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MAJOR ARTICLE

Predictors of Human Immunodeficiency Virus Pre-Exposure Prophylaxis (PrEP) Uptake in a Sexual Health Clinic With Rapid PrEP Initiation

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Background. Improved pre-exposure prophylaxis (PrEP) uptake is essential for human immunodeficiency virus (HIV) prevention initiatives. Offering PrEP at the time of HIV and sexually transmitted infection (STI) testing can improve uptake. We offered rapid PrEP initiation in a sexual health clinic and assessed predictors of PrEP interest, initiation, linkage, and retention.

Methods. Between November 2018 and February 2020, PrEP-eligible individuals who presented to a sexual health clinic were offered a free 30-day supply of PrEP plus linkage to continued PrEP care. Univariable and multivariable analyses of demographic and HIV risk data were conducted to determine predictors of PrEP uptake.

Results. Of 1259 adults who were eligible for PrEP (99.7% male, 42.7% White, 36.2% Hispanic), 456 were interested in PrEP, 249 initiated PrEP, 209 were linked, and 67 were retained in care. Predictors of PrEP interest included younger age ($P < .01$), lower monthly income ($P = .01$), recreational drug use ($P = .02$), and a greater number of sexual partners ($P < .01$). Negative predictors of PrEP initiation included lower monthly income ($P = .04$), testing positive for chlamydia ($P = .04$), and exchanging money for sex ($P = .01$). Negative predictors of linkage included self-identifying as Black ($P = .03$) and testing positive for an STI ($P < .01$). Having health insurance positively predicted both linkage ($P < .01$) and retention ($P < .03$).

Conclusions. A minority of PrEP-eligible HIV and STI testers initiated PrEP when offered, suggesting that easy PrEP access in sexual health clinics alone may not improve uptake. Predictors of uptake included established HIV risk factors and markers of higher socioeconomic status, suggesting that those aware of their risk and with the means to utilize health services engaged best with this model.

Keywords. HIV prevention; rapid prEP.

The reduction of new human immunodeficiency virus (HIV) infections by 90% by 2030, as proposed by the *Ending the HIV Epidemic* (*EHE*) initiative, will require improved scale-up of pre-exposure prophylaxis (PrEP), a prevention strategy with demonstrated efficacy in men who have sex with men (MSM) [1], heterosexual men and women [2, 3], and persons who inject drugs [4]. However, despite a substantial recent increase in the number of PrEP users [5], PrEP was estimated to reach only 25% of the estimated 1.2 million persons who had indications for PrEP in 2020 [6]. In addition, uneven uptake of PrEP in the community [7, 8] translates to disparities in PrEP use among groups that bear the greatest burden of HIV incidence, including African American and Hispanic/Latino MSM [9] and transgender women [10]. Expanding access to PrEP will be paramount to global HIV prevention efforts.

Novel approaches to PrEP delivery include provision of PrEP through pharmacies [11] and rapid PrEP initiation in community-based sexual health clinics [12–16]. Provision of PrEP through pharmacies is feasible and can decrease barriers to PrEP access [11, 17–19]. Similarly, modeling [20] and real-world data [12] suggest that rapid PrEP delivery at the point of testing for HIV and sexually transmitted infections (STIs) can reduce HIV incidence. However, effectiveness and outcomes data for these approaches on the PrEP prevention continuum are lacking [11, 14, 15]. Furthermore, PrEP uptake outcomes should be interpreted with consideration to whether participants were seeking PrEP as part of the intervention (ie, self-referrals to pharmacy-led PrEP programs [21–25]) or were not seeking PrEP but were offered PrEP as part of the program (ie, PrEP eligibility discussion at the time of HIV and STI testing [12–16]). To inform wider implementation of similar programs in sexual health clinics, more data are needed to understand how rapid PrEP initiation impacts all stages of the PrEP prevention continuum. We instituted a rapid PrEP program in a community-based sexual health clinic and examined

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Table 1. Characteristics of PrEP-Naive Study Participants Who Were Eligible for PrEP (n = 1259)

