



# HIV Prevention

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# Disclosures

NONE

# Roadmap and Learning Objectives


Review HIV testing.

Understand the three main ways HIV transmission can be prevented:

- Testing and Treatment as prevention
- Pre-Exposure Prophylaxis (PrEP)
- Post Exposure Prophylaxis (PEP)

# Review of HIV Testing

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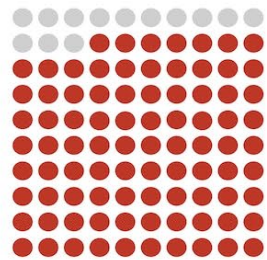
# Ending the HIV Epidemic

- US DHHS initiative
- Goals:
  - Reduce new HIV infections in the US by 75% by 2025 and by 90% by 2030
  - Advance health equity by scaling up key HIV prevention and treatment strategies



In 2021, an estimated **1.2 million people** had HIV.

For every 100 people with HIV



**87**

knew their  
HIV status.

Ending  
the  
HIV  
Epidemic

**Overall Goal: Increase the estimated percentage of people with HIV who have received an HIV diagnosis to at least 95% by 2025 and remain at 95% by 2030.**



CDC recommends that **everyone** between the ages of 13 and 64 get tested **at least once** as part of routine care.

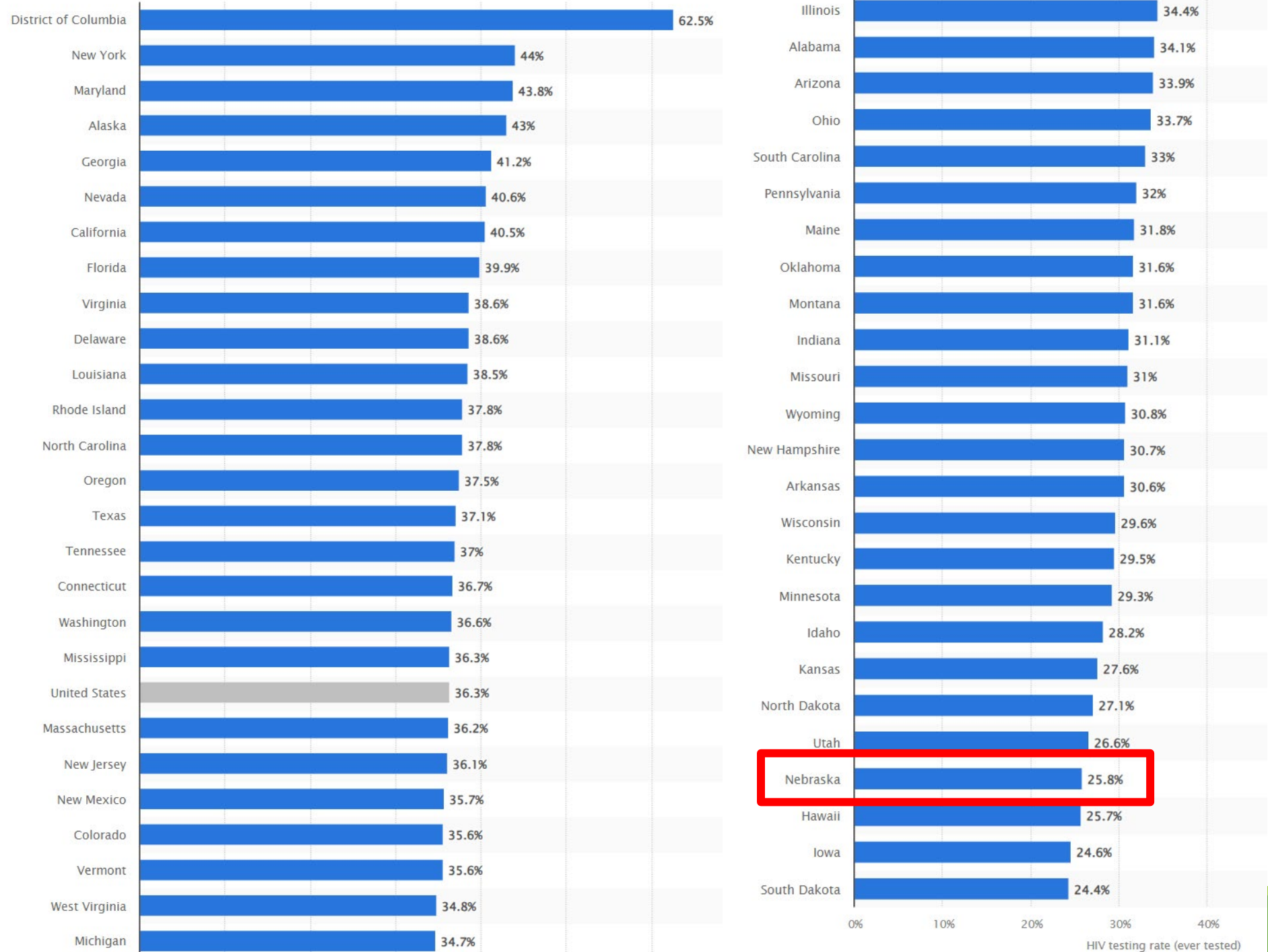
People with certain risk factors should get tested at least once a year.

Find an HIV testing site near you:  
**Locator.HIV.gov**



Only **35.1%**  
Of US residents surveyed in  
2021 reported being tested  
for HIV at least once in their  
lifetime

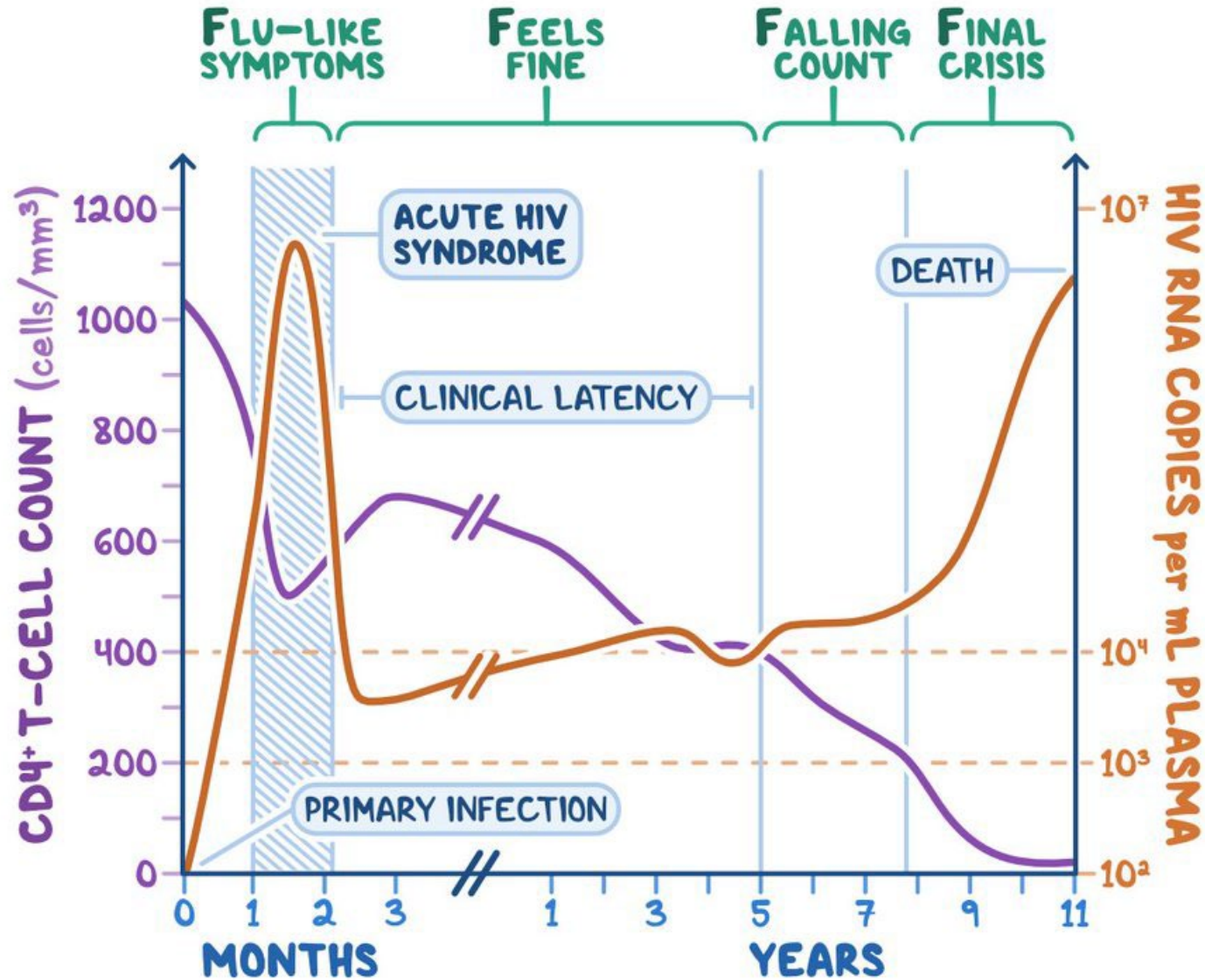
# Share of adults in the United States who ever received an HIV test as of 2022, by state



<https://www.statista.com/statistics/257717/us-states-with-highest-percentage-of-ever-received-hiv-tests/>



# STAGES of HIV



Why should we test?

IT'S ONLY DANGEROUS  
IF YOU DON'T KNOW IT'S THERE



**HIVAZ.ORG**  
AWARENESS IS THE ANSWER

# KNOW YOUR STATUS

Knowing your HIV status helps you make **decisions to prevent** getting or transmitting HIV.



Find an HIV testing site near you:  
[Locator.HIV.gov](https://locator.hiv.gov)



A healthy 30-year-old female with 2 lifetime male sex partners requests HIV testing during a routine annual visit.

What test to you order?

