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Perceptions of People Who Inject Drugs About Long-acting Medications for Opioid Use Disorder, Preexposure Prophylaxis, and Antiretroviral Therapy

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Background. Long-acting injectable (LAI) forms of preexposure prophylaxis and antiretroviral therapy and extended-release medications for opioid use disorder (OUD) may reduce HIV and OUD treatment attrition, but community interest among people who inject drugs remains underexplored.

Methods. From September to December 2023, we conducted a cross-sectional survey of adults with OUD and a history of injection drug use who were attending a New Jersey syringe exchange program to assess their experiences with HIV and OUD care and their knowledge, attitudes, and preferences about LAI.

Results. Of 193 participants, 15 were persons with HIV (PWH), 72 were high risk for HIV (HRH), and 91 were low risk for HIV (LRH). Many participants had previously taken medications for OUD (60%), but knowledge of extended-release medications for OUD was low (40% PWH, 45.8% HRH, 41.6% LRH, $P = .85$). Participant interest in extended-release naltrexone (33.3% PWH, 27.8% HRH, 26.7% LRH, $P = .91$) and extended-release buprenorphine (33.3% PWH, 18.3% HRH, 20.9% LRH, $P = .45$) was also low. Preexposure prophylaxis knowledge was high (59.1% HRH, 63.9% LRH, $P = .54$), but prior usage (11.1% HRH, 6.7% LRH, $P = .32$) and interest (18.1% HRH, 21.1% LRH $P = .63$) in LAI preexposure prophylaxis were low. PWH had high awareness (66.7%) and interest (66.7%) in receiving LAI antiretroviral therapy. Interest in integrated care was greater for PWH (69.2%) than for those at HRH (29.8%) or LRH (33.9%; $P = .03$), and preferred treatment locations varied among the groups.

Conclusions. Targeted education and outreach are particularly needed for extended-release medications for OUD and LAI preexposure prophylaxis. A differentiated care model may better address the needs of people who inject drugs with OUD, whether at risk for or with HIV. Addressing barriers to LAI treatment remains essential.

Keywords. HIV prevention; injection drug use; long-acting injectable; opioid use disorder; preexposure prophylaxis.

To successfully achieve the Ending the HIV Epidemic goals, the United States must address the HIV and co-occurring opioid crisis [1]. In 2022, people who inject drugs (PWID) composed 7% of new US HIV diagnoses [2]. In New Jersey, a state heavily affected by the opioid epidemic, injection drug use accounts for 5.7% and 11.8% of new HIV diagnoses among males and females, respectively [3]. The toolkit for the HIV and opioid syndemic includes preexposure prophylaxis (PrEP), antiretroviral therapy (ART), and medications for opioid use disorder (MOUD), which have been proven effective for HIV treatment and prevention in individuals with opioid use disorder (OUD) [4–6]. However, many are neither utilizing nor continuously taking these therapies [7–9]. Researchers estimate that 0.15% of PWID with OUD have received PrEP [10]. Approximately 65% of PWID with HIV have virologic suppression, and <20% of PWID are receiving MOUD [2, 11], indicating that some PWID are being left behind in receiving the advances in HIV and OUD prevention and/or treatment.

Further investments in comprehensive care models are needed to adequately address these overlapping treatment needs. One possibility is to structure care delivery with the status-neutral framework, which utilizes a whole person needs-based approach that prioritizes comprehensive care regardless of HIV status [12]. It frames the HIV test as the entry point to care, connecting clients to suitable services based on their needs, regardless of test results. This approach can provide

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comprehensive support for individuals with OUD, ensuring tailored care at the earliest stage of engagement.

