PrEPARED TO ACT: BREAKING BARRIERS TO HIV PREVENTION IN PRIMARY CARE FOR U.S. VETERANS

A QUALITY IMPROVEMENT PROJECT

by

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DEDICATION

This work is dedicated first and foremost to God, whose guidance, strength, and grace sustained me throughout this journey. In moments of doubt, fatigue, and uncertainty, my faith provided clarity, resilience, and the reassurance to continue forward. This achievement is a reflection of that unwavering foundation.

To my husband, Jason, thank you for your constant support, patience, and encouragement. You stood beside me through every late night, every challenge, and every moment when the finish line felt distant. Your belief in me never wavered, even when mine did, and I am endlessly grateful for your partnership and love.

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ABSTRACT

Background: HIV (human immunodeficiency virus) remains a consequential public health threat, and untreated infection may progress to AIDS (acquired immunodeficiency syndrome) and life-threatening complications. Although PrEP reduces sexual HIV acquisition risk by about 99% when taken as prescribed, primary care delivery remains inconsistent because of knowledge gaps, stigma, and workflow barriers.

Local Problem: A rural Veterans Affairs community-based outpatient clinic identified inconsistent HIV prevention practices during annual visits, including variable risk assessment, HIV testing offers, and patient PrEP education.

Methods: A six-week quality improvement initiative was conducted from January 2 through February 13, 2026, using the Institute for Healthcare Improvement Model for Improvement and three Plan-Do-Study-Act cycles.

Intervention: The intervention combined standardized provider education with a five-question assessment prompt used during annual visits to structure HIV risk discussion and document testing and education.

Results: Across 206 attended annual visits, prompt utilization ranged from 85.7% to 100.0% and met the 85% goal in all six weeks. HIV testing improved from 55.8% to 81.8% and reached the 80% goal in Week 6. PrEP education improved from 5.8% to 77.3%, approaching but not reaching the 80% goal.

Conclusion: A workflow-integrated assessment prompt was feasible in rural Veterans Affairs primary care and supported more consistent HIV prevention delivery. HIV testing offers and PrEP education improved over time, although additional workflow and documentation support appear necessary to strengthen follow-through.

CHAPTER ONE

REVIEW OF THE LITERATURE

Introduction

In 2023, over 39,000 people were diagnosed with HIV in the U.S. (Centers for Disease Control and Prevention [CDC], 2025b). Pre-exposure prophylaxis (PrEP) as a biomedical prevention strategy offers users more than 99% protection against HIV acquisition when taken as prescribed (CDC, 2025b). Primary care providers (PCPs) serve as the initial point of contact for individuals seeking PrEP services and may be the only healthcare providers these patients see. The ability and willingness of PCPs to prescribe PrEP directly affect its prevention success at the community level.

Nacht et al. (2022) identified that many primary care providers have limited familiarity and experience with PrEP, citing a need for further training and discomfort discussing sexual health as significant barriers to implementation. The authors also noted that stigma and cultural bias within clinical practice can contribute to reluctance in offering PrEP to eligible patients, further hindering access to preventive care. The challenges faced by PCPs in the prescribing of PrEP need to be examined, given the significant barriers that exist, hindering equal access to prevention.

In 2022, CDC data indicated that only about 36% of the roughly 1.2 million Americans who could benefit from PrEP were accessing the medication, leaving nearly two-thirds without preventive therapy (Kessler, 2023). Consistent with the Healthy People 2030 HIV objectives, which emphasize scaling up science-based strategies like PrEP to prevent new infections and

address disparities, primary care settings should integrate PrEP into routine care (Office of Disease Prevention and Health Promotion [ODPHP], n.d.).

The purpose of this scoping review is to examine the existing literature on barriers to PrEP prescribing and adherence in primary care and to highlight areas where evidence remains limited or inconsistent. The Joanna Briggs Institute (JBI) PCC Population, Concept, and Context was used to guide the development of this review question and the inclusion criteria (Peters et al., 2015). The Population consisted of primary care providers, including physicians, nurse practitioners, and physician assistants. The Concept focused on barriers and facilitators influencing PrEP prescribing and adherence. The context encompassed primary care settings within the United States, reflecting diverse clinical environments in which PrEP may be offered as a preventive service. This framework ensured the review remained aligned with current evidence and identified gaps in knowledge regarding PrEP implementation and adherence in primary care.

Background and Significance

The World Health Organization defines human immunodeficiency virus (HIV) as a virus that attacks the body's immune system, with acquired immunodeficiency syndrome (AIDS) representing the most advanced stage of infection (World Health Organization [WHO], 2025). Pre-exposure prophylaxis (PrEP) is a biomedical HIV prevention strategy in which people who do not have HIV take antiretroviral medication to reduce their likelihood of acquiring the virus through sex or injection drug use. When taken as prescribed, PrEP is highly effective, lowering the risk of HIV acquisition from sexual exposure by about 99% and from injection drug use by at least 74% (CDC, 2025b). PrEP is intended to be used as part of a comprehensive

HIV prevention plan that includes regular HIV testing, condom use, screening and treatment for sexually transmitted infections, and harm-reduction services for people who inject drugs (CDC, 2025b).

By 2020, fewer than one in four of the estimated 1.2 million individuals who could benefit from PrEP had received a prescription, reflecting only modest progress from the 3% uptake observed in 2015 (Powder, 2022). By 2022, coverage had increased to approximately 36%, meaning that nearly two-thirds of people who could benefit from PrEP still were not receiving this preventive therapy (CDC, 2023; WHO, 2025). This gap illustrates a missed public health opportunity, particularly as PrEP has proven to be one of the most effective preventive strategies to reduce HIV transmission (CDC, 2025a; U.S. Preventive Services Task Force [USPSTF], 2023).

Incorporating PrEP services into standard primary care practices can help normalize PrEP and establish it as a routine component of preventive health care, rather than a specialized service. By integrating PrEP into everyday primary care workflows and decision-support tools, health systems can improve access, foster equity, and contribute to national HIV prevention goals (Keizur et al., 2022; Traylor et al., 2024).

The significance of this issue is particularly pronounced in rural states like Montana. Geographic isolation, limited access to specialty care, and smaller practice environments underscore the importance of primary care as the front line of prevention. Expanding PrEP access through primary care offers a pathway to reduce disparities, improve population health, and prevent new infections in underserved communities.

Policy and Guidelines

The FDA's approval of PrEP in 2012 led to the development of a comprehensive policy framework for safe PrEP prescription practices. CDC published its first PrEP guidelines in 2014, followed by an update in 2021 that incorporated findings from new research (Patel et al., 2025). The USPSTF (2023) issued a Grade A recommendation for PrEP for people at increased risk of HIV, which, under the Affordable Care Act, requires most private health plans to cover PrEP without patient cost-sharing. The policy adjustment reduced substantial financial obstacles, enabling PrEP to become a fundamental preventive tool in clinical care.

The CDC updated and clarified the clinical criteria for identifying patients who should be offered PrEP in its 2021 guidelines. These guidelines recommend PrEP for people at increased risk of HIV acquisition, such as those with recent bacterial sexually transmitted infections, those who have condomless sex with partners of unknown or positive HIV status, and people who inject drugs and share injection equipment (Patel et al., 2025). The guidelines also require clinicians to follow standardized safety monitoring procedures, including baseline and follow-up evaluations, quarterly HIV testing and periodic renal function assessments. Altogether, these recommendations provide clinicians with concrete guidance on patient selection and ongoing care protocols. The guidelines outline how policies should be created, but their implementation by primary care providers often leads to inconsistent results.

Implementing PrEP protocols in rural states, such as Montana, must be done efficiently, as primary care serves as the first line of defense against health problems. The absence of systematic workflow integration for PrEP protocols in Montana and comparable rural states will result in numerous missed prevention opportunities (Patel et al., 2025).

National policies have established essential foundations; however, advancing PrEP prescribing depends on how effectively they are implemented in practice. State-level planningdocuments identify PrEP coverage among eligible individuals as a key gap in the HIV prevention continuum, even though PrEP is recognized as a critical strategy for reducing HIV transmission and as a core component of the national Ending the HIV Epidemic initiative (CDC, 2025b).

Drawing on CDC data, the Montana Integrated HIV Prevention and Care Plan reports that between 2019 and 2021, Montana ranked in the lowest 25% of states for PrEP coverage, with only about 12% of individuals who were indicated for PrEP receiving it (CDC, 2025b). Recent evidence indicates that PrEP access remains uneven, with markedly lower uptake in some primary care settings and among groups such as women and people of color, despite clear clinical eligibility (Keizur et al., 2022).

Provider-patient gaps often arise from limited clinician knowledge and awareness of PrEP, as well as healthcare system and provider-level barriers such as lack of formal prescribing protocols and logistical challenges in accessing PrEP services (Mayer et al., 2020). The state of Montana has developed multiple support mechanisms to improve PrEP access across all regions. One key initiative, the Montana Department of Public Health and Human Services' PrEP Assistance Program, provides financial support for PrEP-related services and helps offset costs for un- and under-insured Montanans by reimbursing enrolled providers (Montana Department of Public Health and Human Services [DPHHS], 2025). The practice of task shifting has received additional support through expanded pharmacist prescribing authority. In Montana, for example, 37-7-106, Pharmacist Prescribing Authority –

Exception, allows pharmacists to prescribe certain medications directly to patients, which can facilitate initiation of preventive therapies such as PrEP without an initial physician visit when appropriate (Mont. Code Ann. § 37-7-106, n.d.). Research shows that policy success depends on obtaining direct backing for its execution. The success of policy frameworks depends on their ability to be implemented in daily practice through educational programs and system redesign efforts.

Methods

Eligibility Criteria

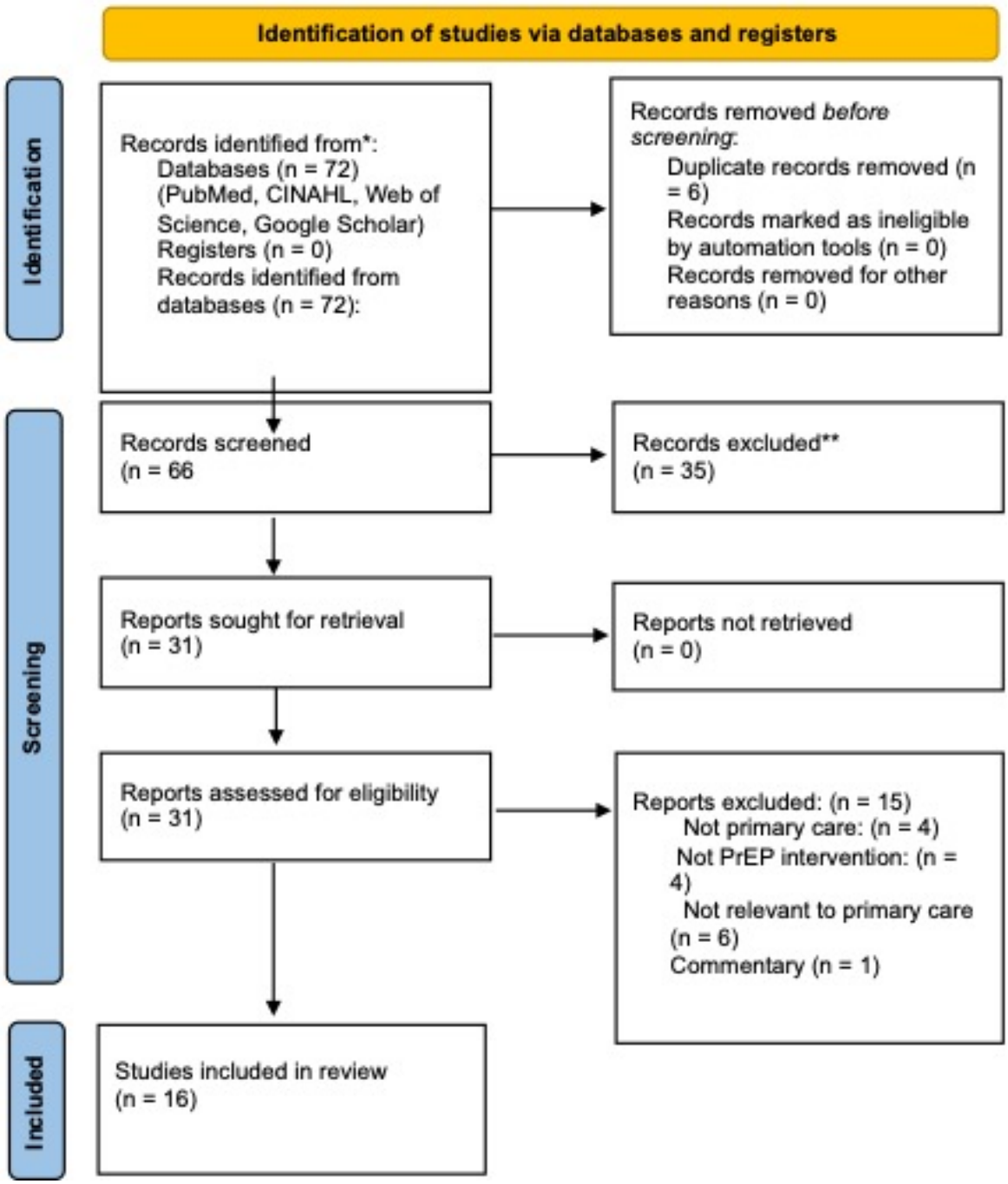
A structured literature review was conducted in September 2025 to identify evidence-based, peer-reviewed studies examining provider knowledge, barriers, and interventions related to PrEP prescribing in primary care settings. Eligible studies focused on the work of integrating educational initiatives or health system strategies designed to expand PrEP access. Studies published between 2019 and 2025 were included to ensure contemporary relevance. Articles were identified through Google Scholar and the Montana State University library databases, including PubMed, CINAHL, and Web of Science.

Search Strategy

The Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) framework provided the foundation for organizing and documenting the literature search and selection process (Page et al., 2021). See Figure 1. Using this structured approach supported a transparent and reproducible review methodology. A detailed description of the search methods,

inclusion criteria, and study selection process follows in the subsequent sections. Search terms included “HIV”, “PrEP”, “Primary Care”, “Barriers”, and “prescribing practices”; the Boolean operators AND and OR were used to broaden or narrow the search as appropriate. Inclusion criteria consisted of peer-reviewed articles published between 2019 and 2025, written in English, and focused on PrEP prescribing practices, implementation barriers, or interventions in primary care within the United States. Studies that addressed provider education, electronic health record (EHR) integration, stigma, or policy influences were also included. Exclusion criteria included commentaries, editorials, conference abstracts, and studies conducted outside the United States. Articles focusing solely on patient adherence, without considering provider- or system-level components, were excluded, as were studies published before 2019.

Figure 1. PRISMA 2020 flow diagram for study selection.
Note. This diagram illustrates the systematic search and screening process used to identify studies included in the literature review, including the number of records identified, screened, assessed for eligibility, and included. Adapted from *PRISMA 2020 Flow Diagram* (Page et al., 2021).



Study Selection

Of the records identified, duplicates were removed prior to screening. The remaining articles underwent title and abstract review, after which some were excluded for irrelevance to PrEP prescribing or primary care. The remaining full-text articles were assessed for eligibility; some were excluded because they focused on unrelated HIV prevention interventions, presented patient-only perspectives, or were conducted outside the United States. Patient-only studies were excluded because this review focused on provider-level barriers and facilitators to PrEP implementation in primary care settings.

The Joanna Briggs Institute (JBI) framework was used to guide data extraction and critical appraisal. A standardized extraction form was applied to each study to consistently capture design, setting, population, intervention or practice, outcomes, and key findings. Methodological quality was then assessed using the appropriate JBI critical appraisal tool for each study design, with items rated as yes, no, unclear, or not applicable. These appraisals were used to understand the strengths and limitations of the evidence and to inform the weighting and interpretation of findings in the synthesis, rather than to exclude studies solely based on quality ratings.

Results

Overview of Studies

A total of 16 studies published between 2019 and 2025 met the inclusion criteria. These studies examined how primary care providers understand, approach, and prescribe PrEP, as well

as factors that influence adherence and access. The goal across the literature was to better understand how PrEP can be consistently offered and adherence supported in primary care.

Type and Purpose

Of the sixteen studies, 11 used quantitative methods, such as surveys and chart reviews, to measure provider knowledge, prescribing habits, and PrEP uptake (Babiarz et al., 2023; Falconi-McCahill et al., 2022; Gregg et al., 2020; Henny et al., 2019; Hull et al., 2021; Keizur et al., 2022; Lumsden et al., 2022; Ohl et al., 2019; Sell et al., 2023; Shrestha et al., 2022; Traylor et al., 2024). Two studies used mixed-method approaches that combined survey or screening data with qualitative components, such as open-ended responses or semi-structured interviews, to explore provider perceptions, stigma, and workflow barriers (Coleman et al., 2021; Nacht et al., 2022). The remaining three sources were evidence-based narrative or scoping reviews that synthesized broader literature on PrEP implementation, provider attitudes, and adherence (Chan et al., 2020; Mayer et al., 2020; Tuan et al., 2025).

