

# Doxycycline Post-Exposure Prophylaxis (DoxyPEP) for the Prevention of Bacterial Sexually Transmitted Infections

## Introduction

The Iowa Department of Health and Human Services (Iowa HHS) would like to inform all health care providers of a compelling new biomedical intervention to prevent bacterial sexually transmitted infections (STIs).

In June 2024, the Centers for Disease Control and Prevention (CDC) published clinical guidelines supporting the use of doxycycline post-exposure prophylaxis (DoxyPEP) for bacterial STI prevention in the U.S. DoxyPEP is the first biomedical prevention tool for bacterial STIs that has been shown to be effective and well-tolerated.

Incidence of bacterial STIs continues to increase in Iowa. Therefore, novel prevention and treatment approaches to decrease STIs are a public health priority.

## Clinical Recommendations from Iowa HHS:

1. Recommend DoxyPEP to individuals at increased risk for bacterial STIs, who have had  $\geq 1$  bacterial STI in the past 12 months.
2. Offer DoxyPEP using a shared decision-making approach to all individuals at increased risk for bacterial STIs and to those requesting DoxyPEP, even if these individuals have not been previously diagnosed with an STI or have not disclosed their risk status. *Note:* doxycycline is not recommended in pregnancy.

**Prescribe doxycycline 200 mg**, taken orally as soon as possible after condomless sex, including oral sex. Ideally within 24 hours, and no later than 72 hours after sex. Clinicians can prescribe an amount of doxycycline to meet a patient's anticipated use for one to three months.

- ▶ All forms of doxycycline (hyclate or monohydrate as immediate or delayed release) can be used and are thought to be equally effective.
- ▶ Doxycycline can be taken daily, but no more than 200 mg should be taken within a 24-hour period.

At the initial visit, screen for chlamydia/gonorrhea at anatomic sites of exposure and perform serologic testing for syphilis. Rescreen at three to six month intervals thereafter.

If the patient is diagnosed with an STI while using DoxyPEP, treat according to standard CDC STI Treatment Guidelines.

## Counseling Messages

- ▶ Counsel patients about possible drug interactions, risk of sun sensitivity and importance of remaining upright for 30 minutes after taking doxycycline to reduce the risk of pill esophagitis.
- ▶ Encourage patients to take doxycycline with a glass of water; take with food if gastric upset occurs. Avoid taking with antacids or dairy products.

## Considerations

- ▶ Doxycycline has not been studied in pregnancy and is therefore not recommended in pregnancy.
- ▶ Laboratory monitoring is not routinely indicated but should be considered periodically in patients taking doxycycline for a prolonged period or at the prescriber's discretion.
- ▶ For all sexually active individuals, provide comprehensive sexual health services and education, including risk reduction counseling, STI screening and treatment, HIV and hepatitis screening, recommending vaccination and linkage to HIV pre- or post-exposure prophylaxis or HIV care.
- ▶ Normalize discussion of DoxyPEP by incorporating it into routine visits. Inform patients rather than waiting for them to request it.

## Efficacy

A randomized controlled trial from the University of California showed **significant reductions** in chlamydia, gonorrhea and syphilis with use of doxycycline as post-exposure prophylaxis.

- ▶ Trial participants included those who were either taking HIV pre-exposure prophylaxis (PrEP) or living with HIV. All had been diagnosed with an STI in the past year.
- ▶ Participants in the intervention arm received a single dose of 200 mg doxycycline administered within 24–72 hours after condomless sex, including oral sex.
- ▶ The doxycycline group had a significantly lower percentage of quarterly visits in which participants tested positive for a bacterial STI. The combined incidence of gonorrhea, chlamydia, and syphilis was lower by two thirds with doxycycline postexposure prophylaxis than with standard care, a finding that supports its use among MSM with recent bacterial STIs.

The efficacy of DoxyPEP against other bacterial STIs is not known. DoxyPEP does not prevent HIV, mpox or other viral infections such as human papillomavirus (HPV) or herpes simplex virus (HSV).

### Safety

Doxycycline has previously been safely used for long-term malaria prophylaxis and acne treatment. No serious adverse events have been reported in DoxyPEP studies.

The impact of long-term DoxyPEP use on the microbiome and antibiotic resistance remains unknown, though initial data are assuring.

### Billing

Possible billing codes:

- ▶ ICD-10 diagnosis code Z20.2 “Contact with and (suspected) exposure to infections with a predominantly sexual mode of transmission.”
- ▶ ICD-10 code Z79.2 “Long term (current) use of antibiotics.”

## References:

1. Bachmann LH, Barbee LA, Chan P, et al. CDC Clinical Guidelines on the Use of Doxycycline Postexposure Prophylaxis for Bacterial Sexually Transmitted Infection Prevention, United States, 2024. MMWR Recomm Rep 2024;73(No. RR-2):1–8. DOI: <http://dx.doi.org/10.15585/mmwr.rr7302a1>.
2. Bolan RK, Beymer MR, Weiss RE, Flynn RP, Leibowitz AA, Klausner JD. 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. Sexually transmitted diseases. 2015;42(2):98-103.
3. Molina JM, Charreau I, Chidiac C, et al; ANRS IPERGAY Study Group. Postexposure prophylaxis with doxycycline to prevent sexually transmitted infections in men who have sex with men: an open-label randomised substudy of the ANRS IPERGAY trial. Lancet Infect Dis 2018; 18:308–17.
4. Luetkemeyer et al. Postexposure Doxycycline to Prevent Bacterial Sexually Transmitted Infections | NEJM. N Engl J Med. 2023;388(14):1296-1306. doi:10.1056/NEJMoa2211934