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Adherence to PrEP among young men who have sex with men participating in a sexual health services demonstration project in Alameda County, California

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Running head: PrEP Use Among Young Men in Alameda County

ABSTRACT

Background: Young men of color who have sex with men (YMSM) face a continual increase in rates of HIV infection. Pre-exposure prophylaxis (PrEP) is an important prevention method for these young men.

Setting: The Connecting Resources for Urban Sexual Health (CRUSH) demonstration project provided sexual health services, including PrEP, to YMSM aged 18-29. We report on adherence and factors influencing it.

Methods: Participants were offered HIV and sexually transmitted infection (STI) testing, prevention counseling, PrEP, and when appropriate, STI treatment and post-exposure prophylaxis (PEP). Participants taking PrEP had erythrocyte tenofovir diphosphate (TFV-DP) and emtricitabine levels measured via dried blood spot testing at 4, 12, and 24 weeks to estimate medication adherence. Participants also completed surveys to assess demographic and psychosocial measures.

Results: From February 2014 to November 2015, CRUSH enrolled 257 participants. Ninety-three percent started PrEP, 81% of whom initiated it at their first visit. Twelve percent required PEP prior to starting PrEP. Adherence at protective levels was initially high with 87% demonstrating levels consistent with at least 4 doses per week at week 4, compared to 77% at the 24-week follow-up. African Americans and Latinos demonstrated significantly lower levels of adherence at 12-weeks. The association between African American race and adherence was attenuated when we adjusted for exposure to violence and competing survival needs.

Conclusion: Most young men who initiate PrEP adhere at levels that confer protection against HIV infection. Interventions should account for differences in life experiences, particularly addressing the structural challenges facing young African American men.

Key words: PrEP Adherence, Social Disparities

INTRODUCTION

In the United States (US), youth are especially vulnerable to HIV/AIDS infection. Despite accounting for only about 16% of the U.S. population in 2016,¹ youth ages 13-24 accounted for 21% of new HIV/AIDS diagnoses, and the rate of diagnosis among youth was more than three times higher than in the general population (39.8 versus 12.3/100,000 for youth compared to all new diagnoses).² Young men who have sex with men (YMSM) are at particularly elevated risk, and strikingly, African American and Latino YMSM together account for nearly two-thirds (63%) of new HIV diagnoses among youth, despite accounting for only 13% and 16% respectively of the US youth population. African American YMSM alone account for nearly half (44%) of new diagnoses.²

HIV prevention strategies and their broad distribution are clearly needed for YMSM. One such prevention effort is the use of antiretroviral pre-exposure prophylaxis (PrEP). PrEP has been shown to be safe and effective in reducing sexual transmission of HIV,³⁻⁵ and following the FDA approval of the use of emtricitabine/tenofovir disoproxil fumarate (FTC/TDF, Truvada™) as PrEP for men and women in 2012,⁶ the US Public Health Service released guidelines for clinicians on the use of PrEP for the prevention of HIV.⁷ These guidelines recommend that clinicians assess HIV risk among all patients and consider PrEP as one HIV prevention option for those at risk.

The efficacy of PrEP depends on adherence, as shown in numerous studies.^{3,4,8-9} However, in studies in a variety of clinical settings, young people report lower levels of medication adherence generally.¹⁰⁻¹³ Barriers to PrEP use, specifically, among young people include the cost of the drug,¹⁴ dosing schedules that do not work in the context of their lives,¹⁵ difficulty they face accessing health care at all,¹⁶ misinformation about HIV risk,¹⁷⁻¹⁸ lack of access to culturally sensitive providers,¹⁹⁻²⁰ HIV testing stigma,²¹ and concern over potential side effects.²² Recent studies are beginning to attend to structural barriers to PrEP for groups facing unique needs, such as individuals who have ongoing financial difficulties.²³ These difficulties appear to force young people to have to prioritize across competing life needs.²³ In addition, studies have shown differences in PrEP use by race and ethnicity, which is likely confounded with socioeconomic factors, access to education and other social determinants of health.²⁴⁻²⁷

We received demonstration project support from the California HIV/AIDS Research Program's Epidemic Intervention Initiative to design and implement the Connecting Resources for Urban Sexual Health (CRUSH) program.²⁸ Located in Oakland, California, CRUSH was based on a successful service model for HIV-infected young people and was expanded to provide sexual health services to *all* YMSM, regardless of serostatus. In this paper, we report on the adherence to PrEP among HIV-uninfected CRUSH participants by race and ethnicity and explore whether structural aspects contextualizing men's lives affected their adherence to PrEP.