In addition to innovations in how to engage PWID in care for HIV and OUD, there must be innovations to maintain their treatment. Long-acting formulations may help reduce treatment attrition associated with taking daily or multiple daily dosing oral medications. Long-acting injectable PrEP (LAI-PrEP) and ART (LAI-ART) for HIV have been shown to be as effective as, or superior to, oral medications in preventing HIV infections and maintaining HIV-1 suppression, respectively [4, 5]. Similarly, extended-release MOUD (XR-MOUD), including XR-buprenorphine (XR-BUP) and XR-naltrexone (XR-NTX), have been shown to be safe, effective treatments for OUD [11, 13]. However, few studies have evaluated PWID community viewpoints and interest regarding LAI-PrEP, LAI-ART, and XR-MOUD, especially among PWID engaging in care by seeking harm reduction services through a syringe exchange program (SEP). More research is needed, given that prior studies have noted medical mistrust, knowledge gaps, and stigma as barriers to HIV and OUD care [14, 15].

PURPOSE AND AIM

Now that injectable formulations of PrEP, ART, and MOUD are more widely available, further research is necessary to elucidate the needs and concerns of PWID regarding injectable medication formulations, which will inform future implementation efforts and innovations in HIV and OUD care. This study aimed to evaluate the knowledge, attitudes, and perceptions regarding LAI-PrEP, LAI-ART, and XR-MOUD among PWID who utilize syringe exchange services.

METHODS

A cross-sectional survey was conducted among PWID who utilized the North Jersey Community Research Initiative's (NJCRI's) SEP between September and December 2023. NJCRI is located in Essex County, 1 of 2 counties in New Jersey prioritized under the first phase of the Ending the HIV Epidemic plan, which focuses on introducing additional resources and technology into 57 prioritized jurisdictions [16]. At the time of the study, NJCRI operated the only SEP in Newark, New Jersey.

Setting and Recruitment

Recruitment occurred among clients of the NJCRI's SEP. NJCRI staff identified potential candidates as they visited the organization's SEP and referred them to the study team. Posters advertising the study were displayed on NJCRI bulletin boards 1 week prior to the study's start. During that same visit, research staff introduced the study to potential participants and answered any questions. After reviewing an informed consent document, participants consented by completing a form on the provided tablet. An overall 255 people were recruited to be screened for the study.

Study Procedures

Screening Instrument and Eligibility Assessment. The screening instrument collected demographic information to assess whether participants met our inclusion criteria. The instrument assessed if the participants had ever injected any drug and met criteria for OUD in the last 12 months, based on self-reported answers to 11 questions that aligned with *DSM-5-TR* diagnostic criteria [17]. Participants' OUD severity was based on the summation of each positive answer. The screening instrument and survey were pretested by all members of affiliated medical providers to assess question clarity, comprehension, and overall survey functionality. To participate, participants had to meet all 5 of the following inclusion criteria: age at least 18 years, ability to speak and understand English, ability to provide informed consent, a history of injection drug use, and satisfaction of *DSM-5-TR* criteria for OUD based on self-reported symptoms.

Survey Development

The survey was developed with a combination of existing measures and newly written questions. It consisted of 2 parts: a screening instrument to determine eligibility, followed by the main survey.

Survey. In PWID without HIV, the Risk Assessment Battery was used to categorize people as either low risk for HIV (LRH) or high risk for HIV (HRH). The Risk Assessment Battery is a self-administered questionnaire consisting of 45 questions that assess drug use and sexual behaviors associated with HIV transmission [18]. The survey includes sociodemographic items and questions that assess 3 major domains: (1) prior experiences with HIV and OUD care; (2) knowledge, attitudes, and preferences regarding treatment formulations; and (3) preferred treatment locations for MOUD, PrEP, and ART care. Questions from the survey were based on an adapted medication acceptability survey utilized by Koren et al [19]. Responses were formatted as *yes* or *no*, multiple choice, 5-point Likert scale, and ranking. The full survey is available in the supplementary materials (Appendix A).

Survey Administration and Data Collection. The survey was self-administered in person at NJCRI with a tablet. Research team members assisted participants with any questions about the eligibility screener and/or survey. Data were collected and managed in a REDCap tool hosted at Rutgers New Jersey Medical School [20, 21]. REDCap is a secure web-based software platform designed to support data capture for research studies. The survey took approximately 20 minutes and participants received US $25.

