

Update on HIV Pre-Exposure Prophylaxis (PrEP) and DoxyPEP

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Disclosures

- No conflicts of interest to disclose
- Views in this presentation are my own and do not reflect the opinions or policies of the US Government or the Department of Veterans Affairs

Objectives

After this session you will be able to:

1. List all four medications currently FDA approved for pre-exposure prophylaxis (PrEP) to prevent HIV infection
2. Discuss clinical factors you will consider when choosing which PrEP regimen(s) are best for your patient
3. Compare and contrast the dosing schedule for each
4. Discuss the preventive efficacy of doxycycline post-exposure prophylaxis (DoxyPEP) against chlamydia, syphilis and gonorrhea

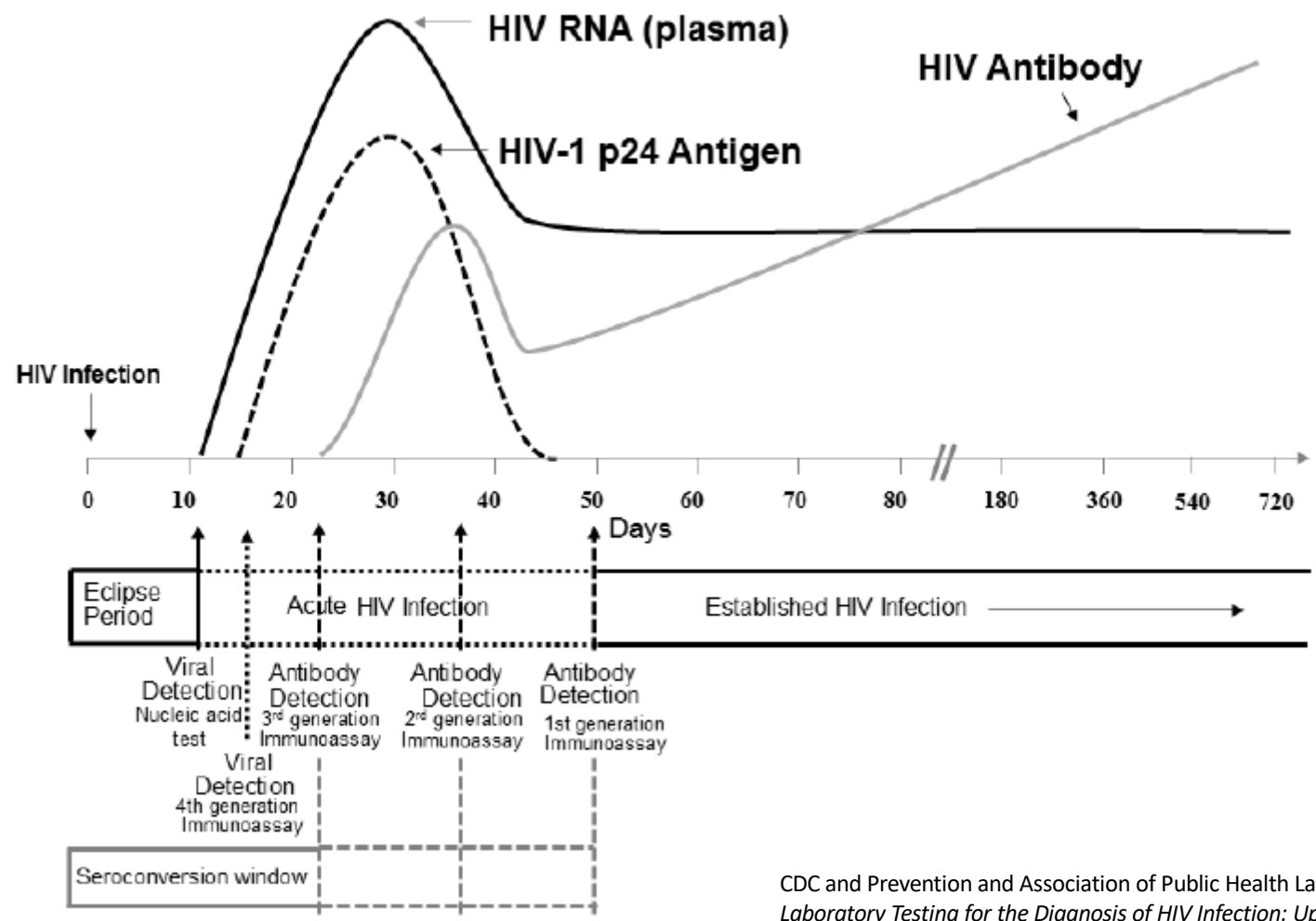
Case #1

- A 32 year old male who has sex with men has been part of a PrEP program for 1 year
- Taking tenofovir disoproxil fumarate/emtricitabine (TDF/FTC)
- Presents to clinic with fever, sore throat, lymphadenopathy
- Monospot negative, rapid Strep negative, rapid flu negative
- Returns four days later still febrile, sick
- Throat and rectal swabs +gonorrhoea and +chlamydia (NAAT)
- HIV 4th gen test on blood reactive (negative 1 month ago)

“New” HIV Diagnostic Algorithm

Laboratory Testing for the Diagnosis of HIV Infection: Updated Recommendations

Published June 27, 2014



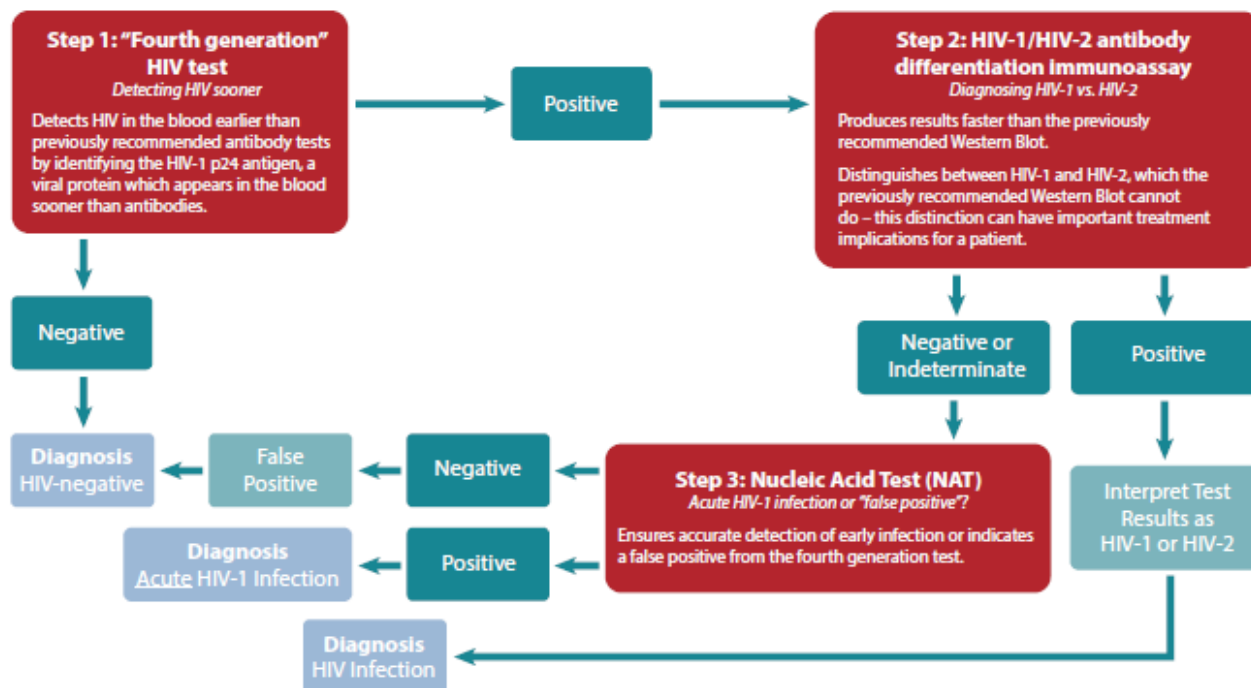
CDC and Prevention and Association of Public Health Laboratories. *Laboratory Testing for the Diagnosis of HIV Infection: Updated Recommendations*. Published June 27, 2014

New CDC Recommendations for HIV Testing in Laboratories

A step-by-step account of the approach

CDC's new recommendations for HIV testing in laboratories capitalize on the latest available technologies to help diagnose HIV infections earlier – as much as 3-4 weeks sooner than the previous testing approach. Early diagnosis is critical since many new infections are transmitted by people in the earliest ("acute") stage of infection.

By putting the latest testing technology to work in laboratories across the United States, we can help address a critical gap in the nation's HIV prevention efforts.



This graphic is designed to illustrate key concepts of the new testing approach in laboratories. For more detail, please see the full guidelines here: <http://www.cdc.gov/hiv/pdf/HIVtestingAlgorithmRecommendation-Final.pdf>.



U.S. Department of Health and Human Services
Centers for Disease Control and Prevention

www.cdc.gov/nchhstp/newsroom

JUNE 2014

—

Patient ordered
TDF/FTC online at
dropshipmd.com
...\$100 for 30
tablets





**I took the pills to the
Consumer Protection
Branch of the Food and
Drug Administration
for testing to see if this
was counterfeit
medication**

and.....

low and behold.....

drum roll please.....