Description	N	Not Interested in PrEP (n = 803)	Interested in PrEP (n = 456)	Total (n = 1259)	*P* Value
Age, median (IQR)	1259	32 (27–42)	29 (26–36)	31 (27–40)	<.01
Sex at birth					
Male	1259	803 (100)	452 (99.1)	1255 (99.7)	.02
Not male		0 (0)	4 (0.9)	4 (0.3)	
Male gender identity	1258	782 (97.5)	435 (95.4)	1217 (96.7)	.05
Race/ethnicity					
White	1247	358 (45)	174 (38.6)	532 (42.7)	.17
Black		56 (7)	32 (7.1)	88 (7.1)	
Hispanic		275 (34.5)	176 (39)	451 (36.2)	
Other (including multiracial)		107 (13.4)	69 (15.3)	176 (14.1)	
MSM or transwomen					
MSM	1259	781 (97.3)	438 (96.1)	1219 (96.8)	.50
Transgender women		11 (1.4)	9 (2)	20 (1.6)	
Other		11 (1.4)	9 (2)	20 (1.6)	
Monthly household income is less than $2000	1259	201 (25)	158 (34.6)	359 (28.5)	<.01
Homeless	1256	10 (1.2)	11 (2.4)	21 (1.7)	.17
Possessed health insurance	1245	593 (74.4)	303 (67.6)	896 (72)	.01
Number of sexual partners[a], median (IQR)	1259	3 (1–5)	3 (2–6)	3 (2–5)	<.01
Engaged in recreational drug use[a]	1259	115 (14.3)	96 (21.1)	211 (16.8)	<.01
Cocaine[a]	1259	64 (8.0)	52 (11.4)	116 (9.2)	.05
Ecstasy[a]	1259	39 (4.9)	30 (6.6)	69 (5.5)	.20
Nitrate/nitrite (poppers)[a]	1259	29 (3.6)	37 (8.1)	66 (5.2)	<.01
Injected drug use[a]	1255	9 (1.1)	8 (1.8)	17 (1.4)	.45
Unprotected anal intercourse[a]	1248	771 (96.9)	435 (96.2)	1206 (96.6)	.62
Unprotected, receptive anal intercourse[a]	1248	474 (59.5)	284 (62.8)	758 (60.7)	.28
In the past 3 months, participant had sex with someone they knew had HIV infection	1257	92 (11.5)	63 (13.8)	155 (12.3)	.25
Had sex with a sex worker or exchanged sex for money or goods[a]	1256	28 (3.5)	10 (2.2)	38 (3)	.23
Self-reported STI[a]	1259	17 (2.1)	15 (3.3)	32 (2.5)	.26
Tested positive for any STI (GC, CT, or syphilis)	1257	136 (16.9)	90 (19.8)	226 (18)	.22
Active syphilis infection (RPR ≥1:8)	1252	21 (2.6)	17 (3.8)	38 (3)	.30
Chlamydia	1249	89 (11.1)	43 (9.6)	132 (10.6)	.44
Rectal chlamydia	1007	65 (10.4)	33 (8.7)	98 (9.7)	.44
Throat chlamydia	1025	5 (0.7)	8 (2.3)	13 (1.3)	.04
Urine chlamydia	1238	30 (3.8)	7 (1.6)	37 (3.0)	.04
Gonorrhea	1249	46 (5.8)	45 (10)	91 (7.3)	<.01
Rectal gonorrhea	1007	21 (3.3)	30 (7.9)	51 (5.1)	<.01
Throat gonorrhea	1025	30 (4.4)	23 (6.6)	53 (5.2)	.14
Urine gonorrhea	1237	5 (0.6)	10 (2.3)	15 (1.2)	.03

Abbreviations: CT, chlamydia; GC, gonorrhea; HIV, human immunodeficiency virus; IQR, interquartile range; MSM, men who have sex with men; PrEP, pre-exposure prophylaxis; RPR, rapid plasma reagin; STI, sexually transmitted infection.

[a]Corresponds to 3 months before enrollment.

the PrEP prevention continuum and predictors of 4 PrEP prevention outcomes: interest in rapidly starting PrEP, PrEP initiation, linkage to PrEP care, and retention in PrEP care at 3 months.

