Houston EMA/HSDA Ryan White Part A Service Definition **Substance Abuse Services - Outpatient** (Last Review/Approval Date: 6/3/16)	
HRSA Service Category Title: **RWGA Only**	Substance Abuse Services Outpatient
Local Service Category Title:	Substance Use Treatment/Counseling
Budget Type: **RWGA Only**	Fee-for-Service
Budget Requirements or Restrictions: **RWGA Only**	Minimum group session length is 2 hours
HRSA Service Category Definition: **RWGA Only**	***Substance abuse services outpatient*** is the provision of medical or other treatment and/or counseling to address substance abuse problems (i.e., alcohol and/or legal and illegal drugs) in an outpatient setting, rendered by a physician or under the supervision of a physician, or by other qualified personnel.
Local Service Category Definition:	Treatment and/or counseling individuals with HIV with substance abuse disorders delivered in accordance with State licensing guidelines.
Target Population (age, gender, geographic, race, ethnicity, etc.):	Persons with HIV and substance abuse disorders, residing in the Houston Eligible Metropolitan Area (EMA/HSDA).
Services to be Provided:	Services for all eligible HIV patients with substance abuse disorders. Services provided must be integrated with HIV-related issues that trigger relapse. All services must be provided in accordance with the Texas Department of Health Services/Substance Abuse Services (TDSHS/SAS) Chemical Dependency Treatment Facility Licensure Standards. Service provision must comply with the applicable treatment standards.
Service Unit Definition(s): **RWGA Only**	**Individual Counseling:** One unit of service = one individual counseling session of at least 45 minutes in length with one (1) eligible client. **A single session lasting longer than 45 minutes qualifies as only a single unit** – no fractional units are allowed. Two (2) units are allowed for initial assessment/orientation session. **Group Counseling:** One unit of service = 60 minutes of group treatment for one eligible client. A single session must last a minimum of 2 hours. Support Groups are defined as professionally led groups that are comprised of HIV-positive individuals, family members, or significant others for the purpose of providing Substance Abuse therapy.
Financial Eligibility:	Refer to the RWPC's approved *Current FY Financial Eligibility for Houston EMA/HSDA Services*.
Client Eligibility:	HIV-infected individuals with substance abuse co-morbidities/disorders.
Agency Requirements:	Agency must be appropriately licensed by the State. All services must be provided in accordance with applicable Texas Department of State Health Services/Substance Abuse Services (TDSHS/SAS) Chemical

	Dependency Treatment Facility Licensure Standards. Client must not be eligible for services from other programs or providers (i.e. MHMRA of Harris County) or any other reimbursement source (i.e. Medicaid, Medicare, Private Insurance) unless the client is in crisis and cannot be provided immediate services from the other programs/providers. In this case, clients may be provided services, as long as the client applies for the other programs/providers, until the other programs/providers can take over services. All services must be provided in accordance with the TDSHS/SAS Chemical Dependency Treatment Facility Licensure Standards. Specifically, regarding service provision, services must comply with the most current version of the applicable Rules for Licensed Chemical Dependency Treatment. Services provided must be integrated with HIV-related issues that trigger relapse. Provider must provide a written plan annually no later than March 31st documenting coordination with local TDSHS/SAS HIV Early Intervention funded programs if such programs are currently funded in the Houston EMA.
Staff Requirements:	Must meet all applicable State licensing requirements and Houston EMA/HSDA Part A/B Standards of Care.
Special Requirements: **RWGA Only**	Not Applicable.

FY 2024 RWPC "How to Best Meet the Need" Decision Process

Step in Process: **Council**		Date: **06/08/2023**
Recommendations:	Approved: Y:_____ No: _____ Approved With Changes:_____	If approved with changes list changes below:
1.		
2.		
3.		

Step in Process: **Steering Committee**		Date: **06/01/2023**
Recommendations:	Approved: Y:_____ No: _____ Approved With Changes:_____	If approved with changes list changes below:
1.		
2.		
3.		

Step in Process: **Quality Improvement Committee**		Date: **05/2023**
Recommendations:	Approved: Y:_ ___ No: _____ Approved With Changes: _____	If approved with changes list changes below:
1.		
2.		
3.		

Step in Process: **HTBMTN Workgroup #2**	Date: **04/19/2023**
Recommendations:	Financial Eligibility:
1.	
2.	
3.	

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FY 2020 PERFORMANCE MEASURES HIGHLIGHTS

RYAN WHITE GRANT ADMINISTRATION

HARRIS COUNTY PUBLIC HEALTH (HCPH)

TABLE OF CONTENTS

HCPH is the local public health agency for the Harris County, Texas jurisdiction. It provides a wide variety of public health activities and services aimed at improving the health and well-being of the Harris County community.

Highlights from FY 2020 Performance Measures

Measures in this report are based on the *2021-2022 Houston Ryan White Quality Management Plan*, *Appendix B. HIV Performance Measures*. The document can be referenced here: https://publichealth.harriscountytx.gov/Services-Programs/Programs/RyanWhite/Quality

Substance Abuse Treatment

- During FY 2020, 9 (50%) clients utilized primary medical care after accessing Part A substance abuse treatment services.
- Among clients with viral load tests, 89% were virally suppressed during this time period.

Ryan White Part A
HIV Performance Measures
FY 2020 Report

Substance Abuse Treatment
All Providers

HIV Performance Measures	FY 2019	FY 2020	Change
*A minimum of 70% of clients will utilize Parts A/B/C/D primary medical care after accessing Part A-funded substance abuse treatment services	17 (70.8%)	9 (50.0%)	**-20.8%**
80% of clients for whom there is lab data in the CPCDMS will be virally suppressed (<200)	19 (82.6%)	16 (88.9%)	**6.3%**
90% of clients will complete substance abuse treatment program	See data below		

***Overall, the number of clients who received primary care in FY 2020 was 11, with 9 receiving the services through Ryan White and 2 receiving the services through other insurance such as Medicare.**

Number of clients engaged in substance abuse treatment program during FY20: **18**

Number of clients completing substance abuse treatment program during FY20 (March 2020 to February 2021): **7**

Number of clients completing substance abuse treatment during FY20 who entered treatment in FY19: **3**

Number of FY20 substance abuse treatment clients who are receiving primary care through other insurance, such as Medicare: **2**

Number of FY20 clients engaged in substance abuse treatment who completed treatment after FY20: **2**

Substance Use Disorders and HIV (Last updated June 3, 2021; last reviewed June 3, 2021)

Key Considerations and Recommendations
• Substance use disorders (SUDs) are prevalent among people with HIV and contribute to poor health outcomes; therefore, screening for SUDs should be a routine part of clinical care (AII). • The most commonly used substances among people with HIV include alcohol, benzodiazepines, cannabinoids, club drugs, opioids, stimulants (cocaine and methamphetamines), and tobacco. • Health care providers should be nonjudgmental when addressing substance use with their patients (AIII). • People with HIV and SUDs should be screened for additional mental health disorders (AII). • People with HIV and SUDs should be offered evidenced-based pharmacotherapy (e.g., opioid agonist therapy, tobacco cessation treatment, alcohol use disorder treatment; see Table 16 below) as part of comprehensive HIV care in HIV clinical settings (AI). • Ongoing substance use is not a contraindication to antiretroviral therapy (ART) (AI). Persons who use substances can achieve and maintain viral suppression with ART. • Substance use may increase the likelihood of risk-taking behaviors (e.g., risky sexual behaviors), the potential for drug-drug interactions, and the risk or severity of substance-associated toxicities (e.g., increased hepatotoxicity or an increased risk of overdose). • Selection of antiretroviral (ARV) regimens for individuals who practice unhealthy substance and alcohol use should take into account potential adherence barriers, comorbidities that could impact care (e.g., advanced liver disease from alcohol or hepatitis viruses), potential drug-drug interactions, and possible adverse events associated with the medications (AII). • ARV regimens with once-daily dosing of single-tablet regimens, high barriers to resistance, low hepatotoxicity, and low potential for drug-drug interactions are preferred (AIII).
Rating of Recommendations: A = Strong; B = Moderate; C = Optional
Rating of Evidence: I = Data from randomized controlled trials; II = Data from well-designed nonrandomized trials or observational cohort studies with long-term clinical outcomes; III = Expert opinion

Background on Substance Use Disorders among People with HIV

Ending the HIV epidemic requires addressing substance use among people with HIV, which poses a barrier to optimal engagement in the HIV care continuum. Ongoing substance use may prevent an individual from being tested for HIV, initiating antiretroviral therapy (ART), or adhering to ART, and it may increase the frequency of behaviors that put a person at risk for HIV transmission. Substance use may increase the likelihood of risk-taking behaviors (e.g., risky sexual behaviors, needle sharing, and injection of substances), the potential for drug-drug interactions, and the risk or severity of substance-related toxicities (e.g., increased hepatotoxicity and increased risk of overdose). In the United States, the death toll for drug overdose (70,237 deaths in 2017)[1] now far exceeds the death toll for HIV (15,807 deaths in 2016).[2] As the drug overdose epidemic continues to expand, health care providers need to have a basic understanding of how to screen for and treat substance use disorders in persons with HIV in clinical settings.[3]

Substance use exists on a continuum from episodic use to a substance use disorder (SUD) with its concomitant negative consequences. Research on alcohol consumption has defined a threshold at which consumption does not reach a diagnosis of a SUD, but where the level of consumption is nonetheless hazardous to the person. This level of consumption has been defined as "hazardous drinking." A comparable category does not exist for other substances. The prevalence of substance use and SUDs is higher among people with HIV than among the general public,[4] and polysubstance use is common. This section will focus on the most commonly used substances among people with HIV: alcohol, benzodiazepines, cannabinoids, club drugs,[5] opioids, stimulants (cocaine and methamphetamines), and tobacco.

People with HIV may use more than one substance and may not be ready to consider reducing the use of substances or seeking treatment for SUDs. Polysubstance use occurs for multiple reasons, including to improve the euphoria associated with use (e.g., use of cocaine and heroin mixtures called "speedballs") and to reduce the adverse effects of a particular substance (e.g., the use of alcohol or benzodiazepines to reduce the anxiety caused by cocaine use).

Substance Use and Sexual Risk Taking

There is a growing body of literature describing the intersection of substance use and sexual risk taking ("chemsex"). This research highlights the impact of substance use on sexual risk behaviors; although there is no precise definition of "chemsex", studies have investigated the use of many different substances used to enhance sexual pleasure, decrease inhibitions related to particular sexual acts, and combat low self-esteem. In a retrospective study in a London sexual health clinic, individuals who disclosed substance use (463 of 1,734 patients) had higher odds of acquiring new HIV infection, bacterial sexually transmitted infections (STIs), and/or hepatitis C virus (HCV).[6] A much larger analysis using the European Men Who Have Sex with Men (MSM) Internet Survey, which collected data from 16,065 United Kingdom-based respondents, found that MSM who reported using methamphetamines or gamma-hydroxybutyrate (GHB) during the previous year were more likely to have gonorrhea infection than MSM who did not use these drugs, with odds ratios of 1.92 and 2.23, respectively.[7] These data emphasize the need to screen patients for substance use and STIs in clinical settings.

Screening for Substance Use Disorders

Screening for SUDs should be incorporated into the routine clinical care of all people with HIV. The following questions can be used to screen for drug or alcohol use: "How many times in the past year have you used an illegal drug or used a prescription medication for nonmedical reasons?" and "How many times in the past year have you had X or more drinks in a day?" (X is five for men and four for women).[8] Data are lacking on the appropriate threshold for alcohol use among transgender individuals, so until data clarifies the risks, providers should use the more conservative threshold of four drinks. Individuals with liver disease, including active HCV infection, should not consume alcohol. A positive response at least one time on either screen should prompt additional screening with other short, yet effective screening tools (see the Screening and Assessment Tools Chart from the National Institute on Drug Abuse). These tools can identify substance use and guide decisions on appropriate treatment interventions. There is currently not enough data to determine how often patients should be screened for SUDs; however, given the potential negative impact that SUDs may have on persons with HIV, it is advisable to ask these questions during every clinical visit.

