

Implementation of a Pre-exposure Prophylaxis (PrEP) Program for
HIV Prevention in a Federally Qualified Health Center (FQHC)

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Abstract

Introduction/Purpose

Preventing new cases of Human Immunodeficiency Virus (HIV) infection is key to the Centers for Disease Control and Prevention (CDC's) *Ending the HIV Epidemic: A Plan for America* initiative. In 2012, Truvada became the first medication approved in the United States to prevent HIV infection, yet it has not seen widespread use. Research has shown that healthcare provider awareness and attitudes are common barriers to pre-exposure prophylaxis (PrEP) prescribing. Alleviating these barriers requires that primary care providers (PCPs) receive the tools and knowledge to quickly address HIV risk factors and offer PrEP to their patients who need it. The purpose of this project is to determine if an educational session for healthcare providers and the introduction of an HIV Risk Assessment Tool into an EHR will decrease barriers to offering PrEP.

Methods

An educational program was provided to the Internal Medicine/Family Medicine (IM/FM), Obstetrics & Gynecology (OB/GYN), and Pediatric healthcare providers in an urban federally qualified health center (FQHC). This program presented current guidelines regarding the assessment, management, and follow up of patients who are candidates for PrEP and was conducted during departmental group meetings. This education included using an HIV Risk Assessment Tool, which was introduced into the EHR during the training sessions. A questionnaire was administered to all healthcare providers at the health center before and after participating in the educational program. The use of the HIV risk assessment tool was queried, utilizing an EHR report after the project.

Results

Pre- and post-intervention questionnaire data were compared to determine the effect of the intervention. Provider likelihood to prescribe PrEP to specific groups and in particular situations increased among the IM/FM ($P=.0001$, $P=.0001$) and OB/GYN providers ($P=.0034$, $P=.0034$), but there was no significant change among the Pediatric providers ($P=.4227$, $P=.1965$). There were only three recorded uses of the HIV risk assessment tool.

Discussion

Although there was increased awareness and acceptance of PrEP, the HIV risk assessment tool's use was minimal. These results suggest that provider willingness to prescribe did not translate into increased PrEP conversations with patients. The lack of significant change among Pediatric providers indicates a need for additional assessment of the barriers facing these providers and further support to promote acceptance of PrEP. Additional efforts are needed to progress from awareness and acceptance to incorporation of PrEP in the PCP visit.

Keywords: PrEP, healthcare providers, screening tools, HIV prophylaxis, implementation

Implementation of a Pre-exposure Prophylaxis (PrEP) Program for HIV Prevention in a Federally Qualified Health Center (FQHC)

The Centers for Disease Control and Prevention (CDC) and the U.S. Department of Health and Human Services (HHS) created an initiative to end the United States (U.S.) HIV epidemic. The goal of *Ending the HIV Epidemic: A Plan for America* is to decrease new HIV cases by 90% by 2030 (Centers for Disease Control and Prevention, 2019). Preventing new cases of HIV is crucial to the success of the program. Racial and ethnic minorities and men who have sex with men (MSM) represent a disproportionate number of new HIV cases (HIV.gov, 2020d). In 2012, Truvada became the first medication approved for use in the U.S. for Pre-exposure Prophylaxis of HIV (PrEP) (WebMD, 2012). Despite having clinical indications for the benefit of PrEP, only 7% of eligible individuals received a prescription in 2016 (Huang, Zhu, Smith, Harris, & Hoover, 2018). The introduction of this service is an integral part of ending the HIV epidemic (HIV.gov, 2020c).

Background

HIV is a global epidemic, with 37.9 million individuals currently infected (World Health Organization, 2020). The U.S. alone accounts for 1.1 million of those infections. The U.S. has 40,000 new cases per year, and HIV prevention and treatment costs the nation \$20 Billion annually (HIV.gov, 2020a). In New Jersey (NJ), 37,801 people were living with HIV/Acquired immunodeficiency syndrome (AIDS) in 2018 (State of New Jersey Department of Health, 2019). Camden County, NJ, is home to 1,941 cases, of which 781 were in Camden City (NJ Health, 2018). Data from 2018 indicates that 15 new cases of HIV were diagnosed in Camden City (NJ Health, 2018). Camden City is among the top 10 cities in NJ with the highest HIV cases (NJ Health, 2018).

There are racial disparities among NJ residents with HIV. In 2015, 47% of the HIV cases were among African Americans, yet they represent only 13.4% of the population (NJ Health, 2017a). Similar disparities are seen among Latinos, who represent 19.7% of the people in NJ, but account for 34.2% of HIV diagnoses (NJ Health, 2017b). The lifetime healthcare costs for treating patients living with HIV in 2017 was \$478,000 (Centers for Disease Control and Prevention, 2017).

Risk factors for HIV infection include men having sex with men, heterosexual men, and women with high-risk behaviors and persons who inject drugs (PWID). The following table summarizes each group's characteristics that put them at risk for HIV infection and, therefore, candidates for PrEP.

Identifying High-risk behavior	Should be considered for PrEP if:
MSM	<ol style="list-style-type: none"> 1. Have a partner who is HIV positive OR 2. Inconsistent use of condoms during anal sex OR 3. Diagnosed with syphilis, gonorrhea, or chlamydia in last 6 months
Heterosexually active, men or women	<ol style="list-style-type: none"> 1. Have a partner who is HIV positive OR 2. Inconsistent use of condoms with a partner whose HIV status is unknown or has high-risk behaviors (MSM, PWID) OR 3. Diagnosed with syphilis, gonorrhea, or chlamydia in last 6 months
Persons who inject drugs (PWID)	<ol style="list-style-type: none"> 1. Share drug injection equipment OR 2. Risk of sexual acquisition as per above

(U.S. Preventive Services Task Force, 2019)

CAMcare Health Corporation is a Federally Qualified Health Center (FQHC) in Camden, NJ. In 2019, the clinic served over 38,000 unique patients in the city and surrounding areas. Many patients have HIV or risk factors for HIV acquisition. In 2019, 48 patients at the health center had an active diagnosis of HIV, and two new cases were diagnosed in the calendar year. The health

center diagnosed 522 sexually transmitted infections and treated 673 Substance Use Disorders (SUD) patients. One hundred seventy-six of the patients identified themselves as Lesbian, Gay, or Bisexual. Eighty-nine percent of patients were of racial or ethnic minorities (CAMcare Health Corporation, 2019). This prevalence of risk factors and risk behaviors and the high numbers of minorities seeking care at the health center underscores the need to provide PrEP services.

In 2019, the CDC and HHS presented an initiative, *Ending the Epidemic: A Plan for America*, to reduce the number of new HIV infections by 75% in 5 years and 90% by 2030 (Centers for Disease Control and Prevention, 2019). The plan has four components, one of which involves preventing HIV transmission with the use of a daily pill known as pre-exposure prophylaxis or PrEP (Centers for Disease Control and Prevention, 2019). Truvada and Descovy received approval for the prevention of HIV infection in adults in 2012 and 2019, respectively (U.S. Food & Drug Administration, 2019). In 2018, Truvada was approved for use as PrEP in adolescents age 15-18 years (U.S. Food & Drug Administration, 2019). The CDC estimates that 10% of patients living with HIV are unaware of their infection and unknowingly infect others. They further calculate that 26,610 NJ residents are at risk for HIV, yet only 2,658 prescriptions were written for PrEP in 2017 (Centers for Disease Control and Prevention, 2017). When considering all the risk factors for HIV infection, most cases of HIV infection are the result of sexual contact (State of New Jersey Department of Health; Healthy New Jersey 2020, 2018)

The burden of PrEP prescribing is being placed on the primary care provider (PCP). The assessment of HIV risk factors will be difficult to incorporate into the already extensive PCP visit. PCPs cite a lack of knowledge as a barrier to offering PrEP (Clement et al., 2018).

Problem Statement

Identification of patients at risk for HIV infection and incorporation of PrEP into the PCP visit is needed to combat the HIV epidemic (U.S. Preventive Services Task Force, 2019). This project provided PCPs with education regarding PrEP and instruction on using an HIV Risk Assessment tool. The objective was to allow for efficient incorporation of HIV risk assessment into the PCP visit and promote increased numbers of patients screened for PrEP.

Organizational “Gap” Analysis of Project Site

CAMcare Health Corporation is a FQHC providing primary care services to over 38,000 patients annually in Camden, NJ. Healthcare is provided by 25 nurse practitioners and physicians who specialize in IM/FM, OB/GYN or pediatrics (CAMcare Health Corporation, 2019). To meet the CDC's goal to decrease new cases of HIV infection, an HIV risk assessment and subsequent offering of PrEP needs to be a part of the PCP visit (Krakower & Mayer, 2016). In the 12 months before the study, an EHR query revealed four patients had received a written prescription for PrEP from the IM/FM providers. Two patients received their first prescription and were not due for a return visit, and the remaining two never returned after their initial medication for follow up or refills. There is no HIV risk assessment tool available in the EHR. Barriers to incorporating this risk assessment include lack of knowledge regarding PrEP, limited time during the PCP visit, and a useful EHR tool (Krakower & Mayer, 2016). This project addressed these barriers by offering timely education on PrEP and introducing an HIV risk assessment tool to assist providers in quickly assessing risk and providing for the monitoring and continued use of PrEP.

Review of the Literature

The databases CINAHL and PUBMED were searched using the search terms “Healthcare providers or healthcare professionals or clinicians or nurses or physicians,” “screening tools or

assessment or evaluation,” and “HIV prophylaxis.” The search revealed 164 articles and was narrowed to 27 after filtering for items between January 2015 and December 2020, with full text available. Article abstracts were reviewed for inclusion criteria including studies involving PrEP, primary healthcare providers, implementation strategies, barriers, education, and evaluation. Exclusion criteria include studies on patients with pre-existing HIV, assessment of HIV treatments, specialty providers and populations, and patient perspectives on PrEP. A total of 12 articles were met the criteria for review.

