



Original research article

Patient recommendations for PrEP information dissemination at family planning clinics in Atlanta, Georgia[☆]

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ABSTRACT

Objective: Family planning (FP) clinics are an ideal setting to disseminate information about pre-exposure prophylaxis (PrEP), but little is known about women's preferences for learning about PrEP in this setting.

Study design: We surveyed 500 women seeking care at 4 FP clinics in Atlanta. Before their provider visit, participants completed an HIV-risk screener. After, we asked participants about the HIV prevention counseling they received and how clinics could share information about PrEP. We performed descriptive analyses on demographics, HIV risk, and PrEP awareness/interest, and conducted thematic analysis on open-ended responses.

Results: Only 18% knew about PrEP before the study; 28% of 376 sexually-active women had ≥1 risk indicator consistent with PrEP eligibility. Three hundred forty seven women (69%) shared suggestions about how clinics should share PrEP information. We categorized suggestions into 4 themes - Advertising, Conversations, Awareness and Access. Participants (n=150) suggested clinics should advertise PrEP via brochures, posters, texts, or emails; 134 wanted providers to talk to patients about PrEP. Several (n=71) suggested sharing PrEP information broadly in the community and with other clinics/providers; others (n=11) wanted improved access to PrEP services.

Conclusions: Our results demonstrate overwhelming patient interest in learning more about PrEP through educational materials and directly from FP providers. Women were vocal about increasing PrEP awareness in the community, particularly among populations especially at risk for HIV (e.g., teens). These suggestions can be translated into actionable steps FP clinics can take to increase PrEP awareness and expand their reach to benefit women at risk for HIV.

Implications: High HIV rates among women in the South make it imperative to increase awareness of PrEP among women. Atlanta women seeking care in FP clinics valued learning about PrEP and recommended feasible strategies for disseminating information about PrEP in community settings, the clinic or during patient-provider discussion.

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1. Introduction

Individuals in the United States (US) have a 1 in 99 chance of being diagnosed with HIV at some point in their life [1]. However, significant geographic disparities are masked in this overall statistic; lifetime HIV risk is greatest for people living in the South, with Georgia ranked 3rd highest for lifetime HIV risk (1 in 51 chance) [1]. Southern states account for over half of new HIV diagnoses despite having only 37% of

the population [2], and of all US women diagnosed with HIV in 2015, 56% of new HIV diagnoses were among women living in the South [3]. Reducing HIV among women, especially in the Southern US, remains a public health priority.

Historically, HIV prevention strategies directed at women have focused on improving condom use and scaling up HIV testing and treatment (i.e., treatment as prevention) as means to deter infection [4]. Though effective, many women are unable to successfully negotiate condom use and are unaware of their partner's HIV risk or treatment adherence [5]. In 2012, the US Food and Drug Administration (FDA) approved the daily oral fixed dose combination of tenofovir disoproxil fumarate and emtricitabine (TDF/FTC), commonly referred to as pre-exposure prophylaxis (PrEP), for HIV prevention [6].

Despite PrEP's demonstrated safety and efficacy among women [7], coupled with its user-controllability, it remains dramatically

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underutilized among women at risk for HIV in the US. While the Centers for Disease Control and Prevention (CDC) estimates that 176,670 US women have indications for PrEP based upon sexual risk [8], its use remains disproportionately low for women when compared to men. Siegler et al. [9] examined US PrEP prescription data for the fourth quarter of 2017 and found that of the 70,395 individuals using PrEP, only 3229 (4.6%) were women; PrEP prescriptions were also lowest in Southern states.