Health care providers should be nonjudgmental when discussing substance use with their patients. Patients who experience stigma or who feel judged may not trust the health care provider's recommendations, may avoid returning to see that provider again, and may consequently have poorer health outcomes.[9] Language is one way in which stigma is communicated, and words such as "addict" and "dirty urine" convey a negative connotation. The Office of National Drug Control Policy (ONDCP), the American Medical Association, the American Society of Addiction Medicine, the International Society of Addiction Journal Editors, and others have recommended the adoption of clinical, non-stigmatizing language for substance use as described in the "Changing the Language of Addiction" report from ONDCP.

Co-Occurring Mental Illness

Many people who use substances have co-occurring mental health disorders, including a history of trauma that may drive and/or exacerbate their substance use. Conversely, ongoing use of substances can place individuals at risk of trauma, such as sexual assault and sexual exploitation, which may further exacerbate their substance use.[6,10] People with SUDs should undergo evaluation and treatment for concurrent mental health disorders using standardized screening instruments (e.g., the Patient Health Questionnaire-2 [PHQ-2] for depression).[11] Where applicable, clinicians should use available behavioral and pharmacological interventions to address mental health concerns, because recommending that patients stop their substance use without providing treatment for underlying mental health conditions has very limited efficacy.[11]

Several behavioral interventions have shown promise in randomized trials. Motivational interviewing, cognitive behavioral therapy, or a combination of the two have led to decreases in stimulant use, decreases in risky sexual behaviors, and improved adherence to ART.[12] Contingency management, a behavioral

intervention that provides rewards for abstinence, has been shown to be effective in decreasing stimulant use among people with HIV, but whether decreases in stimulant use are sustained over time is less clear.[13]

Selecting, Initiating, and Maintaining Antiretroviral Therapy

Ongoing substance use is not a contraindication to having ART prescribed. Indeed, ART reduces the risk of HIV transmission to sexual partners and to individuals who share drug paraphernalia. These clinical, community, and individual benefits should encourage health care providers to initiate ART in people with HIV who use substances, and for those with SUDs.

When selecting antiretroviral (ARV) regimens for individuals who use substances, clinicians should consider potential barriers to adherence (see Adherence to the Continuum of Care), co-morbidities that could impact care (e.g., advanced liver disease from alcohol or HCV), potential drug-drug interactions, and possible adverse events that are associated with the medications. Providers should discuss adherence with their patients during multiple, nonjudgmental evaluations. In general, the use of simplified ARV regimens should be considered to aid ART adherence. Regimens for people with SUDs should be easy to take, such as a once-daily, single-tablet regimen,[14] and should have a high barrier to resistance or a low risk of hepatotoxicity. Adherence counseling should highlight the benefits of ART use, irrespective of concurrent substance use. Additionally, a reduction in substance use may improve adherence to ART.[15]

The development of long-acting injectable (LAI) antiretrovirals provides additional options for patients on ART. The combination of injectable cabotegravir (CAB) and rilpivirine (RPV) is an optimization option for patients who demonstrate retention in HIV care and who are virologically suppressed on oral therapy (see Optimizing Antiretroviral Therapy in the Setting of Virologic Suppression). Current research on these medications is limited to individuals with expected good adherence and an ability to achieve virologic suppression on oral therapy prior to starting LAIs. To date, little research has examined the use of these medications to support individuals struggling with adherence. Specifically, data on the use of CAB and RPV to improve medication adherence for people who actively use substances and/or have SUDs are currently lacking. LAI anti-psychotics have been studied in people with schizophrenia and SUDs. Starr and colleagues, for example, found fewer treatment failures using a once-a-month injectable paliperidone when compared to an oral anti-psychotic regimen.[16] The use of LAIs, however, presents unique concerns in people with HIV and SUDs, given the potential for the emergence of HIV drug resistance if there is reduced adherence to or delay in receiving scheduled injections.

The following factors should be considered when contemplating the use of LAIs in people with HIV and SUDs.

- As with all treatment conversations, providers should discuss adherence with their patients during multiple, nonjudgmental evaluations.
- Providers and people with HIV should consider the impact of using LAIs in the context of current or past substance use behaviors. While some people may welcome or even prefer LAIs,[17] one qualitative study highlighted that some people who either currently inject or previously injected substances may find that LAIs are a trigger for the injection of illicit substances.[18]
- Studies utilizing LAIs have included individuals with good adherence prior to starting the LAIs, but this should not exclude people with SUDs who are struggling with adherence from being considered for LAIs. Rather, the clinical team should consider what additional support may be needed to help people with SUDs to be successful with LAIs. Some people with HIV may benefit from the administration of LAI in conjunction with methadone for the treatment of opioid use disorder, given anticipated adherence with methadone clinic visits. Case management, patient navigators, and/or peer navigators should be considered to help patients return for follow-up injections.
- Given the often unpredictable lifestyles of people with SUDs, clinical care teams should be flexible in scheduling patients for injections or accommodating walk-ins for injections.

- Patients with hepatitis B virus (HBV) have not been studied with CAB and RPV, since these patients would need oral agents for HBV treatment. People with HIV should be screened for HBV infection and vaccinated prior to consideration of CAB/RPV, if not already immune or infected.
- Depressive disorders have been associated with CAB and RPV, so patients with SUD should be screened for depressive disorders and treatment for depression initiated if indicated. If depressive disorders worsen while on CAB and RPV, patients should be reevaluated to determine whether continued therapy with this regimen is advisable.

Importantly, there are multiple knowledge gaps regarding the use of LAIs among people with HIV and SUDs. The results from the ongoing Long-Acting Therapy to Improve Treatment Success in Daily Life (LATITUDE) Study (NCT 03635788) will provide needed information on using LAIs among people with HIV and SUDs who have struggled with ART adherence.[19] Additional research is needed to determine optimal methods to support ART adherence (including LAI adherence) among people with HIV and SUDs. These research studies will need to take into consideration the combination of various interventions (e.g., peer support, case management, pharmacotherapy for SUDs, etc.) and the appropriate individual interventions needed to support overall ART adherence.

Commonly Used Substances and Their Impact on HIV and Antiretroviral Therapy

Health care providers should have a basic understanding of evidence-based treatments for SUDs, including alcohol, benzodiazepines, cannabinoids, club drugs, opioids, stimulants (cocaine and methamphetamines), and tobacco. The sections below discuss the impact of these substances on people with HIV and how these substances affect ART use.

Alcohol

Epidemiology

Alcohol consumption is common among people with HIV. Recent estimates indicate that >50% of people with HIV in the United States consume any amount of alcohol (range, 54% - 67%).[20, 21] Among a sample of people with HIV across seven university-based HIV clinics in the United States, 27% of people screened positive for unhealthy alcohol use as determined by the Alcohol Use Disorders Identification Test-Consumption (AUDIT-C).[21] Unhealthy alcohol use includes a spectrum of consumption, including risky or hazardous use, heavy episodic use (binge drinking), and alcohol use disorder (AUD).[22]

Risk-Taking Behaviors, the HIV Care Continuum, and Comorbidities

Unhealthy alcohol use has been linked to HIV acquisition, because it can increase the frequency of behaviors that put a person at risk for sexual transmission of HIV.[23-25] In a meta-analysis of 27 studies, any alcohol use, unhealthy alcohol use, and alcohol use in sexual contexts were all associated with condomless sex among people with HIV.[24]

In addition, unhealthy alcohol use has been associated with interruptions in all steps of the HIV care continuum, including lower adherence to ART.[26, 27] Studies have demonstrated both temporal and dose-related relationships between alcohol use and adherence, where ART is more likely to be missed on a given drinking day and the day after drinking, with a stronger association on heavy (binge) drinking days.[28-30] The negative impact of unhealthy alcohol use on ART adherence is likely multifactorial and driven by the effects of intoxication, ARV regimen complexity, and patient perceptions of adverse interactions between alcohol and ARV drugs.[31-33] Studies have also demonstrated an association between unhealthy alcohol use and the loss of durable viral suppression,[34, 35] greater time spent with a viral load >1,500 copies/mL after ART initiation,[36] increased risk of viral rebound, lower retention in care,[37,38] and increased mortality.[39-41] Unhealthy alcohol use alone (hazardous or AUD) and in combination with other common comorbidities, including viral hepatitis coinfection, can hasten liver fibrosis progression in people with HIV.[42, 43] Finally, in general medical populations, unhealthy alcohol use complicates the management of diabetes mellitus, hypertension, mental health disorders, other substance use, and other chronic diseases, and it increases the

risk for pneumonia, osteoporosis, a number of cancers (e.g., liver, head and neck, and breast cancers), and tuberculosis.

Management of Unhealthy Alcohol Use

Ongoing alcohol use is not a contraindication for a person to receive ART. However, treatment for unhealthy alcohol use may improve HIV treatment outcomes. Behavioral treatments for unhealthy alcohol use among people with HIV demonstrate a small but significant reduction in alcohol use[44] (see additional resources for alcohol management from the National Institute on Alcohol Abuse and Alcoholism and the Substance Abuse and Mental Health Services Administration [SAMHSA]). Pharmacotherapy can also reduce alcohol use among people with HIV. There are three Food and Drug Administration (FDA)-approved pharmacotherapies for AUD: naltrexone, disulfiram, and acamprosate (see Table 16 below).

Clinical trials have demonstrated the efficacy of naltrexone in reducing the number of heavy drinking days among those with HIV and among the general population. Naltrexone appears to be safe to use in people with HIV,[45, 46] and it is not associated with significant drug-drug interactions or irreversible hepatotoxicity. However, it is not recommended for individuals with decompensated liver disease and should be used with caution in individuals with elevated transaminase levels. Use of naltrexone in people with HIV and AUD can improve HIV treatment outcomes. In a randomized placebo-controlled trial of 100 prisoners with HIV who met the criteria for AUD, individuals who were provided depot naltrexone upon release from prison were more likely to achieve viral suppression at 6 months than the placebo group (56.7% vs. 30.3%).[46]

Data on the use of disulfiram and acamprosate among people with HIV are lacking. Notably, integrating treatment for AUD with treatment for HIV has been shown to increase the number of patients who receive alcohol treatment medication, counselling, and formal outpatient alcohol treatment services. Integrating these treatments may also improve the likelihood that a patient will achieve viral suppression on ART. A randomized controlled trial of 128 individuals with HIV and AUD compared an integrated stepped-care model of alcohol treatment in Veterans Administration HIV clinics to treatment as usual. At the end of treatment (24 weeks), integrated stepped care resulted in more participants receiving pharmacotherapy for AUD and participating in counseling. Though differences in alcohol use and viral suppression were not seen at 24 weeks, at 52 weeks, integrated stepped care was significantly associated with an increased number of alcohol abstinent days, a decrease in the number of drinks per drinking day, and a decreased number of heavy drinking episodes. In addition, the patients in the stepped care group had increased odds of achieving viral suppression (odds ratio [OR] 5.58; 95% confidence interval [CI], 1.11–27.99).[47]

Liver cirrhosis, whether related to chronic heavy alcohol use, viral hepatitis, or nonalcoholic fatty liver disease, can result in altered metabolism of ARV drugs. For those who have hepatic impairment due to alcohol-related liver disease, ART dosing should follow the recommendations in Appendix B, Table 10, which are based on Child-Pugh classifications.

