

Indian Health Service

Doxycycline Post-Exposure Prophylaxis (DoxyPEP)

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Doxycycline

- Doxycycline: A well-known antibiotic since the 1960's
- Doxycycline 100mg PO is currently prescribed for STI treatment and is currently on the IHS National Core Formulary
 - Chlamydia: Doxycycline 100mg PO BID for 7 days
 - Syphilis*: Doxycycline 100mg PO BID
 - 14 days (primary, secondary, early latent)
 - 28 days (late latent, unknown duration)

*Benzathine penicillin G injections preferred if possible



DoxyPEP (Post-Exposure Prophylaxis)

Take one dose of **Doxycycline 200mg** within **72 hours** of having condomless sex

Repeat as needed, but no more than one dose within 24 hours



DoxyPrEP (Pre-Exposure Prophylaxis)

Take **Doxycycline 100mg daily** prior to having condomless sex

Pilot study:

- 30 men who have sex with other men (MSM) living with HIV and syphilis history
- Randomly assigned to take:
 - Doxycycline 100 mg daily for 48 weeks
 - Financial incentive–based behavioral intervention

Results: **73% reduction in any bacterial STI** at any site for the intervention group, without substantial differences in sexual behavior

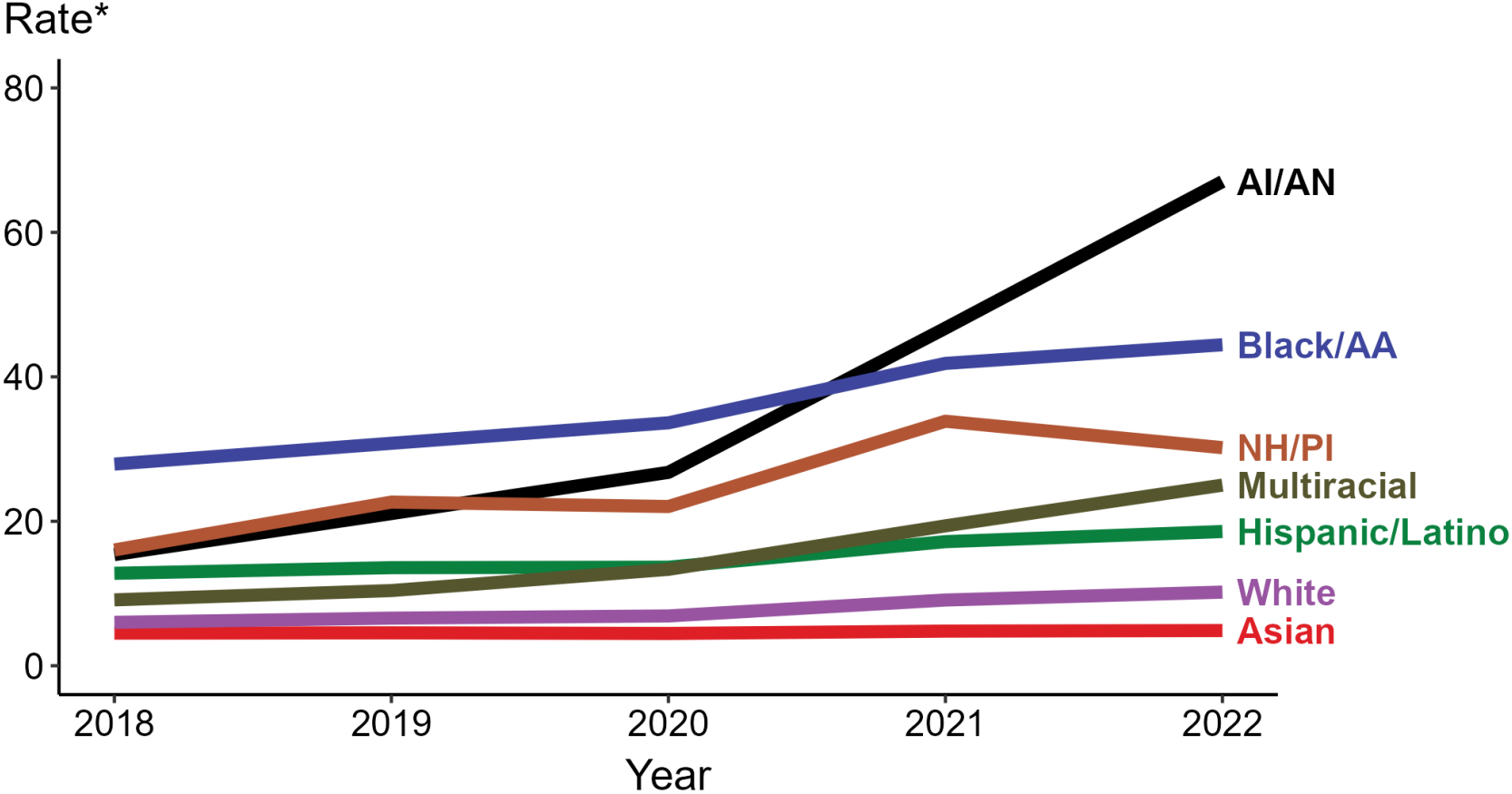


Significance

- Incidence of sexually transmitted infections (STIs) caused by *N. gonorrhoeae*, *C. trachomatis*, and *T. pallidum* continue to increase
- Novel approaches needed to address the STI epidemic, especially for populations disproportionately affected



Primary and Secondary Syphilis — Rates of Reported Cases by Race/Hispanic Ethnicity, United States, 2018–2022