It was perfectly normal drug

So what happened?

**My patient and his partner were
splitting the bottle and each taking
a pill every other day**

PrEP Adherence Matters!

Observational Data with F/TDF in MSM only

Weekly Medication Adherence Estimated by Drug Concentration	HIV Incidence per 100 person/years
None	4.2
≤2 pills/week	2.3
2-3 pills/week	0.6
≥4 pills/week	0.0

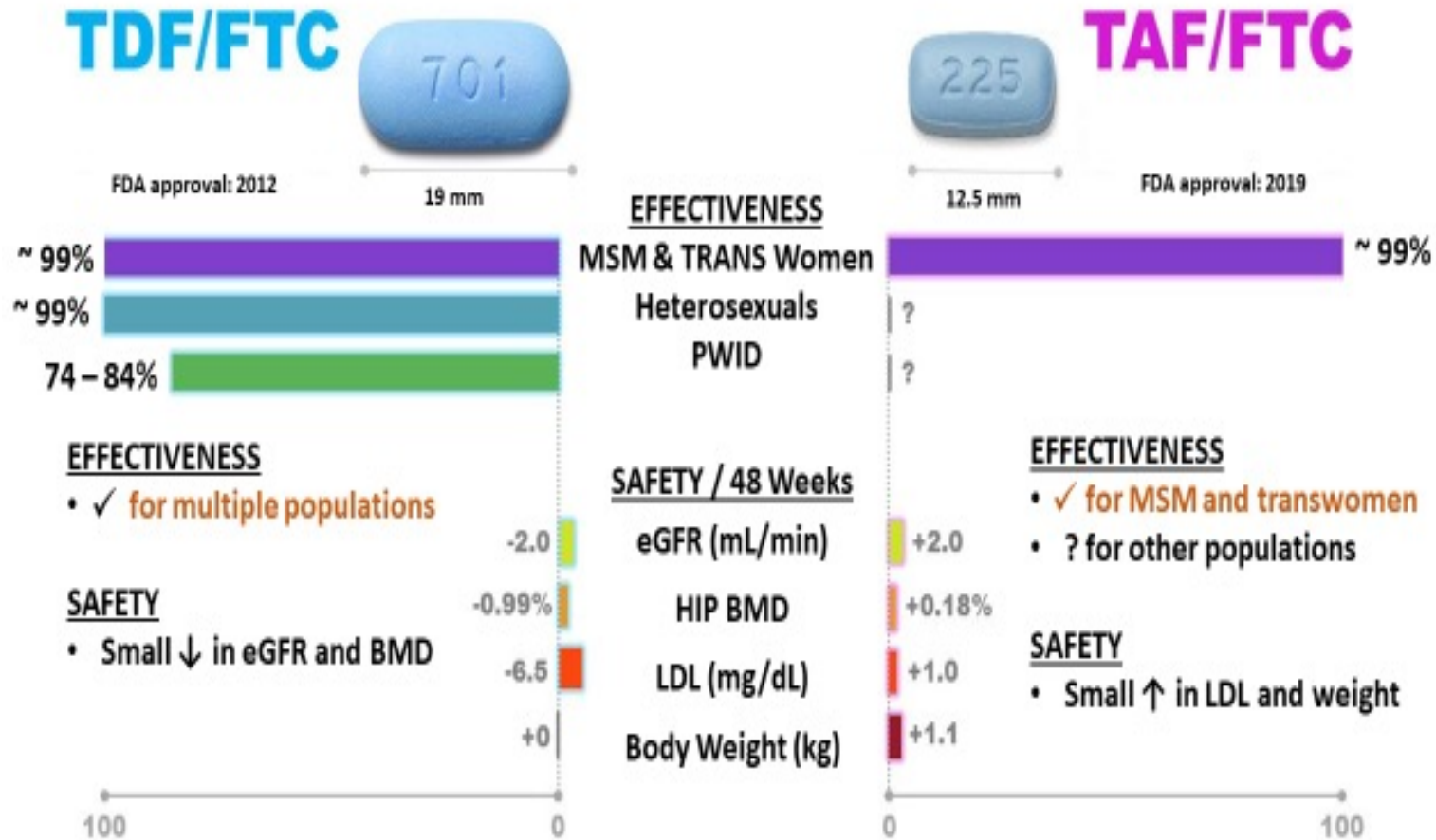
Cisgender females: ≥ 6 doses/wk to prevent vaginal transmission

CDC HIV PrEP Guidelines, 2021. <https://www.cdc.gov/hiv/pdf/risk/prep/cdc-hiv-prep-guidelines-2021.pdf>

PrEP 101

- Pre-exposure prophylaxis to prevent HIV infection
- Used in combination with safer sex practices
- Four options currently FDA-approved
 - Tenofovir disoproxil fumarate/Emtricitabine (TDF/FTC) (Truvada) 2012
 - Daily for all sex, IVDU
 - Tenofovir alafenamide/Emtricitabine (TAF/FTC) (Descovy) 2019
 - Daily for MSM and transgender females
 - Cabotegravir (Apretude) long-acting injectable q2months 2021
 - Lenacapavir (Yeztugo) long-acting injectable q6months 2025

Which Medication Should I Prescribe for Daily PrEP?



On-Demand PrEP (“2-1-1”) TDF/FTC

- Another option for cisgender men and others having planned receptive anal intercourse (but not receptive vaginal or neo-vaginal sex)
- Double-dose of TDF/FTC 2-24 hrs before sexual activity, followed by single additional doses 24 and 48 hrs after first dose
- If sexual activity occurs after the initial event, daily single dosing should continue until 2 doses after the last activity
- IPERGAY trial demonstrated 86% reduction in HIV incidence

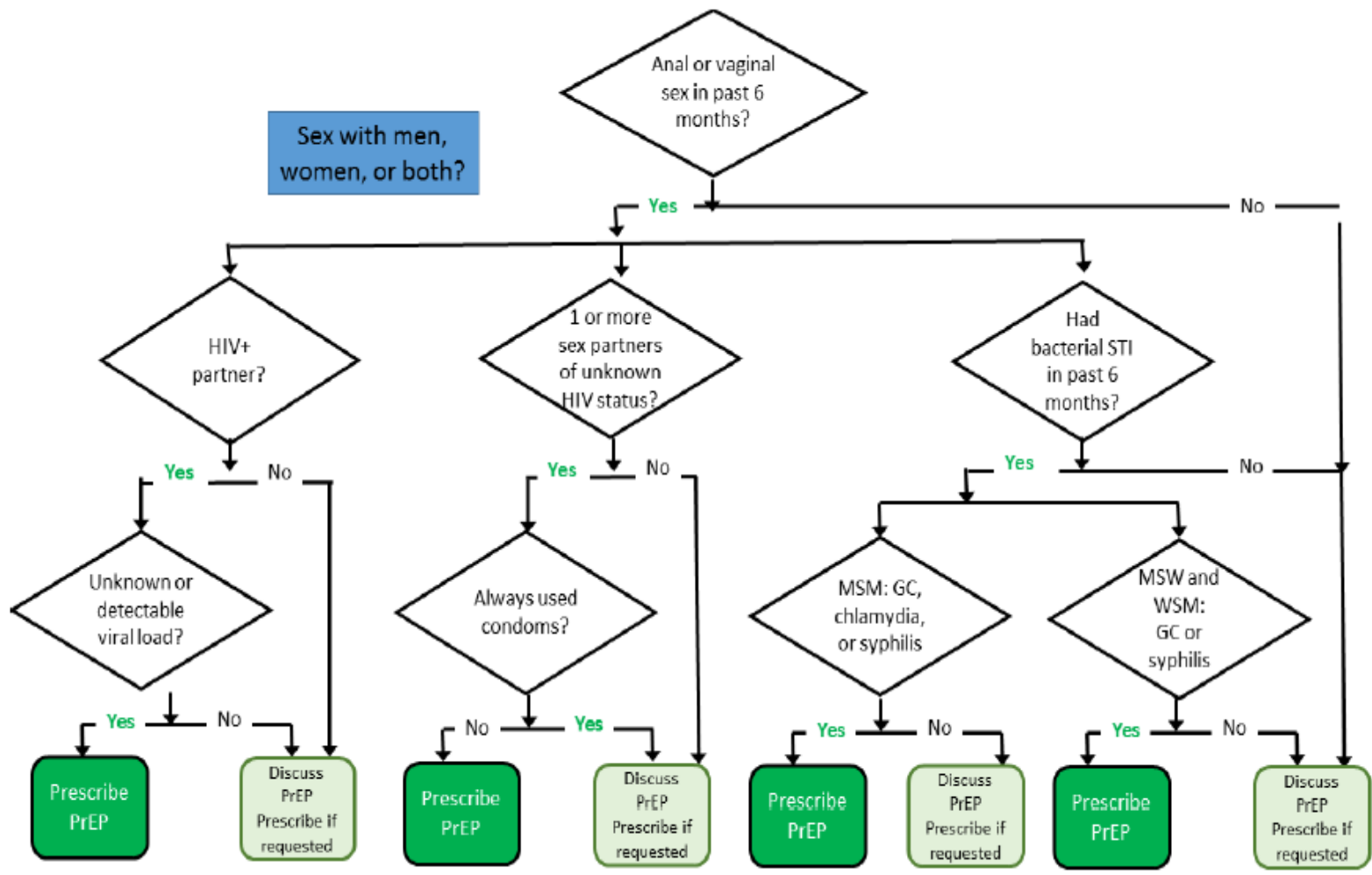
Recommended Laboratory Testing and Intervals for Daily Oral PrEP Regimens