# Types of HIV Tests and Their Window Periods

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**Nucleic Acid Test (NAT)**

window period

**10-33 days**



**Antigen/ Antibody Lab Test**

window period

**18-45 days**

**Rapid Antigen/ Antibody Test**

window period

**18-90 days**



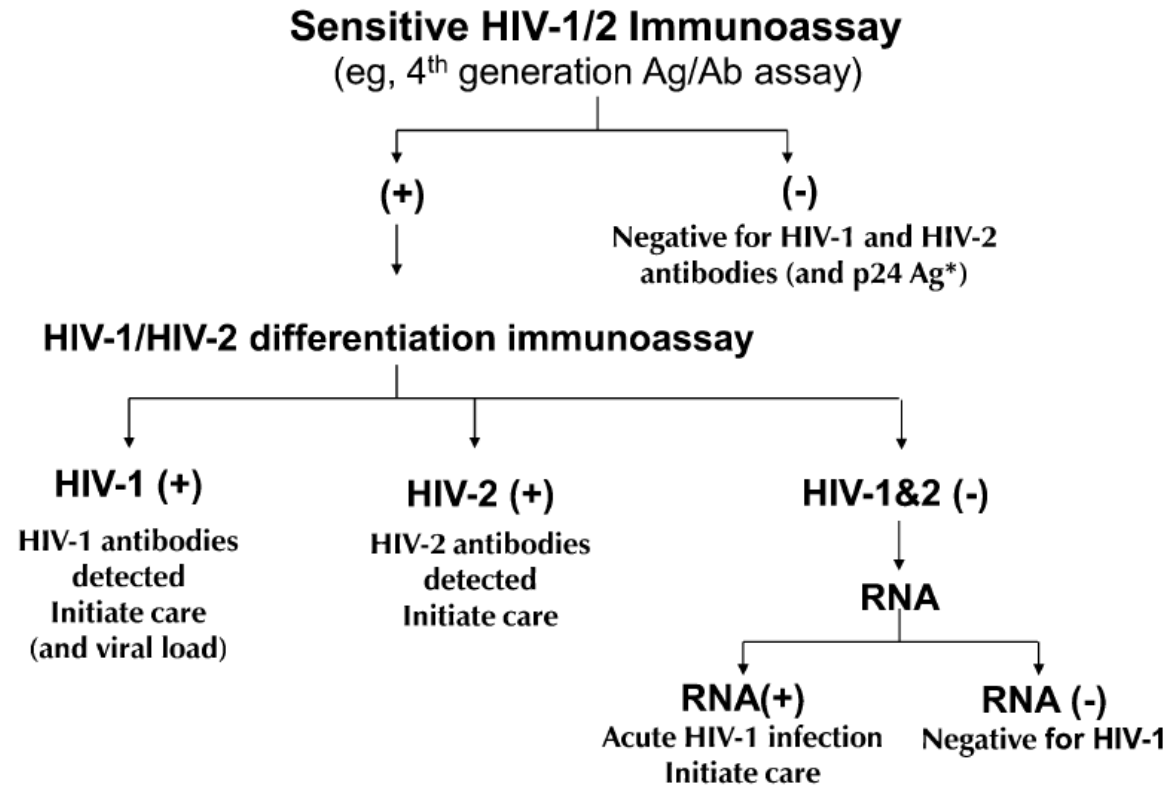
**Antibody Test**

window period

**23-90 days**



# HIV Testing Algorithm



## Laboratory Testing for the Diagnosis of HIV Infection

Updated Recommendations

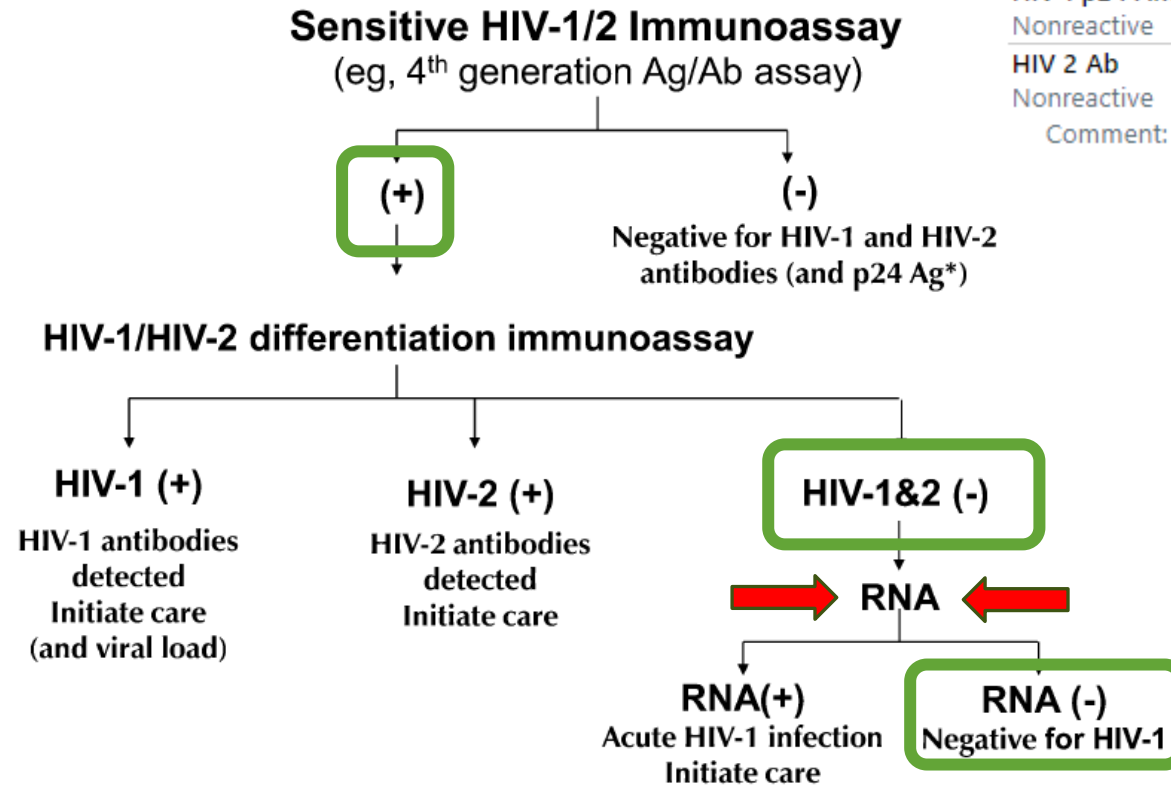


# HIV Testing Algorithm

## ! HIV antigen/antibody panel

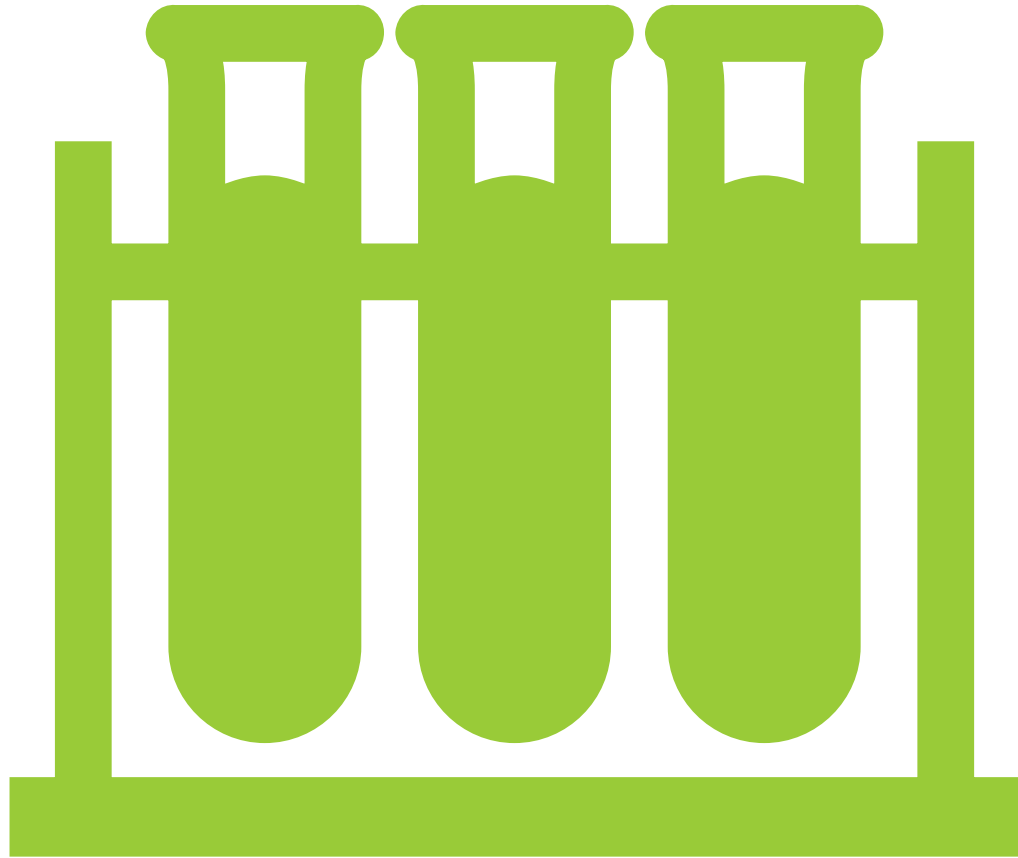
| Component         | Ref Range & Units | Result      |
|-------------------|-------------------|-------------|
| HIV Ag-Ab         | Nonreactive       | Reactive !  |
| HIV 1 Ab          | Nonreactive       | Reactive !  |
| HIV 1 p24 Antigen | Nonreactive       | Nonreactive |
| HIV 2 Ab          | Nonreactive       | Nonreactive |

Comment: HIV confirmatory test to follow.



Our patient's test results: HIV RNA target not detected

Interpretation: False positive HIV screen



# HIV Testing Take Home Points

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Testing IS prevention!