One primary factor contributing to poor PrEP uptake by women is that women do not know about PrEP. According to dissemination and implementation science, the first step in intervention adoption is often to ensure that those who can benefit from the intervention are aware of it [10]. To date, PrEP dissemination efforts in the US have largely focused on raising PrEP awareness and interest among men who have sex with men (MSM) [11]. Since FDA approval of TDF/FTC for PrEP, the limited studies among women have found very low knowledge of PrEP among US women [12–16]. Among 661 women surveyed in New York City (2012–2013), only 12.3% knew about PrEP [12]. A 2016 qualitative study among black and Latina females in the Bronx, New York found that only 26% were aware of PrEP [16], but once informed they expressed enthusiasm for more widespread initiatives to raise PrEP awareness among women. Focus groups with black and Latina women in six US cities, including three cities in the South (Dallas, Atlanta and New Orleans) found that less than 10% had heard of PrEP prior to the study [13]. Uniformly across these studies, once informed about PrEP, women saw it as a favorable HIV prevention method [12–16].

The first step to increasing PrEP uptake among women, particularly women in the South where HIV risk is greatest, is to improve their awareness and knowledge about PrEP. In the absence of direct women-focused social marketing about PrEP, alternative options for increasing PrEP awareness among women in high HIV burden settings are urgently needed. Family planning (FP) clinics are a valuable community resource that disseminate information about sexually transmitted infections (STIs) and HIV, in addition to offering testing and prevention services [17,18]. The US Women & PrEP Working Group position statement and other expert opinion papers have emphasized FP providers and FP clinics as critical contributors to scaling PrEP for women in the US [19–23]. Importantly, women also identified FP clinics as potential venues to learn about PrEP and view FP providers as trusted sources for sexual health information [13]. Therefore, FP clinics are ideal settings in which to disseminate information about PrEP. Previous studies have indicated that both FP providers and patients lack PrEP knowledge but are willing to prescribe and consider taking PrEP, respectively, once informed [24–27]. While strategies for sharing information about STIs, HIV testing, and other FP services have been studied, little is known about women's preferences for learning about PrEP in the context of receiving sexual health care at FP clinics. This study sought to understand female patient preferences for PrEP information dissemination at FP clinics in Metro-Atlanta – a Southern city at the epicenter of the US HIV epidemic.

2. Methods

2.1. Study design

This study is a secondary analysis of a larger PrEP implementation study that took place from February–August 2017 at four FP clinics in Atlanta, Georgia. At the time of the study, no sites were offering/prescribing PrEP. Study sites were a convenience sample. We approached sites for study participation since they were located in high HIV incidence zip codes, historically served large populations of sexually active women, and had varying models of FP care delivery.

The larger implementation study had two parts. Part 1: We offered a 1.5-h PrEP training to staff and providers at each study site. The training was based on CDC PrEP clinical practice guidelines and specifically focused on use of an HIV risk assessment (based on CDC screening

guidance) to identify patients at substantial risk for HIV [28], and information about PrEP efficacy and side effects to facilitate conversations with patients. Part 2: After providers completed the training, we enrolled 500 women (~125 per clinic) at the time of their clinical visits to evaluate the impact of the provider training on the provision of HIV prevention counseling inclusive of discussions about PrEP. Before their provider visit, participants completed the HIV screener as part of their intake paperwork. After their provider visit, participants completed a 10 min face-to-face exit interview to determine the extent to which their provider talked about HIV prevention, interest in PrEP, and suggestions the clinic should share information about PrEP with women. Our present analysis reports on select data from the exit interview in Part 2. We obtained written informed consent from all participants, and the Emory University Institutional Review Board approved the study protocol. Participants received \$20 for their participation.

2.2. Study Participants

Patients were eligible to participate if they were female, 18 years or older, HIV negative, not pregnant, and spoke English. We enrolled 500 women from 637 eligible women invited to participate in the overall study (78%). Of the 500, 347 (69%) additionally shared suggestions about how clinics should share PrEP information. This group comprised the sample for the present analysis. There were no differences in age, race or HIV risk between women who provided suggestions versus those who did not.

2.3. Study Measures

2.3.1. Patient demographics

The HIV screener captured age, race and ethnicity.

2.3.2. HIV risk

The screener assessed patient's recent STI history, sexual activity, partner characteristics, injection drug use, and abuse history. Patients were considered at substantial risk for HIV, thus PrEP eligible, if they reported never or inconsistently using condoms during vaginal or anal sex with a male partner in the last 6 months and also reported any of the following: partner injects drugs or has sex with someone who injects drugs, partner has sex with men, partner is positive or unknown HIV status, and/or experienced verbal, sexual or physical abuse. Participants were also considered at substantial risk if they reported they recently had an STI, injected drugs or exchanged sex for goods.