METHODS

Study Population and Procedures

Men who have sex with men and transgender women aged 18 or older were recruited via advertising and word of mouth to the Total Test, a National Institutes of Health (NIH)-funded comprehensive HIV and STI testing program based in the Good-To-Go sexual health clinic in San Diego, California. The Total Test features (1) a rapid antibody HIV test that, if negative, is reflexed to an individual-donation qualitative nucleic acid test to detect acute HIV infection [26]; (2) onsite point-of-care testing for gonorrhea and chlamydia (GeneXpert CT/NG; Cepheid, Sunnyvale, CA) from urine and self-swab-collected pharyngeal and rectal specimens, and serum screening for syphilis using a reverse sequence algorithm [27]; and (3) referral to study pharmacist to receive a free 30-day supply of oral coformulated tenofovir disoproxil

fumarate and emtricitabine (TDF/FTC) offered to all PrEP-eligible individuals not already on PrEP. To be eligible for PrEP, participants had to meet at least 1 of the following criteria within the past 3 months: (1) condomless anal sex with a person with HIV or person of unknown HIV status who was not taking antiretroviral treatment or PrEP, (2) sharing injection needles with a person with HIV or person of unknown HIV status who was not taking antiretroviral treatment or PrEP, or (3) exchanged sex for money or drugs. Demographic and HIV risk data were also collected.

Participants who expressed interest in rapidly starting PrEP underwent immediate laboratory screening (serum creatinine and hepatitis B surface antigen) and were offered an appointment to start PrEP at the main study site, approximately 1.7 miles from the testing site. Free transportation was provided as needed. Individuals with positive gonorrhea, chlamydia, or syphilis test results were scheduled for an STI treatment visit at the main study site (late- or undetermined-stage syphilis was referred to a local public health clinic for treatment). At the PrEP appointment, a study pharmacist dispensed a free 30-day supply of TDF/FTC and provided adherence and medication counseling. Participants were given the number of the pharmacist in case of questions and instructed to present to an emergency room in case of severe allergic reactions. The PrEP could be dispensed as soon as the same day of HIV testing and no later than 7 days after testing. A case manager met with participants, assessed their insurance status, and scheduled an appointment with a community PrEP clinic to enroll in manufacturer- and state-sponsored financial assistance programs as needed, and to continue PrEP care after the 30-day period. Participants who were not ready to begin PrEP, had HIV risk exposures within the 7-day window, had laboratory abnormalities, or did not show up within the 7-day window were offered standard referral to an outside PrEP provider. Participants received a phone call from the case manager to assess whether they were still engaged in PrEP care at 3 months. If participants could not be reached, medical records were reviewed for documentation of attendance to scheduled PrEP appointments at participating clinics. Linkage to a PrEP provider was defined as visiting a community PrEP provider within 45 days of the PrEP study visit to allow for delays in appointment availability beyond the 30 days of PrEP dispensed.

The University of California San Diego Human Research Protections Program approved the study protocol, consent, and all study-related procedures. All study participants provided voluntary, written informed consent before any study procedures were undertaken. Race and ethnicity reporting was mandated by the US NIH, consistent with the Inclusion of Women, Minorities, and Children policy. Race and ethnicity were self-reported.

Statistical Analysis

To compare characteristics between participants who were interested in rapidly initiating PrEP and those who were not interested, χ^2 test or Fisher's exact test was used for categorical variables as adequate and Wilcoxon rank-sum test was used for continuous variables, as shown in Table 1. For participants who underwent repeat HIV testing during the study period, data from only the first visit was used. Logistic regression was used to identify predictors of PrEP interest, PrEP initiation, linkage to care, and retention in PrEP care. Predictors included demographics, HIV risk factors, and STI factors. Variables with P values less than 0.20 by univariable analysis were considered in multivariable analysis and retained in multivariable models if $P < .05$ using a step-wise selection approach. Multicollinearity diagnostics were performed, and variance inflation factors more than 4 was considered to be significant for collinearity. All analysis was conducted by SAS 9.4.

Patient Consent Statement

Written informed consent was obtained from all participants. The University of California San Diego Human Research Protections Program approved the study protocol, consent, and all study-related procedures.