If a screening test is positive, you can't just stop there.

Any positive test should be confirmed with a confirmatory differentiation assay and then an HIV RNA PCR (viral load).

Always send HIV RNA if worried about acute infection

True or False:



If someone has HIV, they will always be able to give HIV to sexual partners.



**FALSE**

U=U

undetectable = untransmittable



Treatment  
as  
Prevention

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**SAN FRANCISCO**

**Undetectable = Untransmittable**

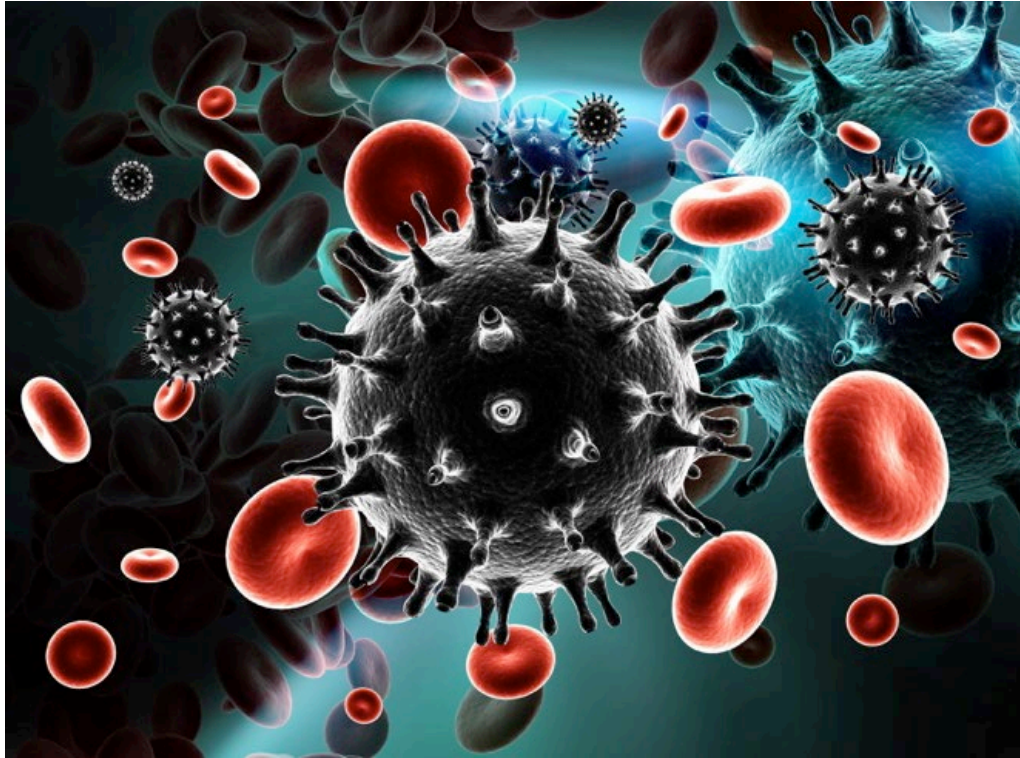
**Passing HIV can be  
Part of our Past.  
Learn the Facts!  
#UequalsUsf**



San Francisco HIV Frontline Organizing Group Funded by SF DPH

A healthy 23-year-old cis gender female comes to her routine wellness exam with you. She tells you she was diagnosed with gonorrhea at a local clinic three months ago and was treated with one dose of IM ceftriaxone.

Should you talk to her about PrEP?



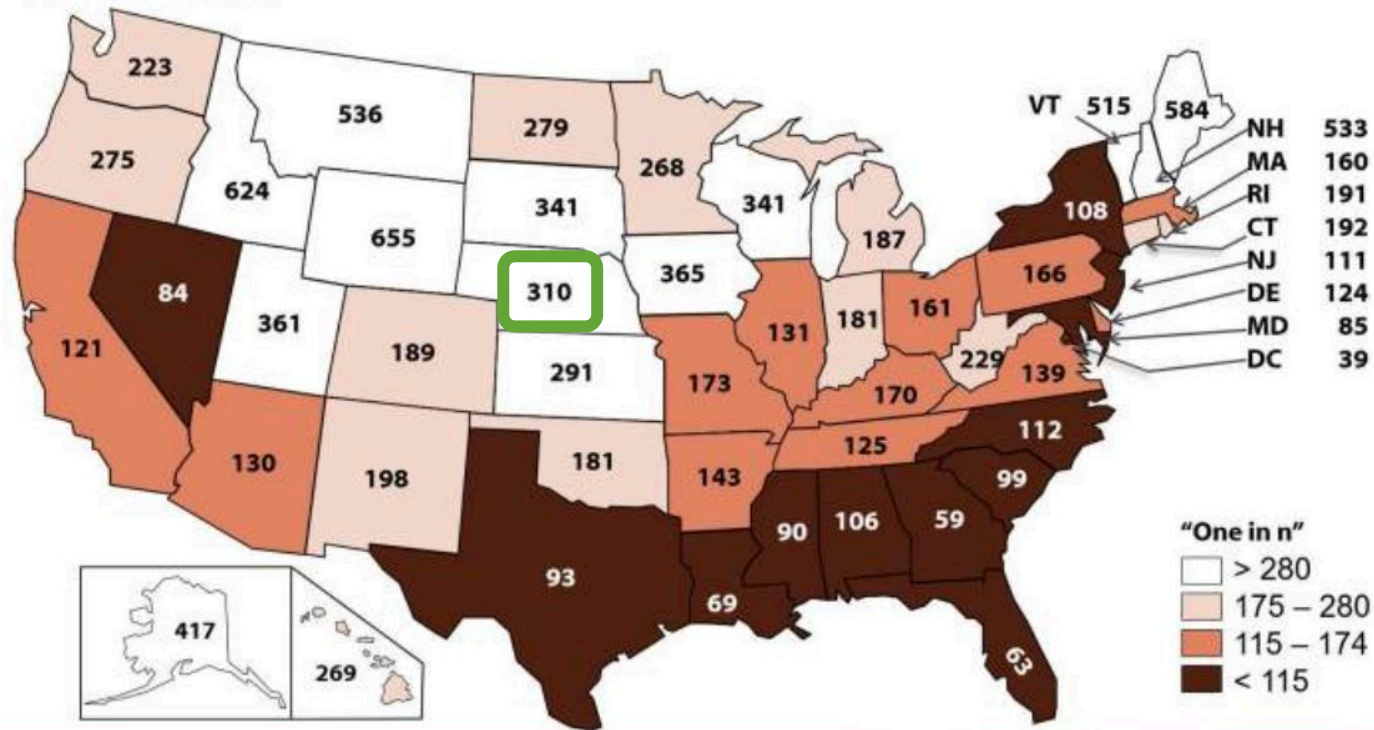
HIV Risk

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# Lifetime Risk of HIV by State

