Improving HIV Pre-Exposure Prophylaxis (PrEP) Uptake During the COVID-19 Pandemic

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Abstract

Background*:* Acute HIV cases have doubled during the COVID-19 pandemic. We implemented a quality improvement (QI) project to standardize PrEP telehealth at a large metropolitan medical center in a HIV hotspot to ensure PrEP access and uptake. *Methods:* A 2-arm recruitment approach was implemented from August 31st, 2020-December 16th, 2020 targeting (1) patients through weekly social medial outreach and (2) providers in high-volume departments through educational in-services and dedicated chart reviews. *Results:* Provider referrals from the Emergency and Primary Care Departments increased 460% (p=0.03). PrEP users shifted to a majority <35 years old (n=12, 38.7%), but remained mostly Black (n=16, 51.5%) males (n=30, 96.8%). *Conclusion:* This QI project may have reduced PrEP discontinuation during the pandemic. The low percentage of PrEP users may be related to COVID-19 on clinic follow-up. The younger demographic shift may translate to a larger decrease in HIV transmission given the relative risk of different cohorts.

Key words: PrEP, COVID-19, HIV, telehealth, quality improvement

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Introduction

Significant progress has been made in the treatment and prevention of Human Immunodeficiency Virus (HIV) and Acquired Immunodeficiency Syndrome (AIDS), a potentially life-threatening condition caused by HIV, since it was first identified in the United States (U.S.) in early 1980s [1] In 1987, zidovudine (AZT) became the first antiretroviral drug to become approved by the U.S. Food and Drug Administration (FDA) to treat HIV [2]. Following AZT, early treatment regimens were complex with a high pill burden and many side effects. It took until the late 2000s until the first once daily single tablet regimen for HIV treatment was FDA approved [3]. With the evolution of simplified, effective, and better-tolerated HIV treatment options, people living with HIV (PLWH) now have a near equivalent life expectancy as people without HIV (HHS, 2019). As a result, improved strategies to decrease HIV incidence and prevalence through both primary and secondary prevention methods have become a major focus in the HIV prevention and care continuum.

Pre-exposure prophylaxis (PrEP) is a dual combination of antiretroviral medications. This single tablet regimen is taken daily to significantly reduce the risk of HIV infection in individuals at high risk. When taken as prescribed, PrEP is a safe and efficacious medication (Centers for Disease Control and Prevention [4]. PrEP is widely acknowledged as a necessary population level health tool to combat the HIV epidemic. With upwards of 40,000 new HIV infections occurring in the U.S. each year and 20% of individuals with HIV in the U.S. unaware of their status, preventing new HIV transmissions through the use of proven interventions such as PrEP is critical [5].

While PrEP has been available in the U.S. since 2012, a variety of constraints have resulted in inadequate access and uptake among populations that need it the most[6]. At least 1.2 million U.S. adults could benefit from PrEP, but fewer than 25%

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are receiving it [7]. HIV prevention is also disproportionately needed in certain geographic areas in the U.S. with more than 50% of all new HIV diagnoses occurring in only 48 counties, Washington, D.C., and San Juan, Puerto Rico [8]. In response to these disparities, HSS launched an initiative in 2019 to end the HIV Epidemic (EtHE) in the U.S. by 2030 [9]. This ambitious plan focuses on four key strategies: diagnose, treat, prevent, and respond to avert an estimated 250,000 total HIV infections. Since EtHE was initiated, the HIV epidemic has been amplified by the onset of the Coronavirus 2019 (COVID-19) pandemic with early data indicating that acute HIV cases may have upwards of doubled during this time [10, 11]

Knowledge and awareness of PrEP among health care providers and across practice settings is critical in order to scale up PrEP access and uptake, especially that this time [6]. Previous studies have demonstrated that improving the education and training of potential PrEP providers and implementing nursing centered PrEP programs can not only improve patient outcomes, but also health systems cost savings [12]. While infectious disease providers have consistently been documented to have greater knowledge, awareness, and comfort with prescribing PrEP, primary care providers are often more likely to come into contact with patients who would potentially benefit from PrEP [6]. This access and care delivery dilemma can be addressed by improving education of potential PrEP providers with current guidelines, appropriate HIV risk assessment, and quality sexual health history taking [13, 14].

