

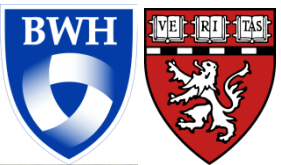
HIV Disease: An Overview

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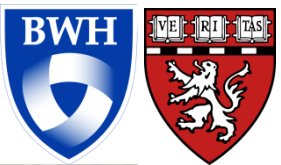
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- University of California at San Francisco Medical School
- Internal Medicine residency at BWH
- Infectious Disease Fellowship at MGH/BWH
- HIV Subspecialty Fellowship at BWH
- Assistant Professor of Medicine at HMS
 - Clinical Director of Ambulatory Services for Infectious Disease at BWH
 - Research in vaccines, including HIV vaccines

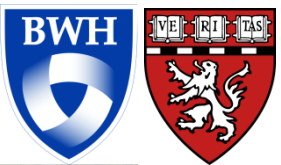


No financial disclosures

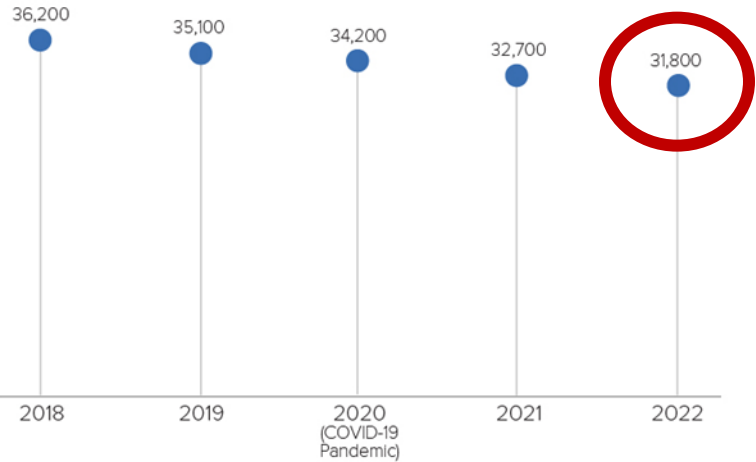


What's coming:

- Current epidemiology of the HIV epidemic and public health goals
- Current state of HIV testing
- Current recommendations for initial antiretroviral therapy (ART)
- Approach to complications of HIV, aging with HIV
- Current approaches to HIV prevention



Progress in HIV prevention continues with an overall 12% decline in estimated HIV infections from 2018 to 2022.

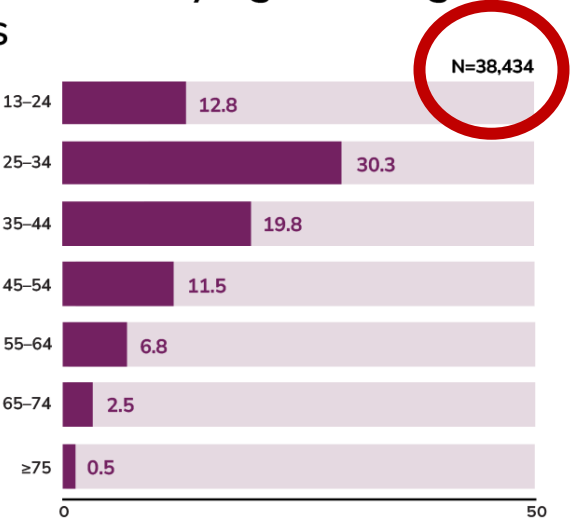


Ending
the
HIV
Epidemic

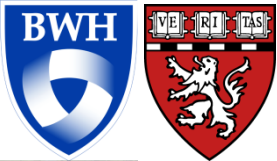
Overall Goal: Decrease the estimated number of new HIV infections to 9,300 by 2025 and 3,000 by 2030.