Test	Screening/Baseline Visit	Q 3 months	Q 6 months	Q 12 months	When stopping PrEP
HIV Test	X*	X			X*
eCrCl	X		If age ≥ 50 or eCrCL < 90 ml/min at PrEP initiation	If age < 50 and eCrCl ≥ 90 ml/min at PrEP initiation	X
Syphilis	X	MSM /TGW	X		MSM/TGW
Gonorrhea	X	MSM /TGW	X		MSM /TGW
Chlamydia	X	MSM /TGW	X		MSM /TGW
Lipid panel (F/TAF)	X			X	
Hep B serology	X				
Hep C serology	MSM, TGW, and PWID only			MSM, TGW, and PWID only	

Who is PrEP Indicated For?

	Sexually-Active Adults and Adolescents ¹	Persons Who Inject Drug ²
Identifying substantial risk of acquiring HIV infection	<p>Anal or vaginal sex in past 6 months AND any of the following:</p> <ul style="list-style-type: none"> • HIV-positive sexual partner (especially if partner has an unknown or detectable viral load) • Bacterial STI in past 6 months³ • History of inconsistent or no condom use with sexual partner(s) 	<p>HIV-positive injecting partner OR Sharing injection equipment</p>
Clinically eligible	<p><u>ALL OF THE FOLLOWING CONDITIONS ARE MET:</u></p> <ul style="list-style-type: none"> • Documented negative HIV Ag/Ab test result within 1 week before initially prescribing PrEP • No signs/symptoms of acute HIV infection • Estimated creatinine clearance ≥ 30 ml/min⁴ • No contraindicated medications 	
Dosage	<ul style="list-style-type: none"> • Daily, continuing, oral doses of F/TDF (Truvada®), ≤ 90-day supply <p>OR</p> <ul style="list-style-type: none"> • For men and transgender women at risk for sexual acquisition of HIV; daily, continuing, oral doses of F/TAF (Descovy®), ≤ 90-day supply 	
Dosage	<ul style="list-style-type: none"> • 600 mg cabotegravir administered as one 3 ml intramuscular injection in the gluteal muscle <ul style="list-style-type: none"> ○ Initial dose ○ Second dose 4 weeks after first dose (month 1 follow-up visit) ○ Every 8 weeks thereafter (month 3,5,7, follow-up visits etc) 	

All sexually active patients should be informed about HIV PrEP (CDC recommendation, 2021)



Key Principles for Prescribing PrEP

- Part of **comprehensive prevention plan**
- Must document a negative HIV test
- Efficacy is dependent on adherence
- Contraindicated if CrCl < 60mL/min (Truvada)
 - < 30mL/min (Descovy)
- 90 day prescriptions, no refills
- Ensure HIV testing obtained every 3 months
- Discontinue immediately if HIV test is positive

FDA Approves First Injectable Treatment for HIV Pre-Exposure Prevention

Cabotegravir (Apretude)

- FDA-approved for HIV PrEP December 2021
 - MSM and heterosexual females, adolescents >35kg
- Based on HPTN-083 and -084 studies
- Q1mo x 2 months, then q2mo
- Oral lead-in option x 4 weeks
- HIV testing q2 months
- Consider in: significant renal disease, adherence issues on oral PrEP
- No renal or lipid monitoring
- Need to stress adherence – “tail” risks during declining CAB levels

The NEW ENGLAND
JOURNAL *of* MEDICINE

ESTABLISHED IN 1812

OCTOBER 3, 2024

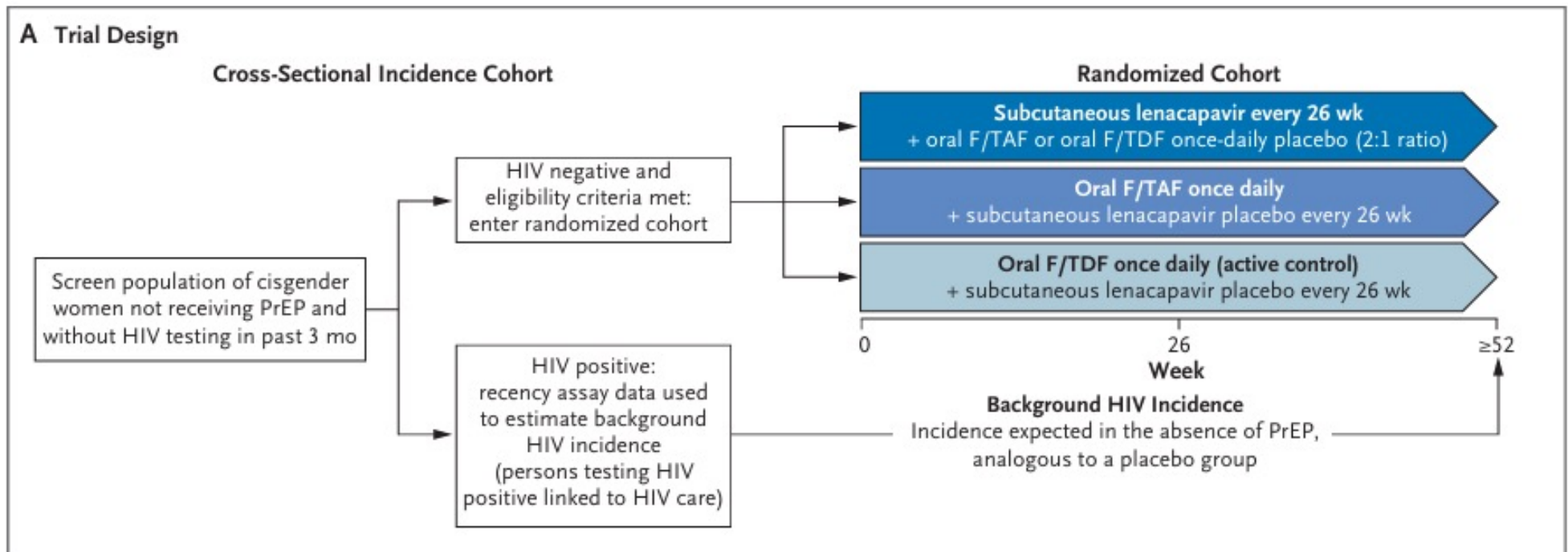
VOL. 391 NO. 13

Twice-Yearly Lenacapavir or Daily F/TAF for HIV Prevention
in Cisgender Women

L.-G. Bekker, M. Das, Q. Abdool Karim, K. Ahmed, J. Batting, W. Brumskine, K. Gill, I. Harkoo, M. Jaggernath, G. Kigozi, N. Kiwanuka, P. Kotze, L. Lebina, C.E. Louw, M. Malahleha, M. Manentsa, L.E. Mansoor, D. Moodley, V. Naicker, L. Naidoo, M. Naidoo, G. Nair, N. Ndlovu, T. Palanee-Phillips, R. Panchia, S. Pillay, D. Potloane, P. Selepe, N. Singh, Y. Singh, E. Spooner, A.M. Ward, Z. Zwane, R. Ebrahimi, Y. Zhao, A. Kintu, C. Deaton, C.C. Carter, J.M. Baeten, and F. Matovu Kiweewa, for the PURPOSE 1 Study Team*

PURPOSE 1

PURPOSE 1



Study design

HIV-negative
individuals
randomized **2:1:2**



YEZTUGO SC every 26 weeks (n=2134)