Clinical Trials

- IPERGAY study (2018): 232 MSM and transgender women (TGW) on HIV PrEP in France
- Randomized to either:
 - Take DoxyPEP up to 3 times per week (intervention group)
 - No medication prophylaxis (control group)
- Primary endpoint was occurrence of first STI during a 10-month follow-up period
- Intervention group found to have a **reduced risk of acquiring chlamydia and syphilis by 70% and 73%**



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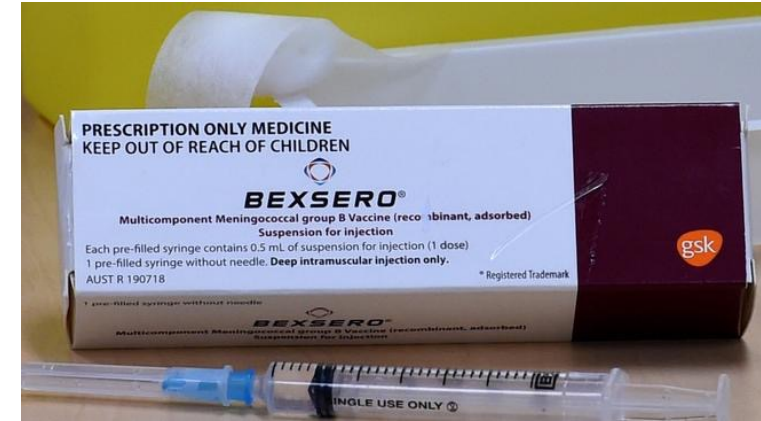


Clinical Trials

- Open-label DoxyPEP study (2022): 501 MSM and TGW living with HIV (N=174) or on HIV PrEP (N=327) in San Francisco and Seattle
- Randomized to either:
 - Take DoxyPEP up to 3 times per week (intervention group)
 - No medication prophylaxis (control group)
- Primary endpoint was incidence of at least 1 STI per follow-up quarter
- Study ended early after the data safety monitoring board found a **66% reduction in STIs overall** for the intervention group
- In the intervention arm, 86% reported taking doxycycline always/often and 71% reported never missing doxycycline

Clinical Trials

- DOXYVAC study (2022): 502 MSM on HIV PrEP in France
- Randomized into 4 groups:
 - Take DoxyPEP
 - No DoxyPEP
 - Receive two shots of meningococcal B vaccine
 - No vaccine
- Primary endpoint was occurrence of first STI up to 96 weeks
- DoxyPEP: Adherence rate of 80%, median of seven doses a month
- Study was stopped early due to efficacy:
 - DoxyPEP **reduced STIs overall by 65%**.
 - Two doses of the meningococcal B vaccine **reduced incidence of gonorrhea by ~50%**

