL)
- Cocaine
- Alcohol
- Some nitrates or nitrites ("poppers")
- Some synthetic peptides, including PT-141 and melanotan II, that may be purchased online

See NYSDOH Clinical Guidance: Stimulant Use > Table 1: Characteristics of Commonly Used Stimulants for additional information.

How can I talk to patients about chemsex?

Ask patients frankly and nonjudgmentally about substance use, sexual history, and sexual behaviors. Ask questions that avoid making assumptions and ask for clarification about the meaning of any unfamiliar terms. The goal is to create a space in which all individuals feel comfortable speaking openly about their experiences. See the NYSDOH AI resources GOALS Framework for Sexual History Taking in Primary Care and Clinical Guidance: Stimulant Use > Box 1: Talking With Patients About Substance Use.

To start a conversation about chemsex, clinicians can ask:

- *Have you used drugs before or during sex in the last 6 months? If yes, what do you use and how frequently do you use these substances to have sex?*
- *When was the last time you used drugs or alcohol to make sex more enjoyable? What did you use?*
- *When was the last time you had sober sex (sex without drugs)? Have you ever had sober sex? Would you like to have sober sex?*

For more questions on assessing patients engagement in chemsex, see the Joint United Nations Programme on HIV/AIDS (UNAIDS) Chemsex Toolkit > Service Provider Guide to Addressing Chemsex.

Drawing on principles of motivational interviewing can provide a useful framework for these conversations[Miller and Rollnick 2023]. When exploring a patient's reasons for engaging in chemsex, build an alliance by acknowledging and asking about the positive or pleasurable aspects of chemsex, then ask about the less positive aspects of chemsex and explore the patient's perspective on personal risk and harmful consequences. Some individuals engage in chemsex episodically (e.g., on weekends, at parties) and these may be high-risk episodes. Patterns and methods of use will inform harm reduction counseling (see below).

What is harm reduction?

Harm reduction is an approach that uses practical strategies to reduce the negative consequences associated with substance use and sexual practices. It is founded on respect for the rights of individuals who use drugs (see the National Harm Reduction Coalition). A harm reduction approach promotes positive changes such as reducing substance use and using safely to reduce morbidities, including disease acquisition and transmission, without specifying or promoting abstinence as the only or even ultimate goal. This approach also emphasizes avoiding coercion, discrimination, and bias in the clinical care of people who use drugs. See the NYSDOH AI guideline Substance Use Harm Reduction in Medical Care for information on harm reduction resources, including naloxone, sterile needles and syringes, drug-checking supplies, and drug user health hubs.

Should a patient who engages in chemsex be offered substance use disorder treatment?

Ask the patient whether they are interested in reducing their participation in chemsex or changing patterns of substance use. Although some people who engage in chemsex will meet criteria for a *Diagnostic and Statistical Manual of Mental Disorders* (*DSM-5*) substance use disorder (SUD), such as stimulant use disorder, chemsex itself should not be equated with an SUD. After discussing a patient's chemsex practices, clinicians can use specific tools for assessing the level of substance use and potential presence of an SUD, if indicated.

See the NYSDOH AI guidelines and guidance:

- Substance Use Screening, Risk Assessment, and Use Disorder Diagnosis in Adults
- Treatment of Alcohol Use Disorder
- Treatment of Opioid Use Disorder
- Clinical Guidance: Stimulant Use

How can I support patients who want to reduce their participation in chemsex?

Maintain a sex-positive approach. Sober sex, rather than no sex, is the goal. This is not to say that patients will never engage in chemsex again. Instead, the goal is being able to have and enjoy sober sex, thereby reducing the frequency of chemsex and its associated health risks. Support patients in making sober social connections, having satisfying sex without the use of substances, and combating internalized stigma and loneliness.

Be familiar with appropriate interventions and referral resources (if needed). Medications, contingency management, and other behavioral health interventions may be helpful for some patients. A multipronged approach that addresses the component needs of the individual is best. However, not all clinicians or facilities are equipped to provide the various treatments or services an individual needs. Prepare patients for the possibility they may be referred to different care providers and services who will coordinate to address different aspects of their care.

For patients who continue participating in chemsex, harm reduction counseling is an essential intervention.

How can I effectively and nonjudgmentally counsel patients on risk reduction?

Chemsex involves drug- and sex-related risks, which vary from individual to individual. First, ask patients about any steps they are already taking to reduce risks associated with chemsex and offer positive reinforcement.

When discussing the health risks associated with chemsex, refrain from judgment and focus on harm reduction strategies. For example, "I'm here to help you continue having fun sexually (chemsex or not) but with fewer risks and harms."

