Opioid Misuse Among HIV-Positive Adults in Medical Care: Results From the Medical Monitoring Project, 2009–2014

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Abstract

Background: People living with HIV are prescribed opioids more often and at higher doses than people who do not have HIV, and disproportionately experience risk factors for substance use disorder, which suggests they could be at increased risk of the misuse of opioids. Researchers also suggest that opioid misuse negatively affects various HIV clinical outcomes, increasing the risk of transmission to partners with an HIV-negative status.

Methods: We calculated weighted percentages and 95% confidence intervals to estimate substance use characteristics among a probability sample of 28,162 HIV-positive adults receiving medical care in the United States who misused opioids (n = 975). Then, we used Rao-Scott χ^2 tests to assess bivariate associations between opioid misuse and selected characteristics.

Results: In all, 3.3% misused opioids. Misuse was more common among young adults, males, and non-Hispanic whites. Persons who misused opioids were less likely to: have been prescribed antiretroviral therapy (ART) (88.7%), report being adherent to ART medications in the past 3 days (78.1%), and have durable viral suppression (54.3%) than persons who did not misuse opioids (92.5%, 87.7%, and 64.7%, respectively). Persons who misused opioids were more likely to report condomless sex with partners of negative or unknown HIV status while not durably virally suppressed (11.7% vs 3.4%) than persons who did not misuse opioids.

The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.

Conclusions: Opioid misuse among adults receiving HIV medical care is associated with inadequate ART adherence, insufficient durable viral suppression, and higher risk of HIV transmission to sexual partners.

INTRODUCTION

The opioid crisis in the United States has led to devastating health consequences. The Centers for Disease Control and Prevention (CDC) reported that 66.4% of drug overdose deaths in 2016 involved the use of an opioid.[1] The use of opioids, such as heroin, fentanyl, oxycodone, and hydrocodone, has been tied to increased death rates across the United States.[2] Evidence suggests the nonmedical use of prescription opioids is associated with the subsequent use of heroin[3] and injection drug use.[4] Injection drug use increases the risk of HIV and hepatitis C virus transmission and other blood borne infections.[5] Persons who misuse opioids tend to engage in risky behaviors, including condomless sex,[6,7] having multiple concurrent partners,[6,8] and syringe-sharing.[7]

Studies have shown that people living with HIV (PLWH) are more likely to be prescribed opioids than those not living with HIV[9] and at higher dosages,[9,10] in part because pain is a commonly reported symptom among patients with HIV infection.[11] PLWH are also more likely to experience mental health issues and substance use disorders,[12] which are known risk factors for opioid misuse.[13] Evidence suggests PLWH who misuse opioids are less likely to be prescribed antiretroviral therapy (ART),[14] adherent to ART, and engaged in regular HIV care,[15] which could decrease the likelihood of viral suppression and lead to adverse health outcomes and increase the risk of transmitting HIV to others. As networks of persons who misuse opioids expand to include people who inject opioids and PLWH, HIV transmission risks could increase. Keeping PLWH engaged in medical care and virally suppressed is a key strategy for preventing the transmission of HIV and an important part of national HIV prevention goals.[16]

Currently, there are no national data describing opioid misuse among PLWH. Given the increased risk of opioid misuse among PLWH and the links between misuse, poor health outcomes, and HIV transmission, these data are essential to inform and monitor an effective response and prevent the spread of HIV. This analysis is the first to provide nationally representative estimates of opioid misuse and associations with sociodemographic, clinical, and behavioral characteristics among HIV-positive adults receiving medical care in the United States.

METHODS

Participants and Procedures

The Medical Monitoring Project (MMP) is a surveillance system that collects annual nationally representative interview and medical record data on the sociodemographic,

clinical, and behavioral characteristics of adults receiving HIV care in the United States. MMP's methods are described elsewhere.[17] For the 2009–2014 cycles of MMP, we used a 3-stage sampling design that first sampled US states and territories, followed by outpatient medical facilities providing HIV care, and finally, HIV-infected adults aged 18 years and older who had at least one medical visit to a participating facility during January through April of the respective cycle year. This analysis combined data from the 2009–2014 cycles of MMP, which were collected during June 2009–May 2015. All sampled states and territories participated in MMP. Facility response rates ranged from 76% to 86%, whereas patient response rates ranged from 49% to 56%.

