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Evaluation of an HIV Pre-Exposure Prophylaxis Referral System: From Sexual Health Center to Federally Qualified Health Center Pre-Exposure Prophylaxis Clinic

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Abstract

Innovative delivery strategies are needed to facilitate access to HIV pre-exposure prophylaxis (PrEP). The objective of this study was to evaluate a navigator-facilitated PrEP referral process from a sexual health center (SHC) to a co-located PrEP clinic as an alternative delivery model. Electronic health record (EHR) data were used to calculate the number of clients seen at the SHC in 2019. Charts were manually reviewed to determine whether a PrEP clinic referral was made and document type of referral method: face-to-face appointment scheduling with the navigator (*warm handoff*), EHR messaging to navigator to schedule the appointment at a later time (*EHR message*), or provision of navigator's contact information to the client (*card only*). In 2019, 2481 unique potentially PrEP-eligible clients were seen at the SHC; 220 (9%) received a PrEP referral. Of referred clients, median age was 30 years (interquartile range, 24–34), 182 (83%) were male, 89 (40%) were non-Hispanic Black, and 24 (11%) were Latinx. In total, 94/220 (43%) referred clients attended an initial PrEP visit with a provider, and the proportion attending by referral method was 81%, 36%, and 27% for warm handoff, EHR message, and card only, respectively ($p < 0.0001$). Despite co-location of these two clinics, there were significant drop-offs along the PrEP care continuum for this referral system. Warm handoff was the most effective referral method, but further efforts are needed to understand barriers to referral. Implementation of same-day PrEP services at SHCs is one potential solution to engaging additional clients.

Keywords: pre-exposure prophylaxis, sexual health center, referral, navigation, continuum

Introduction

Biomedical HIV prevention in the form of pre-exposure prophylaxis (PrEP) that first received Food and Drug Administration (FDA) approval in 2012, yet <25% of those who are PrEP eligible in the United States have received a prescription.[1] Poor uptake of PrEP is particularly a concern in the South, a region that in 2016 accounted for more than half of all new HIV infections, but only 30% of PrEP users.[2] In addition, PrEP uptake in the United States has not been equitable; of all Black and Latinx persons with an indication for PrEP, only 1% and 3%, respectively, were prescribed the medication in 2015–2016.[3]

Better strategies are needed to improve access and overcome barriers to care. Sexual health centers (SHCs) are ideal sites for the identification and referral of clients to PrEP services because they offer frontline sexually transmitted infection (STI) care to those at risk of HIV infection, a large proportion of who have an unmet need for PrEP services. Yet prior studies have shown that referral systems—from SHC to PrEP clinic—can result in a drop-off of the care continuum from those willing and interested to those who successfully complete an initial PrEP appointment.[4–6] The objective of this study was to evaluate the efficacy of a PrEP referral process from an SHC to a co-located PrEP clinic, including the impact of referral method on likelihood of attending the initial PrEP visit.

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Methods

Clinical services

The Louisiana State University (LSU)-CrescentCare SHC was established in 2015 as a partnership between LSU Health Sciences Center STI Program and CrescentCare Health and Wellness Center, a Federally Qualified Health Center (FQHC). The SHC is located in the same building as the CrescentCare PrEP clinic, and SHC providers routinely refer clients downstairs to the CrescentCare PrEP clinic. Patients seen at CrescentCare FQHC for primary care, PrEP, and HIV care routinely seek STI services at the SHC due to the co-location and ease of scheduling same-day visits, although SHC clients are not limited to CrescentCare FQHC patients.

The SHC sees ~3000 clients annually for screening and treatment of STIs. SHC staff include one medical assistant, a nurse practitioner, and two physicians. The navigator from the CrescentCare PrEP clinic facilitates referrals from the SHC. STI treatment is generally dispensed or administered in-house for routine bacterial STIs, but a pharmacy is located on the first floor in the case that medications not stocked are needed for treatment (e.g., antiviral medications for herpes infections). Clients of any insurance status can be seen at the SHC, but charges apply for those who are uninsured or underinsured. Clients who require additional services (PrEP and HIV treatment) are referred to CrescentCare FQHC for further management; clients are only referred elsewhere if they need additional subspecialty services not offered by CrescentCare FQHC.