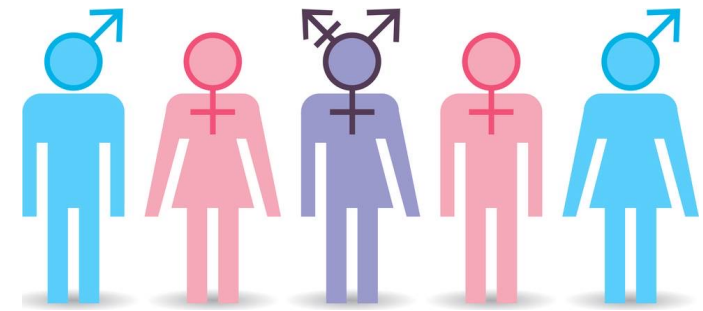


Considerations

- Further analyses needed to determine effects of intermittent doxycycline use on antimicrobial resistance and long-term effects on the gut
- Not enough evidence to broadly include populations outside of MSM/TGW in guidelines at this time
 - One study conducted in Kenya did not show a significant decrease in STIs in cis-gender females, but medication adherence was a factor
- Doxycycline is contraindicated for pregnant people. Doxycycline may cause fetal tooth staining and decay

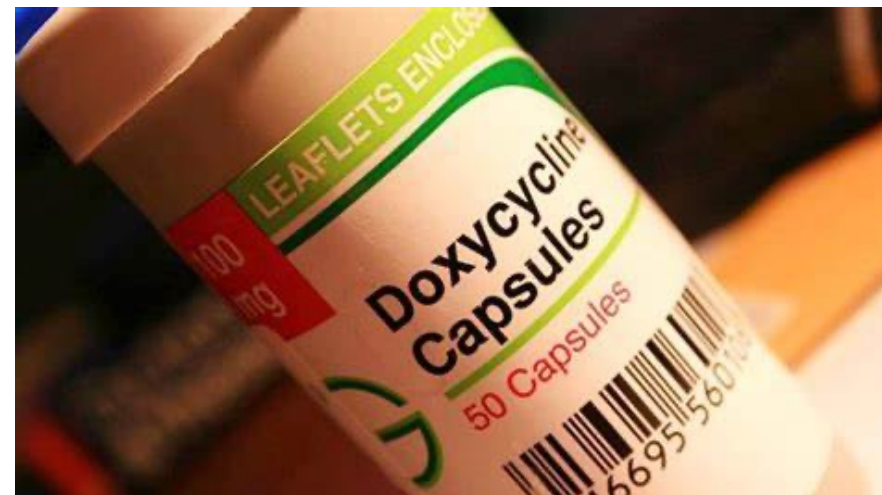
Clinical Trial

- **Mucosal Pharmacology of Doxycycline for Bacterial STI Prevention in Men and Women (first pharmacologic data on mucosal doxycycline at the STI exposure site)**
 - Eleven cis-gender males and nine females supplied blood and mucosal swabs up to seven days after receiving a single dose of Doxycycline 200mg
 - Rectal, vaginal, cervical biopsies, urethral swabs were collected 24 hours after taking medication
- **Findings: Doxycycline exposure was found up to 96 hours in rectal and vaginal secretions and was twice that of the plasma concentration**
 - Doxy levels remained above the minimum inhibitory concentrations for at least:
 - Four days for *chlamydia trachomatis*
 - Three days for *Treponema pallidum*
 - Two days for *Neisseria gonorrhoeae*
 - Doxycycline effectively spreads to mucosal sites and the data calculates high vaginal efficacy



IHS/CDC Position

- IHS and CDC have published final guidelines that support the use of DoxyPEP
- Clinicians can start prescribing DoxyPEP immediately
- Guidelines need to be updated quickly as new data is published
- Continued monitoring and research



Implementation

- Who should receive DoxyPEP?
 - MSM/TGW on HIV PrEP or living with HIV
 - If not on HIV PrEP, MSM/TGW with history of STIs within the past 12 months, engages in sex work, has sex under the influence of drugs (chemsex),
- 3-month schedule: Provide enough meds and replenish after HIV/STI screening
- If patient is having signs and symptoms of an STI:
 - Should get immediate testing and treatment; abstain until 1 week post-treatment
- ICD-10 diagnosis code: Z20.2
(Contact with and [suspected] exposure to infections with a predominantly sexual mode of transmission)