METHODS

Setting and Intervention

This study took place at an existing HIV-primary care setting, the Downtown Youth Clinic (DYC), a program developed by providers at an existing HIV clinic, the East Bay AIDS Center (EBAC), who were concerned about health outcomes and retention of the HIV-positive youth. DYC's protocols were modified to incorporate routine sexual health services for both HIV-infected and HIV-uninfected young men and their sexual partners. These services were provided under the umbrella name CRUSH as a reference to a popular hip-hop song. The original DYC model included an HIV testing component, whereby HIV-positive patients could bring partners and those in their social networks in for HIV testing. In the CRUSH project, community partner agencies also referred clients for testing. The sexual health intervention components were designed by the research project investigators. Input on intervention implementation and delivery was secured from experienced clinic staff and a CRUSH community advisory board, which was comprised of young people from the target population, all of whom eventually enrolled as participants in the study.

Study design

This study is an evaluation of a demonstration project and used a prospective observational cohort design. The evaluation attempted to enroll all young people receiving services through the demonstration project at the CRUSH clinic.

Study population and eligibility criteria: Most HIV-infected CRUSH participants were already being seen at the clinic and were offered study enrollment following study start. Most HIV-negative participants came to the clinic because they had heard about the sexual health services, and about PrEP in particular. Recruitment was targeted towards sexually active YMSM of color, although the sexual health clinic was open to cisgender women and transgender women and men, and to individuals of all races and ethnicities. PrEP-eligible participants were between

the ages of 18 and 29, had a sexual partner known to be infected with HIV or any recent sex with males or transgender persons, spoke English or Spanish, and intended to be in Alameda County for the year. Those interested in participating were asked to complete a brief screening questionnaire to determine eligibility. If eligible and willing to participate, study staff obtained written informed consent. Participation did not influence receipt of care, and no incentives were offered for clinical visits. Those who chose to participate in the study did receive a small cash incentive to complete study visits.

Intervention procedures: Once enrolled, participants were assessed for sexual risk, medical history and provided a blood sample, which was tested for HIV-1/2 antibodies and antigen, serum creatinine, hepatitis B surface antigen and surface antibody, and syphilis rapid plasma reagin (RPR). Laboratory screening for bacterial sexually transmitted infections (STIs) was done at the discretion of the clinician and typically included specimens for gonorrhea and chlamydia nucleic acid amplification from urine and from swabs of the pharynx and rectum. Empiric treatment and expedited partner therapy for STIs were performed as clinically indicated. For HIV-negative participants, the clinician reviewed the risks and benefits of Truvada® for PrEP and addressed any patient questions or concerns and provided counseling to develop an individualized comprehensive sexual health and prevention plan. When all initial study activities were completed and documented, the participant received condoms, the pharmacy dispensed a 30-day supply of Truvada® to the patient, and a follow-up visit was scheduled.

Follow-up visits for clinical care were scheduled at 4, 12, 24, 36, and 48 weeks with study assessments at 4, 24, and 48 weeks. The clinician performed adherence counseling as part of each clinic visit. PrEP counseling was modeled on existing clinic practices for counseling HIV-infected patients on antiretroviral adherence. Providers used a patient-centered approach like that recommended by the American Public Health Association.²⁹ Brief counseling at each visit encompassed four steps--assessment of adherence and factors related to it, strengthening of the therapeutic alliance, and recommendation of targeted interventions as appropriate (e.g. alarm setting, pill boxes, treatment for substance use or mental health disorders).

