ANNOTATED BIBLIOGRAPHY

Pre-Exposure Prophylaxis

January 2016 – August 2019

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AIDS Institute
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Organization of Entries

The following annotated bibliography contains a select group of journal articles and reports related to pre-exposure prophylaxis (PrEP) from years 2016 through August 2019. PrEP is an HIV prevention strategy that has been proven to reduce the risk of HIV transmission in populations that are at high risk of HIV acquisition.

The bibliography was developed by conducting an extensive literature search indexed in PubMed, an online database of biomedical journal citations and abstracts created by the U.S. National Library of Medicine and Google Scholar, an online search engine that provides journal articles and research from academic publishers, professional societies, universities, and other web sites. Search terms used in obtaining articles and subject headings include but are not limited to: pre-exposure prophylaxis (PrEP), Truvada, PrEP awareness, PrEP and adolescents, PrEP and men who have sex with men, PrEP implementation, access to PrEP, social media and PrEP, women and PrEP, and PrEP adherence. Although many of the articles that were selected contained overlapping information touching on some or all of the major subject areas, the articles are grouped by themes in the table of contents: 1) access to PrEP, 2) adherence, 3) adolescents, 4) African American, 5) awareness, 6) barriers to care, 7) bisexual men, 8) conception, 9) condom use, 10) disclosure of PrEP, 11) discontinuing PrEP, 12) guidelines, 13) health care providers, 14) health insurance, 15) HIV prevention, 16) implementation, 17) incarcerated individuals, 18) interventions 19) intimate partner violence, 20) Latino, 21) men who have sex with men, 22) people who inject drugs, 23) pharmacies, 24) pregnancy, 25) prevalence, 26) quality of care, 27) sexually transmitted infections, 28) social network, 29) stigma, 30) transgender, 31) willingness to use PrEP, 32) women, and 33) young men who have sex with men. Each entry in the annotated bibliography is printed in large, boldfaced type and arranged alphabetically by author under the main subject heading. If an article covers more than one topic, the abstract is then grouped under the principal topic and cross-referenced under the secondary topic(s). The cross-reference will give directions to see the principal topic area for the abstract.

Each article contained in the bibliography has been electronically linked to PubMed, a publisher’s website, or an actual report available on the internet.
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ACCESS TO PREP


**Abstract:** Despite an increasing pre-exposure prophylaxis (PrEP) use among populations at highest risk of HIV acquisition, comprehensive and easy access to PrEP is limited among racial/ethnic minorities and low-income populations. The present study analyzed the geographic distribution of PrEP providers and the relationship between their location, neighborhood characteristics, and HIV incidence using spatial analytic methods. PrEP provider density, socio-demographics, healthcare availability, and HIV incidence data were collected by ZIP-code tabulation area in New York City (NYC). Neighborhood socio-demographic measures of race/ethnicity, income, insurance coverage, or same-sex couple household, were not associated with PrEP provider density, after adjusting for spatial autocorrelation, and PrEP providers were located in high HIV incidence neighborhoods (P < 0.01). These findings validate the need for ongoing policy interventions (e.g. public health detailing) vis-à-vis PrEP provider locations in NYC and inform the design of future PrEP implementation strategies, such as public health campaigns and navigation assistance for low-cost insurance.


**Purpose:** HIV pre-exposure prophylaxis (PrEP) is highly effective in preventing HIV transmission. Finding a PrEP provider, however, can be a barrier to accessing care. This study explores the distribution of publicly listed PrEP-providing clinics in the United States. **Methods:** Data regarding 2094 PrEP-providing clinics come from PrEP Locator, a national database of PrEP-providing clinics. We compared the distribution of these PrEP clinics to the distribution of new HIV diagnoses within various geographical areas and by key populations. **Results:** Most (43/50) states had less than one PrEP-providing clinic per 100,000 population. Among states, the median was two clinics per 1000 PrEP-eligible men who have sex with men. Differences between disease burden and service provision were seen for counties with higher proportions of their residents living in poverty, lacking health insurance, identifying as African American, or identifying as Hispanic/Latino. The Southern region accounted for over half of all new HIV diagnoses but only one-quarter of PrEP-providing clinics. **Conclusions:** The current number of PrEP-providing clinics is not sufficient to meet needs. In addition, PrEP-providing clinics are unevenly distributed compared to disease burden, with poor coverage in the Southern divisions and areas with higher poverty, uninsured, and larger minority populations. PrEP services should be expanded and targeted to address disparities.

**Background:** Human immunodeficiency virus (HIV) pre-exposure prophylaxis (PrEP) is highly effective in preventing HIV transmission, yet patients interested in learning more about PrEP or in getting a PrEP prescription may not be able to find local medical providers willing to prescribe PrEP. **Objective:** We sought to create a national database of PrEP-providing clinics to allow for patients to have access to a unified, vetted source of PrEP providers in an easily accessible database. **Methods:** To develop the protocol and operating procedures for the PrEP Locator, we conducted a series of 7 key informant interviews with experts who had organized PrEP or other HIV service directories. We convened an external advisory committee and a collaborators board to gain expert and community-situated perspectives. **Results:** At its public release in September 2016, the database included 1,272 PrEP-providing clinics, including clinics in all 50 states and in Puerto Rico. Web searches, referrals, and outreach to state health departments identified 58 unique lists of PrEP-providing clinics, with 33 from state health departments, 6 from government localities, 2 from professional medical organizations, and 19 from nongovernmental organizations. Out of the 2,420 clinics identified from the lists and Web searches, we removed 798 as duplicate entries, and we determined that 350 were ineligible for listing. The most common reasons for ineligibility were not having the appropriate medical licensure to prescribe PrEP (67/350) or not prescribing PrEP, based on self-report (192/350). Key informant interviews shaped important protocol decisions, such as listing clinics instead of individual clinicians as the primary data element and streamlining data collection to facilitate scalability. We developed a Web interface to provide public access to the data, with geolocated data display, search filter functionality, a webform for public suggestions of new clinics, and a publicly available directory Web tool that can be embedded in websites. In the 6 months following release, preplocator.org and hosting websites had received over 35,000 unique views and 300 clinic additions, and 5 websites had initiated hosting of the widget. **Conclusions:** Directories exist for many preventive and treatment services. As new medical applications become available, there will be a corresponding need to develop new directories for service provision. Geolocated directories can assist patients in accessing care and have the potential to increase demand for and access to newer, more efficacious medical interventions. Early choices in the development of service directories have long-lasting impact, because once data collection begins, it can be challenging to reverse course. The PrEP Locator protocol may inform early decisions in the development of future service directories. Additionally, the case study on developing the PrEP Locator demonstrates the importance of formative work in identifying service-specific factors that can guide decisions on directory development.

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**Introduction:** Persistence on preexposure prophylaxis for HIV prevention (PrEP) medication has rarely been reported for periods greater than one year, or in real-world settings. This study used pharmacy fill records for PrEP users from a national chain pharmacy to describe persistence on PrEP medication over a two-year period, and to explore correlates with PrEP medication persistence in a real-world setting. **Methods:** We analysed de-identified pharmacy fill records of 7148 eligible individuals who initiated PrEP in 2015 at a national chain pharmacy. A standard algorithm was employed to identify TDF-FTC use for PrEP indication. We considered three time periods for persistence, defined as maintaining refills in PrEP care: year 1 (zero to twelve months), year 2 (thirteen to twenty-four months) and initiation to year 2 (zero to twenty-four months). Individuals with 16 or more days of TDF-FTC PrEP dispensed in a 1-month period for at least three-quarters of a given time period (e.g. nine of twelve months or eighteen of twenty-four months) were classified as persistent on PrEP medication for the period. **Results:** Persistence was 56% in year 1, 63% in year 2 and 41% from initiation to year 2. Individuals aged 18 to 24 had the lowest persistence, with 29% from initiation to year 2. Men had higher persistence than women, with 42% compared to 20% persistent from initiation to year 2. Individuals with commercial insurance and individuals who utilized a community-based specialty pharmacy from the national chain also had higher persistence. Male gender, age >18 to 24 years, average monthly copay of $20 or less, commercial insurance, and utilization of a community-based specialty pharmacy were positively associated in adjusted models with persistence in year 1 and from initiation to year 2; the same correlates, with the exception of utilization of a community-based specialty pharmacy, were associated with higher persistence in year 2. **Conclusions:** We found substantial non-persistence on PrEP medication in both year 1 and year 2. Across the entire 2-year period, only two out of every five users persisted on PrEP. Demographic, financial and pharmacy factors were associated with persistence. Further research is needed to explore how social, structural or individual factors may undermine or enhance persistence on PrEP, and to develop interventions to assist persistence on PrEP.


**Abstract:** Pre-exposure prophylaxis is a highly protective HIV prevention strategy, yet nonadherence can significantly reduce its effectiveness. We conducted a mixed methods evaluation of a mobile health intervention (iText) that utilized weekly bidirectional text or e-mail support messages to encourage pre-exposure prophylaxis (PrEP) adherence among participants in the multi-site iPrEx open-label extension study. A convenience sample of PrEP users from the San Francisco and Chicago sites participated in a 12-week pilot study. Fifty-six men who have sex with men were enrolled; a quarter of them were less than 30
years of age, 13% were black/African American, 11% were Latino, and most (88%) completed some college. Two-thirds opted for text message delivery. Of the 667 messages sent, only 1 individual requested support; initial nonresponse was observed in 22% and was higher among e-mail compared to text message recipients. Poststudy, a majority of participants would recommend the intervention to others, especially during PrEP initiation. Moreover, younger participants and men of color were more likely to report that they would use the iText strategy if it were available to them. Several participants commented that while they were aware that the messages were automated, they felt supported and encouraged that "someone was always there." Study staff reported that the intervention is feasible to administer and can be incorporated readily into clinic flow. A pre-post intervention regression discontinuity analysis using clinic-based pill counts showed a 50% reduction in missed doses [95% confidence interval (CI) 16-71; p = 0.008] and 77% (95% CI 33-92; p = 0.007) when comparing pill counts at quarterly visits just before and after iText enrollment. A mobile health intervention using weekly bidirectional messaging was highly acceptable and demonstrated promising effects on PrEP adherence warranting further evaluation for efficacy in a randomized controlled trial.


Background: Blinded clinical trials have reported a modest and transient "start-up syndrome" with initiation of tenofovir-based pre-exposure prophylaxis (PrEP). We evaluate this phenomenon and its effect on adherence in an open-label PrEP study. Methods: In the iPrEx open-label extension (OLE) study, an 18-month open-label, multisite PrEP cohort taking daily oral co-formulated tenofovir/emtricitabine, we examined the prevalence and duration of PrEP-associated symptoms and their effect on adherence, assessed by drug levels in dried blood spots tested monthly for the first 3 months. Results: Symptom reports peaked within the first month, with 39% reporting potentially PrEP-related symptoms compared to 22% at baseline. Symptoms largely resolved to pre-PrEP levels by 3 months. Symptoms varied substantially in frequency by study site (range in 1-month symptoms: 11% to 70%). Nongastrointestinal (GI) symptoms were not associated with adherence (odds ratio [OR] = 1.2, 95% confidence interval [CI], 0.4-3.7); however, GI-associated symptoms in the first 4 weeks were inversely associated with adherence at 4 weeks (OR = 0.47, 95% CI, 0.23-0.96). Reports of GI symptoms were associated with 7% (95% CI, 4%-11%) of suboptimal adherence in this cohort. Conclusions: PrEP-associated symptoms in the open-label setting occur in a minority of users and largely resolve within 3 months. GI symptoms are associated with a modest reduction in PrEP adherence, but good adherence is possible even in the presence of frequent symptom reports.


Background: Placebo-controlled and open-label studies have demonstrated the safety and efficacy of daily oral pre-exposure prophylaxis (PrEP) in preventing HIV infection, but data are limited on real-world PrEP use. Methods: We conducted a cohort study from
July 2012 through June 2015 of Kaiser Permanente Northern California members initiating PrEP. We assessed pharmacy refill adherence and discontinuation, decreases in estimated glomerular filtration rate (eGFR), and sexually transmitted infection (STI)/HIV incidence. **Results:** Overall, 972 individuals initiated PrEP, accumulating 850 person-years of PrEP use. Mean adherence was 92% overall. Black race/ethnicity [adjusted risk ratio (aRR) 3.0; 95% confidence interval: 1.7 to 5.1, P < 0.001], higher copayments (aRR 2.0; 1.2 to 3.3, P = 0.005), and smoking (aRR 1.6; 1.1 to 2.3, P = 0.025) were associated with <80% adherence. PrEP was discontinued by 219 (22.5%); female sex (aRR 2.6; 1.5 to 4.6, P < 0.001) and drug/alcohol abuse (aRR 1.8; 1.3 to 2.6, P = 0.002) were associated with discontinuation. Among 909 with follow-up creatinine testing, 141 (15.5%) had an eGFR <70 mL·min⁻¹·1.73 m² and 5 (0.6%) stopped PrEP because of low eGFR. Quarterly STI positivity was high and increased over time for rectal chlamydia (P < 0.001) and urethral gonorrhea (P = 0.012). No HIV seroconversions occurred during PrEP use; however, 2 occurred in individuals who discontinued PrEP after losing insurance coverage. **Conclusions:** PrEP adherence was high in clinical practice, consistent with the lack of HIV seroconversions during PrEP use. Discontinuation because of renal toxicity was rare. STI screening every 6 months, as recommended by current guidelines, may be inadequate. Strategies are needed to increase PrEP access during gaps in insurance coverage.


**Abstract:** Antiretroviral pre-exposure prophylaxis (PrEP) has been demonstrated to decrease HIV acquisition in multiple efficacy trials, but medication adherence is critical, and was suboptimal in several studies. Fifty HIV-uninfected at risk men who have sex with men (MSM) were randomized to a cognitive behavioral intervention condition or a time and session-matched comparison counseling intervention. The experimental intervention entailed four nurse-delivered initial and two booster sessions based on Life-Steps, an ART treatment adherence intervention. The comparison condition provided information and supportive counseling. The primary analyses compared adherence (Wisepill and tenofovir plasma levels) at 3 and 6 months. Fifty-eight MSM were screened to enroll 50 participants. Median age was 38.2 years old, 86% were white; 64% had completed college. Wisepill adherence was high in both groups, and not statistically different. Plasma tenofovir levels were significantly higher in the intervention group at 6 months using mean substitution analysis (i.e., computing missing variables) (p=0.037), however, in the completer analyses (i.e., using only those completing all study visits), there were no statistically significant differences between randomization conditions. Medication adherence was high across a cognitive-behavioral (Life-Steps) and time-matched counseling intervention for PrEP adherence, with some evidence suggesting superiority of Life-Steps in this pilot RCT. Further evaluation in a fully powered efficacy trial is warranted to assess the robustness of this intervention.
ADOLESCENTS


**Abstract:** On May 15, 2018, the Federal Drug Administration amended the approval of preexposure prophylaxis (PrEP) to include minors (>35 kgs). Adolescent providers are now in need of access to a comprehensive education curriculum on the administration of PrEP to adolescents. This paper outlines such a curriculum with the goal of reaching adolescent providers unfamiliar with PrEP assessment, administration, and monitoring. A comprehensive adolescent PrEP curriculum was designed using a literature review. An expert panel of seven reviewed the curriculum for content validity. A pilot implementation of the curriculum was conducted with staff from eight school-based health clinics located in Upper Manhattan and the Bronx. A formal content-validated curriculum was established providing adolescent health care providers with the tools needed to administer PrEP in their clinical setting. Clinical providers can access our curriculum to aid in their administration of PrEP to an adolescent population.


**Background:** Adolescent men who have sex with men (AMSM) account for disproportionately high numbers of new HIV diagnoses. Non-adherence to daily use limiting the effectiveness of oral PrEP (Truvada) has led to current trials with adult MSM testing Cabotegravir, a long-term injectable medication. Once comparative studies with young adult MSM have established relative safety and efficacy of these medications, there will be a need for such comparative trials involving adolescents. Trends in state laws and IRB protocol review indicate that many of these studies will permit youth to provide independent consent for participation. Understanding the motivations of AMSM to participate in HIV biomedical prevention studies is important to ensure their agreement is voluntary without misunderstanding and undue influence. This study examined AMSM attitudes toward participation in oral/injectable PrEP RCTs to inform protections of youth's rights and welfare in future studies. **Methods:** We administered to 198 ethnically diverse U.S. AMSM, 14-17 years, a web-based survey including demographic and sexual health questions, description of a year-long oral versus injectable PrEP RCT and 26 Likert-type and one open-ended item assessing motivations for and against participation including: perceived benefits and risks of PrEP; free HIV/STI testing and counseling; confidentiality concerns; random assignment; and benefit to others. **Results:** Sixty-two percent indicated they were likely to participate in the study. The majority endorsed daily HIV protection, free HIV/STI testing, sexual health counseling, not having to rely on partner's condom use, and altruism as reasons to participate. Reasons against participation included medication side effects, concern taking the pill daily and clinic visits would reveal their sexual orientation and behaviors to parents. Over half erroneously assumed they would be assigned to the condition best for them and 39% indicated free access to services would
lead them to participate even if they did not want to. Multiple regression indicated these factors accounted for 55% of the variance in participation choice. Nether age or ethnicity yielded significance. **Conclusions:** Results suggest future biomedical HIV prevention research will need to develop procedures to address AMSM's confidentiality concerns, enhance youth's understanding of random assignment, the continued importance of medication adherence and partner condom use during trial participation, and availability of alternative sexual health services to avoid the potentially undue influence of access to free sexual health services.


**Abstract:** Adolescents aged 13-24 years account for 23% of new HIV infections in Atlanta, indicating need for better HIV prevention strategies in this population. Pre-exposure prophylaxis (PrEP) is now approved for adolescent use. This study aims to understand the acceptability of and barriers to PrEP in adolescents and parents. We administered PrEP acceptability and barrier measures to HIV(-) 13-17 year olds and their parents from January to April 2016 in an adolescent clinic and emergency department in Atlanta, GA, stratifying by adolescent sexual activity. Acceptability scores (AS) and barrier scores (BS) were calculated by averaging survey answers 1-3. For AS, 1 was very unlikely to accept PrEP; concomitantly, BS near 3 indicated fewer barriers. Two-sample hypothesis testing, Pearson correlations, and linear regression were used. Of the 102 adolescent/parent dyads, 67% of adolescents were female, 94% black, with a mean age of 15.7 ± 1.5 years, and 31% were sexually active. Parents were 94% female, 96% black, with a mean age of 42.4 ± 8.9 years. AS averaged between somewhat to very likely to accept PrEP (2.4 ± 0.5 and 2.2 ± 0.6) in adolescents and parents, respectively. BS averaged between unlikely and somewhat likely to perceive barriers to PrEP (2.0 ± 0.4 and 1.9 ± 0.5) in adolescents and parents, respectively. The adolescent/parent dyad is likely to accept PrEP, regardless of sexual activity. Limitations include that nearly 70% of adolescents were not sexually active, and the study was conducted before PrEP approval by the Food and Drug Administration for those who are younger than 18 years. These results support future parent and adolescent education on PrEP.

**See Also:**


AFRICAN AMERICAN

See:


We aimed to identify provider encounter characteristics associated with awareness of and willingness to take PrEP among young urban minority males at higher risk for HIV acquisition. The 74 individuals included in this analysis from a cross-sectional survey of males aged 15-24 being seen at a Baltimore city clinic were those who identified as a man who had sex with men (MSM), reported injection drug use, were in a serodiscordant relationship, had a sexually transmitted infection (STI) in the past 6 months, or reported condomless sex with a partner with unknown HIV status. Topics of provider-initiated conversations associated with willingness to take PrEP included one's sexual behavior (OR 7.35, 95% CI [2.23, 24.26]), whether one had been hurt by a partner (OR 4.71, 95% CI [1.40, 15.87]), and risk reduction (OR 6.91, 95% CI [2.10, 22.81]). This study may yield new targets for provider-level interventions for increasing PrEP uptake.


