Correlates of Linkage to HIV Pre-exposure Prophylaxis (PrEP) among HIV Testing Clients

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Abstract

Background—Publicly funded HIV testing sites can identify HIV pre-exposure prophylaxis (PrEP) candidates and provide PrEP linkage.

Setting—Harris Health System's HIV clinic, HIV testing program and HIV Prevention Program in Houston, TX, a high HIV incidence city.

Methods—A prospective assessment of individuals 18 years old recruited from walk-in HIV testing December, 2013 to April, 2015 included risk assessment, HIV testing and self-administered survey, with follow-up surveys at 6 and 12 months and medical record review.

Results—The mean age of our sample (n=300) was 38.3 ± 11.7 years. Males constituted 63.1% of the sample and 53.7% were Black non-Hispanic, 26.3% Hispanic, and 14.7% White non-Hispanic. Most were uninsured (63.5%). Only 27% always used condoms although 67% perceived personal HIV risk. Of 300 participants, 64 (21.3%) linked to PrEP care and 49 (16.3%) took PrEP.

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In multivariable analysis, compared to heterosexual males, females (adjusted OR [aOR] 4.1, 95% CI 1.5, 11.1) and MSM (aOR 10.2, 95% CI 3.4, 31.0) were more likely to attend HPP and to take PrEP (aOR 3.0, 95% CI 1.6, 15.1 and 3.0, 95% CI 1.1, 8.3 respectively). Serodiscordance and PrEP interest correlated with program attendance (aOR 14.0, 95% CI 6.1, 32.3 and aOR 6.7, 95% CI 1.8, 25.4) and taking PrEP (aOR 13.1, 95% CI 5.2, 32.8 and 14.4, 95% CI 1.8, 166.9) respectively.

Conclusion—PrEP interest, being female or MSM, and serodiscordance correlated with PrEP linkage. Safety-net health systems can facilitate PrEP access in marginalized populations, but the PrEP initiation rates remains low.

Keywords

Pre-exposure Prophylaxis; PrEP; HIV testing; Linkage to Care; HIV Prevention

INTRODUCTION

Clinical trial data have demonstrated reductions in HIV acquisition for men who have sex with men (MSM) and heterosexual men and women using once daily co-formulated tenofovir disoproxil fumarate 300 mg (TDF) and emtricitabine (FTC) 200 mg as HIV pre-exposure prophylaxis (PrEP) accompanied by risk reduction counseling.[1-5] With this data, in July 2012, the United States Food and Drug Administration approved TDF-FTC (Truvada) for the indication of reducing sexual transmission of HIV among at-risk populations. The United States Centers for Disease Control and Prevention released guidelines for clinicians prescribing PrEP to at-risk populations.[6] Subsequently PrEP uptake in the United States has increased slowly, but steadily, with over 80,000 people having been prescribed PrEP as of December 2015.[1,7] The fastest uptake is occurring among white men and women. Uptake has been much slower among African-American and Latino men and women who comprise the populations most impacted by HIV.[8-10]

A proposed PrEP care continuum details key steps in PrEP implementation, from identifying individuals at risk for contracting HIV, enhancing their risk awareness and PrEP awareness, facilitating PrEP access and linkage to care, prescription, medication initiation, and finally sustaining adherence and retention in HIV preventative care.[11] Few studies characterize factors associated with success at the various steps along the care continuum.[12,13] This study examines two important steps in the PrEP care continuum -- linkage to PrEP care and PrEP initiation.

Publicly funded health care systems provide care for highly affected but economically disenfranchised and often uninsured populations. They provide an opportunity for underserved populations that may be underutilizing PrEP to access PrEP. Publicly funded HIV testing sites provide a unique opportunity to screen people for PrEP eligibility and link to PrEP clinical services. Little data exist on the uptake of PrEP from HIV testing programs.

We operate one of the first HIV prevention programs in the US to prescribe PrEP to MSM and high-risk heterosexuals outside of a clinical trial or demonstration project. We conducted a prospective cohort study to characterize the PrEP care continuum among a

primarily low income population of racial and ethnic minority men and women. This study examines the behavioral characteristics, HIV risk perceptions, PrEP linkage and PrEP uptake in a publically funded healthcare setting among clients presenting for point of care HIV testing in Houston, TX, a city with a high prevalence of HIV.