The search was then expanded to include “healthcare providers,” “PrEP or HIV Prophylaxis,” and “Implementation.” An additional five articles met the inclusion criteria. Websites from the CDC and the U.S. Preventive Services Task Force (USPSTF) were reviewed. Clinical practice guidelines (CPG) and recommendation statements were also used in the preparation of this project.

There were no Randomized Controlled Studies (RCT) found on the topic. The table below summarizes the levels of evidence-based on the format from Melnyk & Fineout-Overholt (2015).

	Number of Articles	Level of Evidence
Clinical Practice Guidelines	1	Level 1
Systematic Reviews	2	Level 1
Methodological Review	1	Level 1
Critical Review	1	Level 5
Literature Review	2	Level 5
Narrative Review	1	Level 5
Pilot Study	1	Level 6

Survey Study	6	Level 6
Focus Group	2	Level 7

Studies were further categorized into the following groups: knowledge, barriers, facilitators, pilot study/implementation, focus groups, pre/post-intervention survey, CPG/evidence-based practice (EBP).

Knowledge

A study by Blumenthal et al. (2015) presented survey data evaluating healthcare provider knowledge of PrEP. Surveys were conducted at Medical Conferences in three cities with a high incidence of HIV infection. Providers who had previously prescribed PrEP (21%) scored higher on knowledge tests than those who had not prescribed. Many who had prescribing experience were identified as HIV providers. Sixty-four percent of providers indicated they were likely to prescribe PrEP in the future and showed a willingness to incorporate PrEP into their practice. Several barriers were discovered, including concerns about drug toxicities, resistance, adherence, and cost. Facilitating factors included research regarding efficacy, patients requesting medication, ease of access to PrEP, and CDC guidelines (Blumenthal et al., 2015).

Barriers/Facilitators

Nine studies involved healthcare provider opinions regarding barriers and facilitators. These studies presented a lack of knowledge as a barrier to PrEP prescribing (Bagchi & Holzemer, 2018; Berringer, Pinto, Melendez, & Mmeje, 2018; Clement et al., 2018; Koechlin et al., 2017; Krakower & Mayer, 2016; Mayer, Chan, R, Flash, & Krakower, 2018; Ross et al., 2017; Silapaswan, Krakower, & Mayer, 2017; Wilson, Bleasdale, & Przybyla, 2020). This knowledge deficit included side effects, cost, effectiveness, resistance, risk compensation efficacy, toxicity,

and safety. Two studies discussed the need for a standardized HIV risk assessment tool and difficulties incorporating a sexual history into the primary care visit (Krakower & Mayer, 2016; Mayer et al., 2018). One study identified provider discomfort discussing sexual behaviors and HIV risk assessment with patients to be a barrier (Wilson et al., 2020). Facilitating factors such as willingness to prescribe (Bagchi & Holzemer, 2018; Koechlin et al., 2017) and availability of CPGs were also identified (Berringer et al., 2018; Clement et al., 2018).

Pilot Study/Implementation

A study by Saberi, Beerean, Thomas, Ghandi & Scott (2018) involved the evaluation of an online tool PrEP-OI. The tool's goal was to provide knowledge and resources to facilitate the incorporation of PrEP in clinical practice. It included an HIV risk assessment, provider monitoring tools, and provider education resources. Providers found the platform highly usable and that they would like to utilize the program in their practice (Saberi et al., 2018).

Focus Groups

Doblecki-Lewis & Jones (2016) studied a focus group among FQHC providers at four health centers in Florida. They evaluated prescribing practices, perceptions, facilitators/barriers, and access to PrEP. Although they found that all providers were familiar with PrEP, only two centers had ever prescribed PrEP. Some centers felt that the demand for prep was very low. Cost of PrEP, medication adherence and risk compensation were concerns, especially for uninsured patients. An integration project by Phillips, Harmon, Bera, Ogle & Thompson (2020) found that PrEP education for PCPs resulted in increased prescribing. A post-integration focus group identified not only barriers but ideas for incorporation into primary care.

Pre/Post Implementation study

A study by Newman et al. (2019) conducted an online survey of internal medicine (IM)

residents in Palo Alto, CA, to evaluate educational intervention's effectiveness on PrEP practices. Participants completed an initial study and received a 1-hour education program. The residents completed a second survey, and the results were compared. Participants had significant increases in their knowledge of the safety and effectiveness of PrEP and were twice as likely to prescribe PrEP after the educational program (Newman et al., 2019).

CPG/EBP

The CDC's Clinical Practice Guidelines are a comprehensive review of the safety, indications, and provision of PrEP. It guides care in special situations and addresses medication adherence and risk reduction (Centers for Disease Control and Prevention: U.S. Public Health Service, 2018). The USPSTF Recommendation Statement is an evaluation of risk versus benefit. The Task Force found that PrEP is highly effective at preventing HIV infection, and the risk of harm is small (U.S. Preventive Services Task Force, 2019). These documents serve as an educational resource for providers providing PrEP and clinical guidance for practice.

Gaps

The literature indicates a great need for education among healthcare providers regarding PrEP. There is also consensus that providing education and specifically addressing barriers to implementation will increase the likelihood that a prescription for PrEP will be written. The “purview paradox” was mentioned in two studies (Berringer et al., 2018; Krakower & Mayer, 2016) and is considered a potential barrier. The paradox is the difference of opinion between HIV providers and PCPs regarding who is best suited to prescribe PrEP. HIV providers argue that they only see HIV positive patients despite having considerable knowledge of HIV medications. PCPs contend that they have little experience with antiviral medicines and lack time during the PCP visit. An investment in PCP education could increase knowledge and awareness of the need for PrEP

and could therefore increase the use. (Krakower & Mayer, 2016).

Evidence-Based Practice: Verification of Chosen Option

This project provided an educational intervention on the use of PrEP and implementation of an HIV risk assessment tool into the Electronic Health Record (EHR). A pre-and post-intervention survey was conducted to evaluate the influence of education on provider knowledge and attitudes. The number of times a provider utilized the HIV Risk Assessment tool at the end of the project was assessed and is thought to reflect the providers' ability to apply their knowledge to clinical practice. The PICO(T) question to be answered was: Does a PrEP educational session and implementation of an HIV screening tool in the EHR increase awareness and provision of PrEP among primary care providers in an FQHC over two months?

Theoretical Framework or Evidence-Based Practice Model

The Diffusion of Innovation theory was utilized as a theoretical framework for the DNP project. This theory describes the factors that influence the adoption of new technology and interventions by and among members of a social group (Krakower & Mayer, 2016; EM Rogers, 2003). This model depicts the acceptance of new technologies as an S-shaped curve. (See Appendix A). Early users or innovators account for 2.5% of the social group and describe the initial acceptance rate. The early adopters follow with 13.5%, and the early and late majority are next with 34% and 34%. The laggards are last consisting of 16% of the social group. The current acceptance of PrEP by clinicians in the U.S. involves the innovators and early adopters (Krakower & Mayer, 2016). Fully implementing PrEP into the healthcare system will require acceptance by larger groups of early adopters and the early majority (Krakower & Mayer, 2016).

The healthcare providers currently utilizing PrEP are considered innovators, champions, and sources of support for provider colleagues. To promote PrEP awareness, an educational

program was presented to all healthcare providers during their monthly departmental meetings.

The focus of the education was informational and addressed common concerns and misconceptions about PrEP found in the literature. The intervention also included instruction on using an HIV risk assessment tool that the provider can utilize to determine PrEP eligibility and monitor prescribing guidelines. Following the model, the early adopters and early majority are next to adopt the innovation.

Goals, Objectives, and Expected Outcomes

Goals, objectives, and expected outcomes are part of the planning phase of any project. Identification is essential to guide the project toward successful completion. Below are detailed descriptions.

Goals

The goals for the project are as follows:

- To educate all CAMcare PCPs on the use and benefits of PrEP.
- To promote the use of an HIV Risk Assessment tool in the EHR.
- To offer PrEP to all health center patients at risk.
- To decrease the number of new cases of HIV in Camden, NJ.

Objectives

The objectives of the project are as follows:

- Administer pre-and post-surveys to each PCP
- Provide a 30-minute educational session for each PCP
- Introduce an HIV Risk Assessment Tool into the EHR
- Evaluate for HIV Risk Assessment form utilization

Expected outcomes

The expected outcomes of the project are as follows:

- Healthcare providers will increase their knowledge of the indications and uses of PrEP
- Healthcare providers will utilize an EHR HIV Risk Assessment tool over two months.

Project Design

Project Site and Population

This DNP project took place at CAMcare Health Corporation in Camden, NJ. CAMcare is an urban FQHC with five locations in Camden City, NJ, and two additional satellite offices in Paulsboro, NJ, and Clementon, NJ. The community CAMcare serves is primarily indigent, with Medicaid being the primary health insurer. CAMcare is governed by a Board of Directors who oversees the organizational mission and goals. The clinical providers are managed by a Chief Medical Officer (CMO) who also promotes the organization's mission and goals (CAMcare Health Corporation, n.d.). Grant funding from HRSA finances much of the care provided, and the center is audited every three years to ensure compliance with predetermined goals. The quality indicators, patient, financial and organizational information are submitted yearly and reviewed by HRSA to ensure quality care is provided (HRSA Health Center Program, 2018).