Benzodiazepines

Epidemiology

While specific epidemiologic data on the prevalence of benzodiazepine use among people with HIV are limited, the use of benzodiazepines can impact both morbidity and mortality. Benzodiazepines cause anterograde amnesia, defined as difficulty recalling events after taking the medication. Individuals do not develop tolerance to this neurocognitive effect, and long-term use of benzodiazepines may result in impairment of neurocognitive functioning.[48]

Risk-Taking Behaviors and the HIV Care Continuum

People who inject drugs and who also use benzodiazepines engage in riskier behaviors than the people who inject drugs but do not use benzodiazepines; these behaviors may include paying for sex, sharing injection

equipment with more people, and performing more frequent injections.[49] A cohort of 2,802 people who injected drugs was followed from 1996 to 2013. During that time, benzodiazepines were the substances with the greatest association with mortality.[50] The long-term neurocognitive impact of benzodiazepines on ART adherence among people with HIV is unclear, but prescribing a memory-impairing medication to people with HIV who are prone to neurocognitive impairments from other causes may increase the risk of poor ART adherence.[51] Benzodiazepines are also used illicitly to counteract the negative side effects of stimulants, such as cocaine and methamphetamine.[52]

Management of Benzodiazepine Use

Repeated use of benzodiazepines can result in physiologic dependence and life-threatening withdrawal in some patients. When feasible, individuals who chronically take benzodiazepines should be slowly tapered off the benzodiazepines under the supervision of an experienced clinician. Different benzodiazepines have different potencies (e.g., alprazolam is more potent than diazepam) and therefore require different tapers in terms of length and graduated decrease in dosage.

Benzodiazepine and Antiretroviral Drug Interactions

Several pharmacological interactions with ARV drugs have also been described. For example, some benzodiazepines are cytochrome P (CYP) 3A4 substrates; thus, when these benzodiazepines are used with a ritonavir-boosted or cobicistat-boosted ARV drug, their half-lives and concentrations can increase significantly, leading to enhanced and prolonged sedating effects. See Drug-Drug Interactions for available data on benzodiazepine-related interactions.[53]

Cannabis and Cannabinoids

Epidemiology

Both medical and recreational cannabis (marijuana) use are prevalent among people with HIV.[54] Cannabis belongs to a class of compounds that activate cannabinoid receptors. This class, known as cannabinoids, also includes synthetic compounds, such as K2. In recent years, cannabinoids have become more popular. In 2009, two cannabinoids were reported to the National Forensic Laboratory Information System. By 2015, 84 compounds had been reported.[55] These compounds most commonly cause tachycardia, agitation, and nausea, but they have a wide range of psychiatric effects, including psychosis and paranoia.[56]

Risk-Taking Behaviors and the HIV Care Continuum

Cannabis has not been shown to negatively impact adherence to ART or a patient's ability to achieve viral suppression. In one study, among 874 people with HIV, daily cannabis use did not predict lower odds of ART use or achieving an undetectable HIV RNA level, except when combined with binge drinking.[57] Data from the Multicenter AIDS Cohort Study have supported the idea that marijuana use does not predict problems with adherence to ART or achieving viral suppression.[58] In some cases, however, cannabinoids have been listed as the cause of death in overdoses. While data are lacking among adults with HIV, the nationally representative 2015 Youth Risk Behavior Survey (which includes data from 15,624 adolescent students in Grades 9 to 12) found that students who had ever used synthetic cannabinoids engaged in riskier activities, including sex, than students who only used marijuana.[59] While the available data suggest that the use of marijuana is not associated with decreased adherence to ART,[60] data are currently lacking on the impact of synthetic cannabinoids on ART adherence. Finally, with the growing use of synthetic cannabinoids, there is concern that fentanyl could be added to these products, which may increase the risk of opioid overdose.

Management of Cannabis and Cannabinoid Use

Due to the aforementioned concerns regarding cannabinoid use, particularly the variety of compounds and neuropsychiatric effects, people with HIV should be discouraged from using cannabinoids until more data are available. There is no pharmacological treatment for cannabinoid use disorder; however, behavioral health treatment may be effective for some patients.[61-63]

Club Drugs

Epidemiology

Club drugs are recreational substances that have euphoric or hallucinogenic effects or that are used to enhance sexual experiences.[5] The use of multiple club drugs or other drugs simultaneously is common. While these substances are used by many different people with HIV, the majority of data comes from MSM with HIV. Use of club drugs in this population has been shown to negatively impact HIV treatment.[64] Club drugs include methylenedioxymethamphetamine (MDMA), GHB, ketamine, benzodiazepines (see the benzodiazepine section above), and other drugs that are used to enhance sexual experiences (e.g., mephedrone, inhaled nitrates [poppers], and phosphodiesterase-5 inhibitors [PDE5] for erectile dysfunction). Survey data from users of club drugs have also revealed that efavirenz is purchased by people without HIV for its intoxicating effects.[65]

Risk-Taking Behaviors and the HIV Care Continuum

Club drugs have disinhibitory effects. Using club drugs increases the likelihood that a person will engage in high-risk sexual practices, which can increase the risk of HIV transmission. In addition, these disinhibitory effects can lead to poor ART adherence.[53, 64, 66]

Management of Club Drug Use

Treatment strategies for club drug use have not been well studied in controlled trials.[67] There are no recommended pharmacotherapies at this time, and the most common strategy for treating patients who use club drugs is to employ the behavioral interventions that are used for other drug use disorders.

Club Drug and Antiretroviral Drug Interactions

MDMA, GHB, ketamine, and methamphetamine all have the potential to interact with ARV drugs, because they are metabolized, at least in part, by the CYP450 system.[53, 66] Overdoses secondary to interactions between club drugs (i.e., MDMA or GHB) and protease inhibitor-based ART have been reported.[53] For instance, using PDE5 or ketamine concurrently with potent CYP3A4 inhibitors, such as ritonavir or cobicistat, can lead to potentiation of the effects of these substances.[64]

Cocaine

See the discussion in the section on stimulants below.

Opioids

Epidemiology

Opioids remain a significant concern for people with HIV, both for the acquisition of HIV and as major contributors to morbidity and mortality. Overdose involving opioids is the leading cause of accidental death in the United States.[68] The appropriate use of opioids while caring for people with HIV and chronic pain is an important component of combating the opioid epidemic, but this subject is beyond the scope of this section. Please refer to additional resources, such as those from the Centers for Disease Control and Prevention (CDC) and the Infectious Diseases Society of America.[69] To combat the opioid overdose epidemic, health care providers should prescribe naloxone for opioid overdose prevention for all patients who are using opioids beyond the short-term treatment of acute pain.[3]

Risk-Taking Behaviors and the HIV Care Continuum

Many people who use opioids start by using opioid tablets (e.g., oxycodone) that are ingested orally or crushed and sniffed. Once tolerance develops, some individuals move from sniffing the crushed tablets to injecting heroin purchased on the streets. This transition from sniffing to injecting dramatically increases the risk of HIV and HCV infection.

Low-cost heroin is often a mix of heroin and higher potency synthetic opioids, such as fentanyl.[68] Methamphetamines and cocaine have also been combined with fentanyl but at a lower rate than heroin.[70,

[71] With the growing use of synthetic cannabinoids, there is concern that fentanyl could be added to these as well. In all instances where fentanyl or other high-potency opioids are added to other drugs, the risk of overdose increases.

While treatment for an opioid use disorder can improve HIV treatment outcomes, it is not a prerequisite for treating HIV, as some patients are able to successfully adhere to ART despite ongoing opioid use. Although ART coverage among people with HIV who injected drugs increased from 58% to 71% between 2009 and 2015, additional work is needed to improve ART coverage in this population.[72] Data from the Johns Hopkins HIV Clinical Cohort (2001–2012) demonstrated that in the early years of the cohort, people who injected drugs were less likely to be retained in care; however, this gap in retention had closed by 2012, and people who injected drugs and noninjectors had similar probabilities of being on ART and having a suppressed viral load during the later years of the cohort.[73]

Management of Opioid Use

There are three FDA-approved medications for the treatment of opioid use disorder that can help decrease or eliminate opioid use, reduce the risks of morbidity and mortality that are associated with opioid use, and improve HIV treatment success. These medications, collectively termed medication-assisted treatment (MAT), include buprenorphine, methadone, and naltrexone (see Table 16 below). Buprenorphine and methadone are opioid agonists (the use of these drugs is termed opioid agonist therapy [OAT]), while naltrexone is an opioid-antagonist or "blocker." Both buprenorphine and naltrexone can be prescribed in the setting of routine HIV clinical care.[74] Prescribing buprenorphine requires specific training and licensure (known as an X-waiver; see the SAMHSA website for more information). Methadone must be prescribed through a licensed opioid treatment program (OTP). An OTP directory can also be found on the SAMHSA website.

Use of buprenorphine or methadone can lead to reductions in risky behaviors associated with HIV transmission, psychosocial and medical morbidity related to opioid use disorder, and criminal behaviors. People who are receiving treatment for opioid use are already engaging with the health care system; therefore, they are more likely to initiate treatment for HIV and to be adherent to their ARV regimens. Both buprenorphine and methadone are cost-effective interventions at the societal level.[75] Methadone has better retention in SUD treatment than either buprenorphine or naltrexone, and it should be considered for individuals who do not achieve successful outcomes with buprenorphine or naltrexone.[76] Buprenorphine has a lower risk of overdose than methadone. In addition, it can be prescribed in primary care offices. Patients who are taking buprenorphine have significantly better retention in treatment than those who are taking daily oral naltrexone.[77] While several randomized, controlled clinical trials have demonstrated efficacy for naltrexone when treating opioid use disorder, subsequent study results have been disappointing; one meta-analysis revealed that oral naltrexone was equivalent to placebo.[78] To address the adherence challenges with naltrexone, a depot formulation was created for monthly administration. This preparation has the potential to improve adherence; however, studies that compare opioid agonists, such as buprenorphine and methadone, to depot naltrexone as treatments for opioid use disorder have not been conducted. In a randomized, placebo-controlled trial in people with both HIV and opioid use disorder, participants who received at least three doses of depot naltrexone prior to discharge from prison achieved longer periods of continuous abstinence after transitioning from prison to the community than those who received either placebo or two or less doses of depot naltrexone.[46] On the basis of these data, methadone or buprenorphine are generally used as first-line agents for the treatment of opioid use disorder. Depot naltrexone is used as an alternative treatment for people who have recently been released from correctional facilities when other options are not available.

Important pharmacokinetic interactions between these medications (particularly methadone) and certain ARV drugs are listed in Drug-Drug Interactions.

Stimulants

Epidemiology

Cocaine and methamphetamine are powerful stimulants that have been associated with multiple detrimental effects to people with HIV, including accelerated disease progression, poor ART adherence, and lack of viral suppression. Cocaine powder is snorted or injected, while the free-base form (crack) is smoked. Methamphetamines can be taken orally or rectally, injected, or smoked. Cocaine and methamphetamine are commonly used with other substances, including alcohol, and can be combined with fentanyl, which increases the risk of overdose.[70, 71] Individuals who use stimulants experience a sense of euphoria and may have heightened sexual desire and arousal. This can lead to disinhibited sexual behaviors, increasing the risk of HIV transmission.

The prevalence of stimulant use among people with HIV has been estimated to be 5% to 15% across multiple studies.[79-81] Methamphetamine use is more common among MSM,[82] and increased rates of cocaine use have been observed among ethnic and racial minorities and persons with a history of incarceration.[83]

Risk-Taking Behaviors and the HIV Care Continuum

There are multiple negative health consequences of stimulant use among people with HIV, including rapid development of dependence and adverse effects on multiple organ systems, particularly the central nervous and cardiovascular systems. Stimulant use is associated with neurocognitive impairment,[84] delirium, seizures, hemorrhagic strokes, and mental health disturbances, including anxiety, psychosis, and paranoia.