Level and Quality of Evidence

Most of the studies included were classified as level VI evidence, which focused on descriptive, correlational, or qualitative work (Babiarz et al., 2023; Coleman et al., 2021; Henny et al., 2019; Hull et al., 2021; Nacht et al., 2022; Sell et al., 2023; Traylor et al., 2024). A few were level IV, which used cohort or quasi-experimental designs to evaluate interventions intended to improve provider knowledge or practice behaviors (Falconi-McCahill et al., 2022; Gregg et al., 2020; Keizur et al., 2022; Lumsden et al., 2022). Several studies shared similar limitations, including small sample sizes, self-reported data, and limited follow-up

(Babiarz et al., 2023; Coleman et al., 2021; Henny et al., 2019; Nacht et al., 2022; Sell et al., 2023; Traylor et al., 2024). Even with these limitations, the overall evidence provides a clear picture of how gaps in provider knowledge and workflow barriers continue to affect PrEP prescribing and adherence.

Study Locations

All included studies were conducted in the United States, primarily in the Southeast, Midwest, and coastal regions (Babiarz et al., 2023; Chan et al., 2020; Coleman et al., 2021; Falconi-McCahill et al., 2022; Gregg et al., 2020; Henny et al., 2019; Hull et al., 2021; Keizur et al., 2022; Lumsden et al., 2022; Mayer et al., 2020; Nacht et al., 2022; Ohl et al., 2019; Sell et al., 2023; Shrestha et al., 2022; Traylor et al., 2024; Tuan et al., 2025). Twelve of these studies were conducted in urban or academic primary care or provider settings (Babiarz et al., 2023; Chan et al., 2020; Coleman et al., 2021; Falconi et al., 2022; Henny et al., 2019; Hull et al., 2021; Keizur et al., 2022; Lumsden et al., 2022; Mayer et al., 2020; Nacht et al., 2022; Sell et al., 2023; Shrestha et al., 2022), whereas only two included rural-serving or mixed rural and urban VA clinics (Gregg et al., 2020; Ohl et al., 2019). This imbalance highlights a persistent research gap for veterans and other patients receiving care in rural primary care settings (Gregg et al., 2020; Ohl et al., 2019; Traylor et al., 2024). Gaining a better understanding of how limited infrastructure, provider shortages, and rural barriers directly affect PrEP delivery is essential to improving access (Ohl et al., 2019; Gregg et al., 2020; Chan et al., 2020; Mayer et al., 2020; Traylor et al., 2024).

Barriers to PrEP Implementation in Primary Care

Although PrEP has proven to be highly effective, its integration into primary care remains limited by barriers affecting providers, patients, and the broader healthcare system. These barriers need to be identified to develop successful interventions that link evidence-based practices to actual implementation.

Provider-Level Barriers

Many obstacles at the provider level stem directly from insufficient knowledge and training. Nacht et al. (2022) reported that primary care providers often felt they had limited experience with PrEP and lacked confidence in their understanding of which patients were appropriate candidates and how to manage follow-up, describing this as a key barrier to offering PrEP. Henny et al. (2019) found that only about one-third (36.3%) of primary care providers in high HIV-burden areas of the southeastern United States reported receiving recent HIV-related training, and those who had received it were significantly more likely to be familiar with PrEP and to have prescribed it. More recent survey data from Sell et al. (2023) suggest that, although many PCPs endorse positive attitudes toward PrEP, they continue to report low prescribing rates and identify gaps in PrEP education and the perceived complexity of laboratory monitoring and follow-up as reasons they remain hesitant to incorporate it into routine practice.

Provider discomfort and patients' fear of stigma related to PrEP and HIV can interfere with open communication and limit uptake of preventive care. Nacht et al. (2022) found that both patients and primary care staff described stigma, cultural norms, and discomfort with sexual health conversations as significant barriers throughout a PrEP screening and linkage intervention

in primary care. Lumsden et al. (2022) similarly reported that many primary care clinicians lacked familiarity and comfort with PrEP and did not consistently obtain sexual histories, which limited their ability to identify and counsel patients at risk for HIV. When providers do not feel prepared or comfortable initiating these conversations, the burden of raising PrEP often falls on patients themselves, leading to missed opportunities for prevention.

Workflow and time constraints further compound these barriers. Keizur et al. (2022) showed that an electronic health record best-practice advisory could successfully identify patients who met criteria for PrEP across multiple primary care specialties. However, providers infrequently acknowledged the alert or initiated PrEP, highlighting persistent gaps in education and workflow integration. Babiarz et al. (2023) also found that primary care providers frequently cited limited time and unfamiliarity with guidelines as significant obstacles to counseling patients and starting PrEP, and that only a small proportion of eligible patients ultimately received a prescription. Primary care clinicians often manage multiple acute and chronic concerns within very short visits, and without dedicated tools or support, PrEP discussions can be crowded out. Together, these findings suggest that both provider education and system-level support, such as structured templates, electronic prompts, and protected time for counseling, are essential to reduce stigma-related and logistical barriers and to improve PrEP access in primary care.

Babiarz et al. (2023) found that insufficient time during visits and limited familiarity with PrEP guidelines were among the most reported barriers to counseling patients and prescribing PrEP. Several structural factors, including the cost of PrEP and the need for a clinician's prescription, also contribute to access gaps, particularly for patients who already face barriers to

engaging with the health care system (Hull et al., 2021; Mayer et al., 2020). Hull et al. (2021) showed that providers with higher levels of modern racist attitudes were less willing to discuss and prescribe PrEP to an otherwise-eligible Black cisgender woman than to a White woman, and that this difference was mediated by more negative expectations about her ability to adhere to PrEP. When provider-level bias is layered on top of patient discomfort with sexual health discussions, opportunities to talk about PrEP can easily be missed, and communication breakdowns may further widen existing inequities in HIV prevention.

The combination of provider-level barriers, including knowledge deficits, discomfort, time limitations, and bias, stops numerous qualified patients from getting PrEP. Implementing targeted education and clinical tools, as well as normalizing routine practice for PrEP discussions, may overcome these barriers.

Patient-Level Barriers

Patients encounter their own obstacles when using PrEP. Many at-risk individuals still have limited awareness of PrEP, and awareness is especially low among African American women and transgender people in the Southern United States, which contributes to lower uptake among women and communities of color (Mayer et al., 2020; Nacht et al., 2022; Traylor et al., 2024).

Stigma is a significant barrier to PrEP access for many patients. People may worry that taking PrEP will cause others to view them as promiscuous or to assume they are HIV-positive, which can make them reluctant to start or continue the medication (Mayer et al., 2020; Nacht et al., 2022; Traylor et al., 2024; Tuan et al., 2025). Longstanding medical mistrust, particularly among communities that have experienced discrimination in health care, further undermines

confidence in HIV prevention services. Together, these factors reinforce social stigma and reduce patients' willingness to seek or maintain PrEP care (Mayer et al., 2020; Tuan et al., 2025).

Financial and logistical challenges continue to create barriers to both starting and maintaining PrEP. Even when patients are interested in PrEP, issues such as insurance approvals, visit and laboratory costs, and the need to return regularly for monitoring can make it difficult to stay engaged in care (Mayer et al., 2020; Shrestha et al., 2022). The USPSTF's Grade A recommendation for PrEP means that, under the Affordable Care Act, most private health plans are required to cover PrEP medication without patient cost-sharing; however, Shrestha et al. (2022) found that patients receiving care at community health centers still faced challenges related to the cost and logistics of clinic visits and laboratory testing, particularly in settings serving people with low incomes. Patients may struggle to attend quarterly follow-up appointments because of transportation barriers, childcare responsibilities, and work schedules, especially in rural areas. Taken together, these financial and practical barriers can prevent people who need PrEP from starting it when it is recommended or from remaining on therapy over time.

System-Level Barriers

System-level barriers also play a significant role in limiting PrEP use**.** For example, many clinics lack consistent protocols for identifying PrEP candidates, initiating treatment, and managing follow-up (Keizur et al., 2022). In their evaluation of an electronic health record best-practice advisory, Keizur et al. (2022) found that the alert successfully identified patients who met criteria for PrEP. However, providers rarely acknowledged the prompt or initiated PrEP, highlighting the need for additional education and workflow support. Lumsden et al. (2022)

described how institutional support, a formal task force, and standardized EHR-based protocols were critical for achieving and sustaining improvements in PrEP prescribing in primary care.

Shrestha et al. (2022) estimated that at two community health centers, the average annual billable cost of PrEP-related clinic visits and laboratory monitoring ranged from about $1,650 to $1,940 per patient. Because community health centers typically operate with limited resources and serve many uninsured or underinsured patients, these ongoing service costs may be challenging to sustain at scale. Sell et al. (2023) found that primary care providers identified an electronic medical record order set as the most helpful facilitator for PrEP prescribing, and they highlighted the need for system-based solutions in addition to provider education. When decision-support tools such as standardized order sets and streamlined processes for labs, documentation, and insurance approvals are absent, many clinicians find it challenging to incorporate PrEP into their routine practice.

System-level obstacles, including policy and resource constraints, can limit PrEP implementation in safety-net settings. In a mixed-methods study of Title X-funded family planning clinics in the southern United States, Coleman et al. (2021) found that many clinics, particularly those without on-site primary care, reported cost-related concerns, limited staffing capacity, and challenges covering laboratory tests and follow-up visits as key barriers to implementing PrEP. Survey respondents also indicated that uncertainty about the continuation of federal funding streams such as Title X, Medicaid, and Ryan White could discourage clinics from adopting PrEP.

Summary of Barriers

A range of challenges continues to make PrEP implementation difficult in primary care settings. Provider-level barriers include time, limited PrEP-specific knowledge and discomfort discussing sexual health, which can influence whether clinicians identify at-risk patients and offer PrEP. Patient-level barriers such as fear of stigma, lack of awareness, and logistical or financial hardships further limit engagement in PrEP care. System-level barriers, including the absence of standardized protocols, limited training infrastructure, and resource constraints, add additional difficulties. Although strong clinical evidence supports PrEP's effectiveness in preventing HIV (Mayer et al., 2020; USPSTF, 2023), national data indicate that only about one-third of individuals who could benefit from PrEP are currently using it, with particularly low uptake in rural and Southern regions (Traylor et al., 2024). Addressing these combined challenges requires coordinated efforts that strengthen provider education, improve patient understanding, and promote system-level changes supported by policy and leadership engagement.

Facilitators and Strategies to Improve PrEP Uptake

The evidence reveals multiple barriers to the effective use of PrEP, yet several factors promote its adoption and maintenance. These facilitators, which include targeted education programs and supportive policies, work at the provider, patient, and system levels to tackle various barriers previously mentioned.

Provider-Focused Facilitators

Targeted education and training remain among the most important factors for improving PrEP prescribing in primary care. Henny et al. (2019) found that primary care providers who had received HIV-related training were significantly more likely to be familiar with PrEP and to have prescribed it, suggesting that structured education builds both knowledge and confidence in prevention care. Falconi-McCahill et al. (2022) and Lumsden et al. (2022) also showed that combining provider education with practical tools, such as electronic risk-assessment forms and EHR care templates, was associated with increased willingness to prescribe PrEP and higher prescribing rates in clinical settings. Gregg et al. (2020) further highlighted that training focused on PrEP indication criteria, laboratory monitoring, and clinic workflows, supported by decision aids and standardized processes, can improve provider comfort and capacity to deliver PrEP in primary care.

Studies show that organizations improve PrEP prescribing outcomes when they provide ongoing education and practical support. Effective programs include expert mentorship and consultation models that link primary care clinicians with PrEP specialists (Ohl et al., 2019), as well as workflow changes that build PrEP training and guidance into routine clinic operations (Gregg et al., 2020). Integrated EHR tools, such as standardized care templates and order sets, also help simplify prescribing processes and are among the most useful supports for incorporating PrEP into routine care (Lumsden et al., 2022; Sell et al., 2023). Together, these forms of support suggest that successful implementation requires sustained investment and system-level commitment, rather than one-time or brief training efforts.

Decision-support tools facilitate PrEP prescribing by reducing both cognitive and administrative workloads for healthcare providers. Keizur et al. (2022) showed that an EHR-based best-practice advisory could identify patients who met criteria for PrEP in primary care, helping clinicians identify more eligible candidates. Sell et al. (2023) similarly found that primary care providers viewed EHR templates and standardized order sets as some of the most helpful tools for integrating PrEP into routine care.

EHR systems can automate baseline laboratory orders and documentation prompts, which allows providers to initiate PrEP without relying on memory for every protocol detail. Mentorship programs and clinical champions play a key role in supporting PrEP implementation. The VA's Project ECHO model, for example, linked rural primary care providers with PrEP specialists through tele-mentoring, which helped expand access and build clinicians' confidence in prescribing PrEP (Ohl et al., 2019). Likewise, structured education and hands-on training have been associated with increased provider knowledge and higher PrEP prescribing rates (Falconi-McCahill et al., 2022; Lumsden et al., 2022). When clinicians receive targeted HIV related training, participate in mentorship programs, and have access to workflow support such as EHR templates and decision aids, their comfort with PrEP and likelihood of prescribing it in routine primary care increase meaningfully (Falconi-McCahill et al., 2022; Gregg et al., 2020; Lumsden et al., 2022). Ongoing telehealth initiatives, such as those described by Ohl et al. (2019), demonstrate how support models can improve access to HIV-related services for patients in rural areas. In the VA system, telehealth allowed veterans who lived far from specialty clinics to receive HIV care at nearby primary care clinics, reducing travel burdens and helping maintain engagement in care. Similar models that link rural providers and clinics with specialty teams can

help reduce professional isolation and support the ongoing delivery of HIV prevention and treatment services.

Patient-Focused Facilitators

Patient facilitators include greater education, reduced stigma, and ongoing support for adherence. Community-based outreach and public health education efforts were identified as practical strategies to increase awareness of PrEP and normalize its use within the broader population (Traylor et al., 2024; Tuan et al., 2025). Sell et al. (2023) found that patient awareness and inquiries about PrEP frequently prompted clinical discussions; more than half of surveyed providers reported that patients had been asked about PrEP, suggesting that informed patients can help initiate and sustain prevention conversations in primary care. Tailored outreach to high-risk communities, particularly African American populations in the Southern United States, can help address inequities in access and support more equitable PrEP use (Traylor et al., 2024). Interventions that directly address stigma and normalize PrEP as a routine preventive option, rather than a marker of risky behavior, are associated with better engagement. Tuan et al. (2025) reported that some PrEP users described the medication as a "daily vaccine," reflecting its normalization as a routine prevention tool rather than a stigmatized HIV intervention. Tuan et al. (2025) found that incorporating PrEP into daily routines and using reminder tools, such as text messages, phone alarms, and pill organizers, helped patients remember their medication and supported ongoing adherence. Tuan et al. (2025) described how peer navigators and supportive clinic staff can help patients manage stigma, navigate the healthcare system, and stay engaged in care. Together, these supports increase the likelihood that patients will both start PrEP and maintain its use over time.

System-Focused Facilitators

System-level facilitators include institutional protocols, resource allocation, and innovative service models. Standardized risk screening and integration of PrEP into everyday clinical workflows help providers consistently identify opportunities for HIV prevention. Shrestha et al. (2022) analyzed the billable costs of PrEP delivery at community health centers. They found that frequent clinic visits and laboratory monitoring incur substantial service costs, raising concerns about the financial burden of scaling PrEP programs. These findings highlight the importance of insurance coverage and other financial supports to offset service costs and make PrEP delivery sustainable in safety-net settings.

Health systems that allocate funds for PrEP services and staff training are better positioned to incorporate PrEP into routine preventive care. Telehealth-based models can also expand access for patients who live far from specialty clinics. Within the Veterans Health Administration, HIV telehealth programs have enabled rural veterans to receive specialty care at local primary care clinics rather than travel long distances (Ohl et al., 2019). Building on this approach, Gregg et al. (2020) described a quality improvement initiative that implemented a PrEP program in a homeless primary care clinic in the VA system, demonstrating how nontraditional clinical settings can successfully deliver PrEP to underserved populations.

Summary of Facilitators

These facilitators demonstrate that multiple strategies can effectively increase PrEP adoption within primary care settings. Taken together, the evidence suggests that a sustainable PrEP delivery system rests on six essential components: provider education, decision-support

tools, patient education, stigma-reduction efforts, organizational protocols, and stable funding mechanisms. These six components were identified because they repeatedly appeared across the reviewed literature and closely align with the barriers and facilitators described throughout this project.

Discussion

The literature indicates that PrEP access remains in its infancy, hindered by ongoing obstacles despite recent progress in the field. Across studies, common barriers include provider knowledge gaps, workflow challenges, cost burdens, and stigma, while facilitators such as targeted provider education, decision-support tools, and mentorship programs have shown success in increasing PrEP prescribing (Falconi-McCahill et al., 2022; Lumsden et al., 2022; Sell et al., 2023). However, most data originate from urban health systems, leaving rural and resource-constrained regions underrepresented (Traylor et al., 2024). Keizur et al. (2022) demonstrated that EHR-based prompts and decision-support tools can successfully identify PrEP candidates, supporting efforts to integrate PrEP into routine workflows.