METHODS

Study Design

We conducted a prospective cohort study of individuals 18 years of age or older who presented for walk-in point of care HIV testing between December 1, 2013 and April 3, 2015.

Setting

Harris Health System provides subsidized health care for poor and uninsured residents of Harris County, which includes Houston, TX. Harris County is the third most populous county in the United States. Texas, with 22 new HIV diagnoses per 100,000 person-years, is the state with the third highest HIV incidence in the United States. Houston accounts for the majority of the new HIV diagnoses in Texas. Thomas Street Health Center (TSHC), one of the largest HIV clinics in the U.S, is part of Harris Health System. TSHC provides confidential walk-in point of care HIV testing for about 550 clients each year, yielding approximately 30 new diagnoses each year. The HIV Prevention Program (HPP) at TSHC, launched in 2012, provides at-risk people identified at HIV testing with on-site access to PrEP.

The HIV testing program includes both pre- and post-test counseling by a professional counselor and tester. Clients who test positive are linked to HIV primary care at TSHC. Clients who test negative receive information about comprehensive HIV prevention, including PrEP and the on-site HPP. Clients interested in PrEP initiate the Harris Health eligibility process, have an initial laboratory assessment completed (including confirmation of HIV-negative status) and are scheduled for an HPP appointment. The HPP provides HIV prevention counseling, condoms, medical assessment, and PrEP as appropriate. Standard follow-up is at one month to assess tolerance and then quarterly for HIV and sexually transmitted infection (STI) testing. Clients also receive on-going adherence counseling and health education. Uninsured patients receive help with applying to the PrEP medication assistance program. Patients interface with a clinician (MD or PharmD), nurse and/or medical assistant, health educator, adherence counselor, and medication assistance counselor as needed. A PrEP navigator coordinates all program activities.

Participants and Data Collection

Patients who completed HIV testing were screened for risk of acquiring HIV. High risk for acquiring HIV included men or women in HIV serodiscordant relationships who report condomless sex; MSM who engage in insertive or receptive anal sex with partners whose HIV status is unknown, particularly with consistent non-condom use; heterosexual men or women with either a recent history of transactional sex, one or more STIs in the past 6 months, multiple partners in the past 6 months, or otherwise clinically high risk for HIV

acquisition as deemed by the HIV tester. See Appendix 1 for the HIV testing assessment form. The tester notified the research team of potential study participants for the observational cohort study. Participants were recruited by a research coordinator from the pool of people with high risk profiles who tested negative for HIV. Participants were excluded if they were deemed unable to provide informed consent due to impaired cognition or other mental limitations, or were HIV positive at baseline. All study participants were followed for one year. Participants received $20 compensation for completing each survey. All study procedures were approved by the Baylor College of Medicine Institutional Review Board. Participants provided written informed consent before completing any study procedures.

Data Sources and Outcomes

Data sources included HIV test results and data from the HIV testing assessment. Participants completed a self-administered paper survey in English or Spanish that included questions on demographics, drug use[14], condom use[15], knowledge, attitudes and beliefs about HIV[16], and sexual summary measures,[16] knowledge of PrEP,[17] and interest in PrEP.[17,18] See Appendix 2 for these items. PrEP was defined on the survey as: "HIV pre-exposure prophylaxis is a way to help prevent HIV also known as PrEP. A medication called Truvada is given to at-risk people in the form of a daily pill taken by mouth to help protect at-risk people from getting HIV." The outcomes were linkage to PrEP care, defined as a completed initial HPP appointment and PrEP use, defined as initiation of medication by a patient. Outcomes were assessed by review of the medical record.