In alignment with HHS' recommendations to develop and operationalize locally tailored EtHE plans, a quality improvement (QI) project to standardize facility PrEP telehealth was implemented based on CDC guidelines. The program consisted of screening, counseling, treatment initiation, and monitoring to increase access to and uptake of PrEP at the Baltimore Veterans Affairs (VA) Medical Center, a large metropolitan medical center in a HHS HIV hotspot. The Infectious Diseases (ID) department at this facility led this initiative. The ID department is comprised of an interdisciplinary team serving approximately 2,500 patients per year.

Methods

We initiated a 2-arm recruitment approach after protocolizing our PrEP telehealth program, and analyzed all patients referred between August 31st, 2020 and December 16th, 2020. We targeted (1) patients through weekly facility social medial outreach to encourage individuals to self-identify as PrEP candidates and self-refer and (2) providers in high patient volume departments, Primary Care (PC) and the Emergency Department (ED), through educational in-services and through targeted patient chart reviews in which a facility-level patient care dashboard was utilized to identify an actionable patient cohort (those determined to be at high risk of acquiring HIV) for potential intervention with PrEP. A note was entered in the patient's chart to alert the patient's PC provider to consent and refer the patient to ID. Targeted screening, counseling, treatment initiation, and monitoring of PrEP patients was done through the ID Department. PC and the ED served as key partnering services for the identification and referral of potential PrEP patients to ID. Voluntary assistance of all PrEP providers working in the ID Department was obtained to support this QI project. This QI project was reviewed and approved by the local Institutional Review Board and deemed to be exempt as non-human subjects research.

Structure, process, and outcome measures were identified to tract progress and assess the impact of the intervention. Patient and provider level data were only accessible through a secure, password protected facility server. Data reviewed and collected included: an overview of facility and provider level prescribing statistics, patient level data (identifiers (name, date of birth), demographics, past HIV antiretroviral (ARV) use, sexually transmitted infections and substance use disorders, applicable safety and screening labs, and upcoming appointments), patient referral source, and documentation of provider/service training and outreach. Patient identifiers were collected for quality assurance in order to assess the impact and equity of the practice change across demographics which have historically exhibited disparities in outcomes and access. All protected health information was deidentified prior to analysis to protect patient confidentiality. Extracted data was compiled and stored electronically as an encrypted file on the secured facility server on a password protected computer. Collected data was used to compare differences between pre-post implementation to assess outcomes. PrEP users were longitudinally tracked on run chart and paired t-test compared differences in PrEP candidate referrals to ID pre-post implementation. Descriptive statistics captured PrEP user demographics pre-post implementation.

Results

Extrapolated baseline data from July 30th, 2020 revealed that 13.3% of possible PrEP candidates at this facility were receiving it. Baseline PrEP users were predominately Black (n=21, 43.8%) males (n=45, 93.8%) 35-44 years old (n=18, 37.5%). Post-implementation PrEP user demographics shifted to a majority being <35 years (n=12, 38.7%), but remained mostly Black (n=16, 51.5%) males (n=30, 96.8%) (Table 1). Aggregate post-intervention facility data indicated that 12.7% of possible candidates were receiving PrEP at the end of the implementation and tracking period. There was an overall decrease of 18.4% in active PrEP users following project implementation, but there was

also a decrease in the PrEP user discontinuation rate as noted by run chart negative shift stabilization (Figure 1). At the end of post-implementation tracking, there were a total of 31 PrEP users with an active FDA approved PrEP prescription.

Provider PrEP referrals to ID from the ED and PC departments increased by a total of 460% (p=0.03) following implementation (Figure 2). The ED had the largest volume of referrals to ID of potential PrEP candidates both pre- (n=40 and post-implementation (n=16) as compared to PC pre- (n=1) and post-implementation (n=12).

Discussion

The results of this QI project suggest that it may have directly contributed to the reduction in the PrEP user discontinuation rate following the onset of the COVID-19 pandemic. However, this project was solely intended for QI purposes to address the local needs of increased HIV prevention for high-risk patients engaged in care at this particular facility. Therefore, the findings do not create generalizable knowledge beyond this unique and specific setting and patient cohort.

The change to a predominately younger user demographic may translate to a larger decrease in HIV transmission given the relative risk of different cohorts. Understanding the unique characteristics of this group is important in order to address particular needs including social determinants of health and health inequalities. [15]found that compared to older men who have sex with men (MSM), a large proportion of PrEP users, those 15–24 years were more likely to report economic and service impacts related to COVID-19. Ensuring that a comprehensive, multidisciplinary approach is included in telehealth PrEP provision is critical to address these needs. This shift in user demographic could also be due to technology access issues or comfort level with telehealth. [16]noted that even prior to the onset of the COVID-19 pandemic, adoption and use of technology by older adults significant lagged compared to younger cohorts. Efforts specific to the identification and engagement of older PrEP candidates should also be considered to ensure equitable access to HIV prevention in this unique demographic, particularly during the COVID-19 era where there is ongoing reliance on telehealth for provision of care.