CDC determined that MMP is public health surveillance and, as a nonresearch activity, is not subject to federal institutional review board review.[18] However, if required, participating states or territories and facilities obtained local institutional review board approval. In addition, all federal, state, and local MMP staff adhere to security and confidentiality regulations that are designed to protect the privacy of respondents. Informed consent was obtained from all interviewed participants. Data were weighted to account for unequal probabilities of selection and facility and patient nonresponse.

Measures

Opioid misuse was defined as any self-reported injection use or use other than injection of heroin or prescription opioids for nonmedical purposes. We grouped people who misused opioids into the following 3 groups: (1) persons who misused prescription opioids, (2) persons who used heroin, and (3) persons who misused both prescription opioids and heroin. The mode of opioid misuse was defined as any injection use or use other than injection, hereafter referred to as noninjection use. The frequency of opioid misuse was categorized as daily, weekly, monthly, or less than monthly.

Sociodemographic and behavioral characteristics were self-reported, and the time reference for all measures was 12 months before the interview, unless otherwise noted. Sociodemographic characteristics included age, race/ethnicity, gender, sexual behavior/orientation, education, health care coverage, household poverty level as measured by Department of Health and Human Services guidelines,[19] country/territory of birth, time since HIV diagnosis, and homelessness. Symptoms of depression in the prior 2 weeks were identified through the 8-item Patient Health Questionnaire,[20] and enrollment in an inpatient mental health facility and need for mental health services were also assessed.

Substance use data included nonopioid drugs used, stimulant drug use (eg, methamphetamine, amphetamine, crack, and cocaine), polydrug use (use of other drugs, excluding marijuana, in addition to opioids), binge drinking in the past 30 days (5 alcoholic beverages in one sitting for males and 4 in one sitting for females), enrollment in an inpatient drug or alcohol treatment facility, and self-identified need for drug or alcohol counseling or treatment. Clinical data were obtained from participants' medical records and included ART prescription, durable HIV viral suppression (all HIV viral load measurements documenting undetectable or <200 copies/mL during the 12 months preceding the interview), and regular HIV care utilization (at least one HIV viral load test every 6 months).

ART adherence was self-reported and defined as taking 100% of prescribed ART medications during the past 3 days.

HIV transmission risk and protective factors included condomless sex with partners of negative or unknown HIV status, while not durably virally suppressed, and HIV or sexually transmitted disease (STD) transmission prevention counseling by a health care worker or prevention specialist. Distributive sharing behaviors included syringe sharing (when a person gave their used needle to someone else for use), equipment sharing (when a person gave their used cookers, cotton, or rinse water to someone else for use), and the division of shared drugs with a syringe.

Of the 28,162 persons included in the analysis, 975 reported opioid misuse. We calculated weighted percentages and 95% confidence intervals (CIs) to estimate substance use characteristics among persons who misused opioids.[17] Then, we used Rao-Scott χ^2 tests to assess bivariate associations between opioid misuse and selected characteristics. Bivariate associations with a P value of <0.05 were considered significant. All weighted analyses accounted for the complex sample design using the survey procedures in SAS version 9.3 (SAS Institute Inc., Cary, NC).

RESULTS

We estimate that 3.3% (95% CI: 3.0 to 3.6) of adults receiving HIV care in the United States misused opioids. In all, 2.1% (CI: 1.9 to 2.4) misused prescription opioids, 1% (CI: 0.8 to 1.1) used heroin, and 0.2% (CI: 0.1 to 0.3) reported using both (data not shown in the table). Among persons who reported any opioid misuse, 64.8% reported misusing prescription opioids, 29.1% reported using heroin, and 6.1% reported using both (Table 1). Among all persons who misused opioids, 23.1% reported injecting them. Among persons who injected opioids, heroin was most commonly injected (92.5%, CI: 88.0 to 97.0); however, 5.5% injected prescription opioids (CI: 1.4 to 9.5) and 2% injected both (CI: 0.2 to 3.9) (data not shown in the table). Injection use of opioids was more frequent [daily (28.7%) and weekly (17.7%)] than noninjection use (18.6% and 14.6%, respectively). The prevalence of polydrug use among persons who misused opioids was 74.1%, with 66.6% reporting marijuana use, 37.1% reporting cocaine use, and 58.2% reporting stimulant drug use. Among persons who misused opioids, 32% reported receipt of drug or alcohol counseling or treatment and 13.8% reported enrolling in an inpatient drug or alcohol treatment facility. Among persons who reported injecting opioids, 43% received free sterile needles and 38.1% received free injection equipment.

