Nearly 400 million new cases of the curable sexually transmitted infections (STIs) *Chlamydia trachomatis*, *Neisseria gonorrhoeae*, *Treponema pallidum*, and *Trichomonas vaginalis* occur worldwide annually, and rates of STIs recently reached record high levels in the US.\(^1\) STIs cause significant morbidity, result in high costs to health care systems, and can facilitate transmission of HIV.

Among populations of persons using HIV preexposure prophylaxis (PrEP), STI rates are often high, which has triggered debate about whether the availability of effective HIV prevention might be facilitating STI spread. A number of studies have tried to disentangle the interface between PrEP use, sexual behavior, and STI risk among PrEP users, particularly men who have sex with men (MSM). Colloquially, sometimes health professionals speak as if cessation of condom use is an expected outcome of taking PrEP, and some prospective studies\(^2\) have confirmed this expectation with reported increases in condomless anal sex following PrEP initiation. However, a meta-analysis\(^3\) of multiple observational studies found that, despite an increase in rectal chlamydia (odds ratio, 1.59; 95% CI, 1.19-2.13), condomless anal sex did not seem to increase after PrEP initiation. Because they engage in regular care (ie, for HIV testing, PrEP refills, and so forth), PrEP users may also be tested more often for STIs, although testing frequency alone does not appear to explain the generally high rates of STIs among PrEP users.\(^4\)

McManus et al\(^5\) provide a comprehensive look at STIs and STI risk among a population of PrEP users. They report on a longitudinal study of 7498 Australian MSM using PrEP, including follow-up both before and after PrEP initiation. STI incidence, specifically *C trachomatis*, *N gonorrhoeae*, and *T pallidum*, was high: 20% of men tested positive at each quarterly visit, cumulating in approximately one-half of men having at least 2 STIs over the course of a year and a substantial minority having multiple infections. STI positivity increased 17% after starting PrEP, from 19.5% per quarter before PrEP to 22.9% per quarter after PrEP in the 2 years following PrEP initiation. However, at the same time, there was a concurrent temporal trend of increasing incidence of STIs in the population before starting PrEP, which slowed after PrEP start. Thus, 50% of MSM had a positive result in the year before starting PrEP and 52% did so during the year after PrEP (*P* = .34). *C trachomatis* and *N gonorrhoeae* accounted for most STI positivity; *T pallidum* incidence rates were comparatively low in this cohort, and there was no change in positivity trends before or after PrEP initiation.

What can we make of these results? McManus et al\(^5\) report an important but somewhat nuanced finding: STIs increased after PrEP initiation but were already increasing before PrEP initiation and, in fact, increased at a lesser rate after PrEP initiation than before. Setting aside statistical comparisons, both before and after PrEP, STI rates were very high in this population, emphasizing that condom use was low and PrEP was absolutely indicated for HIV prevention. Changes in sexual behavior or reduction in fear or anxiety following PrEP initiation were not reported in these data, but other studies\(^6\) show a clear correlation between taking PrEP and improvement in sexual health because of reduced fear and anxiety, and rightly so, because PrEP prevents HIV, with protection rates in excess of 95%.

People with a recent STI diagnosis may benefit greatly from PrEP, and concerns about possible increases in STIs associated with PrEP initiation should generally be outweighed by the potential for HIV acquisition if PrEP is not started. Unfortunately, rather than focus on promoting sexual health,
too often the implicit focus of discussions around STIs and PrEP shifts to preventing sexual behavior rather than preventing HIV and STIs. Risk-reduction counseling has and continues to be important in combating the global epidemics of HIV and STIs, but it is the individuals who are having sex without condoms who especially need prevention interventions that meet the needs of their current behavior (ie, harm reduction care). Enduring stigma related to sexual liberation shapes both public and professional responses to HIV and STI prevention, which in some ways are analogous to historical concerns that women faced when trying to obtain hormonal contraceptives. As health professionals, we must remember that we are in the business of preventing STIs, not preventing sex.

Comprehensive sexual health care is needed to help prevent the spread of HIV and STIs, and people who are at risk of HIV acquisition and STI acquisition are largely one and the same. The conversation surrounding the increasing incidence of curable STIs among men taking PrEP is backed by clear evidence of an STI and HIV sydemic and should shift focus from why STIs are prevalent to how to provide better STI care. Many people who are using PrEP also use condoms, but the worldwide increase in STI rates clearly indicates that despite decades of condom promotion and education, condoms are not a part of some people’s sex lives. PrEP offers an opportunity to open up conversations with patients about which strategies for HIV and STI prevention will work for them, aiming to reduce risk to the lowest possible level. In addition to condom use and risk-reduction counseling, effective STI prevention strategies, including screening, treatment, and expedited partner therapy, are currently available. In addition, point-of-care diagnostics are being developed, and new prevention strategies, including doxycycline postexposure prophylaxis and vaccine candidates for various STI pathogens, are under investigation.

The global increase in STIs and the effectiveness of PrEP along with other HIV prevention interventions is spurring tremendous innovation in STI prevention interventions for the future. Research has clearly demonstrated high rates of STIs among people taking PrEP and/or eligible for PrEP, and clinicians and researchers must continue to strive to best support people in HIV and STI prevention within the main goal of achieving overall sexual health.

ARTICLE INFORMATION
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REFERENCES


