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Bacterial sexually transmitted infection testing and diagnoses among men who have sex with men and report prescription opioid misuse—American Men’s Internet Survey, 2017–2018

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Abstract

Purpose: Prescription opioid misuse is associated with behaviors which increase bacterial sexually transmitted diseases (STD) risk among men who have sex with men (MSM). Annual syphilis, gonorrhea, and chlamydia screening is recommended for sexually active MSM at anatomical sites of contact, regardless of condom use. We describe the prevalence of self-reported bacterial STD testing and diagnoses in the past 12 months among sexually active MSM who report prescription opioid misuse.

Methods: We used data from the 2017 and 2018 American Men’s Internet Survey to examine the prevalence of self-reported bacterial STD testing and diagnoses in the past 12 months. We calculated unadjusted prevalence ratios, adjusted prevalence ratios (APR), and 95% confidence intervals (CI) to compare bacterial STD testing prevalence across demographic, clinical, and behavioral factors.

Results: Of 932 sexually active MSM who reported prescription opioid misuse, 433 (46.5%) self-reported bacterial STD testing in the past 12 months. Of those who reported being tested, 131 (30.2%) self-reported 1 bacterial STD. Approximately 50% of respondents who reported condomless anal sex (CAS), casual sex, or exchange sex reported bacterial STD testing in past 12 months. Factors associated with bacterial STD testing among MSM who misused prescription opioids included visiting a healthcare provider in the past 12 months (APR = 1.70, 95% CI = 1.09–2.67), ever disclosing same-sex behavior to a healthcare provider (APR = 1.78, 95% CI = 1.27–2.50), and CAS in the past 12 months (APR = 1.51, 95% CI = 1.10–2.04).

Conclusions: Prevalence of self-reported bacterial STD testing in this sample was low and one-third of tested MSM reported 1 bacterial STD in the past 12 months. Innovative approaches

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to identify MSM who misuse prescription opioids and expand bacterial STD testing in this population are needed.

Keywords

Gonorrhea; Chlamydia; Syphilis; Prescription Opioid Misuse; STD testing; STD diagnoses

Introduction

Screening tests for syphilis, gonorrhea, and chlamydia are central to sexually transmitted disease (STD) prevention and control among gay, bisexual, and other men who have sex with men (MSM) (Workowski and Bolan, 2015). Routine testing for these bacterial STD enables timely diagnosis, appropriate treatment, and behavioral risk-reduction counseling (Workowski and Bolan, 2015). Undetected and untreated bacterial STDs facilitate ongoing disease transmission within sexual networks and increase the risk of acquiring and transmitting HIV [11,2]. The Centers for Disease Control and Prevention (CDC) recommends at least annual syphilis screening for sexually active MSM (Workowski and Bolan, 2015). CDC also recommends, regardless of condom use, at least annual screening of MSM for: urethral gonorrhea and chlamydia in men who have had insertive sex during the preceding year; rectal gonorrhea and chlamydia in men who have had receptive anal sex during the preceding year; and pharyngeal gonorrhea in men who have had receptive oral sex during the preceding year (Workowski and Bolan, 2015). More frequent gonorrhea, chlamydia, and syphilis screening at 3–6 month-intervals is recommended for MSM at higher risk for STDs, such as those with multiple or anonymous partners (Workowski and Bolan, 2015).

Prescription opioid misuse is associated with elevated STD risk [1,7,8,23]. Among MSM, prescription opioid misuse is associated with behaviors such as condomless sex, sex with multiple sexual partners, group sex, exchange sex, inconsistent condom use, and casual or anonymous sex [6]; all of which may increase STD risk. Despite the association between prescription opioid misuse and sexual behaviors among MSM, little is known about bacterial STD testing and diagnoses among MSM who report prescription opioid misuse. Understanding the prevalence and correlates of bacterial STD testing and diagnoses among this population may inform collaborative public health interventions to reduce the STD risk. We used data from the 2017 and 2018 cycles of the American Men's Internet Survey (AMIS) to assess the prevalence of self-reported bacterial STD testing and diagnoses in the prior 12 months among sexually active MSM who reported prescription opioid misuse.

