The Commonwealth of Massachusetts

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Department of Public Health

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**CLINICAL ADVISORY:**

**Doxycycline Post-Exposure Prophylaxis (PEP) for**

**Prevention of Bacterial Sexually Transmitted Infections (STIs)**

**June 5, 2024**

* Doxycycline 200 mg taken orally within 24-72 hours of condomless sex (doxycycline PEP) has been shown in randomized clinical trials and real-world settings to reduce acquisition of syphilis and chlamydia, and to a lesser extent, gonorrhea, among men who have sex with men (MSM) and transgender women with a recent history of these infections.
* To prevent further infections, the Massachusetts Department of Public Health (MDPH) recommends providers offer doxycycline PEP to cis-gender MSM and transgender women who have a history of chlamydia, gonorrhea, or syphilis in the prior year, and prescribe medication ahead of episodic risk.
* Providers should discuss effectiveness, benefits, and risks of doxycycline PEP, as well as other options to prevent STIs with patients at risk.

**Background**

Given high and increasing rates of chlamydia, gonorrhea, and syphilis, DPH aims to raise awareness about doxycycline post-exposure prophylaxis (PEP), also referred to as “Doxy PEP.” Doxycycline PEP consists of 200 mg of doxycycline taken orally, ideally within 24 hours, but no later than 72 hours, after condomless oral, anal, or vaginal/front hole sex. When taken as prescribed, doxycycline PEP is highly effective in preventing STI acquisition following exposure. This advisory is intended to ensure that health care providers and patients are aware of the effectiveness of this intervention, and that access is equitable for all individuals who may benefit from this intervention across the Commonwealth.

The Centers for Disease Control and Prevention has released [guidelines](https://www.cdc.gov/mmwr/volumes/73/rr/rr7302a1.htm?_cid=rr7302a1_w) for doxycycline PEP as an STI prevention strategy. Doxycycline PEP can help to reduce the risk of transmission of syphilis, chlamydia, and to a lesser extent, gonorrhea, among cisgender MSM and transgender women who have sex with men, especially those who have had and continue to acquire STIs that lead to substantial antibiotic treatment (Summary of Evidence, page 3). Doxycycline PEP has not been found to reduce incident STIs among cisgender women, but use of doxycycline PEP in the study population was low. There are currently no data on efficacy of doxycycline PEP to prevent STIs in cisgender heterosexual men, transgender men, and other queer and nonbinary individuals. Potential risks related to the development of resistance and impacts on the microbiome from intermittent use of doxycycline PEP are currently being monitored in study populations.

**Recommendations for Health Care Providers**

* Take a [sexual history](https://www.cdc.gov/std/treatment/sexualhistory.htm) as part of routine care for all patients.
* Examine, screen, and treat as indicated for STIs and HIV at baseline and follow-up visits.
* Prescribe doxycycline PEP based on shared decision-making with the patient. Provide information on effectiveness and potential benefits and risks using tools such as the [Doxy PEP Fact Sheet](https://www.mass.gov/info-details/std-information-for-the-public#testing-and-other-resources-).
* Populations most likely to benefit from doxycycline PEP include MSM and transgender women who have sex with men who have a history of bacterial STIs in the prior year, especially those with a history of syphilis or multiple STIs who are at ongoing risk for acquisition of bacterial STIs.
* Consider prescribing doxycycline PEP in advance, for patients to have on hand, to be used episodically following sexual exposure when their STI acquisition risk may be higher (e.g., attendance at group sex events).
* Offer doxycycline PEP as part of comprehensive sexual health services, and support patients to make decisions about the full spectrum of prevention options available to them, including condom use, reducing numbers of sex partners, STI and HIV testing and treatment, HIV PEP and pre-exposure prophylaxis (PrEP), and STI vaccines (e.g., human papillomavirus, hepatitis A, hepatitis B, and mpox vaccines).

**Prescribing Guidance**

* 200 mg of doxycycline should be taken as soon as possible after condomless oral, anal, or vaginal/front hole sex, ideally within 24 hours and no later than 72 hours after sex.
* Either doxycycline hyclate or doxycycline monohydrate immediate release 100 mg tabs (two tablets taken simultaneously) are acceptable.
* Doxycycline can be taken as often as every day, depending on frequency of condomless sexual exposure, but no more than 200 mg should be taken within a 24-hour period.
* Doxycycline should be taken with fluids and patients should remain upright for 1 hour after the dose. Taking doxycycline with food may increase tolerability.
* Doxycycline PEP is not recommended for patients already on a doxycycline regimen (e.g., for acne).
* Doxycycline should not be taken concurrently with polyvalent cations, such as iron and calcium carbonate. It should be taken at least 2 hours before or after antacids, calcium, or iron-containing products.
* There is no standard number of doxycycline pills and refills to prescribe. Some providers dispense 30 tabs with 1 refill, or the equivalent of 30 total doxycycline PEP courses. The decision about how much to prescribe is at the provider’s discretion and should be based on a discussion with the patient regarding expectations for frequency of refill requests.
* Providers should educate patients that doxycycline PEP taken for prolonged periods may cause skin to be more sensitive to sunlight and that precautions should be taken to minimize sun exposure while taking the medication.