Procedures

Data collection

Participants completed audio computer assisted self-interviews on demographic characteristics and on psychosocial factors that had been shown in prior studies to affect PrEP or that

were hypothesized to influence adherence. Baseline interviews typically took 60 minutes and follow-up interviews 45 minutes to complete. Medical and laboratory test information was abstracted from the clinic's electronic medical record system (visit dates, care provided, and laboratory tests). All study PrEP medication was dispensed by the onsite pharmacy and was tracked by study staff. The study provided two laboratory tests not part of the current clinical standard of care: triplex nucleic acid amplification testing (NAAT) for sensitive detection of HIV, HBV, and HCV; and dried blood spot (DBS) testing to measure erythrocyte drug levels of tenofovir diphosphate (TFV-DP) and emtricitabine.

Predictors

Both the baseline and follow-up interviews recorded demographic characteristics including age, race/ethnicity, sexual orientation, insurance status and education using standard scales. Survival concerns were measured using questions adapted from the iPrEx-OLE study and an index was created by adding the number of factors participants said affected their adherence.³⁰ Depression was measured using the Brief Symptom Inventory.³¹ Drug use was assessed using the 20-item Adolescent Drug Abuse Screening Test (DAST-Adolescent) and defined as any moderate, substantial, or severe drug use in the 12 months prior to baseline.³² Problematic alcohol use was determined using the three-item Alcohol Use Disorders Identification Test (AUDIT-10) and defined as having an "active alcohol use disorder."³³ Exposure to gun violence was assessed by asking if the participant had been shot at or had shot someone in their lifetime (yes/no).³⁴

Primary outcome measure

This analysis is limited to YMSM who were HIV-uninfected at study entry. All participants taking Truvada® underwent DBS testing at 4, 12, 24 and 48 weeks to estimate medication adherence. Dried blood spot tenofovir diphosphate concentration is highly correlated with average adherence over the 3-month period preceding the blood sample.³⁵ Concentration strata have been developed associated with taking an average of 4 or more of the 7 prescribed Truvada doses each week, versus taking 2-3 doses, or fewer than 2 doses per week.³⁵ *We present adherence to PrEP as determined by DBS test among those who were using PrEP at the time of each visit (Figure 2).* Individuals were categorized as being on PrEP at the time of a clinical visit if pharmacy records indicated that they had a recent medication dispensation sufficient to last until their current clinical visit and they did not report discontinuation of PrEP use. Individuals were classi-

fied as *highly adherent* to PrEP if DBS testing demonstrated a tenofovir diphosphate concentration consistent with taking 4 or more doses per week – a level shown to be highly protective against HIV infection in previous studies of biologic males.^{35,36}

Analysis

The primary aim of the analysis was to describe adherence to PrEP by YMSM in this population when offered as part of a package of culturally sensitive sexual health services. Because young men of color are at increased risk of HIV acquisition, we stratified our results by race/ethnicity. We also wanted to explore whether there were statistically significant predictors of PrEP adherence. We describe overall study flow in Figure 1. Table 1 reports the characteristics of the cohort at baseline and association of baseline characteristics with the uptake of PrEP using chi-squares and t-tests.

We describe PrEP adherence during the follow up period (Figure 2). Adherence results are presented for the cohort overall and by racial/ethnic group. We examined baseline characteristics of participants hypothesized or previously demonstrated to be associated with adherence (Table 2). Demographic and social determinants of health, including competing needs, education (as a marker for health literacy) and exposure to violence were examined for a relationship to PrEP adherence. We first conducted univariate analyses to determine which variables were associated with PrEP adherence (data not show). We then constructed a model based on the strength of the univariate associations. A logistic regression model was then constructed using generalized estimating equations to account for the repeated measures among individuals. Covariates were included if their associations with adherence were statistically significant, or if inclusion changed the magnitude or significance of other covariates in a meaningful way (i.e., interacted with demographic variables). Where multiple covariates were strongly associated with each other, either a composite variable was created (in the case of competing needs), or the single variable with the strongest effect was included. In the case of competing needs, we created a continuous variable (0-5) adding up the number of challenges a participant reported facing related to: 1) securing food, clothing or housing; 2) getting health care; 3) securing medications 4) paying rent 5) seeing a doctor. For exposure to violence, we selected the item that was significantly correlated with adherence, exposure to gun violence, from a list of violence exposure items. We also describe a summary of STI diagnoses during the study.

RESULTS

From February 2014 to November 2015, 257 HIV-uninfected YMSM were enrolled in the CRUSH project (Figure 1).