FTC/TDF oral daily (n=1068)
Active control



FTC/TAF oral daily (n=2136)
Not powered for YEZTUGO comparison

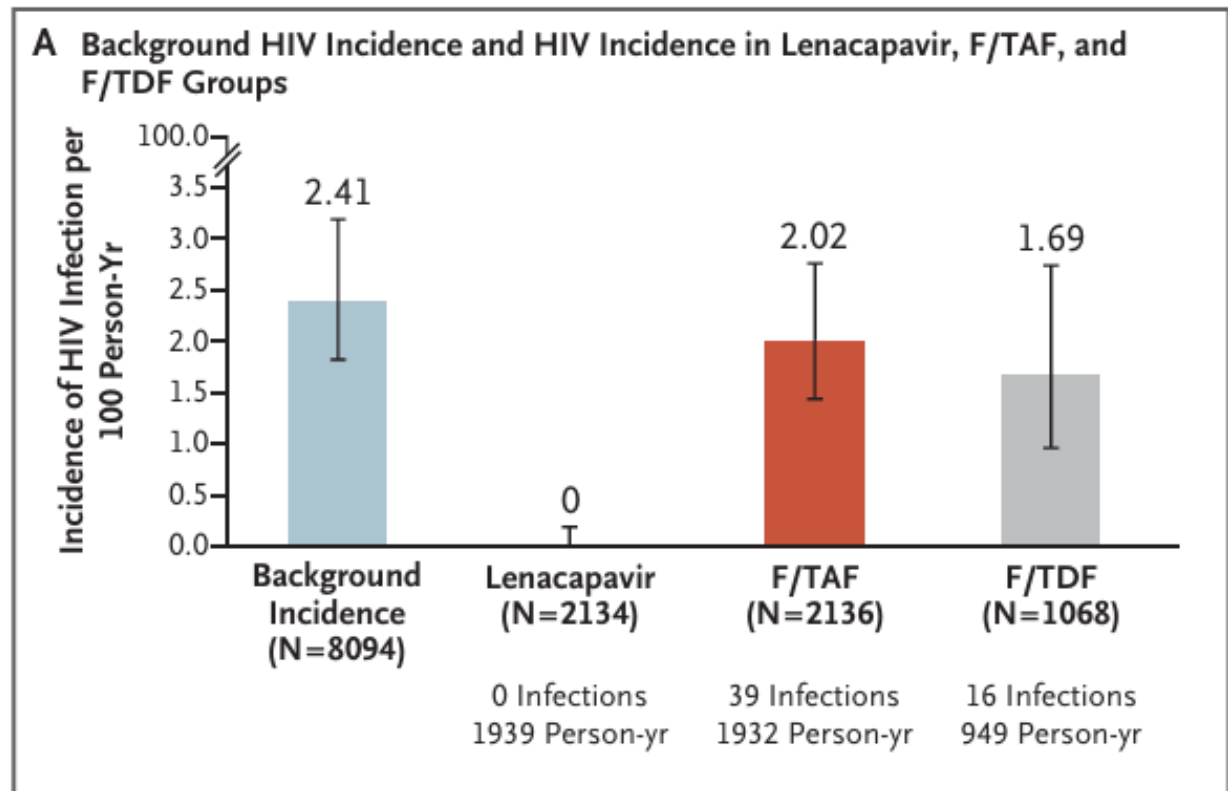
↑
Week 0

All participants also received matched SC or oral placebo

↑
12 months

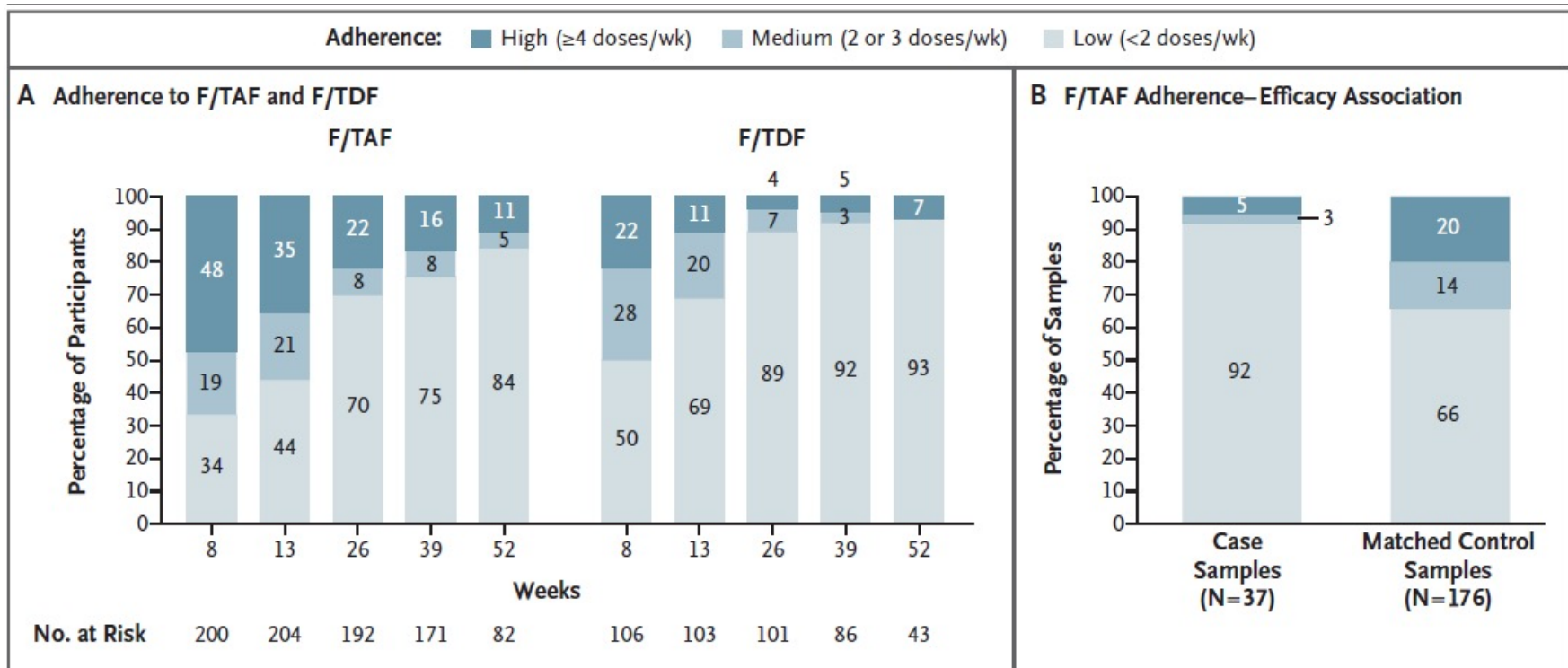
bHIV incidence was calculated for the screened population to avoid the need for a placebo group for ethical reasons