2.3.3. PrEP awareness and interest

During the exit interview, interviewers asked participants if they had heard of PrEP before their visit (Y/N), if they were interested in learning more about PrEP (Y/N), if they were interested in taking PrEP (Y/N), and if they were interested in being referred to a PrEP clinic (Y/N).

2.3.4. Suggestions for PrEP information dissemination

During the exit interview, interviewers asked participants, “What advice do you have for the clinic about how they could best share information about PrEP with patients?”, and recorded participants' responses (i.e., wrote verbatim what participants stated in reply to this open-ended question). The interviewers did not provide prompts or examples. The research team then entered responses into a database for thematic analysis.

2.4. Analysis

Members of the research team (ALP, IT) performed descriptive analyses on participant demographics, HIV risk, and PrEP awareness and interest. Research team members (JMS, ALP, IT, TM, AS) developed codes and performed thematic analysis (ALP, IT) on responses provided to the open-ended question in the exit interview. All coding was inductive.

Each theme included sub-codes. We counted participants' responses once for each theme/sub-code that applied. For example, if a participant responded that, "physicians should talk about PrEP and the clinic should have PrEP brochures in the waiting room," we counted their response in both the Conversations theme and the Advertising theme. Therefore, the total number of codes applied exceeds the number of participants who responded to the question. Two independent coders (ALP, IT) coded all responses to the open-ended question and discussed disagreements with the full research team until they reached consensus. The present analysis first highlights the descriptive results for participant characteristics, awareness and interest in PrEP. We then present findings from thematic analysis pertaining to participants' suggestions about PrEP dissemination at the clinic, organized by the emergent major themes and their sub-codes.

3. Results

3.1. Participant Characteristics

Participants were ages 18–69 (mean=34, standard deviation=13.07) years; 224 participants (68%) were black or African-American; 35 (12%) identified as Hispanic/Latina. Two hundred forty seven majority (77%) were sexually active and 241 (70%) were in a current sexual relationship with a male partner. Overall, 74 sexually active participants (28%) were considered to be at substantial risk for HIV based upon their answers on the HIV risk assessment screener (See Table 1).

3.2. PrEP Awareness and Interest

Two hundred eighty three (82%) had not heard about PrEP before their clinic visit; 154 participants (44%) discussed PrEP with their provider. After their clinic visit, 206 participants (59%) reported that they would be interested in learning more about PrEP, 92 (27%) reported that they would be interested in taking PrEP, and 69 (20%) reported that they would be interested in making an appointment at the local PrEP clinic.

3.3. Suggestions about PrEP Dissemination

Thematic analysis yielded 4 major themes, with multiple sub-codes within each them, pertaining to PrEP dissemination in FP clinics (See Table 2 for details on sub-codes and participant elicited examples).

Table 1
Participant Characteristics (N=347).

| Participant Characteristics | n (%) |
|---|------------|
| <i>Race</i> | |
| American Indian or Alaskan Native | 8 (2.4) |
| Asian | 11 (3.3) |
| Black or African American | 224 (67.7) |
| White | 83 (25.1) |
| Multiracial | 4 (1.2) |
| Native Hawaiian or Other Pacific Islander | 1 (0.3) |
| <i>Ethnicity</i> | |
| Hispanic or Latina | 35 (11.8) |
| Not Hispanic or Latina | 262 (88.2) |
| <i>Have had vaginal or anal sex with a male partner in the past 6 months.</i> | |
| Yes | 267 (76.9) |
| No | 77 (22.2) |
| <i>In a current or ongoing sexual relationship with a male partner(s).</i> | |
| Yes | 241 (69.5) |
| No | 99 (28.5) |
| <i>Considered to be "at risk" for HIV*</i> | |
| Yes | 74 (27.6) |
| No | 193 (72.3) |

Note: * = denominator is women who were sexually active (n=267).