## Lifetime Risk of an HIV Diagnosis by State

Overall: 1 in 120

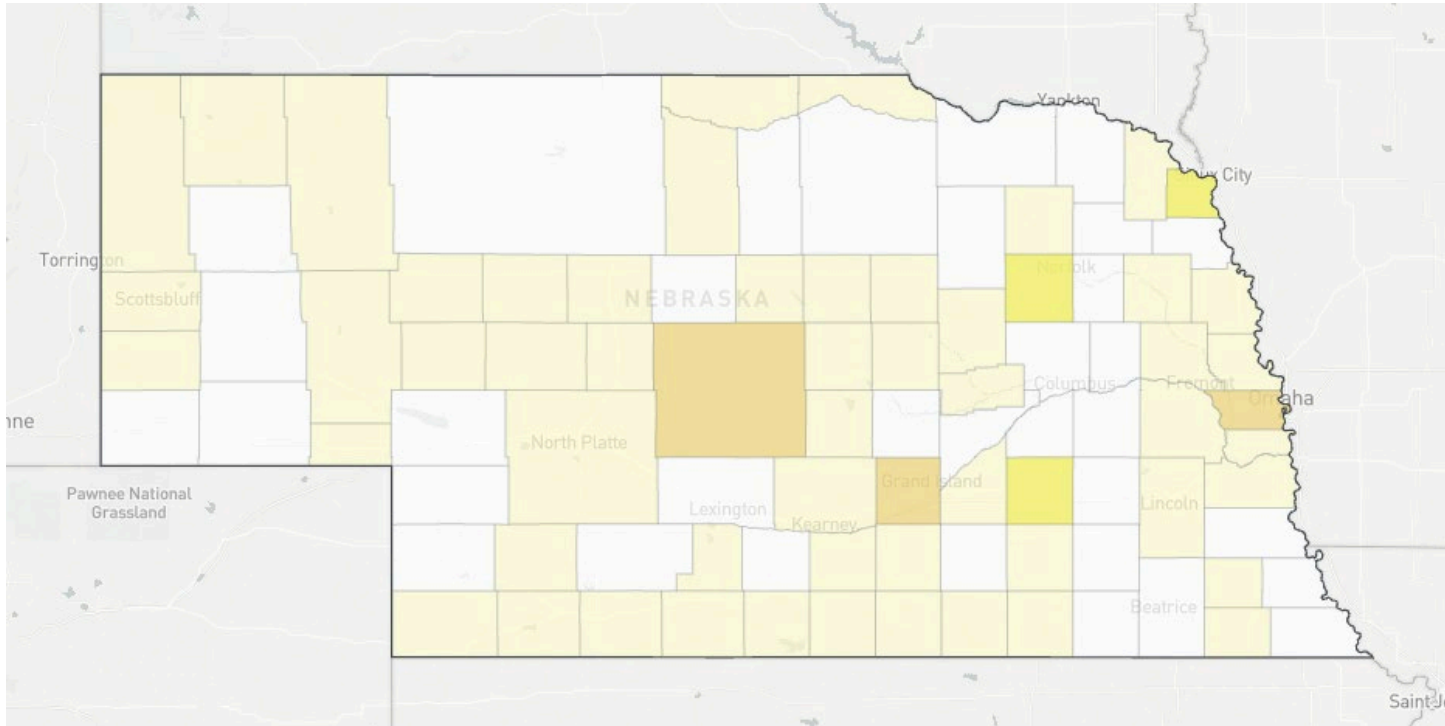


Centers for Disease Control and Prevention/Sonia Singh

Source: Singh et al, CROI 2022

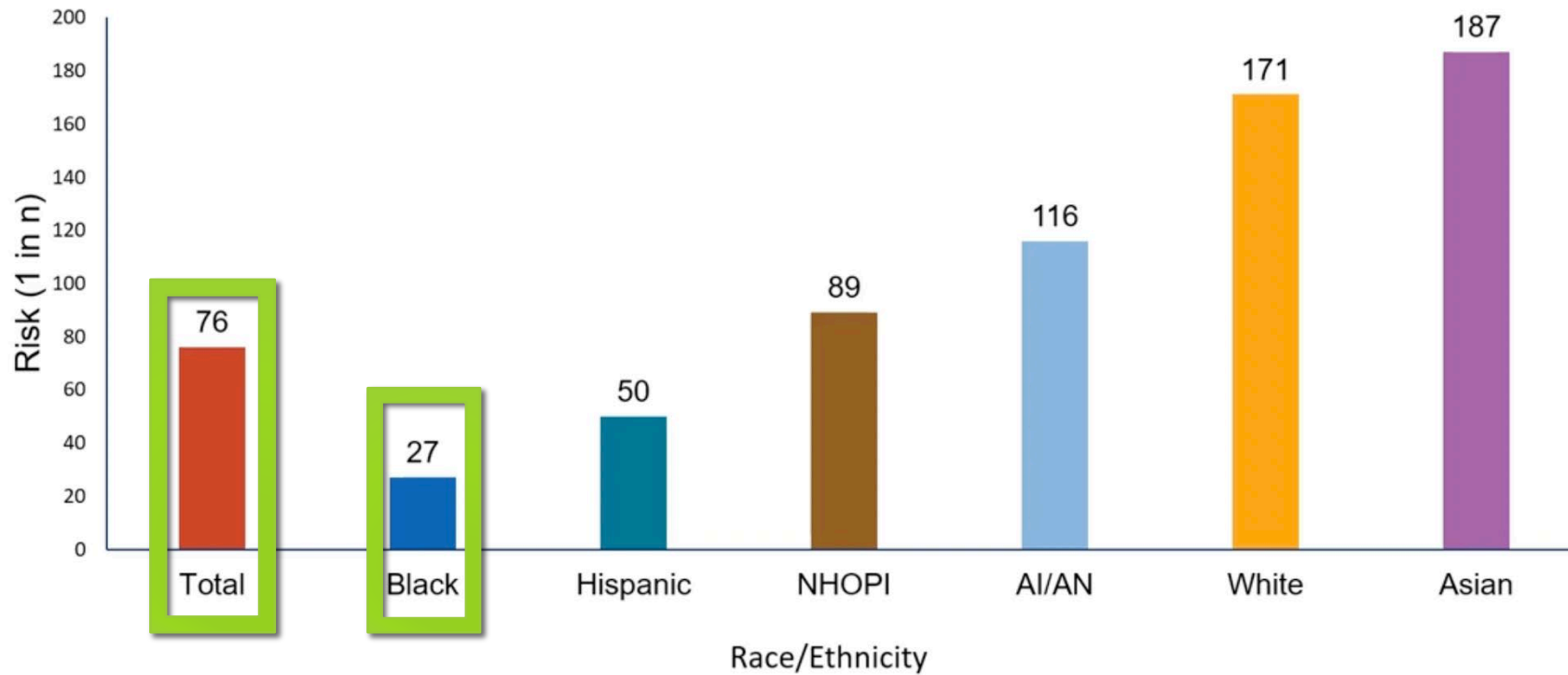
# Prevalence of those living with HIV in 2021 in NE

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# Lifetime Risk of an HIV Diagnosis Among Males

Assuming 2017-2019 Diagnosis Rates Continue

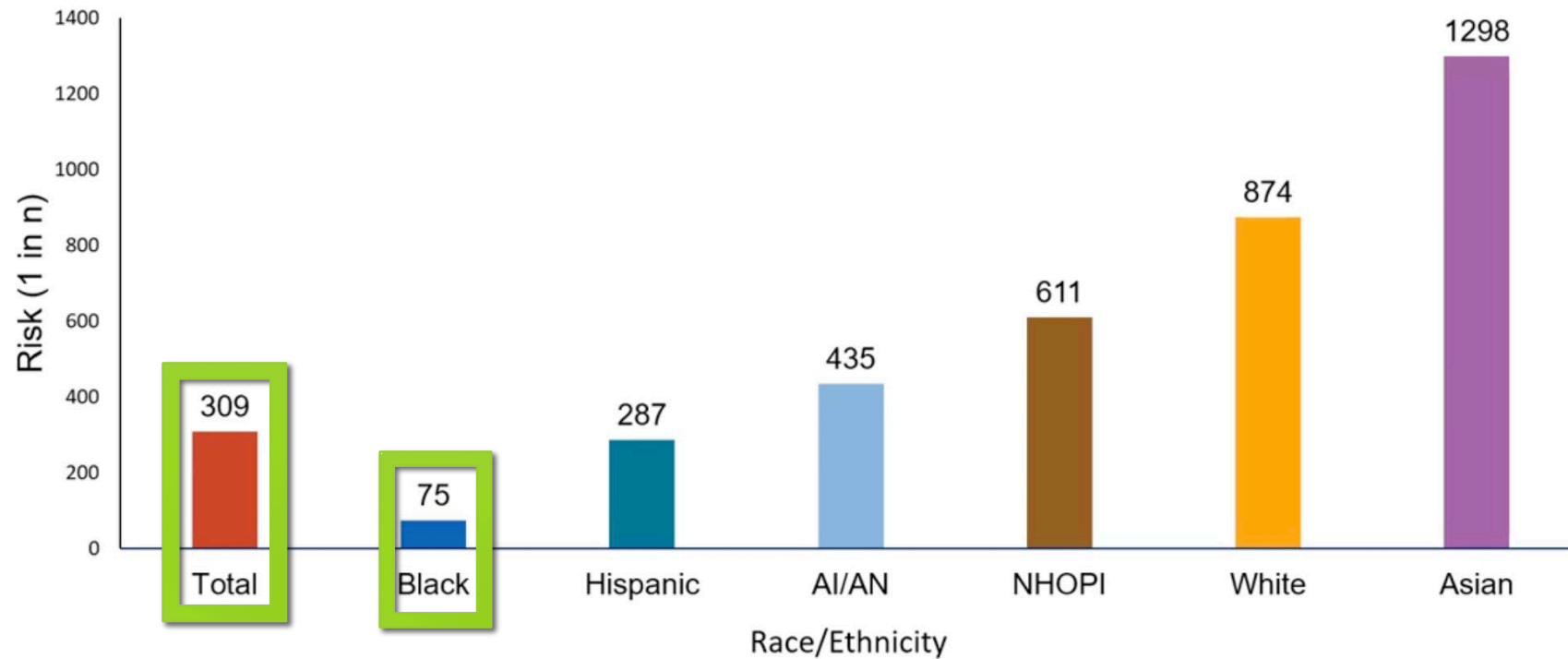


AI/AN = American Indian/Alaskan Native; NHOPI = Native Hawaiian/Other Pacific Islander



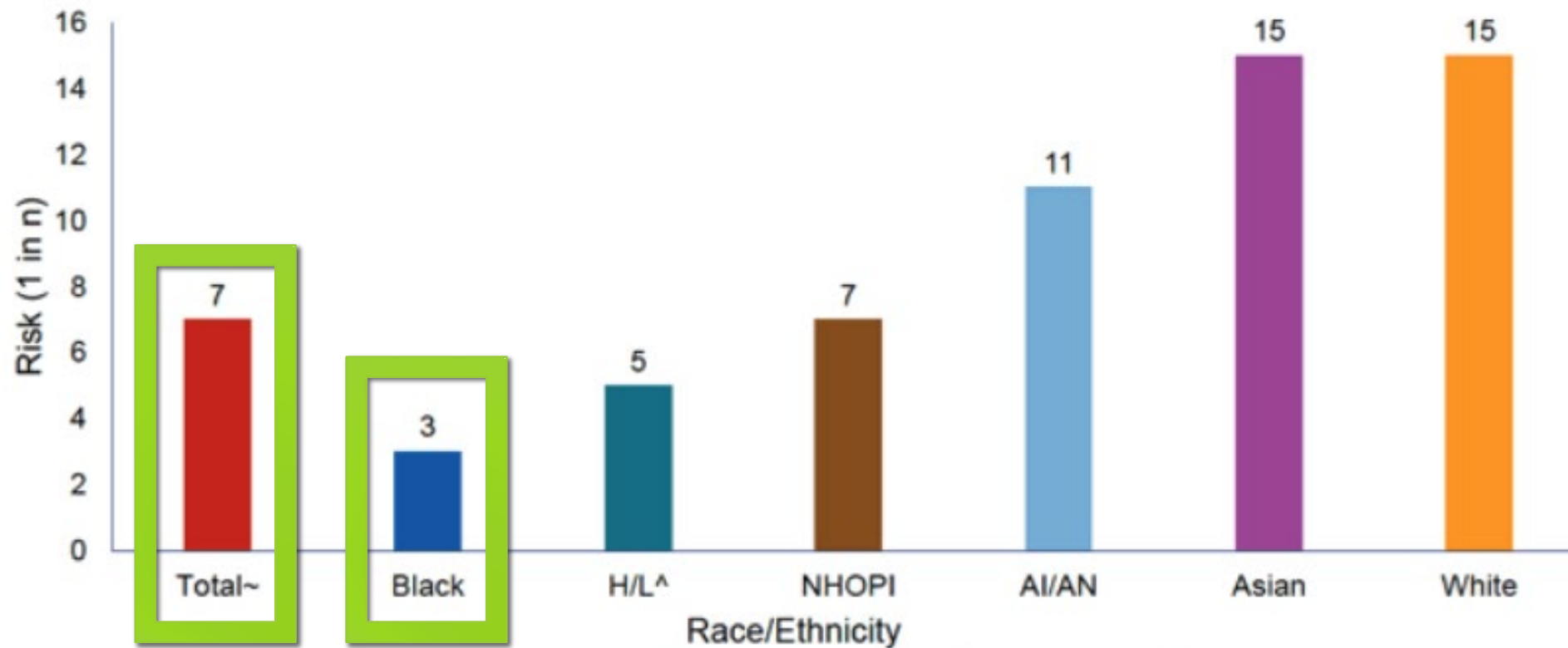
# Lifetime Risk of an HIV Diagnosis Among Females