Materials and methods

Data source and eligibility

AMIS is an annual cross-sectional behavioral internet survey of MSM 15 years of age in the United States [22]. Participants are recruited into AMIS through convenience sampling from a variety of websites or social networking applications using banner advertisements or e-mail blasts. Men who are 15 years of age, self-identify as male, live in the United States, and report ever having sex with a male partner are eligible to participate in AMIS. Using

data from the 2017 and 2018 AMIS cycles, we restricted the analytical sample to MSM who reported sex with another male in the prior 12 months (sexually active), reported prescription opioid misuse (defined as the reported use of prescription opioids without a prescription from a healthcare provider), and were not duplicate respondents.

Measures

We included data about demographic, sexual behavior (condomless anal sex [CAS], casual sex, and exchange sex) in the past 12 months, prescription opioid misuse in the past 12 months, current HIV status, HIV pre-exposure prophylaxis (PrEP) use, healthcare provider (HCP) visits, disclosure of same-sex sexual behavior to a HCP, and self-reported bacterial STD (syphilis, gonorrhea, or chlamydia) testing and diagnoses. CAS was defined as insertive or receptive anal sex without a condom with a male partner. Casual sex was defined as sex with another male who the respondent didn't feel committed to or didn't know very well. Exchange sex was defined as exchanging money or drugs for sex with a male partner. Respondents who reported using PrEP at any period or for any duration in the past 12 months were considered to have used PrEP. Respondents who reported having seen a doctor, nurse, or other healthcare provider about their own health in the past 12 months were considered to have visited an HCP. Respondents who reported that they had ever told an HCP that they were attracted to or had sex with men were considered to have ever disclosed same-sex behavior to an HCP. We categorized respondents who self-reported a test for a bacterial STD (defined as syphilis, gonorrhea, or chlamydia) by an HCP in the past 12 months as having been tested for a bacterial STD. Among respondents who reported having been tested, those who reported that an HCP informed them of a diagnosis of syphilis, gonorrhea, or chlamydia were categorized as having received a bacterial STD diagnosis. Respondents who self-reported a positive HIV status at any time were categorized as HIV-positive while HIV-negative or unknown status MSM included MSM who had never had an HIV test done, or who's most recent test result was negative, indeterminate or not reported.

Statistical analysis

We calculated frequencies of characteristics of eligible respondents and the prevalence of self-reported bacterial STD testing and diagnoses. Unadjusted and adjusted prevalence ratios (PR) and 95% confidence intervals (CI) were estimated from bivariate and multivariable log-binomial regression analyses to determine factors associated with self-reported bacterial STD testing in the past 12 months. We selected variables that were significant ($P < .05$) in bivariate analysis for inclusion in the multivariable model. We also included year of data collection in the multivariable model in order to account for potential differences in behaviors and practices by year. Thus, the multivariable model included age, current health insurance, CAS, casual sex, exchange sex, self-reported HIV status, visit to an HCP, disclosed same-sex behavior to an HCP, and year of data collection. Highest level of education was significant in the bivariate analysis but was excluded from the multivariable model because of collinearity with age. We excluded PrEP from the multivariable model because its use is restricted to HIV-negative persons. All analyses were conducted using SAS 9.4 (SAS Institute Inc., Cary, NC) and statistical significance was set at $P < .05$. The Institutional Review Board of Emory University approved all procedures

that were conducted and performed as part of AMIS that involved human participants. Each participant provided informed consent to participate in AMIS. No incentives or compensation were provided to participants.

Results

Of 932 sexually active MSM who reported prescription opioid misuse in the past 12 months, most respondents were non-Hispanic white ($n = 643$ [70.5%]; Table 1). Three hundred and sixty-nine (39.6%) respondents were 15–24 years, 314 (43.7%) reported a college or postgraduate degree, and 762 (86.2%) reported health insurance coverage at the time of data collection. In the past 12 months, 734 (88.4%) respondents reported casual sex, 726 (77.9%) reported casual sex, 726 (77.9%) reported CAS, 716 (84.8%) reported an HCP visit, and 376 (70.9%) ever disclosed same-sex behavior to an HCP. One hundred and seventy-three respondents (18.9%) reported exchanging sex for money or drugs in the past 12 months and 81 (8.7%) were living with HIV. Among 635 MSM who did not have HIV, 115 (18.1%) used PrEP in the prior 12 months. Among MSM who misused prescription opioids, 433 (46.5%) reported having been tested for a bacterial STD in the prior 12 months; of these, 131 (30.2%) reported at least one bacterial STD diagnosis (9.0% reported syphilis; 20.1% reported gonorrhea; and 15.9% reported chlamydia; Table 1). Among 131 MSM with at least 1 bacterial STD in the past 12 months, 110 (84.0%) reported having been diagnosed with 2 bacterial STDs.