Data Analysis

Data was analyzed using SAS version 9.4. The distribution of all variables was assessed, as were the correlations between study variables. Descriptive statistics and summary measures of demographic variables and key risk behaviors were compared with t-tests and Chi-square tests. For each outcome, variables demonstrating potential associations ($p < 0.2$ in bivariate analysis) for the full study population were entered into a multivariable logistic regression model. A backward selection was used to select variables. Only variables with a p-value < 0.05 were retained in the final model. The logistic modeling restricted to the population of persons who linked to the HPP included a small sample size, so we used exact logistic regression techniques.[19]

Age was categorized using quartiles (i.e., 4 groups with roughly even sample size 18 to 25, 26 to 35, 36 to 45 and 46 and older) because a nonlinear relationship was identified between age and the outcomes of interest. A combined race/ethnicity variable was used with the following four categories: White non-Hispanic, Black Non-Hispanic, Hispanic and other, which included Asian, American Indian, Alaskan/Hawaiian. Male gender and being MSM were collinear as all MSM are also male; therefore, a combined variable was constructed: Male heterosexual, Male MSM, and Female. Income, employment status and housing status were measured, categorizing income as $0 to $9999, $10,000 to $24,999 and $25,000 or more; employment as working full or part-time, disabled or unemployed; and housing status as own or rent one's own dwelling, homeless or unstably housed, or residing in friend or family dwelling. Housing status and income variables each could be confounded by

employment. We selected employment for inclusion in the multivariable model. We also included race/ethnicity in the multivariate model because of its importance in characterizing the population. An interaction term for race/ethnicity and the combined gender/sexual orientation variable was not significant and was therefore not retained in the final model.

RESULTS

We approached 348 people for eligibility between December 2013 and April 2015 to enroll the target of 300 participants, for an acceptance rate of 86%. Seven people did not meet the eligibility criteria while 41 people declined participation for reasons such as, "time issues," "not comfortable" and "not interested in the study."

Demographics

Mean participant age was 38.3 ± 11.7 years. Almost two-thirds of participants were male (63.1%); 53.7% were Black non-Hispanic, 26.3% Hispanic, 14.7% White non-Hispanic and 5.3% other race/ethnicity (Table 1). Less than half (48.8%) worked full or part-time with only 21.6% making more than $25,000 per year; however 58.4% owned or rented their primary dwelling. Most study participants were uninsured (63.5%). Among study participants, 85.8% had completed high school or more.

Risk perception/practices

Less than half (44.1%) reported to the HIV tester that they had multiple sexual partners; 31.3% described themselves as single, 9% were divorced, 14.3% were married and 41.7% were with a partner but not married. About a third of participants (33.7%) had at least one known HIV-infected partner. A little more than a quarter (28.2%) of the participants were men who had engaged in anal sex, representing 44% of all men; and 21.3% of participants identified as MSM. Among women, 10.1% reported anal sex. Most people (71.8%) reported use of one or more drugs, including 60.0% of participants using cannabis, 33.7% using cocaine, 28.0% using amphetamines, 25.3% using sedatives, 19.7% using opioids, and 4.7% using inhalants. Many participants (66.9%) believed they would become infected with HIV at some point in their life. Although 99.5% agreed that condoms reduce HIV/STI risk, only 26.9% used condoms all of the time. Challenges navigating condom use emerged: 61.7% reported their sexual partners did not like condoms, 38.2% worried partner(s) would refuse condoms, and 49.2% worried that condom use would prompt infidelity accusations. For more than half (60.6%) the participants, not using condoms enhanced connectedness to their partner.

PrEP interest

Most participants (89.8%) reported interest in HIV prevention services; and 72.9% showed interest in taking PrEP, despite potential temporary side effects (77.4%), having to also use condoms (84.0%) or needing regular HIV testing (93.3%). Ninety-two percent reported that PrEP gave them hope.