What are the sexual risks associated with chemsex?

Sexual risks include transmission of or infection with HIV, hepatitis C virus (HCV), and other sexually transmitted infections (STIs), including (but not limited to) gonorrhea, syphilis, and chlamydia[Siddiq, et al. 2023; Amundsen, et al. 2022; Moradi, et al. 2022; Guerras, et al. 2021; Blomquist, et al. 2020; Stevens, et al. 2020; O'Halloran, et al. 2019; Sewell, et al. 2018]. In 2022, 67% of incident HIV infections were among MSM[CDC 2024], and in a study that enrolled participants from October 2017 to June 2018, 1 in 3 infections was among MSM who use meth[Grov, et al. 2020]. Among MSM, MA use is associated with twice

the risk of HIV infection and transmission[Colfax, et al. 2010; Ostrow, et al. 2009; Buchacz, et al. 2005]. Inconsistent condom use; condomless sex with multiple partners; and anal, rectal, and penile trauma (from longer or intense sexual encounters) increase the risk of HIV and STI transmission[UNAIDS 2024].

Topics for patient counseling are outlined in Box 1, below.

Box 1: Counseling Patients About Potential Sexual Risks Associated With Chemsex

When counseling patients:

- Educate about and offer the following as appropriate:
  - Pre-exposure prophylaxis (PrEP) for HIV prevention: Discuss event-driven dosing. Long-acting injectable PrEP may be appropriate for individuals with adherence challenges or who participate in chemsex without prior planning or over a long period.
  - Non-occupational post-exposure prophylaxis (PEP) for cases of HIV exposure (consider a PEP-in-pocket approach)
  - Doxycycline PEP (doxy-PEP) for prevention of bacterial sexually transmitted infections (STIs)
- Discuss combinations of drug use and sex that carry the greatest risk for transmitting HIV and other STIs, including engaging in condomless receptive anal sex (bottoming) after intrarectal use of chemsex drugs (booty bumping). For specific chemsex practices that carry a risk of blood exposure, see Chemsex and Hepatitis C: A Guide for Healthcare Providers > Transmission Risks During ChemSex.
- Recommend regular HIV, hepatitis C virus (HCV), and STI screening. See the NYSDOH AI guidelines HIV Testing and Hepatitis C Virus Screening, Testing, and Diagnosis in Adults, as well as those on sexual health care.
- Discuss undetectable = untransmittable (U=U), which is the scientific finding that people who achieve and maintain an undetectable HIV viral load do not sexually transmit HIV. For individuals with HIV, recommend antiretroviral therapy (ART) initiation and support ART adherence.
- Discuss seropositioning (having the individual with HIV be the receptive partner [bottom]) to further reduce transmission risk.
- Reinforce condom use (external, internal) and educate about alternatives to penetrative sex to avoid transmitting body fluids (e.g., penis sleeves, manual manipulation/satisfaction, sex toys).
- Educate about ways to reduce risks associated with sexual behaviors, such as:
  - Employing safer fisting techniques (e.g., using appropriate lubrication, identifying any blood or fissures, using a glove, and having a step-wise approach to fisting)
  - Managing rectal prolapse
  - Considering risks for gastrointestinal illness (e.g., risks associated with anilingus [rimming])
  - Reducing exposure to body fluids
  - Using sexual devices more safely (e.g., cleansing and sanitizing devices, using condoms on devices and changing between partners, reducing injury with use of lubricants and appropriate sizes, etc.)
  - Performing appropriate wound care and allowing for healing

What are the drug-related risks associated with chemsex?

The risks and relevant harm reduction counseling depend on which substance(s) an individual is using and how they are using them (e.g., injection, inhalation, insufflation, intrarectal, or intravaginal). For example, snorting drugs may cause ulcers in the nasal cavity or a deviated septum, inhalation can damage lungs or lead to barotrauma, injecting drugs may cause skin or soft tissue infections, and intrarectal or intravaginal use can lead to abscesses. Rectal or vaginal use can also cause abrasions and lead to increased risk of acquiring or transmitting HIV and other STIs.

Some individuals take drugs provided to them by other people and may not know exactly what they are using. Additionally, because of intoxication or transient loss of consciousness, individuals may not remember what they have taken. Drug adulteration is also common. For example, the MA supply in the United States is increasingly contaminated with the high-potency opioid fentanyl or other agents such as xylazine[Wagner, et al. 2023]. Although alcohol consumption alone is not generally considered chemsex, use of alcohol along with other substances (e.g., benzodiazepines, opioids) is associated with higher rates of oversedation, overdose, and participation in other high-risk behaviors[Kleinman and Weiss 2022; Tori, et al. 2020; Brown, et al. 2016; Johnson, et al. 2016].