Opioid misuse was significantly associated with age, gender, race/ethnicity, sexual behavior, health care coverage, poverty level, and country of birth (Table 2). Persons who misused opioids were significantly more likely to have reported homelessness in the past 12 months (21.5%) compared with those who did not misuse opioids (7.9%). Regarding clinical characteristics, persons who misused opioids were less likely to have been prescribed ART (88.7%), been adherent to ART medications in the past 3 days (78.1%), and have durable viral suppression (58.5%) than persons who did not misuse opioids (92.5%, 87.7%, and 69.1%, respectively). Persons who misused opioids were more likely to report symptoms of

major or other depression (36.3%) compared with persons who did not misuse opioids (21.5%). Finally, misuse was significantly associated with mental health services sought in the past 12 months, with persons who misused opioids being more likely to report receiving (40.1%) or needing but not receiving (11.2%) mental health services than persons who did not misuse opioids (26.9% and 5.9%, respectively).

Among persons who misused opioids, 11.7% had condomless sex while not durably virally suppressed with an HIV-negative partner or partner of unknown serostatus, compared with 3.4% of those who did not misuse opioids (Table 3). Persons who injected opioids were significantly more likely to have engaged in practices that increase the risk of HIV transmission compared with persons who injected drugs other than opioids. Among persons who reported injecting opioids, 16.6% reported distributive syringe sharing, 21.2% reported distributive sharing of other injection equipment, and 30.9% reported sharing syringes to divide drugs (compared with 9.3%, 6.6%, and 18.9%, respectively, among persons who injected drugs other than opioids). Only 38.3% of persons who misused opioids reported receiving HIV or STD prevention counseling from an outreach worker, counselor, or other prevention worker, and 50.7% reported receiving HIV or STD prevention counseling from a health care provider in the past 12 months.

DISCUSSION

This analysis provides the first nationally representative estimate of opioid misuse among persons receiving HIV care in the United States. We found lower prescription opioid misuse compared with national estimates in the general population (2.3% vs 4.3%[21]) and other studies of persons receiving HIV care.[15,22] There are several possible explanations for these differences, including differences in methodology and surveyed populations. A higher percentage of PLWH receiving medical care are black or Hispanic compared with the general population, and black or Hispanic patients are less likely to be prescribed opioids than white patients.[23,24] Among studies focused on persons receiving HIV care, both had higher percentages of white participants and were not national in scope, and one specifically recruited from a higher risk population.[15,22] In contrast to our findings of lower prescription opioid misuse, we found higher heroin use among persons receiving HIV care as compared to national general population estimates (1.2% vs 0.4%[21]). Persons receiving HIV medical care face increased socioeconomic challenges, and heroin may be more feasible for them to obtain than prescription opioids, given it is less expensive and widely available.[21,25] Overall, our findings suggest that opioid use in this nationally representative survey of persons receiving HIV care is considerable, which has important implications for the provision of health care to this population and ongoing HIV transmission.

Over one-quarter of persons in HIV care who misused opioids reported injecting them and, of these, nearly half injected daily or weekly and the majority injected heroin. The short half-life of many opioids can lead to more frequent injections[26] and an increased likelihood of syringe and equipment-sharing. Persons in HIV care who injected opioids were more than 3 times as likely to report distributive sharing of injection equipment and nearly twice as likely to report distributive syringe sharing compared with those who injected nonopioid drugs. Over half of those who injected opioids did not receive free sterile needles or free

injection equipment. This is consistent with others' findings that less than one-third of persons who inject drugs received all their syringes from sterile sources (ie, syringe services programs and pharmacies) and that distributive syringe sharing was more common among people who inject drugs who did not receive all their syringes from sterile sources than those who did.[5]

Over three-quarters of persons who misused opioids did not inject them. However, one-third of noninjection use was daily or weekly and those persons could be at high risk of transitioning to injection drug use. Preventing this transition is key to reducing HIV and hepatitis C virus transmission and other blood borne infections.[5] A review of existing interventions to prevent injection initiation highlights the need for more research on effective strategies.[27,28]