Assuming 2017-2019 Diagnosis Rates Continue



AI/AN = American Indian/Alaskan Native; NHOPI = Native Hawaiian/Other Pacific Islander

## 2017–2021 Lifetime Risk\* of an HIV Diagnosis Among MSM by Race/Ethnicity

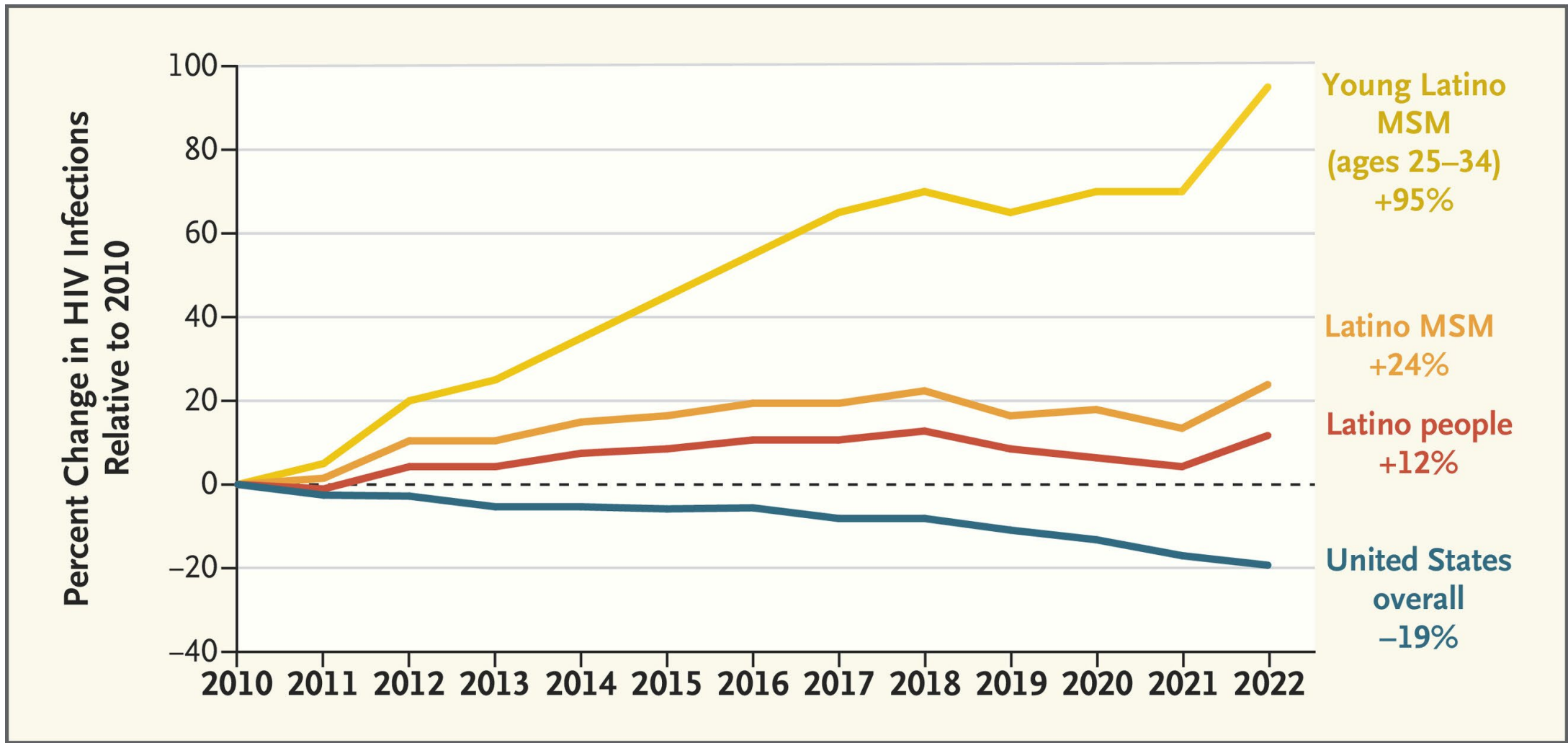


AI/AN = American Indian/Alaskan Native; H/L<sup>^</sup> = Hispanic/Latino; NHOPI = Native Hawaiian/Other Pacific Islander

\*Assuming 2017–2021 diagnosis rates continue

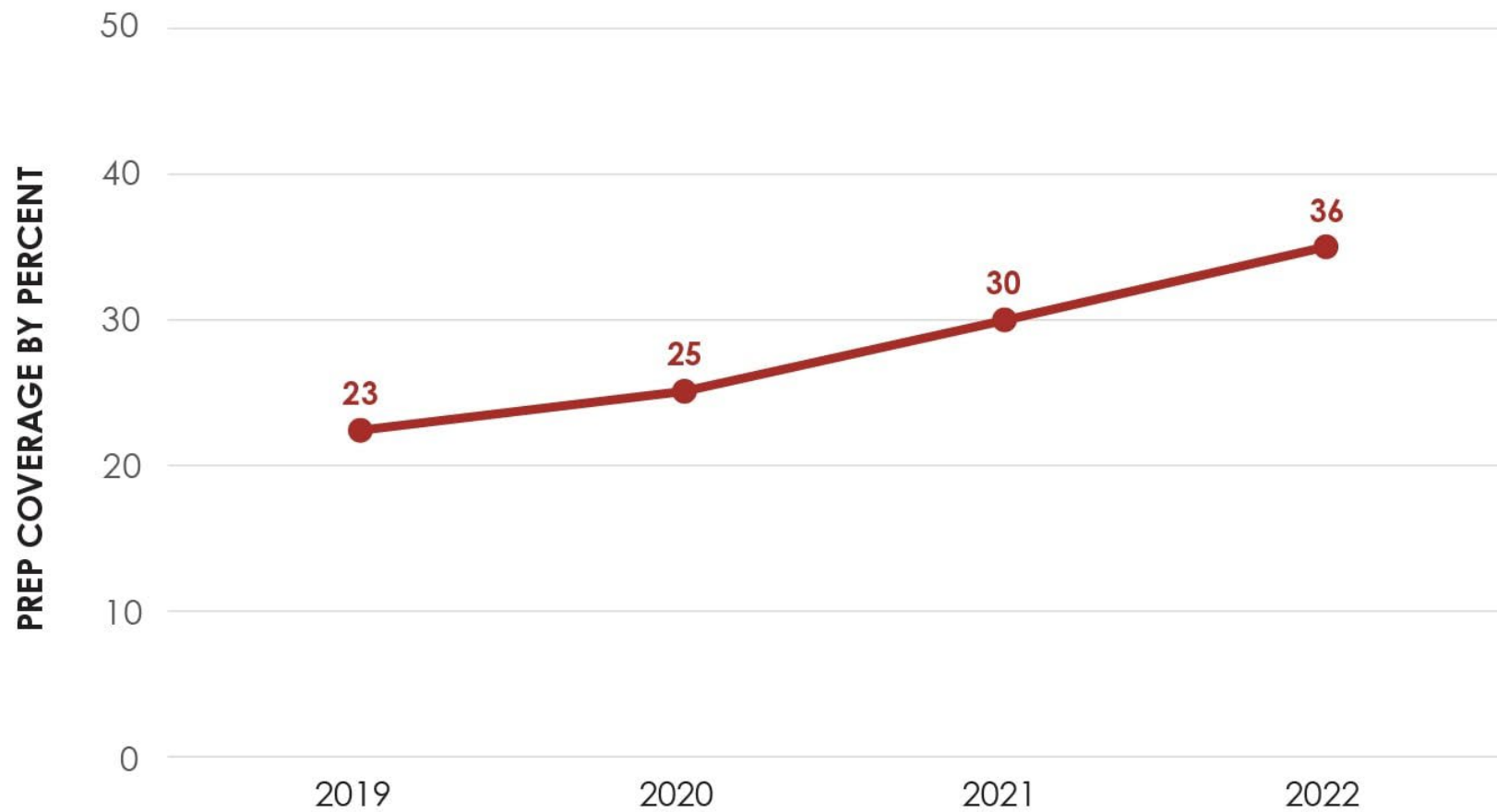
<sup>~</sup>Includes 4,181 multiracial persons