Linkage to PrEP Care

Of the 300 participants who underwent walk-in HIV testing, were deemed high risk, and enrolled in the study, 64 (21.3%) attended a scheduled HPP visit. Table 1 details socio-demographic differences by PrEP linkage. Table 2 details risk profile and PrEP interest by PrEP linkage. In multivariable analysis, after adjusting for race and ethnicity and employment status, the correlates of linkage to PrEP care were being female or MSM, interest in taking oral PrEP and serodiscordance with their partner. In our multivariable model, compared to heterosexual males, females (adjusted OR [aOR] 4.1, 95% CI 1.5, 11.1) and MSM (aOR 10.2, 95% CI 3.4, 31.0) were more likely to attend the prevention program. Also, participants with an HIV-infected partner had 14 times greater odds of attending the prevention program than those without an HIV-infected partner (aOR 14.0, 95% CI 6.1, 32.3). Individuals who were not stably housed and those who reported never using condoms were less likely to follow-up with HPP in the bivariate model; however, in the multivariable models these associations did not persist. (Table 3.)

PrEP Uptake

Of the 300 participants, 49 (16.3%) initiated PrEP. Two of the 49 participants who reported PrEP use were not linked to the on-site Prevention Program, but obtained PrEP elsewhere. Of the 64 patients linked to PrEP care at HPP, 47 (73.4%) initiated PrEP. The majority of participants taking PrEP were male (55.1%), employed (55.1%), stably housed (79.2%), college educated (55.1%) and earned less than $25, 000 (79.2%). The plurality were Black non-Hispanic race/ethnicity (49.0%), and very few were privately insured (21.3%). When comparing those who took PrEP to all others, several findings emerged. Taking PreP was associated with being female or MSM, having annual income between $0 and $9,999, being unstably housed, being unemployed, having an HIV positive partner, having PrEP interest despite side effects, non-condom use, being male and having anal sex or being female and not having anal sex as well as interest in taking PrEP (Table 3).

In multivariable analysis, the correlates of PrEP uptake were adjusted for race and ethnicity, gender and sexual orientation, employment status, interest in taking oral PrEP and serodiscordance. In our model, as compared to heterosexual male participants, female participants (aOR 3.0, 95% CI 1.1, 8.3) and MSM (aOR 4.8, 95% CI 1.5, 15.1) were more likely to take PrEP. Also, those having an HIV-infected partner had 13 times greater odds of taking PrEP than those without an HIV-infected partner (aOR 13.1, 95% CI 5.2, 32.8). Although individuals who were not stably housed and those who reported never using condoms were less likely to take PrEP in the bivariate model, in the multivariable model these associations did not retain statistical significance.

We also evaluated the correlates of PrEP use limiting the sample to those linked to PrEP care. Among the 47 participants taking PrEP as compared to the 17 who attended an HPP visit but did not initiate PrEP, the only statistically significant finding was that 78.3% of people who took PrEP reported a baseline history of drug use as compared to 47.1% of people who did not start PrEP (unadjusted OR 4.1, 95% CI 1.2, 13.2). A multivariable analysis controlling for race and ethnicity, gender and sexual orientation, employment status, and serodiscordance found that as compared to white non-Hispanic participants, Hispanic

participants were less likely to take PrEP (aOR 0.1, 95% CI 0.01, 0.9) and those in serodiscordant relationships were more likely to use PrEP (aOR 9.4, 95% CI 1.4, 61.6). The exact logistic regression model yielded similar results.

DISCUSSION

This study is unique in the literature in that it demonstrates in a racially diverse, low-income population, that women and MSM, primarily in known serodiscordant relationships are more likely to link to PrEP care than are heterosexual men. In addition, linkage was strongly associated with PrEP uptake.

This study reports on linkage to PrEP care and PrEP uptake, two critical steps in the PrEP care continuum.[11] Despite high expectation of ultimately becoming HIV infected and acceptance of the idea of PrEP at the time of enrollment, their rates of linkage to care (21.3%) and PrEP uptake (16.3%) were quite low. Access to safety net health systems and health care navigation facilitate PrEP linkage among low income racial and ethnic minorities, and those in HIV serodiscordant relationships, but is not sufficient.