Age, educational level, health insurance, CAS, casual sex, exchange sex, HIV positivity, PrEP use, an HCP visit, disclosing same-sex behavior, and year of data collection were significant correlates of bacterial STD testing in bivariate analysis (Table 2). Compared to MSM 15–24 years, bacterial STD testing was more likely among MSM 40 years (PR = 1.23, 95% CI = 1.03 – 1.47), 30–39 years (PR = 1.26, 95% CI = 1.03 – 1.53), and 25–29 years (PR 1.39, 95% CI = 1.14 – 1.69). Respondents who had a college or postgraduate degree (PR = 1.91, 95% CI = 1.42 – 3.57) or had some college or technical education (PR = 1.69, 95% CI = 1.25 – 2.28) were more likely to report a bacterial STD test. The proportion of opioid misusing MSM who reported any bacterial STD testing in the past 12 months was also higher among MSM who reported health insurance (PR = 1.27, 95% CI = 1.01–1.60), CAS (PR = 1.58, 95% CI = 1.28–1.95), casual sex (PR = 1.37, 95% CI = 1.03–1.81), exchange sex (PR = 1.21, 95% CI = 1.03–1.42), self-reported HIV-positive status (PR = 1.53, 95% CI = 1.30–1.80), and PrEP use (PR = 1.73, 95% CI = 1.54–1.94). Visiting an HCP provider in the past 12 months (PR = 2.27, 95% CI = 1.63–3.15) and ever disclosing same-sex behavior to an HCP (PR = 2.64, 95% CI = 1.94–3.59) were both associated with bacterial STD testing in the past 12 months. Survey respondents in 2018 (PR = 1.20, 95% CI = 1.05–1.38) were more likely to get tested compared to respondents in 2017. There were no racial/ethnic differences in testing.

In multivariable analysis, respondents who reported CAS in the past 12 months (APR = 1.51, 95% CI = 1.10–2.04), visiting an HCP in the past 12 months (APR = 1.70, 95% CI = 1.09–2.67), and ever disclosed same-sex behavior to a HCP (APR = 1.78, 95% CI = 1.27–2.50) were more likely to report a bacterial STD test in the past 12 months. Prevalence of bacterial STD testing in the past 12 months was significantly greater among respondents

in 2018 (APR = 1.26, 95% CI = 1.06–1.51) than respondents in 2017. Age, current health insurance, casual sex, and exchange sex were not significantly associated with self-reported bacterial STD testing.

Discussion

Although CDC recommends at least annual screening for gonorrhea, chlamydia, and syphilis among sexually active MSM (Workowski and Bolan, 2015), fewer than half of sexually active MSM who misused prescription opioids in this sample reported bacterial STD testing in the prior 12 months. CDC also recommends bacterial STD screening every 3–6 months among MSM who report sexual behaviors that increase STD risk (Workowski and Bolan, 2015), however, fewer than 55% of sample respondents who reported casual sex and exchange sex reported a bacterial STD test in the prior 12 months. Among those tested, bacterial STDs were prevalent. Approximately one-third of all MSM who were tested in the past 12 months self-reported a bacterial STD, and among these men diagnosed with an STD, over 80% reported multiple STD diagnoses.

Few data are available on STD testing among MSM who misuse prescription opioids. However, estimates of bacterial STD testing among samples of sexually active MSM (12 months) have been similar to our results [10]. Of sexually active MSM recruited in the 2017–2018 AMIS cycle and who did not report drug use, 42% reported a bacterial STD test in the past 12 months and the prevalence of self-reported syphilis, gonorrhea, and chlamydia diagnoses was 8%, 13%, and 13%, respectively (unpublished data from AMIS). Among another sample of sexually active MSM recruited in the 2014 cycle of the National HIV Behavioral Surveillance who did not report drug use, 49% were tested for syphilis and 46% were tested for gonorrhea and chlamydia in the prior 12 months and the prevalence of self-reported syphilis, gonorrhea, and chlamydia diagnoses was 11%, 14%, and 11%, respectively [10]. Despite the similar bacterial STD testing prevalence in this sample of sexually active MSM who misuse prescription opioids and MSM who did not report any drug use [10]; unpublished data from AMIS, the prevalence of self-reported gonorrhea and chlamydia diagnosis among MSM who misuse prescription opioids appeared higher than estimates among those who do not.