Evidence from Lumsden et al. (2022) shows that combining structured provider education with EHR templates was associated with a substantial increase in PrEP prescriptions over five years. However, long-term sustainability and the impact on provider workload remain less thoroughly evaluated in the literature. Financial barriers persist, as Shrestha et al. (2022) estimated high per-patient PrEP delivery costs for clinic visits and laboratory monitoring, raising concerns about how community health centers can sustain these services over time. Additionally, Tuan et al. (2025) highlighted that stigma, fear of disclosure, and provider discomfort continue to interfere with communication about PrEP and contribute to challenges with adherence.

Collectively, these findings reveal meaningful progress but underscore the need for strategies tailored to rural practice settings, sustainable funding models, and improved provider-patient communication. Additional studies are needed to determine how best to implement and sustain PrEP services in rural and resource-constrained regions.

More evidence is needed to develop effective strategies that strengthen communication between patients and their healthcare providers. Recent research continues to identify stigma, fear of disclosure, and mistrust as significant barriers to HIV testing and PrEP uptake. Tuan et al. (2025) emphasized that although these obstacles are well known, relatively few targeted interventions to address them were rigorously evaluated, underscoring the need for continued development and testing of strategies to reduce stigma and support sustained PrEP use.

Conclusion

PrEP shows strong effectiveness in preventing HIV, yet its implementation remains hindered by multiple barriers within primary care settings. This review highlights that healthcare providers often work under considerable time constraints, lack sufficient knowledge and experience with PrEP, and may feel discomfort or exhibit bias when discussing sexual health and HIV prevention with patients at risk. Patients, in turn, may encounter stigma and mistrust when seeking PrEP, which can discourage them from initiating or continuing treatment. Healthcare facilities also face operational challenges, funding limitations, and institutional barriers that make it difficult to sustain PrEP programs over time. The successful implementation of PrEP, therefore, requires a combination of targeted education and training, decision-support tools, mentorship, community outreach, stigma-reduction efforts, and supportive policies that address these barriers at multiple levels.

Primary care services are positioned at the forefront of making PrEP a normalized component of preventive care while protecting populations who face heightened vulnerability to HIV and limited access to healthcare. Multiple strategies at the policy, provider, system, and patient levels must be implemented to address the gaps identified in this review, including policy changes, provider education, system transformation, and patient-focused support. PrEP is both clinically effective and feasible to integrate into routine primary care practice when appropriate supports are in place. Continued study of the barriers and facilitators described here will help primary care settings serve as a critical first line of defense against HIV transmission and advance public health equity.

CHAPTER TWO

QUALITY IMPROVEMENT PROPOSAL

Introduction and Problem

HIV is a primary global health concern despite decades of progress in prevention and treatment. In 2023, approximately 39 million people were living with HIV globally, with 1.3 million new infections (UNAIDS, n.d.). Within the United States, the Centers for Disease Control and Prevention (CDC, 2023) estimated that in 2022, 1.2 million individuals were living with HIV, with notable racial disparities. Montana mirrors these national trends on a smaller scale, reporting an estimated 840 residents living with HIV and a steady number of new diagnoses each year (DPHHS, 2023). These figures underscore the need for proactive prevention efforts, particularly through Pre-Exposure Prophylaxis (PrEP).

Veterans have an increased risk of acquiring HIV, especially those who experience substance use disorders (SUDs), comorbid hepatitis C infection, housing instability, or limited access to PrEP. Among U.S. veterans with SUDs, HIV prevalence ranges from 1.1% to 3.9%, significantly higher than the well under 1% prevalence observed in the general U.S. population (McCann et al., 2023). The highest risk is seen among those with opioid and alcohol use disorders, veterans with hepatitis C, and Black and Hispanic veterans (McCann et al., 2023). Substance use disorder frequently co-occurs with other medical and psychiatric conditions that increase vulnerability and complexity of care among veterans (Na et al., 2024).

Veterans living in rural areas face additional challenges related to HIV because they often have less access to services delivered by telehealth, which is a key mode of care in rural settings.

Among veterans with HIV and alcohol use disorder, rural veterans were less likely than non-rural veterans to receive mental health treatment via video telehealth, highlighting ongoing access gaps in this population (Sheinfil et al., 2023). Women veterans also experience disparities in HIV prevention. Between 2012 and 2021, only 417 women veterans in the Veterans Health Administration received PrEP, despite clear indications that more women could benefit from it, indicating substantial under-prescribing and missed prevention opportunities (Keddem et al., 2024). There are no specific numbers for Montana veterans who have HIV or who would benefit from PrEP. Montana has a very low prevalence of HIV; however, the veteran population in Montana is at higher risk for HIV, given that many veterans move to Montana from other states and locations that have higher HIV prevalence. Thus, identifying patients at increased risk for HIV and prescribing it for them is essential.

PrEP can reduce the risk of acquiring HIV from sex by about 99% when taken as prescribed (CDC, 2025b). However, its use in primary care settings remains limited, with many eligible patients not receiving PrEP counseling or prescriptions (Lumsden et al., 2022). Studies point to persistent barriers, including limited provider familiarity and comfort with PrEP prescribing, questions about how to manage PrEP-related monitoring and follow-up, and clinic workflows that make it challenging to incorporate routine HIV risk assessment into busy visits (Falconi-McCahill et al., 2022; Lumsden et al., 2022; Nacht et al., 2022). In the Southern United States, which includes many rural communities, primary care providers also report additional challenges, such as insufficient training, stigma, and limited access to providers and clinics experienced with PrEP (Traylor et al., 2024). Collectively, these factors contribute to an

implementation gap between strong clinical evidence and actual practice, a gap this quality improvement project is designed to address.

Aim Statement

This quality improvement project aims to increase PrEP awareness and prescribing by equipping primary care providers with targeted education and a structured five-question HIV risk assessment prompt. Over a six-week implementation period at a VA community-based outpatient clinic, the project will integrate the provider prompt into annual exams. It will provide targeted provider education to increase the identification of patients at increased risk for HIV.

Brief Overview of the Intervention

The overall goal of this intervention is to normalize HIV risk screening, identify at-risk patients more systematically, and support timely PrEP initiation when appropriate. Implementation will occur over six weeks using Plan-Do-Study-Act (PDSA) cycles guided by the Institute for Healthcare Improvement Model for Improvement. Primary outcomes will include provider knowledge and screening completion rates. Secondary outcomes will include the number of patients identified as at risk for HIV using the prompt and the number of new PrEP prescriptions initiated. No individually identifiable health information will be collected; the project poses minimal risk to participants; and all activities comply with Veterans Affairs and institutional confidentiality requirements. As this is a minimal-risk quality improvement project that used de-identified operational data and did not alter standard care, formal written informed consent will not be obtained from patients. Provider participation in project-related education and surveys will be voluntary, and completion of the survey will be considered implied consent.

Context

The chosen implementation site will be a community-based VA outpatient primary care clinic that provides comprehensive health services to veterans in a rural region. The clinic population includes a mixture of men and women veterans, with an age range of 18 to 99 years, and includes individuals with diverse sexual orientations, gender identities, and health risks. Despite the presence of risk factors for HIV, review of the electronic health record (EHR) and stakeholder interviews reveal limited PrEP prescribing practices and an absence of standardized HIV risk screening procedures. Four primary care providers were interviewed, and three of the four reported insufficient familiarity with PrEP guidelines and uncertainty about prescribing and follow-up procedures, mirroring national findings on barriers to PrEP adoption in primary care (Falconi-McCahill et al., 2022; Lumsden et al., 2022).

In Montana, state health data highlight ongoing disparities in HIV prevention efforts, particularly for rural residents (DPHHS, 2023). Rural patients often face fewer healthcare resources, greater stigma surrounding sexual health discussions, and limited provider familiarity with HIV prevention options. These patterns mirror findings from the Southern United States, where primary care providers report limited PrEP training, stigma, and structural barriers to uptake (Traylor et al., 2024). A needs assessment at the project site revealed that no formal screening process existed for identifying PrEP candidates, and PrEP-related discussions were initiated infrequently. Stakeholder feedback from the nurse manager, clinical pharmacist, and primary care providers emphasized the need for a structured process that normalizes sexual health conversations and simplifies the identification of at-risk patients.

System assessment findings further supported the need for this QI project. The clinic's EHR did not include standardized prompts or order sets related to PrEP, and staff described varying levels of confidence in initiating HIV-related discussions. Informal interviews also suggested that time constraints and perceived patient discomfort were additional deterrents. These findings mirror national reports showing that combining provider education with structured EHR tools and clinic workflows can improve identification of PrEP candidates and increase prescribing in primary care settings (Keizur et al., 2022; Lumsden et al., 2022).

To synthesize the findings from the needs assessment, interviews, and stakeholder conversations, a fishbone (Ishikawa) diagram was developed (see Appendix A). The diagram organizes local contributors to low PrEP prescribing across six domains: people, environment, measurement, process, education and training, and technology. It highlights gaps in provider comfort, stigma and privacy concerns, complex workflows, limited training opportunities, and the absence of EHR-based prompts as key drivers of the problem.

The project stakeholders included primary care providers, nursing staff, a clinical pharmacist, and the clinic's leadership: the project lead, a nurse practitioner, coordinated implementation, data collection, and evaluation. Nursing staff were responsible for rooming the veteran and performing intake procedures for an annual exam. The provider used the veteran's completed provider prompt to facilitate a conversation about HIV and PrEP. The pharmacist assisted with patient education, adherence support, and monitoring. The leadership team ensured resource allocation and sustainment of practice changes beyond the project period.

Quality Improvement Framework

This project will use the Institute for Healthcare Improvement [IHI] (n.d.) Model for Improvement as its guiding framework. The IHI model provides a systematic approach for implementing and evaluating change through iterative cycles of planning, testing, studying, and refining interventions. This model is particularly suited for clinical environments such as the VA, where multidisciplinary collaboration and data-driven adjustments are key to sustainable improvement.

The Model for Improvement centers on three key questions: (1) What are we trying to accomplish? (2) How will we know a change is an improvement? (3) What changes can we make that will result in improvement? These questions are addressed in the project's SMARTIE goals and implementation plan. The overall aim is to increase the identification of patients at increased risk for HIV and the number of PrEP prescriptions in the clinic over six weeks by embedding a structured discussion prompt and providing targeted provider education.

The Plan phase will involve finalizing the Vet-PrEP provider prompt, scheduling staff education sessions, and implementing the provider prompt. The Do phase will include implementing the interventions with provider nurse teams. During the Study phase, provider prompt rates, provider feedback, and prescribing data will be analyzed to assess progress toward goals. The Act phase focused on refining the workflow based on feedback. This continuous cycle supports incremental, evidence-based changes that are feasible within the constraints of the clinical setting.

The IHI framework aligns closely with the VA's emphasis on continuous process improvement and supported the clinic's goal of enhancing preventive care. Additionally, the

framework facilitates team engagement through visible, short-term wins that reinforce motivation and accountability. By integrating the IHI Model for Improvement with evidence-based interventions, this project implements a sustainable process to enhance PrEP prescribing practices. Provider education will address knowledge and confidence gaps, while the Vet-PrEP provider prompt will embed risk identification into existing workflows. The combination of these interventions, guided by structured PDSA cycles, ensured continuous evaluation, staff engagement, and adaptability throughout implementation.

Methods: Intervention and Implementation

Implementation Summary

This six-week quality improvement project will be implemented at a Veterans Affairs (VA) community-based outpatient clinic (CBOC) serving adult veterans and focused on increasing HIV risk screening and PrEP prescribing in primary care. From September to December 2025, the project lead will complete planning, stakeholder engagement, and site approvals, followed by a provider- and staff-led PrEP education session with a brief pre-intervention knowledge test in December 2025. The implementation period will run from early January through mid-February 2026. The intervention will consist of two integrated components: (1) a targeted provider and staff education session on PrEP and (2) implementation of a standardized Vet-PrEP provider prompt embedded into the workflow of annual exams to guide HIV risk discussions.

During implementation, the prompt will be used at annual visits, and providers will complete the form indicating whether the prompt was used, whether HIV testing was offered and ordered, whether PrEP education was provided, and whether the veteran was provider-identified

as at risk for HIV. Forms will be collected from a locked box and entered as de-identified data on a secure VA work computer; aggregate electronic health record (EHR) data (e.g., number of new PrEP prescriptions) will be obtained via standard VA reports and merged into the same de-identified data set. Provider knowledge will be assessed with pre- and post-intervention tests scored as percentage correct to evaluate an anticipated 30% improvement, alongside process measures such as prompt use, HIV testing, and provider identification of veterans at increased risk.

Because this is a minimal-risk QI project using de-identified operational data and maintaining standard clinical care, written patient consent will not be obtained; provider participation in the education session will be part of routine professional development, and completion of the optional knowledge test will be considered implied consent, with all procedures adhering to VA and institutional confidentiality requirements.

Intervention Component 1: Provider and Staff Education

All clinical providers and nursing staff will participate in a 30-minute interactive training session led by the project coordinator during their unpaid lunch. The session focused on PrEP indications, prescribing guidelines, monitoring requirements, and patient counseling. Educational content will reference CDC recommendations and draw on primary care evidence showing that targeted provider education and workflow supports are associated with increased PrEP prescribing (Lumsden et al., 2022). Case scenarios will allow participants to practice risk discussions and decision-making. Attendees will complete a paper pre-test to measure knowledge (target: 30% improvement on post-test), and attendance will be logged (goal: 100%). Educational materials will include a slide deck, quick-reference pocket cards (see Appendix B), and provider

prompt templates for PrEP documentation (see Appendix C). The session will conclude with a discussion on workflow integration and available support resources, including consultation with the clinic pharmacist, who support PrEP initiation and ongoing follow-up for patients identified as PrEP candidates. This collaborative approach is expected to foster shared responsibility among the interdisciplinary team and promote sustainability through peer reinforcement.

Intervention Component 2: Vet-PrEP Provider Prompt

The standardized Vet-PrEP provider prompt will consist of questions aligned with CDC (2021) PrEP indication criteria. The questions address: (1) recent sexually transmitted infections, (2) inconsistent condom use, (3) multiple sexual partners, (4) partner HIV status, and (5) injection drug use. See Appendix C for a copy of the prompt. The prompt was designed for universal use and was administered to all adult patients during their annual exams to reduce stigma and normalize routine discussions about sexual health.

Prompts will be printed on single-page forms and stored in a labeled wall file in each provider room, with additional copies kept at the nursing station. At the start of an annual visit, nursing staff will place one prompt on the exam room clipboard, along with the other intake materials, and hand it to the veteran. During the encounter, the provider reviewed the five previously answered questions with the veteran, using the form as a script to guide the HIV risk-assessment discussion.

The bottom of the form contains check boxes for the following items: education provided (yes/no), HIV test offered (yes/no), HIV test ordered (yes/no), PrEP education provided (yes/no), and the veteran identified as at risk for HIV by the provider (yes/no). No patient names, medical

record numbers, or other identifiers appear on them. At the end of the visit, the provider will complete the form and place it in a locked collection box in each provider's room.

The tool will be paper-based and provider-directed, allowing it to streamline risk-assessment discussions without requiring an EHR build or changes to existing documentation processes. During each PDSA cycle, the project lead will solicit brief feedback from providers and nursing staff on the tool's usability, placement in the room, question wording, and perceived time burden. Modifications, such as clarifying language or adjusting where the forms are stored, will be made between cycles to improve alignment with the clinic workflow.

Resources and Budget

This project will be completed with minimal direct cost. The project lead will volunteer all project coordination. The provider and staff education session was delivered during a regularly scheduled 30-minute unpaid lunch break, so no additional salary, overtime, or backfill costs were incurred. The only material expenses were lockable collection boxes and printing of Vet-PrEP prompts. Four small lock boxes will be purchased for $13.00 each, paid by the project lead, and not billed to the clinic or to veterans. Printing costs for prompts and brief educational materials will be absorbed within routine clinic printing resources and will not exceed a small amount of paper and toner. No incentives, additional staff, or external funding will be required.

Timeline

Plan: Implementation will occur over six weeks, divided into three two-week PDSA cycles. Pre-implementation planning: Before launching PDSA Cycle 1, the team will define aims and measures using SMARTIE goals, confirm the six-week test period, create the Vet-PrEP

provider prompt, develop the PrEP continuing education slide deck and pre-and post-knowledge tests, and prepare stakeholders.

Do: Planning within each PDSA cycle will follow the plan outlined below. At the start of each two-week PDSA cycle, the team will hold a brief planning huddle to review data and feedback from the prior cycle, refine the Vet-PrEP workflow, and adjust education or documentation processes before progressing to the Do phase. During the six-week test, the project lead will deliver the provider and staff PrEP education session, administer the pre-test, place printed prompts in exam rooms, and remind providers to use the prompts with patients during annual visits. When risk is identified, providers will offer HIV testing, provide PrEP education, and initiate prescribing as appropriate. Weekly huddles offered brief opportunities for feedback on how the process worked.

Study: During the six-week implementation period, organized into three two-week PDSA cycles**,** provider prompt and EHR data will be summarized each week to monitor prompt utilization (target ≥ 85%), the proportion of patients identified as at risk by the provider who were offered HIV testing and PrEP education (target ≥ 80%), and changes in provider knowledge from pre- to post-test (target ≥ 30%). These weekly summaries will be plotted on run charts to visualize trends; brief Study and Act discussions will occur at the end of each two-week PDSA cycle to guide iterative adjustments, and a more formal Study and Act phase will occur at the end of the six weeks to determine whether the intervention produced meaningful improvement and to plan subsequent cycles.