**Abstract:** In February 2019, the U.S. Department of Health and Human Services proposed a strategic initiative to end the human immunodeficiency (HIV) epidemic in the United States by reducing new HIV infections by 90% during 2020-2030* (1). Phase 1 of the Ending the HIV Epidemic initiative focuses on Washington, DC; San Juan, Puerto Rico; and 48 counties where the majority of new diagnoses of HIV infection in 2016 and 2017 were concentrated and on seven states with a disproportionate occurrence of HIV in rural areas relative to other states.† One of the four pillars in the initiative is protecting persons at risk for HIV infection using proven, comprehensive prevention approaches and treatments, such as HIV preexposure prophylaxis (PrEP), which is the use of antiretroviral medications that have proven effective at preventing infection among persons at risk for acquiring HIV. In 2014, CDC released clinical PrEP guidelines to health care providers (2) and intensified efforts to raise awareness and increase the use of PrEP among persons at risk for infection, including gay, bisexual, and other men who have sex with men (MSM), a group that accounted for an estimated 68% of new HIV infections in 2016 (3). Data from CDC's National HIV Behavioral Surveillance (NHBS) were collected in 20 U.S. urban areas in 2014 and 2017, covering 26 of the geographic areas included in Phase I of the Ending the HIV Epidemic initiative, and were compared to assess changes in PrEP awareness and use among MSM. From 2014 to 2017, PrEP awareness increased by 50% overall, with >80% of MSM in 17 of the 20 urban areas reporting PrEP awareness in 2017. Among MSM with likely indications for PrEP (e.g., sexual risk behaviors or recent bacterial sexually transmitted infection [STI]), use of PrEP increased by approximately 500% from 6% to 35%, with significant increases observed in all urban areas and in almost all demographic subgroups. Despite this progress, PrEP use among MSM, especially
among black and Hispanic MSM, remains low. Continued efforts to improve coverage are needed to reach the goal of 90% reduction in HIV incidence by 2030. In addition to developing new ways of connecting black and Hispanic MSM to health care providers through demonstration projects, CDC has developed resources and tools such as the Prescribe HIV Prevention program to enable health care providers to integrate PrEP into their clinical care.§ By routinely testing their patients for HIV, assessing HIV-negative patients for risk behaviors, and prescribing PrEP as needed, health care providers can play a critical role in this effort.


Pre-Exposure Prophylaxis (PrEP) has been promoted among high-risk populations as an effective HIV biomedical intervention. However, limited research is available on the significance of culturally informed biomedical interventions for Latino MSM. A total of 159 self-administered Internet surveys were completed by Latino MSM ages 21-30 in San Antonio, Texas. The purpose of this research was to develop an instrument that measured Latino MSM attitudes and beliefs towards PrEP, identify associations between demographic factors and PrEP related factors and to suggest culturally appropriate strategies for the promotion of PrEP among the Latino MSM population. Research findings revealed implications for PrEP at the structural and individual level for Latino MSM. Structural level indicators emphasized the importance for raising PrEP awareness among Latino MSM in regards to PrEP related expenses, ameliorating stigmatization of high-risk populations, enhancing access to PrEP informed medical providers, and address mistrust of the government and medical providers role on addressing health disparities among Latino MSM. Overall, the findings for individual factors emphasize the need for patient-centered interventions for Latino MSM. Latino MSM currently on PrEP require supplemental resources to enhance PrEP adherence. Latino MSM not on PrEP require alternate options for PrEP delivery and/or cognitive behavioral approaches minimizing HIV risk behavior for Latino MSM concerned with PrEP toxicity, which may require non-biomedical interventions. Integration of Latino MSM currently on PrEP as peer educators provides a valuable resource for developing culturally informed PrEP interventions for Latino MSM. Peer educators are able to share their experiential knowledge of PrEP contextualized through cultural norms, beliefs, and values.


Abstract: Awareness of Pre-exposure prophylaxis (PrEP) was assessed among a cohort of substance-using black men who have sex with men and transgender women (MSM/TGW) participating in the STAR Study, which recruited black MSM/TGW in New York City for HIV testing and linked HIV-infected individuals into care from July 2012 to April 2015. Sociodemographic, psychosocial, known HIV risk factors, and PrEP awareness were assessed among participants. Multivariable logistic regression was conducted to assess factors associated with PrEP awareness. Of 1,673 participants, median
age was 43 years and 25% were under age 30. Most participants (85.8%) reported having insufficient income for basic necessities at least occasionally, 54.8% were homeless, and 71.3% were unemployed. Awareness of PrEP was reported among 18.2% of participants. PrEP awareness was associated with younger age (adjusted odds ratio [aOR] 0.87, per 5 years), gay identity (aOR 2.46), higher education (aOR 1.70), more frequent past HIV testing (aOR 3.18), less HIV stigma (aOR 0.61), less hazardous/harmful alcohol use (aOR 0.61), and more sexual partners (aOR 1.04, per additional partner in past 30 days). In this substance-using black MSM/TGW cohort with high rates of poverty and homelessness, PrEP awareness was low. This study demonstrates the need for targeted dissemination of PrEP information to key populations to increase awareness and ultimately improve uptake and utilization of PrEP.


Background: Named sex- or needle-sharing partners of HIV-positive individuals are a priority prevention population due to their known HIV exposure. Understanding post-exposure and pre-exposure prophylaxis (PEP and PrEP) awareness and use among them is important for successful interventions. Methods: Data from notified partners of HIV-positive individuals (New York City, May 2015-April 2017) were analyzed to describe PEP/PrEP awareness, provider discussion, and use by sociodemographic and risk characteristics. Multivariate logistic regression was used to generate adjusted odds ratios (aORs) and 95% confidence intervals (CIs) of partners' PEP and PrEP awareness. Results: Among notified partners (n = 621), PEP and PrEP awareness were 34% and 44%, respectively; provider discussion of PEP was reported by 32% and of PrEP by 42%; PEP use was reported by 2% and PrEP use by 14%. PEP awareness was higher among men who have sex with men sex partners than among heterosexual sex partners (aOR: 4.21; 95% CI: 2.10 to 8.44). Odds of PrEP awareness were lower among black (aOR: 0.34; 95% CI: 0.15 to 0.75) and Hispanic partners (aOR: 0.37; 95% CI: 0.17 to 0.84) than among white partners, and higher among men who have sex with men than heterosexual sex partners (aOR: 4.60; 95% CI: 2.38 to 8.87). Black partners were less likely than whites to report a provider discussion of PrEP. Postnotification HIV-positive test results were significantly lower among partners reporting PEP awareness than among those who had not heard of PEP. Conclusions: Low levels of PEP/PrEP awareness and of provider PEP/PrEP discussion among notified partners, particularly blacks, Hispanics, and heterosexual sex partners, indicate the timeliness of tailored prevention messaging, provider training, and sensitization, to avoid disparities in PEP/PrEP use.

**Background:** Among women in the United States, non-Latina black women in the South have disproportionately high rates of new HIV infections but low use of pre-exposure prophylaxis (PrEP). Effective strategies to identify factors associated with PrEP eligibility could facilitate improved screening, offering, and uptake of PrEP among US women at risk of HIV. **Setting and methods:** We applied 2014 CDC criteria for PrEP use to at-risk HIV-negative women enrolled in the Southern US sites (Atlanta, Chapel Hill, Birmingham/Jackson, Miami) of the Women's Interagency HIV Study from 2014 to 2015 to estimate PrEP eligibility and assess PrEP knowledge and acceptability. Factors associated with PrEP eligibility were assessed using multivariable models. **Results:** Among 225 women, 72 (32%) were PrEP-eligible; the most common PrEP indicator was condomless sex. The majority of PrEP-eligible women (88%) reported willingness to consider PrEP. Only 24 (11%) PrEP-eligible women had previously heard of PrEP, and only 1 reported previous use. Education level less than high school [adjusted odds ratio (aOR) 2.56; 95% confidence interval (CI): 1.22 to 5.37], history of sexual violence (aOR 4.52; 95% CI: 1.52 to 17.76), and medium to high self-perception of HIV risk (aOR 6.76; 95% CI: 3.26 to 14.05) were significantly associated with PrEP eligibility in adjusted models. **Conclusions:** Extremely low PrEP awareness and use despite a high proportion of eligibility and acceptability signify a critical need to enhance PrEP education and delivery for women in this region. Supplementing CDC eligibility criteria with questions about history of sexual violence and HIV risk self-assessment may enhance PrEP screening and uptake among US women.


**Abstract:** This paper grows our understanding about PrEP knowledge in transgender women (TW) to improve PrEP-focused education/outreach. Research took place in New York City. We conducted four focus groups in English or Spanish (N = 18). Discussions focused on participants' perceptions and knowledge of oral PrEP. Most participants knew that PrEP is efficacious and requires consistent use. However, some participants were skeptical of medications; others acknowledged that false assumptions about PrEP exist among TW. Most TW in our focus groups were informed about PrEP through clinics or community-based organizations. Some participants felt that messages about medications were oversimplified, and wanted more information.


**Abstract:** Improved implementation of pre-exposure prophylaxis (PrEP) should be a valuable tool within communities experiencing high HIV incidence, such as black men
who have sex with men (MSM). Using baseline data from the Chicago arm of the Transmission Reduction Intervention Project (TRIP), we examined awareness and use of PrEP within HIV potential transmission networks. Transmission Reduction Intervention Project recruited participants ages 18-69 (N = 218) during 2014-2016 from networks originating from recently and chronically HIV-infected MSM and transgender persons. In total, 53.2% of participants had heard of PrEP, while 8 (6.5%) HIV-negative participants reported ever using PrEP. In multivariable regression, PrEP awareness was associated with identifying as gay, attending some college or higher, having an HIV test in the previous 6 months, and experiencing HIV-related social support. PrEP awareness was not associated with experiencing or observing HIV-related stigma. PrEP use was associated with participants knowing two or more other PrEP-users. These findings demonstrate moderate awareness, but low uptake of PrEP within HIV potential transmission networks in Chicago. Future research should explore how to increase PrEP use in these networks and investigate the social dynamics behind our finding that PrEP users are more likely to know other PrEP users.


**Background:** Women who inject drugs (WWID) are at heightened risk for HIV due to biological, behavioral, and structural factors. Pre-exposure prophylaxis (PrEP) could aid in HIV prevention for WWID. However, little is known about WWID awareness of PrEP, which is a necessary step that must occur before PrEP uptake. We report factors associated with greater awareness among WWID to identify efficient means of awareness dissemination. **Methods:** Data from the 2015 National HIV Behavioral Surveillance (NHBS) system cycle on injection drug use collected in New York City (NYC) were used. Bivariable analyses, using chi-squared statistics, were conducted to examine correlates of awareness of PrEP with socio-demographic, behavioral, and health care variables. Multivariable logistic regression was used to estimate adjusted associations and determine differences in awareness of PrEP. **Results:** The analysis consisted of 118 WWID. Awareness of PrEP was relatively low (31%), and risk factors were high. In the last 12 months, almost two thirds (65%) reported condomless sex, approximately one third (31%) reported transactional sex, and one third (32%) reported sharing injection equipment. In multivariable logistic regression, increased PrEP awareness was associated with reported transactional sex (AOR 3.32, 95% CI 1.22-9.00) and having a conversation about HIV prevention at a syringe exchange program (SEP) (AOR 7.61, 95% CI 2.65-21.84). We did not find race, education, household income, age, binge drinking, or sexual identity to be significantly associated with PrEP awareness. **Conclusions:** Large proportions of WWID were unaware of PrEP. These findings suggest that social networks (specifically sex work and SEP networks) are an efficient means for disseminating messaging about prevention materials such as PrEP. We recommend that SEP access increase, SEP processes be adopted in other health care settings, and WWID networks be utilized to increase PrEP awareness.
See Also:


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BARRIERS TO CARE


Abstract:  Despite the disproportionate burden of HIV facing transgender youth, they continue to be under-represented in studies to provide an empirical basis for pre-exposure prophylaxis (PrEP) programs that can meet the unique needs of this population. This study examined facilitators and barriers to participation in a PrEP adherence study, determined through an online survey administered to 90 transgender male and 60 transgender female 14-21-year-olds attracted to cisgender male sexual partners. Approximately 50% reported likely to participate in the PrEP study. Participation facilitators included prior sexual and health service experiences and study access to PrEP and health services. Participation barriers included lack of concern about HIV, potential medication side effects, the logistics of quarterly meetings, remembering to take PrEP daily, and reluctance to discuss gender identity with study staff. Results suggest that successful recruitment and retention of
transgender youth in PrEP prevention studies warrant protocols designed to address these barriers.

See also:


BISEXUAL MEN


Abstract: Given the ongoing HIV epidemic, it is essential to identify gay and bisexual men who are interested in starting PrEP as well as active PrEP users. We report on online survey data gathered over a 17-month period in 2014-2015 from gay and bisexual men identified through six sources of recruitment (n = 2,903): Facebook, a hookup website, two geosocial-sexual networking apps (herein "App 1: Pop-up ads" and "App 2: Banner ads"), and two types of listservs (one focused on general gay nightlife, and one focused on gay sex parties). Willingness to take PrEP was as follows: sex party listservs (71.3%), both apps (69.8%), Facebook (67.6%), hookup website (65.2%), and nightlife listservs (50.5%). Experience having taken PrEP was as follows: sex party listservs (23.4%), App 2: Banner ads (22.5%), nightlife listservs (17.1) Facebook (14.2%), App 1: Pop-up ads (12.4%), and hookup website (2.1%). In multivariable modeling, willingness to go on PrEP was independently associated with being younger, single, a person of color, and having been tested for HIV in the past 12 months. Source of recruitment was largely unassociated with willingness to start PrEP. Number of recent male partners, number of recent condomless anal sex (CAS) events, and when data were collected (i.e., time in months) were not significantly associated with willingness to start PrEP. In multivariable models, experience having taken PrEP was positively associated with sexual identity as gay, number of recent male sex partners, number of recent CAS acts, being tested for HIV in the past 12 months, and time (in months). Experience taking PrEP varied greatly by recruitment source, suggesting both researchers and providers might be well served to utilize digital mediums to effectively identify these individuals; however, should do so with caution as not all digital options may prove fruitful.


Objectives: The HIV care cascade provides milestones to track the progress of HIV-positive people from seroconversion through viral suppression. We propose a Motivational pre-exposure prophylaxis (PrEP) Cascade involving 5 stages based on the Transtheoretical Model of Change. Methods: We analyzed data from 995 men in *One Thousand Strong*, a longitudinal study of a national panel of HIV-negative gay and bisexual men in the United States. Results: Nearly all (89%) participants were sexually active in the past 3 months and 65% met Centers for Disease Control criteria for PrEP candidacy. Of those identified as appropriate candidates, 53% were Precontemplative (stage 1; unwilling to take or believing they were inappropriate candidates for PrEP) and 23% were in Contemplation (stage 2; willing and self-identified as appropriate candidates). Only 11% were in PrEParation (stage 3; seeing PrEP as accessible and planning to initiate PrEP) and 4% were in PrEP Action (stage 4; prescribed PrEP). Although few of those who were identified as appropriate candidates were on PrEP, nearly all PrEP users (98%) reported adhering to 4
or more doses per week and most (72%) were returning for recommended quarterly medical visits, resulting in 9% of PrEP candidates reaching Maintenance and Adherence (stage 5). **Conclusions:** The large majority of participants were appropriate candidates for PrEP, yet fewer than 1 in 10 were using and adherent to PrEP. These findings highlight the need for interventions tailored to address the unique barriers men face at each stage of the cascade, particularly at the earliest stages where the most dramatic losses were identified.


**Abstract:** We sought to determine preferences for oral versus long-acting injectable (LAI) PrEP among gay and bisexual men (GBM). We surveyed a national U.S. sample of 1071 GBM about forms of PrEP. LAI PrEP was found to be acceptable among 43.2% of men when injected monthly compared with 53.6% of men when injected every 3 months. When asked to choose between forms of PrEP, 46.0% preferred LAI, 14.3% oral, 21.7% whichever was most effective, 10.1% had no preference, and 7.8% would not take PrEP. There were no differences in PrEP preferences by race/ethnicity, income, region of residence, or relationship status. Those unwilling to take PrEP were significantly older than those who preferred LAI PrEP and those who would take either. Those who preferred the most effective form were younger, had less education, and reported more recent club drug use. Those who reported condomless anal sex and those who thought they were good PrEP candidates were more willing to take PrEP. Long-term health and side effects were of the greatest concern for both LAI and oral PrEP. The availability of LAI PrEP has the potential to increase uptake among GBM. The results of ongoing clinical trials of LAI PrEP will need to demonstrate similar or greater efficacy as daily Truvada for uptake to be maximized.

**See Also:**


CONCEPTION


Abstract: Couples in HIV serodiscordant relationships frequently desire children. Although partners who are virally suppressed pose almost no risk of transmitting HIV to their partners, partners who are inconsistently on therapy may transmit HIV to their partners when attempting to conceive. Pre-exposure prophylaxis (PrEP) is an available safer conception strategy for these couples but is not consistently offered. We sought to better understand barriers to PrEP implementation for couples seeking conception and patient perceptions on what providers could do to encourage use. We conducted in-depth, qualitative interviews with 11 participants representing six couples taking PrEP for safer conception in a safety-net hospital in New England. Semi-structured qualitative interviews assessed the following: Relationship nature and contextual factors; attitudes and perceptions regarding PrEP for safer conception; experience within health care systems related to HIV and PrEP; and facilitators, barriers, and other experiences using PrEP for safer conception. Four key themes have important implications for implementation of PrEP for safer conception: Knowledge and understanding gaps regarding HIV and PrEP among both members of the couple, role of insurance and financing in decision-making, learning to manage and adhere to a treatment plan, and the need for providers to enhance knowledge and offer further support. Addressing barriers to safer conception strategies at multiple levels is needed to prevent HIV transmission within serodiscordant couples who desire children. Providers can play an important role in lowering these barriers through the use of multiple strategies.

**Abstract:** Pre-exposure prophylaxis (PrEP) can reduce the risk of HIV transmission among serodifferent couples trying to conceive, yet provider knowledge, attitudes, and experience utilizing PrEP for this purpose are largely unexamined. Trained interviewers conducted phone interviews with healthcare providers treating patients with HIV in seven cities (Atlanta, Baltimore, Houston, Kansas City, Newark, Philadelphia, and San Francisco, N = 85 total). Quantitative and qualitative data were analyzed to describe experience, concerns, and perceived barriers to prescribing PrEP for safer conception. Providers (67.1% female, 43 mean years of age, 70.4% white, 10 mean years treating HIV+ patients, 56% in academic vs. community facilities, 62.2% MD) discussed both benefits and concerns of PrEP for safer conception among serodifferent couples. Only 18.8% of providers reported experience prescribing PrEP, 74.2% were willing to prescribe it under ideal circumstances, and 7.0% were not comfortable prescribing PrEP. Benefits included added protection and a greater sense of control for the HIV-negative partner. Concerns were categorized as clinical, system-level, cost, or behavioral. Significant differences in provider characteristics existed across sites, but experience with PrEP for safer conception did not, p = 0.14. Despite limited experience, most providers were open to recommending PrEP for safer conception as long as patients understood the range of concerns and could make informed decisions. Strategies to identify and link serodifferent couples to PrEP services and clinical guidance specific to PrEP for safer conception are needed.

**See Also:**


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**CONDOM USE**

**See:**


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DISCLOSURE OF PREP

See:


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DISCONTINUING PREP


**Background:** Tenofovir disoproxil fumarate (TDF) pre-exposure prophylaxis (PrEP) use is associated with a small but statistically significant decline in estimated glomerular filtration rate (eGFR). We investigated the reversibility of eGFR decline among HIV-uninfected adults discontinuing PrEP. **Methods:** Data were from the Partners PrEP Study, a randomized trial of daily oral TDF and emtricitabine (FTC)-TDF PrEP among African HIV-uninfected men and women with baseline creatinine clearance ≥60 mL/min. Serum creatinine was measured quarterly while on-study medication and at month 1 and 2 after discontinuation. eGFR was calculated using the Chronic Kidney Disease Epidemiology Collaboration Equation. **Results:** A total of 3924 individuals had a poststudy drug serum creatinine measurement after the scheduled drug discontinuation (1271 for TDF, 1308 for FTC-TDF, and 1345 for placebo); 65% were men, median age was 35 (range 18-64) years. Median time on study drug was 33 (interquartile range 25-36) months overall, and 36 months (interquartile range 30-36) for TDF and FTC-TDF. Mean eGFR at the last on-treatment visit was 129 mL·min⁻¹·1.73m⁻² for TDF and 128 mL·min⁻¹·1.73m⁻² for FTC-TDF versus 131 mL·min⁻¹·1.73m⁻² for placebo (2-3 mL·min⁻¹·1.73m⁻² mean decline for PrEP versus placebo, P ≤ 0.01), and this difference reversed by 4 weeks after drug discontinuation (mean eGFR at the first postdrug visit: 130 mL·min⁻¹·1.73m⁻² in all groups). More than 96% of participants had a confirmed >75% eGFR rebound to baseline level by 8 weeks after drug discontinuation, with similar proportions across treatment
groups. **Conclusions:** In this large, placebo-controlled study of TDF-based PrEP, the small reduction in mean eGFR associated with PrEP reversed within weeks after discontinuation.


