

# Implementation of an HIV Pre-exposure Prophylaxis Strategy Into Abortion and Early Pregnancy Loss Care

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**Background:** Family planning and abortion clinics routinely address sexual health. We sought to evaluate implementation outcomes of an HIV pre-exposure prophylaxis (PrEP) care strategy for patients seeking management of induced abortion and pregnancy loss.

**Setting:** Single-center, urban, academic, hospital-based family planning service.

**Methods:** We used a multifaceted implementation strategy directed toward family planning providers comprised of educational sessions, an electronic medical record-prompted verbal assessment of HIV risk, electronic medical record shortcuts for PrEP prescription, and support of a PrEP navigator. We assessed penetration of the intervention by calculating the penetration of a PrEP offer, measured as the proportion of encounters in which PrEP was offered to PrEP-eligible individuals. We evaluated feasibility, acceptability, and appropriateness of the intervention using belief elicitation interviews with providers.

**Results:** From November 2018 to April 2019, the proportion of PrEP eligible patients who were offered PrEP, was 87.9% (29/33). Providers found the intervention acceptable and appropriate, but reported barriers including time constraints, and disappointment if patients did not adhere to PrEP. Providers liked that PrEP provision in abortion care settings felt innovative, and that they could contribute to HIV prevention.

**Conclusion:** Family planning providers in an academic center found HIV risk assessment and PrEP provision to be feasible, acceptable, and appropriate. Further research should evaluate implementation outcomes of PrEP care strategies in additional abortion care contexts, including clinics offering reproductive health care outside of academia.

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**Key Words:** HIV, PrEP, induced abortion, miscarriage, implementation, gynecology, obstetrics

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- **Evidence-based innovation:** Pre-exposure prophylaxis.
- **Innovation recipients:** HIV-negative women seeking induced abortion and early pregnancy loss management.
- **Setting:** Family planning clinic.
- **Implementation gap:** Lack of standardized HIV risk screening and PrEP provision in family planning clinical settings.
- **Primary research goal:** Pilot a multifaceted implementation strategy.
- **Implementation strategies:** Care restructuring (standardized verbal HIV risk assessment contained within provider note templates in the electronic medical record, collaboration with a PrEP navigator, PrEP provision elements templated in EMR) and provider education (dissemination of PrEP care clinical protocols, training on PrEP care, and prescribing).

## INTRODUCTION

The Centers for Disease Control and Prevention (CDC) recommend offering pre-exposure prophylaxis (PrEP) for HIV prevention to at-risk individuals.<sup>1</sup> In 2019, the United States Preventive Services Taskforce provided a grade A recommendation for routine, voluntary screening for HIV for all pregnant women and to offer PrEP to all persons at high risk of HIV.<sup>2</sup>

Risk factors for HIV acquisition in women include recent history of bacterial sexually transmitted infections within the past 6 months, heterosexual condomless intercourse, sexual partner living with HIV, injection drug use, and living within a high HIV prevalence area or network. Clinical locations in which patients seek induced abortion and management of pregnancy loss, such as general gynecology offices, family planning clinics, and freestanding abortion clinics, are places where providers already discuss sexual health, and thus should be ideal locations to bring women into the HIV prevention and PrEP care continuum. However, most gynecology and family planning offices do not have

standardized HIV risk assessment mechanisms, nor do they consistently offer PrEP.<sup>3</sup>

Our study sought to evaluate implementation of an intervention, PrEP screening and provision, to patients seeking care for induced abortion and management of pregnancy loss, in a single family planning clinic. Our intervention involved offering and prescribing same-day PrEP, or referring to an Infectious Disease provider for PrEP start at a later date. The primary objective of this study was to measure the penetration of a PrEP offer, measured as the proportion of encounters in which PrEP was offered to PrEP-eligible individuals. Our secondary objective was to understand providers' perspectives regarding acceptability, appropriateness, and feasibility regarding integration of PrEP and family planning care.<sup>4</sup>