3.3.1. Advertising

About half of participants (43%) believed that clinics should utilize brochures, posters, phone calls, texts, and/or emails to disseminate information about PrEP. One said, "[Put] posters up so people can see while they wait," and another said, "Have brochure pamphlets around the office to provide patients more exposure."

3.3.2. Conversations

One hundred thirty-four participants (39%) wanted staff/providers to talk to patients about PrEP. Several mentioned topics such as when in the clinic visit these conversations should occur—"Mention it during appointment", the importance of provider-initiated conversations—"Doctor bring it up instead of waiting to be asked by patient", the content of PrEP conversations—"Explain a little bit more about what it does, etc.", and whom PrEP conversations should target—"Give everyone the same information".

3.3.3. Awareness

Seventy-one (20%) participants advised clinics to increase awareness about PrEP, and stressed doing so broadly in the community. One participant said that a way to make people more aware would be to "advertise it more...just like birth control, there's something to prevent HIV". Specific community awareness suggestions included utilizing mass media (e.g., "commercials, since people watch a lot of TV"), providing informational classes and discussions, and targeting LGBT individuals, women, and teenagers (See Table 2).

3.3.4. Access

Eleven participants (3%) discussed the need for greater access to PrEP information and services. One participant noted that there is a real need for "simple and easy access to information about PrEP." Others wanted clinics to connect them with PrEP services by directly providing PrEP to patients or referring patients to places where they can learn more about or receive PrEP, as demonstrated by this participant's statement, "Talk about it more and where it can be offered, especially if people are worried".

4. Discussion

Despite the majority of patients not knowing about PrEP at the beginning of the study, after participating, over half of women wanted to learn more about PrEP. These findings align with past studies of PrEP acceptability among women, in which, once they learned about PrEP, their interest in learning more about or taking PrEP increased [12–16]. Though Collier and colleagues queried women about preferences for messaging about PrEP [16], our study extends this limited literature by soliciting women's suggestions more generally about how clinics can disseminate information about PrEP. Our results demonstrate strong patient interest in learning more about PrEP through educational materials and directly from FP providers. They also view their clinics as important sites for PrEP information dissemination; their suggestions can be translated into actionable steps FP clinics can take to increase PrEP awareness and expand its reach to benefit women at risk for HIV.

4.1. Clinics Can Ensure Their Staff and Providers Talk to Patients about PrEP

Participants saw the value of PrEP as an HIV prevention method and were eager for their providers to share this information with them as part of routine care. Previous research has found that physicians may not always initiate conversations about HIV with their patients because they believe such conversations may make them uncomfortable [29]. However, many participants in our study were comfortable with PrEP conversations being part of their FP care. Several specified they wanted their provider to initiate conversations about PrEP, and one further explained this is because women may be too embarrassed to bring it up. Providers play a key role in women's sexual health decision-making

Table 2
Participant suggestions for disseminating information about PrEP codes and examples.