PURPOSE 1



Zero HIV infections in the lenacapavir arm

Measuring tenofovir levels in red blood cells in dried blood spots



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APRIL 3, 2025

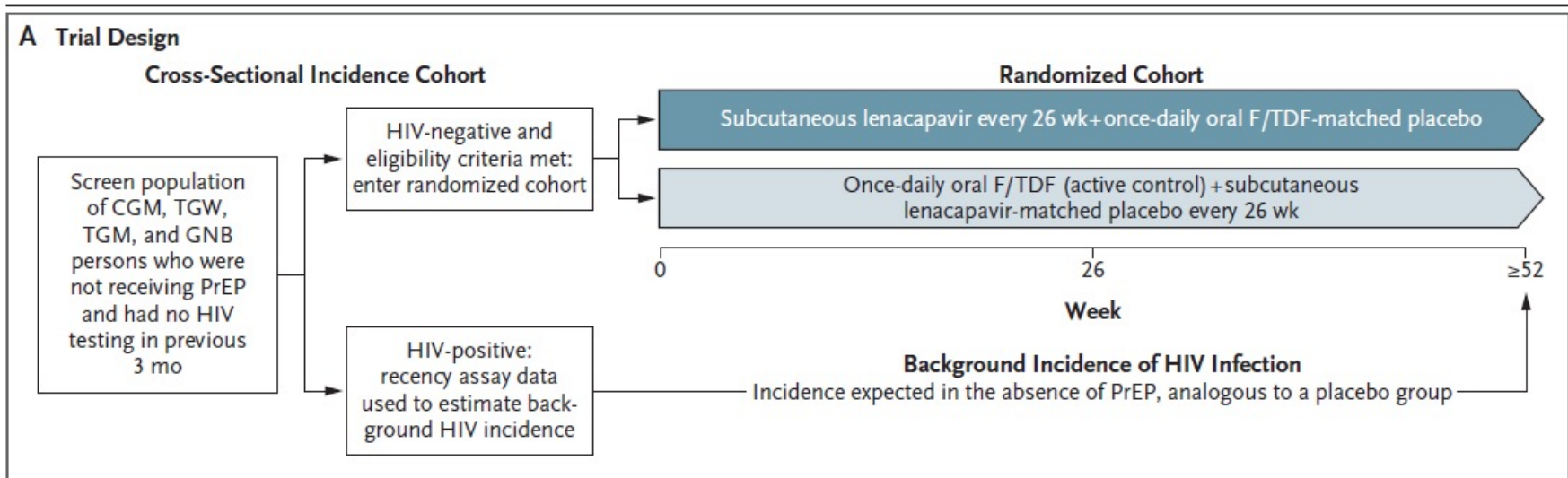
VOL. 392 NO. 13

Twice-Yearly Lenacapavir for HIV Prevention in Men and Gender-Diverse Persons

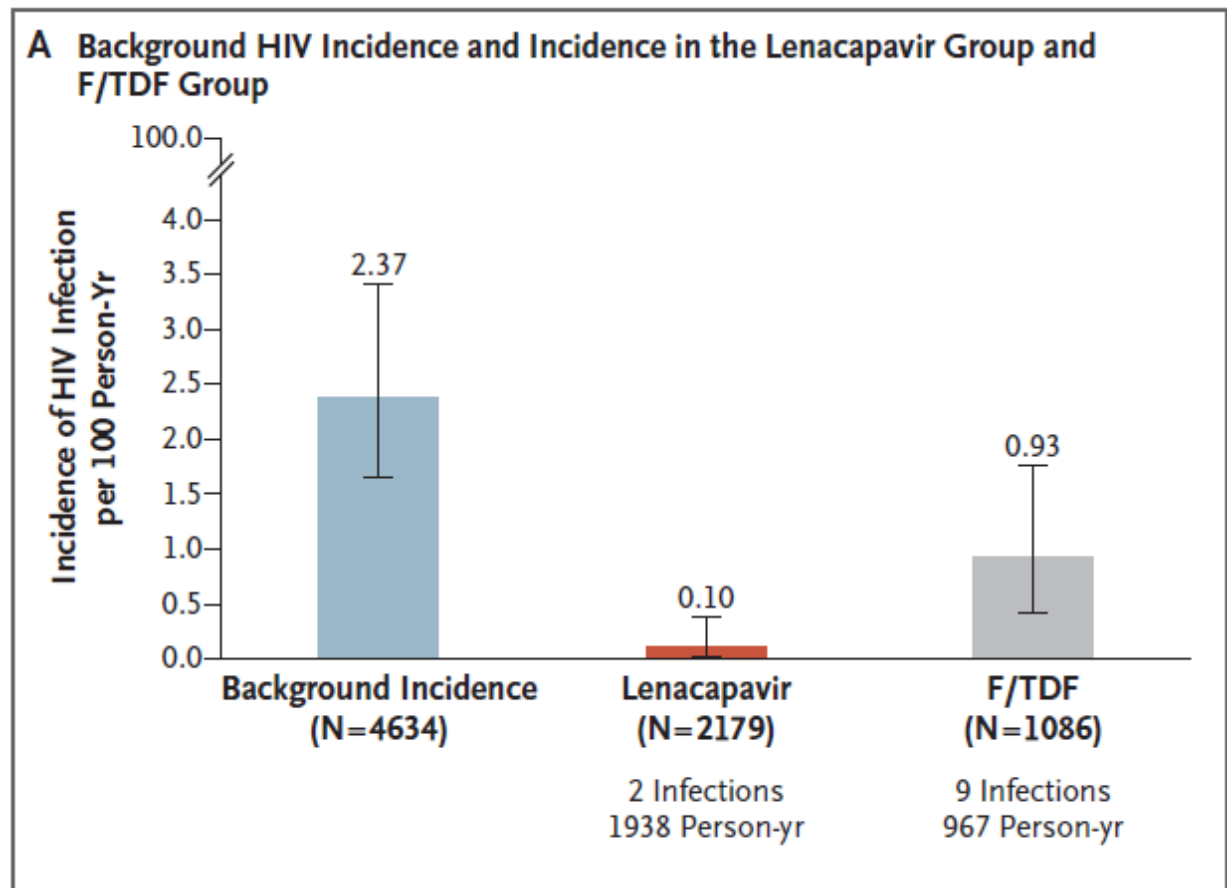
C.F. Kelley,^{1,2} M. Acevedo-Quiñones,³ A.L. Agwu,⁴ A. Avihingsanon,⁵ P. Benson,⁶ J. Blumenthal,⁷ C. Brinson,⁸
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P. Schine,³⁹ T. Schreibman,⁴⁰ L.S.Y. Spencer,⁴¹ O.T. Van Gerwen,⁴² R. Vasconcelos,⁴³ J.G. Vasquez,⁴⁴ Z. Zwane,⁴⁵
S. Cox,⁴⁶ C. Deaton,⁴⁷ R. Ebrahimi,⁴⁶ P. Wong,⁴⁶ R. Singh,⁴⁶ L.B. Brown,⁴⁶ C.C. Carter,⁴⁶ M. Das,⁴⁶ J.M. Baeten,⁴⁶ and
O. Ogbuagu,⁴⁸ for the PURPOSE 2 Study Team*

PURPOSE 2

PURPOSE 2



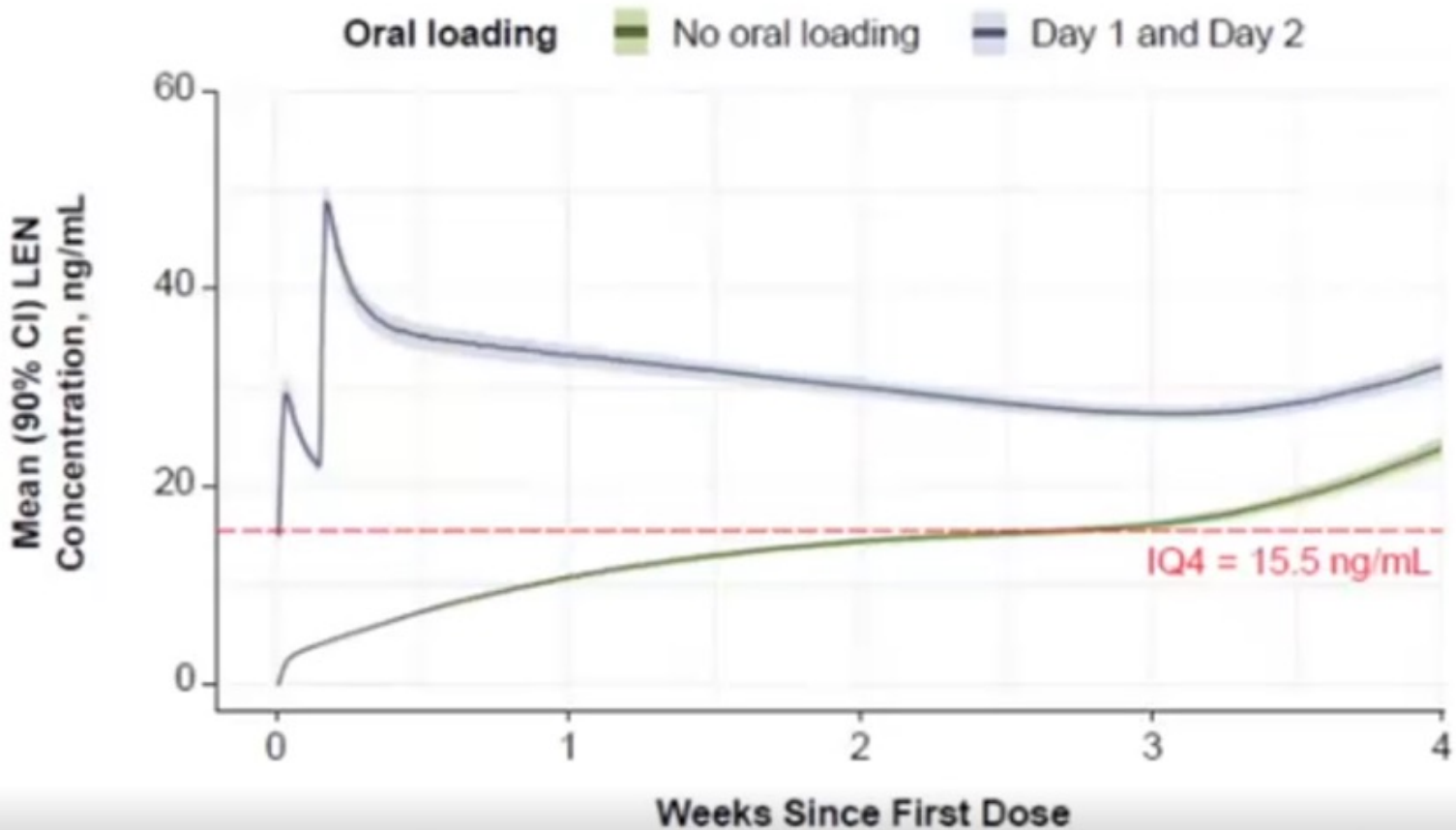
Purpose 2



Two infections in lenacapavir group

- Two of 2179 participants in LEN arm acquired HIV
- Patient A – TGW with latent syphilis treated before initiation, engaged in transactional sex, diagnosed w/ HIV at wk 13
- Patient B – Cisgender gay man, rectal chlamydia treated at screening, diagnosed w/ HIV at wk 26
- Both participants had adequate lenacapavir drug levels
- Both participants had the N74D capsid resistance mutation

Lenacapavir plasma concentrations with and without oral loading



Clinical Recommendation for the Use of Injectable Lenacapavir as HIV Preexposure Prophylaxis — United States, 2025