## METHODS

We obtained approval from the University of Pennsylvania Institutional Review Board. We conducted this study in an academic family planning clinic that cares for patients seeking induced abortion, evaluation and management of pregnancy loss, and contraception management. Patients with public, private, and no insurance are regularly seen. Before our intervention, the clinic did not systematically screen for PrEP eligibility and providers had not prescribed PrEP to patients. Our multifaceted implementation strategy, initiated in September 2018, was targeted toward providers caring for patients seeking management of induced abortion and early pregnancy loss. The strategy consisted of care restructuring and provider education<sup>5</sup>: we incorporated a standardized verbal HIV risk assessment, PrEP care clinical protocols, training on PrEP care and prescribing, and collaboration with a PrEP navigator. As part of these procedures, providers were asked to screen all patients seeking pregnancy-related care for HIV risk during initial consults, prompted by an electronic medical record (EMR) script that recommended PrEP counseling and offering if one of the CDC Summary of Guidance for PrEP Use criteria were positive: regular sexual partner who is HIV positive, sexually transmitted disease in the last year, vaginal or anal intercourse without a condom in the last year with at least one person of unknown HIV status, giving or receiving drugs or money in exchange for sex in the last 12 months, and injecting drugs, or reporting condomless sex with a partner who injects drugs in the last year.<sup>1</sup>

Our implementation process involved the following components. If a patient screened as PrEP-eligible after verbal HIV risk screening, clinical protocols recommended that patients were informed and educated about PrEP by their provider, and offered same-day start of PrEP (Fig. 1). Same-day PrEP start involved (1) sending an electronic prescription for emtricitabine 300 mg -tenofovir disoproxil fumarate 200 mg (Truvada), (2) assessing insurance status, (3) printing a co-pay relief coupon for those who did not have insurance coverage, (4) ordering laboratory testing, and (5) contacting a PrEP navigator, who then called the patient to facilitate continued PrEP access and follow-up in the Infectious Diseases department. The EMR prompted HIV risk screening, and steps of same-day PrEP start. Ultimate PrEP eligibility

was determined by verbal screening by a provider, or if this was not completed, by a research coordinator through a patient survey.<sup>6</sup>