<sup>^</sup>Hispanic/Latino persons can be of any race



Guilamo-Ramos et al, NEJM October 2024

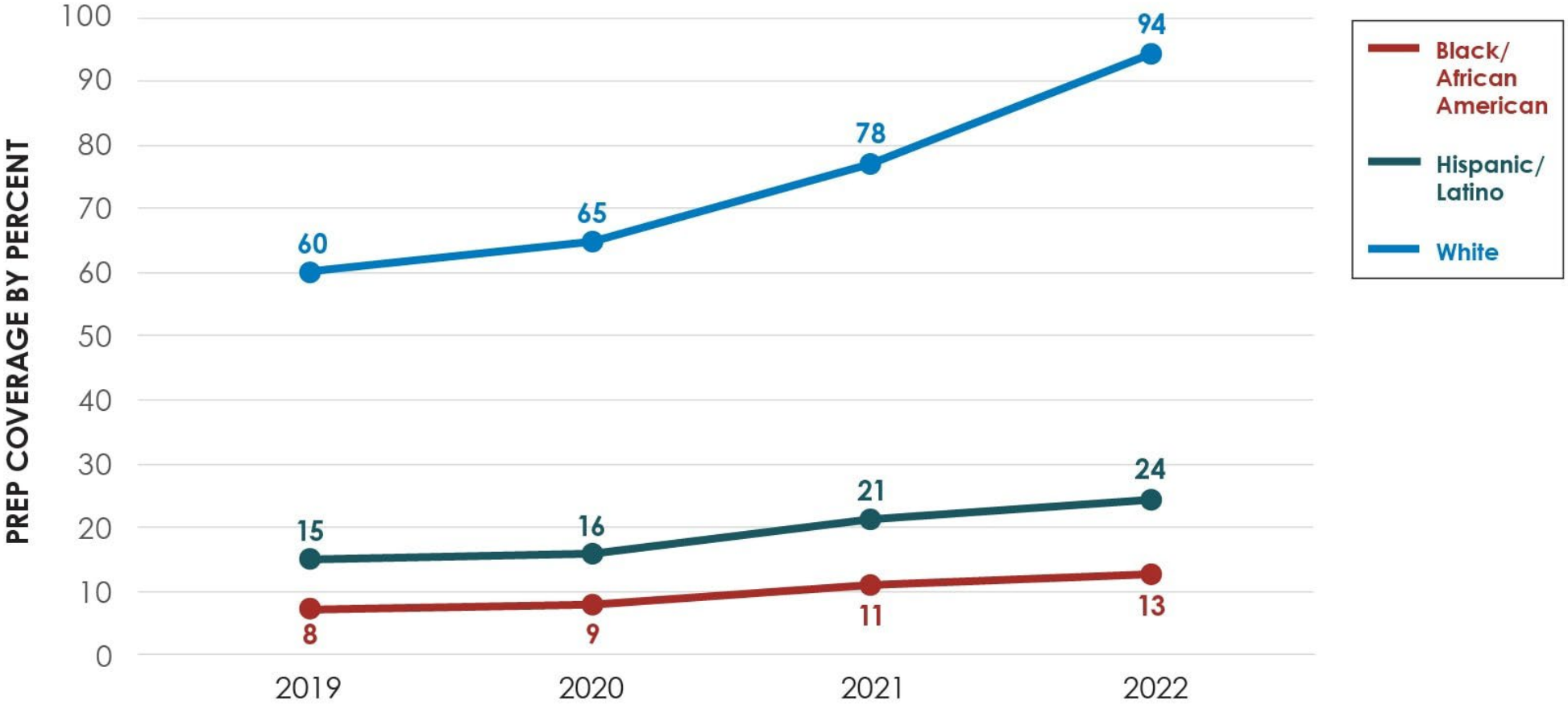
## OVERALL TRENDS IN PREP PRESCRIPTIONS AMONG PEOPLE WHO COULD BENEFIT, 2019-2022\*



\*Data are preliminary.

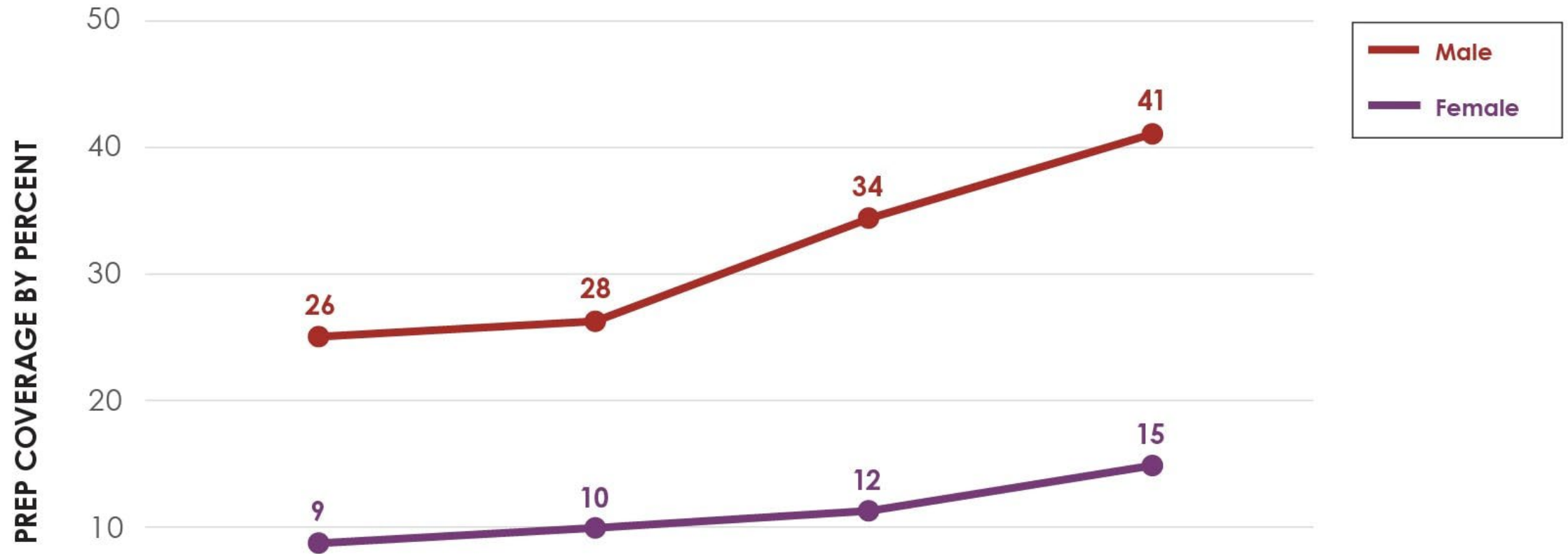
Source: Centers for Disease Control and Prevention

# TRENDS IN PREP PRESCRIPTIONS AMONG PEOPLE WHO COULD BENEFIT, BY RACE/ETHNICITY, 2019-2022\*



\*Data are preliminary. The data on PrEP prescriptions by race and ethnicity are limited, and findings are estimated.  
Source: Centers for Disease Control and Prevention

## TRENDS IN PREP PRESCRIPTIONS AMONG PEOPLE WHO COULD BENEFIT, BY SEX AT BIRTH, 2019-2022\*





# PrEP

PRE-EXPOSURE PROPHYLAXIS

**Table 1a: Summary of Clinician Guidance for Daily Oral PrEP Use**

|   | Sexually-Active Adults and Adolescents <sup>1</sup>   | Persons Who Inject Drug <sup>2</sup>   |
|---|---|--|
| 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"> <li>• HIV-positive sexual partner (especially if partner has an unknown or detectable viral load)</li> <li>• Bacterial STI in past 6 months<sup>3</sup></li> <li>• History of inconsistent or no condom use with sexual partner(s)</li> </ul>  | <p>HIV-positive injecting partner<br/>OR<br/>Sharing injection equipment</p> |
| Clinically eligible                                     | <p><b><u>ALL OF THE FOLLOWING CONDITIONS ARE MET:</u></b></p> <ul style="list-style-type: none"> <li>• Documented negative HIV Ag/Ab test result within 1 week before initially prescribing PrEP</li> <li>• No signs/symptoms of acute HIV infection</li> <li>• Estimated creatinine clearance <math>\geq 30</math> ml/min<sup>4</sup></li> <li>• No contraindicated medications</li> </ul>   |  |
| Dosage  | <ul style="list-style-type: none"> <li>• Daily, continuing, oral doses of F/TDF (Truvada®), <math>\leq 90</math>-day supply<br/>OR</li> <li>• For men and transgender women at risk for sexual acquisition of HIV; daily, continuing, oral doses of F/TAF (Descovy®), <math>\leq 90</math>-day supply</li> </ul>  |  |
| Follow-up care  | <p><b><u>Follow-up visits at least every 3 months to provide the following:</u></b></p> <ul style="list-style-type: none"> <li>• HIV Ag/Ab test and HIV-1 RNA assay, medication adherence and behavioral risk reduction support</li> <li>• Bacterial STI screening for MSM and transgender women who have sex with men<sup>3</sup> – oral, rectal, urine, blood</li> <li>• Access to clean needles/syringes and drug treatment services for PWID</li> </ul> <p><b><u>Follow-up visits every 6 months to provide the following:</u></b></p> <ul style="list-style-type: none"> <li>• Assess renal function for patients aged <math>\geq 50</math> years or who have an eCrCl <math>&lt; 90</math> ml/min at PrEP initiation</li> <li>• Bacterial STI screening for all sexually-active patients<sup>3</sup> – [vaginal, oral, rectal, urine- as indicated], blood</li> </ul> <p><b><u>Follow-up visits every 12 months to provide the following:</u></b></p> <ul style="list-style-type: none"> <li>• Assess renal function for all patients</li> <li>• Chlamydia screening for heterosexually active women and men – vaginal, urine</li> <li>• For patients on F/TAF, assess weight, triglyceride and cholesterol levels</li> </ul> |  |

<sup>1</sup> adolescents weighing at least 35 kg (77 lb)

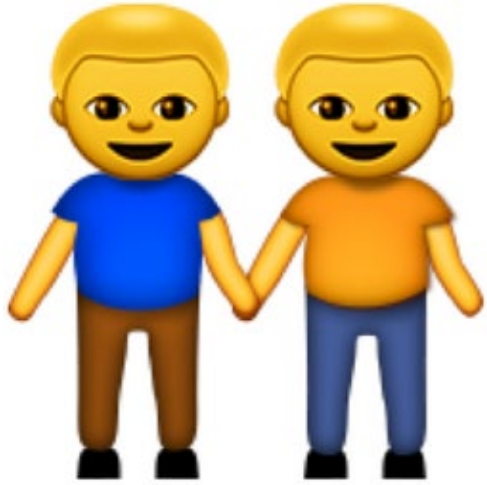
<sup>2</sup> Because most PWID are also sexually active, they should be assessed for sexual risk and provided the option of CAB for PrEP when indicated