CAMcare provides primary care services from the following departments: IM/FM, OB/GYN, and Pediatrics. They offer support and specialty services, including Dentistry, Podiatry, Ophthalmology, Behavioral Health, Nutrition, and laboratory services. These physicians and nurse practitioners see patients for scheduled and walk-in visits within their respective departments. CAMcare currently has five IM, five Family Medicine (FM), seven OB/GYN, and eight Pediatric

providers. One IM physician and one family nurse practitioner provide Medically Assisted Therapy (MAT) to treat opioid disorders (CAMcare Health Corporation, n.d.). The Center's Healthcare providers are the focus of the project. All PCP's were recruited for this project, including all IM/FM, OB/GYN and Pediatric providers.

Setting Facilitators and Barriers

Time and participation were the most significant constraints to the project. Provider meetings were only held once per month, and it was difficult to thoroughly cover the educational session in the short amount of time allotted for the meetings. Provider participation was also a constraint. Some providers declined to participate or missed the training sessions due to other obligations. COVID-19 was an unexpected barrier as it limited face to face human interaction. Although the providers became very skilled at virtual meetings and attendance was high, participants' engagement was challenging to assess virtually. Also, the health center began doing many telemedicine visits. Having discussions about sexual health can be challenging using this platform as patient privacy cannot be assured. During the pandemic, in-person visits became more problem-focused and rushed to limit patients and staff's exposures to COVID-19. Provider attitudes and beliefs regarding PrEP were also considered barriers.

The CMO, an OB/GYN physician, served as a primary resource for this project. She served as both a resource and a champion to promote buy-in from all levels of the organization. Introducing PrEP to patients at the health center is a priority for both her and the organization. HRSA is also promoting the use of PrEP and has provided a Technical Assistance Resource document and strongly encourages its use (HRSA Health Center Program, 2019). Both factors helped promote the incorporation of PrEP services into practice at the center.

Methods

Measurement Instruments

Data for this project was collected from a Pre- and Post-implementation survey and from a Post-implementation query of the EHR to assess provider use of the HIV Risk Assessment tool. To measure this project's outcomes, the following instrument was utilized: HIV PrEP Provider Questionnaire for Healthcare Providers (See Appendix B). This questionnaire was used in a study by Ross et al. (2017) evaluating the awareness and attitudes of PrEP among internal medicine physicians in Guatemala. This survey is available through open access, and permission to use or edit it was not required. This survey consisted of fifteen questions and gathered qualitative and quantitative data regarding provider characteristics, knowledge, attitudes, beliefs, and prescribing history of PrEP. The target population and content of the survey were consistent with the goals and objectives of this project. The demographic questions on the survey were edited to assess characteristics of the intended population. No changes were made to the remaining survey questions.

Data Collection Procedures

Pre-Intervention

Project approval was received from the University of Alabama Institutional Review Board and CAMcare Health Corporation before implementing the project. The project began with three weekly countdown emails to all PCPs and clinical support staff, including medical assistants, front desk staff, nutritionists, social workers, and nurses. The emails consisted of short videos, handouts, and weblinks to familiarize staff with aspects of sexual health and its impact on patients who frequent the health center. To promote buy-in, the organization then held a kickoff “Lunch & Learn” event. All PCPs and clinical support staff were invited to the event, which included a one-hour training on the evolution of HIV care, the impact of HIV on the community, and how

prevention is key to limiting future infections. PCP participation in the Lunch & Learn was not required as it was not part of the project. Flyers were placed around the organization reminding staff to sign up. The web-based presentation was given by representatives from Gilead Sciences, who also provided lunch. Staff watched or listened to the presentation individually or in small, socially distant groups utilizing phones or computers. Attendance was challenging to assess as many participants did not sign in or watched in groups; however, nearly 90% of invitations to the presentation were accepted.

Two weeks before the Lunch & Learn, each provider was given the study questionnaire to complete as part of the project. Since content presented during the Lunch & Learn could affect questionnaire responses, only responses received before the Lunch & Learn were included. A script for consent accompanied the questionnaire explaining the project and provided information regarding the project's implications. The completion of the questionnaire implied consent to participate. Questionnaires were distributed electronically via Qualtrics software. Providers who were unable to complete the online survey received a paper copy to complete and return to the primary investigator personally or via inter-office mail. Twenty-four surveys were distributed, and twenty responses were received by the deadline, with four surveys completed on paper. Each provider was assigned a unique number for anonymity and matching purposes. Participants who did not complete both the pre-and post-implementation questionnaire were excluded. The identity of the provider by their unique identifier was kept in a secure file on UA Box. The surveys were kept in a locked office drawer, and only the primary investigator had access. The survey data were entered into an Excel file by the unique identifier and kept on UA Box. After completing the study, all hard copies of the surveys were shredded through the health center's office confidential shredder service.

Intervention

Provider only training occurred at the regular departmental meetings held after the Lunch & Learn. Representatives from Gilead Sciences provided a web-based, 30-minute educational session regarding PrEP. The sessions included a PowerPoint presentation addressing the following aspects of PrEP: general data/knowledge about prep, identifying those at risk, sexuality and sexual history taking, side effects/toxicities, effectiveness, cost/insurance issues, antiviral resistance/noncompliance, risk compensation behaviors, and PrEP surveillance. Providers were also taught how to access and use an HIV Risk Assessment tool in the EHR to identify and manage patients who should receive PrEP. A brief question and answer period was provided. Providers were also given supporting documentation, including copies of current Clinical Practice Guidelines, flyers, examples of smartphone apps, and workflow instructions for the EHR HIV screening tool. Flyers downloaded from the HIV.gov website were distributed to provide supportive reminders of the project. Gilead Sciences provided posters and patient education materials, which were also distributed throughout the organization. Gilead Sciences also provided the nursing and referral staff with a 15- minute training on how to complete insurance precertification for PrEP and how to use the GileadAdvancingAccess.com website to obtain medication access the uninsured or underinsured.

Post Intervention

Each provider was invited to complete the second questionnaire six weeks after the initial educational session. This questionnaire was identical to the one conducted at the beginning of the project. Consent to participate was implied by completing the questionnaire and based on the initial consent script provided. Surveys were distributed electronically via Qualtrics software. Providers who were unable to complete the online survey were given a paper copy to complete and return to

the primary investigator personally or via inter-office mail. The primary investigator allowed two weeks for survey returns. Twenty-four surveys were distributed, and twenty-one responses were received. Six providers completed the survey on paper. The same unique identifier was utilized for matching purposes with the pre-and post-surveys. The identity of the provider by their unique identifier was kept in a file on UA Box. The paper surveys were kept in a locked office drawer, and only the primary investigator had access. The survey data was entered into the same Excel file by the unique identifier and kept on UA Box. Upon study completion, all hard copies of the surveys were shredded through the health center's office confidential shredder service. A query of the EHR query was done at the end of the project to determine the number of times the HIV Risk Assessment tool survey was used.

Results

Data Analysis

The Pre and Post survey data was aggregated on a spreadsheet for analysis. This data was evaluated for the entire group and then by subgroup based on the field of practice. A Paired t-test was utilized to assess responses for Likert type questions. For statistical analysis purposes, the IM and FM providers were grouped together as they work in the same department and care for the same patient population.

Characteristics of participants

Of the 24 initial respondents surveyed, 20 (83%) completed the initial and final surveys and the provider educational session. Four respondents (17%) were excluded because they did not submit the initial survey by the deadline. Of those four providers, three did not participate in the educational session. One provider completed the educational session and the final survey but not the initial survey. Data from respondents who did not complete both surveys and the training by

the deadline were excluded.

Questions 1 through 4 assessed provider characteristics (Figures 1 – 4). Ten respondents identified as IM/FM providers, four as OB/GYNs, and six as Pediatricians. There were nearly twice as many physicians (n=13) as nurse practitioners (n=7) participants, and females outnumbered males 3:2. The average practice experience among all participants was 18.7 years, with the Pediatric group having the longest average at 19.2 years and the OB/GYNs the lowest with 17.3 years.

The survey questions were placed in the following categories as they relate to the barriers to providing PrEP identified in the literature: awareness/knowledge, attitudes/perceptions/beliefs, and use of the EHR tool.

Awareness/knowledge

Survey questions five and six assessed provider knowledge of HIV transmission and risk (Figures 4 and 6). Initial survey data shows that all 20 respondents identified sex workers, MSM, and IVDA (Intravenous drug abuser) as high-risk groups; however, post-survey, only MSM was identified as a high-risk group by all 20 participants. Ninety-five percent of respondents identified sex workers as at risk, and 85% identified IVDA as a risk in the final survey. The initial survey found that 90% of respondents could identify anal sex as carrying the highest risk of HIV infection, and that number increased to 100% after the training.

Question seven assessed HIV prevention methods currently in use by providers (Figure 7). After the training session, increases were seen in all HIV prevention methods, except for HIV screening. Ninety-five percent of providers identified routine HIV screening as a prevention method before the educational session, but only 85% identified it after the educational session.

Self-assessment of PrEP knowledge was measured by question eight (Figure 8). Providers

prescribing PrEP increased from 20 to 40%, and only 30% reported: “knowing a little” at the end of the training when compared to the initial response by 55% of participants. Similar results were not seen with the prescribing of post-exposure prophylaxis (PEP). Question nine found no change in PEP self-reporting after the educational intervention. However, providers self-reporting of having prescribed Non-occupational Post-Exposure Prophylaxis (nPEP) increased from 10 to 35%.

Attitudes/perceptions/beliefs

Question 10 assessed the likelihood of prescribing PrEP to specific at-risk groups (Figure 10). This data was evaluated for all participants and then by subgroup based on the field of practice. The question utilized a 5-point Likert scale. Answers were assigned a value from 1 to 5, with 1 corresponding to “Would NOT prescribe” and 5 corresponding to “WOULD prescribe.” A Paired T-test was performed on all responses, and the initial and final surveys were compared. An increased likelihood to prescribe was seen after the training ($P=.0005$) for the entire group. When performing the same testing method on the subgroup data, the IM/FM ($P=.0001$) and the OB/GYN ($P=.0034$) subgroup had an increased likelihood to prescribe, but this was not seen with the Pediatric ($P=0.4227$). subgroup.