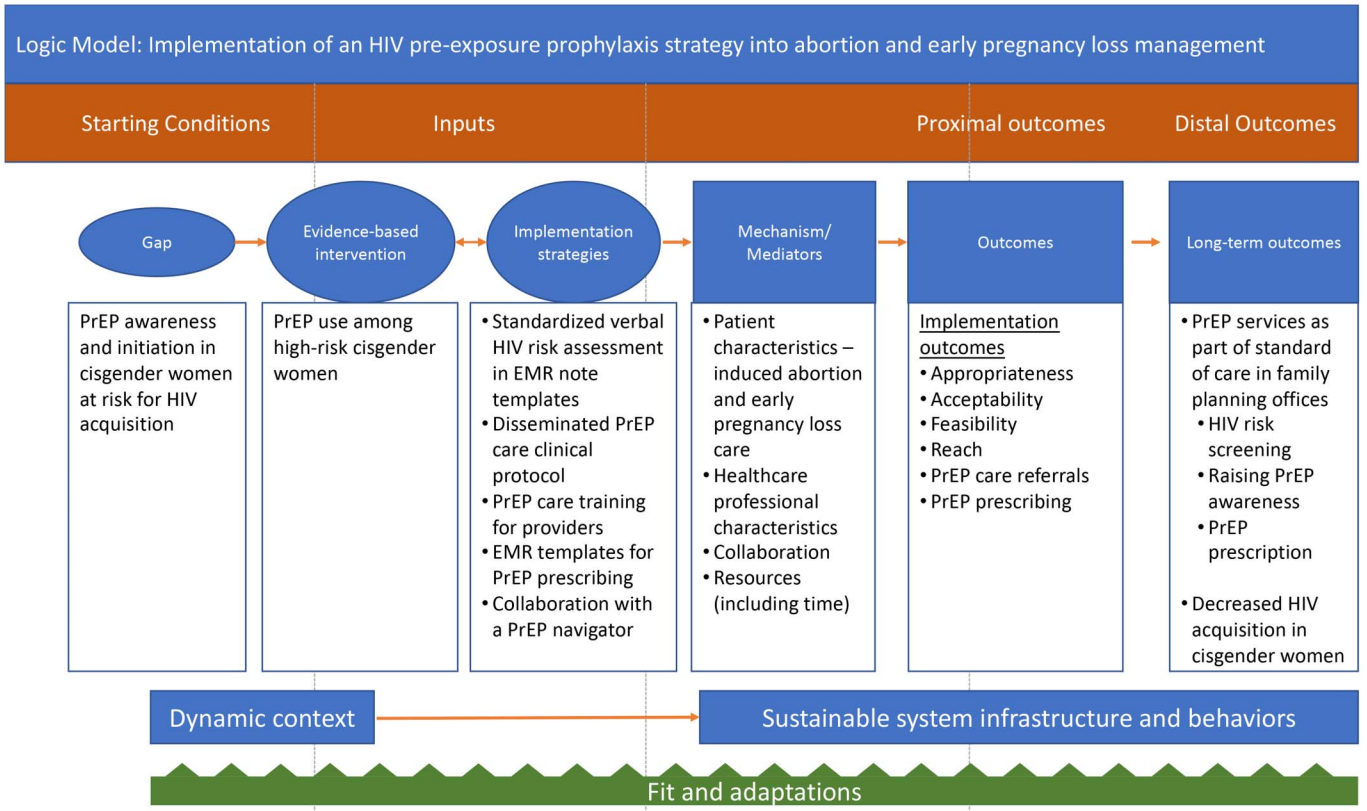
Our primary outcome was penetration of a PrEP offer, measured as the proportion of patients offered PrEP among those who screened eligible for PrEP, based on EMR documentation. We secondarily measured the following outcomes: (1) proportion of patients verbally screened for PrEP eligibility, (2) proportion of PrEP eligible and interested patients prescribed PrEP, (3) proportion of PrEP eligible and interested patients referred to the PrEP navigator. We compared proportions of each of these outcomes in patients seeking abortion, and patients seeking management of early pregnancy loss, using Student *t* test,  $\chi^2$  test, and Fisher exact test as appropriate, and conducted generalized linear regression modeling (GLM) with robust Poisson variance to assess for the effect of covariates.

Patients were seen by 4 attending physicians, a nurse practitioner, 2 family planning fellows, and rotating obstetrics and gynecology residents. At the mid-point of the study, a trained research coordinator conducted brief, private, 9-question, 15-minute face-to-face open-ended belief elicitation interviews of all nonrotating providers in the clinic. Brief elicitation interviews assess the most salient underlying beliefs that motivate a particular behavior.<sup>7</sup> Interviews were transcribed in real time. We created a codebook including the outcomes of feasibility, acceptability, and appropriateness to guide the inductive coding process, and 2 researchers (S.S., C.K.) independently coded the transcripts using a content analysis approach<sup>8</sup>; conflicts were resolved by a third researcher (A.M.T).

## RESULTS

We evaluated 250 encounters on patients from November 2018 to April 2019. Proportion of initial pregnancy-related visits ( $n = 250$ ) in which a provider verbally screened for HIV risk was 87.2%, and differed marginally based on indication for visit in unadjusted analyses (90.8% for induced abortion, 82.8% for early pregnancy loss;  $P = 0.08$ ). GLM modeling adjusting for age, race, ethnicity education, and income did not reveal differences in penetration of screening by visit indication (Table 1). The primary outcome of penetration of a PrEP offer, or the proportion of PrEP eligible patients that were offered PrEP, was 87.9% (29/33). This outcome did not differ based on indication for visit (90% for induced abortion, 84.6% for early pregnancy loss;  $P = 0.86$ ). Overall, 33 (13.2%) patients were eligible for PrEP based on the CDC Summary of Guidance for PrEP Use criteria. Patients did not differ by indication for visit [induced abortion ( $n = 141$ ), management of pregnancy loss ( $n = 109$ )] in their mean age ( $30.1 \pm 5.9$  years), or race/ethnicity (62% Black, 24.8% White, 13.2% Other, 7.6% Hispanic).