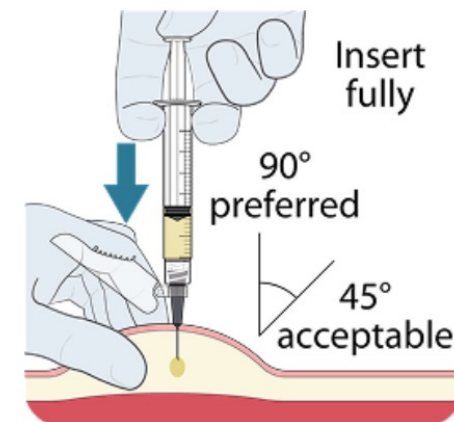
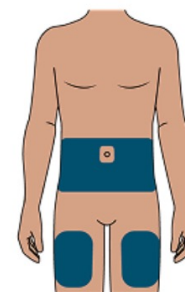
Rupa R. Patel, MD¹; Karen W. Hoover, MD¹; Allison Lale, MD¹; Janet Cabrales, PharmD¹; Katrina M. Byrd, MD¹; Athena P. Kourtis, MD, PhD¹

At initiation → 4th generation HIV test (HIV antigen/antibody) on blood negative
Send HIV RNA (viral load) if available at initiation only
Do not wait for the HIV RNA test result if 4th gen test is negative
Day 1: LEN 927 mg (3 mL) sc injection plus 600 mg oral lenacapavir
Day 2: 600 mg oral lenacapavir

Q 6 month → HIV antigen/antibody test negative on blood
LEN 927 mg (3 mL) sc injection

At all visits → STI screening (vaginal, rectal, oral, urine, blood) and consider doxycycline post-exposure prophylaxis (DoxyPEP)

● = Injection site options (at least 2 inches from navel)



Efficacy, safety, and pharmacokinetics of lenacapavir oral bridging when subcutaneous lenacapavir cannot be administered

**Onyema E. Ogbuagu^a, Anchalee Avihingsanon^b,
Sorana Segal-Maurer^{c,*}, Hui Wang^d, Vamshi K. Jogiraju^d,
Renu Singh^d, Martin S. Rhee^d, Hadas Dvory-Sobol^d,
Peter A. Sklar^d and Jean-Michel Molina^e**

Two trials (CAPELLA and CALIBRATE) gave LEN 300 mg PO weekly out of necessity when injectable LEN became unavailable mid-study

139 participants received oral LEN 300 mg weekly for a median duration of 19 weeks....

LEN plasma concentrations remained therapeutic

**Clinical Recommendation for the Use of Injectable Lenacapavir as
HIV Preexposure Prophylaxis — United States, 2025**

Rupa R. Patel, MD¹; Karen W. Hoover, MD¹; Allison Lale, MD¹; Janet Cabrales, PharmD¹; Katrina M. Byrd, MD¹; Athena P. Kourtis, MD, PhD¹

Oral bridging (weekly oral maintenance) if a maintenance injection is anticipated to be \geq 14 days late

- Prescribe 300-mg LEN orally every 7 days for <6 months
- First oral dose should be taken 6 months after the last LEN injection
- Resume maintenance LEN injection within 7 days after the last oral LEN dose

Time to Protection

- Protective levels of LEN are achieved 2 hours after the oral dose on day 2, if both days of oral loading are taken
- If both days of oral loading are missed, time to protection is estimated to be 21-28 days

**Clinical Recommendation for the Use of Injectable Lenacapavir as
HIV Preexposure Prophylaxis — United States, 2025**

Rupa R. Patel, MD¹; Karen W. Hoover, MD¹; Allison Lale, MD¹; Janet Cabrales, PharmD¹; Katrina M. Byrd, MD¹; Athena P. Kourtis, MD, PhD¹

Pregnancy, Lactation, and Breastfeeding

- Limited human data on the use of LEN during pregnancy, lactation, and breastfeeding suggest no increases in drug-associated risks for adverse pregnancy, birth, and infant outcomes when compared with daily tenofovir-based PrEP or background rates.
- LEN PrEP may be used in pregnant women or continued in women who become pregnant while receiving injections, considering the woman's risk for HIV without PrEP, after provider-client shared decision-making.
- Women should be encouraged to notify their providers if they are planning to conceive, become pregnant, or breastfeed.

COMMENT & RESPONSE

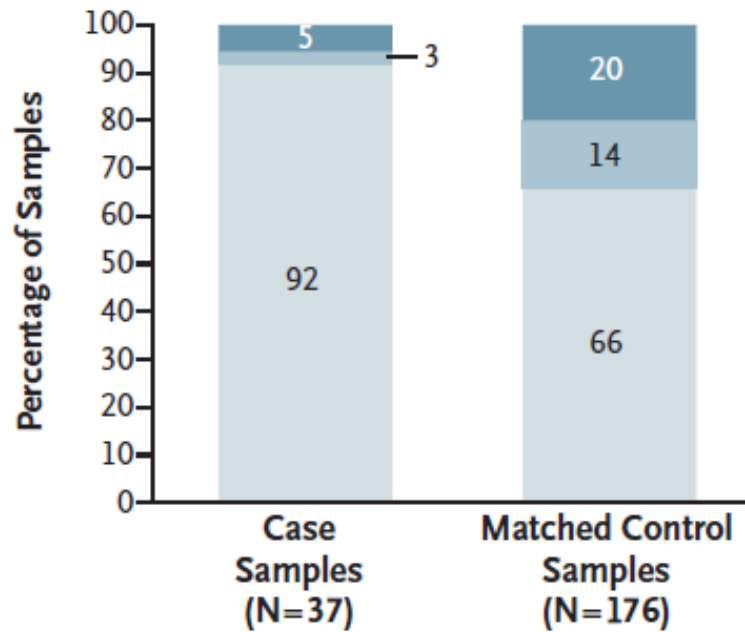
Preexposure Prophylaxis for HIV: Updated Recommendations From the 2024 International Antiviral Society-USA Panel

Injections should be administered by a clinician authorized to administer subcutaneous injections (A1a). Injection-related discomfort may be mitigated by icing or topical analgesia prior to injection. Injection site reactions, including nodules, discomfort, and erythema, have been reported. In the experience from lenacapavir used as part of HIV treatment regimens, some nodules have been reported to last for longer than 6 months but have infrequently led to discontinuation of lenacapavir; however, 30% of nodules did not resolve after a median of 553 days of follow-up. There are insufficient data to recommend specific treatment for persistent nodules.

Summary (Injectable PrEP)

- We now have 2 long-acting injectable options for PrEP
 - Cabotegravir IM q2months
 - Lenacapavir SC q6months
- Some patients prefer the longer lenacapavir interval while others may prefer to stay on cabotegravir which they feel is working
- Patients may also like accessing other resources q2months
- HIV RNA testing useful at initiation but no longer recommended for routine follow-up
- Have a clinic process to ensure patients take the Day 2 oral LEN and a plan if that dose is missed

B F/TAF Adherence–Efficacy Association



■ High (≥4 doses/wk) ■ Medium (2 or 3 doses/wk) ■ Low (<2 doses/wk)

In the TAF/FTC arm of PURPOSE 1, odds of HIV acquisition were 89% lower among cisgender women who took ≥ 2 pills per week

Odds of HIV acquisition were 89% lower among cisgender women in PURPOSE 1 who took ≥ 2 pills per week (odds ratio: 0.11; 95% CI: 0.012-0.49; $P = 0.0006$)^{3,4}

We can now use TAF/FTC to prevent HIV in cisgender women

Additionally, a 2025 analysis provided evidence for an 89% reduction in risk for HIV acquisition in cisgender women who had biomarker evidence of taking at least a mean of 2 doses of tenofovir alafenamide/emtricitabine per week.⁵ Therefore, tenofovir alafenamide/emtricitabine is now recommended for prevention of HIV acquisition from vaginal exposures for those in whom tenofovir disoproxil fumarate/emtricitabine is contraindicated or undesirable (AIIb).






PrEP Options in 2026

	Daily Oral TDF/FTC	Daily Oral TAF/FTC	2-1-1 Oral TDF/FTC	CAB-LA	LEN-LA
Cis Men	✓	✓	✓	✓	✓
Cis Women	✓	✓		✓	✓
Trans women	✓	✓	(✓)	✓	✓
Trans men	✓			✓	✓
PWID	✓				
Renal disease (↓CrCl)		✓		✓	✓

Compare your options for PrEP

Prepared by the SAN FRANCISCO DEPARTMENT OF PUBLIC HEALTH
 Find continually updated information: sf.gov/cityclinic-compare-prep
 Print version last revised Dec. 15, 2025.

4 medications are FDA-approved for PrEP. They are all **safe** and are **highly effective** when taken as directed.