Demographic Characteristics

Table 1 displays the baseline characteristics for participants overall. Participants included in this analysis were all biologically male at birth and identified as male gender. Mean age was 24.2 years (S.D. 2.9). Most participants had greater than a high school education (74%). Most participants self-identified as Latino (33%), followed by non-Hispanic white (25%), African American (16%), or Asian American (13%); 7% self-identified as mixed-race, and 7% refused or failed to indicate race/ethnicity. Most identified as bi-sexual (85%).

Interest in PrEP

Most cited interest in PrEP as their main reason for seeking out the CRUSH project (81%). Participants reported being referred to the project specifically through word of mouth, with 33% reporting that they learned of the project from a friend or current clinic patient. Additionally, 14% were referred by medical providers, 12% by CRUSH clinic staff, 2% by partnering community agencies, and 39% some other way. Of all eligible participants, 93% took PrEP at some point during the study, with 82% initiating PrEP at their initial study visit. An additional 11.8% were judged by medical providers to require post-exposure prophylaxis (PEP) prior to starting PrEP. Most participants who initiated PEP at their first study visit subsequently began PrEP (97%).

PrEP Adherence

Dried blood spot (DBS) results at all visits (N=667) were available for 226 participants. Among those taking PrEP, the majority had erythrocyte TFV-DP levels consistent with a protective level of adherence, defined as taking at least 4 doses of Truvada® per week, regardless of time point (Figure 2). The proportion of participants with high-level adherence declined overall, from 87% at week 4, to 77% at week 48 among those who were currently taking PrEP and had a DBS result available.

Figure 2 presents adherence by race/ethnicity over time. At all time points, over 80% of white and Asian American men had DBS results consistent with high level adherence. Across these time points, African American men's measured adherence was consistently lower: 71% of African American study participants had erythrocyte TFV-DP levels at 4 weeks that correlate with taking at least 4 PrEP doses per week, and high-level adherence declined to 56% at 48 weeks. Latino men's adherence also declined over time, from 92% with high level adherence at 4

weeks to 71% at 48 weeks. Men of mixed race and those who chose “other” race or ethnicity had no consistent pattern of adherence over time.

Predictors of Adherence:

In the multivariable model, increasing time from baseline was associated with lower adherence to PrEP. The odds of high-level adherence were lower at each of the subsequent study time points, with the lowest odds at 48 weeks ($p=0.44$; the only statistically significant interval) compared to baseline. Study participants were less than half as likely at 48 weeks than at baseline to have erythrocyte drug levels consistent with taking 4 or more PrEP doses per week ($p=0.01$) controlling for other factors.

In a minimal model adjusted only for time from baseline, African Americans were less likely to demonstrate high levels of adherence to PrEP at all time points (OR 0.22, 95% CI: 0.09 – 0.54, $p<0.01$). When additional variables hypothesized to impact adherence were included, we found that African American race remained associated with a lower likelihood of high-level adherence (OR: 0.33; CI: 0.11-0.97, $p<0.04$). However, including these variables improved the model fit and attenuated the impact of African American race, suggesting that the impact of race is mediated in part by measured structural determinants of health. Age and education, which were considered key components of the conceptual framework and were included in the model, were not significantly associated with PrEP adherence.

Incident HIV Infection

There was one incident HIV infection in the prevention cohort. This participant presented at his initial visit with a history of a high-risk sexual exposure less than 72 hours previously. He was strongly urged to take PEP but declined and indicated he wanted to think about PrEP. He returned a few weeks later and was found to be HIV seropositive.

Sexually Transmitted Infections

Testing results for bacterial STIs were available for 128 participants. Of these, 28% were positive for chlamydia, and 21% positive for gonorrhea. Not all participants were tested at baseline because of insurance payment gaps or due to clinician discretion. During the follow up period, incidence of chlamydia was higher among those on PrEP (48 week incidence of 1.24 and 0.67 per person year respectively [IRR 1.83; 95% CI: 0.90 to 4.34]). Gonorrhea incidence was 1.01 per person year among those on PrEP and 1.68 among those not on PrEP (IRR 0.60; 95% CI: 0.37 to 1.02). Combined incidence rates of STI did not differ significantly between those on

PrEP and those not on PrEP (2.25 vs 2.36 per 1,000; overall incidence in cohort was 2.31). Primary or secondary syphilis was diagnosed in 3 individuals, all of whom were on PrEP at the time of diagnosis.