**Abstract:** Literature concerning pre-exposure prophylaxis (PrEP) among gay and bisexual identifying men (GBM) has explored facilitators and barriers to uptake and adherence. Far less reported are the reasons why GBM discontinue PrEP use. A national sample of 1071 GBM completed surveys about PrEP use and discontinuation. Participants who were still taking PrEP the 24-month follow up were compared to those that had stopped. Eighteen percent (n=31) of GBM who reported ever using PrEP discontinued use. Younger (AOR=0.96; 95% CI 0.92-1.00), and unemployed (AOR=4.58; 95% CI 1.43-14.70) GBM were more likely to discontinue PrEP than their counterparts. Those that discontinued provided details on why via a free response question. The most common reasons for discontinuation were lower perceived HIV risk (50%) and cost/insurance (30%). Reasons for potential re-initiation included higher-risk sexual activities and changes to structural related barriers. More research is needed to inform interventions on how GBM can continue taking PrEP during changes to employment that effect insurance coverage and cost.

**See Also:**


**GUIDELINES**


**Abstract:** Clinical guidelines for HIV pre-exposure prophylaxis (PrEP) developed by the US Centers for Disease Control and Prevention have been instrumental to the implementation of PrEP in medical practices throughout the country. However, the eligibility criteria contained within may inadvertently limit PrEP access for some patients. We describe key considerations and caveats surrounding these criteria: (1) promotion of a selective vs. universal approach to sexual health education involving PrEP; (2) misalignment between criteria stated in the table and text boxes; (3) problematic
categorization and confounding of sexual orientation, gender identity, and risk behavior; (4) underemphasis of network/community-level drivers of HIV transmission; (5) oversimplification of serodiscordant risk; and (6) lack of clarity surrounding the relevance of condoms to PrEP eligibility. We offer concrete recommendations to address the identified issues and strengthen future iterations of the guidelines, applying these recommendations in an alternative table of "criteria."


**Background:** US Centers for Disease Control and Prevention clinical guidelines for HIV pre-exposure prophylaxis (PrEP) are widely used to assess patients' PrEP eligibility. The guidelines include 2 versions of criteria-guidance summary criteria and recommended indications criteria—that diverge in a potentially critical way for heterosexually active women: Both require women's knowledge of their own risk behavior, but the recommended indications also require women's knowledge of their partners' HIV risk or recognition of a potentially asymptomatic sexually transmitted infection. This study examined women's PrEP eligibility according to these 2 different versions of criteria across risk and motivation categories. **Setting/Methods:** HIV-negative women (n = 679) recently engaged in care at Connecticut Planned Parenthood centers were surveyed online in 2017. The survey assessed PrEP eligibility by both versions of Centers for Disease Control and Prevention criteria, HIV risk indicators, PrEP motivation indicators, and sociodemographic characteristics. **Results:** Participants were mostly non-Hispanic white (33.9%) or black (35.8%) and had low income (<$30,000/year; 58.3%). Overall, 82.3% were eligible for PrEP by guidance summary criteria vs. 1.5% by recommended indications criteria. Women disqualified by recommended indications criteria included those reporting condomless sex with HIV-positive or serostatus-unknown male partners (n = 27, 11.1% eligible); 1 or more recent sexually transmitted infection(s) (n = 53, 3.8% eligible); multiple sex partners (n = 168, 3.0% eligible); intended PrEP use (n = 211, 2.8% eligible); and high self-perceived risk (n = 5, 0.0% eligible). **Conclusion:** Current guidelines disqualify many women who could benefit from PrEP and may lead to discrepant assessments of eligibility. Guideline reform is needed to improve clarity and increase women's PrEP access and consequent HIV protection.


**Background:** Identification of clients at greatest risk of acquiring HIV is critical for pre-exposure prophylaxis (PrEP) implementation. Young black MSM (YBMSM) have high incidence of HIV. We examined published guidelines in identifying eligible PrEP candidates, including seroconverters, in a representative cohort of YBMSM. **Methods:** The uConnect cohort included YBMSM aged 16-29 years during PrEP roll-out in Chicago from 2013 and 2016. YBMSM with indications for PrEP were determined using Center for
Disease Control and Prevention (CDC) guidelines, the HIV incidence risk index for MSM (HIRI-MSM) scoring tool, and Gilead recommendations with calculation of sensitivities, specificities, and area under the curve (AUC) for HIV seroconversion over 18 months. Incidence rate ratios (IRRs) using Poisson regression were modeled to compare individual and network factors associated with seroconversion. **Results:** In the study cohort, 300 HIV uninfected YBMSM contributed 390.4 person-years of follow-up [mean age (SD), 22.3 years (3.07)]. HIV incidence was 8.5 cases per 100 person-years (95% confidence interval, 6.0-11.9). One network factor was associated with seroconversion: having partners more than 10 years older (IRR=4.4, 95% confidence interval, 1.6-11.8). Overall, 49% of the cohort had an indication for PrEP using CDC guidelines; 72% using HIRI-MSM, and 86% using Gilead recommendations. HIV seroconverters (n=33) were identified as PrEP eligible prior to seroconversion with sensitivities/AUCs for CDC (52%/0.51), HIRI-MSM (85%/0.57), and Gilead guidelines (94%/0.54). **Conclusion:** Low sensitivity of CDC guidelines and limited AUC of HIRI-MSM and Gilead screening tools are of concern for PrEP implementation among most at risk populations such as YBMSM. Consideration of demographics, local epidemiology, and network factors may better guide identification of clients who could benefit most from PrEP.


**Abstract:** Despite high HIV incidence among young black men who have sex with men (YBMSM), pre-exposure prophylaxis (PrEP) uptake in this group is low. In a cohort of HIV-negative YBMSM in Atlanta, GA, all participants were offered PrEP as standard of care with free clinician visits and laboratory testing. We explored self-perceived need for PrEP among 29 in-depth interview participants by asking about reasons for PrEP uptake or refusal and factors that may lead to future reconsideration. Self-perceived need was compared to US Center for Disease Control and Prevention guidance for clinical PrEP indication using behavioral data and laboratory testing data. Self-perceived need for PrEP consistently underestimated clinical indication, primarily due to optimism for choosing other HIV prevention strategies, such as condom use, abstinence, or monogamy. Many participants cited consistent condom use and lack of sexual activity as reasons for not starting PrEP; however, follow-up survey data frequently demonstrated low condom use and high levels of sexual activity in the period after the interview. Study participants endorsed perceptions that PrEP is only for people with very high levels of sexual activity. Only one participant perceived incident sexually transmitted infection (STI) to be an indication for PrEP, despite the fact that several of the participants had a history of an STI diagnosis. These findings point to an opportunity for clinician intervention at diagnosis. Disconnect between self-perceived and guidance-based PrEP indications, as well as other factors such as medical mistrust or difficulty with access, may contribute to low PrEP uptake among YBMSM. A better understanding of the ways in which these issues manifest may be one tool for clinicians to support PrEP uptake.
HEALTH CARE PROVIDERS


Abstract: Optimizing access to HIV pre-exposure prophylaxis (PrEP), an evidence-based HIV prevention resource, requires expanding healthcare providers' adoption of PrEP into clinical practice. This qualitative study explored PrEP providers' firsthand experiences relative to six commonly-cited barriers to prescription—financial coverage, implementation logistics, eligibility determination, adherence concerns, side effects, and anticipated behavior change (risk compensation)—as well as their recommendations for training PrEP-inexperienced providers. U.S.-based PrEP providers were recruited via direct outreach and referral from colleagues and other participants (2014-2015). One-on-one interviews were conducted in person or by phone, transcribed, and analyzed. The sample (n = 18) primarily practiced in the Northeastern (67%) or Southern (22%) U.S. Nearly all (94%) were medical doctors (MDs), most of whom self-identified as infectious disease specialists. Prior experience prescribing PrEP ranged from 2 to 325 patients. Overall, providers reported favorable experiences with PrEP implementation and indicated that commonly anticipated problems were minimal or manageable. PrEP was covered via insurance or other programs for most patients; however, pre-authorization requirements, laboratory/service provision costs, and high deductibles sometimes presented challenges. Various models of PrEP care and coordination with other providers were utilized, with several providers highlighting the value of clinical staff support. Eligibility was determined through joint decision-making with patients; CDC guidelines were commonly referenced but not considered absolute. Patient adherence was variable, with particularly strong adherence noted among patients who had actively sought PrEP (self-referred). Providers observed minimal adverse effects or increases in risk behavior. However, they identified several barriers with respect to accessing and engaging PrEP candidates. Providers offered a wide range of suggestions regarding content, strategy, and logistics surrounding PrEP training, highlighting sexual history-taking and sexual minority competence as areas to prioritize. These insights from early-adopting PrEP providers may facilitate adoption of PrEP into clinical practice by PrEP-inexperienced providers, thereby improving access for individuals at risk for HIV.


Abstract: Despite the demonstrated effectiveness of HIV pre-exposure prophylaxis (PrEP) and evidence that most PrEP users do not engage in risk compensation (i.e., increased risk behavior due to a perceived decrease in HIV susceptibility), some healthcare providers report patient risk compensation to be a deterrent to prescribing PrEP. Overcoming this barrier is essential to supporting PrEP access and uptake among people at risk for HIV. To inform such efforts, this qualitative study explored PrEP-related risk compensation attitudes among providers with firsthand experience prescribing PrEP. US-based PrEP providers (n = 18), most of whom were HIV specialists, were recruited through
direct outreach and referral from colleagues and other participants. Individual 90-min semistructured interviews were conducted by phone or in person from September 2014 through February 2015, transcribed, and thematically analyzed. Three attitudinal themes emerged: (1) providers' role is to support patients in making informed decisions, (2) risk behavior while taking PrEP does not fully offset PrEP's protective benefit (i.e., PrEP confers net protection, even with added behavioral risk), and (3) PrEP-related risk compensation is unduly stigmatized within and beyond the healthcare community. Participants were critical of other healthcare providers' negative judgment of patients and reluctance to prescribe PrEP due to anticipated risk compensation. Several providers also acknowledged an evolution in their thinking from initial ambivalence toward greater acceptance of PrEP and PrEP-related behavior change. PrEP providers' insights about risk compensation may help to address unsubstantiated concerns about PrEP-related risk compensation and challenge the acceptability of withholding PrEP on these grounds.


Abstract: The Southeast accounted for most HIV diagnoses (52%) in the United States in 2015. Primary care providers (PCPs) play a vital role in HIV prevention for at-risk persons and treatment of persons living with HIV. We studied HIV-related training, knowledge, and clinical practices among PCPs in the Southeast to address knowledge gaps to inform HIV prevention strategies. Between April and August 2017, we conducted an on-line survey of a representative sample of PCPs in six Southeast jurisdictions with high rates of HIV diagnoses (Atlanta; Baltimore; Baton Rouge; District of Columbia; Miami; New Orleans). We defined HIV-related training as self-reported completion of any certified HIV/STD course or continuing education in past 24 months (prior to survey completion). We assessed associations between training and HIV testing practices, familiarity with nonoccupational post-exposure prophylaxis (nPEP) and pre-exposure prophylaxis (PrEP), and ever prescribing nPEP or PrEP. There were 820 participants after fielding 4595 surveys (29.6% adjusted response rate). In weighted analyses, 36.3% reported HIV-related training. Using adjusted prevalence ratio (aPR) and confidence intervals (CI), we found that PCPs with HIV-related training (compared to those with no training) were more likely to be familiar with nPEP (aPR = 1.32, 95% CI 1.05, 1.67) and PrEP (aPR = 1.67, 95% CI 1.19, 2.38); and to have ever prescribed PrEP to patients (aPR = 1.75, 95% CI 1.10, 2.78). Increased HIV-related trainings among PCPs in high HIV prevalence Southeast jurisdictions may be warranted. Strengthening nPEP and PrEP familiarity among PCPs in Southeast may advance national HIV prevention goals.

**Abstract:** The Centers for Disease Control and Prevention estimates that one in four sexually active men who have sex with men (MSM) could decrease their HIV risk by using HIV pre-exposure prophylaxis (PrEP). Because many MSM access healthcare from primary care providers (PCPs), these clinicians could play an important role in providing access to PrEP. Semistructured qualitative interviews were conducted with 31 PCPs in Boston, MA, to explore how they approach decisions about prescribing PrEP to MSM and their experiences with PrEP provision. Purposive sampling included 12 PCPs from an urban community health center specializing in the care of lesbian, gay, bisexual, and transgender persons (“LGBT specialists”) and 19 PCPs from a general academic medical center (“generalists”). Analyses utilized an inductive approach to identify emergent themes. Both groups of PCPs approached prescribing decisions about PrEP as a process of informed decision-making with patients. Providers would defer to patients’ preferences if they were unsure about the appropriateness of PrEP. LGBT specialists and generalists were at vastly different stages of adopting PrEP into practice. For LGBT specialists, PrEP was a disruptive innovation that rapidly became normative in practice. Generalists had limited experience with PrEP; however, they desired succinct decision-support tools to help them achieve proficiency, because they considered preventive medicine to be central to their professional role. As generalists vastly outnumber LGBT specialists in the United States, interventions to support PrEP provision by generalists could accelerate the scale-up of PrEP for MSM nationally, which could in turn decrease HIV incidence for this priority population.


**Purpose:** Understanding the attitudes of physicians toward the use of pre-exposure prophylaxis (PrEP) for HIV prevention among youth is critical to improving access to PrEP. We examined PrEP-related attitudes among physicians who provide primary care to 13- to 21-year-old adolescents. **Methods:** Individual, in-depth, semistructured interviews were conducted with 38 physicians from adolescent medicine, family practice, internal medicine/medicine-pediatrics, obstetrics/gynecology, and pediatrics who care for any adolescents younger than 18 years. Interviews assessed familiarity with PrEP, perceived benefits and barriers to providing PrEP to adolescents, facilitating factors for prescribing PrEP, and likelihood of recommending and prescribing PrEP to adolescents. **Results:** Mean age was 44.6 years (standard deviation 10.9). Fourteen physicians (37%) reported being somewhat or very familiar with PrEP. Perceived benefits of prescribing PrEP included decreased acquisition/rates of HIV, improved provision of sexual health services, and improved patient awareness of HIV risk. Barriers to PrEP were reported at the patient (e.g., lack of acceptability to patients), provider (e.g., concerns about patient adherence, safety/side effects, parents as a barrier to PrEP use), and system (e.g., high cost) levels.
Facilitating factors for prescribing PrEP included low cost/coverage by insurance, physician education about PrEP, patient educational materials, and clinical guidelines for PrEP use in youth. A higher proportion of physicians reported being highly or somewhat likely to recommend (N = 16, 42%) than prescribe PrEP (N = 13, 34%). **Conclusions:** In this study of primary care physician attitudes toward PrEP prescribing for adolescents, physicians identified numerous barriers to providing PrEP. Addressing these barriers may increase adolescents' access to PrEP.


**Abstract:** Oral pre-exposure prophylaxis (PrEP) for human immunodeficiency virus (HIV) prevention is currently indicated for use in adults in the United States and may soon be indicated for minor adolescents. However, implementation of PrEP use among minors may present unique barriers. We conducted 15 individual, semi-structured interviews among US clinicians caring for HIV-infected and at-risk youth. The theory-driven interview guide assessed demographics, perceived role of oral PrEP in HIV prevention among adolescents, perceived barriers to and facilitating factors for use of PrEP in adolescents, and clinician-reported likelihood of prescribing PrEP. Transcripts were analyzed using framework analysis. Overall, clinicians viewed PrEP as a time-limited intervention that is one part of a comprehensive approach to HIV prevention among adolescents. Perceived barriers to prescribing to minors included concerns about: confidentiality, legality of minors consenting to PrEP without parental involvement, ability of minors to understand the risks/benefits of PrEP, the possible impact of PrEP on bone accrual, off-label use of PrEP medication in minors, and the high costs associated with PrEP use. Clinician-reported facilitating factors for prescribing PrEP to youth included educating communities and other clinicians about PrEP, ensuring adequate financial resources and infrastructure for delivering PrEP, developing formal guidance on effective behavioral interventions that should be delivered with PrEP, and gaining personal experience with prescribing PrEP. Clinicians indicated greater comfort with prescribing PrEP to adults versus minors. For PrEP to become more widely available to youth at risk for HIV infection, barriers that are unique to PrEP use in minors must be addressed.


**Abstract:** Pre-exposure prophylaxis (PrEP) safely and effectively prevents HIV in populations at high risk, including men who have sex with men (MSM). PrEP scale-up depends upon primary care providers and community-based organizations (CBOs) sharing PrEP information. This study aimed to determine whether healthcare provider or CBO contact was associated with PrEP awareness among Baltimore MSM. **Methods:** This study used 2014 Baltimore MSM National HIV Behavioral Surveillance data, which included data on health care, HIV and sexually transmitted infection testing, and receipt of condoms from CBOs. In 2015, associations were estimated between healthcare contacts
and PrEP awareness through logistic regression models controlling for age, race, and education and clustering by venue. Comparative analyses were conducted with HIV testing as outcome. **Results:** There were 401 HIV-negative participants, of whom 168 (42%) were aware of PrEP. Visiting a healthcare provider in the past 12 months, receiving an HIV test from a provider, and having a sexually transmitted infection test in the past 12 months were not significantly associated with PrEP awareness. PrEP awareness was associated with being out to a healthcare provider (OR=2.97, 95% CI=1.78, 4.96, p<0.001); being tested for HIV (OR=1.50, 95% CI=1.06, 2.13, p=0.023); and receiving condoms from an HIV/AIDS CBO (OR=2.59, 95% CI=1.43, 4.64, p=0.001). By contrast, HIV testing was significantly associated with most forms of healthcare contact. **Conclusions:** PrEP awareness is not associated with most forms of healthcare contact, highlighting the need for guidelines and trainings to support provider discussion of PrEP with MSM.


**Objectives:** As trials were assessing the safety and efficacy of daily oral antiretroviral pre-exposure prophylaxis (PrEP) for the prevention of HIV infection, there was a clear need to understand the evolution of knowledge of, and attitudes toward, PrEP among primary care clinicians. **Methods:** Physicians and nurse practitioners were surveyed in 2009 (n = 1500), 2010 (n = 1504), 2012 (n = 1503), 2013 (n = 1507), 2014 (n = 1508) and 2015 (n = 1501) to assess their awareness of PrEP, willingness to prescribe PrEP, and whether they support use of public funds to pay for PrEP. Pharmacists (n = 251) were surveyed about PrEP in 2012 only. Descriptive statistics were computed for physician demographics and PrEP-related questions. Prevalence ratios for willingness to prescribe PrEP were computed using Poisson regression analysis. **Results:** Awareness of PrEP was low among clinicians (2009: 24%, 2010: 29%) but increased after trials reported effectiveness (2012: 49%, 2013: 51%, 2014: 61%, 2015: 66%). Following a description of PrEP with an estimated effectiveness of 75%, across 6 of the study years 91% of clinicians indicated a willingness to prescribe PrEP to at least one group at high risk of HIV acquisition. A smaller majority of clinicians indicated support for public funding of PrEP in 2009: 59%, 2010: 53%, and 2013: 63%. **Conclusions:** In surveys conducted before and after the release of PrEP trial results, primary care clinicians were largely unaware of PrEP. They indicated high levels of willingness to prescribe it for patients at high risk of HIV acquisition and expressed interest in education about how to deliver this new clinical HIV prevention method. It will be important to continue monitoring clinician knowledge, attitudes, and practices as the use of PrEP increases in the US.


**Background:** Clinical trials have demonstrated the effectiveness of human immunodeficiency virus (HIV) pre-exposure prophylaxis (PrEP) for reducing HIV acquisition. Understanding how HIV care providers are prescribing PrEP is necessary to
ensure success of this prevention strategy. **Methods:** During 2013-2014, we surveyed US HIV care providers who also provided care to HIV-negative patients. We estimated percentages who had prescribed PrEP and assessed associations between provider characteristics and PrEP prescribing. **Results:** An estimated 26% (95% confidence interval [CI], 20-31) had ever prescribed PrEP. Of these, 74% (95% CI, 61-87) prescribed for men who have sex with men (MSM), 30% (95% CI, 21-39) for women who have sex with men, 23% (95% CI, 9-37) for men who have sex with women, 23% (95% CI, 15-30) for uninfected partners in HIV-discordant couples trying to conceive, and 1% (95% CI, 0-2) for persons who inject drugs. The following provider characteristics were significantly associated with having prescribed PrEP: male vs female (32% vs 16%; adjusted prevalence ratio [aPR], 1.5; 95% CI, 1.0-2.2), lesbian/gay/bisexual vs heterosexual orientation (50% vs 21%; aPR, 2.0; 95% CI, 1.3-2.9), and HIV caseload (>200, 51-200, and ≤50 patients, 39%, 29%, and 14%, respectively; >200 vs ≤50 patients, aPR 2.4, 95% CI 1.1-5.2, and 51-200 vs ≤50 patients, aPR 2.2, 95% CI 1.2-4.0). **Conclusions:** In 2013-2014, one quarter of HIV care providers reported having prescribed PrEP, most commonly for MSM and rarely for persons who inject drugs. Lesbian/gay/bisexual providers and male providers were more likely than others to have prescribed PrEP. Additional efforts may enable more providers to prescribe PrEP to underserved clients needing the service.