Stimulant use may independently lead to HIV disease progression even among persons who are taking ART and who have achieved viral suppression. Research to identify the cellular mechanisms responsible for this is ongoing, but increased viral replication, direct effects on the immune system that lead to declines in CD4 T lymphocyte cell count, enhanced immune activation, and disruption of the blood brain barrier that facilitates HIV entry into the brain have been implicated.[85-88] Stimulant use has been associated with poor HIV continuum of care outcomes, including suboptimal rates of ART adherence, retention in care, and viral suppression. Lack of viral suppression, combined with the increased likelihood of risky sexual behaviors that occur under the influence of stimulants, poses a threat to the HIV treatment-as-prevention paradigm.[89]

Management of Stimulant Use

Several pharmacologic and behavioral interventions for stimulant dependence have been investigated, and some trials have included people with HIV. The results of pharmacologic interventions have generally been disappointing. There is no FDA-approved pharmacotherapy for cocaine use disorder at this time, despite research on multiple drug classes, including antidepressants, antipsychotics, anticonvulsants, and dopaminergic medications (e.g., disulfiram).[90, 91] Among people with HIV who use crack and opioids, MAT for opioid use disorder may improve ART adherence and viral suppression.[92, 93] There is limited evidence that some pharmacologic interventions (e.g., methylphenidate, modafinil, bupropion, naltrexone)[94] can reduce methamphetamine use or cravings. A double-blind, placebo-controlled trial of extended-release injectable naltrexone plus oral extended-release buproprion in adults with moderate or severe methamphetamine use disorder demonstrated a higher response of urine samples free of methamphetamines compared to placebo (weighted average response of 13.6% with naltrexone-buproprion and 2.5% with placebo, $P < 0.001$); however, the overall response rate was low.[95] There is no recommended pharmacotherapy to treat stimulant use disorder in people with HIV.

Several behavioral interventions have shown promise in randomized trials. People with HIV who received motivational interviewing sessions, cognitive behavioral therapy, or a combination of the two decreased their stimulant use and improved their adherence to ART, and they were less likely to engage in risky sexual behaviors.[12] Contingency management has been shown to be effective in decreasing stimulant use among people with HIV, but the sustained effects on the reduction of stimulant use and improvements in ART adherence are less clear.[13, 80, 96] Technology-based interventions, such as text messaging, may have a role

in supporting ART adherence and decreasing methamphetamine use among people with HIV, but further research is needed.[97] People with HIV who use stimulants benefit most from multidimensional interventions that target substance use, ART adherence, and risky sexual behaviors.[12]

Despite the challenges discussed above, people with HIV who use stimulants can achieve viral suppression with ART[98] and should be prescribed ART even if stimulant use is ongoing.

Tobacco

Epidemiology

The prevalence of tobacco smoking among people with HIV in the United States is approximately twice that of the general population (33.6% vs. 16.8%).[99] Prevalence is even higher among specific subgroups, including those who use alcohol and/or other drugs, those who have concurrent mental health disorders, and those of a lower socioeconomic status. While smoking rates are declining overall in the United States, people with HIV are less likely to quit smoking than people in the general population.[99]

Associated Risks of Tobacco Use and HIV Infection

With respect to substance use and HIV, tobacco smoking is the biggest threat to health-related gains achieved through ART. Among individuals with viral suppression on ART, more years of life may be lost from continued smoking than from HIV infection itself.[100, 101] Tobacco smoking among people with HIV is associated with an increased risk of numerous health conditions, including lung cancer and other smoking-related cancers, cardiovascular disease, and pulmonary disease. In a sample of 17,995 people with HIV on ART in Europe and North America, individuals who smoked had nearly twice the mortality of those who did not (mortality rate ratio 1.94; 95% CI, 1.56–2.41) with significant mortality attributed to cardiovascular disease and non-AIDS-related malignancy.[100] Importantly, tobacco cessation reduces the incidence of cardiovascular disease and smoking-related cancers (though definitive data on lung cancer are not available) and improves quality of life.[102-104]

Managing Tobacco Use

To maximize the survival benefits of ART, clinicians should consider using evidence-based behavioral and pharmacological[105-107] cessation strategies when treating patients with HIV who smoke tobacco (see the tools and recommendations provided by the CDC and the U.S. Preventative Services Task Force). These include (but are not limited to) advising the patient to quit smoking, using the five A's, employing motivational interviewing, and referring the patient to a tobacco quitline. Pharmacotherapies for smoking cessation (nicotine replacement therapy, bupropion, and varenicline) have few clinically significant interactions with ARV drugs and can lead to enormous reductions in morbidity and mortality if the person is able to stop smoking. Nicotine replacement is efficacious;[108] however, bupropion doubles rates of smoking cessation compared with nicotine replacement therapy.[109] Varenicline is a partial nicotine receptor agonist. In comparative studies, varenicline was more effective than bupropion in smoking cessation.[109, 110] Clinical trials among people with HIV have found varenicline to be both effective and safe.[105, 107] In a recent randomized controlled trial among 179 individuals with HIV who were randomized to receive 12 weeks of behavioral counseling and either varenicline or placebo, varenicline use led to an increase in the percentage of participants who achieved a 7-day abstinence period at 12 weeks (28.1% vs. 12.1%, OR 4.5; 95% CI, 1.83–11.2) and produced higher continuous abstinence between weeks 9 and 12 (23.6% vs. 10%, OR 4.65; 95% CI, 1.71–12.67) compared to placebo.[107] While significant between-group differences were not observed after 24 weeks, these data support the use of varenicline among people with HIV. Varenicline should be used in combination with relapse prevention strategies and other measures for long-term tobacco cessation.

Table 16. Medications for Treatment of Substance Use Disorders

Medication	Dose and Recommendations	Potential Interaction with ARV Drugs	Comments
Alcohol Use Disorder			
Acamprosate	666 mg PO three times a day *or* 333 mg PO three times a day for patients with CrCl 30–50 mL/min	No significant interaction with ARV drugs expected.	Contraindicated in patients with CrCl <30 mL/min.
Disulfiram	250 mg PO once daily	Use with caution when prescribing an ARV oral solution that contains ethanol and/or propylene glycol (e.g., FPV, LPV/r, RTV).	Counsel patients regarding disulfiram reaction when taken with alcohol; symptoms for the reaction may include flushing, tachycardia, nausea, vomiting, or hypotension.
Naltrexone	50–100 mg PO once daily Depot formulation is a fixed-dose monthly injection.	No significant interaction with ARV drugs expected.	Has the greatest efficacy of all FDA-approved medications for alcohol use disorder.
Opioid Use Disorder			
Buprenorphine	Individualize buprenorphine dosing based on a patient's opioid use. The dose range is 4–24 mg sublingually. Dosing is once daily or twice daily.	Potential interaction with ARV drugs that are CYP inhibitors or inducers. See Drug-Drug Interactions for further recommendations.	Buprenorphine has 90% first pass hepatic metabolism. Verify that the patient is using the appropriate technique for sublingual administration before adjusting the dose, as improper administration will result in poor absorption and low drug levels.
Methadone	Individualize dose. Patients who receive higher doses (>100 mg) are more likely to remain in treatment.	Potential interaction with ARV drugs that are CYP inhibitors or inducers. See Drug-Drug Interactions for further recommendations.	QTc prolongation is a concern at higher doses. Methadone can only be prescribed for OUD by a licensed OTP.
Naltrexone	50–100 mg PO once daily Depot formulation is a fixed-dose monthly injection.	No significant interaction with ARV drugs expected.	Longer time of continuous abstinence in those who received depot formulation naltrexone compared to placebo after transition from prison to community.
Nicotine Use Disorder			
Nicotine Replacement Therapy	There are a wide variety of FDA-approved nicotine replacement products. All formulations are effective.	No significant interaction with ARV drugs expected.	Work with the patient to identify the route of delivery that the patient will use and find most helpful.
Bupropion	Start at 150 mg PO daily for three days, then increase to either 150 mg twice daily or 300 mg once daily (only use formulations that are approved for once daily dosing).	Concentration may be reduced when used with ARV drugs that are CYP2D6 inducers. See Drug-Drug Interactions for further recommendations.	Tobacco quit date should ideally be 1 week after starting therapy.
Varenicline	Titrate dose based on tolerability until desired effect is achieved. The goal is to reach a dose of 1 mg PO twice daily. Requires dose adjustment in patients with CrCl <30 mL/min.	No significant interaction with ARV drugs expected.	Tobacco quit date should ideally be 1 week after starting therapy.

Key: ARV = antiretroviral; CrCl = creatinine clearance; CYP = cytochrome P; FDA = Food and Drug Administration; FPV = fosamprenavir; LPV/r = lopinavir/ritonavir; OUD = opioid use disorder; OTP = opioid treatment program; PO = orally; RTV = ritonavir;

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HRSA
Ryan White & Global HIV/AIDS Programs

HRSA's Ryan White HIV/AIDS Program

The Intersection of HRSA's Ryan White HIV/AIDS Program and the Opioid Epidemic

A recent study has shown that the overall number of deaths in people with HIV in the United States is declining (12.7% decline from 2011 to 2015), yet the number of opioid overdose deaths in people with HIV is on the rise (47% increase from 2011 to 2015).[1] The Health Resources and Services Administration's (HRSA) Ryan White HIV/AIDS Program (RWHAP) recipients have spent decades building systems of care to meet the needs of people with HIV, including providing services to address individuals' medical and social needs. In consideration of the opioid crisis, RWHAP recipients are facing the need to redouble their efforts to provide services to the most vulnerable populations, meeting clients where they are and working to improve individual-level and overall public health.

[1] Bosh KA, Crepaz N, Dong X, et al. Opioid overdose deaths among persons with HIV infection, United States, 2011–2015. [Abstract number 147]. Abstract presented at the 2019 Conference on Retroviruses and Opportunistic Infections; March 7, 2019; Seattle, Washington.

To better understand the current impact of the opioid epidemic on the RWHAP, HRSA HIV/AIDS Bureau (HAB) hosted a Technical Expert Panel (TEP) on the "RWHAP Response to the Opioid Epidemic" in summer 2018. The TEP convened RWHAP recipients and other experts to discuss the intersection of the RWHAP and the opioid epidemic and how services for people with HIV who have substance use disorder could be bolstered to improve health outcomes. This technical assistance document provides examples from the TEP and follow-up phone interviews with TEP participants of activities RWHAP recipients are currently implementing for people with HIV who have substance use disorders; it also highlights how HRSA RWHAP providers can provide services to address clients' behavioral health needs, including those related to substance use.

> *"Like in the early years of HIV/AIDS, when homophobia led to responses of blame and fear, addiction is seen as a social problem rather than a defined disease. At the crux of another public health crisis, we need to take responsibility as a community, as providers, as human beings, for those who are living with addiction … This epidemic is a crisis that knows no geographic or economic boundaries. And the impact of it is felt across racial and ethnic minorities, and especially in disadvantaged populations. Like the HIV/AIDS epidemic, addiction touches just about every family in the U.S."*
>
> RADM Sylvia Trent-Adams, Ph.D., R.N. F.A.A.N., Principal Deputy Assistant Secretary for Health

CONSIDERATIONS FROM RWHAP PROVIDERS ON IMPLEMENTING SERVICES

RWHAP recipients are already engaging in work related to the intersection of HIV and the opioid epidemic, identifying the need in their jurisdiction and ways to implement work in what can be a challenging environment. The following overarching practices are important to consider when working to address the concomitant HIV and opioid epidemics in your jurisdiction.