We found that bacterial STD testing was independently associated with CAS in the past 12 months, a visit to an HCP in the past 12 months, and having disclosed same-sex behavior or attraction to an HCP. Although CDC testing guidelines recommend bacterial STD testing among sexually active MSM regardless of condom use, some HCPs may consider MSM who report CAS to be more at risk of bacterial STD than MSM who do not report CAS [17–19]. Thus, these HCP may be more likely to test MSM who report CAS compared to those who do not [2,17–19]. Sexual history and sexual risk assessment present opportunities for HCPs to obtain relevant information from their patients such as gender of sexual partners, type of sexual behaviors that they engage in, and drug use such as misuse of prescription opioids [5]. The information obtained during sexual risk histories and assessments can inform an HCP's decision to screen sexually active MSM for bacterial STD per CDC recommendations and may account for the greater likelihood for bacterial STD testing among MSM who reported a visit to an HCP in the past 12 months and

ever disclosed same-sex behavior. This finding highlights the importance of conducting routine sexual history and risk assessments during clinical encounters in a confidential and culturally competent manner that reduces stigma.

Because prescription opioid misuse and sexual risk behaviors are associated with bacterial STD risk [6–8,16,20] and the prevalence of STD testing in this analysis was low, partnerships between substance use disorder treatment programs and STD prevention programs may provide opportunities to increase bacterial STD testing among MSM who misuse prescription opioids. Substance use disorder treatment programs may provide opportunities to offer STD screening to an at-risk and hard-to-reach population who may not otherwise be screened [4,13]. Substance use disorder treatment programs that serve persons who misuse prescription opioids can consider including routine assessments of sexual risk behaviors, gender and number of sexual partners, condom use and other sexual risk-reduction behaviors, and STD testing history as part of their intake services. This approach has been implemented in some opioid use disorder treatment programs [4] and can help identify men at risk of bacterial STD and meet CDC recommendations for bacterial STD testing (Workowski and Bolan, 2015).

STD programs can also consider including routine substance use assessments, including misuse of prescription opioids, as part of their sexual health care services and offer behavioral counseling and education and/or referrals to at-risk clients. The screening, brief intervention, and referral to treatment service model implemented in New York City STD clinics is an example [9,21]. This model uses a validated substance use screening tool to identify substance use, offer brief intervention services, and provide referrals to substance use disorder treatment and support services. This integrated STD and substance use disorder service model was associated with a reduction in substance use and risky sexual behaviors among clients at subsequent follow-up visits [9,21]. Institutional policies in both substance use disorder treatment and STD prevention settings may increase bacterial STD testing among MSM who misuse prescription opioids [15].

Although nearly 85% of respondents saw an HCP in the past year, almost half of MSM were not tested for a bacterial STD. Educating healthcare providers on bacterial STD testing guidelines and incorporating electronic reminders and standing protocols to conduct sexual risk and substance use screening can identify MSM who misuse prescription opioids and opportunities for bacterial STD testing or substance use disorder treatment services [12,15].

Bacterial STD testing did not differ significantly by age, however, the prevalence of bacterial STD testing by age group was low, ranging from 40–55%. Young MSM, aged 15–24 years, had the lowest bacterial STD testing prevalence. The low bacterial STD testing prevalence in this age group is concerning considering that this age group is disproportionately impacted by bacterial STDs (CDC, 2019). The lack of an association between health insurance and bacterial STD testing observed in this analysis may be due to the availability of free STD testing for underinsured persons in many public STD clinics or the small sample size that may have under-powered this association [14]. MSM who take part in AMIS are also likely to belong to a higher socio-economic status group than other populations and this may account for the lack of an association between health insurance and bacterial STD testing.

PrEP use, casual sex, and exchange sex were all associated with bacterial STD testing in bivariate analysis. Bacterial STD testing is recommended prior to PrEP initiation and every 3–6 months while on PrEP. Exchange sex and casual sex are also risk factors for STD and indicators for frequent bacterial STD testing according to current guidelines. These reasons may explain the association between PrEP use, exchange sex, casual sex, and bacterial STD testing.