CONCLUSION

Our data demonstrate that, among a racially and ethnically diverse urban population of YMSM at risk for HIV infection, most of those on PrEP demonstrated drug concentrations consistent with high-level adherence. Consistent with other studies, we found differences in PrEP adherence by race/ethnicity. Young African American and Latino men were less likely to demonstrate high-level adherence at all study time points and showed a greater drop-off in high-level adherence over the course of the study. While structural factors such as survival needs and exposure to violence mediated some of the effects of race and ethnicity in this study, the effect of African American race was persistent.

Nevertheless, all of the young men participating in this study demonstrated a willingness and an ability to use PrEP. PrEP emerged as an important and acceptable prevention strategy for most YMSM, who demonstrated high levels of adherence across the study period. Overall, CRUSH participants demonstrated levels of adherence comparable to those seen in older populations in the United States and greater than the levels previously observed in US adolescent and youth trials.^{37,38} These high levels of adherence were achieved with routine counseling and support delivered during clinical study visits.

Our results indicate that our intervention was unable to fully mitigate the circumstances in some men's lives that affected adherence. Young African American men face daily life challenges that impact their ability to engage in preventive health services. To effectively deliver prevention services to all YMSM, more is required than a conducive clinical environment. Preventing violence, counseling following exposures to violence, and supporting young men of color in meeting basic survival needs may be as important as prescriptions and lab tests in enhancing access and adherence to PrEP.

One third of PrEP users discontinued PrEP prior to 48 weeks. Discontinuation may not be a worrisome clinical indicator in all cases, as PrEP recipients and their medical providers may calibrate the need for ongoing PrEP to degree of ongoing risk. But even among those who do choose to remain on PrEP, the proportion demonstrating protective drug levels tends to fall over time. Young MSM, and especially young MSM of color, may require additional supportive interventions to assist them in maintaining highly protective levels of PrEP adherence. Future

studies should test such interventions. And approaches to biomedical prevention other than a daily oral pill should be considered. The Ipergay study³⁹ has demonstrated the efficacy of an on-demand PrEP strategy, which may be an appealing strategy for people who are only intermittently at risk. Long acting injectable PrEP may offer another promising solution for people who struggle with daily pill taking. Our results suggest that such a strategy could be particularly important for YMSM of color, who are motivated to come in for sexual health and prevention visits but may tend to have lower levels of adherence to daily oral PrEP.

Our STI testing data does not demonstrate risk compensation, or any clear pattern of differences in bacterial STI acquisition rates on PrEP. But this analysis is limited by the absence of pre-study incidence data, and wide confidence intervals in incidence rates due to limitations in data completeness and the relatively small amount of data from participants not on PrEP.

Of young men seeking preventive services including PrEP, a substantial proportion meet criteria for PEP. In this study, one in six PrEP seekers were clinically assessed as requiring PEP prior to initiating PrEP. Making PrEP available without such a clinical assessment may put some MSM at risk for beginning PrEP in the face of early established HIV infection. PEP should be part of a comprehensive sexual health service package for MSM, should be readily and easily available, and should be considered at all clinical encounters with at-risk persons who are not on or adhering to PrEP.

Our conclusions about the strength of these association are limited by potential bias inherent in self-reported data collected on potential mediating factors. Furthermore, the results of this study may be a result of it taking place in the Alameda County community environment and may not be generalizable, although the fact that our data confirm the results of other studies indicates that this is unlikely.

Our findings demonstrate that YMSM, including young Latino and African American MSM are interested in PrEP, and able to adhere to PrEP at protective levels. There remain important and persistent differences, according to race and ethnicity, in PrEP adherence that require further study, and the tailoring of services for different groups of young men who have sex with men.