<sup>3</sup> Sexually transmitted infection (STI): Gonorrhea, chlamydia, and syphilis for MSM and transgender women who have sex with men including those who inject drugs; Gonorrhea and syphilis for heterosexual women and men including persons who inject drugs

<sup>4</sup> estimated creatine clearance (eCrCl) by Cockcroft Gault formula  $\geq 60$  ml/min for F/TDF use,  $\geq 30$  ml/min for F/TAF use



# Risk Factors



Sexual partner with HIV

STI in the past 6 months

Multiple sex partners

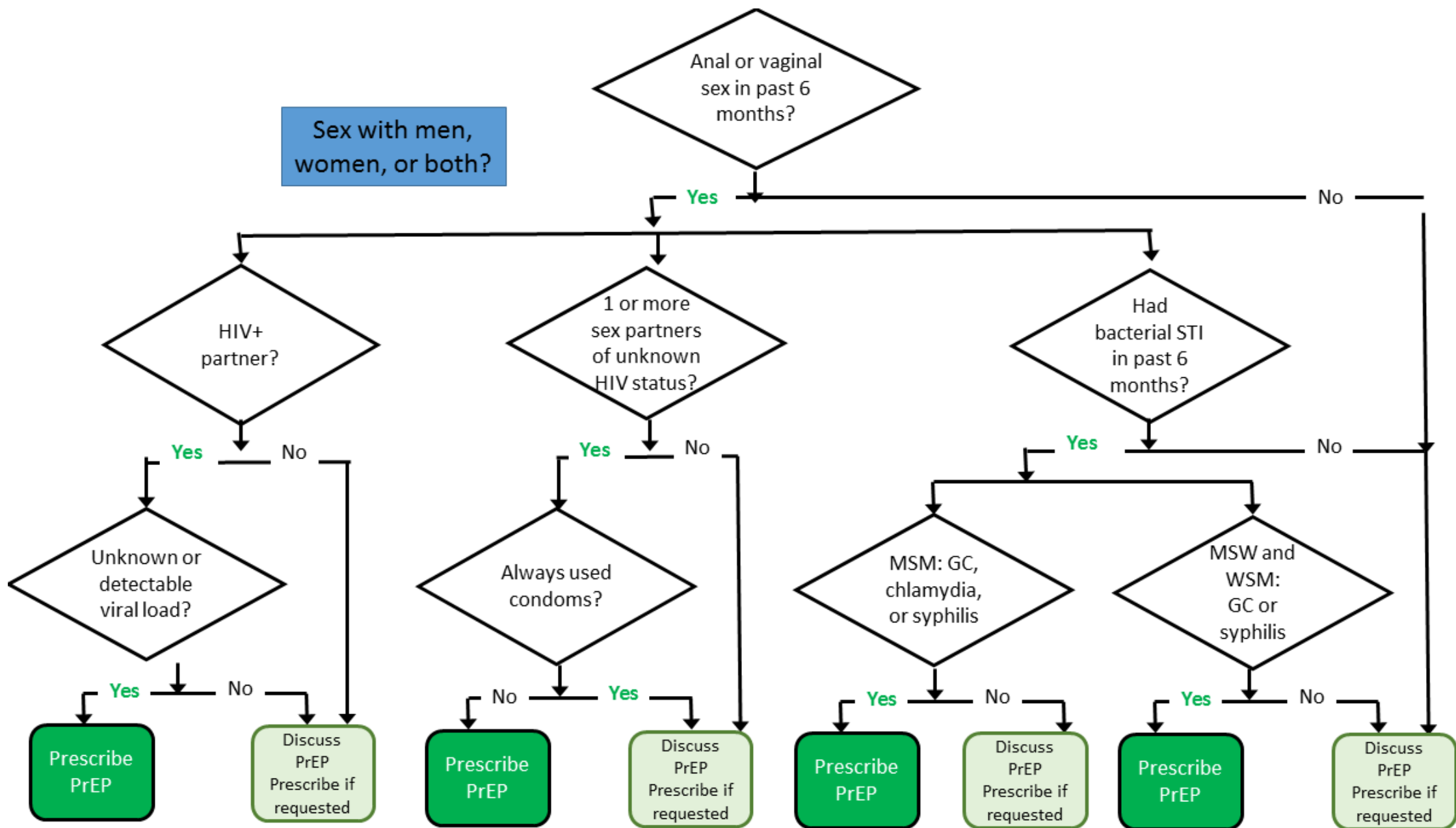
Inconsistent condom use

Needle sharing



Living in high prevalence area or network





Per the CDC:

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Prescribe PrEP to anyone who asks for it,  
including sexually active adults and  
adolescents who do not report HIV risk  
factors.

# PrEP regimens

## Daily oral PrEP (ongoing protection)

- Tenofovir disoproxil fumarate/emtricitabine (TDF/FTC, Truvada)
- Tenofovir alafenamide/emtricitabine (TAF/FTC, Descovy)

## On-demand oral PrEP (planned, intermittent protection)

- TDF/FTC

## Long-acting injectable PrEP (ongoing protection)

- Cabotegravir (Apretude)

# Truvada (TDF/FTC)

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Standard PrEP = ARV combination pill called Truvada:

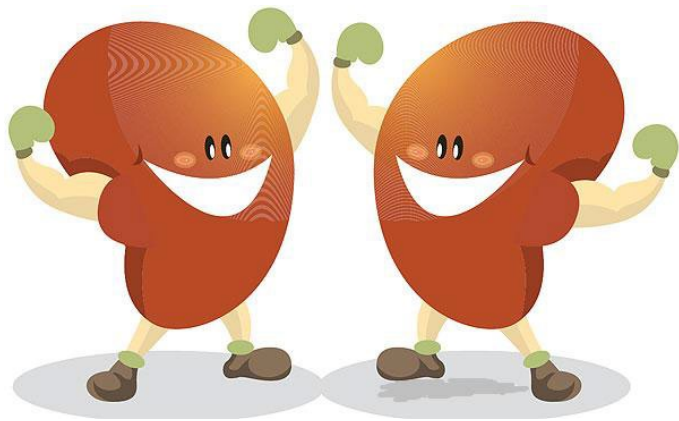
- tenofovir disoproxil fumarate (TDF) and emtricitabine (FTC)
- Reverse transcriptase inhibitors
- One pill taken daily
- Approved for use as PrEP in July 2012

**Approved for EVERYONE**



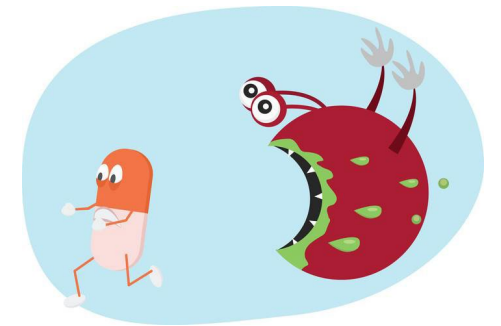
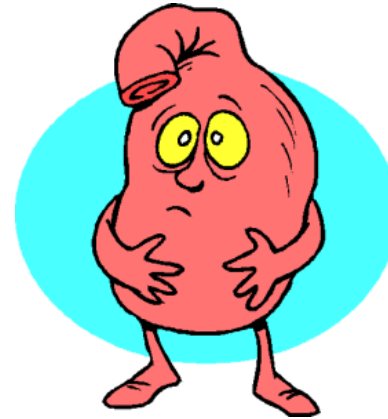
# Eligibility Criteria for TDF/FTC

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# Adverse Effects of TDF/FTC

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# Descovy (TAF/FTC)

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In Discover Study, newer pill Descovy (Tenofovir alafenamide/TAF + FTC) = non-inferior to TDF/FTC

- Approved for **MSM and transwomen** only
  - NOT cis-women
- Similar safety profile to TDF/FTC
- Less kidney toxicity, bone density loss
- Much more expensive (no generic)
- Increased weight and cholesterol
- Smaller pill

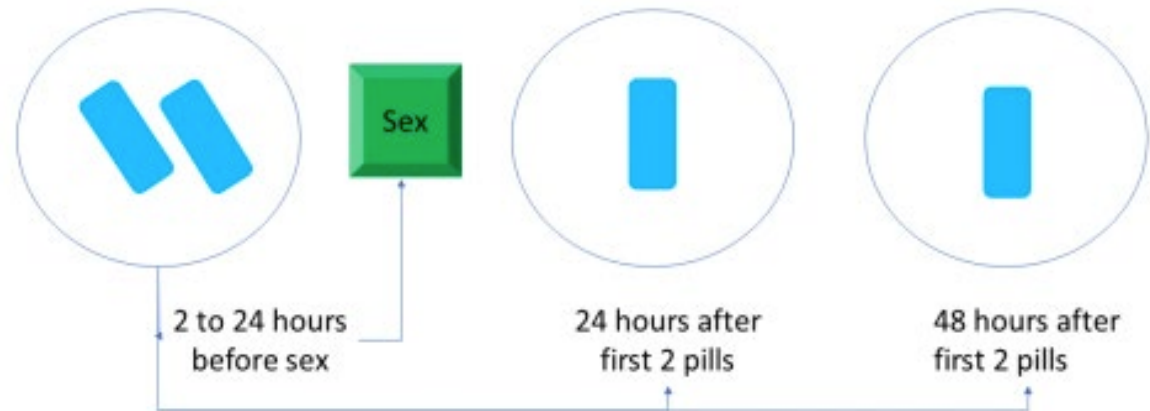
Still favor TDF/FTC over TAF/FTC in most situations





# On Demand PrEP (2-1-1)

- intermittent rather than daily dosing strategy for **TDF/FTC (Truvada)** in **MSM and TGW**
- take 2 pills 2-24hr before sex, 1 pill 24hr after the first 2 pills, then one pill another 24 hrs later
- Was shown to be efficacious in Ipergay study and Non inferior to daily TDF/FTC in Prevenir studies
- **Not FDA approved**
- **Not for use in Cis-Women**



\*Do NOT use with chronic active HBV\*



# Injectable PrEP

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Long Acting Injectable Cabotegravir (LAI CAB)

Integrase inhibitor

Approved for MSM, transgender women, and cisgender women

- In HPTN 083, MSM and transgender women had fewer infections than with TDF/FTC
- In HPTN 084, LAI CAB was superior to TDF/FTC in women

Extremely effective but if someone fails LAI CAB they can develop integrase resistance and Long-Acting Early Viral Inhibition (LEVI syndrome) which is problematic...