HIV diagnosis rates, by age at diagnosis, 2024–United States

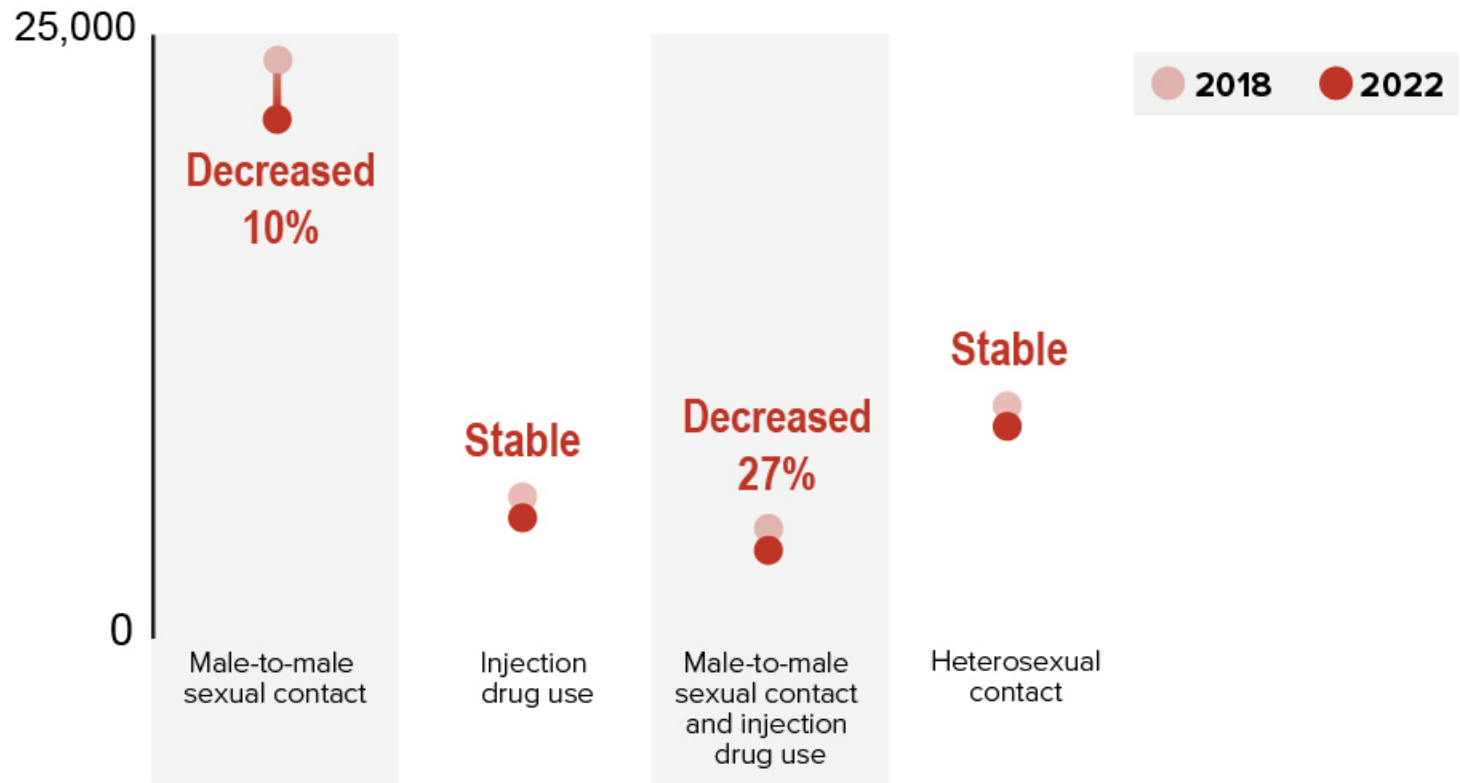


Note. Data are presented for persons aged ≥13 years at diagnosis. Rates are per 100,000.



<https://www.cdc.gov/hiv/statistics/overview/ata glance.html>

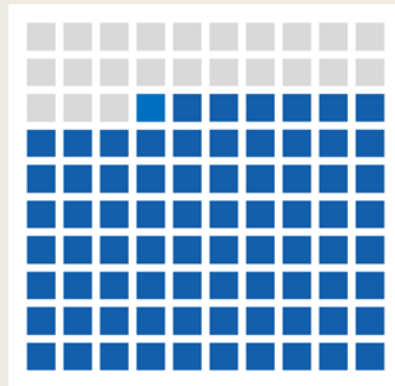
While estimated infections attributed to male-to-male sexual contact[‡] accounted for most (67%) of incidence in 2022, recent data show a 10% decrease in 2022 compared with 2018.



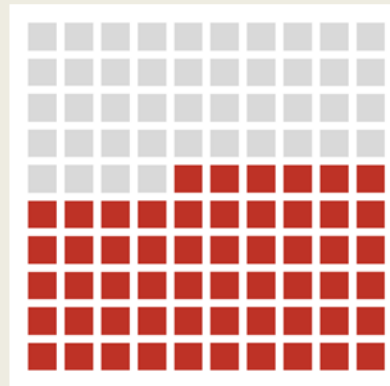
HIV care continuum, 2024—United States

Estimated ~ 1.1 million patients living with HIV in the US in 2024

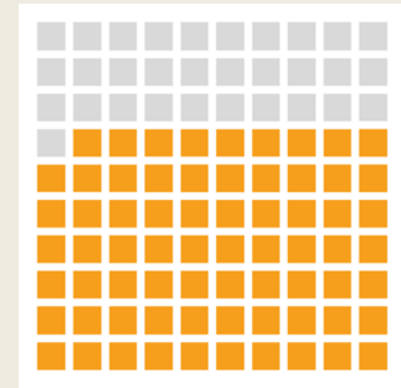
In 2024, for every 100 people living with diagnosed HIV in the United States