RESULTS

Study Cohort

Between November 27, 2018 and February 29, 2020, a total of 2148 individuals underwent combination HIV/STI testing using the Total Test algorithm. Of 2148 individuals, 306 (14%) were already on PrEP, 571 (27%) were ineligible for PrEP, and 12 (0.6%) with missing data were excluded, resulting in 1259 participants who were evaluated for their interest in rapidly starting PrEP (Supplementary Figure 1). Demographic characteristics by interest in rapidly starting PrEP for the 1259 participants are shown in Table 1. The median age was 32 years (interquartile range, 27–42), and the study group was predominantly male (99.7%) and White (42.7%); 7.1% of participants were Black, and more than one third of participants (36.2%) were Hispanic/Latinx. Almost all participants (96.6%) reported having receptive anal sex in the prior 3 months; 16.8% had a history of recreational drug use (excluding cannabis) and 1.4% reported injection drug use in the prior 3 months.

Pre-Exposure Prophylaxis Care Continuum

Of 2148 Total Test participants, 1259 were determined to be PrEP-eligible and were asked whether they were interested in rapid PrEP initiation (Figure 1). Of these, 456 (36%) were interested in starting PrEP, and an appointment with a study pharmacist was scheduled by study staff. Of 456 who expressed interest in starting PrEP at the testing site plus an additional 16 who became interested during their STI-treatment visit, 156 failed to show up to their pharmacy visit and 24 were excluded due to incomplete data, resulting in 292 participants

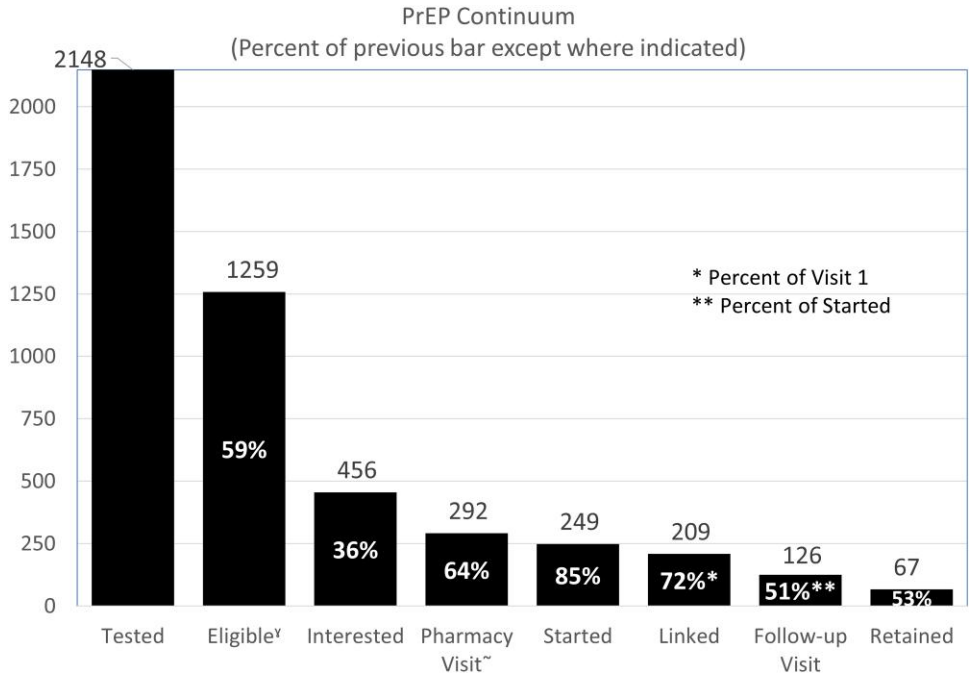

Figure 1. Pre-exposure prophylaxis (PrEP) continuum of care. Bar graph illustrating the proportion of study participants along each step of the PrEP initiation continuum. The steps include the following: Tested (ie, the total number of participants who underwent human immunodeficiency virus/sexually transmitted infection testing during the study period); Eligible (ie, the proportion of participants who were eligible for PrEP); Interested (ie, the proportion who were interested in starting PrEP); Pharmacy Visit (ie, the proportion who were seen by the study pharmacist for PrEP); Started (ie, the proportion who initiated PrEP); Linked (ie, the proportion who were linked to community PrEP clinics); Follow-up Visit (ie, the proportion who completed a study follow up phone call visit); and Retained (ie, the proportion who were retained in care at 3 months). The percentage indicated on the bar is the percentage of the previous bar, except where indicated with an asterisk. Some participants with missing data were removed from analysis as indicated by a typographical symbol on the label of some bars (for details, see Supplementary Figure 1).