Three methods are used by the SHC to refer clients to the CrescentCare PrEP clinic. The first is a ''warm handoff'' in which the navigator comes to SHC, meets the client face-to-face, schedules the PrEP appointment, and answers any questions the client may have about the process. The second method is a message in the electronic health record (EHR) to the navigator (''EHR message''), who then calls the client to schedule the PrEP appointment. The navigator makes three attempts at calling the client before the message is considered closed. The last method is to provide the client with the navigator's business card (''card only'' method) so that the client may contact the navigator themselves at their convenience. Business cards are routinely provided to all referred clients and so only those for whom there was no ''warm handoff'' or ''EHR message'' were considered to have the ''card only'' method of referral. Some clients voicing less interest in PrEP or who are not completely ready to schedule a PrEP visit choose the card method for future use. If the client expresses interest in starting PrEP immediately on the day of the SHC visit, the SHC provider contacts the navigator. If the navigator is available to come upstairs to meet the client, then a ''warm handoff'' takes place; if not, the SHC provider sends the navigator an ''EHR message'' as the method of referral.

Data extraction and analysis

To investigate referral practices and outcomes, an initial report was generated from the EHR to determine the number of individual clients seen at the SHC in 2019 for sexual health services. The number of clients already diagnosed with HIV or taking PrEP was determined using International Classification of Diseases-10 codes and medication reports for tenofovir/emtricitabine (TDF/FTC) or alafenamide/emtricitabine (TAF/FTC) monotherapy, respectively. Charts were then manually reviewed to determine whether a PrEP clinic referral was made. For clients referred to PrEP, patient data were recorded onto data collection forms and then entered into a REDCap database.[7] Charts were reviewed to determine demographic characteristics, the method of referral, whether or not clients were scheduled for PrEP appointments, and PrEP appointment attendance. We compared those who attended their initial appointment versus those who did not; comparisons were made using Wilcoxon rank-sum test for continuous variables and Fisher's exact test for categorical variables. We also investigated whether diagnosed STI, contact to STI, or type of STI was associated with attending an initial PrEP visit. STI diagnosis was assessed based on positive or reactive STI testing only from the day of the visit on which the PrEP referral was made; STI results from before or after the SHC visit were not assessed. A p value of <0.05 was considered to be statistically significant. All analyses were performed using SAS Software Version 9.4. This study was approved by the LSU Health Sciences Center Institutional Review Board.

Results

From January to December, 2019, there were 2972 unique patients seen at the SHC for routine STI screening, treatment for STI symptoms, or exposure/partner referral. Of these, 39 had been previously diagnosed with HIV infection and 452 were already receiving PrEP. Of the remaining 2481, 220 (9%) were referred to the PrEP clinic. Of these 220 clients, 186 (85%) were seen by the navigator in the SHC or later contacted by the navigator to schedule a PrEP appointment, 114 (52%) were scheduled for an initial appointment, 94 (43%) attended their initial appointment, and 55 (25%) attended a subsequent appointment (Fig. 1) as of April 2020. Of 220 referred clients, median age was 29.8 years (interquartile range, 24–34), 89 (40%) were Black, 118 (54%) were White, and 13 (6%) were other/multiracial; 24 (11%) were Latinx; and 182 (83%) were cisgender men, 30 (14%) were cisgender women, and 8 (4%) were transgender women (Table 1). There were differences in the proportion of clients who attended an initial PrEP appointment at CrescentCare PrEP clinic based on referral method and demographic characteristics, including reason for referral (heterosexual vs. not) and insurance status (Table 1).

Among those receiving PrEP clinic referrals, 36 (16%) were referred by warm handoff, 162 (74%) by EHR message, and 22 (10%) by business card only. Overall, 94 (43%) clients who were referred to PrEP attended an initial PrEP appointment: 81% (29/36) of those referred by warm handoff, 36% (59/162) of those referred by EHR message, and 27% (6/22) of those referred by card only (Fig. 2). Notably, of 126 clients who did not attend a PrEP visit, 34 (27%) had another visit at the SHC at a later date in 2019.