A priority for harm reduction counseling is to help patients develop strategies to prevent drug overdose, overamping (i.e., overuse of stimulants leading to unpleasant/undesired physical or emotional symptoms), and alcohol poisoning; see Table 2, below.

Table 2: Strategies for Preventing Overdose During Chemsex

Risk	Strategies
Opioid overdose	Counsel patients to: • Assume that all nonprescription opioids contain fentanyl or other high-potency synthetic opioids. • Be aware that stimulants and counterfeit pills may also contain fentanyl, increasing the risk for opioid-related overdose even when not knowingly using opioids. • When possible, test drugs for fentanyl and xylazine using test strips or other drug-checking systems. • Avoid using drugs alone. • Start with a small amount when using any drug. • Consider switching to noninjection methods of use. • Carry naloxone, learn how to use it to reverse an opioid overdose, and encourage friends and contacts to do the same. Clinicians can: • Offer or refer patients to a local or online resource for fentanyl and xylazine test strips and instructions on their use. • Ensure that patients have access to naloxone. • See NYSDOH AI guideline Substance Use Harm Reduction in Medical Care > Box 1: Harm Reduction Resources in New York State.
Overamping (stimulants)	Counsel patients to: • Be aware of factors that can lead to overamping: drug, dose, mode of delivery, duration of use (lifetime and per episode), and any underlying disorders and diseases. • Address elements that are most easily modifiable, such as mode of use (e.g., smoking instead of injecting) and dose reduction. • Adequately eat before use. • Stay hydrated before and during use. • Recognize the symptoms associated with overamping, such as anxiety, paranoia, psychosis, seizure, palpitations, hypertension, hyperthermia, and cardiac and cerebrovascular events[Ciccarone and Shoptaw 2022; Harding, et al. 2022]. If serious complications (e.g., seizures, cardiac or cerebrovascular events) of stimulant use occur, seek emergency treatment. • If overamping occurs, hydrate, replenish electrolytes, and remain in a calm environment. Clinicians can: • Consider prescribing as-needed antipsychotics to manage psychiatric effects associated with chronic methamphetamine use[Coffin, et al. 2024]. • Ask patients about previous experiences of overamping, which may motivate them to change their behavior. • Offer early and aggressive preventive care related to cardiac disease.
GHB overdose	Counsel patients to: • Track and be aware of the timing of each dose; “start low and go slow.” • Be aware of appropriate body positioning to avoid asphyxiation in the event of oversedation. • Label the bottle containing GHB to avoid mistaking it for another substance.
Ketamine overdose	Counsel patients to: • Be aware of how much is being taken and how this differs by mode of delivery (e.g., inhalation vs. insufflation). • When possible, test with ketamine test strips (see DanceSafe).

Table 2: Strategies for Preventing Overdose During Chemsex	
Risk	**Strategies**
Alcohol poisoning	Counsel patients to: • Be careful of mixing alcohol with other depressants (e.g., GHB, benzodiazepines). • Substitute water between alcoholic drinks. • Be aware of how much is being consumed, that alcohol accumulates in the body, and that effects can have a delayed onset and be minimized by other drug use (i.e., stimulants). Clinicians can: • Discuss and consider prescribing event-driven naltrexone to reduce alcohol consumption[Santos, et al. 2022; Heinala, et al. 2001].
Abbreviation: GHB, gamma hydroxybutyrate.	

To address other drug-related risks, clinicians can:

- Encourage noninjection methods of use, educate about syringe services, or prescribe clean syringes; encourage use of personal rather than shared drug-use equipment; provide resources, if available, for community organizations that provide such materials. See NYSDOH AI guideline Substance Use Harm Reduction in Medical Care > Box 1: Harm Reduction Resources in New York State.
- Educate about strategies for safer smoking (e.g., using lip balm) and snorting (e.g., using personal snorting equipment or clean paper instead of dollar bills) to reduce infection risk.
- Educate patients on drug dependence and withdrawal and how to recognize the symptoms: cocaine, MA, GHB/ GBL, and alcohol have a higher risk of dependence and withdrawal symptoms and may require medical treatment; ketamine, MDMA, amyl nitrates, and PGE1 inhibitors have a lower risk.
- Advise on potential drug-drug interactions and effects, such as the risk of:
  - Hypotension when using amyl nitrates with PGE1 inhibitors
  - Oversedation when using GHB with alcohol
  - Hypotension and vomiting when using GHB or alcohol with spironolactone
  - Thrombosis when using cocaine or MA with estrogen
  - Overamping when using ketamine, cocaine, MA, or GHB with boosted protease inhibitors for HIV treatment or with nirmatrelvir/ritonavir (Paxlovid) for COVID-19 treatment
  - Priapism with PGE1 inhibitors
  - Syncope/hypotension (e.g., PGE1 inhibitors can cause syncope/hypotension when used with some cardiac medications[Kloner, et al. 2018])
- Review the patient's medications (prescribed, over-the-counter, and supplements) and advise on interactions between these and drugs used during chemsex.
- Recommend and refer for regular oral health care and preventive screening; use of stimulants is associated with dental caries, teeth loss, gum disease, gingivitis, and aphthous ulcers.
- See NYSDOH AI Clinical Guidance: Stimulant Use > Commonly Used Stimulants: Characteristics and Adverse Effects.