This study has some limitations. Data were obtained from a convenience sample of internet-recruited sample of MSM; racial/ethnic minority MSM, especially African American MSM, were under-represented in this sample compared to the general population. Generalizability of these findings to other populations of MSM (such as MSM who misuse other prescription drugs or use illicit drugs) may be limited. Data were self-reported and might be subject to social desirability bias, which might lead to underestimation of prior bacterial STD diagnosis and perhaps an overestimation of prior bacterial STD testing. Recall bias is another possible limitation: respondents might be more likely to recall only recent testing and diagnoses which could influence the prevalence estimates. We did not have data on anatomical site of testing. Prevalence of extragenital testing is low and more than 75% of gonococcal and chlamydial infections are missed if only urethral testing is done and extragenital testing is not done [3]. We may have underestimated the prevalence of bacterial STD diagnoses if extragenital testing was not done as recommended.

In conclusion, we found that about half of sexually active MSM who misused prescription opioids self-reported a bacterial STD test in the past 12 months. Of those tested, a third reported at least one bacterial STD diagnosis. Innovative approaches to increase access and availability of bacterial STD services among MSM who misuse prescription opioids are needed. Integrative partnerships between STD prevention programs and services for prescription opioid misuse and other substance use disorder programs might provide opportunities for bacterial STD testing, diagnosis, and treatment, sexual behavior counseling, and referral to substance use disorder treatment services, and may address the intersecting roles of substance use, including prescription opioid misuse, and sexual risk behaviors in the acquisition of bacterial STD among MSM.

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Characteristics of sexually active MSM who report prescription opioid misuse in the past 12 months* — American Men's Internet Survey, 2017 and 2018 cycles, (n = 932).

Table 1

Variable	N [†]	%
<i>Race</i>		
White, non-Hispanic	643	70.5
Hispanic	168	18.4
Black, non-Hispanic	22	2.4
Other [‡]	79	8.7
<i>Age (year)</i>		
15–24	369	39.6
25–29	134	14.4
30–39	168	18.0
40	261	28.0
<i>Educational level</i>		
College degree or postgraduate degree	314	43.7
Some college or technical degree	278	38.6
High school diploma or equivalent	127	17.7
<i>Current health insurance[§]</i>		
Yes	762	86.2
No	122	13.8
<i>Condomless anal sex in past 12 months[¶]</i>		
Yes	726	77.9
No	206	22.1
<i>Casual sex in past 12 months</i>		
Yes	734	88.4
No	96	11.6
<i>Exchange sex in past 12 months^{**}</i>		
Yes	173	18.9
No	741	81.1

Variable	N [†]	%
<i>Visited a healthcare provider in past 12 months</i>		
Yes	716	84.8
No	128	15.2
<i>Ever disclosed same-sex behavior to a healthcare provider</i>		
Yes	376	70.9
No	154	29.1
<i>Self-reported HIV status</i>		
HIV positive	81	8.7
HIV negative	635	68.1
Unknown HIV status	216	23.2
<i>Pre-exposure prophylaxis use in past 12 months^{††} (limited to HIV-negative respondents)</i>		
Yes	115	18.1
No	520	81.9
<i>Bacterial STD testing in past 12 months</i>		
Yes	433	46.5
No	499	53.5
<i>Bacterial STD diagnoses in past 12 months^{††}</i>		
Yes	131	30.3
No	302	69.7
<i>Type of bacterial STD diagnoses in past 12 months^{††}</i>		
Syphilis	39	9.0
Gonorrhea	87	20.1
Chlamydia	69	15.9
<i>Year of data collection</i>		
2018	444	47.6
2017	488	52.4

* Use of prescription opioids without a prescription by a healthcare provider in the past 12 months.

[†] Data counts for some variables may not sum to N = 932 because of missing data.

^{††} American Indian, Alaska Native, Native Hawaiian, Pacific Islander, or multiple race/ethnicities.

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§ Health insurance at the time of data collection.

¶ Defined as anal sex without a condom with a male partner in the past 12 months.

¶¶ Defined as sex with another male who the respondent didn't feel committed to or didn't know very well in the past 12 months.

** Defined as exchanging money or drugs for sex with a male partner in the past 12 months.

†† Pre-exposure prophylaxis use at any period or for any duration in the past 12 months.