Act: Based on these data, the team will decide whether to adopt the process as tested, adapt components (such as prompt wording, storage, or training) for a subsequent PDSA cycle,

or abandon specific elements that were not feasible. If performance goals are met before the full 6-week period, the team could adopt the process at that point and use the remaining meetings to plan for sustainability. When the team chose to adapt the process, the next PDSA cycle will begin with planning and testing the adapted version.

Evaluation and Analysis

Table 1. SMARTIE Goal #1.

SMARTIE Goal Statement: Within 6 weeks, providers will use prompts in at least 85% of annual visits.		
• Collaborate with key stakeholders to integrate the provider prompt into the annual visit workflow. • Conduct a brief in-service for nurses and providers on proper form use and documentation. • Ensure PHI-free printed provider prompts are accessible in exam rooms. • Post visual reminders and provide weekly feedback to encourage compliance.		
Data to be collected	**Method of Collection and who is responsible**	**Planned data analysis**
Number and percentage of annual visits completed utilizing the provider prompt. Numerator: Completed forms Denominator: Annual Visits	Providers will complete PHI-free tallies during annual visits. The project lead will collect and tally data weekly.	However, decisions on keeping, changing, or discarding the process will be made at the end of each 2-week PDSA cycle and revisited at the end of the 6-week implementation period.

Table 2. SMARTIE Goal #2.

<table>
<tr><td colspan="3">SMARTIE Goal Statement: At least 80% of patients who attend annual visits will be offered HIV testing during the six-week implementation period.</td></tr>
<tr><td colspan="3">• Providers will review prompts during the annual visit (see Appendix C).

• Incorporate visual workflows to remind providers to offer testing when risk is identified (see Appendix D).

• Provide standardized patient education materials on PrEP and HIV prevention for distribution during visits (see Appendix E).</td></tr>
<tr><td>Data to be collected</td><td>Method of Collection and who is responsible</td><td>Planned data analysis</td></tr>
<tr><td>Number and percentage of annual visit patients who are offered an HIV test.
Numerator: Annual visits in which an HIV test is documented as offered (Yes)
Denominator: Total number of annual visits during the six-week implementation period</td><td>Providers will indicate Yes/No for “HIV test offered” on the provider prompt form during annual visits.
The project leader will collect the entire provider prompt form and enter counts into a secure tracking spreadsheet.</td><td>Descriptive statistics, counts, percentages, and run chart analysis will be used to determine whether ≥ 80% of annual visits included an HIV test offer over the six-week period.</td></tr>
</table>

Table 3. SMARTIE Goal #3.

<table>
<tr><td colspan="3">SMARTIE Goal Statement: At least 80% of veterans who attend annual visits will receive PrEP education during their visit within the six-week implementation period.</td></tr>
<tr><td colspan="3">Providers will review prompts during the annual visit (see Appendix C).
Incorporate visual workflows to remind providers to offer testing and education when risk is identified (see Appendix D).
Provide standardized patient education materials on PrEP and HIV prevention for distribution during visits (see Appendix E).</td></tr>
<tr><td>Data to be collected</td><td>Method of Collection and who is responsible</td><td>Planned data analysis</td></tr>
<tr><td>Numerator: Veterans who received PrEP education
Denominator: Total number of annual visits</td><td>Providers will indicate Yes/No for “PrEP education provided” on the provider prompt form.
The project leader will collect the whole form weekly to capture both risk status and education provided and will enter data into a tracking spreadsheet.</td><td>Descriptive statistics and run chart analysis will be used to evaluate whether ≥ 80% of at-risk patients identified through the provider prompt received PrEP education during their annual visits across the six-week implementation period.</td></tr>
</table>

Table 4. SMARTIE Goal #4.

<table>
<tr><td colspan="3">SMARTIE Goal Statement: Provider knowledge regarding PrEP prescribing will increase by 30% from baseline within a six-week period</td></tr>
<tr><td colspan="3">Conduct an educational session for providers on PrEP indications, eligibility criteria, and follow-up per current clinical guidelines.
Distribute concise educational handouts (see Appendix E).
Providers will review standardized prompts during the annual visit (see Appendix C).
Incorporate visual workflow prompts to remind providers to offer testing and education when risk is identified (see Appendix D).</td></tr>
<tr><td>Data to be collected</td><td>Method of Collection and who is responsible</td><td>Planned data analysis</td></tr>
<tr><td>Pre- and post-intervention survey results measuring provider knowledge.
Numerator: Mean score of post-test – pre-test
Denominator: Pre-test scores</td><td>A confidential paper, pre-test before provider education, and post-test after completion of the project.

The project lead will enter the deidentified survey results into Excel.</td><td>Provider knowledge will be assessed using a brief multiple-choice questionnaire. Each correct response will be scored as 1 point, summed to a total score, and converted to a percentage (0-100%) for each provider. Percentage changes in mean pre- and post-intervention scores will then be used to determine whether knowledge improved by the targeted 30%.</td></tr>
</table>

Table 5. SMARTIE Goal #5.

SMARTIE Goal Statement: 100% of providers will attend the education session or receive training via a provided PowerPoint.		
• Attendance will be measured using a sign-in sheet. • Training will be conducted during lunch and learn to optimize attendance. • Providers will know well in advance the date and time of the training. • For those who cannot attend a PowerPoint will be provided to them with the required training.		
Data to be collected	**Method of Collection and who is responsible**	**Planned data analysis**
Numerator: Number of eligible providers who attended the PrEP education session Denominator: Total number of eligible providers at the clinic	The project lead will provide a sign-in sheet for attendance recording.	The project lead will review the provider attendance sign-in sheet. Any provider not on the list will receive a PowerPoint regarding PrEP prescribing practices.

Data Collection

The SMARTIE goals and PDSA framework will guide the project evaluation. Weekly data collection will rely on completed Vet-PrEP prompts rather than electronic reports, and these paper-based measures will be used to monitor provider participation, PrEP discussions, and HIV testing outcomes. Process measures will include provider prompt completion rates, training attendance, and improvements in provider knowledge. Outcome measures will include the number of new PrEP prescriptions and the percentage of patients counseled about PrEP. Balancing measures will focus on time added to the intake workflow and staff satisfaction, which will be assessed through brief weekly conversations with key stakeholders. The project

coordinator will collect training and knowledge survey results. Pharmacy data collected from the EHR before and after the project's initiation will be used to verify new PrEP starts. Regular feedback meetings will be held to review findings and inform adjustments.

Data Analysis

The provider prompt will be used to collect data from each visit (see Appendix C). For each visit, the provider will complete the form, indicating whether the prompt was used as intended and whether the prompted conversation resulted in PrEP education, an HIV test being offered and ordered, and PrEP being offered. Quantitative data from the completed prompts, including the number and percentage of visits in which the prompt was used, PrEP education was provided, an HIV test was offered and ordered, and PrEP was offered and prescribed, will be entered into a spreadsheet and analyzed using descriptive statistics (frequencies and percentages). These measures will be displayed in weekly run charts to visualize trends across PDSA cycles. A bar chart with two columns comparing pre- and post-percentage scores will be used to assess the provider’s knowledge. Qualitative data from staff feedback will be reviewed to identify barriers and facilitators. Improvement will be defined by sustained increases, rather than statistical significance, consistent with QI methodology.

Sustainability and Dissemination

Should the project prove fruitful, sustainability would be achieved by embedding the Vet-PrEP provider prompt into the permanent EHR intake template and maintaining educational materials for new staff onboarding. Quarterly spot audits will help monitor compliance, and leadership will receive summary reports. Findings could be shared through internal VA forums.

Safety and Confidentiality

The project adhered to all VA and Montana State University IRB standards. The initiative was reviewed by the VA and will be reviewed by Montana State University to ensure it is classified as QI/non-research, as it will involve implementing evidence-based practices without introducing experimental risk. During the implementation period, data will be collected using the provider prompt. At the end of each eligible visit, the provider will complete the prompt form. Although provider names will be shown on the prompt, no patient names, medical record numbers, or other individually identifiable health information will be recorded on the form. Each exam room will be stocked with adequate copies of the provider prompt.

After each clinic day, the project lead will collect the completed forms from the locked collection box located in each provider room and enter the data into a de-identified spreadsheet on a VA work computer. The spreadsheet will be stored on the secure VA network drive, not on any personal computer or external cloud service. Once data entry is verified, paper forms will be shredded.

Sensitive questions on the Vet-PrEP prompt will be answered privately, using plain, respectful language to minimize patient discomfort. Patients may decline to answer or discuss PrEP. Staff feedback will be anonymized, and all digital records encrypted and destroyed upon p

Conclusion

This QI initiative will provide a structured, feasible plan to increase PrEP prescribing within a rural VA outpatient setting. By combining targeted provider education with a standardized provider prompt, the project will directly address identified barriers, including

provider knowledge gaps, workflow inefficiencies, and stigma. Guided by the IHI Model for Improvement, iterative PDSA cycles will be used to test, refine, and sustain changes over time. Successful implementation is expected to increase identification of patients at risk for HIV, improve provider confidence, and normalize HIV prevention discussions in primary care. Ultimately, this initiative supports the VA's mission of delivering comprehensive, equitable, and preventive healthcare to veterans.

CHAPTER THREE

QUALITY IMPROVEMENT MANUSCRIPT

Contribution of Authors and Co-Authors

Manuscript(s) in Chapter(s) 1, 2, 3, 4

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Contributions: The author identified the clinical issue, reviewed relevant literature, and designed and executed the intervention. The author was responsible for gathering and analyzing all data using descriptive statistical techniques and for preparing the initial draft of the manuscript.

Co-Author: Dr. Ruth Tretter, PhD, RN, LSSGB

Contributions: Provided valuable support and expert guidance throughout the quality improvement process. She was instrumental in finalizing the manuscript, conducting thorough editorial reviews, and identifying and resolving errors and inconsistencies. Additionally, she ensured that the data were presented clearly and accurately throughout the text.

Co-Author: Dr. Julie Alexander-Ruff, Ed.D., MSN, RN, APRN, CPNP-PC, FNAPNAP

Contributions: fulfilled essential second reader duties, conducting an in-depth editorial review and providing recommendations to enhance the manuscript's language, coherence, and overall organization.

Manuscript Information

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Introduction

Clinical Problem

HIV (human immunodeficiency virus) remains a significant public health problem because new infections continue each year and, without treatment, HIV can progress to AIDS (acquired immunodeficiency syndrome), the most advanced stage of disease, with profound immune compromise and risk for life-threatening infections, malignancy, and death (Mayo Clinic, 2024). In 2023, more than 39,000 people were newly diagnosed with HIV in the United States, and 840 people in Montana were living with HIV (Centers for Disease Control and Prevention [CDC], 2025b; Montana Department of Public Health and Human Services [DPHHS], 2023). PrEP substantially reduces HIV acquisition risk when taken as prescribed. The U.S. Preventive Services Task Force recommends PrEP for people at increased risk, yet uptake remains below need (Sell et al., 2023). Primary care is central to closing this gap because many patients receive preventive care there, and two-thirds of PrEP prescribers in one national study reported primary care as their specialty (Chan et al., 2020).

Primary care providers report limited familiarity with PrEP, uncertainty about monitoring and follow-up, discomfort with sexual health conversations, and time pressure during routine visits as barriers to prescribing PrEP (Mayer et al., 2020; Nacht et al., 2022; Sell et al., 2023). In a survey of providers in high-burden southeastern jurisdictions, only 36.3% reported recent HIV-related training, and training was associated with greater familiarity with PrEP and prior prescribing (Henny et al., 2019). Stigma and bias further complicate equitable prevention care. Patients may avoid PrEP discussions when they fear the medication will be interpreted as evidence of promiscuity or HIV infection, and clinicians may carry assumptions about who is, or

is not, an appropriate candidate (Hull et al., 2021; Mayer et al., 2020; Nacht et al., 2022). Because PrEP is intended for people who do not have HIV, HIV testing is required before initiation and during follow-up to support safe prescribing and prevent inappropriate use in the setting of undiagnosed infection (Mayer et al., 2020).

These barriers were highly relevant in a rural Veterans Affairs community-based outpatient clinic, where the project team identified inconsistent HIV prevention practices during annual visits. HIV risk assessment, HIV testing offers, and patient PrEP education varied across providers, and no standardized workflow existed to support routine prevention conversations. Stakeholder interviews and a fishbone analysis identified several local barriers, including limited provider comfort with sexual health discussions, stigma and privacy concerns during sensitive conversations, documentation and tracking challenges, the absence of electronic health record prompts or order sets, and lack of a clear workflow for follow-through. Pharmacy-generated baseline data also showed that only two veterans had active PrEP prescriptions before implementation. In response, the project team tested a pragmatic workflow that paired provider education with a five-question assessment prompt to support more consistent, patient-centered HIV prevention discussions during annual visits.

Review of the Literature

Evidence from primary care and Veterans Affairs settings suggests that provider education is most effective when paired with practical workflow supports. Gregg et al. (2020) described a Veterans Affairs quality improvement project in which staff education, pocket protocols, electronic health record tools, and workflow mapping were used together to strengthen PrEP delivery in a homeless primary care clinic. Lumsden et al. (2022) similarly reported that

targeted provider education combined with detailed electronic health record templates was associated with growth in both the number of patients receiving new PrEP prescriptions and the number of primary care clinicians prescribing PrEP. Falconi-McCahill et al. (2022) also reported improvement after combining provider education with an electronic HIV risk-assessment tool in a federally qualified health center. Taken together, these studies suggest that education alone is rarely sufficient when clinicians lack tools to support assessment, documentation, and workflow integration.

The literature also identifies workflow and implementation barriers that are especially relevant to routine primary care. In a mixed-methods study of PrEP screening and linkage in primary care, Nacht et al. (2022) found barriers clustered around financial concerns, stigma and discomfort, logistical hurdles, and lack of PrEP knowledge. Keizur et al. (2022) showed that an electronic health record best-practice advisory could identify eligible patients, yet provider acknowledgment of the advisory and initiation of PrEP remained low, which suggested that prompts alone do not resolve workflow and confidence barriers. Coleman et al. (2021) found that, among clinics not currently providing PrEP, those with concomitant primary care services were more likely to report adequate staffing and financial resources for implementation than clinics without primary care services, underscoring the importance of local infrastructure and team capacity.

Stigma, bias, and low prescribing confidence remain important barriers even when clinical recommendations are clear. Mayer et al. (2020) described social, structural, financial, and clinical barriers that limit PrEP uptake in the United States, including low awareness, low perceived risk, stigma, distrust, and access challenges. Sell et al. (2023) found that late-adopting

primary care providers in rural and suburban practice reported low prescribing rates despite generally favorable attitudes toward PrEP, and participants identified electronic medical record order sets as a useful facilitator. Hull et al. (2021) demonstrated that provider attitudes can influence whether PrEP is discussed and prescribed equitably. Overall, the literature supports a practice change strategy that combines provider education with a workflow-integrated tool to make HIV prevention discussions more consistent, more feasible, and less dependent on individual provider discretion.

Conceptual Framework

The Institute for Healthcare Improvement Model for Improvement guided the planning, implementation, and evaluation of this quality improvement project (IHI, n.d.). The model was selected because it offers a practical method for improving clinical processes through clear aim setting, measurement, and iterative testing of change. Rather than introducing change all at once, the framework supports small, purposeful adjustments that can be tested in real clinical settings and refined over time.

The project team used the model's three guiding questions to structure the work. First, the team clarified the aim by focusing on improvement in the consistency of HIV prevention practices during annual visits. Second, the team identified how improvement would be measured by selecting process, outcome, and educational measures related to prompt utilization, HIV testing offers, patient PrEP education, provider participation, and provider knowledge. Third, the team selected the changes most likely to improve performance in the local setting, specifically provider education and a standardized five-question HIV risk assessment prompt embedded in the annual visit workflow.

After establishing the aim, measures, and proposed changes, the team used three Plan-Do-Study-Act cycles during the six-week implementation period to test the intervention, review early performance data, gather stakeholder feedback, and guide refinement. In this way, the Model for Improvement provided a systematic, team-based framework for moving from recognition of the practice gap to structured testing of a workflow-based solution within routine primary care.

Purpose and Aims

The purpose of this project was to improve HIV prevention practices in primary care by strengthening processes for identifying patients who might benefit from PrEP and by promoting more consistent HIV testing offers, patient education, and provider follow-through during attended annual visits. The overall aims were to improve the consistency of HIV prevention practices and to assess change in provider knowledge regarding PrEP prescribing across the six-week implementation period. Process metrics were used to evaluate adherence to the new workflow.

Methods

Context

The project was implemented at a Veterans Affairs community-based outpatient primary care clinic serving veterans in a rural region. The clinic provides comprehensive primary care and is staffed by primary care providers, registered nurses who serve as case managers, licensed practical nurses who room veterans, medical support assistants who schedule appointments, and

an on-site clinical pharmacist who provides education and support when needed. Each provider manages a panel of approximately 800 to more than 1,000 veterans. Annual visits were selected as the primary touchpoint for standardized HIV prevention delivery because they offered a routine opportunity to address preventive care needs.