(64%) who completed their pharmacy visit. Among these participants, 249 (85%) started PrEP, 7 were not dispensed PrEP (either because they changed their mind or were not ready to start immediately, or because they had condomless anal sex since their HIV test), and 36 were dispensed PrEP but never started it. In the first 9 months of the program, the mean number of days from HIV testing to PrEP dispensation was 5.1 (standard deviation [SD] = 3.0), and the mean number of days from dispensation to PrEP start was 1.4 (SD = 4.2). Interim review of these timeframes prompted extension of pharmacy hours and direct observation of the first PrEP dose at the time of dispensation. After instituting these changes, the mean number of days from testing to PrEP dispensation dropped to 3.1 (SD = 2.2) and from dispensation to PrEP start was 0 (SD = 0.5).

Of 292 who completed their pharmacy visit, 30 failed to show up for their community PrEP clinic appointment, 53 were not linked (either due to cost issues, or because they self-discontinued PrEP, or because they were lost to follow up), and 13 did not start PrEP but were linked (Supplementary Figure 1). In total, 209 participants (72% of those who started PrEP) were ultimately linked to PrEP care. Of 126 participants who could be reached to collect 3-month follow-up data, 67 (53%) reported that they were still taking PrEP and 59 reported that they were no longer taking PrEP.

Predictors of Pre-Exposure Prophylaxis Interest, Initiation, Linkage, and Retention in Care

We next analyzed factors associated with 4 discrete outcomes of PrEP uptake: (1) interest in rapidly starting PrEP, (2) initiation of PrEP, (3) linkage to PrEP care, and (4) retention in PrEP care at 3 months. The analysis was restricted to all tested participants not already on PrEP and eligible for PrEP, comparing demographic, behavior, and STI data (1259) (Table 1, Figure 2, Supplementary Table 1). Participants who reported more than 60 sexual partners in the past 3 months were capped at 60. After accounting for the contributions of relevant factors in univariable and multivariable analyses, younger participants were more likely to be interested in rapidly starting PrEP (adjusted odds ratio [aOR], 0.97; 95% confidence interval [CI], 0.96–0.99; $P < .01$) as were those participants who earned less than $2000 per month (aOR, 1.39; 95% CI, 1.07–1.80; $P = .01$) and those who reported using recreational drugs in the prior 3 months (excluding cannabis) (aOR, 1.43; 95% CI, 1.05–1.94; $P = .02$). Participants who reported having a greater number of sexual partners in the prior 3 months were also 1.03 times more likely, per partner, to express interest in rapidly