The study participants were recruited from a safety net health care system in Houston, TX which serves a large number of uninsured/under-insured individuals and represents a population presently under-utilizing PrEP. Racial and ethnic minorities bear a disproportionate burden of HIV infection, having the majority of heterosexual infections and a substantial number of the new infections among MSM. Nonetheless, implementation of HIV PrEP in the United States has been most robust among white non-Hispanic MSM. Of particular concern, although the CDC estimates that 468,000 women in the US are at risk of HIV acquisition[20], few prescriptions have been written for Black women.[7] Our study population is unique because it investigates PrEP attitudes among high risk heterosexual men and women and MSM in the same high prevalence southern urban community. Even among the underinsured, low-income racial and ethnic minority population in the study, those participants who successfully linked to PrEP care were more likely to be employed, had higher income and were more likely to be stably housed.

Structural features of the program may have affected outcome. About 21% of eligible participants were linked to PrEP care and attended a prevention program appointment, and of those 73.4% started PrEP. To combat this loss, some programs initiate PrEP at first encounter.[21] This approach may capture people who are interested but are unable to return for follow-up but also may give prescriptions to people who express initial interest in PrEP but are neither motivated to take the prescription or to return for follow-up HIV testing or safety labs.[22] In our program, a PrEP navigator, an adherence counselor and a health educator work together to alleviate barriers such as limited transportation, poor health care access, and paper work for those who are low literacy. They also enhance risk awareness and PrEP knowledge and make reminder calls. Testing, medical assessment and medication distribution are co-located in the same building. Despite these efforts, we did lose people in the continuum, and in response we subsequently shortened the interval from HIV testing to medical assessment.

Contracting HIV was considered nearly inevitable by 67% of participants. Not all participants were interested in PrEP. Only 72.9% were interested in taking oral PrEP and 89.8% were interested in follow-up in HPP. In bivariate analysis, those linked to PrEP were also more likely to self-report condom use; if male, were more likely to report anal sex; and were less likely to worry that suggesting condom use would imply infidelity. These findings suggest those interested in PrEP were also interested in other protective tools such as condoms.

Limitations

This study was subject to limitations. Participants self-reported their risk behaviors to the HIV tester or on a paper survey. Social desirability bias may have caused underreporting of risk behaviors. People who present for walk-in HIV testing are likely to have a greater perception of personal risk for HIV than people who do not present for testing. Although 100% of study participants were identified as having some feature of HIV risk by an HIV tester, 7.9% reported zero sexual partners in the prior 6 months on the survey. There may have been participants the HIV tester assessed as high risk who on the study survey revealed that risk behavior did not occur in the recent past, or had been misinterpreted. Participants also might have chosen not to report risk behavior on the survey or may have been disclosing future risk intention to the HIV tester.

Small sample size may have limited the ability to find statistically significant results. The timing of the baseline survey administration for some participants was prior to HIV testing and for others it was after HIV testing. The information received from the HIV tester may have biased responses on the survey. Finally, because the testing site in the study was co-located in an HIV clinic, the sample contained many patients in serodiscordant relationships (34%). These findings may not be generalizable to patients whose primary risk factor is not a known HIV positive partner. In considering the HIV prevention cascade it would be useful to identify differences between patients who attended an appointment and took PrEP as compared to those who attended an appointment but did not take PrEP; however, the sample size was too small to make a meaningful comparison among that subset of study participants.

Conclusions

In this young adult, predominantly uninsured, minority population presenting for HIV testing in an HIV clinic, the majority (64.2%) felt HIV infection inevitable. Most participants reported interest in PrEP. The majority of participants surveyed were interested in finding out more about HIV prevention and in potentially taking PrEP. However, despite providing substantial assistance to overcome structural barriers to PrEP in this high-risk patient population, those successfully linked to PrEP care are more likely to be employed, stably housed, and have higher income. Furthermore, only 16.3% of the participants in the study took PrEP.