	TRUVADA® <small>(emtricitabine and tenofovir DF)</small> Daily pill or 2-1-1 pill schedule	DESCOVY® <small>(emtricitabine and tenofovir AF)</small> Daily pill	APRETUDE® <small>(cabotegravir)</small> Shot given every 2 months	YEZTUGO® <small>(lenacapavir)</small> Shots given every 6 months
Dosing	2 options: <ul style="list-style-type: none"> • 1 pill daily • 2-1-1 pill schedule <ul style="list-style-type: none"> - 2 pills 2 to 24 hours before sex - 1 pill 24 hours after that - 1 pill 24 hours after that If more encounters, continue daily pills until 48 hours after last sex.	1 pill daily	Shot in the gluteal (butt) muscle <ul style="list-style-type: none"> - 1 shot each time When starting: Get 2 shots given 1 month apart, then 1 shot every 2 months	Shots in the fatty layer under the skin of the stomach or thigh <ul style="list-style-type: none"> - 2 shots each time When starting: You will also take 2 pills on day 1 and 2 pills on day 2
When it protects against HIV	1 pill daily <ul style="list-style-type: none"> ✓ Any type of sex ✓ When injecting drugs 2-1-1 pill schedule <ul style="list-style-type: none"> ✓ When using your penis or anus for sex ✗ Not when using your vagina/front-hole for sex ✗ Not when injecting drugs 	<ul style="list-style-type: none"> ✓ Any type of sex ? It is not yet known if it protects when injecting drugs	<ul style="list-style-type: none"> ✓ Any type of sex ? It is not yet known if it protects when injecting drugs	<ul style="list-style-type: none"> ✓ Any type of sex ? It is not yet known if it protects when injecting drugs (currently being studied)
Possible side effects	Gas, nausea, or headache Not advised for people with kidney or bone density issues	-Gas, nausea, or headache -Weight gain -Increase in cholesterol/triglycerides	Injection site reactions: Pain and soreness	Injection site reactions: Lump (nodule), pain, soreness
Cost and coverage	★★ Very low cost! ★★ \$0 copay with most insurance, including Medi-Cal If you have no insurance: <ul style="list-style-type: none"> - Generic price \$15 to \$40 per bottle of 30 pills - Provider can help you apply to an assistance program. You pay \$0 if you meet income limits. 	Most insurance covers Descovy, Apretude, and Yeztugo (including Medi-Cal) Provider may need to work with your insurance to get approval. Copay and deductible savings coupons available: <ul style="list-style-type: none"> - Descovy and Yeztugo: gileadcopay.com - Apretude: viivconnect.com If you have no insurance: Provider can help you apply to an assistance program. You pay \$0 if you meet income limits.		
What it looks like <small>(Images not to scale)</small>	Pill look varies. Here are 2 examples:  Brand-name pill  Example of generic pill			

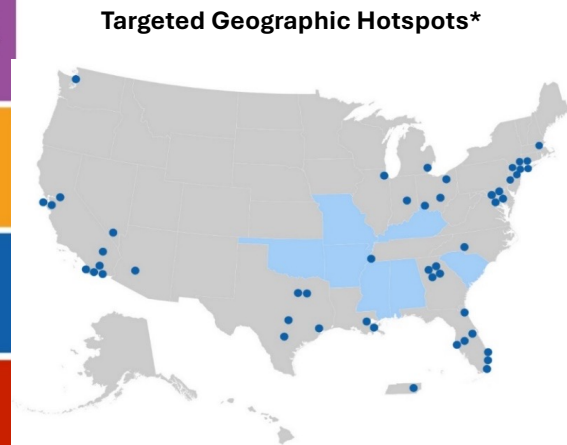
For help with PrEP: Call SF City Clinic at (628) 217-6692

Images source: Own work and Drugs.com

Ending the HIV Epidemic (EHE)

GOAL: 75% reduction in new HIV diagnoses in 5 years and **90%** reduction in 10 years

	DIAGNOSE all people with HIV as early as possible after infection.
	TREAT the infection rapidly and effectively to achieve sustained viral suppression. 
	PROTECT people at risk for HIV using potent and proven prevention interventions, including PrEP, a medication that can prevent HIV infections.
	RESPOND rapidly to detect and respond to growing HIV clusters and prevent new HIV infections. 
	HIV HealthForce will establish local teams committed to the success of the Initiative in each jurisdiction.



<https://ahead.hiv.gov/>

*50% of new HIV diagnoses occurred in only 48 counties, Washington, DC, and San Juan, Puerto Rico. In addition, 7 states have a substantial rural burden, with >75 cases and 10% of their diagnoses in rural areas.

PrEP option in the pipeline

- MK-8527 – a novel oral nucleoside reverse transcriptase translocation inhibitor (Merck)
 - EXPrESSIVE-10 and EXPrESSIVE-11 Phase 3 trials
 - 11 mg orally once per month for PrEP

HIV PrEP Clinical Resources

- CDC HIV PrEP Guidelines, 2021.
<https://www.cdc.gov/hiv/pdf/risk/prep/cdc-hiv-prep-guidelines-2021.pdf>
- Antiretroviral Drugs for Treatment and Prevention of HIV in Adults: 2024 Recommendations of the International Antiviral Society-USA Panel
- CDC - HIV PrEP: The Basics
 - <https://www.cdc.gov/hiv/basics/prep.html>
- Discussing Sexual Health with Your Patients:
<https://www.cdc.gov/hiv/clinicians/screening/discussing-sexual-health.html>

ORIGINAL ARTICLE

Postexposure Doxycycline to Prevent Bacterial Sexually Transmitted Infections

Anne F. Luetkemeyer, M.D., Deborah Donnell, Ph.D.,
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Cole Grabow, M.P.H., Clare E. Brown, Ph.D., Cheryl Malinski, B.S.,
Rodney Perkins, R.N., M.P.H., Melody Nasser, B.A., Carolina Lopez, B.A.,
Eric Vittinghoff, Ph.D., Susan P. Buchbinder, M.D., Hyman Scott, M.D., M.P.H.,
Edwin D. Charlebois, Ph.D., M.P.H., Diane V. Havlir, M.D., Olusegun O. Soge, Ph.D.,
and Connie Celum, M.D., M.P.H., for the DoxyPEP Study Team*

N ENGL J MED 388;14 NEJM.ORG APRIL 6, 2023

Doxycycline 200 mg po once taken within 72 hrs of condomless sex in gay, bisexual and other men who have sex with men and transgender women reduced:

↓ Gonorrhea by ~55%

↓ Chlamydia by 70-88%

↓ Syphilis by 73-87%

CDC Clinical Guidelines on the Use of Doxycycline Postexposure Prophylaxis for Bacterial Sexually Transmitted Infection Prevention, United States, 2024

Recommendation*	Strength of recommendation and quality of evidence†
<ul style="list-style-type: none">Providers should counsel all gay, bisexual, and other men who have sex with men (MSM) and transgender women (TGW) with a history of at least one bacterial sexually transmitted infection (STI) (specifically, syphilis, chlamydia or gonorrhea) during the past 12 months about the benefits and harms of using doxycycline (any formulation) 200 mg once within 72 hours (not to exceed 200 mg per 24 hours) of oral, vaginal, or anal sex and should offer doxycycline postexposure prophylaxis (doxy PEP) through shared decision-making. Ongoing need for doxy PEP should be assessed every 3–6 months.	<p style="text-align: center;">AI</p> <p style="text-align: center;">High-quality evidence supports this strong recommendation to counsel MSM and TGW and offer doxy PEP.</p>
<ul style="list-style-type: none">No recommendation can be given at this time on the use of doxy PEP for cisgender women, cisgender heterosexual men, transgender men, and other queer and nonbinary persons.	<p style="text-align: center;">Evidence is insufficient to assess the balance of benefits and harms of the use of doxy PEP</p>

Antiretroviral Drugs for Treatment and Prevention of HIV in Adults: 2024 Recommendations of the International Antiviral Society-USA Panel

Bacterial STI Prevention^b

- DoxyPEP (doxycycline [200 mg]) is recommended within 72 hours after condomless sex for cisgender men who have sex with men and transgender women, regardless of HIV status (evidence rating: A1a).
 - Dosing is recommended no more frequently than daily (evidence rating: B1a).
- Pharmacokinetic modeling suggests that doxyPEP is effective for vaginal exposures and is recommended on a case-by-case basis for cisgender women at risk (evidence rating: B111).
- Prescribe 30 doses (60 tablets or capsules) of doxyPEP at a time (evidence rating: B111).
- Quarterly STI screening of contact sites and blood syphilis testing is recommended (evidence rating: A1a).

HOW TO TAKE YOUR OWN RECTAL SWAB

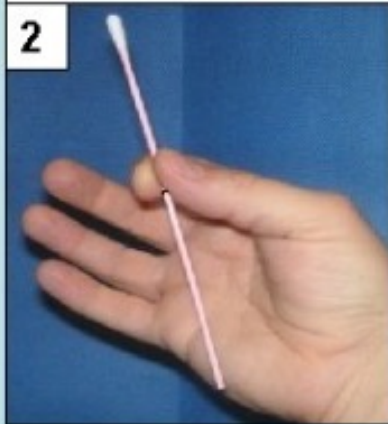
1



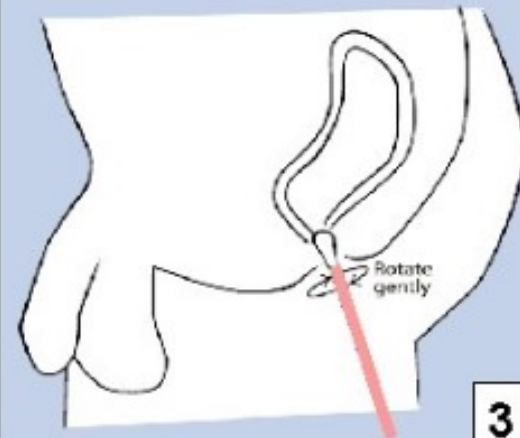
Step 1 - Take the pink swab from the paper sleeve. Remove your lower garments. Squat down or lie down on your side or in a position that you feel comfortable with to take the swab.