Gonorrhea/Chlamydia

- Nucleic Acid Amplification Test (NAAT)
 - Test-of-cure: Pharyngeal GC, 7-14 days after treatment
- Screen at all anatomical sites of exposure
 - Urine, Pharynx, Vaginal, Rectum – self collect option
 - Can miss 50-80% of infections if only testing urine
- Best Practices (Urine)
 - GC/CT urine should ideally be first void. If not, wait an hour before providing sample
 - Only provide 20 mL to prevent dilution, mark level on cup
 - If needing both GC/CT and urine culture, provide two cups labeled #1 and #2
 1. First void for GC/CT, then hold stream, cleanse
 2. Clean catch for urine culture



Prescribing DoxyPEP

- Example:
 - Doxycycline 100 mg tablet, #30 tablets
Take 2 tablets PO daily as needed for prophylaxis
 - Doxycycline monohydrate or hyclate can be used
 - Do not take concurrently with antacids or vitamin supplements
 - Possible side effects: photosensitivity, esophageal discomfort



Impact

- Increases access to care and patient autonomy
- Decrease in anxiety and stigma
- Empowering, sex positivity
- Overall decrease in STIs in the community
- Preserves penicillin stock by averting new syphilis cases
- DoxyPEP has been used off-label in the community prior to CDC guidelines



Future Needs

- Studies inclusive of other populations: adolescents, cis-gender females, transgender males, etc.
- Antimicrobial stewardship
- DoxyPrEP guidelines
- Monitor new syphilis infections (low titer response)
- Doxy use in pregnancy
- Novel antibiotics for STI treatment
- Continued buy-in



Research to Watch

- **DoxyDOT (Kenya):** 200 mg weekly dosing; cisgender women; directly observed therapy.
- **DOXY-MEN (Kenya):** DoxyPEP and 4CMenB vaccination; MSM/TGW. Two sub-studies: Potential effect of DoxyPEP on the microbiome & assessing potential impact of DoxyPEP on STI resistance.
- **DISCO (Canada):** DoxyPrEP (daily 100mg) versus DoxyPEP (200mg post exposure) among MSM. Provide insight on challenges of med adherence: acceptability and tolerability.



Marketing

- Dating/Hook-up Apps
 - Grindr has agreed to provide four free advertisements a year for any I/T/U program
 - Ads are turned on for 24 hours at a time
- NPTC medication update
- IHS STI webpage
- Indian Country ECHO
- New IHS HIV PrEP Guidelines



STI PREVENTION
DoxyPEP

What is DoxyPEP?
A post-exposure preventative treatment for syphilis, chlamydia, and gonorrhea.

Why take DoxyPEP?

- To reduce the risk of getting a sexually transmitted infection (STI).
- To prevent the spread of STIs.

How to take DoxyPEP?

- Take 2 tablets of Doxycycline within 72 hours of a condomless sex.
- One dose of Doxycycline per day.

Who can take DoxyPEP?
DoxyPEP is recommended for gay, bisexual, and other cis-gender men who have sex with other men and transgender women with a history of at least one bacterial STI (gonorrhea, chlamydia or syphilis) in the last 12 months.

Important to know:

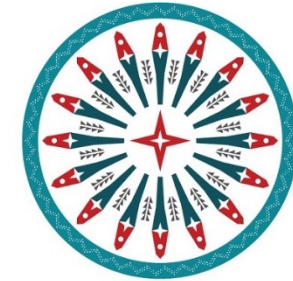
- DoxyPEP is not a replacement for HIV PEP or PrEP.
- Take DoxyPEP as prescribed.
- Talk to your provider about DoxyPEP.

For more information, please contact your local healthcare facility or your primary care provider. To learn more visit <https://www.drown.org/services/doxypep/>



Resources

- [IHS Guidelines for DoxyPEP](#)
- [IHS STI Website](#)
- IHS HIV Program
 - [Provider Driven HIV PrEP Policy.pdf \(ihs.gov\)](#)
 - [Nurse Driven HIV PrEP Policy](#)
 - [Pharmacist Driven HIV PrEP Policy](#)
 - [HIV PrEP Appendix](#)
- Indian Country ECHO
 - <http://www.indiancountryecho.org>
- Syphilis Resource Hub
 - <https://www.indiancountryecho.org/syphilis-resources>
- [Home | Native Health Resources](#)



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