Presence of bacterial STI diagnosis (gonorrhea, chlamydia, or syphilis) on the day of referral did not impact initial PrEP visit attendance ($p=0.79$, Table 1). Of those with an STI diagnosis, 44% (47/107) attended an initial PrEP visit, versus 42% (47/113) of those without STI diagnosis who attended a PrEP visit. Similarly, type of STI (gonorrhea, chlamydia, or syphilis) did not impact PrEP visit attendance ($p=0.06$), nor did presence of a rectal STI ($p=0.21$). In

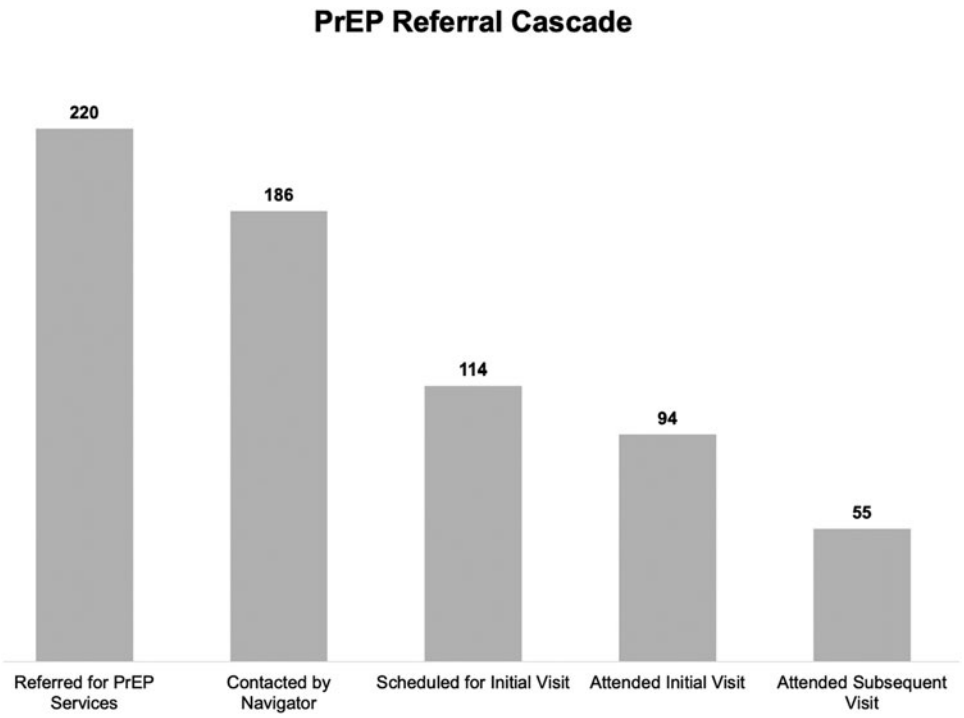

FIG. 1. PrEP referral cascade. PrEP, pre-exposure prophylaxis.

addition, there was no difference in PrEP clinic attendance in those who presented as a contact to an STI versus those who did not ($p = 0.22$, Table 1).

Discussion

This study evaluated the PrEP referral process from SHCs to an FQHC PrEP clinic in New Orleans, LA, and demonstrated significant drop-offs along the PrEP care continuum. Fewer than half of clients referred from the SHC attended an initial PrEP appointment, and only 59% (55/94) of those attending their initial visit followed up at a subsequent visit. These drop-offs occurred despite co-location of the two clinics and a PrEP navigator to assist with visit scheduling. Furthermore, when considering the larger context of this referral system, it is notable that 2481 potentially PrEP-eligible clients were seen at the SHC over the year, but only 220 PrEP referrals were made. Those not referred ($n = 2261$) included clients who may have declined a referral, and—importantly—PrEP candidates who were not offered referral and thus were missed opportunities for PrEP services.

These data, unfortunately, are not surprising and are consistent with other literature on PrEP referral systems.[4–6] Yet there is some promise in our findings, including the potential benefit of navigator support. Few clients attended their initial PrEP appointment when the referral occurred with no immediate contact with the PrEP clinic navigator (''card only''). This was not surprising, since these clients usually demonstrated the least interest in PrEP during their SHC visit. However, the choice of warm handoff versus EHR messaging was generally only influenced by the availability of the clinic navigator to meet with the client to provide scheduling assistance. Thus, it is interesting to note that the proportion of those attending an initial visit after warm handoff, 81%, was over twice that of those attending an initial visit after EHR message. Sending an EHR message to the navigator meant that he would attempt to call the client later to schedule a PrEP appointment. These follow-up calls are often challenged by difficulties contacting our clients, despite verification of client contact information at the SHC visit, frequent number changes, full voicemail inboxes, or out-of-service numbers being common problems we encounter when reaching out to clients. This difference in warm handoff versus EHR messaging is a testament to the value of PrEP navigators to offer immediate scheduling and other support services to clients, and the use of navigational services is similarly supported by several other recent studies.[8–10]

We also found that diagnosis of or report of contact with an STI at the SHC visit largely did not influence subsequent PrEP appointment attendance. This finding was also true when diagnosis was rectal STI. Our SHC providers routinely offer counseling on the relationship between STIs, particularly rectal STIs, and subsequent acquisition of HIV to clients diagnosed with STIs at our SHC. Unfortunately, this elevated risk of HIV following STI diagnosis is not insignificant and has been demonstrated clearly in prior studies.[11,12] This finding speaks to the potential for future work to incorporate meaningful knowledge-building and risk perception counseling to enhance PrEP uptake, particularly among populations presenting for sexual health services.