Before implementation, there was no standardized clinic process for HIV risk screening during annual visits. HIV prevention discussions were usually initiated only if a patient raised the topic, and practices varied across providers. One provider routinely incorporated sexual health discussions into care, whereas others described limited visit time and the absence of a formal screening process as barriers to discussing HIV prevention. As a result, opportunities to identify patients who might benefit from HIV testing or PrEP were not addressed consistently during routine annual care.

Pre-implementation pharmacy records showed that only two veterans had active PrEP prescriptions at baseline. To better understand barriers to PrEP prescribing and HIV prevention delivery, the project team conducted stakeholder interviews and completed a fishbone analysis. The analysis identified contributing factors across people, environment, measurement, process, education, and technology domains. Specific local barriers included gaps in provider preparation, inconsistent workflows, the absence of electronic health record prompts and order sets, discomfort with sexual health discussions, limited documentation and tracking processes, and stigma surrounding HIV prevention conversations. These findings supported the development of a structured, team-based intervention to improve the consistency of HIV prevention practices during annual visits.

Intervention / Practice Change

The intervention combined targeted staff education with a standardized five-question prompt integrated into the annual visit workflow. Prior to implementation, the project lead delivered a 30-minute interactive, PowerPoint-based education session to providers, licensed practical nurses, registered nurses, and clinic managers. The session addressed PrEP indications, laboratory considerations, counseling points, staff roles, and practical steps for initiating PrEP in primary care. Case scenarios were used to rehearse risk discussions and decision-making. Materials included the training slide deck, quick-reference pocket cards, provider documentation templates, and the CDC PrEP 101 patient handout (CDC, 2024b). A clinical pharmacist was available for consultation and follow-up support. The educational content was informed by CDC clinical guidance and prior primary care implementation studies that emphasize the value of workflow supports alongside provider education (CDC, 2024a; Gregg et al., 2020; Lumsden et al., 2022).

The project lead developed a five-question prompt using CDC guidance for sexual history-taking and content relevant to HIV prevention and PrEP discussions, then adapted the tool to fit the local clinic workflow (CDC, 2024a). Nurse practitioner colleagues reviewed the draft prompt before implementation to improve clarity, clinical relevance, and fit with routine practice. The wording was revised to plain language at approximately a fifth-grade reading level to improve readability for veterans with varying health literacy. The prompt was designed as a workflow support tool rather than a validated screening instrument. Its purpose was to provide a practical structure for HIV risk assessment, support more consistent HIV prevention discussions, guide HIV testing offers, identify veterans who might be at increased risk for HIV, and

standardize project-related tracking during annual visits. Patient education during visits was reinforced with the CDC PrEP 101 handout (CDC, 2024b).

The intervention was used during annual visits. After the veteran was roomed in a private exam room, the licensed practical nurse briefly introduced the project and explained the prompt. If the veteran agreed to participate, the licensed practical nurse provided the paper form for completion. If the veteran declined participation, the licensed practical nurse marked the form as declined and placed it in a secure collection location for later review by the project lead. During the provider encounter, the provider reviewed the completed prompt with the veteran and used the responses to guide the discussion of HIV prevention needs. At the bottom of the form, the provider documented whether the Veteran was identified as being at increased risk for HIV, whether HIV testing was offered, whether HIV testing was ordered, whether PrEP education was provided, and whether PrEP was prescribed. After the visit, completed forms were placed in a secure collection location for review by the project lead.

Stakeholder engagement continued throughout the six-week implementation period through routine huddles and end-of-day check-ins. These touchpoints were used to identify barriers, reinforce workflow expectations, and support consistent use of the intervention. After Week 6, the project lead and clinic stakeholders conducted a post-implementation debrief to review run chart findings, discuss implementation experiences, and identify actions to support sustainment.

Workflow and Roles

The standard clinic intake process remained in place, with a project-specific step added during rooming. Licensed practical nurses introduced the prompt, distributed the form, and

documented declinations. Providers reviewed the form with participating veterans, conducted HIV prevention discussions, and documented follow-through related to testing, education, and prescribing. The on-site pharmacist supported education and follow-up when needed. This division of responsibilities allowed the project to fit the existing annual visit workflow while distributing the work across the care team rather than relying on the provider alone.

Measures

Measures were assessed weekly during the six-week implementation period. The project included process, outcome, and educational measures to evaluate adherence to the new workflow and its effect on HIV prevention practices during attended annual visits. The process measure was prompt utilization, with a goal of at least 85% of attended annual visits. Prompt utilization was calculated as the number of attended annual visits in which the prompt was offered divided by the total number of attended annual visits in the same week. Attended annual visits excluded no-shows and cancellations. Prompt use included visits in which veterans declined questions or declined further discussion because the measure reflected workflow adherence rather than patient acceptance. Patient declinations were also tracked descriptively as a contextual balancing measure because willingness to participate could influence downstream education and testing rates.

Outcome measures included HIV testing offers and patient PrEP education delivery. The HIV testing offer rate, with a project goal of at least 80% of attended annual visits, was calculated as the number of attended annual visits in which HIV testing was offered divided by the total number of attended annual visits in the same week. This measure was selected because

offering HIV testing was an important component of the intervention, reflecting an immediate prevention action during the visit.

The patient PrEP education delivery rate, also targeted at 80% of attended annual visits, was calculated as the number of attended annual visits in which PrEP education was delivered and documented on the project workflow tool, divided by the total number of attended annual visits in the same week. This measure reflected whether the intervention supported more consistent prevention counseling during routine care.

Educational measures included provider participation in training and provider knowledge. The provider education participation goal was 100%. Participation was defined as attendance at the live education session, although a PowerPoint version of the training was available as a contingency for staff who could not attend. Provider knowledge was assessed using a project-developed 20-question multiple-choice assessment administered immediately after the education session and again at the end of the six-week implementation period, with a project goal of a 30% improvement from the initial post-education score. The assessment measured understanding of PrEP indications, baseline and follow-up laboratory considerations, counseling points, and practical steps for initiating PrEP in primary care. The project lead developed the assessment items to align with the educational content, local practice goals, and evidence-based materials used to develop the intervention, including CDC guidance for taking a sexual history and the CDC PrEP 101 educational sheet (CDC, 2024a, 2024b). Formal psychometric testing was not performed because the instrument was developed for local quality improvement.

Data completeness and accuracy were assessed through the project lead's weekly review of the project workflow forms. Completed and declined forms were collected in a secure location

and reviewed to verify documentation of participation status and provider follow-through fields. Weekly counts were compared with the number of attended annual visits to support accurate denominator calculation, and data were entered into the project tracking process for weekly analysis. Aggregate electronic health record data from standard Veterans Affairs reports were also reviewed to support local monitoring of PrEP prescribing activity. Attendance at the education session was tracked separately, and provider knowledge scores were summarized as mean percent correct.

Analysis

Project data were summarized using descriptive statistics. Weekly process and outcome measures, including prompt utilization, HIV testing offers, and patient PrEP education delivery, were summarized using frequencies and percentages. Provider education outcomes were summarized by attendance frequency, and provider knowledge was summarized by mean percent correct on the initial post-education assessment and the end-of-project follow-up assessment. Weekly numerator and denominator values were verified against the number of annual visits attended to ensure alignment and to avoid rate inflation related to no-shows or cancellations. Data management and descriptive summaries were completed in Excel, and summary statistics were reviewed in Intellectus Statistics (2019).

Run charts displaying weekly performance for each project aim used the median as the center line to visualize variation over time. Weekly performance was interpreted descriptively in relation to predefined goal thresholds, timing of implementation changes, and patterns observed across the three Plan-Do-Study-Act cycles. Quantitative findings were reviewed alongside qualitative feedback from routine huddles, end-of-day check-ins, and stakeholder discussions to

help explain week-to-week variation and interpret whether observed changes corresponded with workflow modifications introduced during implementation.

Ethical Considerations

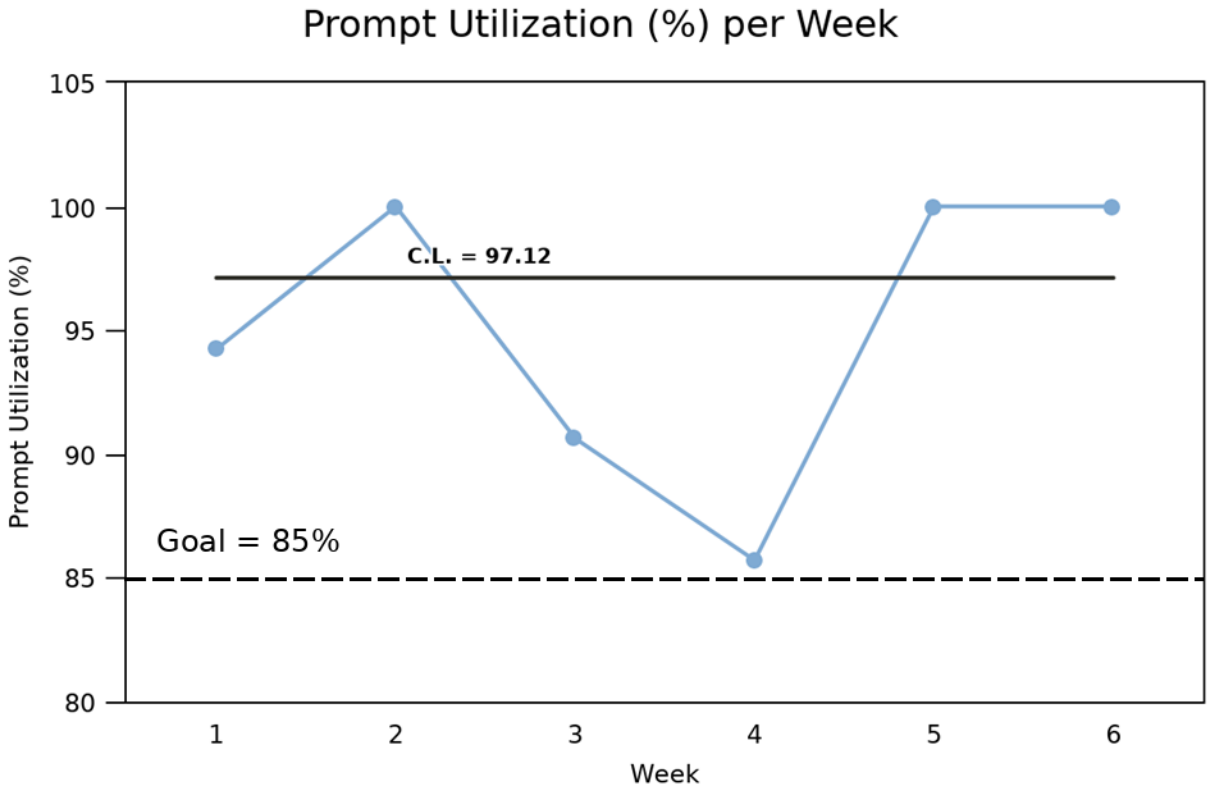
This project was a minimal-risk quality improvement initiative using de-identified operational data while maintaining standard clinical care. Montana State University's Institutional Review Board determined that the work met criteria for quality improvement rather than human subjects research (Reference No. 2478). Prior to implementation, approval from Montana Veterans Affairs executive leadership was also obtained through internal review processes confirming the project as quality improvement. No individually identifiable patient information was collected for analysis. Formal written informed consent was not obtained from patients because the project used routine clinical workflow and did not alter standard care. Provider participation in project-related education and the optional knowledge assessment was voluntary, and completion of the assessment was treated as implied consent.

Results

During the six-week implementation period, 206 attendees at annual visits were eligible for analysis. Among visits in which the prompt was offered, 96 veterans completed the prompt, and 110 declined to participate. Those declinations did not prevent measurement of workflow adherence because prompt utilization was defined by whether the prompt was offered, not by whether a veteran completed every item. Prompt utilization met the project target throughout implementation, ranging from 85.7% to 100.0% each week, with a median of 97.1%, and met the 85% goal in all six weeks. Early feedback from huddles and end-of-day check-ins suggested that

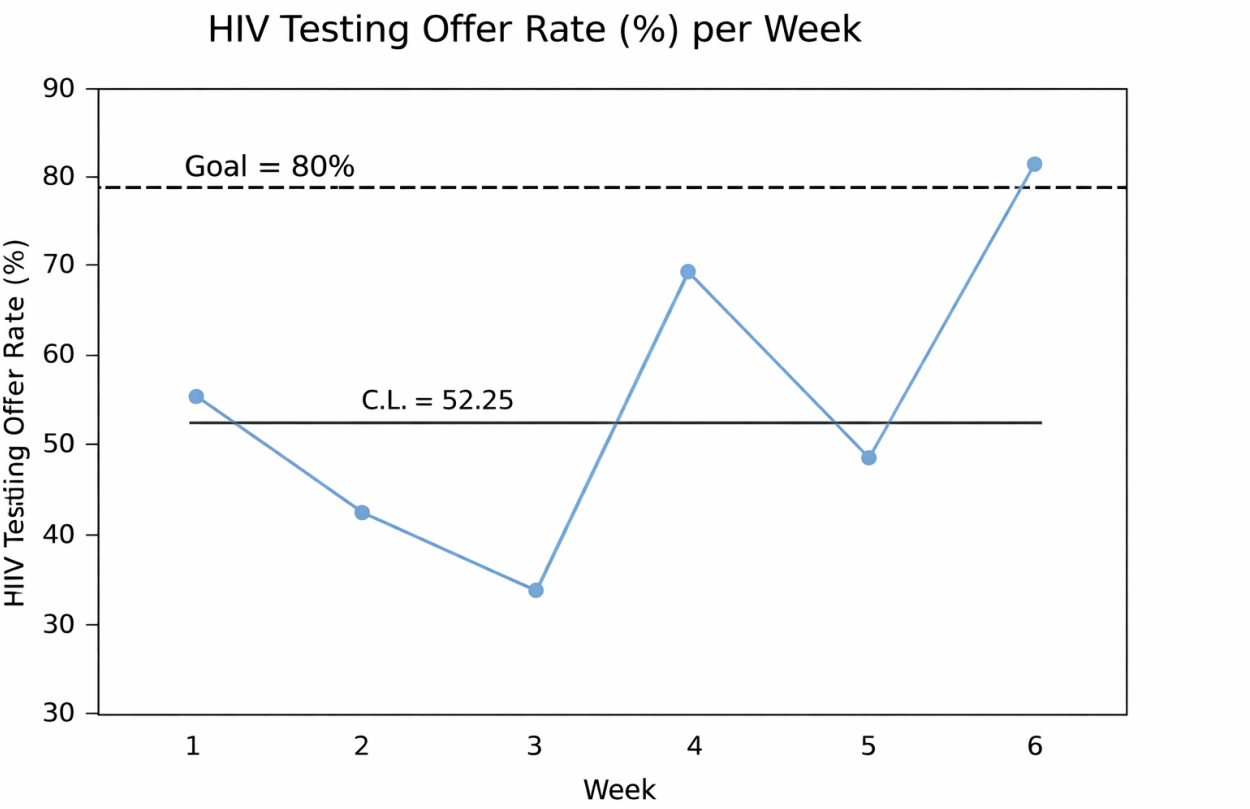
staff found the workflow feasible and that integrating the prompt into annual visits did not overtly disrupt routine clinic operations.

Figure 2. Prompt Utilization During the Six-Week Implementation Period.
Note: The center line represents the median weekly prompt utilization rate across the six-week implementation period. The horizontal reference line indicates the target utilization rate of 85%.