**See Also:**


**QUALITY OF CARE:** Parsons JT, John SA, Whitfield TH, et al. Human immunodeficiency virus/sexually transmitted infection counseling and testing services received by gay and bisexual men using preexposure prophylaxis at their last PrEP care visit. *Sexually Transmitted Diseases.* 2018;45(12):798-802.

HEALTH INSURANCE


Abstract: Pre-exposure prophylaxis (PrEP) can reduce U.S. HIV incidence. We assessed insurance coverage and its association with PrEP utilization. We reviewed patient data at three PrEP clinics (Jackson, Mississippi; St. Louis, Missouri; Providence, Rhode Island) from 2014-2015. The outcome, PrEP utilization, was defined as patient PrEP use at three months. Multivariable logistic regression was performed to determine the association between insurance coverage and PrEP utilization. Of 201 patients (Jackson: 34%; St. Louis: 28%; Providence: 28%), 91% were male, 51% were white, median age was 29 years, and 21% were uninsured; 82% of patients reported taking PrEP at three months. Insurance coverage was significantly associated with PrEP utilization. After adjusting for Medicaid-expansion and individual socio-demographics, insured patients were four times as likely to use PrEP services compared to the uninsured (OR: 4.49, 95% CI: 1.68-12.01; p = 0.003). Disparities in insurance coverage are important considerations in implementation programs and may impede PrEP utilization.


Background: Daily, oral use of tenofovir disoproxil fumarate and emtricitabine (TDF-FTC) for pre-exposure prophylaxis (PrEP) is an effective strategy to prevent acquisition of human immunodeficiency virus (HIV) infection. It is important to monitor PrEP uptake at the national level to increase our understanding of trends in its utilization, but national HIV surveillance data do not include PrEP uptake. Our objective was to develop feasible methods to estimate PrEP uptake and to estimate uptake each year among commercially insured persons during 2010-2014. Methods: We conducted a retrospective analysis of the 2010-2014 MarketScan database, a national sample of persons with commercial health insurance in the United States. We developed an algorithm to identify persons aged ≥16 years who were prescribed TDF-FTC for PrEP each year. We generated nationally representative estimates of prevalence of persons prescribed PrEP. Results: We found a significantly increasing trend in the proportion of persons prescribed TDF-FTC for PrEP during the study period, with 417 users in 2010 and 9,375 in 2014 (P < .001); 97% of PrEP users were male and 98% lived in metropolitan areas in 2014. During the study period, the numbers of women prescribed PrEP were low. Conclusions: Our analytic method provides the only feasible means to monitor PrEP uptake in the United States. Although a
marked increasing trend in uptake was observed for men, the number of women who used PrEP remained very low during the study period. Interventions are needed to increase PrEP use by women at substantial risk of acquiring HIV infection.

HIV PREVENTION


Abstract: Pre-exposure prophylaxis (PrEP) has been established as an effective HIV prevention tool, but real world studies are limited. To inform dissemination efforts, we sought to describe individuals prescribed PrEP in the largest health care system in the Bronx, New York, an urban region with a high burden of HIV. We used a clinical database and chart review to identify individuals prescribed PrEP between 2011 and 2015 (n=108). A majority were Black and Hispanic, half were men who have sex with men, and nearly a third were cisgender women who have sex with men. Primary care settings were the most common site of PrEP prescription and PrEP prescription rates increased over time. Despite reaching a diverse patient population, PrEP prescribing rates were low, underscoring the urgent need for PrEP scale-up.


Abstract: There are ~900,000 new HIV infections among women every year, representing nearly half of all new HIV infections globally. In the US, nearly one-fifth of all new HIV infections occur among women, and women from racial and ethnic minority communities experience disproportionately high rates of new HIV infections. Thus, there is a need to develop and implement effective HIV prevention strategies for women in the US and internationally, with a specific need to advance strategies in minority communities. Previous studies have demonstrated that oral HIV pre-exposure prophylaxis (PrEP), the use of antiretroviral medications by HIV-uninfected persons to prevent HIV acquisition, can reduce HIV incidence among women who are adherent to PrEP. However, to date, awareness and uptake of PrEP among women have been very limited, suggesting a need for innovative strategies to increase the knowledge of and access to PrEP among women in diverse settings. This narrative review summarizes the efficacy and safety data of PrEP in women, discusses considerations related to medication adherence for women who use PrEP, and highlights behavioral, social, and structural barriers to maximize the effectiveness of PrEP in women. It also reviews novel modalities for PrEP in women which are being developed and tested, including topical formulations and long-acting injectable agents that may offer advantages as compared to oral PrEP and proposes a community-oriented, social networking framework to increase awareness of PrEP among women. If
women are provided with access to PrEP and support to overcome social and structural barriers to adhere to PrEP, this prevention strategy holds great promise to impact the HIV epidemic among women in the US and globally.


**Objective:** Pre-exposure prophylaxis (PrEP) offers a promising new approach to HIV prevention. This systematic review and meta-analysis evaluated the evidence for use of oral PrEP containing tenofovir disoproxil fumarate as an additional HIV prevention strategy in populations at substantial risk for HIV based on HIV acquisition, adverse events, drug resistance, sexual behavior, and reproductive health outcomes. **Design:** Rigorous systematic review and meta-analysis. **Methods:** A comprehensive search strategy reviewed three electronic databases and conference abstracts through April 2015. Pooled effect estimates were calculated using random-effects meta-analysis. **Results:** Eighteen studies were included, comprising data from 39 articles and six conference abstracts. Across populations and PrEP regimens, PrEP significantly reduced the risk of HIV acquisition compared with placebo. Trials with PrEP use more than 70% demonstrated the highest PrEP effectiveness (risk ratio = 0.30, 95% confidence interval: 0.21-0.45, P < 0.001) compared with placebo. Trials with low PrEP use did not show a significantly protective effect. Adverse events were similar between PrEP and placebo groups. More cases of drug-resistant HIV infection were found among PrEP users who initiated PrEP while acutely HIV-infected, but incidence of acquiring drug-resistant HIV during PrEP use was low. Studies consistently found no association between PrEP use and changes in sexual risk behavior. PrEP was not associated with increased pregnancy-related adverse events or hormonal contraception effectiveness. **Conclusion:** PrEP is protective against HIV infection across populations, presents few significant safety risks, and there is no evidence of behavioral risk compensation. The effective and cost-effective use of PrEP will require development of best practices for fostering uptake and adherence among people at substantial HIV risk.


**Background:** The effect of improving diagnosis, care, and treatment of persons living with HIV (PLWH) on pre-exposure prophylaxis (PrEP) effectiveness in the United States has not been well established. **Methods:** We used a dynamic, compartmental model that simulates the sexually active US population. We investigated the change in cumulative HIV incidence from 2016 to 2020 for 3 HIV care-continuum levels and the marginal benefit of PrEP compared with each. We also explored the marginal benefit of PrEP for individual risk groups, and as PrEP adherence, coverage and dropout rates varied. **Results:** Delivering PrEP in 2016 to persons at high risk of acquiring HIV resulted in an 18.1% reduction in new HIV infections from 2016 to 2020 under current care-continuum levels. Achieving HIV national goals of 90% of PLWH with diagnosed infection, 85% of newly diagnosed PLWH linked to care at diagnosis, and 80% of diagnosed PLWH virally
suppressed reduced cumulative incidence by 34.4%. Delivery of PrEP in addition to this scenario resulted in a marginal benefit of 11.1% additional infections prevented. When national goals were reached, PrEP prevented an additional 15.2% cases among men who have sex with men, 3.9% among heterosexuals, and 3.8% among persons who inject drugs. **Conclusions:** The marginal benefit of PrEP was larger when current HIV-care-continuum percentages were maintained but continued to be substantial even when national care goals were met. The high-risk men who have sex with men population was the chief beneficiary of PrEP.


**Background:** HIV preexposure prophylaxis (PrEP) is an effective tool in preventing HIV infection among high-risk men who have sex with men (MSM). It is unknown how effective PrEP is in the context of other implemented HIV prevention strategies, including condom use, seroadaptation, and treatment as prevention (TasP). We evaluate the impact of increasing uptake of PrEP in conjunction with established prevention strategies on HIV incidence in a high-risk population of MSM through simulation. **Methods:** Agent-based simulation models representing the sexual behavior of high-risk, urban MSM in the United States over the period of 1 year were used to evaluate the effect of PrEP on HIV infection rates. Simulations included data for 10,000 MSM and compared increasing rates of PrEP uptake under 8 prevention paradigms: no additional strategies, TasP, condom use, seroadaptive behavior, and combinations thereof. **Results:** We observed a mean of 103.2 infections per 10,000 MSM in the absence of any prevention method. PrEP uptake at 25% without any additional prevention strategies prevented 30.7% of infections. In the absence of PrEP, TasP, condom use, and seroadaptive behavior independently prevented 27.1%, 48.8%, and 37.7% of infections, respectively, and together prevented 72.2%. The addition of PrEP to the 3 aforementioned prevention methods, at 25% uptake, prevented an additional 5.0% of infections. **Conclusions:** To achieve a 25% reduction in HIV infections by 2020, HIV prevention efforts should focus on significantly scaling up access to PrEP in addition to HIV testing, access to antiretroviral therapy, and promoting condom use.


**Importance:** Several randomized clinical trials have demonstrated the efficacy of preexposure prophylaxis (PrEP) in preventing human immunodeficiency virus (HIV) acquisition. Little is known about adherence to the regimen, sexual practices, and overall effectiveness when PrEP is implemented in clinics that treat sexually transmitted infections (STIs) and community-based clinics serving men who have sex with men (MSM). **Objective:** To assess PrEP adherence, sexual behaviors, and the incidence of STIs and HIV infection in a cohort of MSM and transgender women initiating PrEP in the United States. **Design, Setting, Participants:** Demonstration project conducted from October 1,
2012, through February 10, 2015 (last date of follow-up), among 557 MSM and transgender women in 2 STI clinics in San Francisco, California, and Miami, Florida, and a community health center in Washington, DC. Data were analyzed from December 18, 2014, through August 8, 2015. **Interventions:** A combination of daily, oral tenofovir disoproxil fumarate and emtricitabine was provided free of charge for 48 weeks. All participants received HIV testing, brief client-centered counseling, and clinical monitoring. **Main Outcomes and Measures:** Concentrations of tenofovir diphosphate in dried blood spot samples, self-reported numbers of anal sex partners and episodes of condomless receptive anal sex, and incidence of STI and HIV acquisition. **Results:** Overall, 557 participants initiated PrEP, and 437 of these (78.5%) were retained through 48 weeks. Based on the findings from the 294 participants who underwent measurement of tenofovir diphosphate levels, 80.0% to 85.6% had protective levels (consistent with ≥4 doses/wk) at follow-up visits. African American participants (56.8% of visits; P = .003) and those from the Miami site (65.1% of visits; P < .001) were less likely to have protective levels, whereas those with stable housing (86.8%; P = .02) and those reporting at least 2 condomless anal sex partners in the past 3 months (88.6%; P = .01) were more likely to have protective levels. The mean number of anal sex partners declined during follow-up from 10.9 to 9.3, whereas the proportion engaging in condomless receptive anal sex remained stable at 65.5% to 65.6%. Overall STI incidence was high (90 per 100 person-years) but did not increase over time. Two individuals became HIV infected during follow-up (HIV incidence, 0.43 [95% CI, 0.05-1.54] infections per 100 person-years); both had tenofovir diphosphate levels consistent with fewer than 2 doses/wk at seroconversion. **Conclusions:** The incidence of HIV acquisition was extremely low despite a high incidence of STIs in a large US PrEP demonstration project. Adherence was higher among those participants who reported more risk behaviors. Interventions that address racial and geographic disparities and housing instability may increase the impact of PrEP.


**Abstract:** Pre-exposure prophylaxis (PrEP) is an effective HIV prevention strategy. There is little scientific consensus about how to measure PrEP program implementation progress. We draw on several years of experience in implementing PrEP programs and propose a PrEP continuum of care that includes: (1) identifying individuals at highest risk for contracting HIV, (2) increasing HIV risk awareness among those individuals, (3) enhancing PrEP awareness, (4) facilitating PrEP access, (5) linking to PrEP care, (6) prescribing PrEP, (7) initiating PrEP, (8) adhering to PrEP, and (9) retaining individuals in PrEP care. We also propose four distinct categories of PrEP retention in care that include being: (1) indicated for PrEP and retained in PrEP care, (2) indicated for PrEP and not retained in PrEP care, (3) no longer indicated for PrEP, and (4) lost to follow-up for PrEP care. This continuum of PrEP care creates a framework that researchers and practitioners can use to measure PrEP awareness, uptake, adherence, and retention. Understanding each point along the proposed continuum of PrEP care is critical for developing effective PrEP interventions and for measuring public health progress in PrEP program implementation.

**Objectives:** The Centers for Disease Control and Prevention defines HIV prevention as a core family planning service. The HIV community identified family planning visits as key encounters for women to access pre-exposure prophylaxis (PrEP) for HIV prevention. No studies explore US family planning providers' knowledge of and attitudes towards PrEP. We conducted a national survey of clinicians to understand barriers and facilitators to PrEP implementation in family planning. **Study Design:** Family planning providers recruited via website postings, national meetings, and email completed an anonymous survey in 2015. Descriptive statistics were performed. **Results:** Among 604 respondents, 495 were eligible for analysis and 342 were potential PrEP prescribers (physicians, nurse practitioners, midwives or physicians assistants). Among potential prescribers, 38% correctly defined PrEP [95% confidence interval (CI): 32.5-42.8], 37% correctly stated the efficacy of PrEP (95% CI: 32.0-42.4), and 36% chose the correct HIV test after a recent exposure (95% CI: 30.6-40.8). Characteristics of those who answered knowledge questions correctly included age less than 35 years, practicing in the Northeast or West, routinely offering HIV testing, providing rectal sexually transmitted infection screening or having seen any PrEP guidelines. Even among providers in the Northeast and West, the proportion of respondents answering questions correctly was less than 50%. Thirty-six percent of respondents had seen any PrEP guidelines. Providers identified lack of training as the main barrier to PrEP implementation; 87% wanted PrEP education. **Conclusions:** To offer comprehensive HIV prevention services, family planning providers urgently need training on PrEP and HIV testing. **Implications:** US family planning providers have limited knowledge about HIV PrEP and HIV testing, and report lack of provider training as the main barrier to PrEP provision. Provider education is needed to ensure that family planning clients access comprehensive HIV prevention methods.

**IMPLEMENTATION**


**Background:** Pre-exposure prophylaxis (PrEP) is efficacious in preventing human immunodeficiency virus (HIV) among men who have sex with men (MSM). We assessed PrEP uptake among MSM presenting for services at a sexually transmitted diseases (STD) clinic. **Methods:** Men who have sex with men presenting to the Rhode Island STD Clinic between October 2013 and November 2014 were educated about, and offered, PrEP. We categorized PrEP engagement using an implementation cascade to describe gaps in uptake which described MSM who: (1) were educated about PrEP, (2) indicated interest, (3)
successfully received follow-up contact, (4) scheduled an appointment, (5) attended an appointment, and (6) initiated PrEP (ie, received a prescription). Bivariate and multivariable logistic regression models were used to examine predictors of PrEP initiation. **Results:** A total of 234 MSM were educated about PrEP; of these, 56% expressed interest. Common reasons for lack of interest were low HIV risk perception (37%), wanting more time to consider (10%), concern about side effects (7%), and financial barriers (3%). Among those interested, 53% followed up. Of those, 51% scheduled an appointment. The most common reason patients did not schedule an appointment was low HIV risk perception (38%). Seventy-seven percent of those with an appointment attended the appointment; of those, 93% initiated PrEP. Patients with higher HIV-risk perception (adjusted odds ratios, 2.17; 95% confidence interval, 1.29-3.64) and a history of sex with an HIV-positive partner (adjusted odds ratios, 7.08; 95% confidence interval, 2.35-21.34) had significantly higher odds of initiating PrEP. **Conclusions:** Low HIV-risk perception was the most significant barrier to PrEP uptake among MSM attending a public STD clinic.


**Abstract:** Data indicate that diffusion of pre-exposure prophylaxis (PrEP) programs for HIV prevention is increasing in the United States; however, persistent disparities in PrEP access remain. Earlier waves of PrEP implementation focused on development (2012-2015) and diffusion (2016-2018). To reduce disparities, the next wave of PrEP implementation should focus on integration; that is, the assimilation of PrEP service as an integral part of HIV prevention, sexual health, and primary care. This review analyzes PrEP implementation literature in the context of three "next-wave" challenges: increasing patient demand, enhancing provider investment and competency, and improving health systems capacity. Our review revealed five activities we consider critical to successful next-wave PrEP implementation efforts: (1) redefining PrEP eligibility assessment, (2) de-emphasizing risk perception as a strategy to increase demand, (3) rejecting risk compensation arguments, (4) altering guidelines to make PrEP follow-up less onerous, and (5) focusing directly on strategies to reduce the cost of PrEP medication. This article ends with a case study of a research-practice partnership designed to instantiate new approaches to integrative implementation efforts.


**Abstract:** The past 3 years have marked a transition from research establishing the safety and efficacy of HIV pre-exposure prophylaxis (PrEP) to questions about how to optimize its implementation. Until recently, PrEP was primarily offered as part of randomized controlled trials or open-label studies. These studies highlighted the key components of PrEP delivery, including regular testing for HIV and other sexually transmitted infections (STIs), adherence and risk-reduction support, and monitoring for renal toxicity. PrEP is now increasingly provided in routine clinical settings. This review summarizes models for
PrEP implementation from screening through initiation and follow-up, focusing on the strengths and weaknesses of three delivery systems: a health maintenance organization, an STI clinic, and a primary care practice. These early implementation experiences demonstrate that PrEP can be successfully delivered across a variety of settings and highlight strategies to streamline PrEP delivery in clinical practice.


**Background:** The use of pre-exposure prophylaxis (PrEP) for HIV prevention was approved by the Food and Drug Administration in 2012, but delivery to at-risk persons has lagged. This critical review analyzes the current state of PrEP implementation in the United States, by reviewing barriers and innovative solutions to enhance PrEP access and uptake.

**Setting:** Clinical care settings, public health programs, and community-based organizations (CBOs).

**Methods:** Critical review of recent peer-reviewed literature.

**Results:** More than 100 papers were reviewed. PrEP is currently provided in diverse settings. Care models include sexually transmitted disease clinics, community health centers, CBOs, pharmacies, and private primary care providers (PCPs). Sexually transmitted disease clinics have staff trained in sexual health counseling and are linked to public health programs (eg, partner notification services), whereas PCPs and community health centers may be less comfortable counseling and feel time-constrained in managing PrEP. However, PCPs may be ideal PrEP providers, given their long-term relationships with patients, integrating PrEP into routine care. Collaborations with CBOs can expand PrEP care through adherence support and insurance navigation. Pharmacies can deliver PrEP, given their experience with medication dispensing and counseling, and may be more accessible for some patients, but to address other health concerns, liaisons with PCPs may be needed.

Conclusions: PrEP implementation in the United States is moving forward with the development of diverse models of delivery. Optimal scale-up will require learning about the best features of each model and providing choices to consumers that enhance engagement and uptake.


Research has shown that pre-exposure prophylaxis (PrEP) is effective for preventing HIV infection. We developed the Targeted PrEP Implementation Program (TPIP), an 18-month project that involved five statewide agencies, to assess the extent to which PrEP could be implemented in “real world” clinical settings. The target population was men who have sex with men at high risk for HIV infection. Data were collected from a variety of sources. Implementing PrEP statewide required facilitating provider capacity, developing resources, and identifying/addressing potential barriers. TPIP focused on three key questions: (a) Can providers identify and retain appropriate candidates for PrEP? (b) Can PrEP participants adhere to daily medication? (c) Can PrEP be delivered as part of a comprehensive/integrated plan? There were 171 participating clients, most of whom
successfully incorporated PrEP into their daily routines. After addressing initial barriers, we found that PrEP could be routinely delivered as part of a comprehensive prevention plan.