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Figure 1. Study Flow

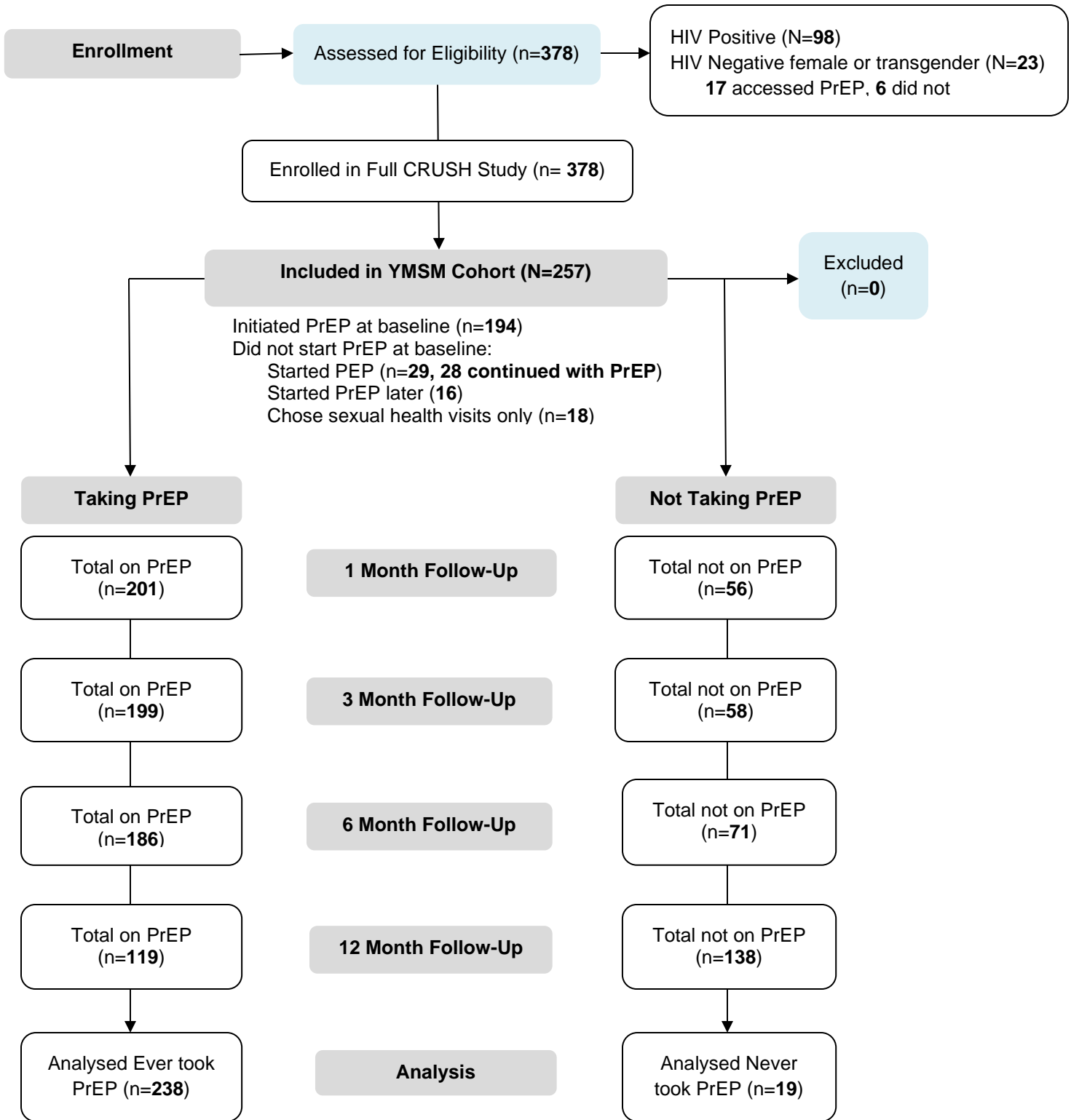


Table 1: Baseline characteristics of participants

	All		Ever accessed PrEP?				p-value
			Yes		No		
	N	%	N	%	N	%	
Referral source							0.02
Other	99	39%	94	95%	5	5%	
Friend	85	33%	80	94%	6	6%	
Clinic/physician	35	14%	33	94%	2	6%	
Study staff	32	12%	27	84%	5	16%	
Community partner	5	2%	3	60%	2	40%	
Presenting reason							
Interested in PrEP	207	81%	205	99%	2	1%	<0.001
Wanted PEP	19	7%	17	89%	2	11%	0.59
Symptoms of STI	16	6%	10	63%	6	37%	<0.001
HIV test	19	7%	14	74%	5	26%	<0.001
NAAT test	4	2%	3	75%	1	25%	0.18
Age Mean (std)							0.30
	24.2(2.86)		24.2(2.84)		23.5(3.17)		
Self-reported sexual orientation							0.27
Straight	3	1%	2	66.7%	1	33.3%	
Gay	29	11%	26	89.7%	3	10.3%	
Bisexual	217	85%	202	93.1%	15	6.9%	
Other	7	3%	7	100.0%	0	0	
Highest Level of education							0.72
High school or less	65	25.7%	60	92.3%	5	7.7%	
Some further education beyond high school	188	74.3%	187	93.6%	12	6.4%	
Race/Ethnicity							0.66
Refused/No Response	17	6.6%	16	94.1%	1	5.9%	
African American	40	15.6%	35	87.5%	5	12.5%	
Latino	84	32.7%	76	90.5%	8	9.5%	
White	64	24.9%	62	96.9%	2	3.1%	
Asian	33	12.8%	31	93.9%	2	6.1%	
Other	2	0.8%	2	100.0%	0	0.0%	
Mixed	17	6.6%	16	94.1%	1	5.9%	
Survival concerns							0.01
Struggling to survive, not enough money to pay bills and buy food	16	6.3%	14	87.50%	2	12.5%	
Barely paying the bills	70	27.7%	66	94.29%	4	5.7%	
Have the necessities, have money to cover needs	116	45.9%	112	96.55%	4	3.4%	