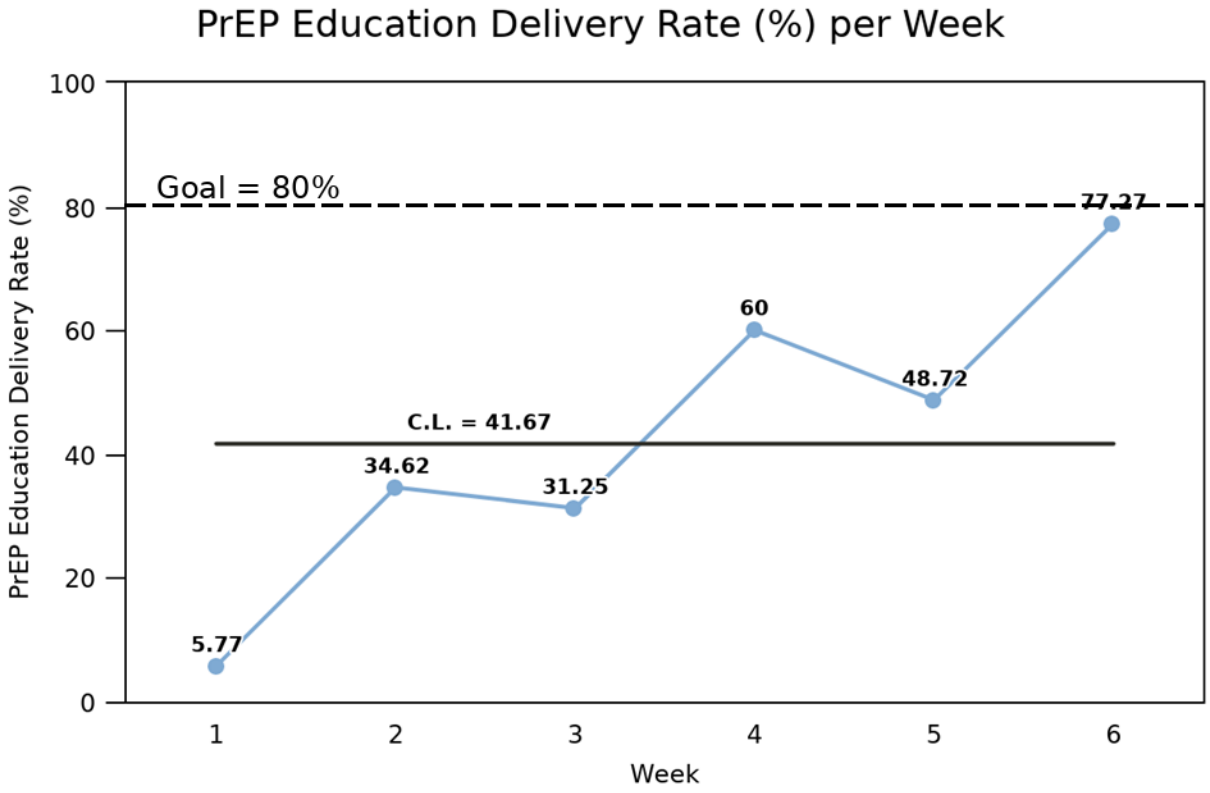
HIV testing offer rates improved over time, although performance varied across the implementation period. Weekly offer rates ranged from 34.4% to 81.8%, with a median of 52.3%. During the second Plan-Do-Study-Act cycle, specifically in Week 4, the HIV testing offer workflow was clarified so that HIV testing was offered to any Veteran who completed the form, because one prompt item asked whether the Veteran wished to have an HIV test that day. After this clarification, documentation and follow-through improved, and the 80% goal was reached in Week 6.

Figure 3. HIV Testing Offer Rates During the Six-Week Implementation Period.
Note: The center line represents the median weekly HIV testing offer rate. The horizontal reference line indicates the project target of 80%.



PrEP education delivery also improved during the six-week implementation period, but did not meet the 80% target. Weekly rates increased from 5.8% in Week 1 to 77.3% in Week 6. Early stakeholder feedback indicated that PrEP education was not being delivered consistently to all participating veterans. After the first Plan-Do-Study-Act cycle, the workflow was revised so that PrEP education was offered to all veterans who participated in the project. Education delivery increased after this change, which suggested that the clarification improved consistency, even though the threshold was not reached during the short implementation period.

Figure 4. PrEP Education Delivery Rates During the Six-Week Implementation Period.
Note: The center line represents the median weekly PrEP education delivery rate.



Provider education participation goals were met. All four providers attended the in-person training session. Providers completed the project-developed 20-question knowledge assessment immediately after the education session and again at the end of the implementation period. Mean scores were 96% on both assessments, indicating stable knowledge over the project period rather than a measurable gain.

No major unintended consequences or workflow failures were identified during implementation. Although some veterans declined participation or declined to answer selected questions, the workflow remained usable and trackable at the visit level. Routine stakeholder

feedback remained generally positive, indicating that the intervention was acceptable to staff and workable within the annual visit structure.

Discussion

The main findings of this project were high prompt utilization across all six weeks, improvement in HIV testing offers and patient PrEP education over time, and no measurable change in provider knowledge scores. Collectively, these findings suggest that the intervention fit the clinic workflow and was acceptable to the care team. The project also created a more consistent opportunity for HIV prevention discussion during annual visits, clarified staff roles, and reduced reliance on individual provider discretion. This pattern is consistent with prior reports showing that PrEP delivery in primary care is more feasible when structured tools, documentation supports, and clear workflows are paired with provider education (Gregg et al., 2020; Lumsden et al., 2022).

HIV testing offers improved over time and reached the target in the final week of implementation. The Week 4 clarification that linked the HIV testing offer definition to the prompt item about testing likely improved both documentation reliability and staff understanding of the expected workflow. Even so, early variation in HIV testing suggests that competing visit priorities, discomfort with sexual health discussions, and limited workflow support still affected follow-through. Published literature describes similar provider-related, workflow-related, and system-level barriers in primary care PrEP implementation (Mayer et al., 2020; Nacht et al., 2022; Sell et al., 2023).

Similar barriers may also have limited the consistency of patient PrEP education. Early feedback indicated that education was not routinely delivered to all participating veterans until

the workflow was clarified during the second Plan-Do-Study-Act cycle. After that change, education delivery improved and approached the project target by Week 6. Prior studies have likewise shown that stigma, logistical barriers, and uncertainty about how to incorporate PrEP into routine care can reduce the consistency of PrEP-related counseling and follow-through, even when patients are screened successfully (Gregg et al., 2020; Mayer et al., 2020; Nacht et al., 2022). Future tests should focus on brief, patient-centered scripting, team-based education delivery, and documentation prompts embedded in the workflow to improve counseling reliability.

Provider knowledge scores remained high on both the immediate post-education and end-of-project follow-up assessments, with mean scores of 96% on both. This finding differs from reports showing gains in provider confidence or prescribing after structured PrEP education and workflow support interventions (Falconi-McCahill et al., 2022; Henny et al., 2019; Lumsden et al., 2022). In the present project, the absence of measurable change likely reflected a ceiling effect, because knowledge among participating providers was already high immediately after training. The project-developed assessment may also have been insufficiently sensitive to detect smaller gains in application-based understanding across a short implementation period. Future projects may benefit from using a more rigorous, scenario-based assessment to better evaluate change over time.

Formal project costs were not measured. The intervention required staff time for education, workflow orientation, prompt distribution, provider review of the form, and pharmacist support when needed, with the project lead reviewing completed forms utilizing volunteered hours. Even so, the material burden was modest, and the workflow was judged

feasible by staff. On balance, the observed gains in workflow consistency appeared to outweigh the limited implementation burden, although a formal cost analysis would be needed to confirm that conclusion.

Limitations

This project was conducted at a single rural Veterans Affairs clinic over a six-week implementation period, which limits transferability to other settings and limits assessment of whether improvements would be sustained over time. The short duration also reduced opportunities for staff to fully normalize the workflow and may have limited the extent of improvement observed in HIV testing offers, PrEP education delivery, and provider knowledge outcomes.

Measures relied on documentation from workflow forms, so rates may underestimate counseling or education that occurred but was not documented. Patient declinations and incomplete documentation may also have influenced PrEP education rates. In addition, provider knowledge results showed a small number of providers and may have been affected by a ceiling effect, limiting the ability to detect change over a short period.

Recommendations

Sustaining standardized prompt use during annual visits should remain a priority, as prompt use remained high throughout implementation and stakeholder feedback indicated the workflow was feasible and acceptable to staff. Future work should focus on supports that improve follow-through in HIV testing offers and PrEP education, including brief counseling scripts, embedded documentation cues, pharmacist consultation, and periodic reinforcement through team huddles or refresher education. These strategies may help make HIV prevention conversations easier to initiate and more consistent during routine visits.

Conclusion

A standardized HIV risk assessment prompt integrated into annual visits was feasible and sustained throughout the six-week implementation period at a rural Veterans Affairs primary care clinic. HIV testing offers and patient PrEP education both improved over time, although additional workflow and documentation supports may be needed to make follow-through more reliable. The project demonstrated that a structured HIV prevention workflow can be incorporated into routine rural primary care and can improve the consistency of prevention practices during annual visits. Given the consequences of untreated HIV, strengthening reliable prevention processes in primary care remains clinically important for veterans, families, and communities.

CHAPTER FOUR

ADVANCED NURSING ESSENTIALS REFLECTION

Introduction

My DNP (Doctor of Nursing Practice) education strengthened how I think, lead, and practice as a nurse practitioner. Throughout coursework and practicum experiences, I learned to translate evidence into workflows that fit real-world clinical constraints, communicate clearly across teams, and stay grounded in patient-centered values while leading change. My culminating scholarly project focused on strengthening HIV prevention in primary care by improving the identification of patients who may benefit from pre-exposure prophylaxis (PrEP).

I designed, implemented, and defended an evidence-based practice change that fit the realities of a busy clinical setting while maintaining a patient-centered approach to care. Two experiences were especially transformational in my DNP journey. First, group work and project development broadened my thinking by requiring me to engage with perspectives I would not have developed independently. That process strengthened the clarity, feasibility, and overall impact of my work. Second, changing my practice site mid-semester strengthened my adaptability as a leader. The transition reminded me that health care is dynamic and that effective leaders must stay grounded in purpose while adjusting strategy in response to new constraints.

This chapter reflects that growth through four AACN Essentials (2021) domains that best represent my development as a nurse practitioner and emerging leader: Domain 3 (Population Health), Domain 6 (Interprofessional Partnerships), Domain 9 (Professionalism), and Domain 10

(Personal, Professional, and Leadership Development) (American Association of Colleges of Nursing [AACN], 2021).

Domain 3: Population Health

Domain 3, Population Health, focuses on improving equitable health outcomes across groups through prevention, disease management, and collaboration with partners across communities and health systems (AACN, 2021). Throughout this program, I learned to broaden my perspective beyond the individual patient encounter and consider how clinical decisions affect outcomes at the population level. DNP coursework in biostatistics, healthcare policy, quality improvement, and organizational leadership collectively strengthened my ability to assess risk, deliver evidence-based preventive counseling, and connect individual clinical encounters to longer-term health outcomes. These courses also helped me recognize that many clinical problems are not only individual concerns but system-level opportunities to improve care for larger groups of patients over time, and provided the analytical and methodological tools to act on that recognition in practice.

In my scholarly project, I focused on HIV prevention, an issue that is inherently population-based. I worked to improve the consistency with which primary care identified patients who might benefit from PrEP and the reliability with which providers delivered structured education and follow-through. By strengthening screening and prevention conversations in routine care, I addressed a gap that contributes to ongoing HIV transmission risk in communities.

Population health also requires attention to equity. Standardizing prevention processes helps reduce variation in care that can result from differences in provider comfort, time pressure,

or inconsistent documentation. When preventive services rely too heavily on individual practice style, patients may experience unequal access to information and interventions. A consistent approach supports fairness by increasing the likelihood that prevention discussions occur when clinically appropriate.

For me, leadership in population health means making prevention actionable for the population I serve. In this project, I focused on veterans in a rural primary care clinic who could benefit from more consistent HIV prevention screening, testing offers, and PrEP education during annual visits. This work strengthened my ability to translate a public health priority into a clinic workflow that could be measured, improved, and sustained. It also helped me see more clearly how changes in routine practice can support broader goals, such as reducing HIV transmission risk and expanding access to prevention for the Veteran population.

Domain 6: Interprofessional Partnerships

Interprofessional partnership means working intentionally with healthcare professionals, patients, families, communities, and other stakeholders to optimize care, improve outcomes, and enhance the healthcare experience (AACN, 2021).

Over the course of the program, I came to appreciate that collaboration is not optional; it is essential for meaningful and sustainable change. Group work consistently challenged my assumptions and strengthened the final product. I became more comfortable integrating different viewpoints into a unified plan and communicating in ways that build trust and shared direction.

My scholarly project required close collaboration with clinic stakeholders to align the intervention with real workflows and staff capacity. I gathered feedback through routine huddles, end-of-day check-ins, and ongoing conversations with licensed practical nurses and providers

during the six-week implementation period. When staff uncertainty emerged about who should receive PrEP education and when HIV testing should be offered, I used that feedback to refine the workflow so that PrEP education was offered to all participating veterans and HIV testing offers were aligned with the prompt question asking whether the veteran wanted an HIV test that day. These adjustments improved clarity, reduced ambiguity in the workflow, and supported stronger progress in HIV testing offers and PrEP education delivery over time. This experience taught me to treat stakeholder feedback as essential implementation data rather than as secondary commentary.

Interprofessional partnership also includes how we engage patients. My APRN (Advanced Practice Registered Nurse) training strengthened my ability to discuss sensitive topics with respect, avoid assumptions, and use person-centered language that supports trust. I demonstrated those skills during my scholarly project by helping implement a workflow that made HIV prevention discussions more routine and less dependent on individual provider comfort, which supported more consistent conversations with veterans about HIV risk, testing, and PrEP. This experience reinforced that strong partnerships in practice are built not only through teamwork among clinicians but also through respectful communication with patients.

I demonstrated leadership by building shared ownership throughout the project. Rather than presenting the intervention as something being done to the clinic, I introduced it through staff education, routine huddles, and ongoing conversations with licensed practical nurses, providers, and clinic leaders so the team understood its purpose and role in implementation. I listened closely to staff feedback during end-of-day check-ins and used that input to refine the workflow, including clarifying when PrEP education should be provided and aligning HIV

testing offers with the prompt question asking whether the veteran wanted an HIV test that day. By responding to concerns in a steady and respectful way, I reduced ambiguity in the workflow and supported improved consistency in HIV testing offers and PrEP education over time.

Domain 9: Professionalism

This domain focuses on cultivating a durable professional nursing identity marked by accountability, professional perspective, a collaborative approach, and behavior consistent with the values of the nursing profession (AACN, 2021). DNP training required accountability in how I planned, communicated, evaluated outcomes, and represented evidence. It also demanded consistent ethical responsibility: protecting confidentiality, representing data accurately, and maintaining respect for the people and systems involved in the work.

My project required professional leadership and rigorous scholarship. In practice, that meant aligning the intervention with evidence-based recommendations, communicating clearly with stakeholders, and tracking outcomes responsibly. It also meant writing with discipline by defining the clinical problem precisely and supporting all claims with appropriate evidence.

I also strengthened professionalism through adaptation while maintaining accountability when my practice site changed mid-semester. That shift became an opportunity to recommit to the project's purpose. I learned that professional identity is most clearly revealed during change and uncertainty; it is maintained through steady values and consistent conduct, not through convenience. Professional leadership requires credibility. I learned that credibility is built through follow-through, respectful communication, and honesty about limitations and barriers. It is also built through how we represent our work, being accurate, avoiding overstatement, and remaining accountable to both the profession and the communities we serve.

Domain 10: Personal, Professional, and Leadership Development

This domain emphasizes engaging in reflective practice and professional activities that promote well-being, resilience, lifelong learning, and the continued development of nursing expertise and leadership (AACN, 2021).

This domain reflects the internal work of developing as a leader, including how I managed competing demands, responded to uncertainty, and continued growing as a clinician and scholar when conditions were less than ideal. Throughout the program, I became more intentional by using timelines, setting interim goals, and breaking large assignments into smaller steps to manage pressure more effectively and remain accountable. When circumstances changed, including a mid-semester transition to a new practice site, I reassessed priorities, adapted my plans, and continued moving forward while keeping patient-centered goals at the core of my work. These actions helped me build greater discipline, adaptability, and confidence in my leadership.

One formative experience during my DNP education was completing a seven-month deployment. That period required steady resilience and deliberate self-management as I maintained academic momentum while continuing to sharpen my clinical reasoning and leadership skills.

Managing shifting day-to-day demands strengthened my ability to prioritize effectively, communicate clearly, and remain anchored in purpose while adapting to real-world constraints. Those skills were translated directly into the planning and implementation of my scholarly project. Rather than viewing disruption as a barrier, I learned to sustain progress through change with greater steadiness, flexibility, and discipline.

Group work throughout the program also supported my leadership development. It challenged me to listen more closely, integrate perspectives I would not have reached independently, and collaborate toward shared outcomes. Together, these experiences reinforced that leadership is shaped less by ideal conditions and more by reflective practice, consistent follow-through, and the ability to move work forward with professionalism and clarity.

Quality Improvement Project Impact

My scholarly project focused on strengthening HIV prevention in primary care by creating a more reliable process for identifying patients who might benefit from PrEP and by supporting consistent education and follow-through. I saw the impact of this work in three areas.

First, it supported prevention-focused care at scale. Improving the consistency of screening and education extends prevention beyond a single visit and aligns primary care practice with broader population health goals (Domain 3). Second, it reinforces team-based implementation. Partnering with the care team and designing the intervention around real workflow demands increases feasibility and strengthens sustainability over time (Domain 6). Third, it advances equity through consistency. Standardizing key steps reduces variation in who receives prevention discussions and helps support more equitable access to evidence-based prevention options (Domain 3). With outcomes now analyzed, the leadership impact is evident. The clinic is better positioned to deliver prevention care in a way that is measurable, repeatable, and more sustainable.

DNP Program Exemplars

Several experiences best reflect my growth during the DNP program. I became more intentional about collaboration. Through group work and stakeholder engagement, I learned to see beyond my own viewpoint, and that broader perspective strengthened the practicality and relevance of my project. I was also shaped by the need to adapt to real-world conditions. Changing practice sites mid-semester and completing a seven-month deployment challenged me in sustained ways, ultimately deepening my resilience, flexibility, and systems thinking.