To enhance the number of vulnerable individuals who successfully access PrEP, interventions need to enhance PrEP awareness and motivation to utilize preventive tools (whether condoms or PrEP) and facilitate access. Competing priorities among low income,

uninsured communities create barriers to access. Identifying at-risk persons presenting for HIV testing, and addressing structural and personal barriers to PrEP access may facilitate PrEP uptake among marginalized populations in the US.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

Acknowledgments

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Table 1

Demographic Characteristics of Participants Surveyed

	All Participants N=300	Not linked to PrEP Care, N=236	Linked to PrEP Care, N=64	Taking PrEP** N=49
	n (%)	n (%)	n (%)	n (%)
Race/ Ethnicity				
Hispanic	79 (26.3)	61 (25.8)	18 (28.1)	12 (24.5)
White non-Hispanic	44 (14.7)	30 (12.7)	14 (21.9)	12 (24.5)
Black non-Hispanic	161 (53.7)	131 (55.5)	30 (46.9)	24 (49.0)
Other *	16 (5.3)	14 (5.9)	2 (3.1)	1 (2.0)
Gender				
Male	186 (63.1)	149 (64.5)	37 (57.8)	27 (55.1)
Female	109 (36.9)	82 (35.5)	27 (42.2)	22 (44.9)
Age in years				
18 - 25	49 (16.3)	34 (14.4)	15 (23.4)	10 (20.4)
26 - 35	89 (29.7)	71 (30.1)	18 (28.1)	14 (28.6)
36 - 45	72 (24.0)	55 (23.3)	17 (26.6)	15 (30.6)
46 +	90 (30.0)	76 (32.2)	14 (21.9)	10 (20.4)
Education				
Less than high school	42 (14.3)	35 (15.2)	7 (10.9)	7 (14.3)
High school diploma/G.E.D.	116 (39.5)	97 (42.2)	19 (29.7)	15 (30.6)
More than high school	136 (46.3)	98 (42.6)	38 (59.4)	27 (55.1)
Employment				
Working full or part time	144 (48.8)	108 (46.8)	36 (56.3)	27 (55.1)
Unemployed †	121 (41.0)	103 (44.6)	18 (28.1)	13 (26.5)
Disabled	30 (10.2)	20 (8.7)	10 (15.6)	9 (18.4)
Income				
0-$9,999	146 (50.2)	124 (54.1)	22 (35.5)	17 (35.4)
$10,000-$24,999	82 (28.2)	58 (25.3)	24 (38.7)	21 (43.8)
$25,000+	63 (21.6)	47 (20.5)	16 (25.8)	10 (20.8)
Housing				
Own/rent dwelling	170 (58.4)	120 (52.6)	50 (79.4)	38 (79.2)
Family/friend dwelling	75 (25.8)	64 (28.1)	11 (17.5)	8 (16.7)
Homeless/unstably housed	46 (15.8)	44 (19.3)	2 (3.2)	2 (4.2)
Insurance				
Private insurance	55 (18.8)	42 (18.2)	13 (21)	10 (21.3)
Public insurance	52 (17.7)	45 (19.5)	7 (11.3)	6 (12.8)
No Health Insurance	186 (63.5)	144 (62.3)	42 (67.7)	31 (66.0)

*
Includes Asian, American Indian/Alaskan/Hawaiian.

†
Includes unemployed and not looking for job, retired and not working, none of the above

N = number of total participants who answered each question

**
Taking PrEP includes 47 participants who linked to PrEP care (N=64) in our program and 2 participants who accessed PrEP in other programs.