- **Conduct training and provide technical assistance in all settings.** Consider a broad response to the opioid epidemic, with collaboration and program initiation from prevention, care, and treatment programs.
- **Explore opportunities to diversify funding.** Identify if funding is available from multiple sources (HIV prevention, RWHAP, Substance Abuse and Mental Health Services Administration [SAMHSA], etc.) to ensure that comprehensive services can be offered to clients. Within the evolving healthcare landscape, RWHAP funds can make it possible for "out-of-the-box thinking."

> *"When I asked them to come to the table, I asked as a partner. 'Let's do this together' instead of 'I'm doing this.' We need to collaborate and pull from our collective strengths."*
>
> Shannon Stephenson, Chief Executive Officer, Cempa Community Care

- **Use data to understand the needs of your client population.** Assess the data trends of clients accessing services at your site. Are there increases in the number of **new** clients who report injection drug use as a risk factor? Have the demographics of these clients changed or remained the same? What are the clinical outcomes of people with HIV who also have substance use needs? Understanding these questions can support program-planning activities.

- **Engage all providers.** Coordinate with local organizations to ensure that where a person initiates service does not define or limit the types of services they receive. Co-locate services when possible; for example, work to increase the co-location of medication-assisted treatment (MAT) and HIV treatment. Socioeconomic circumstances are at the core of linkage. Poverty, risk of HIV and other diseases, lack of jobs, and homelessness can be pervasive, ongoing, and unresolvable. Integrating services helps to treat the whole person.

- **Ensure warm hand-offs.** When possible, have a direct (i.e., in person) "hand-off" of a client from one service provider to another, helping to ensure the client successfully engages with the next provider.

> *"We need to better coordinate with local organizations to ensure that wherever patients land, we can ensure they get care."*
>
> Pamposh Kaul, Clinical Director, Ohio Regional AIDS Education and Training Centers

- **Encourage mainstreaming behavioral health services.** Work to incorporate behavioral health assessment and treatment into all RWHAP services. When all RWHAP clients are engaged in behavioral health, the engagement is destigmatized, and mental health and substance use risk factors can be assessed in a more consistent manner.

- **Assess and address emergent issues.** Inventory service systems to identify existing or emerging needs and issues. Consider if providers could establish and support mobile services to intensify efforts.

- **Understand the opioid epidemic and engage the community in which you are working.** Understand the type(s) of opioid epidemic in your jurisdiction (i.e., injection drug use, prescription drug use). There are different approaches to addressing the opioid epidemic, depending on the type of overuse experienced in a jurisdiction. Mobilize the broader community in which you are doing work to unify the effort. Develop a community action plan with a broad range of partners (e.g., military, tribal groups, homeless shelters, faith centers, emergency departments, barber shops/salons, police and other first responders, health department, etc.).

- **Ensure a client-centered approach to services.** Stigma toward substance users remains, even among some RWHAP recipients and subrecipients. RWHAP recipients have an opportunity to serve as leaders in implementing programs that meet substance users "where they are" without judgment, maintaining client rights, and ensuring that access to MAT and other interventions is not contingent on abstinence. The RWHAP has demonstrated high acuity in achieving viral suppression among people with HIV in general; however, reengagement and retention remain at the forefront of challenges when working with complex clients. Focusing on meeting clients where they are and embracing the challenges of individual circumstances could help increase access to and retention in the RWHAP systems of care for people with HIV who have substance use disorder.

> *"Many clients seem to be ready to be engaged—we will always offer resources and allow clients to know when they want to engage."*
>
> Tammy Miller, RWHAP Part C Clinic Manager

IMPLEMENTATION ACTIVITIES

RWHAP recipients have experienced successes in working with people with HIV who have substance use disorder. TEP participants are implementing the following strategies:

Community Engagement

- **Develop a community-level action plan.** The process of developing an action plan includes analysis of what exists within the community, what does not exist in the community, and where people are falling through service gaps. Implementation of the action plan helps to improve workflow.

- **Focus on relationships to gain trust.** Gather broad representation of community leadership and members to create a consortium to tackle the opioid problem in individual communities. This emboldens people to continue and further the work on their own.

- **Collaborate with health centers to establish an HIV, HCV, and substance use disease management portfolio.** Health centers have a wide range of services, eliminating the need for clients to be referred out to additional providers. Invest RWHAP funds in existing resources, like health centers, and work to bolster them. Coordinate with local providers and provide them with training and resources to assist them in furthering the services they are able to provide.
- Address and work to reduce **stigma.**

Development of Comprehensive and Integrated Services

- **Support syringe services programs (SSP).** RWHAP funds can be used to support SSPs, with the exception of needles/syringes and related equipment. The most effective SSP model is multi-tiered: for example, a full SSP that is open five days a week for 40 hours a week, with mobile clinics that go to various locations two hours a week.

> *"I would say that stigma and transportation are the biggest obstacles to any kind of care in rural communities—addiction, HIV, mental health. There is tremendous stigma around any of these topics. What that turns out to mean in the field is the work is slower than you would like, painstaking. You have to spend a lot of time gaining people's trust, and even then, they may not agree, but at least they would listen to you."*
>
> Judith Feinberg, Professor, Behavioral Medicine & Psychiatry, West Virginia University

- Establish **local treatment and prevention** for people who have substance use disorder.
- **Develop and support programs that distribute naloxone** at saturation levels directly to people in communities at high risk.
- Streamline **immediate access to medical care** to ensure that people with HIV do not have to wait for care.
- Investigate the ability of **MAT providers** to prescribe and/or administer HIV medications.

> *"Stigma is crosscutting, regardless of health care policy and financing landscapes."*
>
> Daniel Raymond, Deputy Director, Planning & Policy, Harm Reduction Coalition

- Develop a **case management model for people who have substance use disorder,** combining lessons learned from medical and nonmedical case management implementation. Establish and share coordinated care plans across RWHAP and behavioral health.

Systems Changes

- Explore opportunities to enact **policy changes** to make buprenorphine available in more settings, including SSPs, jails, emergency departments, and homeless shelters.

> *"Medicaid expansion has been critical because it opens up opportunity. [It] opens up people to a range of services beyond what Part A would fund. [It] opens up PrEP [pre-exposure prophylaxis]. It has been critical for people accessing services."*
>
> Coleman Terrell, Director, Philadelphia Part A

- **Educate** all team and support system members (RWHAP case managers, primary care providers, family, etc.) on addiction disease and management in an effort to enact change.
- **Provide training** on pain management, including dealing with both the pain people have and the reasons why people might be misusing substances. Give options for people who might be ready for harm reduction, not elimination.
- **Support frontline staff** who are directly impacted by trauma on a regular basis.

Although RWHAP recipients have implemented work related to the opioid crisis into their service structures, TEP participants noted that those efforts are just beginning to meet the needs. They indicated that much more effort is needed to fully address the HIV and opioid epidemics. HRSA HAB encourages recipients to consider ways to further their efforts to address the opioid epidemic in their existing and future service structures.

HOW HRSA'S RWHAP CAN SUPPORT PEOPLE WITH HIV WHO HAVE SUBSTANCE USE DISORDER

RWHAP recipients are funded to provide a range of services to support the HIV-related needs of eligible individuals. HRSA HAB Policy Clarification Notice (PCN) 16-02 details the allowable uses of RWHAP funds to provide services to both people with HIV and, in some instances, people who are affected by HIV. To be an allowable cost under the HRSA RWHAP, all services must—

- Relate to HIV diagnosis, care, and support,
- Adhere to established HIV clinical practice standards consistent with U.S. Department of Health and Human Services (HHS) Clinical Guidelines for the treatment of HIV and other related or pertinent clinical guidelines, and
- Comply with state and local regulations and be provided by licensed or authorized providers, as applicable.

Although PCN 16-02 specifically outlines the allowable activities under the Substance Abuse Outpatient Care and Substance Abuse Services (residential) service categories, all core medical and support services can be leveraged to assist RWHAP clients who have substance use disorder (refer to HRSA HAB PCN 16-02 for the complete service category definitions).

In March 2016, HHS released guidance on the use of federal funding to support SSPs. The guidance maintains the prohibition of the use of federal funds to purchase sterile needles or syringes for the purpose of injection of any illegal drug; however, it includes funding SSPs as an allowable use of federal funds. In April 2016, HRSA issued guidance specific to the use of HRSA funds (including RWHAP funds) to support certain components of SSPs. RWHAP recipients should coordinate with their project officers when considering implementation of SSP components as part of their RWHAP-funded work.

RESOURCES

The following resources are available for RWHAP recipients to explore how they can further implement behavioral health services for people with HIV who have substance use disorder.

amfAR. 2019. "Opioid Epidemic/Drug Policy." www.amfar.org/opioid-drug-policy.

Centers for Disease Control and Prevention. 2019. "Opioids Portal." www.cdc.gov/opioids.

Dawson, L., and J. Kates. 2018. "HIV and the Opioid Epidemic: 5 Key Points." Kaiser Family Foundation. www.kff.org/hivaids/issue-brief/hiv-and-the-opioid-epidemic-5-key-points.

U.S. Department of Health and Human Services. August 2012. *Training Manual: Integration of Buprenorphine into HIV Primary Care Settings*. Available at www.targethiv.org/sites/default/files/file-upload/resources/HRSA.%20SPNS.%20IHIP%20buprenorphine%20training%20manual.%20508%20compliant.pdf.

U.S. Department of Health and Human Services. 2018. "Substance Use and HIV Risk." www.hiv.gov/hiv-basics/hiv-prevention/reducing-risk-from-alcohol-and-drug-use/substance-use-and-hiv-risk.

U.S. Department of Health and Human Services. 2019. "Help, Resources and Information: National Opioids Crisis." www.hhs.gov/opioids.

JAMA Network Open

Original Investigation | Substance Use and Addiction

Effect of Implementation Facilitation to Promote Adoption of Medications for Addiction Treatment in US HIV Clinics

A Randomized Clinical Trial

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Abstract

IMPORTANCE Medications for addiction treatment (MAT) are inconsistently offered in HIV clinics.

OBJECTIVE To evaluate the impact of implementation facilitation (hereafter referred to as "facilitation"), a multicomponent implementation strategy, on increasing provision of MAT for opioid use disorder (MOUD), alcohol use disorder (MAUD), and tobacco use disorder (MTUD).

DESIGN, SETTING, AND PARTICIPANTS Conducted from July 26, 2016, through July 25, 2020, the Working with HIV Clinics to adopt Addiction Treatment using Implementation Facilitation (WHAT-IF?) study used an unblinded, stepped wedge design to sequentially assign each of 4 HIV clinics in the northeastern US to cross over from control (ie, baseline practices) to facilitation (ie, intervention) and then evaluation and maintenance periods every 6 months. Participants were adult patients with opioid, alcohol, or tobacco use disorder. Data analysis was performed from August 2020 to September 2022.

INTERVENTIONS Multicomponent facilitation.

MAIN OUTCOMES AND MEASURES Outcomes, assessed using electronic health record data, were provision of MAT among patients with opioid, alcohol, or tobacco use disorder during the evaluation (primary outcome) and maintenance periods compared with the control period.

RESULTS Among 3647 patients, the mean (SD) age was 49 (12) years, 1814 (50%) were Black, 781 (22%) were Hispanic, and 1407 (39%) were female; 121 (3%) had opioid use disorder, 126 (3%) had alcohol use disorder, and 420 (12%) had tobacco use disorder. Compared with the control period, there was no increase in provision of MOUD with facilitation during the evaluation period (243 patients [27%; 95% CI, 22%-32%] vs 135 patients [28%; 95% CI, 22%-35%]; $P = .59$) or maintenance period (198 patients [29%; 95% CI, 22%-36%]; $P = .48$). The change in provision of MAUD from the control period to the evaluation period was not statistically significant (251 patients [8%; 95% CI, 5%-12%] vs 112 patients [13%; 95% CI, 8%-21%]; $P = .11$); however, the difference increased and became significant during the maintenance period (180 patients [17%; 95% CI, 12%-24%]; $P = .009$). There were significant increases in provision of MTUD with facilitation during both the evaluation (810 patients [33%; 95% CI, 30%-36%] vs 471 patients [40%; 95% CI, 36%-45%]; $P = .005$) and maintenance (643 patients [38%; 95% CI, 34%-41%]; $P = .047$) periods.