Statistical Analysis

Approximately 2500 individuals are served annually at the SEP, and the goal was to recruit a representative sample of the population. The target sample was 250 participants, representing 10% of the annual SEP clientele [22, 23]. Bivariate analyses were performed to examine the relationship between people with varying HIV risk levels or status and sociodemographic characteristics. Risk Assessment Battery score was dichotomized into LRH and HRH acquisition, with LRH based on a score <11 and HRH ≥11 [24, 25]. Treatment interest and concerns were rated on a 5-point Likert scale. Responses to questions about treatment that were "no interest," "very little interest," "not sure," and missing responses were categorized as "not interested," and the remainder was categorized as "interested." Responses to questions about treatment concerns that were "very concerned," "moderately concerned," "somewhat concerned," and missing responses were categorized as "concerned" and the remainder was categorized as "not concerned." Continuous variables were summarized by mean (SD) or median (IQR) and categorical variables by frequency and percentage of participants in each category. Statistically significant differences between HIV risk or status and sociodemographic characteristics were tested by Student t test or Pearson χ^2 test (Fisher exact if responses were ≤5). Bivariate analysis was done to assess statistically significant associations between sociodemographic and clinical factors and interest in receipt of long-acting antiviral treatment, XR-MOUD, or integrated treatment. Variables that had a $P \leq .1$ were included in multiple logistic regression. Results are reported as unadjusted and adjusted odds ratio (OR) with 95% CI. Statistical significance was defined as $P < .05$, and analyses were performed with Stata version 18 (StataCorp).

Ethical Considerations

The study was approved with a waiver of documentation of consent by the institutional review boards of the North Jersey Community Research Initiative and Rutgers Health.

RESULTS

Participant Recruitment

An overall 255 people were recruited for the study: 52 (20.4%) were ineligible as they did not meet inclusion criteria, 9 (3.5%) were excluded due to incomplete eligibility data, and 1 (0.39%) was excluded due to a failure to finish the survey. Ultimately, 193 participants (75.7%) were included in the analysis.

Participant Characteristics

Of the included participants, 15 were persons with HIV (PWH), 72 were HRH, and 91 were LRH. Across all HIV status and risk categories, study participants were mostly middle-aged, African American, and male. Median OUD severity score was 11 across all groups. The majority completed high school or less, were single and unemployed, had public health insurance, and were currently experiencing homelessness or had experienced homelessness in the last 12 months. Table 1 shows the participant characteristics by HIV risk or status. Significance testing showed a statistically significant difference in age, marital status, and housing status among the 3 groups. On average, PWH were significantly older, less likely to be single, and less likely to be currently homeless than HRH or LRH participants. HRH participants were more likely than PWH to have been homeless in the last 12 months, while LRH participants were less likely to have been homeless.

Prior Use of MOUD and Knowledge and Interest in XR-MOUD

Nearly 60% of study participants had previously taken MOUD. Irrespective of prior MOUD treatment, knowledge of XR-MOUD formulations was low: 40% for PWH, 45.8% for HRH participants, and 41.6% for LRH participants. This was not statistically significantly different among the groups ($P = .85$; Figure 1). Participant ratings of interest were dichotomized into "interested" based on responses of either "very interested" or "somewhat interested" and "not interested" based on responses of "no interest," "very little interest," "not sure," or missing responses. Interest in XR-MOUD was also low across all groups, with 33.3% interest in XR-NTX among PWH, 27.8% among HRH, and 26.7% among LRH ($P = .91$). Similarly, interest in XR-BUP was 33.3% for PWH, 18.3% for HRH, and 20.9% for LRH ($P = .45$).

Participants who were interested in XR-MOUD expressed more concerns about barriers to receiving XR-NTX and XR-BUP as compared with those not interested in XR-MOUD. Common concerns for XR-NTX and XR-BUP included transportation to the clinic for injections (66.0% and 59.5%, respectively), side effects from the injection (75.5% and 70.3%), pain from the injection (60.4% and 64.9%), and insurance coverage for clinic visits (54.5% and 62.2%) and the injections themselves (62.3% and 62.2%), with fewer participants expressing concerns about taking time off work (37.7% and 40.5%) or needing detoxification/oral induction before treatment (79.3% and 37.8%; supplementary materials, Appendix B). In unadjusted logistic regression, participants who reported concerns about barriers to care had a higher odds of being interested in XR-MOUD, and this was statistically significant for concerns about transportation (OR, 3.25; 95% CI, 1.734–6.085; $P < .001$), drug detoxification (OR, 3.86; 95% CI, 1.884–7.908; $P < .001$), clinic payment (OR, 2.83; 95% CI, 1.517–5.278; $P = .001$), injection costs (OR, 3.47; 95% CI, 1.846–6.524; $P < .001$), side effects (OR, 3.03; 95% CI, 1.596–5.756; $P = .001$), and injection pain (OR, 2.68; 95% CI, 1.422–4.919; $P = .002$).