Step 2 – take the pink swab and hold it just above the middle, in front of the small black line.

2



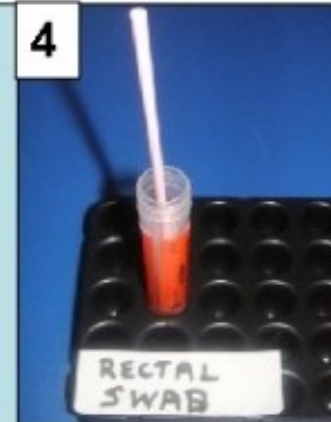
Step 3 – gently insert the swab into your anus and slide it in a few cm until your fingers are near your anus. Rotate the swab between your finger and thumb several times.



3

Step 4 – carefully remove the swab and place it in the small orange tube marked "rectal swab" – put the swab into the tube cotton end first as in picture 4.

4



Potential Impact of Doxycycline Post-Exposure Prophylaxis on Tetracycline Resistance in *Neisseria gonorrhoeae* and Colonization with Tetracycline-Resistant *Staphylococcus aureus* and Group A Streptococcus

Soge et al., 2025 | *Clinical Infectious Diseases*



Doxycycline post-exposure prophylaxis (doxy PEP) for STI prevention was implemented in the Public Health - Seattle & King County Sexual Health Clinic in June 2023, but its impact on antimicrobial resistance and the microbiome is uncertain.

METHODS

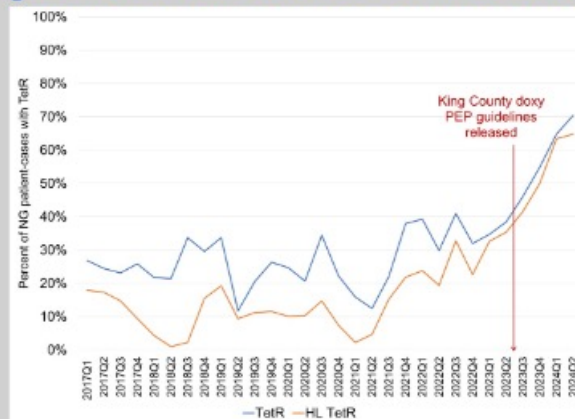
We evaluated:

- Trends in tetracycline resistance in gonorrhea diagnoses among men who have sex with men (MSM) and the association of resistance with doxy PEP use
- The association of doxy PEP use and nares colonization with *Staphylococcus aureus* and Group A streptococcus (GAS), including tetracycline resistant *S. aureus* and GAS

Population:

- 2,312 MSM patient-cases with genital and extragenital *Neisseria gonorrhoeae* infections, 2017-2024
- 838 MSM screened for *S. aureus* and 512 MSM screened for GAS carriage at the nares and pharynx, 2023-2024

Prevalence of tetracycline resistance among MSM with *N. gonorrhoeae*, PHSKC Sexual Health Clinic, 2017-2024



RESULTS

- 70% of *N. gonorrhoeae* isolates in MSM were tetracycline resistant in 2024, up from 27% in 2017
- Taking >3 doses of doxy PEP in the past month was associated with *N. gonorrhoeae* isolates having tetracycline resistance in MSM ($p < 0.01$)
- S. aureus* colonization was less common among doxy PEP users than non-users (27% vs. 36%, $p = 0.02$)
- Doxy PEP users were more likely to be colonized with tetracycline resistant *S. aureus* (18% vs. 8%, $p < 0.0001$) and GAS (9% vs. 4%, $p = 0.008$) than non-users

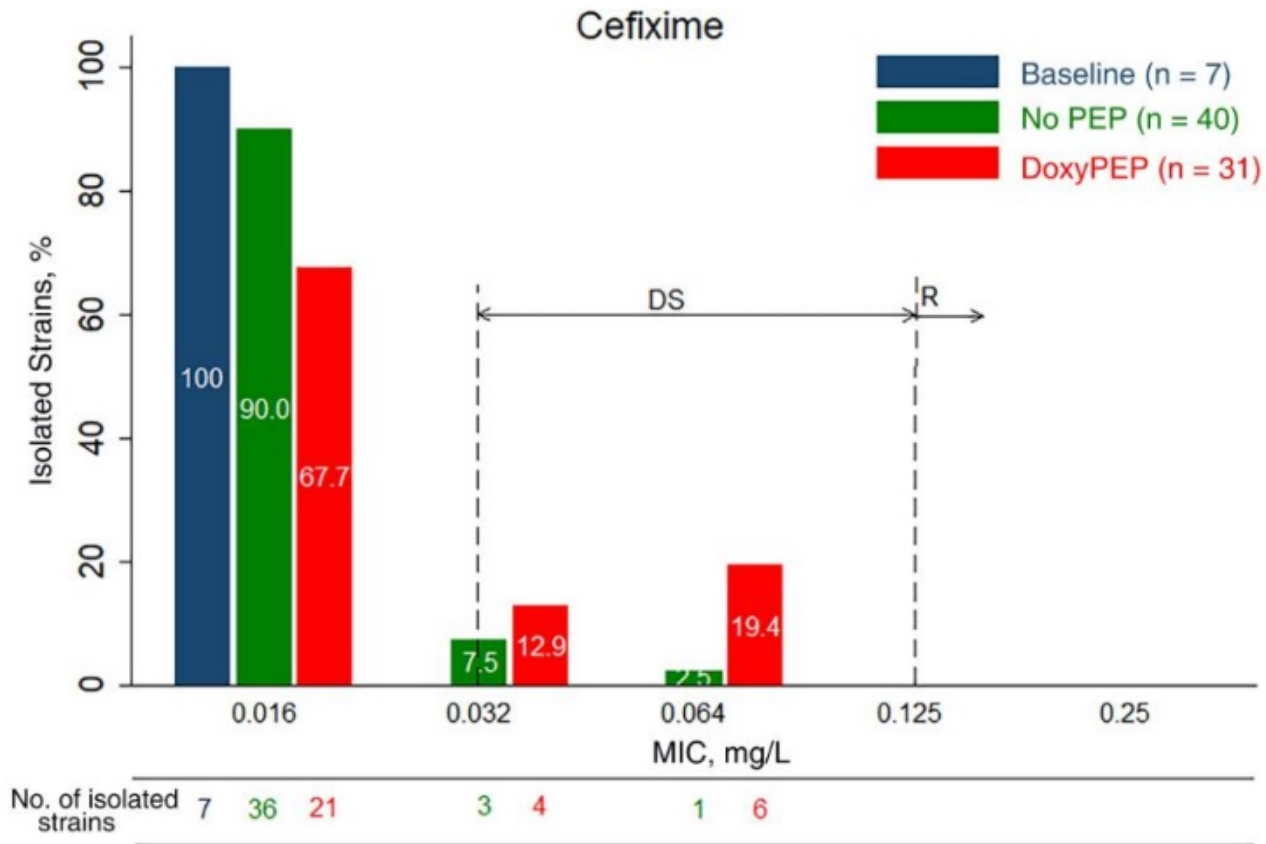
CONCLUSION: Tetracycline resistance is now widespread among MSM with *N. gonorrhoeae* infection in Seattle, WA. Doxy PEP use was associated with increased colonization with GAS and tetracycline-resistant *S. aureus*, suggesting that doxy PEP has microbiome effects of uncertain clinical significance.

Antimicrobial-Resistant *Neisseria gonorrhoeae* Infections in Men Using Doxycycline Postexposure Prophylaxis: A Substudy of the ANRS 174 DOXYVAC Trial

Identified GC isolates with decreased susceptibility to cefixime associated with a novel mosaic penA34.007 penicillin-binding protein 2 allele which was three times more prevalent in the DoxyPEP group

Most of these isolates (84.6%) co-expressed the tetM gene and harbored mutations conferring resistant to fluoroquinolones

No cefixime or ceftriaxone resistance was seen, just a decrease in susceptibility (changes in MICs) to cefixime



DS, decreased susceptibility ; R, resistance

Figure 2. Distribution of cefixime minimum inhibitory concentrations (MICs) for the gonococcus isolates. Abbreviations: DoxyPEP, doxycycline postexposure prophylaxis; DS, decreased susceptibility; PEP, postexposure prophylaxis; R, resistance.

DoxyPEP Summary

- Recommended as a useful tool to combat STIs
- Strong efficacy data in MSM population
- IAS-USA Panel recommended considering use in vaginal sex based on pharmacokinetic data
- Keep it simple → make sure you perform complete STI testing q3months
- Gonococcal Isolate Surveillance Project (GISP) (est 1986) monitors trends in the United States for antimicrobial susceptibilities
- DoxyPEP may cause off-target problems and increased resistance in the future that changes recommendations

Any questions?

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