CONCLUSIONS AND RELEVANCE In this randomized clinical trial, facilitation led to increased provision of MTUD, delayed improvements in MAUD, and no improvements in MOUD in HIV clinics.

(continued)

Key Points

Question Does implementation facilitation promote increased adoption of medications for opioid, alcohol, and tobacco use disorder in HIV clinics?

Findings In this randomized clinical trial of 3647 patients with opioid, alcohol, or tobacco use disorder, during short-term follow-up compared with the control period, implementation facilitation was not associated with a statistically significant increase in observed provision of medication for opioid use disorder (27% vs 28%) or alcohol use disorder (8% vs 13%). There was a significant increase in provision of medication for tobacco use disorder (33% vs 40%).

Meaning These findings suggest that implementation facilitation can increase provision of medications for alcohol and tobacco use disorder in HIV clinics, although additional efforts may be needed to improve its impact, especially for medications for opioid use disorder.

+ Visual Abstract

+ Supplemental content

Author affiliations and article information are listed at the end of this article.

Abstract (continued)

Enhanced strategies, potentially including clinic and patient incentives, especially for MOUD, may be needed to further increase provision of MAT in HIV clinics.

TRIAL REGISTRATION ClinicalTrials.gov Identifier: NCT02907944

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Introduction

Substance use disorders (SUDs), including opioid use disorder (OUD), alcohol use disorder (AUD), and tobacco use disorder (TUD), are major factors associated with morbidity and mortality among individuals with HIV. Furthermore, untreated SUDs are associated with risk behaviors and ongoing HIV transmission to threaten public health. Medications for addiction treatment (MAT) for OUD (MOUD), AUD (MAUD), and TUD (MTUD) are safe, effective, and recommended by clinical guidelines for individuals with HIV.[1] It is recommended that MAT is offered with HIV care to maximize reach to patients and improve clinical outcomes.[1]

Despite the urgent need to intervene to prevent harms associated with SUD, individuals with HIV are infrequently prescribed MAT.[2,3] This is due, in part, to lack of training and comfort among HIV clinicians.[4,5] Implementation facilitation (hereafter referred to as "facilitation"), is defined as "a multi-faceted process of enabling and supporting individuals, groups, and organizations in their efforts to adopt and incorporate clinical innovations in routine practices"[6] and is an effective implementation strategy for improving treatment of chronic conditions in primary care settings.[7,8] To our knowledge, only a few prior studies have applied facilitation[9] or any of its components (ie, academic detailing)[10,11] to promote MAT provision, and there are no published studies in HIV clinics specifically.[12]

Thus, we conducted the Working with HIV clinics to adopt Addiction Treatment using Implementation Facilitation (WHAT-IF?) study to examine the impact of facilitation on promoting MAT provision and increasing clinician, staff, and organizational readiness to promote MAT in 4 diverse HIV clinics in the northeastern US. We hypothesized that facilitation would improve MAT provision among patients with OUD, AUD, or TUD.

Methods

Study Design Overview

As described elsewhere,[13,14] the WHAT-IF? study used a hybrid type 3 effectiveness-implementation design[15] with a stepped wedge approach[16] to evaluate the impact of facilitation on promoting provision of MAT and counseling to address OUD, AUD, and TUD in HIV clinics. Study outcomes included provision of MAT (primary) and clinician, staff, and organizational readiness to provide such treatments (secondary). The study was approved by institutional review boards at Yale University and each of the participating universities and health care sites. A waiver of informed consent was obtained because the study involved minimal risk to patients and obtaining consent would have not been practical. The study protocol is shown in Supplement 1. This randomized clinical trial follows the Consolidated Standards of Reporting Trials (CONSORT) reporting guideline for trial studies (eFigure 1 in Supplement 2).[17]

Study Context and Participants

The study was conducted within the Yale CIRA (Center for Interdisciplinary Research on AIDS) New England HIV Implementation Science Network.[18] The coordinating center is located at Yale School of Medicine in New Haven, Connecticut, and the Yale Center for Analytic Science coordinated the data

management and analytic support. Study activities occurred at 4 urban HIV clinics intentionally selected given their variability in terms of affiliations (ie, academic vs community-based hospital clinic), infrastructure (eg, on-site behavioral health programs), and resources (eg, external grant funding).

Patient Participants

We extracted electronic health record (EHR) data on all patients with HIV receiving care in the participating clinics from July 26, 2016, through July 25, 2020. Patients were considered to be receiving care if they had a scheduled visit at the clinic during the time period of interest, regardless of attendance, and they were eligible to enter the cohort (ie, open cohort design) at any point during the study period upon meeting these inclusion criteria. Patients were considered to have OUD, AUD, or TUD according to documentation on the problem list, encounter reason, or international diagnostic codes (*International Classification of Diseases, Ninth Revision* and *International Statistical Classification of Diseases and Related Health Problems, Tenth Revision*). Data on patient race and ethnicity were obtained from the EHRs and were evaluated in this study to characterize the patient population receiving care in the participating sites.

Clinician and Staff Participants

All clinicians, including prescribing (ie, physicians, nurse practitioners, and physician assistants) and nonprescribing (eg, psychologists and social workers) clinicians, as well as staff (eg, nurses and community health workers) who had been employed at the given site for 6 months or longer, were invited to complete a survey at study initiation and then every 6 months for a total of 6 follow-up surveys. Responses from individuals who did not have a role involving provision of clinical services (ie, administrative staff or data coordinator) and/or were missing all responses on outcomes of interest (ie, readiness rulers and Organizational Readiness to Change Assessment [ORCA][19]) on relevant surveys were excluded. The decision to complete the survey was considered consent to study participation.

Randomization and Blinding

Given concerns for potential contamination by a different National Institute on Drug Abuse–funded project at 1 of the sites (which was not ultimately implemented at this site), 1 site was assigned to receive facilitation last. The remaining 3 sites were randomized by the statistician to the date when facilitation would begin at their site. Members of the investigative team and study sites remained blinded to the sequence until approximately 6 weeks before the start of facilitation to allow for planning activities.

Procedures

Informed by prior efforts to promote integration of mental health treatment into primary care,[6] the approach and details of our manualized facilitation have been published previously.[13] Facilitation started with a baseline mixed-methods formative evaluation of barriers and facilitators to promoting addiction treatments in HIV clinics.[14] The external facilitators, including a team of 4 physicians (E.J.E., K.L.M., S.B.M., and D.A.F.) with expertise in addiction medicine, addiction psychiatry, and/or HIV, worked with each of the sites to identify local champions and promote site engagement. Then during 2 follow-up visits to each site over the 6-month facilitation period, the external facilitators (E.J.E., K.L.M., S.B.M., and D.A.F.) conducted academic detailing and facilitated networking opportunities across disciplines within the same institution with the goal of building relationships and training opportunities. The external facilitators also had ongoing communications (via email and telephone) with the sites to facilitate additional facilitation activities. Upon initiation of the facilitation period, sites were invited to join learning collaborative activities, which included a monthly webinar with a mix of didactics and case-based learning and receipt of a monthly newsletter with resources (eg, journal articles, addiction-focused scientific conferences, and training opportunities). Sites were

encouraged to conduct program marketing (eg, pens, pads, posters, and pins with the phrase "WHAT IF?" designed to engage patients and clinicians in a conversation about substance use) and to develop processes for performance monitoring and feedback, and they were provided site-specific data on prevalence of OUD, AUD, and TUD based on the EHR data and rates of treatment at 2 time points. After crossing over from the control period to 6-month facilitation, sites were then considered to be in the 6-month evaluation period, followed by the maintenance period that lasted the duration of the study. Before facilitation onset and then every 6 months thereafter for the duration of the study, EHR data were extracted and confidential web-based Qualtrics surveys were administered.

Outcomes

Implementation outcomes included change in the proportion of patients with one of the 3 targeted SUDs who received MAT during the evaluation (primary) and maintenance periods compared with the control period. We specifically examined receipt of MAT, measured using EHR data, that may be prescribed through HIV clinics (eTable 1 in Supplement 2) and provision of counseling. A patient was considered to have an active prescription in a given 6-month study period if they had medication coverage during the period of interest based on the days supplied and assuming the medication was taken as prescribed; for injectable naltrexone, we assumed coverage lasted for 30 days and was administered on schedule as prescribed. In secondary analyses, we also assessed provision of counseling as documented on the basis of encounters with a clinician, social worker, or psychologist and including psychiatric and substance use assessments, individual and group psychotherapy, individual counseling, case management, crisis intervention, prolonged services, family services, and health and behavior education.

Additional secondary implementation outcomes included clinician, staff, and organizational readiness to promote MAT and counseling for OUD, AUD and TUD. Clinician and staff readiness were measured on a readiness ruler (eg, "How ready are you to prescribe or refer patients for medications [i.e., nicotine replacement therapy, bupropion, and varenicline] for the treatment of tobacco use disorder?"), where response options ranged from 0 (not ready) to 10 (ready) on a continuous scale. This assessment was collected during all survey waves except when inadvertently not collected during 1 period (July 26, 2019, to January 25, 2020).

Organizational readiness was assessed with a modified ORCA[19] with which participants were asked to rate the evidence supporting each evidence-based practice and the context as a setting for delivering addiction treatments. Subscale response options also included a 5-point Likert scale, ranging from 1 (very infrequently) to 5 (very frequently). Subscale response options also included do not know or not applicable, which were recoded as neither agree nor disagree or neither frequently nor infrequently to allow computation of subscale scores.[20]

Statistical Analysis

On the basis of prior work,[7,21-23] we hypothesized we would detect an 11% and 19% absolute increase in provision of MAT during the evaluation period and maintenance period, respectively, compared with the control period. Accounting for the stepped wedge design with a cross-sectional analytic approach with 4 steps of 6 months each, 1 baseline measurement, and an intraclass correlation coefficient of 0.01,[24] we estimated that a sample size of 375 across the 4 clinics would be necessary to detect these differences with at least 90% power and a type I error rate of 5%.

We used descriptive statistics to characterize the baseline characteristics of the clinic populations. For all analyses, we used an intention-to-treat approach based on the time clinics were intended to cross over from control condition to facilitation. For the primary implementation outcomes and other measurements in this study, including readiness to provide MAT, ORCA evidence ratings for MAT, and ORCA context ratings for MAT, we used generalized estimating equation models with study phase, site, and natural time to generate adjusted odds ratios or mean differences and associated 95% CIs measuring the effect of facilitation compared with the control period at each

study period. Compound symmetry working correlation matrix was specified to control for correlation of repeated measures within subjects. In secondary analyses, we assessed provision of MAT with counseling. In sensitivity analyses, we included all clinic patients regardless of SUD diagnosis given concerns that SUD diagnoses may not be uniformly captured and separately reran primary analyses excluding the final study period when the first wave of COVID-19 pandemic started (January 26 to July 25, 2020). We applied a similar approach to describe clinician and staff participants and then evaluated the impact of facilitation on the readiness ruler and ORCA subscale scores. Two-sided $P < .05$ was considered significant. All analyses were performed using SAS statistical software version 9.4 (SAS Institute). Data analysis was performed from August 2020 to September 2022.

Results

Clinic Patient Populations

At study start, a total of 3647 patients were engaged in care across the 4 clinics (range, 366-1548 patients per clinic). Among 3647 patients, the mean (SD) age was 49 (12) years, 1814 (50%) were Black, 781 (22%) were Hispanic, and 1407 (39%) were female; 121 (3%) had opioid use disorder, 126 (3%) had alcohol use disorder, and 420 (12%) had tobacco use disorder (**Table 1**).