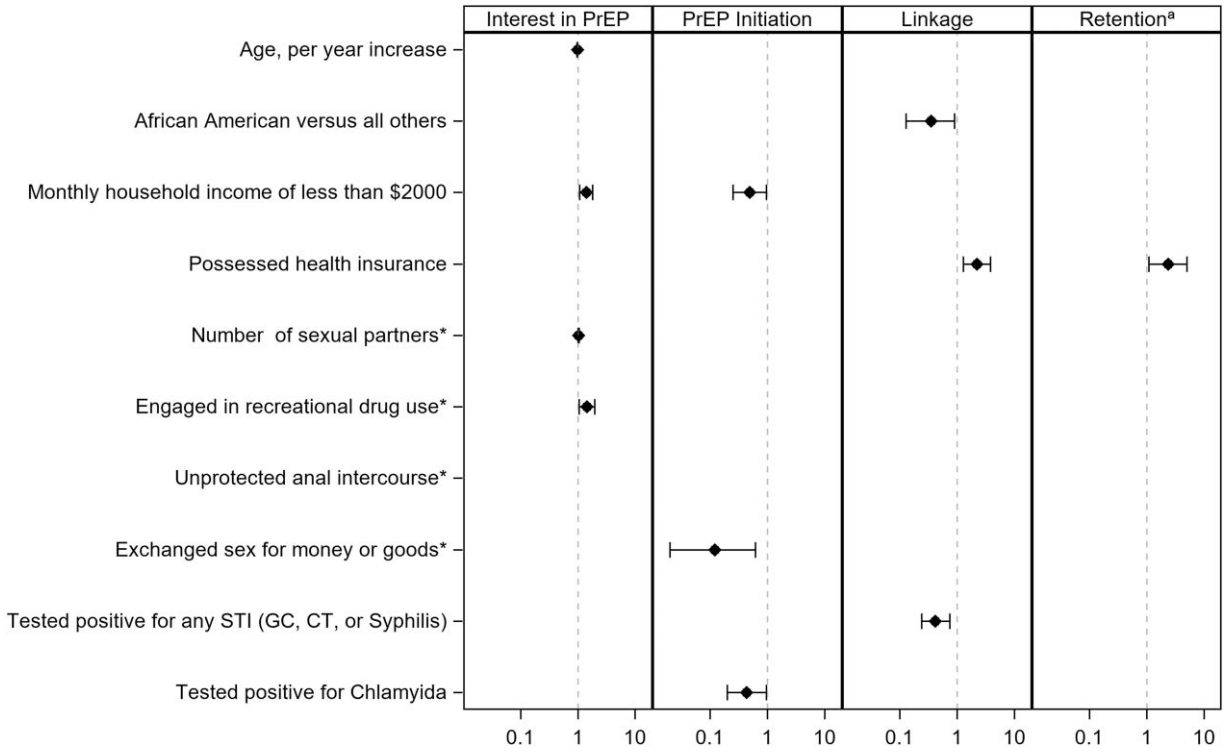

Figure 2. Predictors of pre-exposure prophylaxis (PrEP) uptake. Forest plot showing 4 multivariable logistic regression models for each of the 4 PrEP continuum outcomes: interest in PrEP, PrEP initiation, linkage to community PrEP care, and retention in PrEP care at 3 months. Outcomes are displayed across the top and significant predictors are listed on the left. Diamonds represent adjusted odds ratios and whisker bars represent 95% confidence intervals. Where indicated, human immunodeficiency virus (HIV) risk factors and behaviors correspond to the 3-month period before HIV and sexually transmitted infection (STI) testing. For the retention outcome, a multivariable model was not produced because no other variables were retained in the univariable model. CT, chlamydia; GC, gonorrhea.

starting PrEP compared with those reporting fewer partners (95% CI, 1.01–1.05; $P < .01$).

To assess factors associated with PrEP initiation and linkage to care, we confined analyses to participants who completed their pharmacy visit (n = 292). Participants were classified as initiating PrEP if they reported having started medication (n = 249). Individuals who were lost to follow up (n = 34) were classified as failing to initiate PrEP. Multivariable analyses demonstrated that participants who earned less than $2000 per month or who tested positive for chlamydia were approximately half as likely to initiate PrEP (income: aOR = 0.49, 95% CI = 0.25–0.96, $P = .04$; chlamydia: aOR = 0.43, 95% CI = 0.20–0.96, $P = .04$) (Figure 2, Supplementary Table 2). Participants who exchanged sex for money or goods were also significantly less likely to initiate PrEP (aOR, 0.12; 95% CI, 0.02–0.62; $P = .01$).

We next tested predictors of PrEP linkage (n = 209) among participants who completed a pharmacy visit (n = 249). Again, participants who did not attend their appointment were classified as failing to link. Black participants and those who tested positive for an STI were independently less likely to link to care (African American: aOR = 0.35, 95% CI = 0.13–0.91, $P = .03$; STI: aOR = 0.42, 95% CI = 0.24–0.74, $P < .01$). Insured participants were more than twice as likely to link (aOR, 2.21; 95% CI, 1.28–3.80; $P < .01$) (Figure 2, Supplementary Table 3). We also determined predictors of retention in PrEP care at 3 months (n = 67) among participants who could be reached by phone (n = 126). Individuals with health insurance were more than twice as likely to be retained in care (aOR, 2.34; 95% CI, 1.09–5.03; $P < .03$) (Figure 2, Supplementary Table 4).