**Please contact the MDPH Division of STD Prevention and HIV/AIDS Surveillance for:**

* Clinical consultation on complex cases, available through the MDPH Division of STD Prevention clinical team or the [STD Clinical Consultation Network](https://www.stdccn.org/render/Public).
* [Partner services](https://www.mass.gov/info-details/partner-services-program-information-for-healthcare-providers) – contact tracing is performed for new HIV infection, infectious syphilis cases, and cases of ceftriaxone-non-susceptible gonorrhea. For more information, please call the MDPH Reporting and Partner Services Line at 617-983-6999.

**Summary of Evidence: Doxy-PEP Trials and Real-World Data**

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|  |  |  |  |  | **Randomized Controlled Trials: No Doxy-PEP vs. Doxy-PEP (95% CI)** |
| **Time Period** | **Country** | **Study Population** | **Sample Size** | **Median Follow-up Time** | **Syphilis** | **Chlamydia** | **Gonorrhea** |
| 2015-16 | [France](https://www.thelancet.com/journals/laninf/article/PIIS1473-3099%2817%2930725-9/fulltext) | MSM and TGW without HIV | 232 | 8.7 months | **HR 0.27 (0.07 - 0.98)** | **HR 0.30 (0.13 - 0.70)** | HR 0.83 (0.47 - 1.47) |
| 2019-23 | [France](https://www.croiconference.org/abstract/final-results-of-anrs-174-doxyvac-a-randomized-trial-to-prevent-sti-in-msm-on-prep/) | MSM on HIV PrEP | 545 | 14 months | **aHR 0.21 (0.11 - 0.41)** | **aHR 0.14 (0.09 - 0.23)** | **aHR 0.67 (0.52 - 0.87)** |
| 2020-22 | [United States](https://www.nejm.org/doi/full/10.1056/NEJMoa2211934)  | MSM and TGW on HIV PrEP | 327 | 9 months | **RR 0.13 (0.03 - 0.59)** | **RR 0.12 (0.05 - 0.25)** | **RR 0.45 (0.32 - 0.65)** |
| MSM and TGW with HIV | 124 | RR 0.23 (0.04 - 1.29) | **RR 0.26 (0.12 - 0.57)** | **RR 0.43 (0.26 - 0.71)** |
| 2020-22 | [Kenya](https://www.nejm.org/doi/full/10.1056/NEJMoa2304007) | Non-pregnant Women on HIV PrEP | 449 | 12 months | Not calculated | RR 0.73 (0.47 - 1.13) | RR 1.64 (0.78 - 3.47) |
|   |   |   |   |   |   |   |   |
|   |   |   |   |   | **Real-World Settings: Pre- vs. Post-Doxy-PEP Time Period Comparisons (95% CI)** |
| **Time Period** | **Observation** | **Population Size** | **Pre-period** | **Post-period** | **Syphilis** | **Chlamydia** | **Gonorrhea** |
| 2021-23 | [Reported STIs in San Francisco MSM and TGW](https://www.croiconference.org/abstract/doxy-pep-associated-with-declines-in-chlamydia-and-syphilis-in-msm-and-trans-women-in-san-francisco/) | Not estimated | 7/1/21 - 10/31/22 | 11/1/22 – 11/30/23 | **51% decrease (43 - 58%)** | **50% decrease (38 - 59%)** | No significant change |
| 2022-23 | [San Francisco AIDS Foundation Magnet Clinic @ Strut: doxy-PEP early adopters among HIV PrEP users](https://www.croiconference.org/abstract/doxycycline-pep-high-uptake-and-significant-decline-in-stis-after-clinical-implementation/) | 1209 | 6/22 - 11/29/22 | 30 days after doxy-PEP initiation | **IRR 0.22 (0.09 - 0.54)** | **IRR 0.33 (0.23 - 0.46)** | IRR 0.89 (0.69 - 1.15) |
| 2021-23 | [San Francisco City Clinic doxy-PEP adopters among MSM and TGW on HIV PrEP](https://www.croiconference.org/abstract/doxy-pep-effectiveness-in-men-who-have-sex-with-men-msm-and-transgender-women-tgw-on-hiv-prep/) | ~290 | 11/3/21 - 11/2/22 | 11/3/22 - 10/30/23 | **RR 0.44 (0.21 - 0.92)** | **RR 0.10 (0.05 - 0.21)** | RR 0.77 (0.58 - 1.02) |