



## Doxycycline Post-Exposure Prophylaxis to Prevent Bacterial Sexually Transmitted Infections

September 2023

| Table 1: Considerations for Doxy-PEP Implementation             |   |
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| Consideration(s)  | Comments  |
| Available formulations  | <ul style="list-style-type: none"> <li>• Doxycycline hyclate delayed-release 200 mg oral tablet</li> <li>• Doxycycline hyclate or monohydrate immediate-release 100 mg oral capsule or tablet (2 capsules or tablets taken together for a total of 200 mg)</li> <li>• The immediate-release formulations are more widely available and usually cost less than the delayed-release formulation.</li> </ul>   |
| Administration  | <ul style="list-style-type: none"> <li>• As doxy-PEP, 200 mg of doxycycline should ideally be taken within 24 hours after condomless sex, up to 72 hours maximum.</li> <li>• No more than 200 mg of doxycycline should be taken in a 24-hour period.</li> <li>• Milk and vitamins containing positive cations (e.g., calcium, zinc, magnesium) should be avoided within 2 hours of taking doxycycline, because these interfere with doxycycline absorption and may lower doxycycline levels, potentially reducing efficacy.</li> </ul>  |
| Contraindications, drug-drug interactions, and dose adjustments | <ul style="list-style-type: none"> <li>• Doxycycline should not be used as PEP concurrently with other doxycycline therapy (or any other tetracycline-class antibiotic) for treatment or prevention of a health condition (e.g., acne, rosacea, malaria prophylaxis).</li> <li>• No significant drug-drug interactions exist between doxycycline and ARVs used for HIV treatment or PrEP.</li> <li>• No known drug reactions exist between doxycycline and gender-affirming hormone therapies.</li> <li>• No doxycycline dose adjustments are indicated for patients with renal dysfunction.</li> <li>• Doxycycline is generally contraindicated during pregnancy because of potential adverse effects on the fetus [FDA 2016].</li> </ul>  |
| Adverse effects   | <ul style="list-style-type: none"> <li>• GI adverse effects are common; taking doxycycline with food may help alleviate nausea or GI upset. Symptoms including nausea, vomiting, and reflux can be severe enough to require cessation of doxycycline.</li> <li>• Esophageal injury and irritation can occur. Doxycycline should be taken with an 8-oz glass of water and the individual should remain upright for 30 minutes to 1 hour after dosing.</li> <li>• Skin photosensitivity and phototoxicity can occur; wearing sunscreen, limiting sun exposure, and avoiding tanning beds can help prevent sunburn and other skin injury.</li> <li>• Intracranial hypertension is a rare but serious adverse effect. Refractory headaches or vision changes should be evaluated promptly by a clinician.</li> <li>• Doxycycline use may select for antibiotic-resistant organisms, which can cause infections in some circumstances and can disrupt the microbiome.</li> </ul> |
| Supply of doxy-PEP medications                                  | <ul style="list-style-type: none"> <li>• For patients taking HIV PrEP, consider prescribing a doxy-PEP supply equal to the supply of HIV PrEP medications for patient convenience (e.g., 90 days).</li> <li>• For patients not taking HIV PrEP, a 90-day supply is suggested.</li> <li>• Regarding dose quantity: <ul style="list-style-type: none"> <li>– For delayed-release doxycycline 200 mg tablets, the quantity dispensed should not exceed 90 doses per 3 months.</li> <li>– For immediate-release 100 mg capsules or tablets, the quantity dispensed should not exceed 180 doses per 3 months.</li> <li>– The quantities above are the maximum number to be dispensed; many patients will not need such a large quantity. Shared decision-making can determine the lowest quantity needed based on the frequency of condomless sexual encounters during a 3-month interval.</li> </ul> </li> </ul>  |

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| <b>Consideration(s)</b>  | <b>Comments</b>  |
| Follow-up and laboratory monitoring  | <ul style="list-style-type: none"> <li>Engage patients taking doxy-PEP in ongoing comprehensive sexual health services that include STI screening, HIV PrEP, immunizations, and other health promotion strategies as indicated [a].</li> <li>At least every 3 months:               <ul style="list-style-type: none"> <li>Screen for syphilis, HIV if not previously diagnosed, gonorrhea, and chlamydia (including extragenital testing when indicated), ensuring that tests have been obtained before providing a doxy-PEP prescription refill.</li> <li>Offer HIV PrEP or HIV treatment as needed.</li> <li>Assess for ongoing doxy-PEP needs and continue in shared decision-making as new evidence becomes available.</li> </ul> </li> <li>The doxycycline <a href="#">package insert</a> advises periodic monitoring of hepatic function, renal function (specifically BUN), and CBC with prolonged therapy. It is currently unclear whether this routine monitoring is necessary for doxy-PEP [b].</li> </ul>  |
| Key points for patient education   | <ul style="list-style-type: none"> <li><b>Medication administration instructions and contraindications:</b> See above.</li> <li><b>Protective effect:</b> Doxy-PEP is not 100% effective and is not effective against all STIs. For cisgender men and transgender women at risk of STIs who were engaged in routine sexual healthcare, doxy-PEP reduced the likelihood of an STI diagnosis by &gt;50%. Evaluation by a clinician after a possible STI exposure is necessary to determine whether treatment is needed.</li> <li><b>Adverse effects:</b> Doxycycline can cause GI adverse effects, photosensitivity, and esophageal irritation, which can be mitigated using strategies noted above. Long-term doxycycline use may increase the risk of developing an antibiotic-resistant infection. The potential long-term effects of doxy-PEP use are not known at this time.</li> <li><b>Ongoing screening:</b> Screening for STIs every 3 months is necessary while taking doxy-PEP. Routine HIV testing should continue in individuals at risk of HIV. Yearly blood tests (CBC, liver and kidney tests) are recommended to monitor for potential adverse antibiotic effects.</li> </ul> |
| <p><b>Abbreviations:</b> ARV, antiretroviral medication; BUN, blood urea nitrogen; CBC, complete blood count; doxy-PEP, doxycycline post-exposure prophylaxis; GI, gastrointestinal; PrEP, pre-exposure prophylaxis; STI, sexually transmitted infection.</p> <p><b>Notes:</b></p> <p>a. See the Centers for Disease Control and Prevention <a href="#">STI Treatment Guidelines</a> and the NYSDOH AI guidelines <a href="#">PrEP to Prevent HIV and Promote Sexual Health</a> and <a href="#">Immunizations for Adults With HIV</a>.</p> <p>b. The DoxyPEP study protocol included yearly monitoring of these tests, informing the currently recommended strategy.</p> |  |

## Reference

FDA. Doxycycline hyclate delayed-release tablets, for oral use. 2016 Apr. [https://www.accessdata.fda.gov/drugsatfda\\_docs/label/2016/90431Orig1s010lbl.pdf](https://www.accessdata.fda.gov/drugsatfda_docs/label/2016/90431Orig1s010lbl.pdf) [accessed 2023 June 12]