Repeat Human Immunodeficiency Virus and Sexually Transmitted Infection Testing

Of 1259 participants, 283 (22%) underwent multiple testing during the study period, ranging from 2 tests (197, 16%) to 5 tests (7, <1%). No significant change in interest in rapid PrEP was observed among those who had 2 tests ($P = .43$) or 3 tests ($P = .30$). In a small subset of participants who expressed interest in rapid PrEP at 2 testing visits and who completed their visit with the study pharmacist twice (n = 25), the proportion who initiated PrEP increased significantly after their second study encounter ($P = .049$).

DISCUSSION

With over 2000 participants included in the 15-month period analyzed, this study is the largest characterization to date of

the impact of rapid PrEP initiation on the PrEP continuum among adults presenting to a sexual health clinic for HIV and STI testing. Approximately 60% of individuals who visited our sites were eligible for PrEP, highlighting the potential of sexual health clinics as optimal places to implement rapid PrEP. The present study model is distinct from other pharmacy-led rapid PrEP programs in which users are already seeking PrEP and high rates of PrEP uptake (>90%) are observed in the first 3 months [23, 28, 29]. In our sexual health clinic, rapid PrEP initiation was safe and feasible; however, only a small proportion of individuals who agreed to initiate PrEP remained in care at 3 months. The steepest drop-off in the PrEP continuum was observed between eligibility and interest, with only 36% of PrEP-eligible individuals interested in rapidly starting PrEP. In a Denver STI clinic with same-day PrEP, the rate of interest in starting PrEP among PrEP-eligible clients was even lower at 22% [14]. These levels of interest in rapidly starting PrEP are lower than national measures of willingness to use PrEP among surveyed PrEP-eligible MSM (43.9%–59.5%) [5]. Together, these data suggest that provision of free PrEP medications and PrEP navigation by themselves may not be sufficient to support PrEP initiation if individuals are not prepared to start at the time they seek out HIV and STI testing. Future strategies should focus on better education before testing is initiated regarding all possible outcomes of HIV and STI testing (eg, STI treatment, HIV treatment, PrEP treatment).

Repeat testing through our study did not increase interest in rapid PrEP, but it did increase PrEP initiation. It is possible that repeat offering of PrEP primed some individuals for rapid PrEP initiation, although the small size of the sample subset makes interpretation difficult. In the present study, only 55% of participants interested in rapidly starting PrEP actually started PrEP, a lower rate compared to similar rapid PrEP programs [13–15] where PrEP prescription or dispensation occurred at the same location as the site of HIV and STI testing. Despite offering free transportation to the pharmacy visit, 94% of noninitiations in our study were due to failure to show up for the pharmacy appointment, suggesting the extra appointment was a barrier. In a Rhode Island STI clinic that piloted a PrEP program, a low rate of PrEP initiation was similarly observed (11%) when the PrEP appointment was scheduled 1 to 2 weeks after the initial visit [30]. Future rapid PrEP programs in sexual health clinics should incorporate onsite PrEP initiation, ideally the same day of HIV and STI testing. Long-acting injectable PrEP is also a powerful new tool that has the potential to increase rapid PrEP initiations if properly implemented [31, 32].

As far as linkage, 72% of participants who started PrEP through our study linked to a community PrEP provider. This rate of linkage was comparable to that of a same-day PrEP program in a Denver STI clinic (78%) [14] where medication was also dispensed onsite, but the rate was higher than rapid PrEP programs in STI clinics in Mississippi (43%) [13] and Washington DC (67%) [15] where medication was prescribed but not dispensed onsite, suggesting a greater motivation to link once medication is started. Only 53% of participants in our study who were reached for follow up were retained in care at 3 months. Of note, whether participants remained at risk for HIV or not (ie, stopped having sex) was not captured at follow up, so our retention rate might be an underestimate of the actual retention rate among those with continued HIV risk. Our retention rate was (1) lower than in Denver (73%) [14] where the study patient navigator engaged closer follow up within the first month after PrEP initiation and (2) lower than in Washington DC (71%) [15] where a single community PrEP provider was used for linkage. Closer follow up within the first 6 weeks after PrEP initiation, including through mHealth-based approaches [33], should be explored in future studies.