Ours and other studies on PrEP underutilization in Louisiana[13,14] support the need for immediate and substantial efforts to scale up PrEP in our region. Similar to other states in the Deep South, Louisiana consistently ranks in the highest tier for incidence of HIV and other STIs.[15,16] New Orleans is a priority jurisdiction for ending the HIV epidemic (EHE) initiative,[17] and certain zip codes within the metropolitan area, including the one where our SHC and PrEP clinic are located, have an HIV prevalence rate of over 4%.[18] To look optimistically toward the future and for achievement of EHE goals, it

Table 1. Demographic Characteristics of Clients Referred for Pre-Exposure Prophylaxis

Demographic	*Total referred (n = 220)*	*Did not attend initial PrEP visit (n = 126)*	*Attended initial PrEP visit (n = 94)*	p
Age—mean (SD; IQR)	29.8 (8.8; 24.0–34.0)	29.3 (9.3; 22.0–34.0)	30.5 (8.1; 24.0–36.0)	0.2297
Ethnicity				0.8280
Hispanic	24 (11%)	13 (10%)	11 (12%)	
Non-Hispanic	196 (89%)	113 (90%)	83 (88%)	
Race				0.1792
Black	89 (40%)	56 (44%)	33 (35%)	
White	118 (54%	61 (48%)	57 (61%)	
Other/Multiracial	13 (6%)	9 (7%)	4 (4%)	
Gender identity				0.1339
Cis-male	182 (83%)	100 (79%)	82 (87%)	
Cis-female	30 (14%)	22 (17%)	8 (9%)	
Transgender woman	8 (4%)	4 (3%)	4 (4%)	
Referral method				**<0.0001**
Warm handoff	36 (16%)	7 (6%)	29 (31%)	
EHR message	162 (74%)	103 (82%)	59 (63%)	
Card only	22 (10%)	16 (13%)	6 (6%)	
STI on day of visit[a]				0.7855
Yes	107 (49%)	60 (48%)	47 (50%)	
No	113 (51%)	66 (52%)	47 (50%)	
Rectal GC/CT vs. no rectal GC/CT				0.2079
Yes	38 (17%)	18 (14%)	20 (21%)	
No	182 (83%)	108 (86%)	74 (79%)	
STI type[b]				
Gonorrhea	45 (20%)	20 (16%)	25 (27%)	0.0631
Chlamydia	37 (17%)	21 (17%)	16 (17%)	1.0
Syphilis	21 (10%)	11 (9%)	10 (11%)	0.6497
STI contact	*n* = 186	*n* = 111	*n* = 75	0.2220
Yes	45 (24%)	23 (21%)	22 (29%)	
No	141 (76%)	88 (79%)	53 (71%)	
Reason for referral[b]				
MSM[c]	170 (77%)	91 (72%)	79 (84%)	0.0505
PWID	2 (1%)	1 (1%)	1 (1%)	1.0
HIV+ partner	12 (5%)	5 (4%)	7 (7%)	0.3692
Heterosexual[c]	67 (30%)	51 (40%)	16 (17%)	**0.0002**
Transgender[c]	6 (3%)	2 (2%)	4 (4%)	0.4056
Insurance	*n* = 219	*n* = 125	*n* = 94	**0.0165**
Private	76 (35%)	40 (32%)	36 (38%)	
Medicaid	76 (35%)	40 (32%)	36 (38%)	
Medicare	3 (1%)	0 (0%)	3 (3%)	
Uninsured	64 (29%)	45 (36%)	19 (20%)	

Values in bold are considered statistically significant.
[a]STI diagnosis was assessed based on positive or reactive STI testing only on the day of visit where the PrEP referral was made.
[b]Not mutually exclusive categories.
[c]All with recent STI or reported condomless sex.
CT, chlamydia trachomatis; EHR, electron health record; GC, gonococcus; HIV, human immunodeficiency virus; IQR, interquartile range; MSM, men who have sex with men; PrEP, pre-exposure prophylaxis; PWID, people who inject drugs; SD, standard deviation; STI, sexually transmitted infection.