Bivariate logistic regressions of sociodemographic factors associated with interest in XR-NTX and XR-BUP were done separately (supplementary materials, Appendixes C and D). Marital status had a statistically significant association.

Table 1. Characteristics of Surveyed SEP Clients

	PWH (n = 15)	High Risk for HIV (n = 72)	Low Risk for HIV (n = 91)	*P* Value[a]
Age, y, mean (SD)	53.5 (8.3)	45 (10.5)	46.3 (10.8)	.02
Gender				.53
Male	11 (73.3)	51 (70.8)	71 (78.0)	
Female	4 (26.7)	21 (29.2)	20 (22)	
Race and ethnicity				.36
African American	15 (100)	49 (69.1)	58 (63.7)	
Caucasian	0 (0)	9 (12.5)	11 (12.1)	
Hispanic	0 (0)	7 (9.7)	12 (13.2)	
Unknown/other/mixed	0 (0)	6 (8.3)	5 (5.5)	
American Indian/Alaskan Native	0 (0)	1 (1.4)	5 (5.5)	
Education				.33
Completed high school or less	7 (58.33)	48 (75)	60 (77.9)	
More than high school/trade school	5 (41.7)	16 (25)	17 (22.1)	
Marital status				.067
Single	10 (66.7)	60 (84.5)	62 (70.5)	
Not single	5 (33.3)	11 (15.5)	26 (29.6)	
Health insurance				.25
Public	10 (66.7)	57 (79.2)	76 (83.5)	
Private	0 (0)	0 (0)	2 (2.2)	
None/unknown	5 (33.3)	15 (20.8)	13 (14.3)	
Employment				.13
Full-time	1 (6.7)	1 (1.4)	5 (5.6)	
Part-time	0 (0)	1 (1.4)	7 (7.9)	
Unemployed	14 (93.3)	69 (97.2)	77 (86.5)	
Housing				
Homeless in last 12 mo	13 (86.7)	69 (95.8)	75 (82.4)	.02
Currently homeless	11 (73.3)	64 (90.1)	61 (67.0)	.001
OUD severity, median (IQR)	11 (10–11)	11 (11)	11 (9–11)	.06

Data are presented as No. (%) unless noted otherwise.

Abbreviations: OUD, opioid use disorder; PWH, persons with HIV; SEP, syringe exchange program.

[a] *P* values compare all three groups.

Participants who were not single had an increased interest in XR-NTX (OR, 2.24; 95% CI, 1.11–4.52; $P = .02$) and XR-BUP (OR, 2.56; 95% CI, 1.19–5.49; $P = .02$). There were no statistically significant associations for XR-NTX or XR-BUP interest by HIV risk/status or other sociodemographic characteristics, including, age, race, gender, education, OUD severity, current homelessness, insurance status, and employment status.

Knowledge, Interest, and Prior Usage of PrEP Among Participants at HRH and LRH

Among participants without HIV, knowledge of PrEP was high (59.1% HRH, 63.9% LRH, $P = .54$), but prior usage was low (11.1% HRH, 6.7% LRH, $P = .32$). Interest in taking LAI-PrEP was low, with only 18.1% HRH and 21.1% LRH participants ($P = .63$) marking either "very interested" or "somewhat interested" (Figure 2). Among participants without HIV, only 25.8% reported knowing of a clinic or provider to go to if they wanted to start LAI-PrEP. The largest proportion of those people (45.7%) would go to a primary care doctor.