Table 2

Risk Profile and PrEP Interests of Participants

	All Participants, N=300	Not linked to PrEP Care, N=236	Linked to PrEP Care, N=64	Taking PrEP,[**] N=49
	n (%)	n (%)	n (%)	n (%)
Condom Use				
Yes, all of the time	79 (26.9)	53 (23.0)	26 (40.6)	18 (36.7)
Yes, some of the time/rarely	109 (37.1)	85 (37.0)	24 (37.5)	19 (38.8)
No	106 (36.1)	92 (40.0)	14 (21.9)	12 (24.5)
Anal sex in the last 6 months				
At least once	97 (32.9)	71 (30.6)	26 (41.3)	19 (39.6)
Never	181 (61.4)	145 (62.5)	36 (57.1)	28 (58.3)
Declined	17 (5.8)	16 (6.9)	1 (1.6)	1 (2.1)
Anal Sex/Gender				
Male with 1 anal sex	82(28.2)	58 (25.4)	24 (38.1)	18 (37.5)
Male No anal sex	103 (35.4)	90 (39.5)	13 (20.6)	9 (18.8)
Female with 1 anal sex	11(3.8)	9 (3.9)	2 (3.2)	1 (0.2)
Female No anal sex	95 (32.6)	71 (31.1)	24 (38.1)	20 (41.7)
Multiple sexual partners				
Yes	130 (44.1)	103 (44.4)	27 (42.9)	18 (37.5)
Drug Use				
Yes	211 (71.8)	167 (72.3)	44 (69.8)	38 (79.2)
HIV positive Partner				
Yes	101 (34)	50 (21.4)	51 (81)	40 (83.3)
MSM				
Yes	64 (21.3)	36 (15.3)	28 (43.8)	19 (38.8)
MSM/Gender				
Male MSM	64 (21.7)	36 (15.6)	28 (43.8)	19 (38.8)
Male Not MSM	122 (41.4)	113 (48.9)	9 (14.1)	8 (16.3)
Female	109 (36.9)	82 (35.5)	27 (42.2)	22 (44.9)
PrEP interest despite side effects				
Yes	230 (77.4)	170 (73.0)	60 (93.8)	47(93.9)
PrEP gives hope				
Yes	274 (91.9)	212 (90.6)	62 (96.9)	48 (98)
Infidelity worry with condom use				
Yes	145 (49.2)	125 (53.6)	20 (32.3)	18(38 3)
Belief could get HIV in lifetime				
Yes	200 (66.9)	154 (65.5)	46 (71.9)	34(69.4)
Interest in follow up in Patient Program				
Yes, definitely/probably	264 (89.8)	201 (78.4)	63 (98.4)	48(98)
No, probably/definitely not interested	30 (10.2)	29 (12.6)	1 (1.6)	1(2)
Interest in taking PrEP				
Yes, definitely/probably interested	215 (72.9)	155 (66.8)	60 (95.2)	48(98)

	All Participants, N=300	Not linked to PrEP Care, N=236	Linked to PrEP Care, N=64	Taking PrEP,[**] N=49
	n (%)	n (%)	n (%)	n (%)
No, probably/definitely	80 (27.1	77 (33.2)	3 (4.8)	1(2)

[**] Taking PrEP includes 47 participants who linked to PrEP care (N=64) in our program and 2 participants who accessed PrEP in other programs.