Impact of Facilitation on Provision of MAT Alone and With Counseling

Among patients with OUD, compared with the control period (243 patients [27%; 95% CI, 22%-32%]), we did not observe an increase in provision of MOUD with facilitation during the evaluation period (135 patients [28%; 95% CI, 22%-35%]; $P = .59$) or maintenance period (198 patients [29%; 95% CI, 22%-36%]; $P = .48$) (**Table 2** and **Figure 1**). Among patients with AUD, compared with the control period (251 patients [8%; 95% CI, 5%-12%]), there was an increase in provision of MAUD with facilitation during the evaluation period, although the difference was not significant (112 patients [13%; 95% CI, 8%-21%]; $P = .11$); however, the difference from the control period increased and became significant during the maintenance period (180 patients [17%; 95% CI, 12%-24%]; $P = .009$) (Table 2 and Figure 1). Among patients with TUD, compared with the control period (810 patients [33%; 95% CI, 30%-36%]), we observed significant increases in provision of MTUD with facilitation during both the evaluation (471 patients [40%; 95% CI, 36%-45%; $P = .005$) and maintenance (643 patients [38%; 95% CI, 34%-41%]; $P = .047$) periods (Table 2 and Figure 1). The findings were not substantially different in secondary analyses focused on MAT with counseling, with sensitivity analyses including all clinic patients regardless of the presence of a SUD diagnosis or when excluding the period impacted by COVID-19 .

Clinician and Staff Populations

Among 131 invited participants, 85 completed the baseline survey (65% response rate). We excluded 8 administrative staff and 7 with missing data on all readiness rulers and ORCA subscales. Clinician and staff participant characteristics are reported in **Table 3**.

Clinician, Staff, and Organizational Readiness to Provide MAT

Compared with the control period, we did not observe an increase in readiness to provide MOUD, MAUD, or MTUD with facilitation during the evaluation or maintenance periods (**Figure 2** and eTable 2 in Supplement 2). Compared with the control period, we observed an increase in evidence subscale scores for MAUD with facilitation during the maintenance period; we did not observe any other changes during the evaluation or maintenance periods otherwise (eTable 3 and eFigure 2 in Supplement 2). Similarly, we did not observe any changes in the context subscale scores over the study periods (eTable 4 and eFigure 3 in Supplement 2).

Table 1. Baseline Patient Characteristics by Substance Use Disorder

Characteristic	Patients, No. (%)			
	Opioid use disorder (n = 121)	Alcohol use disorder (n = 126)	Tobacco use disorder (n = 420)	Total (N = 3647)
Age, mean (SD), y	52 (9)	50 (11)	51 (11)	49 (12)
Race				
Asian	0	1 (1)	0	19 (1)
Black	39 (32)	61 (48)	219 (52)	1814 (50)
White	46 (38)	42 (33)	121 (29)	1118 (31)
Other[a]	36 (30)	22 (18)	80 (19)	689 (19)
Missing[b]	0	0	0	7
Ethnicity				
Hispanic	39 (32)	34 (27)	87 (21)	781 (22)
Non-Hispanic	82 (68)	92 (73)	333 (79)	2859 (79)
Missing[b]	0	0	0	7
Sex				
Female	41 (34)	31 (25)	161 (38)	1407 (39)
Male	80 (66)	95 (75)	259 (62)	2240 (61)
Public insurance				
Yes	47 (61)	69 (81)	252 (81)	1725 (70)
No	30 (39)	16 (19)	61 (20)	740 (30)
Missing[b]	44	41	107	1182
Self-pay				
Yes	0	0	5 (2)	21 (1)
No	77 (100)	85 (100)	308 (98)	2444 (99)
Missing[b]	44	41	107	1182
Private or commercial insurance				
Yes	35 (46)	29 (34)	89 (28)	985 (40)
No	42 (55)	56 (66)	224 (72)	1480 (60)
Missing[b]	44	41	107	1182
Income in the ZIP code, $				
Median (range)	68 035 (59 805-98 187)	68 035 (45 063-98 187)	62 276 (45 063-110 485)	62 276 (45 063-172 243)
Missing[b]	0	0	0	2
Completed visits, median (range), No.	3 (0-14)	2 (0-15)	2 (0-13)	2 (0-17)
Prescribed antiretroviral therapy				
Yes	115 (95)	119 (94)	404 (96)	3430 (94)
No	6 (5)	7 (6)	16 (4)	217 (6)
Detectable HIV viral load (>200 copies/mL)				
Yes	16 (16)	19 (18)	43 (11)	325 (11)
No	83 (84)	84 (82)	349 (89)	2774 (90)
Missing[b]	22	23	28	548
Hepatitis C virus infection				
Yes	70 (59)	40 (32)	110 (26)	522 (15)
No	49 (41)	86 (68)	307 (74)	3072 (86)
Missing[b]	2	0	3	53
CD4 cell count, cells/μL				
<50	0	0	2 (1)	31 (1)
50-99	3 (4)	2 (2)	7 (2)	42 (2)
100-199	9 (11)	10 (11)	27 (8)	154 (6)
200-349	14 (17)	16 (18)	39 (11)	336 (12)
350-499	19 (22)	21 (23)	54 (15)	480 (18)
>500	40 (47)	42 (46)	225 (64)	1697 (62)
Missing[b]	36	35	66	907

[a] Other refers to American Indian or Alaska Native, Native Hawaiian or other Pacific Islander, or any other race not specified.

[b] Missing data were not included in calculations of percentages.

Discussion

To our knowledge, this randomized clinical trial is the first study to evaluate the impact of facilitation on promoting evidence-based addiction treatment to address OUD, AUD, and TUD in HIV clinics, and it generated several key findings. First, facilitation yielded improvements in clinician and staff self-rated readiness to provide MAUD and a corresponding increase in provision of these medications. Second, facilitation was not sufficient to result in measurable or consistent changes in readiness or actual provision of MOUD. Third, facilitation resulted in improvements in provision of MTUD without measurable change in clinician or staff readiness in the context of high baseline readiness. Fourth, clinician and staff consistently reported high readiness to provide MAT for these life-threatening conditions, but this did not translate into actual provision of these medications. Our findings suggest that facilitation as implemented, with a primary focus on clinician and staff-level factors, was insufficient for promoting high-levels of provision of MOUD, MAUD, and MTUD in HIV clinics.

Prior studies[7,8] have demonstrated benefits of facilitation on promoting chronic disease management in general medical settings, yet these studies have generally not targeted addiction treatment. Instead, previous studies to promote addiction treatment have focused on evaluating academic detailing (a potential component of facilitation or stand-alone intervention) to improve treatment of a specific use disorder and demonstrated greatest benefits in the context of low baseline prescribing and high density of treatment-eligible patients.[10,11] Our study extends this literature by applying facilitation in HIV clinics to simultaneously promote provision of treatment of the 3 SUDs for which effective medication and behavioral interventions are available.

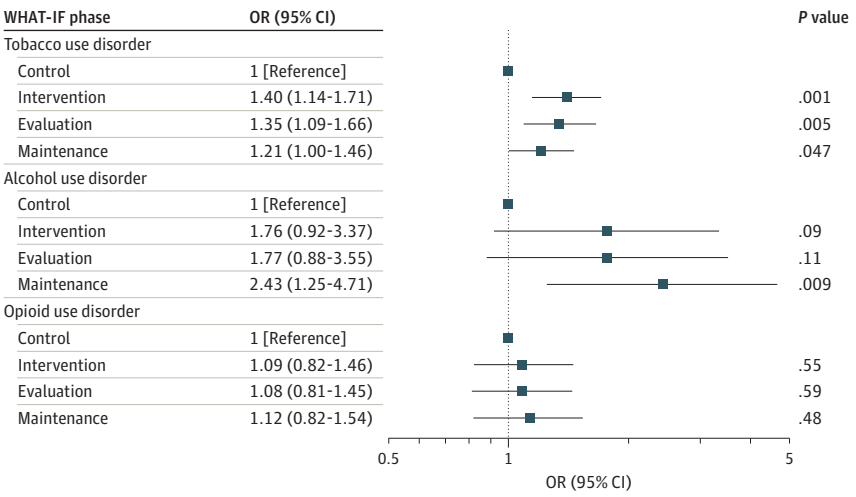
Table 2. Provision of Medications for Addiction Treatment Among Treatment-Eligible Patients Across All Sites by Study Period, Results From Generalized Estimating Equation

	Provision of MOUD[a]		Provision of MAUD		Provision of MTUD	
Study period	Patients, No. (%) [95% CI]	*P* value	Patients, No. (%) [95% CI]	*P* value	Patients, No. (%) [95% CI]	*P* value
Control	243 (27) [22-32]	Reference	251 (8) [5-12]	Reference	810 (33) [30-36]	Reference
Intervention	117 (28) [22-35]	.55	122 (13) [8-21]	.09	444 (41) [37-46]	.001
Evaluation	135 (28) [22-35]	.59	112 (13) [8-21]	.11	471 (40) [36-45]	.005
Maintenance	198 (29) [22-36]	.48	180 (17) [12-24]	.009	643 (38) [34-41]	.047

Abbreviations: MAUD, medications for alcohol use disorder; MOUD, medications for opioid use disorder; MTUD, medications for tobacco use disorder.

[a] MOUD exclusively included buprenorphine products.

Figure 1. Provision of Medications for Addiction Treatment Among Treatment-Eligible Patients Across Sites by Study Period



OR indicates odds ratio; WHAT-IF, Working with HIV Clinics to adopt Addiction Treatment using Implementation Facilitation.

Our findings that facilitation resulted in increased provision of MTUD, delayed improvements in MAUD, and no observed improvements in MOUD correspond with observed patterns in clinician and staff readiness. In the context of high baseline clinician and staff readiness to prescribe MTUD treatment, with some focused clinician education and academic detailing coupled with clinic-level processes stimulated by facilitation (eg, nurse-led protocols), it was possible to change practices to promote MTUD in a short time. On the other hand, the observed delayed increases in MAUD may be explained by the fact that higher levels of education and academic detailing (ie, more interactions) may be required to enhance clinician and staff readiness, particularly in the absence of a local champion. Finally, the fact that we did not observe increases in clinician and staff readiness to provide MOUD or increased provision of MOUD may be explained, at least in part, by the fact that all sites had at least 1 clinician who prescribed buprenorphine at the time the study was initiated, perhaps contributing to a lower perceived need and sufficient MOUD services.