We conducted interviews with 6 providers. Common themes are provided below with selected illustrative quotes. Providers predominantly perceived PrEP care was appropriate in family planning settings. A common theme was a feeling of satisfaction for providing a full range of sexual health care.



**FIGURE 1.** Logic model of implementation of an HIV pre-exposure prophylaxis strategy into abortion and early pregnancy care. Implementation research logic model of integration of PrEP care into abortion and pregnancy loss care, showing shared relationships between elements of a PrEP care program.

*“I...like that I was able to provide my patient complete care and potentially save her life by preventing her from acquiring HIV”*—Ob/gyn family planning physician, 5 years in practice

*“I think other providers would approve, overall the nursing staff. I think patients—patients are happy to learn more information.”*—Ob/gyn family planning physician, 6 years in practice

One provider, however, touched on the perceived ancillary nature of PrEP care in family planning:

Providers had mixed sentiments regarding feasibility. In eliciting beliefs about barriers and facilitators, some described worries regarding new workflows and time constraints, mitigated by EMR and patient education implementation strategies.

*“It’s another thing to do, it’s not squarely within the purpose of the patients’ clinical presentation or needs in the moment—why she is seeing me.”*—Ob/gyn family planning physician, 20 years in practice

*“Just time, I think [makes prescribing PrEP difficult]. I would say the way this clinic is set up but having it in the smart phrases [EMR prompts] makes it easier. If I went to a new clinic and those things weren’t set up, it would become a barrier. It makes it easier to have it bundled in that way.”*—Ob/gyn family planning physician, 6 years in practice

In general, providers perceived the intervention was acceptable, and appreciated having access to a tangible solution they could provide.

*“I feel like it’s establishing more of a preventative health strategy within the practice model. We do a lot of talking about prevention in terms of contraception so it’s in line with what we do.”*—Ob/gyn family planning physician, 6 years in practice

Finally, some providers felt dissatisfied that they were not involved in or aware of patient follow-up. Providers felt that their time in clinic may have been wasted if patients chose not to use PrEP, or that PrEP provision would be more rewarding if they were able to continue care.

In eliciting providers’ beliefs about support or lack of support from others, most perceived colleagues and patients would support adoption of PrEP care in these settings:

*“... it can feel less satisfying when you’ve taken the time to explain and prescribe the medication”*

**TABLE 1.** Penetration of the Implementation Strategy

	Overall Penetration of Strategy Components n = 250	Patients Seeking Induced Abortion n = 141 n (%)	Patients With Early Pregnancy Loss n = 109 n (%)	RR (95% CI)	aRR (95% CI)*	P
Verbal HIV risk screening completed				0.91 (0.82–1.01)	0.91 (0.83–1.01)	0.08†
Yes	218 (87.2)	128 (90.8)	90 (82.6)			
No	32 (12.8)	13 (9.2)	19 (17.4)			
Provider offered PrEP to PrEP-eligible patients (n = 33)				0.94 (0.71–1.24)	0.98 (0.77–1.24)	0.86‡
Yes	29 (87.9)	18 (90)	11 (84.6)			
No	4 (12.1)	2 (10)	2 (15.4)			
Provider connected PrEP-interested patient with PrEP navigator (n = 14)				N/A§	N/A	0.45‡
Yes	3 (21.4)	3 (27)	0 (0)			
No	11 (78.6)	8 (73)	3 (100)			
Provider prescribed PrEP to PrEP-interested patients (n = 14)				1.83 (0.57–5.85)	N/A	0.55‡
Yes	6 (42.9)	4 (37)	2 (67)			
No	8 (57.1)	7 (64)	1 (33)			

Penetration is calculated as proportion of encounters in which providers completed elements of the implementation strategy. PrEP eligible patients: Patients who answered at least one screening question in the affirmative, based on CDC Summary of Guidance for PrEP use criteria. PrEP interested patients: PrEP-eligible patients who desired more information about PrEP, for same-day or delayed start.

\*Generalized linear regression model with robust Poisson variance, adjusted for age, race, ethnicity, education, and income.