is important to note that work is underway by the Louisiana Department of Health (LDH) to expand TelePrEP and other HIV testing and prevention services.[19] In addition, our group is working with the LDH to enhance PrEP awareness and uptake among women, following the efforts of other investigators in working with women's health providers and family planning clinics.[20–24] Finally, Louisiana is fortunate to have expanded Medicaid, and thus may have fewer barriers to PrEP access relative to non-Medicaid expansion states.[25]

In response to the findings presented in this study, our team is currently investigating the use of Rapid PrEP initiation at the SHC. Rapid PrEP is a low-barrier model of PrEP initiation that streamlines care and allows for client scheduling flexibility (e.g., walk-in visits), and may be able to reach clients such as those who, in this study, repeatedly presented to SHC visits, but not to PrEP appointments. A Rapid PrEP initiative in New Orleans has the potential to circumvent the challenges of referral systems and replicate the success of others who have implemented such programs.[26–30]

This study is limited as a retrospective chart review, as we cannot infer causality when studying type of PrEP referral and subsequent attendance at the initial PrEP visit. Follow-up

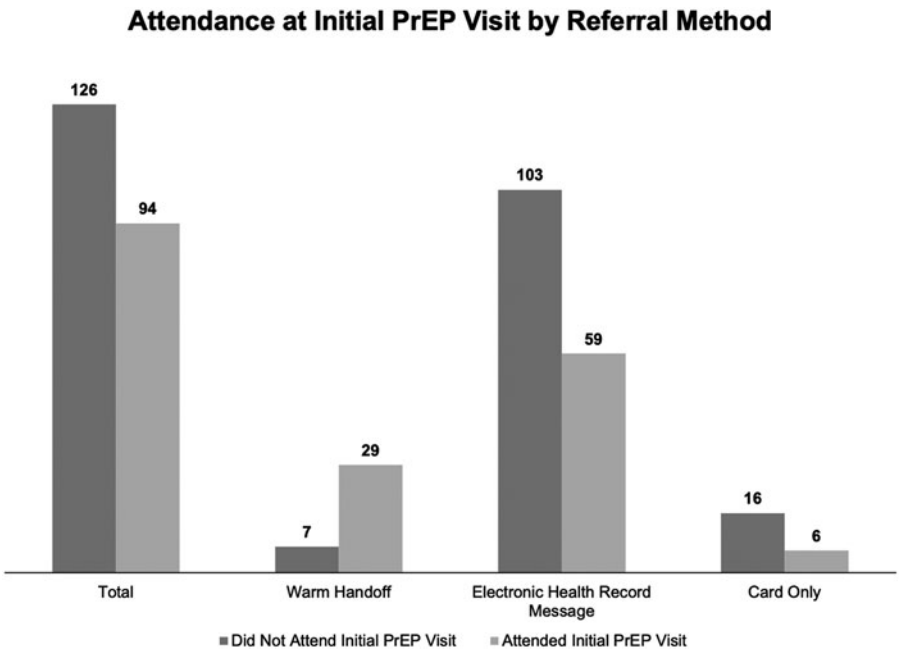

FIG. 2. Attendance at initial PrEP visit by referral method. PrEP, pre-exposure prophylaxis.

was only able to be assessed at CrescentCare, so we were not able to evaluate whether clients followed up for PrEP at outside clinics. We also are not able to adequately assess why clients were not referred for PrEP or did not attend their PrEP visits, although our current Rapid PrEP Initiation study is poised to answer these questions. Clearly, further efforts are needed to understand barriers to PrEP engagement and support clients in overcoming these barriers.

In conclusion, despite co-location of a SHCs and PrEP clinic, there were significant drop-offs along the PrEP care continuum for this referral system. Navigator-facilitated handoff was the most effective referral method, but further efforts are needed to understand barriers to referral. SHC implementation of Rapid PrEP is one potential solution to engage additional clients.

Authors' Contributions

R.L. and M.E.C. contributed to the conception and design of the work, R.L., J.D., J.S., B.H., S.G., S.N.T., I.B., and J.H. contributed to acquisition of data for the work, J.B., R.L., and M.E.C. analyzed and interpreted the data, R.L. and M.E.C. drafted the article, and all authors contributed to critical revision of the article for intellectual content.

Author Disclosure Statement

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