



**To:** CAHAN San Diego Participants

**Date:** May 09, 2023

**From:** Public Health Services

**Health Advisory: Doxycycline Post-Exposure Prophylaxis for Prevention of Bacterial Sexually Transmitted Infections**

#### Key Messages

- Emerging evidence suggests that doxycycline, when taken as a 200 mg dose within 72 hours of condomless oral, anal, or vaginal sex for post-exposure prophylaxis (i.e., doxy-PEP), significantly reduces acquisition of chlamydia (CT), gonorrhea (GC), and syphilis.
- Providers should recommend doxy-PEP to men who have sex with men (MSM) and transgender women (TGW) who have had at least one bacterial sexually transmitted infection (STI) in the past 12 months.
- MSM and TGW who are known contacts to syphilis, GC, or CT should receive education about and, if interested, be prescribed doxy-PEP.
- Providers should offer doxy-PEP using shared decision-making to all non-pregnant individuals at increased risk for bacterial STIs and those requesting doxy-PEP.
- Education about doxy-PEP should include current knowledge gaps (e.g., effects of long-term doxycycline use on antimicrobial resistance and on the gut microbiome), conflicting evidence to date on efficacy for cisgender women, and possible side effects.

#### Situation

The California Department of Public Health has issued recommendations for doxycycline post-exposure prophylaxis (i.e., doxy-PEP) for the prevention of bacterial sexually transmitted infections (STIs), based on recent randomized controlled trial data [\[1\]](#).

#### Background

A recently published randomized controlled trial (DOXYPEP) enrolled men who have sex with men (MSM) and transgender women (TGW) in San Francisco and Seattle, all of whom had at least one bacterial STI in the last 12 months, to receive a single oral 200 mg dose of doxycycline within 72 hours after condomless oral, anal, or vaginal sex (i.e., doxy-PEP) or receive standard care without doxycycline. Participants included persons living with human immunodeficiency virus (HIV) (PLWH) and persons taking HIV pre-exposure prophylaxis (PrEP). Use of doxy-PEP reduced syphilis, CT, and GC incidence by 77%, 74%, and 57% among PLWH, and by 87%, 88%, and 55%, respectively, among persons taking HIV PrEP. Doxycycline was well-tolerated, with no serious adverse events attributed to the medication, and well accepted by the majority of participants [\[2\]](#).

To date, doxy-PEP has not been shown to reduce STI incidence among cis-gender women. In a randomized controlled trial that compared doxy-PEP to standard of care among non-pregnant cis-gender women taking HIV PrEP in Kisumu, Kenya with high baseline STI prevalence (17.9% overall), use of doxy-PEP did not reduce incident STIs [\[3\]](#). However, studies of mucosal doxycycline concentrations following a 200 mg dose of doxycycline have demonstrated protective

drug concentrations in vaginal secretions and vaginal and cervical tissue for 48-96 hours following administration [4]. The reasons why doxy-PEP appeared ineffective in the Kenyan study are not completely understood and require further investigation, including assessments of adherence. Doxy-PEP has not been studied in transgender men.

Effects of long-term doxycycline use on antimicrobial resistance among STIs (e.g., GC, *Mycoplasma genitalium*), other pathogens (e.g., *Staphylococcus aureus*), and commensal *Neisseria* species (a potential reservoir for tetracycline-resistant plasmids) and on the gut microbiome are currently unknown and under investigation. However, doxycycline has been used safely on a long-term basis for other medical indications, such as acne and malaria prophylaxis [5][6]. Doxycycline is not approved by the Food and Drug Administration (FDA) for STI PEP, so its use for this indication is currently considered off-label. Although there is no national organizational guidance for its use for STI prevention, the Centers for Disease Control and Prevention (CDC) has released considerations for doxy-PEP as an STI preventive strategy [7]. Additional guidance is anticipated for later this year.

## Actions Requested

1. **Recommend** doxy-PEP to MSM and TGW who have had at least one bacterial STI in the past 12 months.
2. **Discuss** doxy-PEP with MSM and TGW who are known contacts to syphilis, GC, or CT and prescribe doxy-PEP to patients who request it.
3. **Consider** doxy-PEP using shared decision-making for all non-pregnant persons at increased risk for bacterial STIs and to those requesting doxy-PEP, even if these individuals have not been previously diagnosed with an STI or have not disclosed their risk status. Counseling of cis-gender women about doxy-PEP should include the null results of the Kenya study of doxy-PEP and the need for additional studies to determine efficacy, as well as the fact that doxycycline should not be taken during pregnancy.
4. **Prescribe** doxycycline 200 mg to be taken ideally within 24 hours and no later than 72 hours after condomless oral, anal, or vaginal sex. Doxycycline hyclate delayed release 200 mg (one tablet) or doxycycline hyclate or monohydrate immediate release 100 mg (two tablets taken at the same time) are acceptable.
5. **Test** for GC and CT at all anatomic sites of exposure (i.e., urogenital, pharyngeal, and/or rectal), syphilis, and HIV at the time of doxy-PEP initiation and every three months thereafter. Treat new STI diagnoses according to the [2021 CDC STI Treatment Guidelines](#). Consider hematopoietic, renal, and hepatic laboratory monitoring as clinically indicated. Rule out pregnancy if considering doxy-PEP for someone of childbearing potential.
6. **Counsel** patients about possible drug interactions and potential side effects (e.g., sun sensitivity, pill esophagitis, intracranial hypertension). Advise patients not to take more than 200 mg of doxycycline in a 24-hour period.
7. **Provide** comprehensive sexual health education, using a sex-positive and status-neutral approach, that may include the following based on the unique needs of the individual: 1) HIV PrEP and PEP; 2) doxy-PEP; 3) vaccinations (e.g., Mpox, Hepatitis A and B, human papillomavirus, meningococcal (ACWY)); 4) expedited partner therapy; 5) [Undetectable = Untransmittable \(U=U\)](#); and 6) contraception.

## Resources

[Prescribing Information for Doxycycline Hyclate Delayed Release Tablets \(FDA\)](#)

[Dear Colleague Letter: Doxycycline PEP for Prevention of Bacterial STIs \(CDPH\)](#)

[Doxycycline as STI PEP: Considerations for Individuals and Healthcare Providers of Gay or Bisexual Men or Transgender Women \(CDC\)](#)

[2021 STI Treatment Guidelines \(CDC\)](#)

[National STD Curriculum \(University of Washington STD Prevention Training Center\)](#)

Thank you for your participation.

**CAHAN San Diego**

County of San Diego Health & Human Services Agency

HIV, STD, and Hepatitis Branch

Phone (for providers, M-F 8AM-5PM): (619) 692-8501 (syphilis lab/treatment histories and staging/treatment recommendations), (619) 609-3245 (clinical consultations for challenging cases); Fax: (619) 692-8541

E-mail: [cahan@sdcounty.ca.gov](mailto:cahan@sdcounty.ca.gov)

Secure Website: <http://cahan.ca.gov>

Public Website: <http://www.cahansandiego.com>