



Health Update

Doxycycline Post-Exposure Prophylaxis Reduces Incidence of Sexually Transmitted Infections

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Situational Update

Researchers at the San Francisco Department of Health (SFDPH), Zuckerberg San Francisco General, University of California, San Francisco, and the University of Washington recently collaborated on a randomized controlled clinical trial of post-exposure prophylaxis (PEP) of sexually transmitted infections (STIs) using a single dose of doxycycline 200 mg within 72 hours after oral, anal, or vaginal sex, in men who have sex with men (MSM) and transgender women (TGW) who were living with HIV (PLWH) or taking HIV pre-exposure prophylaxis (HIV PrEP). **The study showed that this regimen significantly reduced acquisition of chlamydia, gonorrhea, and syphilis in these populations.**

Participants randomized to doxycycline PEP (doxy-PEP) had a 66% (HIV-negative and on PrEP) and 62% (PLWH) reduction in STIs per quarter of study follow-up, compared with participants randomized to standard of care (no doxy-PEP). Taking doxycycline was also safe and well-tolerated by participants, with no drug-related serious adverse events. These [data](#) were recently presented at the 2022 International AIDS Conference in Montreal, Canada. Data are still being collected and analyzed to assess the impact of doxy-PEP on risk for drug resistance in bacterial STIs, *Staph aureus*, and commensal *Neisseria*, and on the gut microbiome.

The CDC has released [considerations](#) for doxy-PEP as an STI prevention strategy, but there is not yet detailed guidance from CDC on doxy-PEP, for which its indication is currently off-label. STIs can cause significant morbidity and reducing STI rates in San Francisco is an urgent public health priority. **Doxy-PEP is the first biomedical prevention tool that has been shown to be effective and well-tolerated, community awareness is growing, and many providers in SF are already prescribing doxy-PEP to their patients at risk for STIs.** SFDPH is providing guidance to SF clinicians on the use of doxy-PEP to reduce STI incidence in MSM and TGW at risk of bacterial STIs.



Recommendations

1. **Recommend doxy-PEP** to cis men and trans women who: 1) have had a bacterial STI in the past year and 2) report condomless anal or oral sexual contact with ≥ 1 cis male or trans female partner in the past year. These were the eligibility criteria used for the DoxyPEP study. Patients with a history of syphilis should be prioritized for doxy-PEP.
2. **Offer doxy-PEP using shared decision making** to cis men, trans men and trans women who report having multiple cis male or trans female sex partners in the prior year, even if they have not previously been diagnosed with an STI.
3. An ongoing randomized controlled trial in Kenya is assessing the safety and efficacy of doxy-PEP in cis women. **At this time, there is insufficient evidence to recommend doxy-PEP for STI prevention for individuals who report receptive vaginal sex.** If used in people who are able to become pregnant, pregnancy testing should be conducted as [doxycycline use should be avoided during pregnancy](#).
4. **When initiating doxy-PEP, discuss the following key points with patients:**
 - a. Efficacy:
 - i. In persons taking HIV PrEP, doxy-PEP reduced syphilis by 87%, chlamydia by 88% and gonorrhea by 55%.
 - ii. In PLWH, doxy-PEP reduced syphilis by 77%, chlamydia by 74% and gonorrhea by 57%.
 - iii. Efficacy against other bacterial STIs is not known, and doxy-PEP does not prevent HIV, monkeypox (MPX) or other viral infections, for example HPV and HSV.
 - b. Dosing and prescribing:
 - i. 200 mg of doxycycline should be taken ideally within 24 hours but no later than 72 hours after condomless oral, anal or vaginal sex.
 - ii. Doxycycline can be taken as often as every day, depending on frequency of sexual activity, but individuals should not take more than 200 mg within a 24 hour period.
 - iii. Either doxycycline hyclate delayed release 200 mg (1 tab) OR doxycycline hyclate or monohydrate immediate release 100 mg (2 tabs taken simultaneously) are acceptable.
 - iv. Immediate release may be less expensive than delayed release and should be equivalently bioavailable.
 - v. For ICD10 diagnosis code, use Z20.2 (Contact with and (suspected) exposure to infections with a predominantly sexual mode of transmission).



c. Counseling messages:

- i. People taking doxycycline should be counseled about possible drug interactions, risk of sun sensitivity, remaining upright for 30 minutes after taking doxycycline to reduce the risk of pill esophagitis, and the rare risk of benign intracranial hypertension and other serious side effects.
- ii. Study data on the impact of doxy-PEP on antibiotic resistance and the gut microbiome are being collected and reviewed.
- iii. Impacts of long-term use of doxy-PEP for STI prevention for individual patients and for population-level rates of antimicrobial resistance are unknown, but doxycycline has been previously used safely for long-term prophylaxis of malaria.

d. Monitoring while taking doxycycline:

- i. Per the doxycycline package insert, LFTs, renal function and a CBC should be checked periodically in patients taking doxycycline for a prolonged period. LFTs and CBCs were monitored in the DoxyPEP study, and there were no laboratory-related severe adverse events. Consider checking these laboratory parameters annually, particularly in individuals with a history of liver disease.
- ii. Persons taking doxy-PEP should be [screened](#) every three months for gonorrhea and chlamydia at all anatomic sites of exposure, syphilis, and HIV (if not known to be living with HIV).
- iii. If a patient is diagnosed with an STI while using doxy-PEP, they should be treated according to standard [CDC STI treatment guidelines](#).

5. **Recommend a comprehensive package of sexual health services to sexually active cis men and trans people who have sex with cis men or trans people.**

- a. Counsel patients about HIV PrEP and consider a [“2-1-1” dosing regimen](#) or long-acting cabotegravir for patients at risk for sexually acquired HIV who are not interested in taking daily PrEP.
- b. Ensure people living with HIV are in care and inform patients that maintaining an [undetectable HIV](#) viral load eliminates the risk of transmitting HIV to sexual partners.
- c. Screen patients for gonorrhea and chlamydia using urine, pharyngeal and rectal NAAT testing, and a serologic test for syphilis, every 3 months, regardless of HIV serostatus.
- d. Recommend and offer the following vaccines which protect against sexually transmitted or sexually associated infections, according to current local eligibility criteria and ACIP guidance: [MPX vaccine](#) (Jynneos), [Meningococcal vaccine](#) (MenACWY), [Hepatitis A](#), [Hepatitis B](#) and [HPV](#).



Resources

- “Doxycycline post-exposure prophylaxis for STI prevention among MSM and transgender women on HIV PrEP or living with HIV: high efficacy to reduce incident STI's in a randomized trial.” AIDS 2022:
<https://programme.aids2022.org/Abstract/Abstract/?abstractid=13231>
- SF City Clinic Provider Guidelines: [Guidelines | San Francisco City Clinic \(sfcityclinic.org\)](https://www.sfcityclinic.org)
- CDC 2021 STI Treatment Guidelines: [STI Treatment Guidelines \(cdc.gov\)](https://www.cdc.gov/std/treatment-guidelines/)
- Doxycycline use by pregnant and lactating people: [Doxycycline Use by Pregnant and Lactating Women | FDA](https://www.fda.gov/oc/ohrt/2018-0001)

Contact Information

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