Which mental health conditions should be considered in patients participating in chemsex?

Chemsex has been associated with negative mental health outcomes, including paranoid ideation, hallucinations, anxiety, depression, social isolation, psychosis, memory loss, personality change, and suicidal ideation[UNAIDS 2024].

Substance-induced psychosis: Episodic and chronic use of stimulants can lead to substance-induced psychosis. Individuals with substance-induced psychosis may experience paranoia, delusions, hearing voices, and tactile disturbances (e.g., feeling of bugs crawling on the skin). Individuals may present to emergency departments with substance-induced psychosis, which can lead to involuntary admission for psychiatric care. Substance-induced psychosis should not be equated with

schizophrenia or schizoaffective disorder. Substance-induced psychosis can be episodic and self-limited or recurrent and persistent. If stimulants are used over a long period, related psychosis may become a chronic condition. Compared with other stimulants, MA use carries the highest risk of associated psychosis[SAMHSA 1999]. When patients present with psychosis validate their emotional experiences (e.g., fear) without directly validating delusional thinking (e.g., paranoia) or perceptual disturbances (auditory or visual hallucinations). It is equally important to ensure that the appropriate treatment is provided or recommended, such as referring patients to and encouraging them to see psychiatrists and other mental health clinicians. The New York State Office of Mental Health offers a directory of mental health programs. In some cases, clinicians can consider prescribing short-term, as-needed benzodiazepines and antipsychotic medications, which may reduce distress and symptoms of psychosis[Coffin, et al. 2024; Searles Quick, et al. 2021; Patel, et al. 2019; Wilson, et al. 2012; SAMHSA 1999].

Co-occurring psychiatric conditions: It is important to screen for and treat any co-occurring psychiatric conditions (e.g., depression, schizophrenia, bipolar disorder, attention-deficit/hyperactivity disorder, borderline personality disorder, eating disorders) in patients engaging in chemsex. Treating these conditions can reduce emotional dysregulation and impulsivity overall and improve decision-making in the context of sexual and substance use–related risks. Conversely, drugs used during chemsex can worsen co-occurring psychiatric conditions. For example, stimulant withdrawal can exacerbate co-occurring major depressive disorder (MDD) or cause depression, and even suicidality, in individuals without preexisting MDD.

Should I address consent and safety issues with patients participating in chemsex?

Although individuals who engage in chemsex are often stereotyped as perpetrators of violence and sexual assault, research suggests they are more likely to be victims of these crimes[Kramer, et al. 2012]. Delineations between kink and abuse and between boundaries and consent can blur in the context of chemsex. Individual experiences and beliefs around these topics vary. Maintain a neutral, nonjudgmental approach when discussing these subjects with patients. Encourage patients to reflect on their personal boundaries, what they are comfortable with, and how they will assert themselves in various situations before they engage in chemsex. For individuals who have experienced physical or sexual trauma, it can be helpful to provide resources for community supports and referrals for trauma-specific care.

◊ RESOURCES	
Clinical Consultation • Clinical Education Initiative (CEI) Line: 1-866-637-2342 • University of California San Francisco: National Clinical Consultation Center (1-855-300-3595) • Opioid Response Network (submit a request)	**Online Resources** • Terrence Higgins Trust: Understanding Chemsex • 56 Dean Street: Chemsex Care Plan • Chemsex Harm Reduction • Boston Medical Center: Educational Videos for Addiction Care Teams • Chicago Recovery Alliance: Chemsex Toolkit • Crystal Meth Anonymous (CMA) • Tweaker.org: Crystal and Sex • Friends Getting Off • UNAIDS and UNODC: Chemsex Toolkit • Sidekicks.Berlin: GHB/GBL

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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.