When queried about the populations they would most likely prescribe PrEP in question 11 (Figure 11), initial respondents only considered prescribing PrEP to MSM or serodiscordant homosexual couples. After the education session, the responses included a willingness to prescribe to semidiscordant heterosexual couples, female sex workers, and IVDA. Although male sex workers were listed on the questionnaire, none of the respondents selected this population as most likely to prescribe.

Question 12 assessed concern regarding six different risks or potential risks of prescribing PrEP (Figure 12) using a 5-point Likert question where responses were assigned a value of 1 to 5

with 1 representing “not at all concerned” and 5 representing “It would prevent me from prescribing PrEP.” This data was evaluated for all participants and then by subgroup based on the field of practice. A paired t-test of responses for the entire group failed to establish statistical significance ($P=0.5427$). Evaluation of the data by subgroups also showed no statistical significance. The internal medicine/family medicine, OB/GYN, and Pediatric subgroups had P values of 0.8614, 0.6775, and 0.6085, respectively.

Question 13 evaluated primary concerns regarding prescribing PrEP (Figure 13). Fewer participants identified toxicity as a concern at the final survey (20%) than in the first survey (25%). Similarly, concern regarding increased high-risk behavior decreased from 20% to 10% by the final survey. There was no change in concern about HIV resistance, but there was some increased concern regarding the cost of PrEP and the requirements for frequent follow-up and testing.

The last 5-point Likert question, question 14, presented hypothetical scenarios and the likelihood of prescribing PrEP (Figure 15). When the data was evaluated for the entire group, a Paired t-test was statistically significant ($P<0.0001$). The subgroup data showed an increased willingness to prescribe among IM/FM ($P=.0001$) and OB/GYN providers ($P=0.0034$), but there was not an increased willingness to prescribe among the Pediatric providers ($P=.1965$).

Question 15 returned more responses in the final survey ($n=33$), than the initial survey ($n=13$). This question asked what more the respondents wanted to know about PrEP and was configured to allow multiple responses. Most providers in the final survey wanted to know about patient acceptability of PrEP, followed by PrEP efficacy, cost, and healthcare cost savings.

EHR Tool

A query of the EHR was done at the conclusion of the study to assess for use of the HIV risk assessment form. Three documented uses of the form were recorded: two by an FM, and one

by an OB/GYN provider. The HIV risk assessment form was not available for use until presented to the providers at the Lunch & Learn training session.

Interpretation/Discussion

The group of healthcare providers participating in the project had a considerable amount of healthcare experience while the inclusion of PCPs from three specialties at the health center was done to promote buy-in and collaboration. The educational sessions demonstrated an influence over provider knowledge of PrEP. All providers were able to identify anal sex as the highest risk of HIV transmission after the training; however, identifying high-risk groups decreased. This may be due to a limited population focus during the training session.

Use of all HIV prevention methods, except HIV screening, increased after training. PrEP training focused on preventing HIV and stressed that patients who are positive for HIV should not be on PrEP. This may have led to the belief that screening for HIV is not prevention, but instead, a vital part of PrEP management. The educational session also stressed the role that behavioral health plays in HIV prevention related to PrEP medication compliance and the promotion of safe sex practices. Providers were more likely to utilize behavioral interventions or counseling as an HIV prevention method at the final survey (75%) when compared to initial survey (60%). The EHR form also included the ability to order and track a behavioral health appointment.

The number of providers who self-reported prescribing PrEP and nPEP increased after the educational session. The use of the HIV risk assessment form did not correspond to these increases in self-reporting. Several factors could have led to these results. Providers may have already been prescribing PrEP and nPEP but did not identify them as such. If this is the case, the educational session increased their awareness of PrEP. There is also the possibility that providers are prescribing PrEP but do not feel the need to use the HIV risk assessment tool. Actual numbers of

PrEP prescriptions written were not part of the study and were not assessed.

The HIV risk assessment tool was only utilized three times after the initial training sessions. The form did not automatically appear in the PCP visit and needed to be selected from a menu to use. Although a link to the form was provided on two different EHR forms, it is possible that it was not easily accessible. The providers may not have found it useful or have another workflow to screen for HIV risk. Further study is needed to evaluate the usefulness of the form and the potential for increased visibility in the EHR to improve utilization.

Willingness to prescribe PrEP increased significantly after the educational session for the IM/FM and OB/GYN providers, but not for the Pediatric providers. Reasons for this discrepancy were not assessed during this project, but many factors could have been involved. First, the Pediatric group had a sample size of six. The small sample size would result in one or two providers having a significant effect on the data. Second, the Pediatric providers had the most years of experience of all the specialties (19.2 years). Sexual health education, including discussions of sexual orientation or gender identity, may not have been part of their initial medical training. They may find it challenging to incorporate this into their current practice, despite recommendations and guidance from the American Academy of Pediatrics (Marcell & Burstein, 2020). A study by Sieving et al., (2020) showed pediatric providers were least comfortable discussing relationships, sexual decision-making, sexual orientation, or gender identity. This may be a barrier that was not overcome with the educational session. Thirdly, of the Pediatric patients, only the adolescents 15-18 year are eligible for PrEP. The limited focus of this intervention could lead Pediatric providers to underestimate its importance to their patient population. Lastly, there is the issue of patient-parent confidentiality. This project did not assess the office workflow, policies, or provision of time alone with the patient and provider. Telemedicine visits also do not allow for confidential

time and space to discuss sexuality and these types of visits were very common during the study.

Children aged 18 and younger receive their primary care services from the Pediatrics Department at the health center. The lack of willingness to prescribe PrEP among pediatricians leaves a large gap in care for some of the health center patients. Adolescent girls have the option of receiving services from the OB/GYN department, but teenage boys are not seen in the IM/FM department until the age of 18. These young men must receive the same access to PrEP services as other patients in the organization. Further study and assessment regarding the pediatric providers' barriers are necessary to close the gap in care.

The educational session did not lessen the concerns that all providers had regarding PrEP. Despite these concerns, the likelihood of prescribing PrEP increased significantly for the IM/FM and OB/GYN providers. The educational sessions may have caused these results. Providers with little knowledge of PrEP would not know the issues and concerns surrounding its use. As a result of the training, their awareness increased, along with their concerns. Providers also indicated a desire to learn more about the various aspects of PrEP with the final survey indicating that further training is desired that will continue to promote awareness and acceptance.

Both expected and unexpected challenges surfaced during this project. Time constraints and limited participation were anticipated but were managed with the use of technology. Attendance at training sessions was more significant than expected and may result from use of an online platform. The virtual meetings allowed for ease of scheduling and verification of attendance among providers. Providers had been participating in virtual meetings for several months due to the COVID-19 pandemic restrictions, and there were no technical difficulties experienced during the sessions. One drawback is the inability to assess participant engagement.

Thirty minutes may not have been sufficient to adequately cover the topic. From the

literature search, the study by Newman et al., (2019) found that a 1 hour training increased provider willingness to prescribe PrEP. It may be beneficial to provide additional training or extend the session to 1 hour. These are questions for future study.

The COVID-19 pandemic changed the patient visit to the health center. There was a considerable shift from in-person to telemedicine visits in all departments. During in-person visits, there was a great effort placed on efficiency and limiting patient and provider exposure. These are not the ideal settings to have a conversation about PrEP. Patients wanting PrEP are still required to visit the office for lab work every three months, and fear of COVID-19 has created additional barriers for them.

There were some technological issues affecting the project. One week before the questionnaires were distributed via Qualtrics, the health center switched to a different email platform. Providers found it difficult to maneuver the new system and many of the surveys were sent to “junk” folders by the email system. Several providers ultimately needed to complete the survey on paper. This issue was not anticipated and its impact on participation is difficult to determine.

The time between the initial and final surveys was 6-8 weeks. This may have also been a constraint to the expected outcomes; however, it should have reflected actual embedded and retained knowledge. To that end, additional training or follow-up sessions may continue to improve provider knowledge and attitudes, and the health center is indeed planning additional training in the coming months.

The cost of the project contributes to its sustainability. Photocopying costs are minimal and are expected by the organization. Many providers prefer electronic versions of guidelines and utilize cell phone apps to manage conditions, which incur no charge to the health center. PrEP

training and use of the HIV Risk Assessment form is now being provided at orientation for each new clinical staff. The health center continues to promote awareness in the community by providing literature and signage in the health center. Pandemic restrictions prevented direct community outreach, but future involvement is being considered. Posting information on CAMcare's social media platforms was not part of this project but are planned.

The diffusion of innovation theory was utilized as a theoretical framework for this Project. The project sought to include all social groups by inviting all clinical staff to participate in the Lunch & Learn. The health center wanted to provide a new service to patients and realized that it was not just a provider-driven initiative. The increase in the number of providers prescribing PrEP at the end of the project indicates some acceptance of the new service. This data showed new providers were willing to offer the service to their patients. These new users are considered early adopters. It is feasible that most laggards are in the Pediatric group. To promote acceptance of PrEP among this group, it may be necessary to identify users who are accepted by their social group and are willing to not only prescribe PrEP but to share their experiences with their peers.

CAMcare does not have a PrEP coordinator or another dedicated professional who is an expert on PrEP. During the training, it was suggested that identifying an expert could facilitate acceptance of PrEP among providers and assist with taking a sexual history and lessen the provider burden during the visit. A study by Saberi et al., (2020) found PrEP coordinators essential to a PrEP program from both patients' and healthcare providers' viewpoints.