Breaking news: we will have another long acting injectable option in the next few years

|                     | TDF/FTC<br>(Truvada)<br>Daily | TAF/FTC<br>(Desovy)<br>Daily | TDF/FTC<br>(Truvada)<br>On Demand | Long-Acting<br>Injectable<br>Cabotegravir<br>(Apretude) |
|---------------------|-------------------------------|------------------------------|-----------------------------------|---|
| MSM and TGW         | Yes                           | Yes                          | Yes                               | Yes   |
| Cis-gender<br>women | Yes                           | No                           | No                                | Yes   |



Image from Fenway Health

# PrEP Drug Interactions are Few

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## TDF/FTC

- Adefovir
- (Ledipasvir, Velpatasvir)

## TAF/FTC

- St. John's Wart
- Rifampin (unless benefits outweigh risks)
- Rifabutin
- Rifapentine

## CAB

- Carbamazepine
- Oxcarbazepine
- Phenytoin
- Phenobarbital
- Rifampin
- Rifapentine
- Use caution with Rifabutin

\*\* Use University of Liverpool HIV Drug interactions checker: <https://www.hiv-druginteractions.org/>

## Q3-6 month visits

STI testing (triple site, syphilis, +/- yearly Hep C)

HIV Ag/Ab screening test and HIV RNA

Assess renal function q6 months

- can be spaced to yearly if young and otherwise healthy with no baseline kidney dysfunction

Discuss access to clean needles/syringes and drug treatment services for PWID

# When to refer to a specialist:

Hep B infection

Renal dysfunction

Patient interested in injectable cabotegravir

Any complicating factors

- If you are ever unsure, always ok to econsult (if available) or refer to ID clinic or PrEP clinic at the SCC!
- There is also a the NCCC which provides advice during business hours for all providers:



Submit a Case for Consultation

Send an NCCC clinician your case online.

**SUBMIT**

Call for a Phone Consultation

**(855) 448-7737 or (855) HIV-PrEP**


Monday – Friday, 9 a.m. – 8 p.m. ET

**CALL**

# Cost

- ✓ Much cheaper than it used to be, especially with generic TDF/FTC!
  - ✓ With GoodRx can be \$26 per month without insurance
- ✓ Should be covered by Medicaid and insurance under the ACA
- ✓ Gilead Medication Assistance Program
- ✓ Viiv Medication Assistance program
  - ✓ <https://www.viivconnect.com/>
- ✓ Gilead Co-pay card
- ✓ Ready Set PrEP Program
  - ✓ <http://www.getyourprep.com/>



A man with a serious expression is looking directly at the camera. He is positioned behind a spiderweb that fills the background, creating a sense of being trapped or looking through a barrier. The lighting is dramatic, with strong highlights and deep shadows.

PrEP SUPPORTS  
**YOUR  
FREEDOM  
TO BE  
POWERFUL.**

**TERRANCE WILDER,**  
PROGRAM COORDINATOR  
FOR THE DREAM PROJECT

**Enjoy the freedom to be powerful.  
Ask your healthcare professional about PrEP.**

PrEP is a once daily pill that can prevent HIV transmission. PrEP is more than 90% effective at reducing the risk of getting HIV when taken as directed.

PrEP is safe and effective but doesn't protect against other STDs. Condoms provide additional protection against HIV and prevent STDs.

To Learn More Visit  
**[www.AskAboutPrEP.org](http://www.AskAboutPrEP.org)**  
Text **"AskPrEP"** to 21333

*San Francisco*  
Department of Public Health

A 25yo cis gender male patient comes to an urgent appointment with you. He reports that he had receptive anal sex with a new partner last night and the condom broke. He doesn't know the HIV status of his partner and has no way of contacting him.

What do you tell him?

# Post-Exposure Prophylaxis (nPEP)



## nPEP

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PEP consists of 3 anti-retroviral agents given within 72hrs after a potential HIV exposure and continued for 28 days

PEP can be stopped if HIV status of source is known to be negative, or 28 days are reached

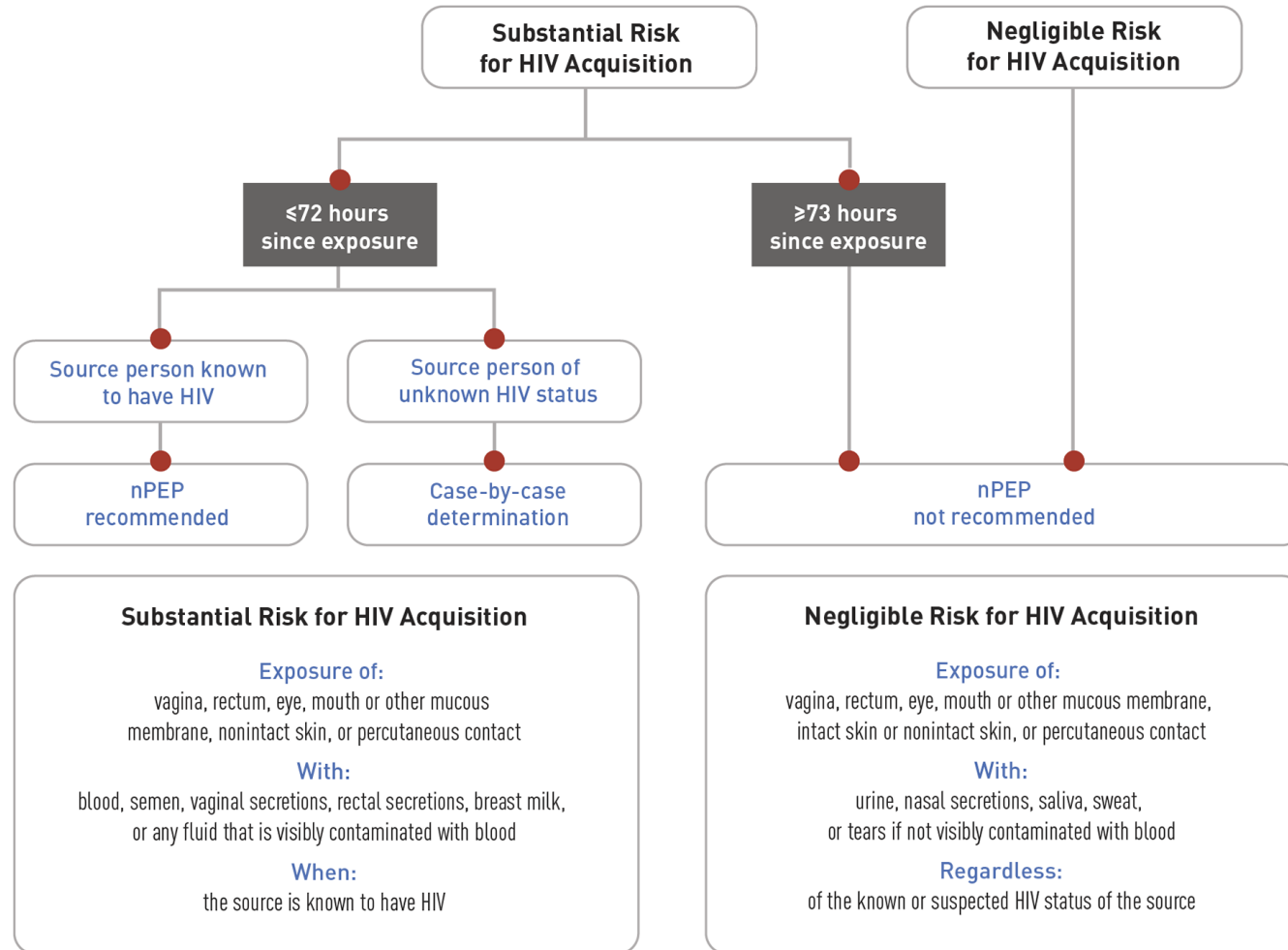
Baseline testing as well as HIV testing at 4-6 weeks and 12 weeks after exposure

Typical regimen

- TDF/FTC (Truvada) plus an integrase inhibitor, usually dolutegravir (DTG/Tivicay)

Don't forget to test for other STIs (and treat empirically if needed) as well as HCV, and assess HBV immunity status

# Algorithm for Evaluation and Treatment of Possible Nonoccupational HIV Exposures



# Take home points

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- HIV is still out there and our patients are at risk.
- Please test everyone for HIV, and more than once if they are having sex!
- U=U
- Testing and Treatment ARE prevention
- PrEP and PEP are effective ways to prevent HIV transmission.



# Additional Resources

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<https://www.hiv.gov>

<https://www.cdc.gov/hiv/pdf/risk/prep/cdc-hiv-prep-guidelines-2021.pdf>

<https://www.cdc.gov/hiv/default.html>

<http://www.who.int/hiv/en/>

<http://www.prepwatch.org>

<http://www.thewellproject.org>

<https://www.cdc.gov/stophivtogether/index.html>

<http://www.getyourprep.com/>

<https://www.hiv-druginteractions.org/checker>

<https://nccc.ucsf.edu/clinician-consultation/prep-pre-exposure-prophylaxis/>