Over time, I developed a population health mindset that connects what happens in a single clinic visit to prevention outcomes that matter across a population. I also strengthened my professional identity and accountability by learning to lead responsibly, communicate clearly, and present evidence accurately in both scholarship and practice. Taken together, these exemplars reflect my transition from a nurse practitioner leader-in-training to a clinician-scholar prepared to identify gaps, mobilize teams, and implement sustainable improvements in care.

Conclusion

This DNP program experience strengthened my development as a nurse practitioner and emerging leader by deepening my population health perspective, interprofessional collaboration, professionalism, and leadership capacity. More than any single course or deliverable, it helped me see that meaningful change is built through relationships, thoughtful planning, and the willingness to adapt when conditions shift. Most importantly, I learned that leadership is shaped in real time, sustained by a commitment to better outcomes, and marked by professionalism and

resilience in the face of challenges. These lessons will continue to influence my practice and guide my leadership of prevention-focused, patient-centered care moving forward.

REFERENCES CITED

American Association of Colleges of Nursing. (2021). *The Essentials: Core competencies for professional nursing education.* https://www.aacnnursing.org/Portals/0/PDFs/Publications/Essentials-2021.pdf

Babiarz, J., Nix, C. D., Bowden, S., & Roberts, R. (2023). Insufficient preparation: An assessment of primary care prescribing habits and use of pre-exposure prophylaxis in patients at risk of HIV acquisition at a single medical centre. *Sexually Transmitted Infections*, sextrans–2022-055551. https://doi.org/10.1136/sextrans-2022-055551

Centers for Disease Control and Prevention. (2023, October 17). *Expanding PrEP coverage in the United States to achieve the goals*. https://www.cdc.gov/nchhstp/director-letters/expanding-prep-coverage.html#:~:text=At%20a%20glance,the%20U.S.%20(EHE)%20initiative

Centers for Disease Control and Prevention. (2024a, June 26). *Guide to taking a sexual history*. https://www.cdc.gov/sti/hcp/clinical-guidance/taking-a-sexual-history.html

Centers for Disease Control and Prevention. (2024b, March). *PrEP 101* [PDF]. https://www.cdc.gov/HIV/resourcelibrary/infosheets/cdc_HIV_consumer_info_sheet_prep101_2024_508.pdf

Centers for Disease Control and Prevention. (2025a, February 18). *Conversation starters*. https://www.cdc.gov/stopHIVtogether/HIV-prevention/prep.html#:~:text=PrEP%20reduces%20the%20risk%20of,99%25%20when%20taken%20as%20prescribed

Centers for Disease Control and Prevention. (2025b, April 29). *HIV diagnoses, deaths, and prevalence: 2025 update*. https://www.cdc.gov/HIV-data/nhss/HIV-diagnoses-deaths-and-prevalence-2025.html

Chan, S. S., Chappel, A. R., Maddox, K., Hoover, K. W., Huang, Y. A., Zhu, W., Cohen, S. M., Klein, P. W., & De Lew, N. (2020). Pre-exposure prophylaxis for preventing acquisition of HIV: A cross-sectional study of patients, prescribers, uptake, and spending in the United States, 2015–2016. *PLOS Medicine*, *17*(4), e1003072. https://doi.org/10.1371/journal.pmed.1003072

Coleman, C. G., Sales, J. M., Escoffery, C., Piper, K. N., Powell, L., & Sheth, A. N. (2021). Primary care and pre-exposure prophylaxis services in publicly funded family planning clinics in the Southern United States. *Journal of General Internal Medicine*, *36*(10), 2958–2965. https://doi.org/10.1007/s11606-020-06509-3

Falconi-McCahill, A., Lee, A. D., & Knights, J. E. (2022). Evaluation of a pre-exposure prophylaxis (prep) program for HIV prevention in a federally qualified health center (fqhc). *Worldviews on Evidence-Based Nursing*, *19*(3), 219–226. https://doi.org/10.1111/wvn.12577

Gregg, E., Linn, C., Nace, E., Gelberg, L., Cowan, B., & Fulcher, J. A. (2020). Implementation of HIV preexposure prophylaxis in a homeless primary care setting at the Veterans Affairs. *Journal of Primary Care & Community Health*, *11*. https://doi.org/10.1177/2150132720908370

Henny, K. D., Duke, C. C., Geter, A., Gaul, Z., Frazier, C., Peterson, J., Buchacz, K., & Sutton, M. Y. (2019). HIV-related training and correlates of knowledge, HIV screening and prescribing of nPEP and PrEP among primary care providers in southeast United States, 2017. *AIDS and Behavior*, *23*(11), 2926–2935. https://doi.org/10.1007/s10461-019-02545-1

Hull, S. J., Tessema, H., Thuku, J., & Scott, R. K. (2021). Providers PrEP: Identifying primary health care providers' biases as barriers to provision of equitable PrEP services. *JAIDS Journal of Acquired Immune Deficiency Syndromes*, *88*(2), 165–172. https://doi.org/10.1097/qai.0000000000002750

Institute for Healthcare Improvement. (n.d.). *Model for improvement: Testing changes* [White paper]. https://www.ihi.org/library/model-for-improvement/testing-changes

Intellectus Statistics. (2019). Intellectus statistics [Online computer software]. Retrieved from https://analyze.intellectusstatistics.com/

Keddem, S., Broderick, K., Van Epps, P., Roberts, C. B., Chhatre, S., & Beste, L. A. (2024). Brief communication: The cohort of women prescribed HIV prep at the Veterans Health Administration. *AIDS Research and Therapy*, *21*(1). https://doi.org/10.1186/s12981-024-00670-z

Keizur, E., Robinson, E., Sha, B. E., Aziz, M., & Shankaran, S. (2022). Effectiveness of an electronic health record model for HIV pre-exposure prophylaxis. *International Journal of STD & AIDS*, *33*(5), 499–502. https://doi.org/10.1177/09564624221079070

Kessler, R. (2023, October 27). PrEP usage in U.S. hits historic highs, but disparities persist. amfAR, The Foundation for AIDS Research. https://www.amfar.org/news/prep-usage-in-u-s-hits-historic-highs-but-disparities-persist/

Lumsden, J., Dave, A. J., Johnson, C., & Blackmore, C. (2022). Improving access to pre-exposure prophylaxis for HIV prescribing in a primary care setting. *BMJ Open Quality*, *11*, e001749. https://doi.org/10.1136/bmjoq-2021-001749

Mayer, K. H., Agwu, A., & Malebranche, D. (2020). Barriers to the wider use of pre-exposure prophylaxis in the United States: A narrative review. *Advances in Therapy*, *37*(5), 1778–1811. https://doi.org/10.1007/s12325-020-01295-0

Mayo Clinic. (2024, February 9). *HIV/AIDS* Retrieved March 21, 2026, from https://www.mayoclinic.org/diseases-conditions/hiv-aids/symptoms-causes/syc-20373524

McCann, N. C., Davenport, M. J., Mandavia, A. D., Stein, M. D., & Livingston, N. A. (2023). HIV prevalence and HIV screening history among a Veterans Association cohort of people with opioid and alcohol use disorders. *Journal of General Internal Medicine*, *39*(3), 403–410. https://doi.org/10.1007/s11606-023-08452-5

Montana Department of Public Health and Human Services. (2023). *Montana HIV, sexually transmitted infection, and viral hepatitis epidemiological profile, 2023* [PDF]. https://dphhs.mt.gov/assets/publichealth/CDEpi/StatisticsandReports/SurveillanceSnapshots/2023EpiProfile.pdf

Montana Department of Public Health and Human Services [DPHHS]. (2025). *Montana integrated HIV prevention and care plan and the statewide coordinated statement of need* [PDF]. https://dphhs.mt.gov/assets/publichealth/MontanaHIVPreventionandTreatmentIntegratedPlan.pdf

Na, P. J., Petrakis, I. L., Krystal, J. H., & Pietrzak, R. H. (2024). Problem opioid use among U.S. military veterans: Prevalence, correlates, and psychiatric characteristics. *Journal of Addiction Medicine*, *18*(3), 313–318. https://doi.org/10.1097/adm.0000000000001286

Nacht, C. L., Felner, J. K., Muthuramalingam, S., Towner, W., Grant, D. L., Martos, A., Chang, J. M., Hechter, R., & Storholm, E. D. (2022). Barriers and opportunities to improve the implementation of patient screening and linkage to pre-exposure prophylaxis in primary care. *Journal of Clinical Research In HIV AIDS And Prevention*, *4*(2), 15–31. https://doi.org/10.14302/issn.2324-7339.jcrhap-22-4371

Office of Disease Prevention and Health Promotion. (n.d.). *HIV workgroup: Healthy People 2030*. U.S. Department of Health and Human Services. https://odphp.health.gov/healthypeople/about/workgroups/HIV-workgroup

Ohl, M. E., Richardson, K., Rodriguez-Barradas, M. C., Bedimo, R., Marconi, V., Morano, J. P., Jones, M. P., & Vaughan-Sarrazin, M. (2019). Impact of availability of telehealth programs on documented HIV viral suppression: A cluster-randomized program evaluation in the Veterans Health Administration. *Open Forum Infectious Diseases*, *6*(6). https://doi.org/10.1093/ofid/ofz206

Page, M. J., McKenzie, J. E., Bossuyt, P. M., Boutron, I., Hoffmann, T. C., Mulrow, C. D., Shamseer, L., Tetzlaff, J. M., Akl, E. A., Brennan, S. E., Chou, R., Glanville, J., Grimshaw, J. M., Hróbjartsson, A., Lalu, M. M., Li, T., Loder, E. W., Mayo-Wilson, E., McDonald, S., … Moher, D. (2021). The PRISMA 2020 statement: An updated guideline for reporting systematic reviews. *BMJ*, *372*, n71. https://doi.org/10.1136/bmj.n71

Patel, R. R., Hoover, K. W., Lale, A., Cabrales, J., Byrd, K. M., & Kourtis, A. P. (2025). Clinical recommendation for the use of injectable lenacapavir as HIV preexposure prophylaxis — United States, 2025. *MMWR Morbidity and Mortality Weekly Report*, *74*(35), 541–549. https://doi.org/10.15585/mmwr.mm7435a1

Peters, M. D., Godfrey, C. M., Khalil, H., McInerney, P., Parker, D., & Soares, C. (2015). Guidance for conducting systematic scoping reviews. *International Journal of Evidence-Based Healthcare*, *13*(3), 141–146. https://doi.org/10.1097/xeb.0000000000000050

Powder, J. (2022, April 29). *A prescription for prep uptake*. Johns Hopkins Bloomberg School of Public Health. https://publichealth.jhu.edu/2022/a-prescription-for-prep-uptake

Sell, J., Chen, R., Huber, C., Parascando, J., & Nunez, J. (2023). Primary care provider HIV PrEP knowledge, attitudes, and prescribing habits: A cross-sectional survey of late adopters in rural and suburban practice. *Journal of Primary Care & Community Health*, *14*. https://doi.org/10.1177/21501319221147254

Sheinfil, A. Z., Day, G., Walder, A., Hogan, J., Giordano, T. P., Lindsay, J., & Ecker, A. (2023). Rural veterans with HIV and alcohol use disorder receive less video telehealth than urban veterans. *The Journal of Rural Health*, *40*(3), 419–429. https://doi.org/10.1111/jrh.12799

Shrestha, R. K., Davis, N., Coleman, M., Rusie, L. K., & Smith, D. K. (2022). Costs of providing preexposure prophylaxis for HIV prevention at community health centers in the United States. *Public Health Reports®*, *138*(5), 763–770. https://doi.org/10.1177/00333549221133071

Sidders, F. (2023). *Oral-prep-pocket-card-2023_updated-logo.cleaned* [PDF]. https://getsfcba.org/wp-content/uploads/2023/02/Oral-PrEP-Pocket-Card-2023_updated-logo.cleaned.pdf

Pharmacist prescribing authority—exception, Mont. Code Ann. § 37-7-106 (n.d.). Montana Legislature. https://leg.mt.gov/bills/mca/title_0370/chapter_0070/part_0010/section_0060/0370-0070-0010-0060.html

Traylor, D. O., Enriquez, M., Thompson-Robinson, M., Yu, M., Bloom, T., & Bullock, L. (2024). Barriers and facilitators that influence HIV pre-exposure prophylaxis (PrEP)-prescribing behaviors among primary care providers in the southern United States. *Cureus*. https://doi.org/10.7759/cureus.66868

Tuan, L., Pham, L., Khuyen, T., Hao, B., Hoa, N., Vu, K.-D., Lien, T., Duyen, P., Phan, H., Giang, L., Bartels, S. M., & Rutstein, S. E. (2025). Facilitators and barriers to HIV pre-exposure prophylaxis adherence and retention among young men who have sex with men: A meta-ethnographic scoping review. *AIDS and Behavior*, *29*(4), 1075–1088. https://doi.org/10.1007/s10461-024-04582-x

UNAIDS. (n.d.). *Global HIV & AIDS statistics — fact sheet*. https://www.unaids.org/en/resources/fact-sheet

U.S. Preventive Services Task Force. (2023). Preexposure prophylaxis to prevent acquisition of HIV: US Preventive Services Task Force recommendation statement. *JAMA*, *330*(8), 736–745. https://doi.org/10.1001/jama.2023.14461

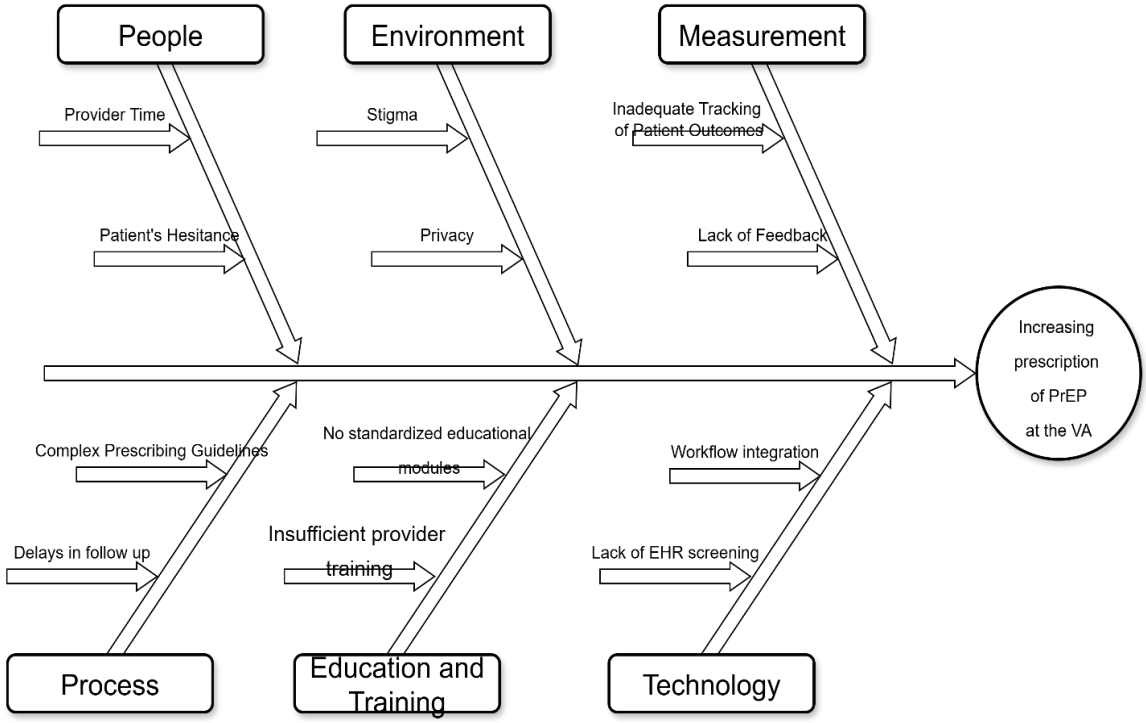
World Health Organization. (2025, July 15). *HIV and AIDS*. https://www.who.int/news-room/fact-sheets/detail/HIV-aids