† $\chi^2$  test.

‡Fisher exact test.

§Effect size estimate is not possible because of 0 cell count.

||Modeling not possible because of small sample size.

*and then you find out that the patient did not follow-up with Infectious Diseases, which is what happened with the patient I prescribed for.”—Ob/gyn family planning physician, 8 years in practice*

**DISCUSSIONS**

In this study of implementation of PrEP care into pregnancy-related family planning care, we found that penetration of a PrEP offer to eligible patients was high, and did not differ by indication for care. We noted a marginally significant higher rate of screening for patients seeking induced abortion compared with those seeking management of early pregnancy loss. Reasons for this are unclear, but may relate to differences in perceived appropriateness of screening by visit indication. Overall, few women screened as PrEP eligible, suggesting that many in this setting were not at risk for HIV, or the screening guidelines are still too narrow, as have been previously identified.<sup>9</sup> Among participants screened verbally by a provider and deemed eligible for PrEP, 88% were offered a prescription, which is encouraging and supports the feasibility of this approach.

Prior research has evaluated the integration of PrEP care into family planning settings. In a 2016 survey of family planning providers, most providers felt that PrEP education was not essential in family planning visits, although most also

felt that HIV education was essential.<sup>3</sup> In a qualitative study of family planning providers, themes emerged that showed that PrEP care can run contrary to other family planning agendas—efficient clinic visits, condom promotion for all, and long-acting reversible contraception promotion—not all of which are applicable for each patient encounter. Providers also conveyed that PrEP required a “much deeper discussion” than other STI prevention.<sup>10</sup> Our implementation strategy seemed to overcome at least some of this provider discomfort in discussing PrEP.<sup>11</sup> In a latent profile analysis, favorable characteristics for PrEP implementation in family planning clinics included clinic leaders supportive of new practices, and resources dedicated to PrEP implementation.<sup>12</sup> Both of these factors were present in our clinical setting. However, overall uptake of PrEP by patients was low in our population, with fewer than half of patients offered PrEP being interested, consistent with prior research on cisgender women outside of family planning care.<sup>13,14</sup> Even in settings where PrEP care is implemented, barriers to PrEP uptake in cisgender women still includes low baseline knowledge and awareness of PrEP,<sup>6,15,16</sup> stigma,<sup>17</sup> and low perception of HIV risk<sup>6,18</sup>; these barriers should be addressed through multilevel interventions.

Strengths of our study include the use of quantitative clinic data and qualitative data gathered from providers, and the relatively large sample size of clinic encounters observed. Our implementation strategy is transferrable, because its

approach was not specifically tailored to our center. Although a PrEP navigator requires ongoing resources and expense, the other components of our strategy do not require long-term investment. The success of our implementation is further highlighted by the fact that visits for abortion and pregnancy loss are time consuming; PrEP care was feasible even during a long visit. Other potential implementation strategies may involve incorporating counseling by nursing staff, arranging on-site PrEP follow-up, and prescription of PrEP by advanced practice providers, who prescribe PrEP at higher rates than physicians.<sup>19</sup>

We were limited by our single site, and thus generalizability may be limited. Our screening questions may have missed patients eligible for PrEP, although we used the CDC Summary of Guidance for PrEP Use criteria, the current CDC criteria that are most inclusive.<sup>9</sup> Appropriateness of screening by family planning visit type (induced abortion, pregnancy loss management, contraception) should be addressed in future research, as should appropriateness of PrEP follow-up care in family planning settings. Finally, although we were able to assess several implementation outcomes, we do not present data on sustainability.<sup>4</sup>

This study has implications for clinicians, patient care, and policy. PrEP care implementation is a part of 2 key strategies in the Initiative to End the HIV Epidemic: diagnosis of all people with HIV as early as possible, and preventing new HIV transmissions.<sup>20</sup> We hope our findings translate to similar models in other locations, and support family planning clinic policies to provide PrEP. Future research should focus on evaluating time tradeoffs of PrEP care integration in family planning, and strategies for dissemination and sustainability of our implementation strategy.

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