††† Among those who reported a bacterial STD test.

Table 2

Factors associated with bacterial STD testing in the past 12 months among sexually active MSM who report prescription opioid misuse* — American Men's Internet Survey, 2017 and 2018 cycles, (n = 932).

Variable [†]	N	n	Row %	Unadjusted prevalence ratio (95% confidence interval)	Adjusted prevalence ratio (95% confidence interval)
<i>Race/ethnicity</i>					
Black, non-Hispanic	22	11	50.0	1.08 (0.71–1.65)	
Hispanic	168	72	42.9	0.93 (0.76–1.12)	
Other [‡]	79	41	51.9	1.12 (0.89–1.41)	
White, non-Hispanic	643	298	46.3	1.00 (reference)	
<i>Age (year)</i>					
40	261	128	49.0	1.23 (1.03–1.47)	1.16 (0.90–1.50)
30–39	168	84	50.0	1.26 (1.03–1.53)	1.14 (0.87–1.49)
25–29	134	74	55.2	1.39 (1.14–1.69)	0.97 (0.75–1.25)
15–24	369	147	39.8	1.00 (reference)	1.00 (reference)
<i>Educational level</i>					
College degree or postgraduate degree	314	170	54.1	1.91 (1.42–3.57)	
Some college or technical degree	278	133	47.8	1.69 (1.25–2.28)	
High school diploma or equivalent	127	36	28.3	1.00 (reference)	
<i>Current health insurance[§]</i>					
Yes	762	372	48.8	1.27 (1.01–1.60)	0.99 (0.77–1.27)
No	122	47	38.5	1.00 (reference)	1.00 (reference)
<i>Condomless anal sex in past 12 months[¶]</i>					
Yes	726	367	50.6	1.58 (1.28–1.95)	1.51 (1.10–2.04)
No	206	66	32.0	1.00 (reference)	1.00 (reference)
<i>Casual sex in past 12 months</i>					
Yes	734	355	48.4	1.37 (1.03–1.81)	1.34 (0.96–1.87)
No	96	34	35.4	1.00 (reference)	1.00 (reference)
<i>Exchange sex in past 12 months^{**}</i>					
Yes	173	94	54.3	1.21 (1.03–1.42)	1.12 (0.92–1.37)

Variable [†]	N	n	Row %	Unadjusted prevalence ratio (95% confidence interval)	Adjusted prevalence ratio (95% confidence interval)
No	741	333	44.9	1.00 (reference)	1.00 (reference)
<i>Visited a healthcare provider in past 12 months</i>					
Yes	716	368	51.4	2.27 (1.63–3.15)	1.70 (1.09–2.67)
No	128	29	22.7	1.00 (reference)	1.00 (reference)
<i>Ever disclosed same-sex behavior to a healthcare provider</i>					
Yes	376	219	58.2	2.64 (1.94–3.60)	1.78 (1.27–2.50)
No	154	34	22.1	1.00 (reference)	1.00 (reference)
<i>Self-reported HIV status</i>					
HIV positive	81	55	67.9	1.53 (1.30–1.81)	1.07 (0.83–1.38)
HIV negative or unknown	851	378	44.4	1.00 (reference)	1.00 (reference)
<i>Pre-exposure prophylaxis use in past 12 months^{††} (limited to HIV-negative respondents)</i>					
Yes	115	97	84.3	1.73 (1.54–1.94)	1.26 (1.06–1.51)
No	520	254	48.8	1.00 (reference)	1.00 (reference)
<i>Year of data collection</i>					
2018	444	226	50.9	1.20 (1.05–1.38)	1.26 (1.06–1.51)
2017	488	207	42.4	1.00 (reference)	1.00 (reference)

* Use of prescription opioids without a prescription by a healthcare provider in the past 12 months.

[†] Data counts for some variables may not sum to N = 932 because of missing data.

[‡] American Indian, Alaska Native, Native Hawaiian, Pacific Islander, or multiple race/ethnicities.

[§] Health insurance at the time of data collection.

[¶] Defined as anal sex without a condom with a male partner in the past 12 months.

^{||} Defined as sex with another male who the respondent didn't feel committed to or didn't know very well in the past 12 months.

^{**} Defined as exchanging money or drugs for sex with a male partner in the past 12 months.

^{††} Pre-exposure prophylaxis use at any period or for any duration in the past 12 months.