Nearly three-quarters of persons who misused opioids reported using other drugs. The concurrent use of opioids and other drugs—particularly benzodiazepines, cocaine, and methamphetamine—has been linked to overdose and HIV transmission.[29–32] We found relatively high use of these substances among persons who misused opioids, suggesting this population may be at increased risk of overdose deaths and transmitting HIV to sexual and injection drug partners. Receipt of drug and alcohol treatment was suboptimal; under one-third received such treatment and 8% reported an unmet need for treatment. Substance use referrals from HIV care providers might help to address this issue but reported levels of such referrals are relatively low, suggesting additional training or support may be needed.[33] In addition, access to opioid use treatment programs is limited in many regions across the United States.[34]

Among persons receiving HIV care, young adults, males, and non-Hispanic whites disproportionately misused opioids, which is consistent with the epidemic among the general population.[2,35] The prevalence of homelessness was almost 3 times as high among those who misused opioids as among those who did not. Evidence suggests that stable housing could facilitate decreases in substance use,[36] increased viral suppression and ART adherence, and improvements in overall health.[37] The *Housing First* approach reduces barriers to stable housing, including those presented by substance use,[38] and may help reduce opioid misuse and prevent HIV transmission, particularly when coupled with harm reduction strategies.[39] Persons in HIV care who misused opioids were more likely to report depression and unmet needs for mental health services compared with those who did not misuse opioids. Increased mental health screening and referrals by HIV care providers could help identify persons needing mental health services. Evidence suggests that long-term opioid use is associated with the onset of depression,[40,41] thus counseling and treatment for opioid misuse may lead to improvements in mental health outcomes.

Among all persons who misused opioids, the prevalence of engaging in condomless sex with HIV-negative or unknown HIV status partners while not durably virally suppressed was more than 3 times that among those who did not misuse opioids. PLWH who take HIV medicine as prescribed and achieve and keep an undetectable viral load have effectively no risk of transmitting HIV to their HIV-negative sexual partners.[42] Despite the relatively high prevalence of HIV transmission risk behaviors, only half of persons who misused opioids

reported receiving HIV or STD prevention counseling by their health care providers, and this did not differ significantly from the counseling provided to persons who did not misuse opioids. Strategies for improving delivery of HIV/STD prevention counseling for persons who misuse opioids could include increasing the frequency of offering counseling and integrating counseling on both substance use and HIV/STDs.

Among those receiving HIV medical care, persons who misused opioids were less likely to be prescribed ART, be adherent to their ART medication, and have an undetectable viral load. ART use is associated with reductions in HIV-related morbidity and mortality and can prevent the sexual transmission of HIV.[41] Despite guidelines to prescribe ART to all persons who are HIV positive,[41] some providers are hesitant to prescribe ART to patients with HIV who misuse drugs over concerns of poor adherence.[14] CDC's high-impact prevention strategy identifies evidence-based interventions that facilitate significant improvements in viral suppression[43] and is effective in helping HIV-positive substance users reduce transmission risks and increase levels of medication adherence.[44] Substance use counseling and treatment could reduce drug use and behaviors associated with HIV transmission,[45] but there is an absence of evidence-based interventions that show statistically significant improvements in HIV transmission risk behaviors, ART adherence, viral suppression, and drug use collectively.

CDC published the *Guideline for Prescribing Opioids for Chronic Pain* to improve opioid prescribing and pain management, and reduce opioid misuse, opioid use disorder, and overdose.[46] Additional resources are provided free online at https://www.cdc.gov/drugoverdose/index.html and include tools and training on the application of the *Guideline*, information on prescription drug monitoring programs, and state-level data on promising strategies. In addition, the use of medication-assisted treatment for opioid use disorder among PLWH, such as buprenorphine–naloxone, has improved ART initiation, clinical outcomes, and quality of life.[47] Studies have also investigated the feasibility of incorporating other medication-assisted treatment strategies into HIV clinic settings[48] and provided evidence for the effectiveness of syringe services programs in reducing HIV transmission among people who inject drugs.[5]