APPENDICES

APPENDIX A

FISHBONE (ISHIKAWA) DIAGRAM ILLUSTRATING BARRIERS TO PrEP PRESCRIBING IN PRIMARY CARE

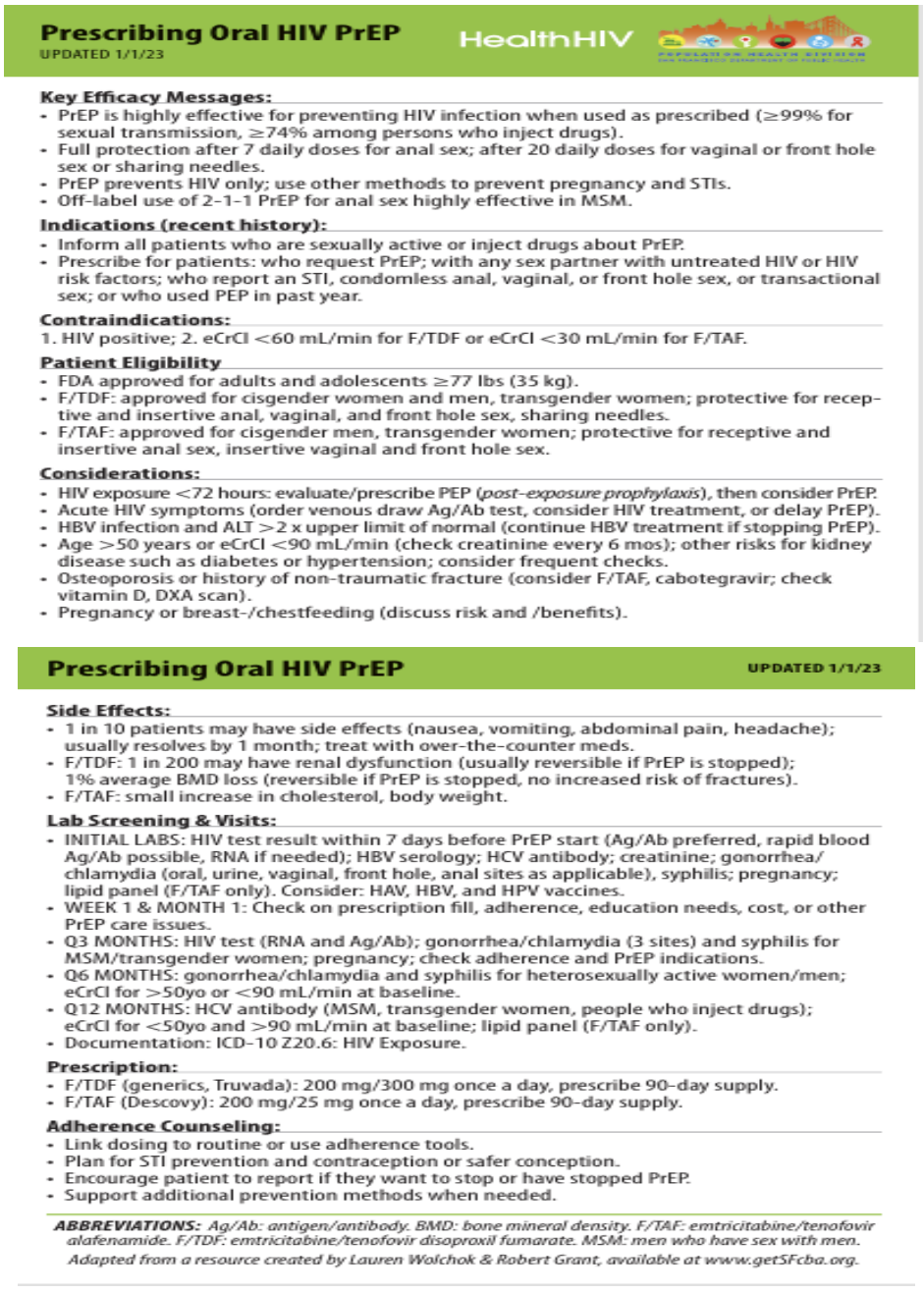
Appendix A. Fishbone Diagram of Barriers to PrEP Prescribing at the Project Site.
Note. Barriers were identified through a site-level needs assessment, stakeholder interviews, and provider feedback. Domains reflect factors contributing to low PrEP prescribing in a rural VA primary care setting. PrEP indication criteria referenced in the assessment are consistent with current clinical guidance (Patel et al., 2025).



APPENDIX B

PRESCRIBING ORAL HIV PrEP POCKET REFERENCE

Appendix B. Prescribing Oral HIV PrEP Pocket Reference Card.
Note. This pocket reference card was used as a quick-reference tool during the provider education session to support PrEP prescribing decisions in primary care. Adapted from *Prescribing Oral HIV PrEP Pocket Reference* (Sidders, 2023).



Prescribing Oral HIV PrEP
UPDATED 1/1/23

HealthHIV

Key Efficacy Messages:
- PrEP is highly effective for preventing HIV infection when used as prescribed (≥99% for sexual transmission, ≥74% among persons who inject drugs).
- Full protection after 7 daily doses for anal sex; after 20 daily doses for vaginal or front hole sex or sharing needles.
- PrEP prevents HIV only; use other methods to prevent pregnancy and STIs.
- Off-label use of 2-1-1 PrEP for anal sex highly effective in MSM.

Indications (recent history):
- Inform all patients who are sexually active or inject drugs about PrEP.
- Prescribe for patients: who request PrEP; with any sex partner with untreated HIV or HIV risk factors; who report an STI, condomless anal, vaginal, or front hole sex, or transactional sex; or who used PEP in past year.

Contraindications:
1. HIV positive; 2. eCrCl <60 mL/min for F/TDF or eCrCl <30 mL/min for F/TAF.

Patient Eligibility
- FDA approved for adults and adolescents ≥77 lbs (35 kg).
- F/TDF: approved for cisgender women and men, transgender women; protective for receptive and insertive anal, vaginal, and front hole sex, sharing needles.
- F/TAF: approved for cisgender men, transgender women; protective for receptive and insertive anal sex, insertive vaginal and front hole sex.

Considerations:
- HIV exposure <72 hours: evaluate/prescribe PEP (*post-exposure prophylaxis*), then consider PrEP.
- Acute HIV symptoms (order venous draw Ag/Ab test, consider HIV treatment, or delay PrEP).
- HBV infection and ALT >2 x upper limit of normal (continue HBV treatment if stopping PrEP).
- Age >50 years or eCrCl <90 mL/min (check creatinine every 6 mos); other risks for kidney disease such as diabetes or hypertension; consider frequent checks.
- Osteoporosis or history of non-traumatic fracture (consider F/TAF, cabotegravir; check vitamin D, DXA scan).
- Pregnancy or breast-/chestfeeding (discuss risk and /benefits).

Prescribing Oral HIV PrEP UPDATED 1/1/23

Side Effects:
- 1 in 10 patients may have side effects (nausea, vomiting, abdominal pain, headache); usually resolves by 1 month; treat with over-the-counter meds.
- F/TDF: 1 in 200 may have renal dysfunction (usually reversible if PrEP is stopped); 1% average BMD loss (reversible if PrEP is stopped, no increased risk of fractures).
- F/TAF: small increase in cholesterol, body weight.

Lab Screening & Visits:
- INITIAL LABS: HIV test result within 7 days before PrEP start (Ag/Ab preferred, rapid blood Ag/Ab possible, RNA if needed); HBV serology; HCV antibody; creatinine; gonorrhea/chlamydia (oral, urine, vaginal, front hole, anal sites as applicable), syphilis; pregnancy; lipid panel (F/TAF only). Consider: HAV, HBV, and HPV vaccines.
- WEEK 1 & MONTH 1: Check on prescription fill, adherence, education needs, cost, or other PrEP care issues.
- Q3 MONTHS: HIV test (RNA and Ag/Ab); gonorrhea/chlamydia (3 sites) and syphilis for MSM/transgender women; pregnancy; check adherence and PrEP indications.
- Q6 MONTHS: gonorrhea/chlamydia and syphilis for heterosexually active women/men; eCrCl for >50yo or <90 mL/min at baseline.
- Q12 MONTHS: HCV antibody (MSM, transgender women, people who inject drugs); eCrCl for <50yo and >90 mL/min at baseline; lipid panel (F/TAF only).
- Documentation: ICD-10 Z20.6: HIV Exposure.

Prescription:
- F/TDF (generics, Truvada): 200 mg/300 mg once a day, prescribe 90-day supply.
- F/TAF (Descovy): 200 mg/25 mg once a day, prescribe 90-day supply.

Adherence Counseling:
- Link dosing to routine or use adherence tools.
- Plan for STI prevention and contraception or safer conception.
- Encourage patient to report if they want to stop or have stopped PrEP.
- Support additional prevention methods when needed.

ABBREVIATIONS: *Ag/Ab: antigen/antibody. BMD: bone mineral density. F/TAF: emtricitabine/tenofovir alafenamide. F/TDF: emtricitabine/tenofovir disoproxil fumarate. MSM: men who have sex with men.*

Adapted from a resource created by Lauren Wolchok & Robert Grant, available at www.getSFcba.org.

APPENDIX C

PROVIDER PROMPT

Appendix C. Vet-PrEP Provider Prompt Form.

Note. This provider prompt was administered during annual exams to guide HIV risk-assessment discussions and identify veterans at increased risk for HIV. The five-item form was developed by the project lead based on PrEP indication criteria consistent with current clinical guidance (Patel et al., 2025).

Vet-PrEP HIV-Risk Provider Prompt DATE: _____

Providers, please utilize the following to discuss the importance of HIV prevention and as a tool to help identify those who may be at risk of developing HIV. (All questions refer to the past 12 months unless otherwise noted).

Section	Items (Check all that apply regarding your sexual health)
Partners	☐ Men ☐ Women ☐ Transgender ☐ Prefer not to say Number of partners (circle): 0 1 2+ Prefer not to say
Practices	☐ Vaginal ☐ Anal receptive ☐ Anal insertive ☐ Oral ☐ Prefer not to say
Protection	Use of condoms: ☐ Always ☐ Mostly ☐ Sometimes ☐ Never ☐ Prefer not to say
Past Sexually Transmitted Diseases	☐ Chlamydia ☐ Gonorrhea ☐ Syphilis ☐ Other/Unsure ☐ None ☐ Prefer not to say
Pregnancy Intentions	☐ Pregnant now ☐ Trying in the next year ☐ Not trying ☐ Not applicable ☐ Prefer not to say
Injection Drug Use Needle Sharing	☐ Yes ☐ No ☐ Prefer not to say
Would you like an HIV test today?	☐ Yes ☐ No ☐ Unsure
Do you have any questions about PrEP?	☐ Yes ☐ No ☐ I'm not sure I know what PrEP is

---

PROVIDER SECTION: Please complete this section and the QI program lead will pick the forms up from you at the end of the day. This is 100% confidential. DO NOT add any personal identifiable information.

Provider: _____

HIV test offered? ☐ Yes ☐ No HIV test ordered? ☐ Yes ☐ No

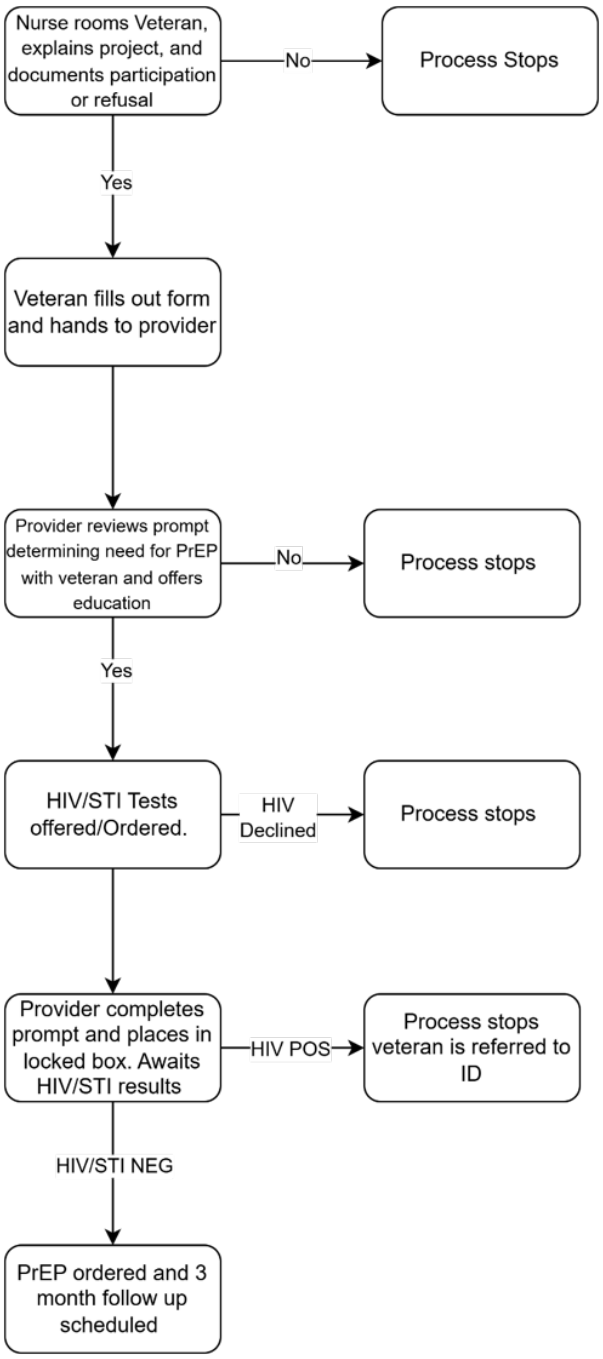
Provided PrEP education? ☐ Yes ☐ No Refused ☐ Provider identified veteran as at risk ☐ Yes ☐ No

Created by Christopher Gleason, MSN, FNP-C, US Army Reserve Captain October 2025

APPENDIX D

VISUAL WORKFLOW

Appendix D. Visual Workflow for Vet-PrEP Provider Prompt Implementation.
Note. This workflow illustrates the step-by-step process for administering the Vet-PrEP provider prompt during annual exams, from patient rooming through provider completion and data collection. The workflow was developed by the project lead to guide nursing staff and providers through the implementation process.

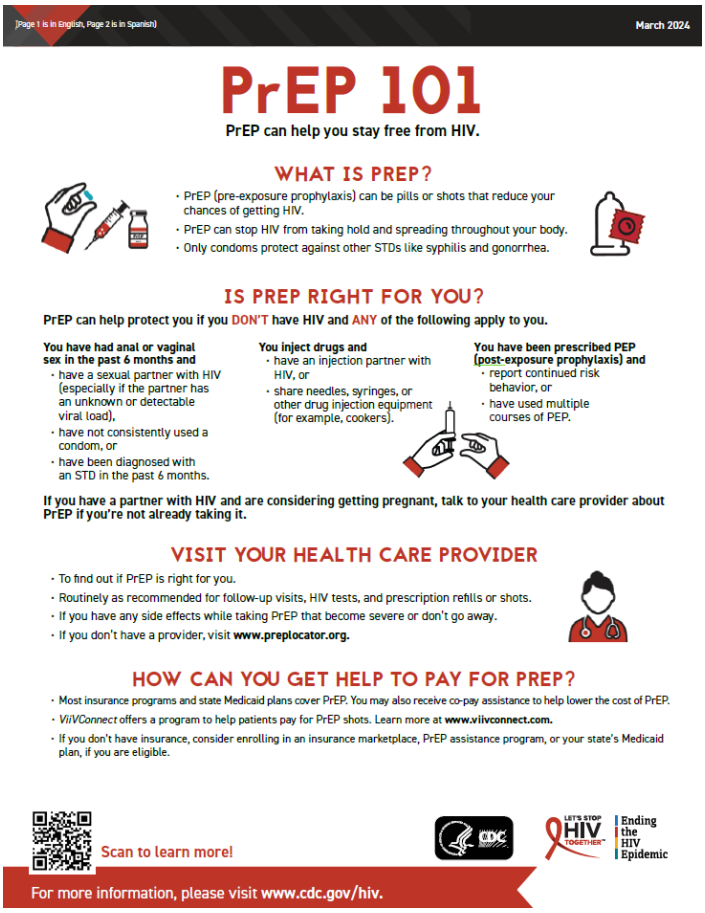


APPENDIX E

PrEP 101 EDUCATIONAL HANDOUT

Appendix E**.** PrEP 101 Educational Handout.

Note. This handout was provided to veterans during clinical encounters to support patient education on HIV prevention and PrEP eligibility. Adapted from *PrEP 101* (Centers for Disease Control and Prevention, 2024b).



[Page 1 is in English, Page 2 is in Spanish) March 2024

PrEP 101

PrEP can help you stay free from HIV.

WHAT IS PREP?

- PrEP (pre-exposure prophylaxis) can be pills or shots that reduce your chances of getting HIV.
- PrEP can stop HIV from taking hold and spreading throughout your body.
- Only condoms protect against other STDs like syphilis and gonorrhea.

IS PREP RIGHT FOR YOU?

PrEP can help protect you if you DON'T have HIV and ANY of the following apply to you.

You have had anal or vaginal sex in the past 6 months and
- have a sexual partner with HIV (especially if the partner has an unknown or detectable viral load),
- have not consistently used a condom, or
- have been diagnosed with an STD in the past 6 months.

You inject drugs and
- have an injection partner with HIV, or
- share needles, syringes, or other drug injection equipment (for example, cookers).

You have been prescribed PEP (post-exposure prophylaxis) and
- report continued risk behavior, or
- have used multiple courses of PEP.

If you have a partner with HIV and are considering getting pregnant, talk to your health care provider about PrEP if you're not already taking it.

VISIT YOUR HEALTH CARE PROVIDER

- To find out if PrEP is right for you.
- Routinely as recommended for follow-up visits, HIV tests, and prescription refills or shots.
- If you have any side effects while taking PrEP that become severe or don't go away.
- If you don't have a provider, visit **www.preplocator.org.**

HOW CAN YOU GET HELP TO PAY FOR PREP?

- Most insurance programs and state Medicaid plans cover PrEP. You may also receive co-pay assistance to help lower the cost of PrEP.
- *ViiVConnect* offers a program to help patients pay for PrEP shots. Learn more at **www.viivconnect.com.**
- If you don't have insurance, consider enrolling in an insurance marketplace, PrEP assistance program, or your state's Medicaid plan, if you are eligible.

Scan to learn more!

Let's Stop HIV Together | Ending the HIV Epidemic

For more information, please visit **www.cdc.gov/hiv.**