Comfortable, have money to purchase extras	50	19.8%	44	88.00%	6	12.0%	
Refused/No Response	1	0.4%	0	0.00%	1	100.0%	
Household is receiving public assistance							0.01

No Response/Missing	6	2.3%	3	50.0%	3	50.0%	
No	222	86.4%	207	93.2%	15	6.8%	
Yes	29	11.3%	28	96.6%	1	3.5%	
Health insurance in the past 12 months							0.22
None	13	5%	13	100.0%	0	0.0%	
Public Insurance	38	15%	32	84.2%	6	15.8%	
Private Insurance	110	43%	102	92.7%	8	7.3%	
Other Coverage	69	27%	65	94.2%	4	5.8%	
Multiple Types	27	11%	26	96.3%	1	3.7%	
Mean belief in PrEP effectiveness (0=no belief, 100=complete belief)	Mean	Std	Mean	Std	Mean	Std	0.01
All	87.72	14.14	88.86	13.00	74.00	19.84	
Received PEP at baseline visit							0.45
No	236	88%	220	93%	16	6%	
Yes	31	11%	30	96%	1	3%	
Mental Health (BSI screen symptomatic)							0.70
No	254	99%	236	92.9%	18	7.1%	
Yes	2	1%	2	100%	0	0	
Drug Dependence (DAST - adolescent)							0.93
No	154	60.2%	143	92.9%	11	7.1%	
Yes	102	39.8%	95	93.1%	7	6.9%	
Alcohol Dependence (AUDIT-10)							0.96
No	158	62%	147	93.0%	11	7.0%	
Yes	98	38%	91	92.9%	7	7.1%	
Number of sexual partners in the past 3 months	Mean	Std	Mean	Std	Mean	Std	0.25
All	7.65	8.1	7.84	7.94	5.40	7.63	
Social context factors:							
Number of survival concerns	0.55	0.98	0.56	0.65	0.33	0.99	0.43
Exposure to gun violence	38	17.0%	36	94.7%	2	5.3%	0.97

Figure 2: PrEP Adherence: Participants with dried blood spot samples indicating 4 or more doses per week (among those prescribed PrEP with available dried blood spot test results), over time total and by ethnicity (N= 226)