This analysis is subject to limitations. Because these data represent persons who were receiving HIV medical care, they may not be generalizable to persons living with HIV who are not receiving regular medical care or are unaware of their HIV infection. Also, the focus of this analysis was on opioid misuse, thus our estimates do not reflect comprehensive estimates of all opioid use (licit and illicit) among PLWH in medical care. We provide a measure of ART adherence using a self-reported measure of past 3-day adherence. Although this measure may be less subject to recall bias, it may overestimate longer-term adherence. As MMP is cross-sectional, we cannot make causal inferences regarding the observed associations. As many measures were self-reported, social desirability and recall bias may have led to some degree of measurement error. We also could not assess regional differences in opioid misuse due to MMP's sampling design. The prevalence of opioid misuse varies from region to region, and thus, state- and city-level analyses of MMP data may provide insight into regional differences.

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CONCLUSIONS

Opioid misuse among PLWH in HIV medical care was associated with poorer health outcomes, lower use of prevention and treatment services, and higher risk of HIV transmission to sexual and injection drug using partners. Our findings suggest several strategies to address these challenges. We found substantial room for improvement in the delivery of substance use and mental health counseling and treatment and HIV/STD prevention counseling. We identified more homelessness, less access to and adherence to ART, and lower access to free needles and injection equipment; thus, improvements in these areas may reduce the risk of opioid misuse and HIV transmission. Implementation of CDC's high-impact prevention strategies and opioid prescribing *Guideline* and recommendations for health care providers could also help improve health outcomes and reduce HIV transmission risk behaviors among PLWH who misuse opioids.

ACKNOWLEDGMENTS

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TABLE 1.

Substance Use Characteristics Among Adults Receiving HIV Medical Care Who Misused Opioids,MMP, 2009–2014 (N = 975)

Characteristic	n[*]	% (95% CI)[†]
Type of opioid		
Prescription opioids only	584	64.8 (59.7 to 69.9)
Heroin only	314	29.1 (24.3 to 33.9)
Both	77	6.1 (4.3 to 8.0)
Mode of opioid use		
Injection	251	23.1 (18.8 to 27.3)
Noninjection only	724	76.9 (72.7 to 81.2)
Frequency of opioid use		
Daily	225	21.0 (17.6 to 24.3)
Weekly	148	14.9 (11.5 to 18.4)
Monthly	132	13.2 (11.0 to 15.3)
Less than monthly	470	50.9 (45.5 to 56.4)
Frequency of injection opioid use[‡]	N = 251	
Daily	71	28.7 (22.2 to 35.1)
Weekly	47	17.7 (12.8 to 22.7)
Monthly	37	13.9 (8.5 to 19.4)
Less than monthly	96	39.7 (31.9 to 47.4)
Frequency of noninjection opioid use[‡]	N = 724	
Daily	171	18.6 (14.6 to 22.6)
Weekly	125	14.6 (10.9 to 18.3)
Monthly	106	12.8 (10.2 to 15.3)
Less than monthly	425	54.0 (47.8 to 60.1)
Polydrug use		
Yes	730	74.1 (70.0 to 78.2)
Other drugs used[§]		
Marijuana	628	66.6 (62.0 to 71.2)
Cocaine	389	37.1 (33.1 to 41.1)
Downers (eg, Valium, Ativan, or Xanax)	251	27.3 (24.3 to 30.3)
Methamphetamines (crystal meth, tina,crank, and ice)	257	26.9 (21.2 to 32.6)
Crack	222	21.4 (18.2 to 24.7)
Poppers (amyl nitrate)	184	19.7 (16.0 to 23.4)
Amphetamines (speed)	112	12.1 (9.6 to 14.6)
X, ecstasy	108	10.8 (8.4 to 13.2)
GHB	93	9.9 (7.1 to 12.7)
Hallucinogens (eg, lysergic acid diethylamide or mushrooms)	72	7.1 (5.2 to 9.1)
Special K (ketamine)	43	4.4 (3.0 to 5.9)
Stimulant drug use ‖		

Characteristic	n[*]	% (95% CI)[†]
Yes	591	58.2 (53.9 to 62.4)
Binge drinking (during past 30 d)		
Yes	322	32.4 (29.3 to 35.5)
Enrolled in inpatient drug or alcohol treatment facility		
Yes	141	13.8 (10.9 to 16.6)
Received drug or alcohol counseling or treatment		
Needed, but did not receive	77	8.1 (5.6 to 10.7)
Received	342	32.0 (27.9 to 36.1)
Did not need and did not receive	556	59.9 (55.0 to 64.8)
Received free sterile needles[¶]		
Yes	121	43.0 (35.2 to 50.8)
Received free new injection equipment[¶]		
Yes	109	38.1 (30.7 to 45.4)

Time period for measurement of the estimates is during the 12 months before interview, unless otherwise noted.