Concerns among those interested in LAI-PrEP mainly included obtaining transportation to the clinic for each injection (53.4%), side effects from the injection (65.8%), pain from the injection (57.9%), and insurance paying for the injection (50%). Fewer were concerned about insurance paying for the clinic visit (47.7%) and being able to take time off work (31.6%; supplementary materials, Appendix E). In unadjusted logistic regression, participants who reported concerns about barriers to care had a higher odds of being interested in LAI-PrEP, and this was statistically significant for concerns about transportation (OR, 4.1; 95% CI, 1.929–8.704; $P < .001$), injection costs (OR, 2.23; 95% CI, 1.075–4.635; $P = .03$), side effects (OR, 3.89; 95% CI, 1.823–8.294; $P < .001$), and injection pain (OR, 2.23; 95% CI, 1.678–7.41; $P = .001$).

In the bivariate logistic regression, there was a statistically significant association with interest in LAI-PrEP and age (supplementary materials, Appendix F). Increasing age was positively associated with interest in LAI-PrEP (OR, 1.05; 95% CI, 1.01–1.09; $P = .01$). No other sociodemographic factors or HIV risk had a statistically significant association with interest.

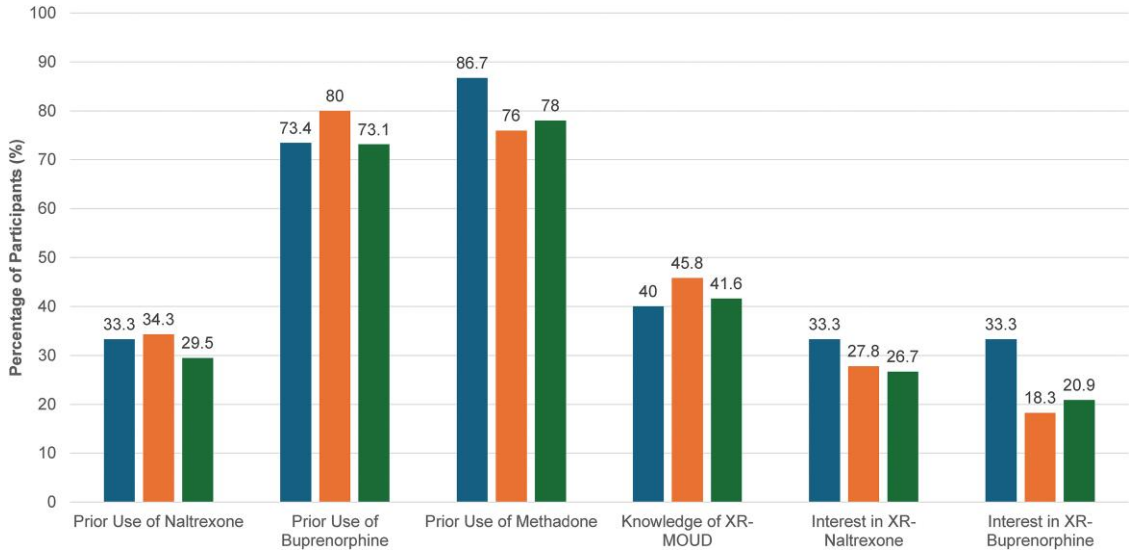

Figure 1. Prior use of MOUD and knowledge and interest in XR-MOUD. Abbreviations: MOUD, medications for opioid use disorder; XR, extended release.

Knowledge, Interest, and Prior Usage of LAI-ART Among PWH

The majority of PWH reported currently taking ART (n = 12, 80.0%) and using a daily single-tablet regimen (66.7%). Issues with medication adherence were common: 83.3% reported taking their ART later than planned a few times per month or more, 41.7% reported some degree of trouble swallowing HIV medications, and 75% reported missing doses a few times per month or more. PWH had high awareness of LAI-ART (66.7%) and high interest in switching from pills to either monthly (60%) or bimonthly (66.7%) LAI-ART.