Although it is encouraging that facilitation resulted in some increases in provision of MAT, our findings suggest that additional strategies may be needed. First, facilitation may have been more

Table 3. Baseline Clinician and Staff Participant Characteristics

Characteristic	Participants, No. (%)				
	Site A (n = 24)	Site B (n = 11)	Site C (n = 12)	Site D (n = 23)	Total (N = 70)
Age, mean (SD), y	63 (54)	57 (5)	48 (10)	60 (46)	58 (41)
Sex					
Female	16 (67)	6 (55)	10 (83)	19 (83)	51 (73)
Male	8 (33)	5 (45)	2 (17)	4 (17)	19 (27)
Race					
Asian	2 (9)	2 (18)	1 (8)	1 (4)	6 (9)
Black	7 (30)	2 (18)	0	1 (4)	10 (14)
White	12 (52)	7 (64)	7 (58)	19 (83)	45 (65)
Other[a]	2 (9)	0	4 (33)	2 (9)	8 (12)
Ethnicity					
Hispanic	3 (13)	0	7 (58)	2 (9)	12 (17)
Non-Hispanic	17 (74)	10 (91)	5 (42)	20 (87)	52 (75)
Other[a]	3 (13)	1 (9)	0	1 (4)	5 (7)
Missing[b]	1	0	0	0	1
Clinician (physicians, physician assistant, nurse practitioner)					
Yes	11 (46)	7 (64)	4 (33)	12 (52)	34 (49)
No	13 (54)	4 (36)	8 (67)	11 (48)	36 (51)
Time working at this clinic, mean (SD), y	5 (5)	12 (10)	7 (8)	7 (8)	7 (8)
Time per week spent working at HIV clinic, median (range), h	25 (3-55)	40 (4-40)	36 (12-40)	18 (4-50)	31 (3-55)
Ever prescribed medications to treat tobacco use disorder (ie, nicotine replacement therapy, bupropion, varenicline), yes	9 (82)	7 (100)	4 (100)	12 (100)	32 (94)
Ever provided counseling to treat tobacco use disorder, yes	11 (100)	7 (100)	4 (100)	12 (100)	34 (100)
Ever prescribed medications to treat unhealthy alcohol use (ie, disulfiram, acamprosate, oral or injectable naltrexone, other), yes	3 (27)	3 (43)	1 (25)	7 (58)	14 (41)
Ever provided counseling to treat unhealthy alcohol use, yes	11 (100)	7 (100)	4 (100)	12 (100)	34 (100)
Ever provided counseling to treat opioid use disorder, yes	9 (82)	7 (100)	4 (100)	12 (100)	32 (94)
Hold a waiver that allows buprenorphine (eg, Suboxone) prescribing, yes	4 (36)	1 (14)	1 (25)	5 (42)	11 (32)
Ever prescribed oral or injectable (eg, Vivitrol) naltrexone to treat opioid use disorder, yes	1 (9)	1 (14)	1 (25)	2 (17)	5 (15)

[a] Other refers to American Indian or Alaska Native, Native Hawaiian or Pacific Islander, or any other race not specified.

[b] Missing data were not included in calculations of percentages.

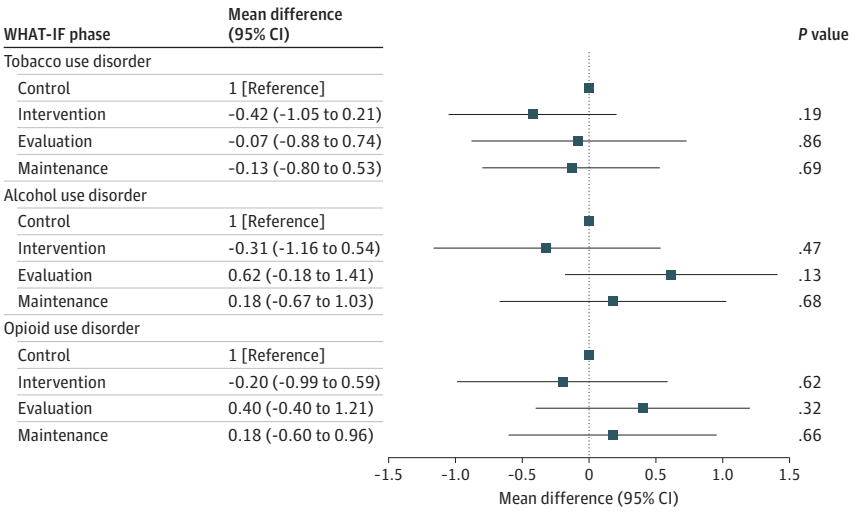
effective by sequentially focusing on different use disorders rather than 3 simultaneously. Second, facilitation may have been more effective if provided over a longer time or with higher intensity of contacts and support. Third, clinician and staff may have benefited from further training in motivational interviewing techniques to engage patients in care. Finally, efforts to more directly link provision of MAT to reimbursement may be required to help prioritize MAT in these settings given the multiple, complex existing demands.[25]

Limitations and Strengths

Our study has limitations. First, our primary outcome focused on provision of any treatment during a given period among treatment-eligible patients within the given clinic; we did not distinguish between treatment initiation and continuation or assess treatment duration, nor were we focused on medications that may have been provided elsewhere (eg, opioid treatment programs). Second, treatment eligibility relied on clinician coding of SUD, which undercounts true prevalence.[26] Third, we are unable to determine whether counseling as measured in the EHR was specifically provided to address a given SUD. Fourth, self-reported outcomes are subject to social desirability bias, survey fatigue, and assessment reactivity.[27] Fifth, we had missing data on readiness scales during 1 period. Sixth, our study was conducted in HIV clinicals all located in the northeastern US and thus may not be generalizable to other settings. Given their willingness to participate in a study focused on promoting addiction treatment, these sites may have had higher baseline readiness to provide addiction treatment than the typical HIV clinic. Seventh, our findings may have been impacted by temporal trends, a time when there has been greater focus on enhancing treatment of OUD, and also threatened by the COVID-19 pandemic.

Our study also has important strengths. First, for our primary outcome, we relied on EHR data to assess MAT provision that were routinely collected, thus minimizing selection bias and allowing for robust ascertainment of our primary outcome.[28] Second, our study was conducted in both community and academically affiliated HIV clinics with varying levels of resources and infrastructure to enhance generalizability. Third, with the exception of 1 site, site personnel and study investigators were blinded as to when each site would receive the intervention to minimize prefacilitation activities.

Figure 2. Clinician and Staff Readiness Across All Sites to Provide Medications for Addiction Treatment by Study Period



WHAT-IF indicates Working with HIV Clinics to adopt Addiction Treatment using Implementation Facilitation.

Conclusions

In this randomized clinical trial, facilitation resulted in improvements in MTUD and MAUD with no measurable change in MOUD provision. Given the importance of these treatments to people with HIV and observed treatment gaps, robust implementation strategies are needed to reach individuals with HIV engaged in care.

ARTICLE INFORMATION

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SUPPLEMENT 1.

Trial Protocol

SUPPLEMENT 2.

eFigure 1. CONSORT Flow Diagram
eTable 1. Medications Available for HIV Clinic-Based Addiction Treatment by Substance Use Disorder
eTable 2. Clinician and Staff Readiness to Provide MAT by Study Period, Results From GEE
eTable 3. Clinician and Staff ORCA Evidence Ratings for MAT by Study Period, Results From GEE
eFigure 2. Clinician and Staff ORCA Evidence Ratings for Medications for Addiction Treatment by Study Period
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SUPPLEMENT 3.

Data Sharing Statement

5 Reasons to Stop Smoking If You Have HIV

James Myhre & Dennis Sifris, MD

Updated on November 09, 2022

While the hazards of smoking are well known for anyone who lights up a cigarette, they are arguably far worse for people living with HIV.

Consider, on the one hand, that HIV causes a persistent inflammation that translates into higher rates of both HIV- and non-HIV associated illnesses. Now add to the burden of smoking and its impact on the lungs, heart, and other organs systems, and it's easy to see why cigarettes are today considered the single greater contributor to ill health and premature death in HIV-infected individuals—even those on fully suppressive antiretroviral therapy.

What makes this all the more concerning is the fact that the rate of smoking among people with HIV in the U.S. is twice that of the general population. Today, study after study has shown that smoking not only profoundly decreases life expectancy in people with HIV, it increases the risk of illness and even disease transmission.

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People With HIV Lose More Years to Smoking Than HIV

Irrespective of whether you are on HIV therapy or not, research from the University of Copenhagen has concluded that smoking as an independent risk factor is associated with loss of life of more than 12.3 years when compared to smokers in the general population.

The research, which included 2,921 people with HIV and 10,642 non-infected individuals, further concluded that the mortality rate in smokers with HIV was more than thrice than that of their non-infected counterparts.

When comparing smoking and non-smoking individuals with HIV, the disparity becomes even greater. According to the study, the median life expectancy for a 35-year-old smoker with HIV was 62.6 years compared to 78.4 years for a non-smoker with HIV—a loss of over nearly 16 years.

Smoking Greatly Increases Your Lung Cancer Risk

Emphysema and lung cancer have long been associated with cigarette smoking, and its impact on people with HIV is seen to be far more dangerous than earlier imagined.

A large-scale study conducted by the U.S. Department of Veteran's Affairs looked at the rates of lung cancer among 7,294 smokers with HIV and 75,750 smokers without HIV. In their report, the researchers concluded that the rate of lung cancer was nearly twice in the smoking HIV population when compared to the smoking general population and that there was an astonishing, 14-fold increase in lung cancer risk among smokers with HIV.

What makes the figures all the more dismaying was the fact that these increases occurred irrespective of a person's CD4 count, viral load, disease history, or whether or not the person was on antiretroviral therapy.

Death rates among smokers with HIV were also higher, with only a 10% lung cancer survival rate compared to 40% of smokers in the general population.

Your Risk of Heart Attack and Stroke Is Doubled

Whether smoking or not, heart disease remains a serious concern in persons with long-term HIV infection. According to the U.S. Veterans Administration, smoking as an independent risk factor is associated with a two-fold increase in the risk of heart attack in people with HIV when compared to the general population.

This appears to be true even for persons on successful antiretroviral therapy (ART), with a 2016 study by researchers at Massachusetts General Hospital concluding that ART alone was not sufficient in reducing elevated arterial inflammation associated with heart disease.

If you are a person with HIV who smokes, the outcomes are even worse, with more than twice risk of a heart attack or stroke when compared to persons with HIV who never smoked.

That doesn't mean, however, that things can't be turned around. The same study has shown that by stopping cigarettes, the risk of acute heart disease dropped by nearly half within the course of three years.

Smokers Are Disproportionately Affected by Cervical and Anal Cancers

Cervical cancer, specifically invasive cervical cancer (ICC), has long been classified as an AIDS-defining illness by the Centers for Disease Control and Infection. Similarly, anal cancer, infrequently seen in the general population, occurs at astonishingly higher rates among HIV-positive men who have sex with men (MSM).

The human papillomavirus (HPV) is associated with both of these cancers, with certain "high risk" strain promoting the development of pre-cancerous lesions—which, in turn, can advance to ICC and anal tumors.

Not only does smoking appear to alter the natural course of HPV and increase the risk of both of these

diseases, it compounds the rate of these cancers in HIV-infected individuals—with as high as a 15-fold increase in the risk of cervical cancer in women and a 40-fold increase in the risk of anal cancer in MSM when compared to the general U.S. population.

Furthermore, the risk of developing symptomatic HPV (e.g., anal warts, pre-cancerous lesions) appears to be exacerbated by smoking in people with HIV. A 2013 study from researchers at the University of Washington in Seattle has suggested that there may be as high as a 3-fold increase in HPV acquisition among HIV-infected MSM who smoke versus HIV-infected MSM who never smoked.

Smoking Increases the Risk of Passing HIV to Your Baby

Both in the developed and developing worlds, medical interventions to prevent mother to child transmission of HIV (PMTCT) have been enormously effective.

In the U.S., the incidence has dropped to around 100 new cases per year, while even in South Africa—the country with the highest number of HIV infections in all of the world—we've seen the incidence rate drop from 30% before the initiation of PMTCT in 2001 to just 2.7% by 2010.

However, the success seen on a population scale does not necessarily reflect what happens on an individual basis if an HIV-positive mother smokes. A large-scale investigation conducted by researchers at the Mothers and Infants Cohort Study (a four-year, study conducted in Brooklyn and the Bronx, New York) investigated the implications of smoking in prenatal HIV transmission rates.

What they found was that pregnant mothers with HIV who smoked after the first trimester had a three-fold increase in the risk of transmitting HIV to their babies when compared to counterparts who did not smoke after the first trimester.

These increases were associated with the pre-term rupture of membranes. Particularly in mothers who have not been treated for HIV prior to delivery (or haven't a fully suppressed viral load while on treatment), such ruptures can dramatically increase the likelihood of transmission to the unborn child.