The literature identified several barriers to PrEP prescribing by healthcare providers, specifically PCPs. This project sought to promote acceptance of PrEP by providing provider education and the introduction of a tool to facilitate management and prescribing. The project was successfully able to promote acceptance of PrEP, but not for all PCPs. Although the pediatricians

are considered PCPs, their barriers to prescribing PrEP may differ significantly from those of IM/FM and OB/GYN. Continued efforts to identify and overcome the obstacles in Pediatrics are warranted. Further initiatives to promote the use of the EHR tool will likely improve the uptake of the program.

Cost-Benefit Analysis/Budget

Direct costs to the organization were minimal. See Appendix C for the cost/benefit analysis table. The primary investigator was responsible for distributing and collecting surveys, creating the HIV Risk Assessment tool, and coordinating staff training. The organization already budgeted training time as part of the provider meetings, and this time was utilized to provide the PrEP education. Gilead Sciences provided the education, promotional materials, and lunch at no cost to the organization. The organization absorbed photocopying costs for surveys, flyers, and clinical practice guidelines. These were downloaded free of charge from HIV.gov, Ready, Set, PrEP Resources website (HIV.gov, 2020b). These are available for unlimited free access to use.

The benefits to the organization and patients are significant. Providing access to care and proper drug utilization is reportable to the Bureau of Primary Healthcare, which grants money to the organization. Prescriptions for PrEP are covered under the 340B program, which returns money to the health center for each prescription filled for PrEP. Providing PrEP services aligns with CDC guidelines and goals and provides patients with the best evidence-based care. In 2017, each new patient diagnosed with HIV cost the U.S. healthcare system \$478,000 throughout their lifetime to treat HIV related conditions (Centers for Disease Control and Prevention, 2017). A year's supply of PrEP costs about \$20,000. Gilead Sciences has agreed to donate ten years' worth of medication to treat up to 200,000 people, and generic Truvada should be available this year (McNeil Jr., 2019).

Timeline

The timeline began with Project Approval (See Appendix E). The project started with consent and pre-survey distribution to providers in the IM/FM, Pediatric, and OB/GYN departments. This distribution was done two weeks before the scheduled Lunch & Learn and provider meetings. The Lunch & Learn occurred first, followed by the IM/FM meeting, the OB/GYN meeting, and the Pediatric meeting. All surveys were collected before the start of the Lunch & Learn session. Each department received its 30-minute training at their monthly departmental meeting. Surveys were again distributed six weeks after the Lunch & Learn, at which time all departments had completed the departmental meeting training. Surveys were collected within two weeks of distribution, and data was analyzed after collection time has passed. An EHR query was conducted seven days after the data collection period had ended.

Ethical Considerations/Protection of Human Subjects

The University of Alabama (UA) Institutional Review Board (IRB) approval was obtained prior to initiating the project. All participants were protected by the Health Insurance Portability and Accountability Act of 1996 (HIPAA), which, among other guarantees, protects the privacy of patients' health information ("Modifications to the HIPAA privacy, security, enforcement, and breach notification rules," 2013). Additionally, the primary investigator and practice personnel who carefully conduct this project followed the *Standards of Care* for practice in a primary care office. All information collected as part of evaluating this project's impact was aggregated data from the project participants and did not include any potential patient identifiers. The identity of the provider by their unique identifier was kept in a file on UA Box. The surveys were kept in a locked office drawer, and only the primary investigator had access. The survey data was be entered into an Excel file by the unique identifier and kept on UA Box. After completing the study, all hard

copies of the surveys were shredded through the health center's office confidential shredder service.

Conclusion

This project has shown that addressing the barriers to PrEP prescribing with an educational session is effective in increasing knowledge and likelihood to prescribe for all PCP groups except Pediatric providers. Minimal use of the HIV risk assessment form indicates that although attitudes and awareness may have improved, it has not resulted in significant new conversations or prescribing for PrEP. Further study into the barriers to prescribing among Pediatric providers is a topic for future research while improved access in the EHR to the HIV risk assessment form may result in better utilization.

This project can serve as a framework for other health centers wishing to incorporate PrEP services into primary care. The project was cost-effective, required minimal time commitments for training, and provided a form to minimize the impact on the PCP visit. Continued efforts to monitor PrEP acceptance and educate not only providers but other health center staff and the community may lead to the widespread use of PrEP.

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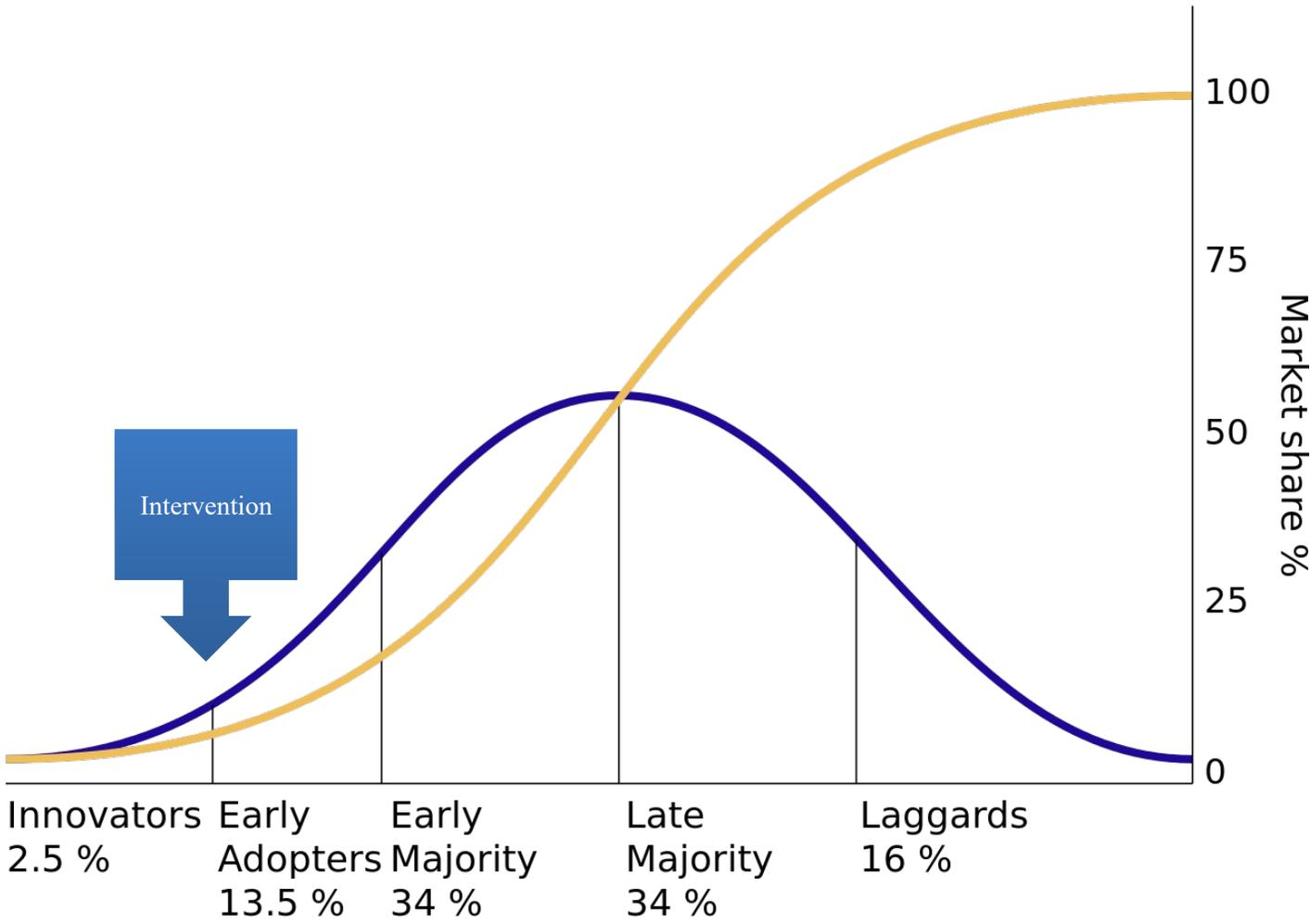
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Appendix A

Diffusion of Innovation theory



(E Rogers, 1962)

Appendix B

HIV PrEP Provider Questionnaire for Healthcare Providers

- 1. How many years have you been in practice?** _____ years
- 2. Gender**
- Male
 - Female
- 3. What is your field of practice?**
- Internal Medicine
 - Family Medicine
 - OB/GYN
 - Pediatrics
- 4. Are you a physician or nurse practitioner?**
- Physician
 - Nurse Practitioner
- 5. Who are the high-risk groups in the US to get infected with HIV (check all that apply)?**
- Sex workers
 - Men who have sex with men
 - Prison populations
 - People infected with tuberculosis
 - Intravenous drug users
- 6. What type of intercourse carries the highest risk of HIV transmission?**
- Anal sex
 - Penile-vaginal sex
 - Oral sex
- 7. Which HIV prevention methods do you currently use with your patients (check all that apply)?**
- Screening for high-risk sexual behaviors
 - Screening for intravenous drug use
 - STI (sexually transmitted infection) screening
 - Behavioral interventions (counseling)
 - Emphasize regular condom use
 - Routine HIV screening
 - Promotion of abstinence
 - Other

HIV pre-exposure prophylaxis, or PrEP, is using anti-retroviral medications before expected HIV exposure, such as sexual encounters or intravenous drug use to prevent transmission. Currently, Truvada (Tenofovir/Emtricitabine) is being used for this purpose.

8. How much do you know about PrEP?

- Never heard of it
- Know a little
- Have read the studies
- Have prescribed PrEP

9. Have you ever prescribed HIV post-exposure prophylaxis (PEP) before? If the answer is yes, then for what purpose?

- Never have prescribed PEP
- Occupational Post-Exposure Prophylaxis (oPEP) (i.e. after a needle stick injury)
- Non-occupational Post-Exposure Prophylaxis (nPEP) (i.e. after a sexual or injection drug use exposure)
- Other

10a. If PrEP was widely available, how likely would you be to prescribe PrEP to the following populations if they are confirmed to be HIV negative?