Table 3

Factors Associated with Linkage to PrEP Care and PrEP Use, N=300

Characteristics	Linked to PreP Care		Currently Taking PrEP	
	Unadjusted OR(CI)	Multivariable OR*(CI)	Unadjusted OR(CI)	Multivariable OR*(CI)
Race/ Ethnicity[§]				
Hispanic	0.63 (0.3 - 1.4)	0.44 (0.1 – 1.4)	0.48 (0.2-1.2)**	0.34 (0.1-1.1)**
Black non-Hispanic	0.49 (0.2 - 1.0)**	0.45 (0.2 – 1.3)	0.47 (0.2-1.0)	0.42 (0.14-1.3)**
Other	0.31 (0.1 - 1.5)**	0.59 (0.1-6.6)	0.18 (0.0-1.5)**	0.24 (0.0-3.5)
White non-Hispanic	1.00 (Ref)	1.00 (Ref)	1.00 (Ref)	1.00 (Ref)
Gender/MSM[§]				
Male MSM	9.77 (4.2 - 22.6)[‡]	10.23 (3.4 – 31.0)[‡]	6.02 (2.5-14.7)[‡]	4.83 (1.6-15.1)[‡]
Female	4.13 (1.9 - 9.3)[‡]	4.12 (1.5 – 11.1)[‡]	3.60 (1.5-8.5)[‡]	2.98 (1.1-8.3)[‡]
Male Not MSM	1.00 (Ref)	1.00 (Ref)	1.00 (Ref)	1.00 (Ref)
Age in years[§]				
18 - 25	2.39 (1.0 - 5.5)[‡]		2.05 (0.8-5.3)**	
26 - 35	1.38 (0.6 – 3.0)		1.49 (0.6-3.6)	
36 - 45	1.68 (0.8 - 3.7)**		2.11 (0.9-5.0)**	
46 +	1.00 (Ref)		1.00 (Ref)	
Employment[§]				
Unemployed	0.52 (0.3 – 1.0)[‡]	0.48 (0.2 – 1.1)[‡]	0.52 (0.3-1.1)**	0.43 (0.2-1.1)**
Disabled	1.50 (0.6 - 3.5)	1.89 (0.6 – 6.0)**	1.86 (0.8-4.5)**	2.64 (0.8-8.7)**
Working full or part time	1.00 (Ref)	1.00 (Ref)	1.00 (Ref)	1.00 (Ref)
Income				
0-$9,999	2.33 (1.2 - 4.5)[‡†]		2.61 (1.2-5.3)[‡]	
$10,000-$24,999	1.92 (0.9 – 4.0)**[†]		1.43 (0.6-3.3)	
$25,000+	1.00 (Ref)[†]		1.00 (Ref)	
Housing				
Friend/family dwelling	0.41 (0.2 - 0.9)[‡†]		0.41 (0.2-0.9)[‡]	
Homeless/unstably housed	0.11 (0.0 - 0.5)[‡†]		0.16 (0.0-0.7)[‡]	
Own/rent dwelling	1.00 (Ref)[†]		1.00 (Ref)	
Condom Use[§]				
Yes, some of the time/rarely	0.58 (0.3 - 1.1)**		0.72 (0.4-1.5)	
No	0.31 (0.2 - 0.7)[‡]		0.43 (0.2-1.0)[‡]	
Yes, all of the time	1.00 (Ref)		1.00 (Ref)	
HIV Positive Partner[§]				
Yes	15.64 (7.8 - 31.6)[‡]	14.04 (6.1 – 32.3)[‡]	15.41 (6.8-34.7)[‡]	13.07 (5.2-32.8)[‡]
No/Refused	1.00 (Ref)	1.00 (Ref)	1.00 (Ref)	1.00 (Ref)
PrEP interest despite side effects[§]				

Characteristics	Linked to PreP Care		Currently Taking PrEP	
	Unadjusted OR(CI)	Multivariable OR[*](CI)	Unadjusted OR(CI)	Multivariable OR[*](CI)
Yes	5.56 (1.9-15.9)[‡]		8.34 (2.0-35.3)[‡]	
No	1.00 (Ref)		1.00 (Ref)	
PrEP gives hope[§]				
Yes	3.22 (0.7 - 14.1)[**]		4.88 (0.6-37.1)[**]	
No	1.00 (Ref)		1.00 (Ref)	
Infidelity worry with Condom use[§]				
Yes	0.41 (0.2 - 0.7)[‡]		0.59 (0.3-1.1)[**]	
No	1.00 (Ref)		1.00 (Ref)	
Anal Sex/Gender				
Female with 1 anal sex	1.54 (0.3-7.9)		1.04 (0.1-9.1)	
Female No anal sex	2.34 (1.1-4.9)[‡]		2.79 (1.2-6.5)[‡]	
Male with 1 anal sex	2.86 (1.4-6.1)[‡]		2.94 (1.2-7.0)[‡]	
Male No anal sex	1.00 (Ref)		1.00 (Ref)	
Interest in Prevention Program				
Yes, definitely/probably	9.08 (1.21 - 67.94)[‡]		6.44 (0.9-48.5)[**]	
No, probably/definitely not	1.00 (Ref)		1.00 (Ref)	
Interest in taking Truvada[§]				
Yes, definitely/probably interested or already taking	9.93 (3.0 - 32.7)[‡]	6.74 (1.8-25.4)[‡]	22.7 (3.1-167.4)[‡]	14.41 (1.8-166.9)[‡]
No, probably/definitely not	1.00 (Ref)	1.00 (Ref)	1.00 (Ref)	1.00 (Ref)

[*] Multivariable analysis controlled for race, employment status, HIV positive partner MSM/gender status and Truvada interest.

[§] Included in final model due to biological significance

[‡] P value less than 0.05

[**] P value less than 0.2 but greater than 0.05

[†] excluded from final model

Note: OR=Odds Ratio; CI=Confidence Interval