Abstract: There are many challenges to accessing PrEP and thus low uptake in the United States. This review (2007-2017) of PrEP implementation identified barriers to PrEP and interventions to match those barriers. The final set of articles (n = 47) included content on cognitive aspects of HIV service providers and individuals at risk for infection, reviews, and case studies. Cognitive barriers and interventions regarding patients and providers included knowledge, attitudes, and beliefs about PrEP. The "purview paradox" was identified as a key barrier—HIV specialists often do not see HIV-negative patients, while primary care physicians, who often see uninfected patients, are not trained to provide PrEP. Healthcare systems barriers included lack of communication about, funding for, and access to PrEP. The intersection between PrEP-stigma, HIV-stigma, transphobia, homophobia, and disparities across gender, racial, and ethnic groups were identified; but few interventions addressed these barriers. We recommend multilevel interventions targeting barriers at multiple socioecological domains.


Abstract: Emergency Departments (EDs) have the potential to play a crucial role in HIV prevention by identifying and linking high-risk HIV-negative clients to pre-exposure prophylaxis (PrEP) care, but it is difficult to perform HIV risk assessment for all ED patients. We aimed to develop and implement an electronic risk score to identify ED patients who are potential candidates for PrEP. Using electronic medical record (EMR) data, we used logistic regression to model the outcome of PrEP eligibility. We converted the model into an electronic risk score and incorporated it into the EMR. The risk score is automatically calculated at triage. For patients whose risk score is above a given threshold, an automated electronic alert is sent to an HIV prevention counselor who performs real time HIV prevention counseling, risk assessment, and PrEP linkage as appropriate. The electronic risk score includes the following EMR variables: age, gender, gender of sexual partner, chief complaint, and positive test for sexually transmitted infection in the prior 6 months. A risk score ≥21 has specificity of 80.6% and sensitivity of 50%. In the first 5.5 months of implementation, the alert fired for 180 patients, 34.4% (62/180) of whom were women. Of the 51 patients who completed risk assessment, 68.6% (35/51) were interested in PrEP, 17.6% (9/51) scheduled a PrEP appointment, and 7.8% (4/51) successfully initiated PrEP. The measured number of successful PrEP initiations is likely an underestimate, as it does include patients who initiated PrEP with outside providers or referred acquaintances for PrEP care.
See Also:


INCARCERATED INDIVIDUALS


**Abstract:** Criminal justice (CJ) settings disproportionately include populations at high risk for acquiring HIV, and CJ-involved individuals are often at the intersection of multiple overlapping risk factors. However, few studies have examined attitudes about pre-exposure prophylaxis (PrEP) among incarcerated men who have sex with men (MSM). This study explored interest in, knowledge of, and barriers to PrEP uptake among gay, bisexual, and other men who have sex with men at the Rhode Island Department of Corrections. Using semi-structured interviews, 26 MSM were interviewed about PrEP knowledge, interest, timing preferences for provision (e.g. before or after release), and barriers to uptake and adherence during community re-entry. Interviews were coded and analyzed using a general inductive approach. Participants demonstrated low initial knowledge of PrEP but high interest after being told more about it. Participants self-identified risk factors for HIV acquisition, including condomless sex and substance use. In addition, participants preferred provision of PrEP prior to release. Post-release barriers to PrEP uptake and adherence included 1) concerns about costs of PrEP medications; 2) anticipated partner or family disapproval; 3) lack of access to transportation; 4) unstable housing; 5) compounding impacts of multiple hardships leading to a de-prioritization of PrEP and 6) fears of future re-incarceration. These results point to the need for future PrEP interventions among incarcerated populations that address incarceration and PrEP related barriers during community re-entry via wraparound services that address PrEP and incarceration-related barriers.


**Purpose:** Men who have sex with men (MSM) who are incarcerated are at increased risk for HIV acquisition, yet there are challenges associated with disclosing sexual identity/orientation among people who are incarcerated. **Methods:** The current study used semi-structured, qualitative interviews to explore attitudes and awareness of pre-exposure prophylaxis (PrEP) among 26 MSM who were incarcerated at the Rhode Island
Department of Corrections. **Results:** Participants noted variable levels of willingness to disclose sexual identity/orientation. **Conclusions:** CJ institutions should consider involving medical staff and outside agencies when using the CDC PrEP guidelines or consider a WHO-based, rather than behavior-based, approach to determining candidacy for PrEP.


Women involved in the criminal justice system (WICJ) are at high risk of acquiring HIV and would benefit from HIV pre-exposure prophylaxis (PrEP) but there are no studies in this population to inform PrEP implementation programs. We conducted a cross-sectional survey of HIV-uninfected, cis-gender women on probation, parole and/or recently released from prison/jail to assess PrEP awareness, eligibility, potential barriers to uptake, and the PrEP care continuum. The 125 WICJ surveyed reported high rates of HIV risk behaviors including recent transactional sex (22.4%) and unsafe injection practices (14.4%). Despite 33% (n = 42) meeting eligibility criteria for PrEP, only 25% were aware of PrEP and one person was currently using it. Just 16.7% of those who were PrEP eligible perceived they were at risk for HIV. Following a brief explanation of PrEP, 90% said they would try it if recommended by their physician. Compared to those not PrEP eligible (n = 83), PrEP eligible women were less likely to be stably housed or have a primary care provider, and were more likely to be violence-exposed, charged with drug possession, have lifetime substance use, or living with Hepatitis C infection. WICJ frequently engage in HIV risk behaviors that make them eligible for PrEP. Uptake may be limited by lack of PrEP awareness or underestimation of personal HIV risk. WICJ report receptiveness to PrEP and represent an important population for targeted PrEP implementation programs.

**INTERVENTIONS**


**Background:** In the United States, young men who have sex with men (YMSM) of color represent a high number of new HIV diagnoses annually. HIV pre-exposure prophylaxis (PrEP) is effective and acceptable to YMSM of color; yet, PrEP uptake is low in those communities because of barriers including stigma, cost, adherence concerns, and medical distrust. A telehealth-based approach to PrEP initiation may be a solution to those barriers. This pilot study investigates one such intervention called PrEPTECH. **Methods:** We enrolled 25 HIV-uninfected YMSM, aged 18-25 years, from the San Francisco Bay Area into a 180-day longitudinal study between November 2016 and May 2017. Participants
received cost-free PrEP services through telehealth [eg, telemedicine visits, home delivery of Truvada, and sexually transmitted infection testing kits], except for 2 laboratory visits. Online survey assessments querying PrEPTECH features and experiences were administered to participants at 90 and 180 days. **Results:** Eighty-four percent of participants were YMSM of color. Among the 21 who completed the study, 11 of the 16 who wanted to continue PrEP were transitioned to sustainable PrEP providers. At least 75% felt that PrEPTECH was confidential, fast, convenient, and easy to use. Less than 15% personally experienced PrEP stigma during the study. The median time to PrEP initiation was 46 days. Sexually transmitted infection positivity was 20% and 19% at baseline and 90 days, respectively. No HIV infections were detected. **Conclusions:** Telehealth programs such as PrEPTECH increase PrEP access for YMSM of color by eliminating barriers inherent in traditional clinic-based models.

**See Also:**

**ADHERENCE:** Fuchs JD, Stojanovski K, Vittinghoff E, et al. A mobile health strategy to support adherence to antiretroviral pre-exposure prophylaxis. *AIDS Patient Care and STDs.* 2018;32(3):104-111.


**INTIMATE PARTNER VIOLENCE**


**Abstract:** Intimate partner violence (IPV) is associated with a high risk of HIV acquisition. Pre-exposure prophylaxis (PrEP), which does not require partner knowledge or consent, is a promising HIV risk reduction option for women experiencing IPV. Drawing on semi-structured interviews with 26 women experiencing IPV within the last six months, this study explored the feasibility and acceptability of PrEP use in this population. Slightly more than half of the women in this study expressed interest in taking PrEP when in a relationship with an abusive partner. Potential barriers to PrEP, discussed regardless of women's expressed interest in PrEP, included fear of side effects and long-term health concerns, low risk perceptions, potential partner interference, and prioritizing coping with the relationship over HIV prevention. When offering PrEP counseling, providers should inquire about IPV, as women in violent relationships may require tailored counseling to address barriers and concerns specific to their situation.

**Abstract:** Intimate partner violence (IPV) is associated with pre-exposure prophylaxis (PrEP) acceptability among US women, but whether IPV influences other steps along the PrEP care continuum remains unclear. This study estimated the causal effects of IPV on the early stages of the PrEP care continuum using doubly robust (DR) estimation (statistical method allowing causal inference in non-randomized studies). Data were collected (2017-2018) from a cohort study of 124 US women without and 94 women with IPV experiences in the past 6 months (N = 218). Of the 218 women, 12.4% were worried about getting HIV, 22.9% knew of PrEP, 32.1% intended to use PrEP, and 40.4% preferred an "invisible" PrEP modality. IPV predicts HIV-related worry (DR estimate = 0.139, SE = 0.049, p = 0.004). IPV causes women to be more concerned about contracting HIV. Women experiencing IPV are worried about HIV, but this population may need trauma-informed approaches to help facilitate their PrEP interest and intentions.

**See also:**


LATINO

Barreras JL, Linnemayr SL, MacCarthy S. “We have a stronger survival mode”: exploring knowledge gaps and culturally sensitive messaging of PrEP among latino men who have sex with men and latina transgender women in Los Angeles, CA. *AIDS Care*. 2019;31(10):1221-1227.

**Abstract:** Latino men who have sex with men (LMSM) and Latina transgender women (LTGW) often lack access to HIV prevention information and strategies such as pre-exposure prophylaxis (PrEP). We explored knowledge gaps and culturally sensitive messaging about PrEP among HIV-negative LMSM and LTGW in Los Angeles. We recruited participants from a Latinx LGBT community-based organization. We conducted nine focus groups (n = 91 participants) with 52 LMSM and 39 LTGW. We used a rapid assessment process to create narrative reports that we analyzed using thematic analysis. Key quotes were transcribed verbatim; they were reviewed by the team, then uploaded to Dedoose to identify themes across sites and between groups. Three themes emerged for both LMSM and LTGW: knowledge gaps regarding PrEP remain; people who have knowledge about PrEP often served as its champions; highlighting positive aspects of
culture could help improve PrEP's uptake and sustained use. Only LMSM worried that PrEP could impact condom use. Some issues were more pronounced among LTGW (e.g., more limited access to PrEP); others were unique to LTGW (e.g., worry about drug-hormones interactions). Collaborative research, programs, and policies, informed by LMSM and LTGW themselves, are needed to narrow existing knowledge gaps and promote PrEP uptake and sustained utilization.


Abstract: Sexual and gender minority Hispanics/Latinxs (henceforth: Latinxs) continue to be disproportionately impacted by HIV/AIDS in the U.S. Pre-exposure prophylaxis (PrEP) is a biomedical prevention approach which holds significant promise for at risk and vulnerable populations. We discuss barriers and facilitators to uptake of PrEP among sexual and gender minority Latinxs living in the U.S. through an ecosocial lens that takes into account structural, community, and individual contexts. The impact of immigration status on PrEP uptake emerges as a major and recurrent theme that must be understood and addressed by HIV prevention programs aiming to promote an inclusive strategy for sexual and gender minority Latinxs living in the U.S.

See Also:


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MEN WHO HAVE SEX WITH MEN


Background: The HIV epidemic among black men who have sex with men (BMSM) demands urgent public health attention. Pre-exposure prophylaxis (PrEP) is a highly efficacious option for preventing HIV, but characteristics of PrEP use among community samples of BMSM are not well-understood. Methods: A serial cross-sectional survey assessment (N=4,184 BMSM reporting HIV-negative/unsure status) and HIV testing were conducted at black Gay Pride events in 6 US cities in 2014, 2015, 2016, and 2017. Results:
HIV prevalence was higher among BMSM self-reporting current PrEP use (1 of 3 participants) than BMSM not self-reporting current PrEP use (1 of 5 participants) [32.3%, N = 103/319 vs. 20.0%, N = 639/3,193, adjusted odds ratio (aOR) = 1.68, 95% confidence interval (CI): 1.31 to 2.15]. BMSM reporting current PrEP use (N = 380) were more likely to report having a greater number of male sex partners (aOR = 1.02, 95% CI: 1.01 to 1.03), a sexually transmitted infection diagnosis (aOR = 2.44, 95% CI: 1.88 to 3.16), and stimulant drug use (aOR = 2.05, 95% CI: 1.21 to 3.47) when compared with BMSM not reporting current PrEP use (N = 3804). PrEP use increased from 4.7% (2014) to 15.5% (2017) (aOR = 1.19, 95% CI: 1.13 to 1.25). Among PrEP users, inability to afford health care coverage was associated with testing HIV-positive (aOR = 2.10, 95% CI: 1.24 to 3.56).

**Conclusions:** The high prevalence of HIV infection among BMSM reporting PrEP use is concerning. It does not, however, challenge the efficacy of PrEP itself but rather the uptake of the surrounding preventative package including behavioral risk reduction support, sexually transmitted infection treatment, and medication adherence counseling. Further research to understand barriers to fully effective PrEP is needed to guide operational and behavioral interventions that close the gap on incident infection.


**Abstract:** Geosocial-networking smartphone applications are commonly used by gay, bisexual, and other men who have sex with men (MSM) to meet sexual partners. The purpose of the current study was to evaluate awareness of and willingness to use pre-exposure prophylaxis (PrEP) among MSM who use geosocial-networking smartphone applications residing in New York City. Recruitment utilizing broadcast advertisements on a popular smartphone application for MSM yielded a sample of 152 HIV-uninfected MSM. Multivariable models were used to assess demographic and behavioral correlates of awareness of and willingness to use PrEP. Most participants (85.5%) had heard about PrEP but few (9.2%) reported current use. Unwillingness to use PrEP was associated with concerns about side effects (PR=0.303; 95% CI 0.130, 0.708; p=0.006). Given that more than half (57.6%) of participants were willing to use PrEP, future research is needed to elucidate both individual and structural barriers to PrEP use among MSM.


**Abstract:** Community outreach efforts to increase HIV pre-exposure prophylaxis (PrEP) utilization by at risk men-who-have-sex-with-men (MSM) first need to elucidate preferences for learning about PrEP and linking to PrEP resources. In this pilot study, we observed that among MSM recruited through community outreach, HIV sexual risk-taking was significant, yet self-perceived PrEP knowledge was low and interest in learning more about PrEP was moderate. Most preferred learning about PrEP and being provided local
PrEP clinic information through electronic media. However, receipt of PrEP information alone did not appear to motivate these men into presenting to a local clinic for PrEP evaluation.


**Abstract:** We describe changes in sexual behaviors among men who have sex with men (MSM) following initiation of pre-exposure prophylaxis (PrEP) in a clinic-based sample of MSM initiating PrEP in Providence, Rhode Island. Data were collected at baseline, 3, and 6 months following PrEP initiation including total number of anal sex partners and condom use. A longitudinal mixed effects model assessed changes in number of partners and condom use over time, adjusting for age, race, and education. There was no statistically significant difference in total number of partners over time. There was a significant increase in number of condomless anal sex partners at the 6-month visit compared to baseline (mean change +1.31 partners, 95% confidence interval 0.09-2.53, P = 0.035). As condomless anal sex may increase following PrEP uptake, adherence counseling and efforts to retain patients in PrEP care, especially during periods of non-condom use, are important as PrEP is more widely implemented.


**Abstract:** Research has demonstrated the clinical effectiveness of pre-exposure prophylaxis (PrEP) for HIV prevention, but little is known about how factors at the individual-, interpersonal-, community-, and structural levels impact PrEP use for black men who have sex with men (BMSM). We advance existing work by examining how all levels of the ecological framework must be addressed for PrEP to be successfully implemented as an effective HIV prevention approach. We interviewed 31 BMSM three times each and 17 community stakeholders once each; interviews were taped, transcribed, and analyzed using the constant comparative method. Factors that influence how BMSM experienced PrEP emerged across all levels of the ecological framework: At the individual level, respondents were wary of giving medication to healthy people and of the potential side-effects. At the interpersonal level, BMSM believed that PrEP use would discourage condom use and that PrEP should only be one option for HIV prevention, not the main option. At the community level, men described not trusting the pharmaceutical industry and described PrEP as an option for others, not for themselves. At the structural level, BMSM talked about HIV and sexuality-related stigmas and how they must overcome those before PrEP engagement. BMSM are a key population in the US National HIV/AIDS Strategy, yet few individuals believe that PrEP would be personally helpful. Our research indicates the urgent need to raise awareness and address structural stigma and policies that could be substantial barriers to the scale-up and implementation of PrEP-related services.

**Background**: Many state and local health departments now promote and support the use of HIV preexposure prophylaxis (PrEP), yet monitoring use of the intervention at the population level remains challenging. **Methods**: We report the results of an online survey designed to measure PrEP use among men who have sex with men (MSM) in Washington State. Data on the proportion of men with indications for PrEP based on state guidelines and levels of awareness, interest, and use of PrEP are presented for 1080 cisgender male respondents who completed the survey between January 1 and February 28, 2017. We conducted bivariate and multivariable logistic regression to identify factors associated with current PrEP use. To examine patterns of discontinuation, we conducted Cox proportional hazards regression and fit a Kaplan-Meier curve to reported data on time on PrEP. **Results**: Eighty percent of respondents had heard of PrEP, 19% reported current use, and 36% of men who had never used PrEP wanted to start taking it. Among MSM for whom state guidelines recommend PrEP, 31% were taking it. In multivariable analysis, current PrEP use was associated with older age, higher education, and meeting indications for PrEP use. Our data suggest that 20% of PrEP users discontinue within 12 months, and men with lower educational attainment were more likely to discontinue. **Conclusions**: Despite high levels of use, there is significant unmet need for PrEP in Washington. Our experience indicates that Internet surveys are feasible and informative for monitoring PrEP use in MSM.


**Abstract**: Efforts in San Francisco are maximizing the use of pre-exposure prophylaxis (PrEP) among men who have sex with men (MSM) where high levels of use are needed to maximize reducing new HIV infections. National HIV Behavioral Surveillance surveys MSM in San Francisco. Demographics, health care and risk behaviors are assessed. PrEP use is measured for 12 month, 6 month and 30 day periods. Of 399 HIV uninfected men sampled in 2017, 43.4% used PrEP in the past 12 months. Proportions of men using PrEP by race/ethnicity were not significant at any time point. Decreases between 6 month and 30 day use were highest among African American and Latino men. These men had the highest proportion of intermittent use in the past 30 days but not significantly. While our data suggest the disparity in PrEP use by race/ethnicity has narrowed in San Francisco, novel delivery of PrEP may narrow disparity further.

**See also**:


**LATINO:** Barreras JL, Linnemayr SL, MacCarthy S. “We have a stronger survival mode”: exploring knowledge gaps and culturally sensitive messaging of PrEP among latino men who have sex with men and latina transgender women in Los Angeles, CA. *AIDS Care.* 2019;31(10):1221-1227.

**QUALITY OF CARE:** Parsons JT, John SA, Whitfield TH, et al. Human immunodeficiency virus/sexually transmitted infection counseling and testing services received by gay and bisexual men using preexposure prophylaxis at their last PrEP care visit. *Sexually Transmitted Diseases.* 2018;45(12):798-802.


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**PEOPLE WHO INJECT DRUGS**


**Background:** The total population health benefits and costs of HIV pre-exposure prophylaxis (PrEP) for people who inject drugs (PWID) in the United States are unclear. **Objective:** To evaluate the cost-effectiveness and optimal delivery conditions of PrEP for PWID. **Design:** Empirically calibrated dynamic compartmental model. **Data Sources:** Published literature and expert opinion. **Target Population:** Adult U.S. PWID. **Time Horizon:** 20 years and lifetime. **Intervention:** PrEP alone, PrEP with frequent screening (PrEP+screen), and PrEP+screen with enhanced provision of antiretroviral therapy (ART) for individuals who become infected (PrEP+screen+ART). All scenarios are considered at
25% coverage. **Outcome Measures:** Infections averted, deaths averted, change in HIV prevalence, discounted costs (in 2015 U.S. dollars), discounted quality-adjusted life-years (QALYs), and incremental cost-effectiveness ratios. **Results of Base-Case Analysis:** PrEP+screen+ART dominates other strategies, averting 26,700 infections and reducing HIV prevalence among PWID by 14% compared with the status quo. Achieving these benefits costs $253,000/QALY gained. At current drug prices, total expenditures for PrEP+screen+ART could be as high as $44 billion over 20 years. **Results of Sensitivity Analysis:** Cost-effectiveness of the intervention is linear in the annual cost of PrEP and is dependent on PrEP drug adherence, individual transmission risks, and community HIV prevalence. **Limitations:** Data on risk stratification and achievable PrEP efficacy levels for U.S. PWID are limited. **Conclusion:** PrEP with frequent screening and prompt treatment for those who become infected can reduce HIV burden among PWID and provide health benefits for the entire U.S. population, but, at current drug prices, it remains an expensive intervention both in absolute terms and in cost per QALY gained.