| Theme 1. Suggestions about Clinic Advertising (n=150) | | |
|--|---------------------|---|
| Advertising Sub-Code ^a | n (%) ^{aa} | Participant Elicited Examples |
| Posters and/or signs about PrEP in the clinic | 37 (24.7) | "Posters up so people can see while they wait. 'PrEP Prevents HIV' slogan." "Put info in the reception area, should have a sign and in the rooms." |
| Brochures, flyers, and/or pamphlets about PrEP in the clinic | 101 (67.3) | "Have brochure pamphlets around the office to provide patients more exposure." "After visit, before patient leaves, give brochure/catalog or leave on table." |
| Phone calls, text messages, and/or emails about PrEP | 11 (7.3) | "Send information to patients via email." "Email or text" |
| A clinic newsletter, magazine, and/or manual about PrEP; a PrEP information representative at the clinic; information about PrEP on the TV in the clinic waiting room. | 7 (4.7) | "Magazines, social media" |
| ^a 21 respondents' responses did not have an advertising sub-code applied. | | |
| ^{aa} The n values in this column reflect the number of participants whose response was captured by the associated Advice Sub-Code. The total n of this column may exceed the total N for "Suggestions about Clinic Advertising" because some responses were captured by more than one Advice Sub-Code. | | |
| Theme 2. Suggestions about Clinic PrEP Conversations (n=134) | | |
| Conversations Sub-Code ^b | n (%) ^{bb} | Participant Elicited Examples |
| Timing of PrEP conversation | 22 (16.4) | "General overview when you come into the clinic" "Mention it during appointment" "Bring it up when doing HIV test, when negative" "Make it part of routine conversation" |
| Provider should initiate conversation about PrEP | 7 (5.2) | "Doctor bring it up instead of waiting to be asked by patient" "Because women may be embarrassed to discuss the [providers] should bring up" |
| Utilization of the HIV Risk Assessment screener during PrEP conversations | 5 (3.7) | "Having a general conversation with patients without having to see the screener" "Talk about it, don't ignore the screener" |
| Target audience should include women, at risk individuals, or all patients, regardless of risk | 13 (9.7) | "Don't assume that they're more or less at risk—give everyone the same information" "Tell who have different partners about it, not so much for those in a relationship" "Just talk with them about it, especially young women" "Explain a little bit more about what it does, etc., including side effects" |
| Content of PrEP conversation | 10 (7.5) | "Short paragraph that they all say to make sure they are all hitting the key points and provide stats on HIV" "Take time to describe how it works" |
| PrEP conversation should be confidential | 1 (0.7) | "Keep confidential between doctor and patient" |
| Providers should make patients comfortable during conversations about PrEP | 4 (3.0) | "Make the person feel more comfortable and open a dialog as opposed to presenting information and go" "They should be more considerate" |
| ^b 74 respondents' responses did not have a conversations sub-code applied. | | |
| ^{bb} The n values in this column reflect the number of participants whose response was captured by the associated Conversations Sub-Code. The total N of this column may exceed the total N for "Suggestions about Clinic PrEP Conversations" because some responses were captured by more than one Conversations Sub-Code. | | |
| Theme 3. Suggestions about Clinic Awareness Efforts (n=71) | | |
| Awareness Sub-Code ^c | n (%) ^{cc} | Participant Elicited Examples |
| Classes and Public Discussions about PrEP | 9 (12.7) | "Advertise it more, classes—just like birth control, there's something to prevent HIV" "Informative events/sessions for the community" "Get more teens involved, more kids" |
| Target audience should include all individuals or specifically LGBT individuals, women, and/or teenagers | 11 (15.5) | "Keep giving information on this, especially to young people" "Would be a good thing for everyone" "LGBT outreach" |
| Awareness efforts should target schools, churches, and/or colleges | 8 (11.3) | "Go to schools and get word out" "Go to schools and churches" |
| Mass media should be utilized (i.e., websites, social media, commercials, billboards) | 40 (56.3) | "Commercials, since people watch a lot of TV" "Media, commercials, social media" "More information on their website" |
| PrEP information should be shared with clinic staff and providers | 6 (8.5) | "The doctors and staff should be more aware of it" "Let all nurses know about it" |
| ^c 6 respondents' responses did not have a sub-code applied. | | |
| ^{cc} The n values in this column reflect the number of participants whose response was captured by the associated Awareness Sub-Code. The total n of this column may exceed the total N for "Suggestions about Clinic Awareness Efforts" because some responses were captured by more than one Awareness Sub-Code. | | |
| Theme 4. Suggestions about How Clinics can Improve PrEP Access (n=11) | | |
| Access Sub-Code ^d | n (%) ^{dd} | Participant Elicited Examples |
| The clinic should provide PrEP to patients | 4 (36.4) | "Give to every woman here" "Offer the medication here" |
| Refer patients to places they can go to learn more about PrEP | 2 (18.2) | "Make things really simple and easy access to information and PrEP" |
| Tell patients where they can go to access PrEP | 2 (18.2) | "Talk about it more and where it can be offered, especially if people are worried" |
| ^d 3 respondents' responses did not have a sub-code applied. | | |
| ^{dd} The n values in this column reflect the number of participants whose response was captured by the associated Access Sub-Code. The total n of this column may exceed the total N for "Advice about Improving PrEP Access" because some responses were captured by more than one Access Sub-Code. | | |

and their recommendation or encouragement can catalyze behavior change [30,31]. While limited research has been conducted about PrEP uptake among women, one study found that over one-third of patients cited their provider's recommendation as the reason they underwent an HIV test [32]. Given participants' feedback about the importance of PrEP conversations in the clinic setting, FP clinics are likely able to increase female PrEP uptake by integrating PrEP education and counseling into routine patient care.