[*] Numbers are unweighted.

[†] Percentages and corresponding CIs are weighted percentages.

[‡] Respondents could be in both categories if they reported both injection and noninjection opioid use.

[§] Respondents could report more than one drug.

[‖] Stimulants included: methamphetamine, amphetamine, crack, and cocaine.

[¶] Among respondents who injected opioids.

GHB, gamma hydroxybutyrate.

TABLE 2.

Sociodemographic and Clinical Characteristics Among Adults Receiving HIV Medical Care by Opioid Misuse, MMP, 2009–2014 (N = 28,162)

	Misused Opioids		Did Not Misuse Opioids		P for Rao-Scott χ^2 Test
	n*	% (95% CI)†	n*	% (95% CI)†	
Total	975	3.3 (3.0 to 3.6)	27,187	96.7 (96.4 to 97.0)	
Age (yr)					
18–29	114	13.0 (10.6 to 15.5)	2034	7.8 (7.1 to 8.5)	<0.0001
30–39	185	19.5 (16.8 to 22.2)	4125	15.5 (14.9 to 16.1)	
40–49	327	33.0 (29.8 to 36.3)	9005	32.9 (32.3 to 33.6)	
50	349	34.4 (30.2 to 38.5)	12,023	43.7 (42.9 to 44.6)	
Gender					
Male	763	79.6 (75.5 to 83.8)	19,467	72.3 (70.6 to 74.1)	0.0001
Female	202	19.5 (15.4 to 23.5)	7305	26.2 (24.5 to 27.9)	
Transgender	10	0.9 (0.3 to 1.5)	400	1.5 (1.3 to 1.6)	
Race and ethnicity					
White (non-Hispanic)	415	46.2 (39.8 to 52.7)	8501	32.8 (28.8 to 36.8)	<0.0001
Black (non-Hispanic)	320	29.3 (22.8 to 35.8)	11,412	42.1 (36.9 to 47.4)	
Hispanic or Latino	190	18.9 (14.1 to 23.7)	6072	20.4 (16.9 to 24.0)	
Other/multiracial‡	50	5.5 (3.5 to 7.5)	1202	4.6 (4.1 to 5.2)	
Sexual behavior/orientation					
Sex with men (among men)	467	51.9 (46.1 to 57.7)	12,763	48.0 (45.1 to 50.9)	0.001
Sex with women only (among men)	292	27.4 (23.4 to 31.4)	6510	23.5 (22.2 to 24.9)	
Sex with men (among women)	194	18.5 (14.6 to 22.5)	7117	25.5 (23.8 to 27.2)	
Education					
<High school	254	22.6 (18.6 to 26.6)	5797	20.8 (19.4 to 22.2)	0.0893
High school diploma or equivalent	280	29.5 (26.4 to 32.5)	7436	27.0 (25.8 to 28.2)	
>High school	441	47.9 (42.6 to 53.2)	13,945	52.2 (49.9 to 54.5)	
Health care coverage					
Any private insurance	245	27.0 (22.7 to 31.4)	7891	30.4 (28.1 to 32.7)	0.0289
Public insurance only	596	57.2 (52.3 to 62.1)	14,321	50.6 (48.5 to 52.8)	
Ryan White coverage only	98	12.1 (8.9 to 15.3)	3783	14.8 (13.0 to 16.6)	