**Background:** In 2015, approximately 50,000 new HIV infections occurred in the United States, 2,400 of which were attributable to injection drug use. Pre-exposure prophylaxis (PrEP) has the potential to curb HIV acquisition; however, uptake remains low among persons who inject drugs (PWID). The purpose of the study is to describe PrEP eligibility, willingness to use PrEP, and ability to access PrEP among PWID recruited from a pilot program that paired screening and treatment of sexually transmitted infections with mobile syringe exchange program (SEP) services. **Methods:** Between 2015 and 2016, 138 PWID 18 years or older were recruited from a mobile SEP in Camden, New Jersey. Participants completed a survey assessing sociodemographics and HIV risk and underwent chlamydia and gonorrhea screening. Centers for Disease Control clinical guidelines were used to calculate PrEP eligibility. Differences by sex were examined using inferential statistics. **Results:** Most women (95.4%) and men (84.5%) were considered PrEP eligible (P < 0.04). More women than men were willing to take PrEP (88.9% vs. 71.0%; P < 0.02). Participants reported substantial barriers to PrEP including feeling embarrassed (45.0%) or anxious (51.6%) about taking PrEP, nondisclosure to partners (51.4%), limited engagement with health care providers where PrEP might be provided (43.8%), and lacking health insurance (32.9%). **Conclusions:** Despite reporting behavior that warrants the use of PrEP to prevent HIV and finding the concept acceptable, PWID face multiple barriers to PrEP access. Without tailored interventions to promote PrEP, uptake will likely remain suboptimal. Packaging PrEP with SEP services could provide a viable option for reaching eligible and interested PWID.

**Introduction:** Despite unequivocal evidence supporting the use of pre-exposure prophylaxis (PrEP), its scale-up has been gradual overall, and nearly absent among people who use drugs (PWUD). In the present study, we implemented the use of PrEP, as a part of an integrated HIV prevention approach, and explored the experiences and attitudes related to PrEP use among PWUD. **Methods:** Between September 2016 and July 2017, we recruited 40 HIV-uninfected, methadone-maintained people, who reported HIV-risk behaviors, and were currently taking PrEP. We conducted both quantitative and in-depth semi-structured qualitative interviews that primarily focused on experiences, attitudes, acceptability, disclosure status, risk compensation-related attitudes, and barriers related to PrEP adherence. **Results:** Results showed that participants were highly satisfied and perceived PrEP as valuable and acceptable for HIV prevention. Participants reported high adherence to PrEP. The most highly endorsed facilitators to PrEP adherence were use of memory aids, no out-of-pocket cost, perceived benefit, and support from social network. The barriers to adherence included side-effects, stigmatization, requirement of daily dosing, and accessibility of PrEP services. Additionally, participants expressed disagreement with the overall risk compensation-related attitudes (i.e., decreased personal concern about engaging in HIV risk behavior due to their perception that PrEP is now fully protecting them from contracting HIV) and indicated no increased engagement in risk behaviors while on PrEP. **Conclusions:** The results from the current study provide preliminary evidence supporting the successful integration of PrEP within the substance abuse treatment setting, where high risk PWUD are concentrated.


**Background:** Although people who use drugs (PWUD) are key populations recommended to receive pre-exposure prophylaxis (PrEP) to prevent HIV, few data are available to guide PrEP delivery in this underserved group. We therefore examined the willingness to initiate PrEP and the anticipation of HIV risk reduction while on PrEP among high-risk PWUD. **Methods:** In a cross-sectional study of 400 HIV-negative, opioid dependent persons enrolled in a methadone program and reporting recent risk behaviors, we examined independent correlates of being willing to initiate PrEP. **Results:** While only 72 (18%) were aware of PrEP, after being given a description of it, 251 (62.7%) were willing to initiate PrEP. This outcome was associated with having neurocognitive impairment (aOR=3.184, p=0.004) and higher perceived HIV risk (aOR=8.044, p<0.001). Among those willing to initiate PrEP, only 12.5% and 28.2%, respectively, indicated that they would always use condoms and not share injection equipment while on PrEP. Consistent condom use was associated with higher income (aOR=8.315, p=0.016), always using condoms with casual partners (aOR=6.597, p=0.001), and inversely associated with ongoing drug injection (aOR=0.323, p=0.027). Consistent safe injection, however, was
inversely associated with age (aOR=0.948, p=0.035), ongoing drug injection (aOR=0.342, p<0.001), and perceived HIV risk (aOR=0.191, p=0.019). **Conclusions:** While willingness to initiate PrEP was high and correlated with being at elevated risk for HIV, anticipated higher risk behaviors in this group even while on PrEP suggests that the next generation of HIV prevention approaches may need to combine biomedical and behavioral components to sustain HIV risk reduction over time.

**See Also:**


**PHARMACIES**


**Abstract:** The efficacy of pre-exposure prophylaxis (PrEP) to prevent HIV has been firmly established; however, the success of PrEP largely depends on access to care as well as high levels of medication adherence. One of the key areas of focus for the National HIV/AIDS Strategy for 2020 in the United States calls for full access to comprehensive PrEP services where appropriate and desired, with support for medication adherence. Despite advances and advocacy for PrEP since approval for adults in 2012, large rates of prescribing disparity exist among gender and race/ethnicity. In 2016, only 3.7% of all PrEP users were women and only 11.2% were black. As one of the most widely accessible health care resources, pharmacists are well positioned to improve patient understanding, promote medication adherence, provide key risk reduction counseling, and enhance PrEP efficacy. Pharmacists' knowledge and accessibility in nearly every urban and rural community can be leveraged as part of a comprehensive HIV prevention strategy to expand access to care and improve population health. As trusted health care professionals, pharmacists develop a strong rapport with patients and may be the key to address current disparities in PrEP prescribing patterns as well as serve as an essential liaison between patients and other members of the multi-disciplinary care team. The purpose of this review is to summarize available data on pharmacist involvement in various models of care providing PrEP services and to identify opportunities to maximize and expand the role of the pharmacist to improve access to PrEP.
**Background:** HIV pre-exposure prophylaxis (PrEP) substantially reduces the risk of HIV acquisition, yet significant barriers exist to its prescription and use. Incorporating pharmacists in the PrEP care process may help increase access to PrEP services. **Methods:** Our pharmacist-led PrEP program (P-PrEP) included pharmacists from a university-based HIV clinic, a community pharmacy, and two community-based clinics. Through a collaborative practice agreement, pharmacists conducted PrEP visits with potential candidates for PrEP, according to the recommended CDC guidelines, and authorized emtricitabine-tenofovir disoproxil fumarate prescriptions. Demographics and retention in care over 12 months were summarized and participant satisfaction and pharmacist acceptability with the P-PrEP program were assessed by Likert-scale questionnaires. **Results:** Sixty patients enrolled in the P-PrEP program between January and June 2017 completing 139 visits. The mean age was 34 years (range 20-61 years) and 88% identified as men who have sex with men, 91.7% were men, 83.3% were white, 80% were commercially insured, and 89.8% had completed some college education or higher. Participant retention at 3, 6, 9, and 12 months was 73%, 58%, 43%, and 28%, respectively. To date, no participant has seroconverted. One hundred percent of the participants who completed the patient satisfaction questionnaire would recommend the P-PrEP program. Pharmacists reported feeling comfortable performing point-of-care testing and rarely reported feeling uncomfortable during PrEP visits (3 occasions - 2.2%) or experiencing workflow disruption (1 occasion - 0.7%). **Conclusions:** Implementation of a pharmacist-led PrEP program is feasible and associated with high rates of patient satisfaction and pharmacist acceptability.


**Objectives:** Pre-exposure prophylaxis (PrEP) therapy is prescribed to HIV-negative individuals who are at high risk of contracting the virus to reduce the risk of transmission. Adherence to therapy is essential for optimal treatment outcome, and community pharmacists have an important role in achieving this through patient counseling. The objectives of this study were to measure pharmacists' actual knowledge about HIV PrEP therapy, perceptions about their HIV PrEP therapy knowledge, and intention to counsel patients about PrEP therapy. **Methods:** A cross-sectional survey was conducted among community pharmacists in Utah to measure their actual knowledge and perceptions of knowledge about PrEP therapy based on the basic information from the Centers for Disease Control website. In addition, the pharmacist's intention to counsel patients on PrEP therapy was measured with the use of the validated Godin 12-item tool. Descriptive analyses and t-tests identified characteristics based on gender, degree earned, and years of practice in pharmacy. Regression analysis determined significant predictors of the intention to counsel. **Results:** There were 251 responses (75% PharmD, 61% male, 42% >10 years' experience as a pharmacist). An exploratory factor analysis of the Godin 12-item tool demonstrated 4 domains: beliefs about capabilities, social influence, moral norms, and
intention to counsel patients. There was no difference in the intention to counsel based on gender. Pharmacists with a PharmD and less than 10 years of experience had significantly higher knowledge and intention to counsel. The actual knowledge score of the respondents was significantly higher than their perceptions of their knowledge. Multiple regression results showed that the beliefs about capabilities and social influence were significant predictors of intention to counsel. **Conclusion:** Educating community pharmacists on PrEP therapy using pharmacists who are considered to be opinion leaders in the pharmacy profession can affect the social influence and beliefs about capabilities domains, which in turn can increase counseling on PrEP therapy.


**Abstract:** Pre-exposure prophylaxis (PrEP) has been shown to reduce the risk of HIV transmission but has the potential to cause harm if not used properly. Pharmacists are well-positioned to foster PrEP's efficacy but little is known whether they would endorse it as an HIV prevention tool. The objective of the study was to determine Canadian HIV pharmacists' support for PrEP and to identify current barriers to promoting PrEP. Canadian pharmacists with experience in HIV care were invited to complete an online survey about their experiences, opinions, and learning needs regarding PrEP from December 2012 to January 2013. Among the 59 surveys received, 48 met criteria for final analysis. Overall, 33 (69%) respondents would provide education positively supporting the use of PrEP and 26 (54%) believed Health Canada should approve PrEP for use in Canada. Familiarity with the concept of PrEP and practice characteristics examined did not appear to be significantly associated with support for PrEP in univariable analyses. The principal barriers to promoting PrEP included inadequate drug coverage and insufficient knowledge to educate others. Many Canadian HIV pharmacists would endorse PrEP for high-risk patients; however, wider dissemination of information and lower drug costs may be needed to make PrEP more widely promoted.

**See also:**


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**Background:** Global guidelines recommend pre-exposure prophylaxis (PrEP) use by women at risk for HIV, including during pregnancy, a period with heightened HIV risk. However, data to support safety of PrEP use during pregnancy are limited, particularly from women using PrEP throughout pregnancy. **Methods:** In an open-label delivery study of PrEP integrated with ART for high-risk HIV serodiscordant couples in Kenya and Uganda (the Partners Demonstration Project), women who became pregnant while using PrEP were offered the option to continue PrEP throughout pregnancy. We compared pregnancy outcomes and 1-year infant growth from pregnancies with exposure to PrEP throughout pregnancy to those without any exposure, with data from the placebo arm of a prior efficacy trial of PrEP conducted in the same setting. **Results:** Outcomes from 30 women who elected to continue PrEP throughout pregnancy were compared with those from 96 pregnancies among PrEP-unexposed women. There were small nonsignificant decreases in the frequency of pregnancy loss [16.7% PrEP-exposed versus 23.5% PrEP-unexposed, adjusted odds ratio (aOR)=0.59, P=0.4] and preterm delivery [0 versus 7.7%, (aOR)=0.54, exact P=0.6]. No congenital anomalies occurred among PrEP-exposed infants. PrEP-exposed infants had slightly lower adjusted mean z-scores for length (-1.73 versus -0.79, P=0.05) and head circumference (0.24 versus 1.07, P=0.04) 1 month after birth but were comparable to PrEP-unexposed infants in these measurements 1 year after birth. **Conclusion:** This first evaluation among women using PrEP throughout pregnancy indicates no greater frequency of adverse pregnancy outcomes or restricted infant growth; these findings support recommendations permitting PrEP use during pregnancy.


**Background:** Pregnancy may increase a woman's susceptibility to HIV. Maternal HIV acquisition during pregnancy and lactation is associated with increased perinatal and lactational HIV transmission. There are no published reports of pre-exposure prophylaxis use after the first trimester of pregnancy or during lactation. **Objective:** The purpose of this study was to report the use of pre-exposure prophylaxis and to identify gaps in HIV prevention services for women who were at substantial risk of HIV preconception and during pregnancy and lactation at 2 United States medical centers. **Study Design:** Chart review was performed on women who were identified as "at significant risk" for HIV acquisition preconception (women desiring pregnancy) and during pregnancy and lactation at 2 medical centers in San Francisco and New York from 2010-2015. Women were referred to specialty clinics for women who were living with or were at substantial risk of HIV. **Results:** Twenty-seven women who were identified had a median age of 27 years. One-half of the women had unstable housing. 22% of the women had ongoing intimate
partner violence, and 22% of the women had active substance use. Twenty-six women had a male partner living with HIV, and 1 woman had a male partner who had sex with men. Of the partners who were living with HIV, 73% (19/26) were receiving antiretroviral therapy, and 42% (11/26) had documented viral suppression. Thirty-nine percent (10/26) of partners had known detectable virus, and 19% (5/26) had unknown viral loads. Women were identified by clinicians, health educators, and health departments. Approximately one-third of the women were identified preconception (8/27); the majority of the women were identified during pregnancy (18/27) with a median gestational age of 20 weeks (interquartile range, 11-23), and 1 woman was identified in the postpartum period. None of the pregnant referrals had received safer conception counseling to reduce HIV transmission. Twenty-six percent of all women (7/27) were eligible for post-exposure prophylaxis at referral, of whom 57% (4/7) were offered post-exposure prophylaxis. In 30% (8/27), the last HIV exposure was not assessed and post-exposure prophylaxis was not offered. The median time from identification as "at substantial risk" to consultation was 30 days (interquartile range, 2-62). Two women were lost to follow up before consultation. One woman who was identified as "at significant risk" was not referred because of multiple pregnancy complications. She remained in obstetrics care and was HIV-negative at delivery but was lost to follow up until 10 months after delivery when she was diagnosed with HIV. No other seroconversions were identified. Of referrals who presented and were offered pre-exposure prophylaxis, 67% women (16/24) chose to take it, which was relatively consistent whether the women were preconception (5/8), pregnant (10/15), or after delivery (1/1). Median length of time on pre-exposure prophylaxis was 30 weeks (interquartile range, 20-53). One-half of women (10/20) who were in care at delivery did not attend a postpartum visit. **Conclusion:** Women at 2 United States centers frequently chose to use pre-exposure prophylaxis for HIV prevention when it was offered preconception and during pregnancy and lactation. Further research and education are needed to close critical gaps in screening for women who are at risk of HIV for pre- and post-exposure prophylaxis eligibility and gaps in care linkage before and during pregnancy and lactation. Postpartum women are particularly vulnerable to loss-to-follow-up and miss opportunities for safe and effective HIV prevention.

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**PREVALENCE**


**Purpose:** The number of individuals who have started a regimen for HIV pre-exposure prophylaxis (PrEP) in the United States is not well characterized but has been on the rise since 2012. This analysis assesses the distribution of PrEP use nationally and among subgroups. **Methods:** A validated algorithm quantifying tenofovir disoproxil fumarate/emtricitabine for PrEP in the United States was applied to a national prescription database to determine the quarterly prevalence of PrEP use. HIV diagnoses from 2016 were
used as an epidemiological proxy for PrEP need. The PrEP-to-need ratio (PnR) was defined as the number of PrEP users divided by new HIV diagnoses. **Results:** A total of 70,395 individuals used PrEP in the fourth quarter of 2017: 67,166 males and 3229 females. Nationally, prevalence of PrEP use was 26/100,000 (range across states per 100,000 [RAS/100k]: 4-73) and the PnR was 1.8 (RAS: 0.5-6.6). Prevalence of PrEP use among males and females, respectively, was 50/100,000 and 2/100,000 (RAS/100k: 7-143 and 0.3-7) and PnR was 2.1 and 0.4 (RAS: 0.6-7.1 and 0.1-4.0). Prevalence of PrEP use was lowest among individuals aged less than or equal to 24 and more than or equal to 55 years (15/100,000 and 6/100,000, RAS/100k: 1-45 and 0.4-14), with PnR 0.9 and 1.5 (RAS: 0.2-5.6 and 0.3-7.0). The Northeast had the highest PnR (3.3); the South had the lowest (1.0). States with Medicaid expansion had more than double the PnR than states without expansion. **Conclusions:** Available data suggest that females, individuals aged less than or equal to 24 years and residents of the South had lower levels of PrEP use relative to epidemic need. These results are ecological, and misclassification may attenuate results. PnR is useful for future assessments of HIV prevention strategy uptake.


**Purpose:** Pre-exposure prophylaxis (PrEP) with oral emtricitabine/tenofovir disoproxil fumarate (TDF/FTC) reduces the risk of HIV infection by >90% when taken as prescribed. Trends in prevalence of PrEP use, which account for persons who have stopped PrEP, increased through 2016, but have not been described since. **Methods:** Annual prevalence estimates of unique, TDF/FTC PrEP users (individuals with ≥1 day of a filled PrEP prescription in a given year) in the United States (US) were generated for 2012-2017 from a national prescription database. A validated algorithm was used to distinguish users of TDF/FTC for HIV or chronic Hepatitis B treatment or postexposure prophylaxis from PrEP users. We calculated annual prevalence of PrEP use overall and by age, sex, and region. We used log-transformation to calculate estimated annual percent change (EAPC) in the prevalence of PrEP use. **Results:** Annual prevalence of PrEP use increased from 3.3/100,000 population in 2012 to 36.7 in 2017 – a 56% annual increase from 2012 to 2017 (EAPC: +56%). Annual prevalence of PrEP use increased faster among men than among women (EAPC: +68% and +5%, respectively). By age group, annual prevalence of PrEP use increased fastest among 25- to 34-year olds (EAPC: +61%) and slowest among ≥55-year olds (EAPC: +52%) and ≤24-year olds (EAPC: +51%). In 2017, PrEP use was lowest in the South (29.8/100,000) and highest in the Northeast (62.3/100,000). **Conclusions:** Despite overall increases in the annual number of TDF/FTC PrEP users in the US from 2012 to 2017, the growth of PrEP coverage is inconsistent across groups. Efforts to optimize PrEP access are especially needed for women and for those living in the South.
QUALITY OF CARE


Background: Preexposure prophylaxis (PrEP) reduces risk of human immunodeficiency virus infection for many gay and bisexual men (GBM); however, bacterial sexually transmitted infections associated with decreasing condom use among users is of concern. Center for Disease Control and Prevention's guidelines for PrEP use recommend bacterial sexually transmitted infection screening every 6 months. We sought to investigate comprehensive PrEP care, defined as: (1) discussion of sexual behavior, (2) blood sample, (3) urine sample, (4) rectal sample (rectal swab), and (5) throat sample (throat swab), provided at the user's last PrEP appointment. Methods: The PrEP-using GBM in New York City (n = 104) were asked about their last PrEP care visit. We examined associations of demographics (age, race/ethnicity, and education), recent number of condomless anal sex events, time on PrEP, and health care provider type on receiving comprehensive care at last visit using fully adjusted binary logistic regression. Results: At their last visit, nearly all men (94%) gave blood for testing, 88% provided a urine sample, and 77% discussed sexual behavior with their provider. However, only 51% reported having a rectal swab, and 48% an oral swab. Only 32% of men received comprehensive PrEP care at their last PrEP visit. Odds of receiving comprehensive care were significantly higher among younger men, men with a bachelor's degree or more education, and those who reported more condomless anal sex. Conclusions: Less than one third of GBM received comprehensive human immunodeficiency virus/sexually transmitted infection counseling and testing at their last visit. These findings indicate further efforts are needed to prepare health care providers for prescribing and managing patients on PrEP.