“MSM” refers to men who have sex with men.

	Would not prescribe	Probably would not prescribe	Neutral/ Undecided	Probably would prescribe	Would prescribe
MSM with multiple sexual partners, not using condoms	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
MSM with multiple sexual partners, using condoms regularly	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Serodiscordant homosexual couple (where one partner is infected with HIV and one partner is not infected with HIV)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Serodiscordant heterosexual couple (where one partner is infected with HIV and one partner is not infected with HIV)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Female sex worker (someone who exchanges sex for money, drugs, housing or other items)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Male sex worker (someone who exchanges sex for money, drugs, housing or other items)	<input type="radio"/>				
Intravenous drug user	<input type="radio"/>				

10b. Of the groups described in 9a above, please circle the population to which you would be MOST likely to prescribe PrEP.

11a. How concerned are you with regard to the following aspects (or potential risks) of prescribing PrEP?

	Not at all concerned	Somewhat concerned	Concerned	Very concerned	It would prevent me from prescribing PrEP
Potential side effects or toxicity of PrEP	<input type="radio"/>				
Potential increase in high-risk behavior	<input type="radio"/>				
Development of HIV resistance	<input type="radio"/>				
Potential loss of federal funding to other HIV preventative measures	<input type="radio"/>				
Cost of PrEP	<input type="radio"/>				
Requirement for frequent follow up and testing	<input type="radio"/>				
Other	<input type="radio"/>				

11b. Of the options described in 10a, please circle the GREATEST concern you have about prescribing PrEP.

12. How would the following hypothetical scenarios affect your likelihood to prescribe PrEP?

	Would not prescribe	Probably would not prescribe	Neutral/ Undecided	Probably would prescribe	Would prescribe
Efficacy rates for prevention were greater than 90%	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Government endorses PrEP use and releases guidelines for use	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Cost of medicine is decreased	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Education workshops about PrEP prescribing and monitoring are provided	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

13. What more do you want to know about PrEP?

- Evidence of efficacy for HIV prevention
- Data concerning patient acceptability of PrEP
- Other countries' use of PrEP
- Cost of PrEP
- Potential health care cost savings of PrEP
- Other

(Ross et al., 2017)

Appendix C

Cost/Benefit Analysis

ITEMS	COST	Benefits
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<p>Survey, PrEP education, EHR form development and evaluation of all data performed by DNP student.</p> <p>Provider time for training</p> <p>Photo copying</p> <p>Provider time to screen/manage/ prescribe prep</p> <p>Effect on patient care</p> <p>Compliance with regulatory agency guidelines</p>	<p>Utilize pre-scheduled training time without cost to organization.</p> <p>\$100 photocopying costs provided by organization (estimated).</p> <p>Prescriber investment kept to a minimum with EHR tools.</p>	<p>Improved Patient care.</p> <p>Adherence to guidelines and recommendations for NJ Drug Utilization Review Board regarding proper use of PrEP.</p> <p>Bureau of Primary Health Care reporting that PrEP services are being offered.</p> <p>Pharmaceutical incentives from 340B program. Each prescription filled provides a financial reimbursement to the health center.</p> <p>Potentially decrease the number of new cases of HIV in the city.</p>

Appendix D

Figures

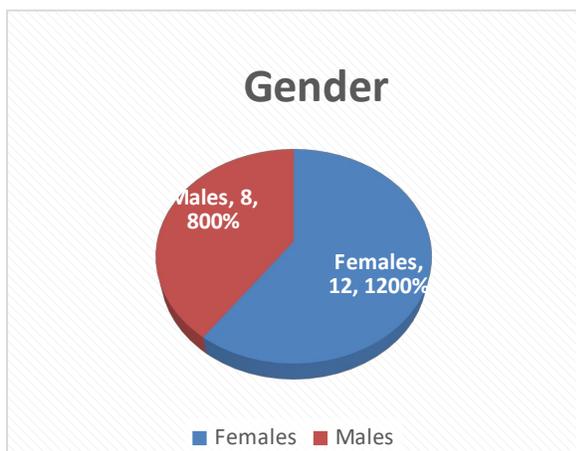


Figure 1. Questionnaire participants by gender.

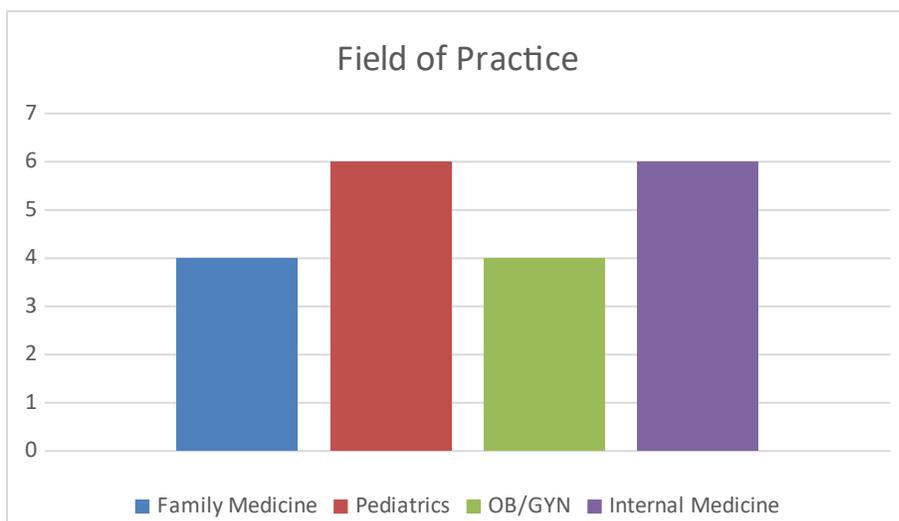


Figure 2. Questionnaire participants by reported field of practice.

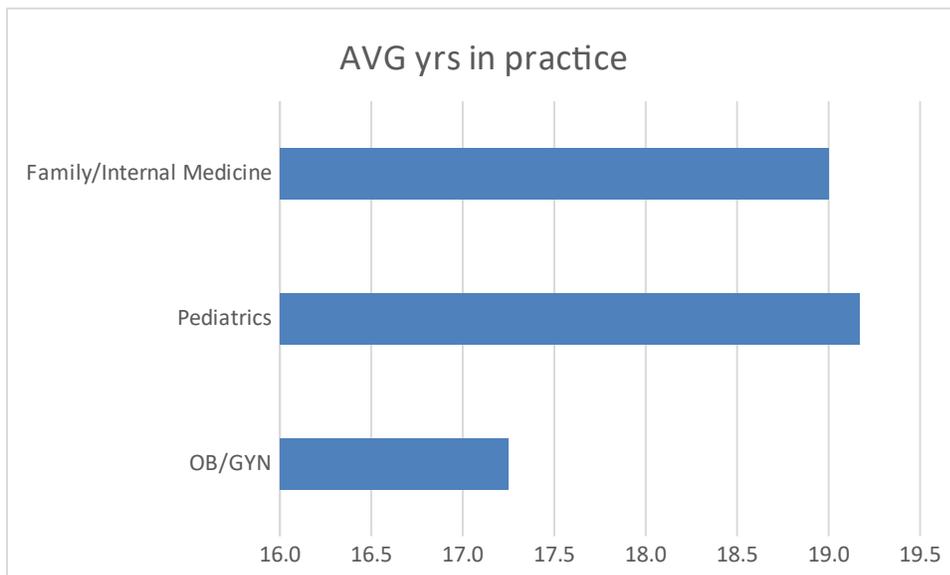


Figure 3. Provider average years in practice by specialty.

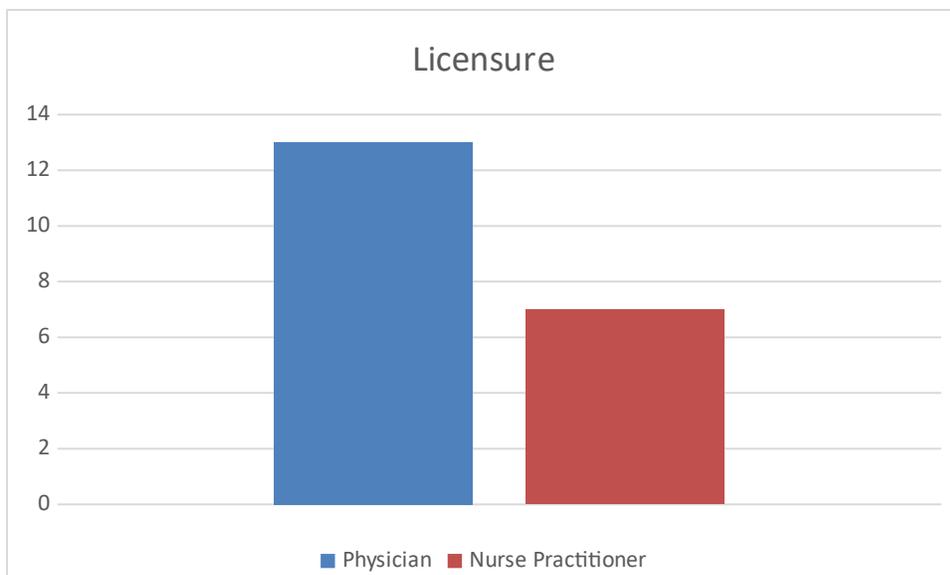


Figure 4. Questionnaire participants by type of licensure.