The low percentage of post-implementation PrEP users at this facility may be related to the negative effect of COVID-19 on clinic follow-up and individual behavioral changes, emphasizing the ongoing need for improvement in identification of appropriate PrEP candidates and subsequent linkage to care. This COVID-19 era trend in lower PrEP utilization has been noted globally. In Australia, [17] found that nearly 1 in 4 daily PrEP users at a large metropolitan sexual health clinic discontinued PrEP as a result of stopping casual sex or decreasing the number of casual partners during the COVID-19 related lockdown. In a separate Australian study assessing the effects of COVID-19 on PrEP, [18]found that although younger PrEP users generally decreased their number casual sex partners during the pandemic, younger age was associated with a greater likelihood to continue having sex with casual partners.

Conclusion

This project is timely and relevant given the syndemic health burden imposed by the COVID-19 pandemic on the HIV epidemic in the U.S. Based on the short-term results of increased identification and referrals of potential PrEP candidates to ID, sustainability of this QI project is planned. Given the PrEP user demographic changes pre-post implementation, efforts specific to the identification and engagement of older PrEP candidates should be considered with future practice changes to ensure equitable access to HIV prevention.

Future opportunities exist for additional cross-departmental collaboration to improve facility-wide PrEP uptake. QI projects to address other areas of the PrEP care continuum, such as retention in care, should be undertaken to better understand the role of this telehealth PrEP program. Ongoing evaluation of this QI project in the post-COVID-19 pandemic era should be considered as the reliance on telehealth and socially distanced care delivery may change.

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Appendix

Fig 1. Monthly totals for facility HIV PrEP users at baseline (pre-COVID-19) and post-intervention

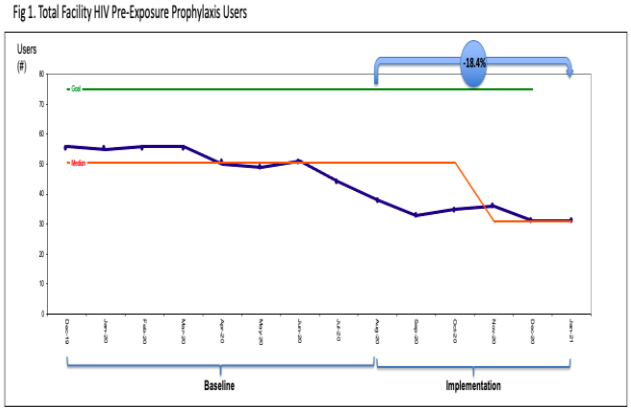

Fig 2. Source of provider referrals to the Infectious Diseases Department from high volume patient areas for potential PrEP candidates pre- and post-implementation

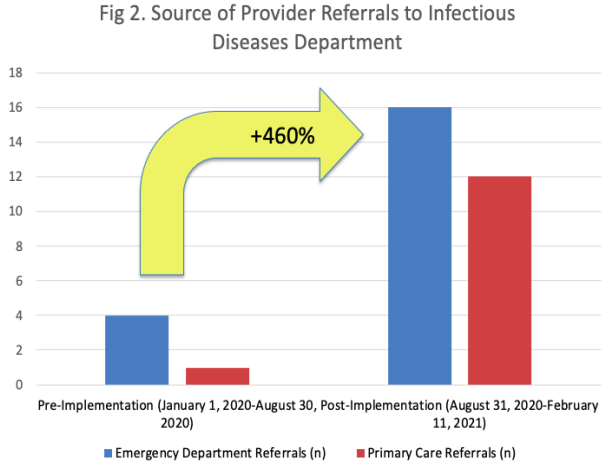

Table 1. Post-Implementation Facility HIV PrEP User Characteristics	
	Post- Implementation*
Total PrEP Users (n)	31
Age	<35 years (n=12, 38.7%) 35-44 years (n=11, 35.5%) 45-54 years (n=3, 9.7%) 55-64 years (n=3, 9.7%) 65+ years (n=2, 6.4%)
Birth Sex	Male (n=30, 96.8%) Female (n=1, 3.2%)