SEXUALLY TRANSMITTED INFECTIONS


Background: Preexposure prophylaxis (PrEP) greatly reduces the risk of human immunodeficiency virus (HIV) acquisition, but its optimal delivery strategy remains uncertain. Clinics for sexually transmitted infections (STIs) can provide an efficient venue for PrEP delivery. Methods: To quantify the added value of STI clinic-based PrEP delivery, we used an agent-based simulation of HIV transmission among men who have sex with men (MSM). We simulated the impact of PrEP delivery through STI clinics compared with PrEP delivery in other community-based settings. Our primary outcome
was the projected 20-year reduction in HIV incidence among MSM. **Results:** Assuming PrEP uptake and adherence of 60% each, evaluating STI clinic attendees and delivering PrEP to eligible MSM reduced HIV incidence by 16% [95% uncertainty range, 14%-18%] over 20 years, an impact that was 1.8 (1.7-2.0) times as great as that achieved by evaluating an equal number of MSM recruited from the community. Comparing strategies where an equal number of MSM received PrEP in each strategy (ie, evaluating more individuals for PrEP in the community-based strategy, because MSM attending STI clinics are more likely to be PrEP eligible), the reduction in HIV incidence under the STI clinic-based strategy was 1.3 (1.3-1.4) times as great as that of community-based delivery. **Conclusions:** Delivering PrEP to MSM who attend STI clinics can improve efficiency and effectiveness. If high levels of adherence can be achieved in this population, STI clinics may be an important venue for PrEP implementation.


**Objectives:** *Neisseria gonorrhoeae* (NG) and *Chlamydia trachomatis* (CT) increase the risk of HIV transmission among men who have sex with men (MSM). Diagnosis of NG/CT may provide an efficient entry point for prevention of HIV through the delivery of pre-exposure prophylaxis (PrEP); however, the additional population-level impact of targeting PrEP to MSM diagnosed with NG/CT is unknown. **Design:** An agent-based simulation model of NG/CT and HIV cocirculation among MSM calibrated against census data, disease surveillance reports and the US National HIV Behavioral Surveillance study. **Setting:** Baltimore City, Maryland, USA. **Interventions:** PrEP implementation was modelled under three alternative scenarios: (1) PrEP delivery at NG/CT diagnosis (targeted delivery), (2) PrEP evaluation at NG/CT screening/testing and (3) PrEP evaluation in the general community (untargeted). **Main Outcome:** The projected incidence of HIV after 20 years of PrEP delivery under two alternatives: when equal numbers of MSM are (1) screened for PrEP or (2) receive PrEP in each year. **Results:** Assuming 60% uptake and 60% adherence, targeting PrEP to MSM diagnosed with NG/CT could reduce HIV incidence among MSM in Baltimore City by 12.4% (95% uncertainty range (UR) 10.3% to 14.4%) in 20 years, relative to no PrEP. Expanding the coverage of NG/CT screening (such that individuals experience a 50% annual probability of NG/CT screening and evaluation for PrEP on NG/CT diagnosis) can further increase the impact of targeted PrEP to generate a 22.0% (95% UR 20.1% to 23.9%) reduction in HIV incidence within 20 years. When compared with alternative implementation scenarios, PrEP evaluation at NG/CT diagnosis increased impact of PrEP on HIV incidence by 1.5(95% UR 1.1 to 1.9) times relative to a scenario in which PrEP evaluation happened at the time of NG/CT screening/testing and by 1.6 (95% UR 1.2 to 2.2) times relative to evaluating random MSM from the community. **Conclusions:** Targeting MSM infected with NG/CT increases the efficiency and effectiveness of PrEP delivery. If high levels of sexually transmitted infection screening can be achieved at the community level, NG/CT diagnosis may be a highly effective entry point for PrEP initialisation.

**Objective:** Use of pre-exposure prophylaxis (PrEP) for HIV raises concerns about sexually transmitted infection (STI) incidence because of decreased condom use among MSM. This study examines whether PrEP is associated with STIs in the 12-months following PrEP prescription relative to the 12-months prior to PrEP and if STI rates are higher among PrEP users relative to individuals receiving post-exposure prophylaxis (PEP). **Design:** Retrospective cohort study including PrEP users with >12 months of follow-up before PrEP prescription and individuals receiving PEP from 2010-2015 at Clinique l’Actuel (Montréal, Canada). **Methods:** Incidence of chlamydia, gonorrhoea, syphilis and hepatitis C virus over 12-months was compared before and after PrEP; and for PrEP versus PEP users using Poisson models to generate incidence rate ratios (IRRs) with 95% confidence intervals (CIs) and adjusted IRRs (aIRRs) controlling for frequency of STI screening visits. Models comparing PrEP and PEP users were further adjusted for age and education. **Results:** One hundred and nine PrEP and 86 PEP users were included. Increased rates of STIs were observed in the 12-months after PrEP relative to the 12-months prior (IRR: 1.72, CI: 1.22-2.41; aIRR: 1.39, CI: 0.98-1.96). PrEP users were also at higher STI risk relative to PEP users (IRR: 2.18, CI: 1.46-3.24; aIRR: 1.76, CI: 1.14-2.71). **Conclusion:** Increased rates of STIs among individuals after initiation of PrEP may suggest a greater risk behaviours during the first year on PrEP. Further studies are needed to measure long-term trends in STI acquisition following PrEP initiation.


**Abstract:** Using a representative sample of gonorrhea cases in select jurisdictions, we estimated the proportion of eligible men who have sex with men reporting being prescribed preexposure prophylaxis (PrEP) to prevent HIV infection. In 2016, half (51.3%) of the estimated 33,165 eligible men who have sex with men reported being prescribed PrEP by their health care provider.

**SOCIAL NETWORK**


**Background:** Young Black men who have sex with men (YBMSM) are the only population in the United States who have experienced rising human immunodeficiency virus incidence over the past decade. Consistent pre-exposure prophylaxis (PrEP) use can
substantially reduce the risk of human immunodeficiency virus acquisition. What differentiates those who become aware of PrEP, and those who do not, remains largely unknown. **Methods:** The social networks of YBMSM can impact their awareness of PrEP; to examine this impact, we used two waves of Facebook data from "uConnect"-a longitudinal cohort study of YBMSM in Chicago (n=266). **Results:** While PrEP awareness increased from 45% at baseline to 75% at follow-up, its use remained low (4% and 6%). There were 88 PrEP-unaware individuals at baseline who became aware (BA) by follow-up, and 56 who remained persistently unaware. While the persistently unawares had a higher median number of total Facebook friends, the BAs had a higher median numbers of friends who participated in uConnect, who were PrEP-aware, and who practiced behaviors previously found to be associated with individual-level awareness of PrEP at baseline. The BAs also had substantially more "influential" friends. **Conclusion:** These findings demonstrate the potential of social networks in raising PrEP awareness and use among YBMSM.


**Background:** Recent advances in biomedical prevention strategies, including pre-exposure prophylaxis (PrEP) and achieving an undetectable viral load (UVL) among HIV-infected persons, show promise in curbing the rising incidence of HIV among men who have sex with men (MSM) in the United States. This mixed-methods study aimed to investigate the frequency with which MSM encounter potential sex partners on geosocial networking apps who disclose biomedical prevention use, and how MSM make decisions about condom use after these disclosures. **Method:** Participants were recruited through advertisements placed on a large geosocial networking app for MSM. A total of 668 and 727 participants, respectively, responded to questionnaires assessing partner disclosure of PrEP use and UVL. Each questionnaire included an open-ended item assessing reasons for condomless anal sex (CAS) with partners using biomedical prevention. **Results:** Across both surveys, most respondents encountered potential sex partners who disclosed PrEP use or UVL, and the majority of those who met up with these partners engaged in CAS at least once. Qualitative analyses found that most participants who reported CAS did so after making a calculated risk about HIV transmission. We also describe a novel risk reduction strategy, "biomed-matching," or having CAS only when both individuals use PrEP or have UVL. We report serostatus differences in both quantitative and qualitative findings. **Conclusions:** Disclosure of PrEP use and UVL is not uncommon among MSM. Many MSM make accurate appraisals of the risks of CAS with biomedical prevention, and mobile apps may aid with disclosing biomedical prevention use.

**Background:** In the United States, women represent less than 5% of all pre-exposure prophylaxis (PrEP) users. Social networks may promote and/or inhibit women's PrEP awareness, which could influence PrEP intentions. Furthermore, women experiencing intimate partner violence (IPV) may have smaller, less supportive networks, which could deter or have no impact on PrEP care engagement. This study examined associations between network characteristics and women's PrEP awareness, interest, uptake, and perceived candidacy and analyzed IPV as an effect modifier. **Setting/Methods:** From 2017 to 2018, data were collected from a prospective cohort study of 218 PrEP-eligible women with (n = 94) and without (n = 124) IPV experiences in Connecticut. Women completed surveys on demographics, IPV, social networks, and PrEP care continuum outcomes. **Results:** Adjusted analyses showed that PrEP awareness related to having more PrEP-aware alters. PrEP intentions related to having more alters with favorable opinions of women's potential PrEP use and a smaller network size. Viewing oneself as an appropriate PrEP candidate related to having more PrEP-aware alters and more alters with favorable opinions of women's potential PrEP use. IPV modified associations between network characteristics and PrEP care. Having members who were aware of and/or used PrEP was positively associated with PrEP care engagement for women without IPV experiences but had either no effect or the opposite effect for women experiencing IPV. **Conclusion:** Improving PrEP attitudes might improve its utilization among women. Social network interventions might be one way to increase PrEP uptake among many US women but may not be as effective for women experiencing IPV.

**See also:**


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STIGMA


Abstract: The Centers for Disease Control and Prevention (CDC) estimates the lifetime HIV risk is one in four for Latino men who have sex with men (MSM). Pre-Exposure Prophylaxis (PrEP) is an efficacious biomedical prevention strategy to help prevent the acquisition of HIV. At present, there has been limited uptake of PrEP by Latino MSM. Unfortunately, the negative perceptions and social stigma surrounding PrEP and those who use it may deter uptake of this novel prevention strategy, particularly among high-risk Latino MSM. In this qualitative study, we explore the experiences of using PrEP among Latino MSM. Participants were recruited using gay-oriented social and sexual networking apps to complete an interviewer-administered, semi-structured qualitative interview. Thematic analysis was used to identify emerging themes relating to perceptions of PrEP users and PrEP as an HIV prevention strategy. Major themes included: feelings of protection and sexual freedom; negative and stigmatizing labels associated with PrEP use; assumptions about sexual behaviors and perceptions of sexual risk taking and irresponsibility; and attitudes related to PrEP use in relationships. A striking but not prevalent theme was the perception reported by participants that monolingual Spanish-speaking Latino MSM are skeptical about the effectiveness of PrEP. These findings suggest that efforts are needed to address the stigmatizing and negative perceptions of PrEP that persist in the gay community that may deter adoption among Latino MSM.


Abstract: Efforts to identify and address social inequities in HIV pre-exposure prophylaxis (PrEP) access are urgently needed. We investigated early-adopting PrEP prescribers’ beliefs about how stigma contributes to PrEP access disparities in health care and explored potential intervention strategies within the context of PrEP service delivery. US-based PrEP prescribers were recruited through professional networks and participant referrals. Qualitative interviews were conducted, transcribed, and thematically analyzed. Participants (n = 18) were primarily male (72%); white (39%) or Asian (33%); and heterosexual (56%). Most practiced in the Northeastern (67%) or Southern (22%) United States; were physicians (94%); and specialized in HIV/infectious disease (89%). Participants described multiple forms of structural and interpersonal stigma impeding PrEP access. The requirement that PrEP be prescribed was a perceived deterrent for populations with medical mistrust and/or low health literacy. Practice norms such as discussing PrEP only in response to patient requests were seen as favoring more privileged groups. When probed about personally held biases, age-related stereotypes were the most readily acknowledged, including assumptions about older adults being sexually inactive and uncomfortable discussing sex. Participants criticized providers who chose not to prescribe...
PrEP within their clinical practice, particularly those whose decision reflected personal values related to condomless sex or discomfort communicating about sex with their patients. Suggested solutions included standardizing PrEP service delivery across patients and increasing cultural competence training. These early insights from a select sample of early-adopting providers illuminate mechanisms through which stigma could compromise PrEP access for key populations and corresponding points of intervention within the health care system.


Abstract: The HIV/AIDS epidemic in the US continues to persist, in particular, among race, sexual orientation, and gender minority populations. Pre-exposure prophylaxis (PrEP), or using antiretroviral medications for HIV prevention, is an effective option, but uptake of PrEP has been slow. Sociocultural barriers to using PrEP have been largely underemphasized, yet have the potential to stall uptake and, therefore, warrant further understanding. In order to assess the relationships between potential barriers to PrEP (i.e., PrEP stigma and conspiracy beliefs), and interest in PrEP, black men and transgender women who have sex with men (BMTW, N = 85) and white MTW (WMTW, N = 179) were surveyed at a gay pride event in 2015 in a large southeastern US city. Bivariate and multivariate logistic regression analyses were completed to examine factors associated with PrEP interest. Among the full sample, moderate levels of PrEP awareness (63%) and low levels of use (9%) were observed. Believing that PrEP is for people who are promiscuous (stigma belief) was strongly associated with lack of interest in using PrEP, and individuals who endorsed this belief were more likely to report sexual risk taking behavior. Conspiracy beliefs related to PrEP were reported among a large minority of the sample (42%) and were more frequently reported among BMTW than WMTW. Given the strong emphasis on the use of biomedical strategies for HIV prevention, addressing sociocultural barriers to PrEP access is urgently needed and failure to do so will weaken the potential benefits of biomedical prevention.


Abstract: The HPTN 067/Alternative Dosing to Augment Pre-Exposure Prophylaxis Pill Taking (ADAPT) study evaluated daily and non-daily dosing schedules for oral pre-exposure prophylaxis (PrEP) to prevent HIV. A qualitative sub-study including focus groups and in-depth interviews was conducted among men who have sex with men participating in New York City to understand their experience with PrEP and study dosing schedules. The 37 sub-study participants were 68% black, 11% white, and 8% Asian; 27% were of Hispanic/Latino ethnicity. Mean age was 34 years. Themes resulting from qualitative analysis include: PrEP is a significant advance for HIV prevention; non-daily
dosing of PrEP is congruent with HIV risk; and pervasive stigma connected to HIV and risk behavior is a barrier to PrEP adherence, especially for non-daily dosing schedules. The findings underscore how PrEP intersects with other HIV prevention practices and highlight the need to understand and address multidimensional stigma related to PrEP use.


Abstract: Increasing the uptake of pre-exposure prophylaxis (PrEP) to prevent HIV acquisition among at-risk populations, such as young men who have sex with men (YMSM), is of vital importance to slowing the HIV epidemic. Stigma and negative injunctive norms, such as the so called "Truvada Whore" phenomenon, hamper this effort. We examined the prevalence and types of PrEP stigma and injunctive norm beliefs among YMSM and transgender women and associated individual and geospatial factors. A newly created measure of PrEP Stigma and Positive Attitudes was administered to 620 participants in an ongoing longitudinal cohort study. Results indicated lower stigma among white, compared to black and Latino participants, and among participants not identifying as male. Prior knowledge about PrEP was associated with lower stigma and higher positive attitudes. PrEP stigma had significant geospatial clustering and hotspots were identified in neighborhoods with high HIV incidence and concentration of racial minorities, whereas coldspots were identified in areas with high HIV incidence and low LGBT stigma. These results provide important information about PrEP attitudes and how PrEP stigma differs between individuals and across communities.

**TRANSGENDER**


Abstract: We conducted a longitudinal and cross-sectional analysis of depressive symptomology in iPrEx, a randomized, placebo-controlled trial of daily, oral FTC/TDF HIV pre-exposure prophylaxis (PrEP) in men and transgender women who have sex with men. Depression-related adverse events (AEs) were the most frequently reported severe or life-threatening AEs and were not associated with being randomized to the FTC/TDF arm (152 vs. 144 respectively OR 0.66 95% CI 0.35-1.25). Center for Epidemiologic Studies Depression scale (CES-D) and a four questions suicidal ideation scale scores did not differ by arm. Participants reporting forced sex at anal sexual debut had higher CES-D scores (coeff: 3.23; 95% CI 1.24-5.23) and were more likely to have suicidal ideation (OR 2.2; 95% CI 1.09-4.26). CES-D scores were higher among people reporting non-condom receptive anal intercourse (ncRAI) (OR 1.46; 95% CI 1.09-1.94). We recommend
continuing PrEP during periods of depression in conjunction with provision of mental health services.


**Abstract:** Worldwide, transgender women are at disproportionately higher risk of HIV infection, with the primary mode of infection being condomless anal intercourse. Although very few HIV prevention interventions have been developed and tested specifically for transgender women, growing evidence suggests that behavioral HIV risk reduction interventions for other marginalized groups are efficacious. We outline the current state of knowledge and areas in need of further development in this area.


**Abstract:** Transgender women are at high risk of HIV infection, with younger transgender women (YTW) particularly vulnerable. Pre-Exposure Prophylaxis (PrEP) has shown efficacy in reducing HIV acquisition, but little is known about PrEP indication or initiation among YTW. Baseline data from 180 YTW age 18-29 years enrolled in Project LifeSkills, an on-going HIV prevention intervention for YTW, were analyzed to examine factors associated with PrEP indication. The sample (mean age=23.4, SD=3.2) was comprised largely of women of color (69%) and of low socioeconomic status (71 % unemployed). Overall, 62% met criteria for PrEP indication, but only 5 % reported ever taking PrEP. Factors associated with increased odds of PrEP indication were: PrEP interest (aOR 3.24; 95% CI 1.44, 7.33), number of recent anal sex partners (aOR 1.23; 95% CI 1.04, 1.46), and lower collective self-esteem scores (aOR 0.67; 95% CI 0.47, 0.94). Despite high levels of PrEP indication, there remain low levels of PrEP awareness and uptake among YTW.


**Abstract:** Transgender persons are at high risk for HIV infection, but prevention efforts specifically targeting these people have been minimal. Part of the challenge of HIV prevention for transgender populations is that numerous individual, interpersonal, social, and structural factors contribute to their risk. By combining HIV prevention services with complementary medical, legal, and psychosocial services, transgender persons' HIV risk behaviors, risk determinants, and overall health can be affected simultaneously. For maximum health impact, comprehensive HIV prevention for transgender persons warrants efforts targeted to various impact levels-socioeconomic factors, decision-making contexts, long-lasting protections, clinical interventions, and counseling and education. We present current HIV prevention efforts that reach transgender persons and present others for future consideration.

Abstract: Transgender women may face a disparate risk for HIV/AIDS compared to other groups. In 2012, Truvada was approved for daily use as HIV pre-exposure prophylaxis (PrEP). However, there is a dearth of research about barriers and facilitators to PrEP in transgender women. This paper will shed light on transgender women living in New York City's perceived and actual challenges to using PrEP and potential strategies to overcome them. After completing an initial screening process, four 90-min focus groups were completed with n=18 transgender women. Participants were asked what they like and dislike about PrEP. Participants identified the following barriers: uncomfortable side effects, difficulty taking pills, stigma, exclusion of transgender women in advertising, and lack of research on transgender women and PrEP. Facilitators included: reducing pill size, increasing the types of available HIV prevention products, and conducting scientific studies to evaluate PrEP in transgender women.


Introduction: Globally, transgender ("trans") women are one of the key populations most disproportionately impacted by HIV. Pre-exposure prophylaxis (PrEP) is the newest and most promising biomedical HIV prevention intervention to date. This paper reviews relevant literature to describe the current state of the science and describes the potential role of PrEP among trans women, including a discussion of unique considerations for maximizing the impact of PrEP for this vulnerable population. Methods: Available information, including but not limited to existing scientific literature, about trans women and PrEP was reviewed and critiqued based on author expertise, including PrEP clinical trials and rollout. Results: To date, PrEP demonstration projects and clinical trials have largely excluded trans women, or have not included them in a meaningful way. Data collection strategies that fail to identify trans women in clinical trials and research further limit the ability to draw conclusions about trans women's unique needs and devise strategies to meet them. Gender-affirming providers and clinic environments are essential components of any sexual health programme that aims to serve trans women, as they will largely avoid settings that may result in stigmatizing encounters and threats to their identities. While there is currently no evidence to suggest drug-drug interactions between PrEP and commonly used feminizing hormone regimens, community concerns about potential interactions may limit interest in and uptake of PrEP among trans women. Conclusions: In scaling up PrEP for trans women, it is essential to engage trans communities, utilize trans-inclusive research and marketing strategies and identify and/or train healthcare providers to provide gender-affirming healthcare to trans women, including transition-related care such as hormone provision. PrEP implementation guidelines must consider and address trans women's unique barriers and facilitators to uptake and adherence.