Integrated Care Preferences

Participants were asked, "How interested are you in receiving HIV prevention/HIV and OUD treatment at the same location/treatment facility?" Interest in receiving HIV care with OUD care was greater for PWH (69.2%) as compared with participants at HRH (29.8%) or LRH (33.9%; $P = .03$). Preferred treatment locations varied. PWH most preferred care in an HIV clinic (46.7%) or mobile clinic (26.7%) while participants at HRH (31%) and LRH (27.3%) preferred an SEP. Few participants preferred receiving integrated care at substance use disorder treatment programs, opioid treatment programs, or health departments.

In bivariate logistic regression of sociodemographic and clinical factors associated with interest in integrated treatment, cohort status, specifically with HIV, was positively associated with interest in receiving integrated care (OR, 4.39; 95% CI, 1.20–16.02; $P = .03$). Additionally, age (OR, 1.05; 95% CI, 1.01–1.09; $P = .01$), marital status that was not single (OR, 1.99; 95% CI, .91–4.34; $P = .08$), interest in any form of XR-MOUD (OR, 6.8; 95% CI, 3.13–14.79; $P < .001$), and interest in either LAI-PrEP or LAI-ART (OR, 5.39; 95% CI, 2.46–11.81; $P < .001$) had statistically significant associations with interest in receiving integrated care (Table 2). Race, gender, education, OUD severity, housing status, insurance, and employment were not statistically significant predicators of interest in integrated care. In the multivariable analysis, increasing age (adjusted OR, 1.05; 95% CI, 1.00–1.09; $P = .04$) and interest in XR-MOUD (adjusted OR, 5.41; 95% CI, 2.21–13.22; $P < .001$) were positively associated with interest in receiving integrated care.

DISCUSSION

In this survey study of 193 PWID with OUD utilizing services at the largest SEP in New Jersey, interest in injectable HIV treatment among PWH was higher than interest in injectable PrEP among participants at HRH or LRH. Interest in injectable MOUD was low across all participants, regardless of HIV status. Most PWH favored integrated treatment, while those without HIV showed less interest. In multivariable logistic regression, age and interest in XR-MOUD predicted interest in integrated care.

Awareness of PrEP and prior utilization were relatively high among participants as compared with other studies [9, 26–29]. This may be due to the SEP's co-location in an HIV/AIDS-focused care center, offering greater exposure to counseling about HIV treatment and prevention. Roughly 20% of participants were interested in LAI-PrEP. Concerns about time off, side effects, transportation, and payment were reported by 21% to 40% of participants. Among participants without HIV, only 25.8% stated that they knew a clinic or provider to go to if they wanted to start LAI-PrEP, with the largest proportion (45.7%)

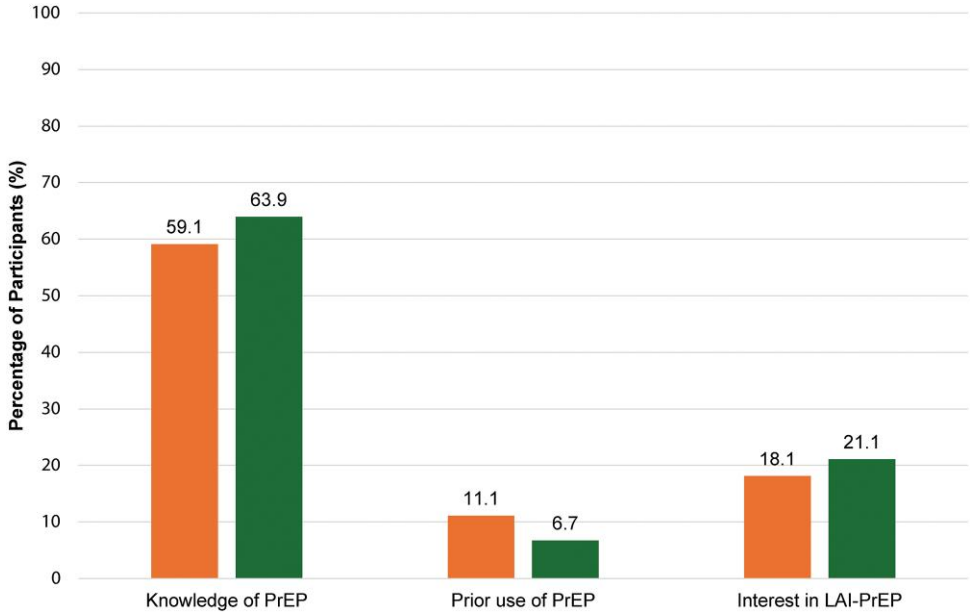

Figure 2. Knowledge and prior use of PrEP and interest in LAI-PrEP. Abbreviations: LAI, long-acting injectable; PrEP, preexposure prophylaxis.

