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# Keeping Our Eyes on the Prize: No New HIV Infections with Increased Use of HIV Pre-exposure Prophylaxis

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Biomedical approaches to preventing HIV have advanced quickly, particularly over the last 5 years. A significant milestone occurred in July 2012 when the U.S. Food and Drug Administration approved the use of daily oral emtricitabine/tenofovir disoproxil fumarate (Truvada®) as HIV pre-exposure prophylaxis (PrEP). Many questions remain. What proportion of the population vulnerable to HIV will take a pill a day to prevent it? How will the costs of the medication and clinic visits be paid for? Assuming people are willing to use PrEP and can access PrEP, will they take the medication as directed? Will uptake and use be higher or lower among those at highest risk? Will people place themselves at higher risk for HIV and sexually transmitted infections (STIs) as a consequence of using PrEP?

We are slowly accumulating answers to these key questions. The study by Volk and colleagues in this issue sheds light on issues related to PrEP uptake, access and adherence [1]. PrEP uptake has been characterized as "slow" [2-4] though it is not clear what is used as a reference point. Disseminations of successful innovations often require many years, as occurred with hormonal contraception, hepatitis B and human papilloma virus vaccination, and combination antiretroviral therapy for HIV infection. Volk et al's graphical comparison of referrals, intakes and initiation among patients seen in a primary care facility illustrated a dramatic increase in uptake approximately one year after FDA approval. This striking uptake produced an expected and most desired outcome – *no new HIV infections* – among a population vulnerable to HIV. Given the historical devastation wrought by HIV/AIDS within the city of San Francisco and elsewhere, this is tremendously good news. Despite intensive efforts to curb HIV transmission, San Francisco data from 2013 indicate that approximately one HIV infection occurs each day [5]. San Francisco is actively working towards the UNAIDS Getting to Zero goal to halt all new HIV infections, HIV-related deaths and HIV-related stigma. The data published by Volk and colleagues demonstrates meaningful progress towards the goal of halting new infections.

What insights can we draw from the results so well reported on by Volk and colleagues? First, we want to highlight and commend the authors working within the Kaiser system for creating a clinical environment conducive for gay and other men who

have sex with men to feel comfortable enough to use their specialized PrEP program. In an ethnographic study performed in San Francisco, we found that many men who have sex with men seek sexual health services, including PrEP, *outside* of primary care in municipal or community based clinics [6]. Such clinics made it easier to be seen in a timely fashion and men appreciated the higher quality sexual health screening and counseling they received. In addition, due to the stigma that persists regarding gay men's sexual activities and the shame some have experienced, many participants preferred to separate sexual health care from their on-going primary care relationship. Volk and colleagues' experience provides evidence that men will seek or accept PrEP in the context of a specialized program situated *within* a primary care setting. Providing PrEP services within primary care practices also occurs, although the acceptability and feasibility of such integration remains to be demonstrated.

Second, it is not clear from the Volk article if the reported rate of sexually transmitted infections is an increase over and above a baseline level or not. Men who seek PrEP services tend to report more numbers of sexual partners and less condom use so sexually transmitted infections are commonly present when PrEP is initiated [7]. Testing and management of sexually transmitted infections when starting PrEP should be the standard of care. The increased frequently of STI testing offered during PrEP services affords more timely diagnosis and treatment of STIs, and high rates of diagnosis may reflect greater diagnostic yield rather than changes in sexual behavior. Furthermore, men who commonly sought sexual health services outside the Kaiser Permanente system in convenient community based clinics are now being tested within the Kaiser Permanente PrEP services. What appears to be high rates of STI diagnosis may reflect appropriate use of PrEP by people who have the most to benefit and people staying closer to their medical home for sexual health services.

It is time for a vigorous conversation about sexually transmitted infections, too long eclipsed by fear of HIV infection. The conversation should include public health officers, clinicians, clients, and sexual partners. Routine STI testing within primary care practices is often not performed representing a missed opportunity for epidemic control and an expansion of the scope of primary care to continually include sexual health. While HIV testing and trends are frequently in the news, notice of STI trends remain unnoticed

in technical reports. People and prospective partners frequently exchange information about HIV test results, HIV treatment outcomes, and adherence, while discussion of other STIs is left for the morning after, or after the appearance of symptoms of infection. Feeling safer from HIV infection while using PrEP [8] creates space for a more robust discussion of STIs.

The U.S. Centers for Disease Control PrEP guidelines encourage STI testing at least every 6 months. PrEP is best combined with a parallel plan to prevent other STIs, which may include use of condoms, frequent testing and treatment, and discussion of STI test results with prospective partners. We may also consider promoting STI self-testing and self-treatment. Trusting that PrEP users and their communities will respond to the threat of STIs can allow for novel and potentially more durable transformation of sexual health promoting behaviors. For example, members of the gay community historically led the innovations around safer sex practices in the face of HIV/AIDS [9]. If the STI burden in the context of PrEP use become too great, communities can and will make course corrections. Finally, as reported in CID 2014, McCormack and colleagues pointed out that the resurgence of STIs among MSM predates the advent of PrEP [10]. Sexual practices and the social life of condoms are in flux; they were before PrEP and they will continue to be. Ideally, the public health response to the possibility of rising incidence of STIs in the context of decreased or no new HIV infections would be framed in relative terms and therefore considered to be a *good* problem to have.

The authors have no reported conflict of interest.

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