4.2. Clinics Can Utilize HIV Risk Assessment Screeners to Facilitate Conversations about PrEP

Participants also shared advice on whether or not providers should focus on patients considered to be at high risk for HIV (as opposed to discussing PrEP with all patients) and whether or not providers should utilize an HIV risk assessment screener. The U.S. Public Health Services (USPHS) includes administering a risk assessment as part of clinical guidelines to prevent the transmission of HIV and other STIs [28]. Such risk assessments can help providers identify patients who could most benefit from medications such as PrEP. Encouragingly, our findings indicate that the majority of patients who commented on the HIV risk screener had positive feelings towards it, indicating that such a tool can be an effective strategy to guide, but not dominate, conversations about PrEP between patients and providers, and would be well-received if integrated into FP visits.

4.3. Clinic Can Be Sites for Women-focused PrEP Information Dissemination in the Community

To date, MSM have been the main audience for highly visible PrEP awareness campaigns in the US. Even when exposed to PrEP campaigns, women do not identify with them, and often do not associate PrEP as a prevention tool appropriate for women [16]. Only very recently have PrEP campaigns (e.g., "Let's Talk About PrEP - nationwide, PrEP for Her in Washington, DC, or PrEP4Love in Chicago) included messaging directed to or inclusive of women – but the scale of these initiatives are small and have not penetrated much of the Southern US. In the absence of large-scale media campaigns, FP clinics, particularly those in high HIV burden locations, can raise awareness about PrEP through community dissemination. Overwhelmingly, women in our study wanted more information about PrEP and most of the advice pertained to ways to increase awareness in general. FP clinics could consider hosting a workshop or session at community-based women's health events focused on PrEP and women. Alternatively, FP clinics could provide brochures or information sheets/materials about PrEP that are accessible for patients to take, as well as display information about PrEP in their waiting rooms and on their website. Women-focused PrEP information tools have been developed, such as the printed palm card on PrEP [33], and could be easily distributed at community events, schools, and in clinics. Women see their FP clinics and FP providers as trusted sources for health information and care [13,34], so even if they do not provide PrEP-related care themselves, they still have an important role in increasing PrEP awareness and making it more accessible to women.

4.4. Limitations

Our study had limitations. This was a convenience sample of women, and we collected limited information pertaining to patient recommendations (via one open-ended question). We excluded non-English speaking women. Because Hispanic/Latina women are at heightened risk of HIV, preferences for PrEP information dissemination in Spanish should be explored in future studies. We may have encountered social desirability bias that impacted the reporting of personal behaviors, attitudes and preferences. The question pertaining to how clinics can share information about PrEP is less personal, thus should be less influenced by bias.

5. Conclusion

Continuing high HIV rates among women in the Southern US make it imperative to increase awareness of and access to PrEP among women. FP clinics are trusted sources of sexual information and care frequently accessed by women, and our study indicates that women seeking care in these clinics in Metro-Atlanta valued learning about PrEP during their visits. Increasing FP clinics' role in PrEP roll-out for women in the South is warranted.