**Abstract:** Although transgender women have been included in HIV prevention pre-exposure prophylaxis studies, no pre-exposure prophylaxis study has focused exclusively on transgender persons. Drawing on the cardinal principles of ethics espoused in the Belmont Report, this work highlights, among other issues, that (1) the principle of Justice requires the HIV prevention field to focus exclusively on transgender persons, (2) the disclosure of potential study-related risks to study participants demonstrates Respect for Persons, and (3) devising risk mitigation plans, optimizing a proposed study's standard of care, and the provision of ancillary care satisfy the principle of Beneficence.


**Purpose:** Our primary aim was to explore themes regarding attitudes toward HIV pre-exposure prophylaxis (PrEP) among young transgender women (YTW), in order to develop a theoretical model of PrEP uptake in this population disproportionately affected by HIV.

**Methods:** Qualitative study nested within a mixed-method study characterizing barriers and facilitators to health services for YTW. Participants completed an in-depth interview exploring awareness of and attitudes toward PrEP. Key themes were identified using a grounded theory approach.

**Results:** Participants (n=25) had a mean age of 21.2 years (standard deviation 2.2, range 17-24) and were predominately multiracial (36%) and of HIV-negative or unknown status (68%). Most participants (64%) reported prior knowledge of PrEP, and 28% reported current use or intent to use PrEP. Three major content themes that emerged were variability of PrEP awareness, barriers and facilitators to PrEP uptake, and emotional benefits of PrEP. Among participants without prior PrEP knowledge, participants reported frustration that PrEP information has not been widely disseminated to YTW, particularly by health care providers. Attitudes toward PrEP were overwhelmingly positive; however, concerns were raised regarding barriers including cost, stigma, and adherence challenges. Both HIV-positive and negative participants discussed emotional and relationship benefits of PrEP, which were felt to extend beyond HIV prevention alone.

**Conclusions:** A high proportion of YTW in this study had prior knowledge of PrEP, and attitudes toward PrEP were positive among participants. Our findings suggest several domains to be further explored in PrEP implementation research, including methods of facilitating PrEP dissemination and emotional motivation for PrEP uptake.

**See Also:**


LATINO: Barreras JL, Linnemayr SL, MacCarthy S. “We have a stronger survival mode”: exploring knowledge gaps and culturally sensitive messaging of PrEP among latino men who have sex with men and latina transgender women in Los Angeles, CA. *AIDS Care.* 2019;31(10):1221-1227.


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WILLINGNESS TO USE PREP


Background: Pre-exposure prophylaxis (PrEP) is an effective prevention tool for people at substantial risk of acquiring human immunodeficiency virus (HIV). To monitor the current state of PrEP use among men who have sex with men (MSM), we report on willingness to use PrEP and PrEP utilization. To assess whether the MSM subpopulations at highest risk for infection have indications for PrEP according to the 2014 clinical guidelines, we estimated indications for PrEP for MSM by demographics. Methods: We analyzed data from the 2014 cycle of the National HIV Behavioral Surveillance (NHBS) system among MSM who tested HIV negative in NHBS and were currently
sexually active. Adjusted prevalence ratios and 95% confidence intervals were estimated from log-linked Poisson regression with generalized estimating equations to explore differences in willingness to take PrEP, PrEP use, and indications for PrEP. **Results:** Whereas over half of MSM said they were willing to take PrEP, only about 4% reported using PrEP. There was no difference in willingness to take PrEP between black and white MSM. PrEP use was higher among white compared with black MSM and among those with greater education and income levels. Young, black MSM were less likely to have indications for PrEP compared with young MSM of other races/ethnicities. **Conclusions:** Young, black MSM, despite being at high risk of HIV acquisition, may not have indications for PrEP under the current guidelines. Clinicians may need to consider other factors besides risk behaviors such as HIV incidence and prevalence in subgroups of their communities when considering prescribing PrEP.

**See:**


Abstract: Pre-exposure prophylaxis (PrEP) is a highly effective HIV prevention method; however, it is underutilized among women who are at risk for acquisition of HIV. Women comprise one in five HIV diagnoses in the United States, and significant racial disparities in new HIV diagnoses persist. The rate of new HIV diagnoses among black and African American women in 2015 was 16 times greater than that of white women. These disparities highlight the importance of HIV prevention strategies for women, including the use of PrEP. PrEP is the first highly effective HIV prevention method available to women that is entirely within their control. However, because so few women who may benefit from PrEP are aware of it, few women's healthcare providers offer PrEP to their patients, PrEP has not yet achieved its potential to reduce HIV infections in women. This article describes individual and systemic barriers for women related to the uptake of PrEP services; explains how providers can identify women at risk for HIV; reviews how to provide PrEP to women; and outlines client-centered models for HIV prevention services. Better access to culturally acceptable and affordable medical and social services may offer support to women for consistent and ongoing use of PrEP. This discussion may be used to inform HIV prevention activities for women and guide interventions to decrease racial/ethnic disparities in rates of HIV infection among US women.


Abstract: In the United States, heterosexual women account for 20% of new HIV infections. As a user-controlled HIV prevention method, pre-exposure prophylaxis (PrEP) has substantial potential to reduce new infections among women. However, among women, PrEP is vastly underutilized. To guide efforts to increase women-at-risk's PrEP use, we sought to describe the characteristics of women prescribed PrEP as well as their retention in PrEP care. We conducted a chart review of women who received care at a comprehensive sexual health clinic within a large urban health care system. Referral sources included the health care system's clinics and HIV testing program, as well as local community-based organizations. From 1 December 2014 to 5 August 2016, 554 women received care at the clinic. During this period, 21 heterosexual women (3.8%) received at least one prescription for daily oral PrEP. For women prescribed PrEP, median age was 35 years old (range: 20-52). The majority (66.7%) were either Latina or non-Latina Black and most (81.2%) had public health insurance. The most common PrEP indication was being in a known sero-discordant partnership (85.7%). Of women in such partnerships, 83.3% reported their male partner was currently taking antiretroviral medications (ARVs) and 16.7% reported trying to conceive with their partner (not mutually exclusive). Of women with ARV-using partners, 66.7% reported that their partners were virally suppressed. Retention in PrEP care at three months was 61.1% and, at six months, 37.5%. Further study is necessary to expand
PrEP to women whose risk factors extend beyond being in a known sero-discordant partnership, and to understand the reasons for the observed drop-off in PrEP care visits in real-world settings


**Abstract:** Oral HIV pre-exposure prophylaxis (PrEP) is a highly effective pill that HIV-negative individuals can take once daily to prevent HIV infection. Although PrEP is a private, user-controlled method that empowers women to protect themselves without relying on a partner's behavior, women's PrEP use has been extremely low. We systematically reviewed the literature to identify and summarize factors that may be affecting PrEP implementation for women in the United States. We conducted a search of the Centers for Disease Control and Prevention HIV/AIDS Prevention Research Synthesis Project database (MEDLINE, EMBASE, and CINAHL) and PubMed to identify peer-reviewed studies published between January 2000 and April 2018 that reported U.S. women's or health care providers' PrEP knowledge or awareness, willingness to use or prescribe, attitudes, barriers and facilitators to use or prescription, or PrEP adherence and discontinuation influences. Thirty-nine studies (26 women, 13 providers) met the eligibility criteria. In these studies, 0%-33% of women had heard of PrEP. Between 51% and 97% of women were willing to try PrEP, and 60%-92% of providers were willing to prescribe PrEP to women. Implementation barriers included access, cost, stigma, and medical distrust. Three studies addressed adherence or discontinuation. PrEP knowledge is low among women and providers. However, women and providers generally have positive views when aware of PrEP, including a willingness to use or prescribe PrEP to women. Most of the implementation barriers highlighted in studies were social or structural factors (e.g., access). Additional studies are needed to address research gaps, including studies of PrEP adherence and discontinuation.


**Background:** PrEP uptake has lagged among US women. PrEP stigma is a recognized barrier to uptake among MSM but remains largely unexplored among women. This study examined the pervasiveness of PrEP stigma among US women and its implications for uptake. **Setting/Methods:** In a 2017 online survey of Planned Parenthood patients drawn from the three cities with the highest numbers of new HIV infections in Connecticut, 597 heterosexually-active, HIV-negative, PrEP-inexperienced women reported background characteristics, two dimensions of anticipated PrEP stigma (PrEP-user stereotypes and PrEP disapproval by others), and three indicators of potential PrEP uptake (interest in learning more about PrEP, intention to use PrEP, and comfort discussing PrEP with a provider). **Results:** Participants commonly perceived PrEP-user stereotypes, with many believing that others would regard them as promiscuous (37%), HIV-positive (32%), bad (14%), or gay (11%) if they used PrEP. Thirty percent would feel ashamed to disclose PrEP
use. Many participants expected disapproval by family (36%), sex partners (34%), and friends (25%). In adjusted analyses, perception of PrEP-user stereotypes was uniquely associated with lower comfort discussing PrEP with a provider. Expected PrEP disapproval by others was uniquely associated with less PrEP interest, less intention to use PrEP, and less comfort discussing PrEP with a provider. Exploratory moderation analyses suggested intention to use PrEP was greatest when participants anticipated low levels of both PrEP-user stereotypes and PrEP disapproval by others.

**Conclusion:** Findings highlight the need for positive messaging targeting potential PrEP users and their social networks to increase PrEP acceptance and uptake.


**Abstract:** Although HIV pre-exposure prophylaxis (PrEP) is effective for women, studies show limited uptake among women to date. Barriers to women's PrEP uptake include their limited knowledge about PrEP and low perceived HIV risk. To address these barriers, we developed and pretested a printed palm card containing HIV prevention/PrEP information that addressed HIV prevention motivation with self-assessment questions about HIV risk. We conducted expert interviews (N = 8), focus groups with health, education, and social service providers (N = 13), and interviews with community women (N = 30) in New York City to assess attention to and acceptability of the card, comprehension of the information, and potential impact on prevention motivation. The card format and content were found to be acceptable and potentially motivational for preventive behaviors, as well as particularly relevant for women. Results of testing for language use, comprehension, and attention guided the final version of the card content.


**Abstract:** HIV pre-exposure prophylaxis (PrEP) presents new opportunities for HIV prevention. While women comprise approximately 20% of new HIV infections in the US, significant questions remain about how to most effectively facilitate PrEP uptake for this population. Family planning clinics are a dominant source of health care for young women and support an estimated 4.5 million women annually. We explore characteristics associated with HIV risk perception and PrEP acceptability among young adult women seeking reproductive health services in a high-prevalence setting. A cross-sectional, clinic-based survey was conducted with women ages 18-35 (n = 146) seeking health care at two family planning clinics in the greater Baltimore, Maryland area, from January to April 2014. An estimated 22% of women reported being worried about HIV risk, and 60% reported they would consider taking a pill daily to prevent HIV. In adjusted models, HIV-related worry was associated with having no college education, being single or dating more than one person, practicing consistent condom use during vaginal sex, and having ever traded sex. PrEP acceptability was significantly associated with being black (71% vs. 49%, AOR 2.23, CI: 1.89-2.64) and having ever traded sex (83% vs. 58%, AOR 4.94, CI: 2.00-12.22). For women with a history of intimate partner violence (IPV), PrEP acceptability
was significantly lower (57% vs. 62%, AOR .71, CI: .59-.85) relative to their non-abused counterparts. Results suggest that family planning clinics may be a natural setting for PrEP discussion and roll-out. They should be considered in the context of integrating HIV prevention with reproductive health services. Women with a trauma history may need additional support for implementing HIV prevention in the form of PrEP.


Background: Pre-Exposure Prophylaxis (PrEP) use has remained low among US women while significantly increasing among men who have sex with men. Besides lack of awareness, women face several social and structural barriers in gaining access to and using PrEP. Methods: Four focus group discussions with 20 HIV-negative women who live in the Washington DC metropolitan area. Results: The women expressed concerns about social and structural barriers to PrEP use. They were afraid that stigma related to using "HIV medicines" could affect PrEP use as well. They are worried that family and friends may question their reasons for taking anti-retrovirals and suspect that they were HIV-positive. They expected hostile reactions from male partners, including accusations of infidelity and introducing mistrust in their relationships. Communicating with health care providers about sexual matters in general and their need for PrEP in particular were identified as further barriers. Women reported that providers rarely ask about risk behaviors related to HIV acquisition; that short visits hinder establishing a trusting relationship to discuss sensitive matters. They were concerned that disclosure of risk behaviors may result in judgmental responses and harsh treatment from providers. Lastly, women were concerned that PrEP costs, including insurance coverage and copays, would keep PrEP out of their reach. While cognizant of the potential barriers, women were unwavering in their determination to find ways to circumvent challenges to PrEP access. Conclusion: Social and structural barriers may impede women's access to PrEP despite their own reported interest. Continued efforts to reduce HIV stigma, improve patient-provider relationships and ensure affordability of PrEP may increase the likelihood that women will use this important prevention modality.


Abstract: Little is known about real-world facilitators of and barriers to pre-exposure prophylaxis (PrEP) uptake among women prescribed PrEP. We sought to characterize the pathway to PrEP uptake and continuation in women prescribed PrEP at an urban sexual health-focused clinic. We conducted semi-structured individual interviews with 14 women from October 2016 to May 2017. Using grounded theory and the constant comparative method, we found that self-perceived HIV risk, learning about PrEP through trusted sources, having positive interactions with PrEP providers, and insurance coverage were facilitators of PrEP uptake and continuation. Concerns about PrEP safety, misinformation about PrEP eligibility and appropriateness, lack of insurance coverage, and pharmacy
impediments were key barriers. The confluence of these issues led to PrEP rumination, a process of ongoing deliberation about the benefits and risks of PrEP. These findings provide important insights about how to increase PrEP uptake among women at high risk of HIV infection.


Abstract: Women comprise one in five new human immunodeficiency virus (HIV) diagnoses in the United States. Trials and implementation projects demonstrate pre-exposure prophylaxis for HIV prevention is effective in women. Pre-exposure prophylaxis is a method of preventing HIV acquisition by having an HIV-negative individual take antiretroviral medication before exposure. The U.S. Food and Drug Administration approved daily oral tenofovir disoproxil fumarate coformulated with emtricitabine as preexposure prophylaxis for HIV prevention in 2012. Pre-exposure prophylaxis is highly dependent on adherence for effectiveness. The Centers for Disease Control and Prevention recommends offering pre-exposure prophylaxis to individuals at significant risk of infection and estimates 468,000 women in the United States are eligible for pre-exposure prophylaxis. Although variable individual and structural forces affect each woman's medication adherence, and therefore the effectiveness of pre-exposure prophylaxis, women's health care providers are uniquely positioned to screen, counsel about, and offer pre-exposure prophylaxis. Shared decision-making provides a framework for these clinical encounters, allowing patients and clinicians to make health care decisions together based on scientific evidence and patient experiences. By incorporating fertility desires and contraceptive needs, health care providers effectively integrate sexual and reproductive health care. Including pre-exposure prophylaxis in women's health services requires health care provider training and attention to lessons learned from family planning and HIV prevention. Nevertheless, obstetrician-gynecologists have an opportunity to play a critical role in reducing sexual transmission of HIV in the United States by integrating pre-exposure prophylaxis education and provision into their practices.


Background: For young South African women at risk for human immunodeficiency virus (HIV) infection, pre-exposure prophylaxis (PrEP) is one of the few effective prevention options available. Long-acting injectable PrEP, which is in development, may be associated with greater adherence, compared with that for existing standard oral PrEP formulations, but its likely clinical benefits and additional costs are unknown. Methods: Using a computer simulation, we compared the following 3 PrEP strategies: no PrEP, standard PrEP (effectiveness, 62%; cost per patient, $150/year), and long-acting PrEP (effectiveness, 75%; cost per patient, $220/year) in South African women at high risk for HIV infection (incidence of HIV infection, 5%/year). We examined the sensitivity of the strategies to changes in key input parameters among several outcome measures, including
deaths averted and program cost over a 5-year period; lifetime HIV infection risk, survival rate, and program cost and cost-effectiveness; and budget impact. **Results:** Compared with no PrEP, standard PrEP and long-acting PrEP cost $580 and $870 more per woman, respectively, and averted 15 and 16 deaths per 1000 women at high risk for infection, respectively, over 5 years. Measured on a lifetime basis, both standard PrEP and long-acting PrEP were cost saving, compared with no PrEP. Compared with standard PrEP, long-acting PrEP was very cost-effective ($150/life-year saved) except under the most pessimistic assumptions. Over 5 years, long-acting PrEP cost $1.6 billion when provided to 50% of eligible women. **Conclusions:** Currently available standard PrEP is a cost-saving intervention whose delivery should be expanded and optimized. Long-acting PrEP will likely be a very cost-effective improvement over standard PrEP but may require novel financing mechanisms that bring short-term fiscal planning efforts into closer alignment with longer-term societal objectives.

**See also:**


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YOUNG MEN WHO HAVE SEX WITH MEN


Abstract: Daily emtricitabine/tenofovior is effective at preventing HIV acquisition and is approved for HIV pre-exposure prophylaxis (PrEP). Blacks in the United States have a disproportionately high rate of HIV, and uptake of PrEP has been very low in this population. We conducted a pilot study in a high-prevalence city to test whether a culturally-tailored counseling center for young black men who have sex with men (BMSM) positively impacted their access and uptake of PrEP. 50 young BMSM were randomized to either a PrEP counseling center group or a control group, and were then encouraged to obtain PrEP from a PrEP provider. At the end of 3 month study, six participants in the intervention group compared with none in the control group had initiated PrEP (p = 0.02). This pilot study demonstrates that a culturally-tailored counseling center might be effective at increasing the uptake of PrEP in young BMSM.
Abstract: Young adult men-who-have-sex-with-men (YMSM) continue to have among the highest incidence of HIV infection in the United States. Pre-exposure prophylaxis (PrEP) is an effective and safe method of preventing HIV infection; however, despite US Food and Drug Administration approval, utilization remains low, in part, due to structural barriers, particularly access to healthcare. In this study, we used social media to recruit black, Hispanic, and white HIV-uninfected 18- to 24-year-old YMSM. Participants completed an online survey about their sexual behavior, healthcare access, and previous use of PrEP. Of the 2297 YMSM surveyed, only 3.4% had used PrEP. PrEP use was associated with higher levels of education, living alone, older age, higher levels of sexual activity, and greater healthcare access, specifically having healthcare insurance and a clinic or primary care provider (PCP) from whom they received care. Among PrEP nonusers, 65% met at least one of the US Centers for Disease Control and Prevention recommended indications for PrEP use, and of these, 59% had healthcare insurance and received care in a clinic and/or had a PCP. Multi-variable multi-nomial logistic regression modeling identified disparities in access to healthcare by age, race/ethnicity, education, and region. Specifically, older YMSM, blacks and Hispanics, those with fewer years of formal education, and residents of the southern and the western United States were more likely to lack healthcare access. These results demonstrate both potential opportunities and barriers to the scale-up of PrEP among YMSM.

Abstract: Understanding pre-exposure prophylaxis (PrEP) discontinuation is key to maximizing its effectiveness at the individual and population levels. Data came from the RADAR cohort study of MSM aged 16-29 years, 2015-2017. Participants included those who reported past 6-month PrEP use and discontinued its use by the interview date. Of the 197 participants who had used PrEP in the past 6 months, 65 discontinued use. Primary reasons for PrEP discontinuation included trouble getting to doctor's appointments (14, 21.5%) and issues related to insurance coverage or loss (13, 20.0%). Few (21%) who discontinued spoke to their doctor first, which has important implications for future long acting formulations.

Abstract: Pre-exposure prophylaxis (PrEP) has shown promise as a safe and effective HIV prevention strategy, but there is limited research on awareness and use among young men who have sex with men (YMSM). Using baseline data from the "Keep It Up! 2.0" randomized control trial, we examined differences in PrEP awareness and use among
racially diverse YMSM (N = 759; mean age = 24.2 years). Participants were recruited from study sites in Atlanta, Chicago, and New York City, as well as through national advertising on social media applications. While 67.5% of participants reported awareness of PrEP, 8.7% indicated using the medication. Awareness, but not use, varied by demographic variables. PrEP-users had twice as many condomless anal sex partners (ERR = 2.05) and more condomless anal sex acts (ERR = 1.60) than non-users. Future research should aim to improve PrEP awareness and uptake among YMSM and address condom use.

See also:

