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Improving Management of Sexually Transmitted Infections in Pre-Exposure Prophylaxis for Human Immunodeficiency Virus Infection Users

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Multiple research studies and real world reports show increased sexually transmitted infections (STIs) among PrEP users [1]. While this is not surprising because PrEP is indicated for persons at high risk for HIV infection, who are also at high risk for other STIs, more needs to be done to address this known problem.

Quarterly Testing

Currently, guidelines from the Centers for Disease Control and Prevention (CDC) recommend *Chlamydia trachomatis* (CT), *Neisseria gonorrhoeae* (NG), and syphilis testing for PrEP users at least once every 6 months [2]. The CDC's guidelines for STI infection recommend expedited partner therapy (EPT) for syphilis, however, EPT is *not recommended for chlamydial and gonococcal infections among men who have sex with men* (MSM), the highest PrEP users, due to high risk for coexisting infections [3]. The World Health Organization's guidelines state frequent HIV testing during PrEP use should ideally become an opportunity for STI screening and management, however a clear recommendation on frequency of testing is not provided [4].

Among PrEP users, quarterly STI screening with extragenital testing significantly increased detection of STIs, compared to current CDC guidelines that recommend screening every 6 months [5]. In addition, a modeling study predicted that STI rates could even decrease with widespread PrEP use via long-term STI screening and treatment, addressing STIs that often remain undiagnosed among key populations [6]. The study's authors reported that quarterly versus biannual screenings could reduce combined STI incidence by over 50% in PrEP users if they were properly treated. Finally, by increasing the total number of PrEP users with proper STI screening and treatment, roughly half of all STIs could be averted.

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Competing interest

There are no conflicts of interest.

Extragenital Testing and Provider Training

Many clinicians provide suboptimal care for MSM. During health care visits, many providers fail to ask MSM about their sexual behavior and symptoms, often due to discomfort associated with those discussions, leading to suboptimal STI testing and treatment [3]. Additionally, CDC guidelines do not provide clinicians clear indications for testing of extragenital sites, which are commonly missed [7]. Finally, antimicrobial resistant NG is often present in extragenital sites, which perpetuates the spread of infection and may play a role in development of antimicrobial resistance [3].

PrEP users have substantial extragenital STIs [8, 9]. However even at a large HIV primary care center, extragenital STIs are often inadequately screened [10]. PrEP providers must take proper sexual histories, perform focused physical examinations, have thorough discussions about sexual behavior, and screen extragenital sites for STI to administer comprehensive medical care (Figure 1A). Providers must ensure that they do not miss anorectal and oropharyngeal STIs. Finally, as a sign of cultural competency for target communities, condoms and lubrication should continue to be made available at clinics.

Updated Treatment Strategies

Among PrEP users who test positive for CT or NG, repeat screening is important to exclude re-infection because a prior STI is a strong predictor of a new STI. Among those patients, a STI testing strategy should be implemented: Screen the patient, treat the patient, treat the partner, and repeat at three months (Figure 1B).

Revised partner management

Partner services play an important role in STI treatment and prevention. Partner services must be expanded to maximize its public health benefit [11]. Among PrEP users, CDC's guidelines must be changed to recommend EPT for chlamydial and gonococcal infection. A study among heterosexual persons found that EPT, when compared with standard partner referral services, reduced the persistence or recurrence of STIs [12]. Benefits include increased treatment of STIs and reduction of sex with untreated partners. Disadvantages of EPT include possible adverse medication reactions and a potentially missed opportunity for clinical evaluation and patient counseling. But, EPT should be incorporated into routine STI management along with partner notification.

Innovation

Studies found doxycycline prophylaxis for bacterial STIs among HIV-infected MSM reduced incidence of bacterial STIs [13, 14].

Conclusions

Quarterly testing, extragenital testing, provider training, culturally competent care, repeat CT and NG screening, and EPT should become the standard of quality care in the clinical management of PrEP users. With increasing antimicrobial resistance, the current inability to control STIs could lead to another major public health crisis. Proper implementation of these recommendations needs to occur among providers, cities, and governments. Future research

is needed to investigate innovative approaches to prevent STIs. PrEP, with proper implementation of our recommendations into a comprehensive STI management plan, is not only an opportunity to prevent HIV infections, but also a bridge to connect providers to traditionally difficult to access communities and reduce overall prevalence of STIs.