References

- [1] Hess K, Hu X, Lansky A, Mermin J, Hall HI. Estimating the lifetime risk of a diagnosis of HIV infection in the United States. Conference on Retroviruses and Opportunistic Infections, Boston, MA, February 22–25; Abstract #52, And CDC press release; 2016 Available at: <https://www.cdc.gov/nchstp/newsroom/2016/croi-2016.html#Graphics2>.
- [2] Centers for Disease Control and Prevention (CDC). Diagnoses of HIV infection in the United States and dependent areas, 2016. <https://www.cdc.gov/hiv/pdf/library/reports/surveillance/cdc-hiv-surveillance-report-2016-vol-28.pdf> HIV Surveillance Report; 2017, p. 28.
- [3] Centers for Disease Control and Prevention (CDC). CDC Issue Brief: HIV in the southern United States. Updated May 2016. Available at: <https://www.cdc.gov/hiv/pdf/policies/cdc-hiv-in-the-south-issue-brief.pdf>.
- [4] Centers for Disease Control and Prevention (CDC). Compendium of Evidence-Based Interventions and Best Practices for HIV Prevention. Available at: <https://www.cdc.gov/hiv/research/interventionresearch/compendium/index.html>.
- [5] Chen YH, Raymond HF, McFarland W, Truong HH. HIV risk behaviors in heterosexual partnerships: female knowledge and male behavior. *AIDS Behav* 2010;14:87–91.
- [6] Food and Drug Administration (FDA). FDA approves first drug for reducing the risk of sexually acquired HIV infection [Washington, DC] ; 2012.
- [7] Sheth AN, Rolfe CP, Gandhi M. HIV pre-exposure prophylaxis for women. *J Virus Erad* 2016;2(3):149.
- [8] Smith DK, Van Handel M, Grey J. Estimates of adults with indications for HIV pre-exposure prophylaxis by jurisdiction, transmission risk group, and race/ethnicity, United States, 2015. *Ann Epidemiol* 2018;28(12):850–7.
- [9] Siegler AJ, Mouhanna F, Giler RM, McCallister S, Yeung H, Jones J. Distribution of active PrEP prescriptions and the PrEP-to-need ratio, US, Q2 2017. 25th Conference on Retroviruses and Opportunistic Infections (CROI 2018), Boston, Abstract 1022LB; 2018.
- [10] US Dept of Health and Human Services Program announcement number PAR-10-038. Available at: <http://grants.nih.gov/grants/guide/pa-files/PAR-10-038.html>. Accessed date: 24 May 2018.
- [11] Young I, McDaid L. How acceptable are antiretrovirals for the prevention of sexually transmitted HIV?: a review of research on the acceptability of oral pre-exposure prophylaxis and treatment as prevention. *AIDS Behav* 2014;18(2):195–216.
- [12] Edelstein Z, Mensah N, Scanlin K, Cutler B, Myers J. Awareness of HIV prevention innovations among women of color in NYC: HIV self-tests and pre-exposure prophylaxis (PrEP). 142nd APHA Annual Meeting and Exposition (November 15–November 19, 2014); 2014.
- [13] Auerbach JD, Kinsky S, Brown G, Charles V. Knowledge, attitudes, and likelihood of pre-exposure prophylaxis (PrEP) use among US women at risk of acquiring HIV. *AIDS Patient Care STDS* 2015;29(2):102–10. <https://doi.org/10.1089/apc.2014.0142>.
- [14] Doblecki-Lewis S, Lester L, Schwartz B, Collins C, Johnson R, Kobetz E. HIV risk and awareness and interest in pre-exposure and post-exposure prophylaxis among sheltered women in Miami. *Int J STD AIDS* 2016;27(10):873–81. <https://doi.org/10.1177/0956462415601304>.
- [15] Walters SM, Reilly KH, Neaigus A, Braunstein S. Awareness of pre-exposure prophylaxis (PrEP) among women who inject drugs in NYC: the importance of networks and syringe exchange programs for HIV prevention. *Harm Reduct J* 2017;14:40. <https://doi.org/10.1186/s12954-017-0166-x>.
- [16] Collier KL, Colarossi LG, Sanders K. Raising awareness of pre-exposure prophylaxis (PrEP) among women in New York City: community and provider perspectives. *J Health Commun* 2017 Mar 4;22(3):183–9.
- [17] Gavin L, Pazol K. Update: Providing quality FP services – Recommendations from CDC and the U.S. Office of Population Affairs, 2015. *MMWR Morb Mortal Wkly Rep* 2016;65(9):231–4 [PMID: 26963363].
- [18] Office of Population Affairs. HIV Prevention in FP. Available at: <http://www.hhs.gov/opa/title-x-family-planning/initiatives/hiv-prevention/index.html>. Accessed date: 3 December 2016.
- [19] US women & PrEP working group position statement. http://www.sisterlove.org/wp-content/uploads/2015/11/US-Women-and-PrEP-Updated-Statement_Final2-1.pdf; 2015, Accessed date: 31 May 2018.
- [20] Seidman D, Weber S, Carlson K, Witt J. Family planning providers' role in offering PrEP to women. *Contraception* 2018;97(6):467–70.
- [21] Seidman D, Weber S. Integrating preexposure prophylaxis for human immunodeficiency virus prevention into women's health care in the United States. *Obstet Gynecol* 2016;128(1):37–43.
- [22] Pollock L, Levison J. Role of Preexposure prophylaxis in the reproductive health of women at risk for human immunodeficiency virus infection. *Obstet Gynecol* 2018; 132(3):687–91.
- [23] Aaron E, Blum C, Seidman D, Hoyt MJ, Simone J, Sullivan M, et al. Optimizing delivery of HIV Preexposure prophylaxis for women in the United States. *AIDS Patient Care STDS* 2018;32(1):16–23.