	Misused Opioids		Did Not Misuse Opioids		P for Rao-Scott χ^2 Test
	n[*]	% (95% CI)[†]	n[*]	% (95% CI)[†]	
Uninsured	17	1.8 (0.8 to 2.9)	603	2.2 (1.8 to 2.6)	
Poverty level					0.0282
At or below poverty level	518	50.6 (45.9 to 55.3)	12,397	45.9 (43.6 to 48.3)	
Above poverty level	435	49.4 (44.7 to 54.1)	13,740	54.1 (51.7 to 56.4)	
Country or territory of birth					<0.0001
Born in foreign country	34	3.9 (2.4 to 5.3)	3975	14.6 (13.3 to 15.9)	
Born in the United States	941	96.1 (94.7 to 97.6)	23,202	85.4 (84.1 to 86.7)	
Time since HIV diagnosis					0.0854
<5 yrs	204	23.3 (20.5 to 26.2)	5470	21.2 (20.3 to 22.1)	
5–9 yrs	183	17.7 (15.1 to 20.4)	5672	20.8 (20.2 to 21.5)	
10 yrs	588	58.9 (55.5 to 62.4)	16,033	57.9 (56.6 to 59.3)	
Homeless at any time (past 12 mo)					<0.0001
Yes	218	21.5 (18.2 to 24.8)	2152	7.9 (7.3 to 8.4)	
ART prescription					<0.0001
Yes	872	88.7 (86.6 to 90.9)	25,171	92.5 (92.1 to 92.9)	
ART adherence (past 3 d)§					<0.0001
Yes	637	78.1 (74.5 to 81.7)	21,515	87.7 (87.0 to 88.4)	
Durable viral suppression					<0.0001
All HIV viral load measurements documented undetectable or <200 copies/mL	527	58.5 (55.1 to 61.8)	17,741	69.1 (68.0 to 70.3)	
Any HIV viral load 200 copies/mL	384	41.5 (38.2 to 44.9)	7789	30.9 (29.7 to 32.0)	
Regular care utilization					0.0641
Yes	679	70.7 (67.1 to 74.3)	20,109	74.1 (72.9 to 75.3)	
Depression					<0.0001
Any depression	333	36.3 (32.7 to 40.0)	5748	21.5 (20.6 to 22.4)	
Enrolled in inpatient mental health facility					<0.0001
Yes	78	8.3 (6.1 to 10.5)	788	2.8 (2.5 to 3.0)	
Received mental health services					<0.0001
Needed but did not receive	113	11.2 (8.8 to 13.6)	1559	5.9 (5.4 to 6.4)	
Received	399	40.1 (35.8 to 44.4)	7470	26.9 (25.7 to 28.2)	
Did not need and did not receive	463	48.7 (44.4 to 53.0)	18,115	67.2 (65.9 to 68.5)	

*
Numbers are unweighted.

†
Percentages and corresponding CIs are weighted percentages.

‡
Includes American Indian/Alaska Native, Asian, Native Hawaiian/Other Pacific Islander, or multiple races.

§
Among those taking ART.

TABLE 3.

Association Between Opioid Misuse and Factors That Influence Risk of HIV Transmission Among Adults Receiving HIV Medical Care MMP, 2009–2014 (N = 28,162)

	Misused Opioids (n = 975)		Did Not Misuse Opioids (n = 27,187)		P for Rao-Scott χ^2 Test
	n[*]	% (95% CI)[†]	n[*]	% (95% CI)[†]	
Condomless sex with partner of negative or unknown HIV status while not durably virally suppressed[‡]					
Yes	100	11.7 (9.2 to 14.1)	900	3.4 (3.1 to 3.6)	<0.0001
Distributive syringe sharing[§][‖]					
Yes	37	16.6 (10.8 to 22.4)	31	9.3 (5.4 to 13.2)	0.0245
Distributive sharing of other injection equipment (eg, cookers, cotton, or rinse water)[§]					
Yes	54	21.2 (14.0 to 28.3)	22	6.6 (3.6 to 9.6)	<0.0001
Division of shared drugs with a syringe[§]					
Yes	75	30.9 (23.3 to 38.5)	77	18.9 (14.6 to 23.3)	0.0037
Received HIV or STD prevention counseling by an outreach worker, counselor, or prevention program worker					
Yes	405	38.3 (33.5 to 43.1)	8829	31.6 (29.1 to 34.0)	0.0002
Received HIV or STD prevention counseling by a health care provider					
Yes	522	50.7 (46.7 to 54.6)	13,028	47.0 (44.3 to 49.7)	0.0578

[*] Numbers are unweighted.

[†] Percentages and corresponding CIs are weighted percentages.

[‡] All viral load measurements documented undetectable or <200 copies/mL during the past 12 months.

[§] Among respondents who injected opioids vs those who injected other drugs.

[‖] Respondent gave their used needle to someone else for use.