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References

1. Scott HM, Klausner JD. Sexually transmitted infections and pre-exposure prophylaxis: challenges and opportunities among men who have sex with men in the US. *AIDS Res Ther*. 2016; 13:5. [PubMed: 26793265]
2. Centers for Disease Control and Prevention. Preexposure Prophylaxis for the Prevention of HIV Infection in the United States – 2014 Clinical Practice Guideline. United States Department of Health & Human Services; 2014.
3. Workowski KA, Bolan GA, Centers for Disease C, Prevention. Sexually transmitted diseases treatment guidelines, 2015. *MMWR Recomm Rep*. 2015; 64(RR-03):1–137.
4. World Health Organization. Consolidated guidelines on the use of antiretroviral drugs for treating and preventing HIV infection: recommendations for a public health approach. 2nd. 2016.
5. Cohen, S., Vittinghoff, E., Philip, SS., et al. Quarterly STI Screening Optimizes STI Detection Among PrEP Users in the Demo Project. Conference on Retroviruses and Opportunistic Infections; Boston, Massachusetts. 2016.
6. Jenness, S., Weiss, K., Goodreau, SM., et al. STI INCIDENCE AMONG MSM FOLLOWING HIV PREEXPOSURE PROPHYLAXIS: A MODELING STUDY. Conference on Retroviruses and Opportunistic Infections; Seattle, Washington. 2017.
7. Dukers-Muijers NH, Schachter J, van Lier GA, et al. What is needed to guide testing for anorectal and pharyngeal Chlamydia trachomatis and Neisseria gonorrhoeae in women and men? Evidence and opinion. *BMC infectious diseases*. 2015; 15:533. [PubMed: 26576538]
8. Liu AY, Cohen SE, Vittinghoff E, et al. Preexposure Prophylaxis for HIV Infection Integrated With Municipal- and Community-Based Sexual Health Services. *JAMA Intern Med*. 2016; 176(1):75–84. [PubMed: 26571482]
9. Montano, MA., Dombrowski, JC., Barbee, LA., et al. CHANGES IN SEXUAL BEHAVIOR AND STI DIAGNOSES AMONG MSM USING PREP IN SEATTLE, WA. Conference on Retroviruses and Opportunistic Infections; Seattle, Washington. 2017.
10. Barbee LA, Dhanireddy S, Tat SA, Marrazzo JM. Barriers to Bacterial Sexually Transmitted Infection Testing of HIV-Infected Men Who Have Sex With Men Engaged in HIV Primary Care. *Sex Transm Dis*. 2015; 42(10):590–594. [PubMed: 26372931]
11. Hogben M, Collins D, Hoots B, O'Connor K. Partner Services in Sexually Transmitted Disease Prevention Programs: A Review. *Sex Transm Dis*. 2016; 43(2 Suppl 1):S53–62. [PubMed: 26779688]
12. Golden MR, Whittington WL, Handsfield HH, et al. Effect of expedited treatment of sex partners on recurrent or persistent gonorrhea or chlamydial infection. *The New England journal of medicine*. 2005; 352(7):676–685. [PubMed: 15716561]

13. Bolan RK, Beymer MR, Weiss RE, et al. Doxycycline prophylaxis to reduce incident syphilis among HIV-infected men who have sex with men who continue to engage in high-risk sex: a randomized, controlled pilot study. *Sex Transm Dis.* 2015; 42(2):98–103. [PubMed: 25585069]
14. Molina, JM., Charreau, I., Chidiac, C., et al. ON DEMAND POST EXPOSURE PROPHYLAXIS WITH DOXYCYCLINE FOR MSM ENROLLED IN A PREP TRIAL. Conference on Retroviruses and Opportunistic Infections; Seattle, Washington. 2017.

Figure 1.

A Recommended quarterly sexually transmitted infection testing and clinical care for pre-exposure prophylaxis for human immunodeficiency virus infection users. **B.** Recommended screening strategy for *Chlamydia trachomatis* and *Neisseria gonorrhoeae* among pre-exposure prophylaxis for human immunodeficiency virus infection users.

*Adapted from A Guide to Taking a Sexual History from the Centers for Disease Control and Prevention. 2011.