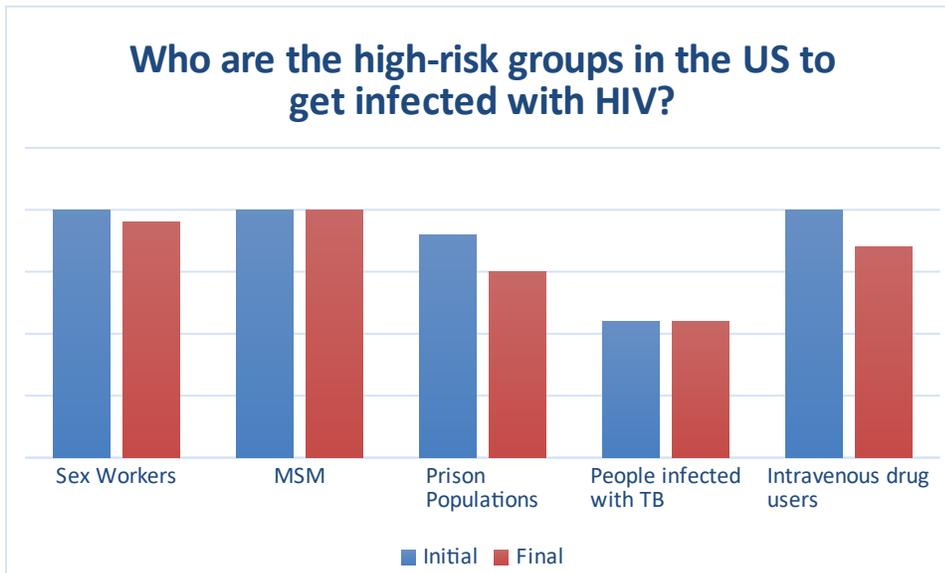


Figure 5. Frequency of responses to question 5.

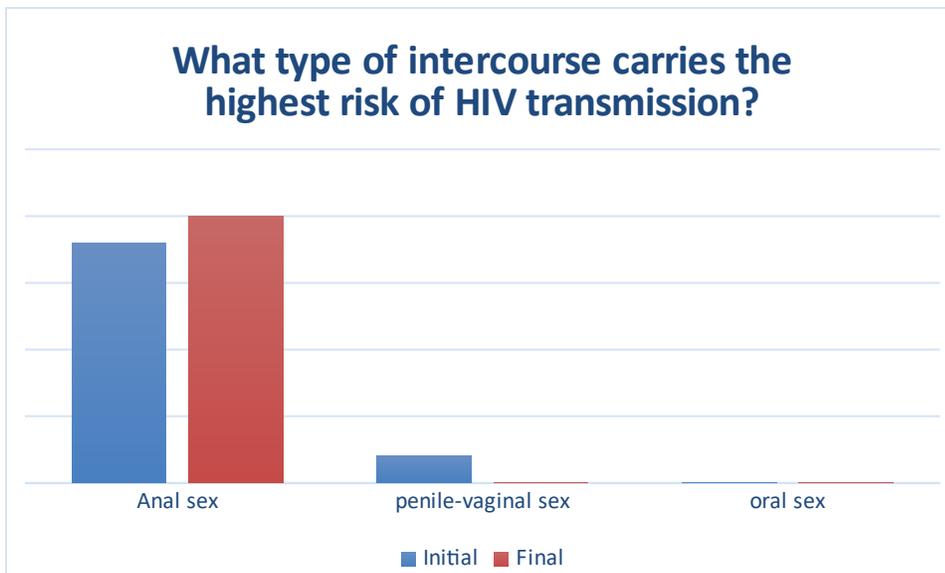


Figure 6. Frequency of responses to question 6.

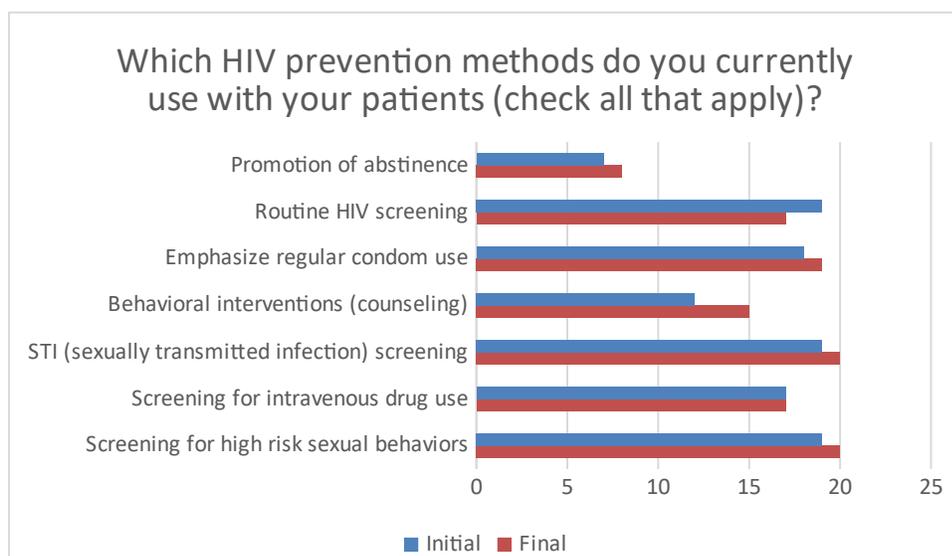


Figure 7. Frequency of responses to question 7.

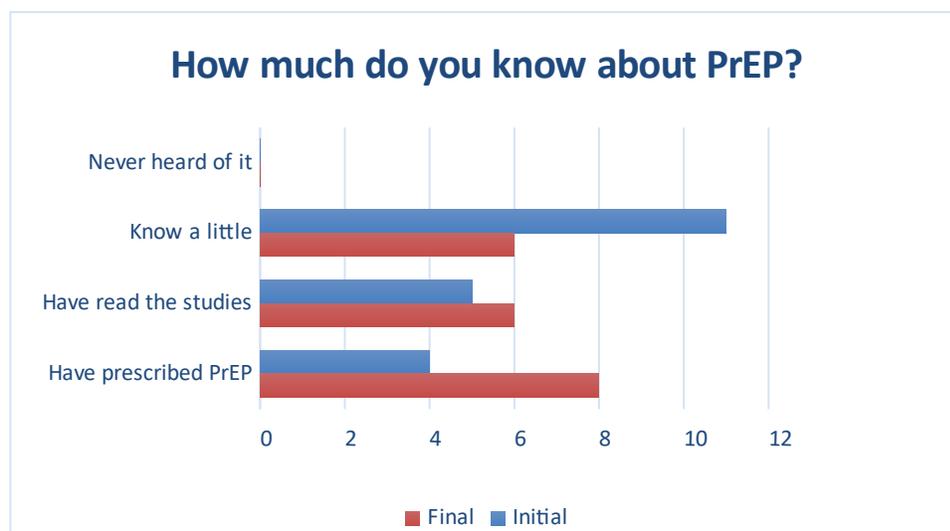


Figure 8. Frequency of responses to question 8.

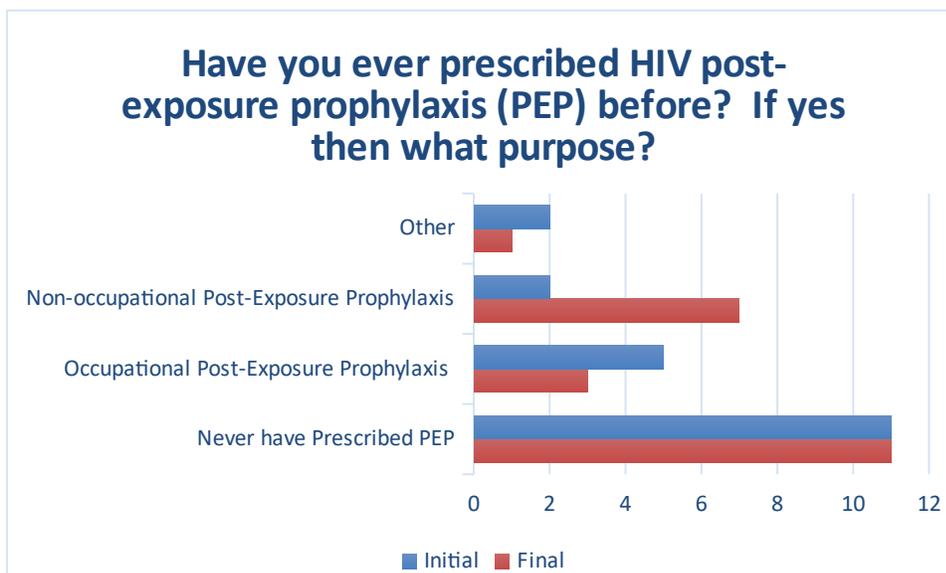


Figure 9. Frequency of responses to question 9.

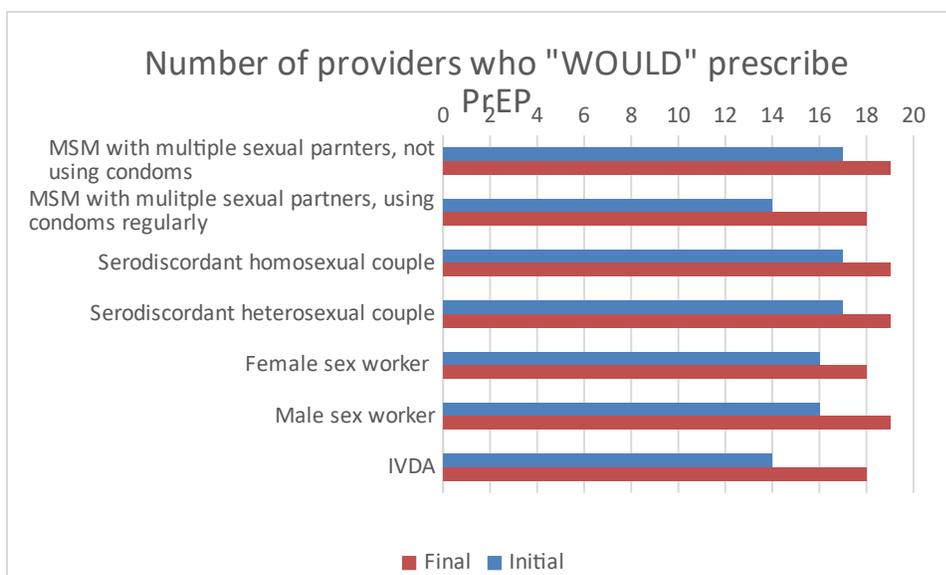


Figure 10. Number of providers who "WOULD" prescribe PrEP. Likert scale question 10.

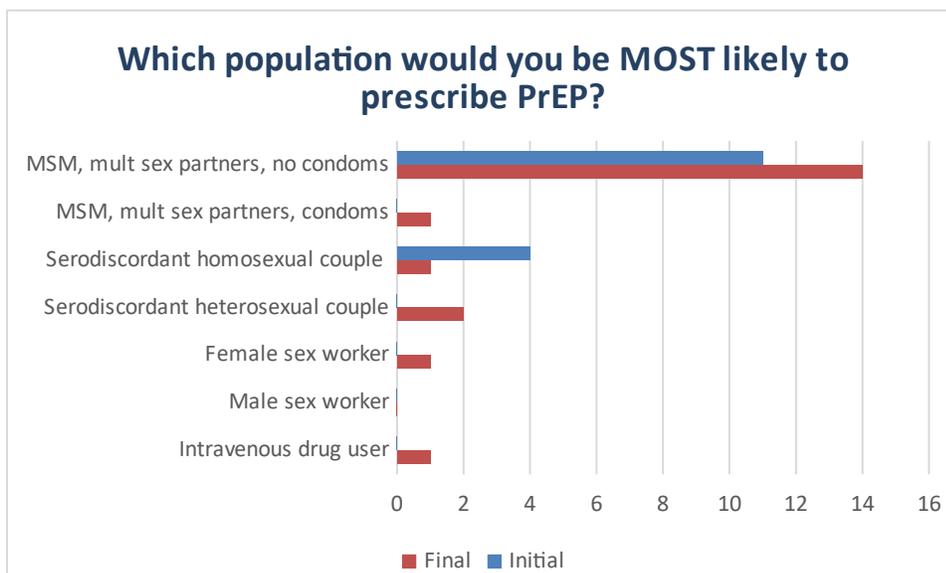


Figure 11. Frequency of responses to question 11.

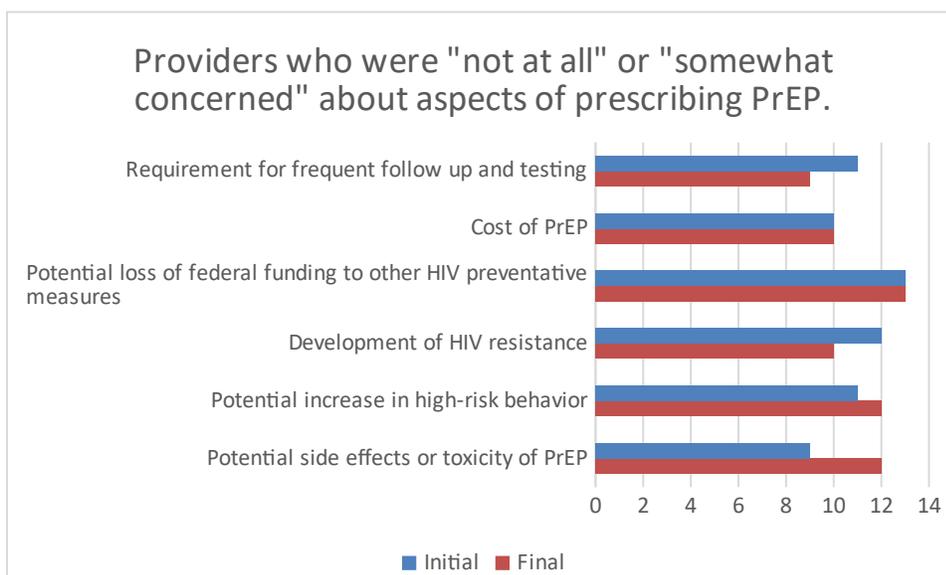


Figure 12. Frequency of responses to question 12.

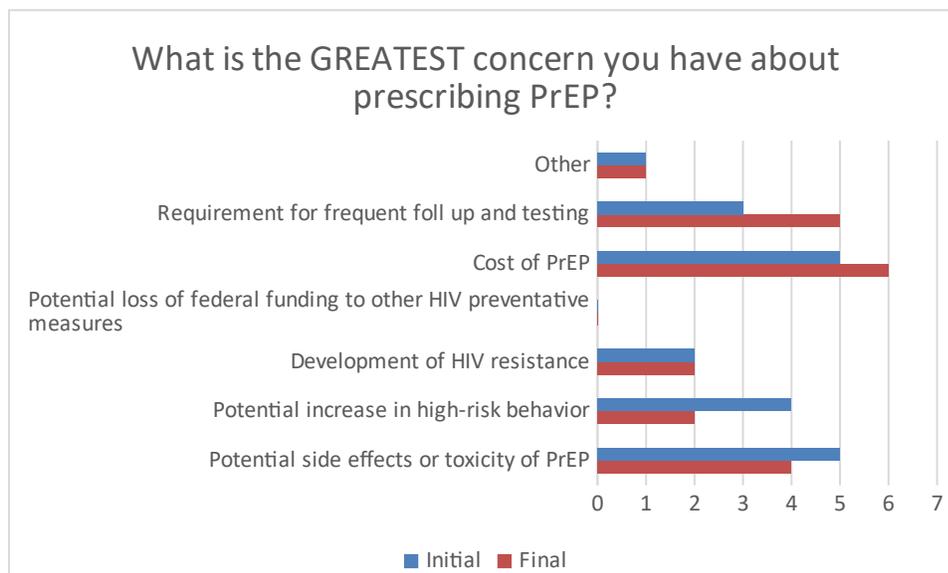


Figure 13. Frequency of responses to question 13.

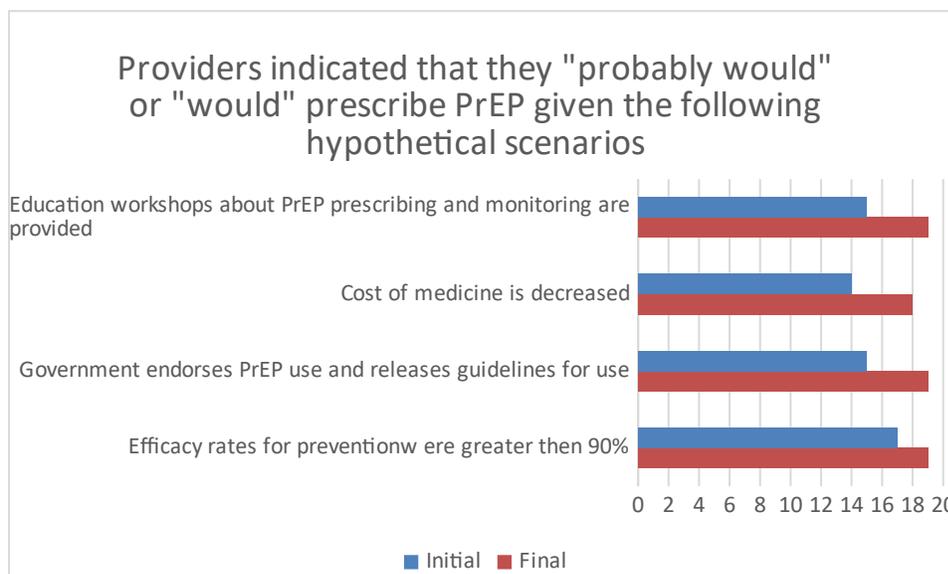


Figure 14. Frequency of responses to question 14.

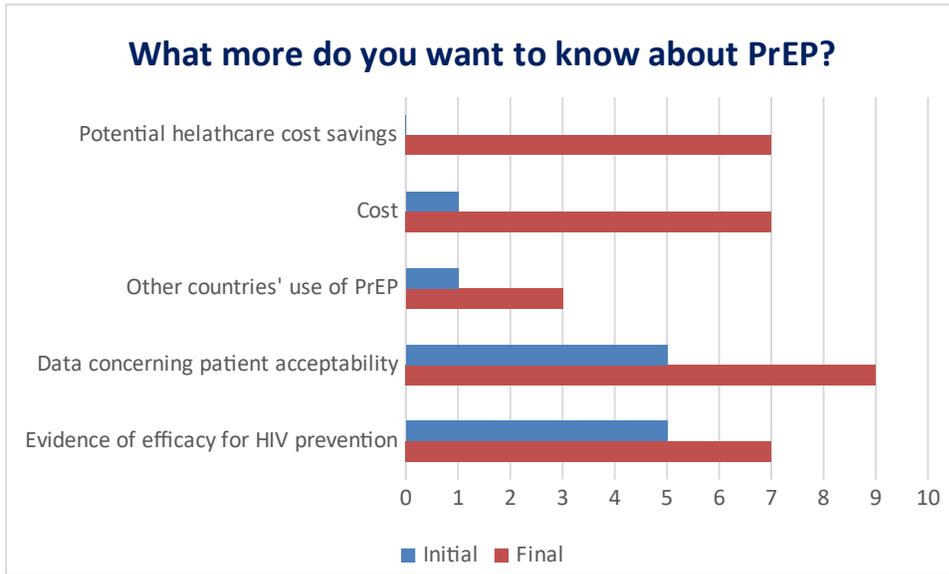


Figure 15. frequency of responses to question 15.

Appendix D

Project Timeline