indicating that they would seek care from a primary care provider. Assoumou et al found little knowledge of LAI-PrEP among people entering a drug detoxification program, but nearly three-quarters of respondents expressed interest after being provided further information [28]. These findings underscore the need to expand awareness and access to LAI-PrEP, especially by training more primary care providers to provide education and care. A survey of US primary care providers found that they were more hesitant to prescribe PrEP to PWID [30]. However, educational interventions that increase motivation and skills to prescribe PrEP may overcome this bias [31]. Our findings highlight the need to identify and address barriers to LAI-PrEP to effectively engage this population.

PWH had high awareness and interest in LAI-ART, indicating its acceptability and desirability among this group. While limited research exists on the preferences of PWID with HIV, previous studies of PWH who did not use drugs showed similarly high interest in LAI-ART [32, 33]. In one study of LAI-ART interest that included 27% of respondents who had engaged in injection drug use at some point, 100% of respondents who reported engaging in injection drug use in the past 6 months indicated that they would "definitely" try LAI-ART [34]. Our study did not examine specific beliefs explaining the high interest of PWH who inject drugs for LAI-ART, and further research is needed to elucidate factors making this form of HIV treatment attractive.

Despite a relatively high rate of prior MOUD use, awareness and interest in XR-NTX and XR-BUP were low across all groups. This was consistent with prior research reporting that among participants with OUD, most (64.3%) had no prior knowledge of XR-NTX or where it would be offered [35]. Participants interested in either form of XR-MOUD were more likely to report concerns about injection pain, side effects, or the logistics associated with receiving either injection. Published research has noted similar concerns about uncertainty about cost, insurance coverage, and where to access the medication, although these were not associated with willingness to try XR-NTX [35].

Current approaches include incorporating OUD care into HIV-focused facilities and integrating HIV care into substance use facilities, as well as utilizing harm reduction centers, mobile health clinics, and SEPs [36]. This approach has the potential to enhance prevention and treatment of HIV, substance use, and other comorbidities by providing comprehensive support and accountability to aid treatment adherence [36]. Our findings revealed differing levels of interest in integrated care as well as preferred location to receive services. PWH were more interested in care integration and preferred to receive services in either HIV clinics or a mobile clinic. In contrast, the majority of PWID without HIV were not interested in care integration. If integrated services were to be received, they indicated a preference for an SEP, followed by an equal preference for either HIV treatment clinic or private doctor's offices. The low interest in integrated services by PWID without HIV and preference for care in locations outside of traditional HIV treatment clinics suggest that a differentiated care model needs to be employed rather than a status-neutral framework. The status-neutral framework emphasizes providing comprehensive services for HIV prevention and treatment rather than siloing care;

Table 2. Sociodemographic and Clinical Predicators of Interest in Integrated Care