- [24] Seidman D, Carlson K, Weber S, Witt J, Kelly PJ. United States family planning providers' knowledge of and attitudes towards preexposure prophylaxis for HIV prevention: a national survey. *Contraception* 2016;93(5):463–9.
- [25] Tripathi A, Whiteside O, Scanlon C, Duffus W. Perceptions and attitudes about PrEP among seronegative partners and the potential of sexual disinhibition associated with the use of PrEP. *J Int AIDS Soc* 2012;15:108–9.
- [26] Koren DE, Nichols JS, Simoncini GM. HIV pre-exposure prophylaxis and women: survey of the knowledge, attitudes, and beliefs in an urban obstetrics/gynecology clinic. *AIDS Patient Care STDS* 2018;32(12):490–4.
- [27] Garfinkel DB, Alexander KA, McDonald-Mosley R, Willie TC, Decker MR. Predictors of HIV-related risk perception and PrEP acceptability among young adult female family planning patients. *AIDS Care* 2017;29(6):751–8.
- [28] US Public Health Service. Preexposure prophylaxis for the prevention of HIV infection in the United States — 2014: A clinical practice guideline. <http://www.cdc.gov/hiv/pdf/guidelines/PrEPguidelines2014.pdf>; 2014.
- [29] Arya M, Patel S, Kumar D, Zheng MY, Kallen MA, Street Jr RL, et al. Why physicians Don't ask: interpersonal and intrapersonal barriers to HIV testing—making a case for a patient-initiated campaign. *J Int Assoc Provid AIDS Care (JIAPAC)* 2016;15(4):306–12.
- [30] Ylitalo KR, Lee H, Mehta NK. Health care provider recommendation, human papillomavirus vaccination, and race/ethnicity in the US National Immunization Survey. *Am J Public Health* 2013;103(1):164–9.
- [31] Gilkey MB, Calo WA, Moss JL, Shah PD, Marciniak MW, Brewer NT. Provider communication and HPV vaccination: the impact of recommendation quality. *Vaccine* 2016;34(9):1187–92.
- [32] The Washington Post/Kaiser Family Foundation. 2012 Survey of Americans on HIV/AIDS. Retrieved from <https://kaiserfamilyfoundation.files.wordpress.com/2013/01/8334-t.pdf>; 2012.
- [33] Collier KL, Colarossi LG, Sanders K. A PrEP information and self-screening tool for women. *AIDS Educ Prev* 2018;30(1):13–25. <https://doi.org/10.1521/aeap.2018.30.1.13>.
- [34] Frost JJ, Gold RB, Bucek A. Specialized FP clinics in the United States: why women choose them and their role in meeting women's health care needs. *Womens Health Issues* 2012;22:e519–25.