Of the 5 rapid PrEP initiation programs in STI clinics with published data, only 1 looked at predictors of PrEP uptake, and that study focused solely on retention as an outcome [14]. Our study is the first to determine predictors for multiple stages along the PrEP care continuum. Regarding interest in rapidly starting PrEP, positive predictors included established HIV risk factors such as having more sexual partners and using recreational drugs, in line with findings from nonrapid-PrEP studies conducted in different settings and countries [34–40]. These observations suggest some level of awareness of perceived HIV risk that may translate into willingness to use PrEP even among individuals who are not actively seeking PrEP. Younger age also predicted rapid PrEP interest, consistent with higher rates of willingness to use PrEP among surveyed MSM who were younger [5]. Exchanging money for sex negatively predicted PrEP initiation. One possible explanation is anticipated PrEP-related stigma, which has been observed as a barrier to PrEP initiation among MSM who exchanged money for sex [41]. Testing positive for chlamydia and testing positive for any STI negatively predicted PrEP initiation and linkage, respectively. One explanation is that participants who were scheduled at the main study site both for STI treatment and for PrEP initiation concurrently were mainly motivated to receive STI treatment. After completing STI treatment, these individuals may have been less motivated to initiate PrEP or link into care.

Having a lower monthly household income predicted less PrEP initiation in our study, consistent with indicators of socioeconomic disadvantage (unemployment, unstable housing status, inadequate health literacy, and less money for basic needs) being associated with a reduced rate of PrEP initiation among MSM [42, 43]. It is interesting to note that lower monthly income also predicted greater interest in rapid PrEP initiation, perhaps as a function of those with lower income having fewer PrEP initiation opportunities. Self-reported

Black race negatively predicted PrEP care linkage, a well documented observation that may be related to social and structural barriers in this population, such as racism, stigma, and medical mistrust [44–50]. Similar to the same-day PrEP Denver program [14], possessing health insurance in our study predicted linkage and retention. Taken together, these results suggest that individuals with the socioeconomic means to utilize health services engaged best with the rapid PrEP model. Potential areas of future research include implementation of peer navigators [51], as well as colocalization of PrEP, mental health, and substance use services [51, 52].

The present study had several limitations. Pre-exposure prophylaxis initiation required an extra visit. Data regarding why participants were not interested in rapid PrEP initiation, or why they did not start or stay with PrEP were not captured. The study did not include an objective form of PrEP adherence measurement, a frequent feature of PrEP trials [1–3] that, in addition to more accurate outcome tracking, can serve as reinforcement feedback to participants and lead to improved PrEP retention [53]. Our study integrated point-of-care testing and treatment for gonorrhea and chlamydia, which is not yet widely available. Participants who were scheduled for STI treatment may have been more likely to show up for their PrEP appointment if the 2 study appointments were scheduled concurrently. To account for this bias, only data from participants who completed the PrEP study visit were considered in the initiation and linkage multivariable models. Our PrEP eligibility criteria differed slightly from those of the Centers for Disease Control and Prevention (CDC), which might limit the comparison of our findings to studies that used CDC criteria. Our study population was predominantly gay, cis-gender White men, which also limits generalizability, although the group also included a relatively high proportion of Latinx MSM. The study used only daily PrEP because as-needed PrEP had not yet been incorporated into clinical guidelines [54], and this approach could have excluded individuals interested in nondaily PrEP. In addition, limiting PrEP initiation only to those without sexual exposures since their HIV test might have been overly cautious given the relative safety of PrEP initiation during undiagnosed acute HIV infection [31]. Of note, only 2 participants were declined from starting PrEP for this reason, and they were promptly referred to community PrEP providers. Finally, the study was designed as a single-visit study and therefore retention-in-care data did not extend beyond 3 months: future efforts should assess follow up at 12 and 24 months.

CONCLUSIONS

The present report adds to a growing body of literature outlining the potential role for rapid PrEP initiation in sexual health clinics. Further work will be needed to elucidate how best to implement these strategies across diverse healthcare settings to improve the PrEP continuum.

Supplementary Data

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

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Author contributions. GAW wrote the primary draft of the manuscript, helped analyze the data, helped conduct the study, and helped design the study. K-SW designed the primary analysis, analyzed the data, and helped draft the manuscript. CA analyzed the data. AB managed the study protocol and helped draft the manuscript. SJL established and designed the study, secured the funding, and helped draft the manuscript. The corresponding author had full access to all the data in the study and had final responsibility for the decision to submit for publication.

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