	Unadjusted OR (n = 138)	*P* Value	95% CI	Adjusted OR (n = 128)	*P* Value	95% CI
Cohort status[a]						
Person with HIV	4.39	.03	1.20–16.02	2.82	.18	.63–12.60
High risk for HIV	0.83	.64	.38–1.81	0.97	.95	.39–2.42
Low risk for HIV	1 [Reference]					
Age	1.05	.01	1.01–1.09	1.05	.04	1.00–1.09
Gender						
Female	0.91	.82	.42–2.00			
Male	1 [Reference]					
Race and ethnicity						
White	1.08	.90	.36–3.22			
Hispanic	0.98	.96	.33–2.88			
American Indian/Alaskan Native	0.45	.48	.05–4.17			
Unknown/other/multiple	0.60	.54	.11–3.12			
African American	1 [Reference]					
OUD score	1.14	.34	.87–1.49			
Education[b]						
Above high school	0.95	.91	.41–2.24			
High school or less	1 [Reference]					
Marital status[c]						
Not single	1.99	.08	.91–4.34	1.15	.78	.42–3.14
Single	1 [Reference]					
Ever experienced homeless						
Yes	1.53	.49	.46–5.10			
No	1 [Reference]					
Currently experiencing homelessness[d]						
Yes	0.83	.68	.34–2.01			
No	1 [Reference]					
Insurance						
Insured	1.62	.29	.66–3.97			
None/unknown	1 [Reference]					
Employment[e]						
Employed	0.75	.69	.19–3.05			
Unemployed	1 [Reference]					
Interest in XR-MOUD						
Yes	6.8	<.001	3.13–14.79	5.41	<.001	2.21–13.22
No	1 [Reference]					
Interest in LAI-PrEP/ART[f]						
Yes	5.39	<.001	2.46–11.81	2.12	.13	.81–5.55
No	1 [Reference]					

Abbreviations: ART, antiretroviral therapy; LAI, long-acting injectable; OR, odds ratio; OUD, opioid use disorder; PrEP, preexposure prophylaxis; XR-MOUD, extended-release medications for opioid use disorder.

[a]Missing observations in the unadjusted analysis: 9.

[b]Missing observations in the unadjusted analysis: 18.

[c]Missing observations in the unadjusted analysis: 2.

[d]Missing observations in the unadjusted analysis: 1.

[e]Missing observations in the unadjusted analysis: 4.

[f]Missing observations in the unadjusted analysis: 1.

however, concerns about disclosure, privacy, and stigma are well-documented barriers to the integration of HIV and substance use services [37, 38]. These concerns may have contributed to the low interest in care integration in our sample. *Differentiated care* refers to a tailored approach that matches the needs and preferences of PWID to specific service delivery models. It recognizes that a one-size-fits-all approach may not effectively address the complexities of HIV care, especially in those with OUD or other co-occurring conditions [39]. Given our findings, a differentiated care model that considers the specific needs of PWID with OUD with or without HIV may be useful in improving HIV prevention and treatment outcomes and retention in care. Future research should incorporate implementation science strategies informed by patient preferences and goals to develop differentiated care models.

Our study had several limitations. The survey relied on self-reported data, which may have been affected by social desirability bias, potentially leading participants to provide inaccurate information regarding their HIV or OUD diagnoses or underreport stigmatized risk behaviors. Self-selection bias may have influenced the study sample composition and results. The demographic of the sample lacked representation of other populations, such as LGBTQ (lesbian, gay, bisexual, transgender, queer) and cisgender women, and this limits the generalizability of the study findings. We are unable to ascertain if there were any significant differences between the study population and the overall population that utilizes the SEP, as limited demographic information is captured about SEP clients to maintain anonymity. Additionally, the sample size of participants with HIV was significantly smaller than that of those at risk for HIV, leading to a skewed distribution of results. Our study was conducted at a single SEP in urban northern New Jersey, which may limit the generalizability of our findings to other geographic areas or populations of people with OUD who do not receive services from SEP. Our study did not explore factors influencing disinterest in injectable treatment options. Qualitative studies, such as focus groups or interviews targeting individuals who are currently disinterested in injectable formulations, could provide valuable insights into the underlying reasons for their reluctance.

CONCLUSION

Our findings support broader calls for more education and information about injectable MOUD and PrEP tailored to PWIDs. They also highlight the importance of addressing logistical barriers associated with extended-release formulations so that interested individuals can initiate and remain on treatment. Though the opioid crisis and HIV epidemic intersect, unified care delivery may not effectively reach PWID with and without HIV and will likely require programmatic implementation structured to fit the varying preferences of PWIDs.

Supplementary Data

Supplementary materials are available at *Open Forum Infectious Diseases* online. Consisting of data provided by the authors to benefit the reader, the posted materials are not copyedited and are the sole responsibility of the authors, so questions or comments should be addressed to the corresponding author.

Notes

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