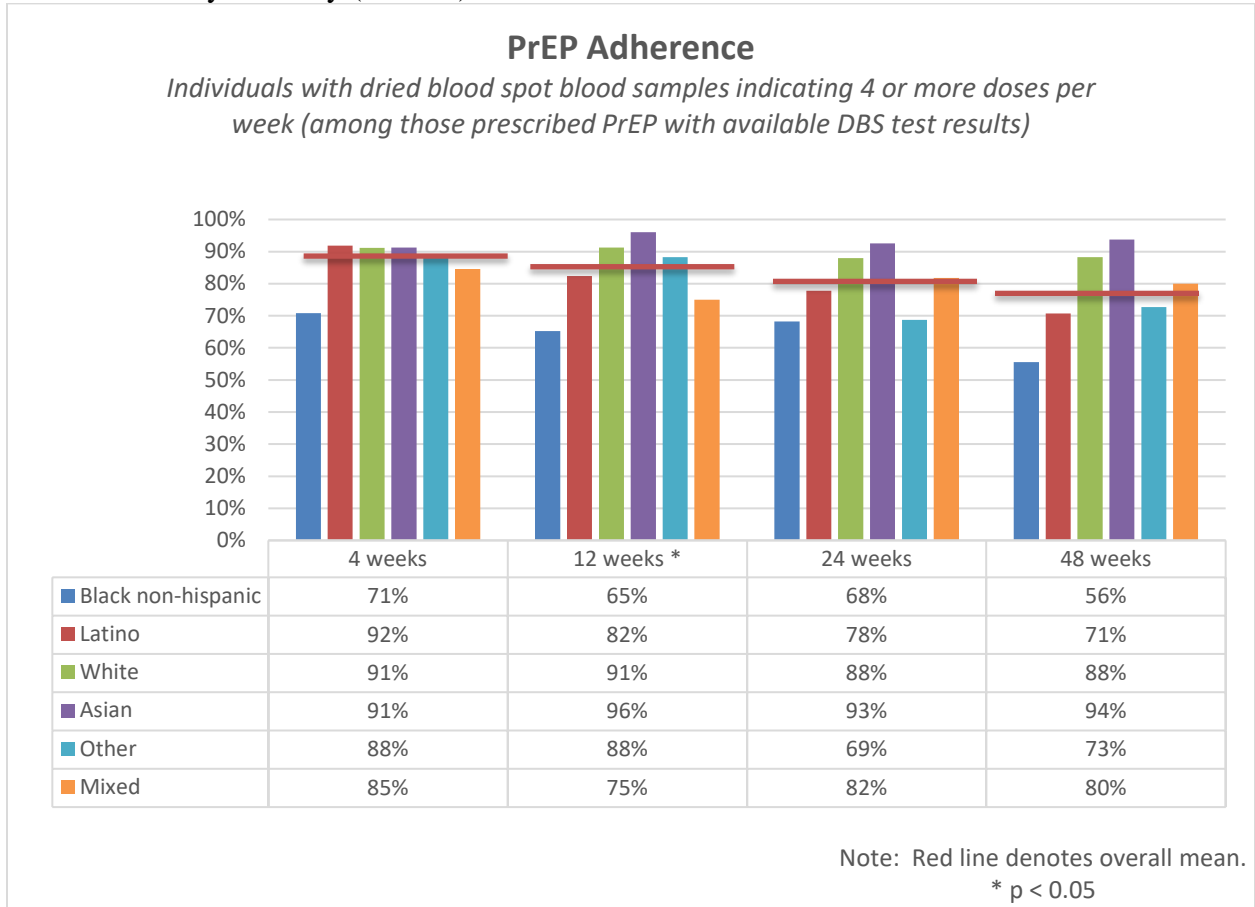


Table 2: Correlates of TFV-DP Levels Consistent with Protection in Dried Blood Spot Samples

	OR	95% Wald Confidence Limits	Pr > Z
Study Visit			
Month 1	ref		
Month 3	0.87	0.48, 1.58	0.65
Month 6	0.64	0.33, 1.24	0.19
Month 12	0.44	0.23, 0.82	0.01
Age			
Age	1.07	0.95, 1.21	0.27
Race/Ethnicity			
White	Ref		
African American	0.33	0.11, 0.97	0.04
Latino	0.66	0.29, 1.49	0.32
Asian	1.32	0.39, 4.41	0.65
Other	0.52	0.20, 1.33	0.17
Highest level of education			
High School or less	0.66	0.31, 1.38	0.27
High school or more	Ref		
Contextual factors			
Number of competing needs	0.79	0.59, 1.04	0.10
Exposure to gun violence	0.51	0.24, 1.05	0.07

(N=226)