77
received
some HIV care



56
were retained
in care

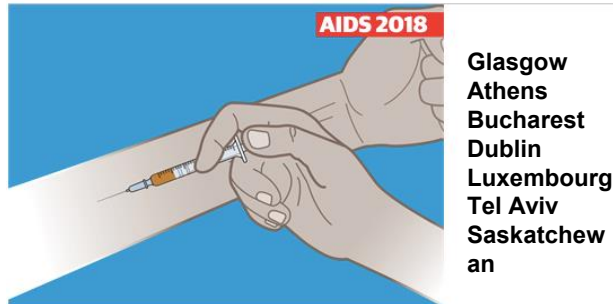


69
were virally
suppressed

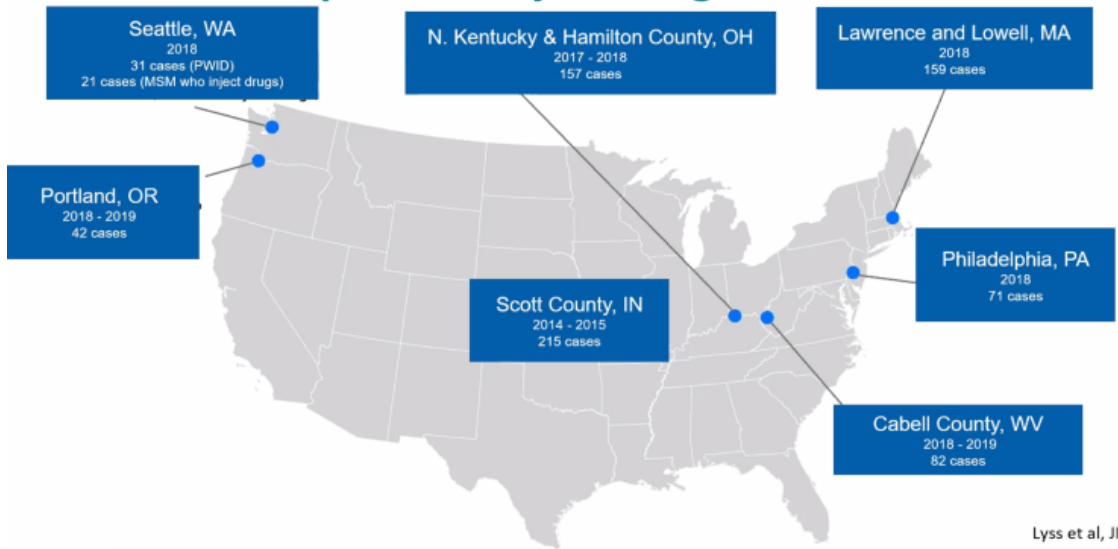
Note. Data are presented for persons aged ≥ 13 years.



Series of HIV outbreaks in people who inject drugs shows that 'complacency is the new problem'



Increased HIV Outbreaks among People Who Inject Drugs, 2014 - 2019



Penobscot County HIV outbreak reaches 40 confirmed cases

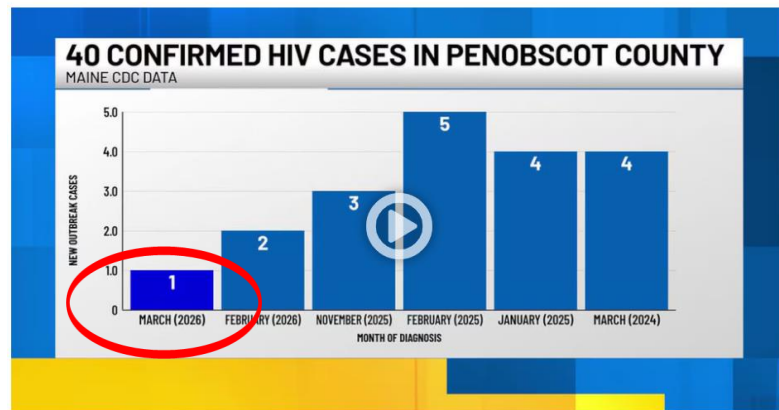
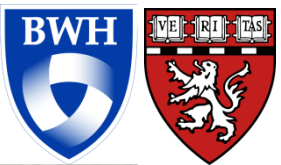
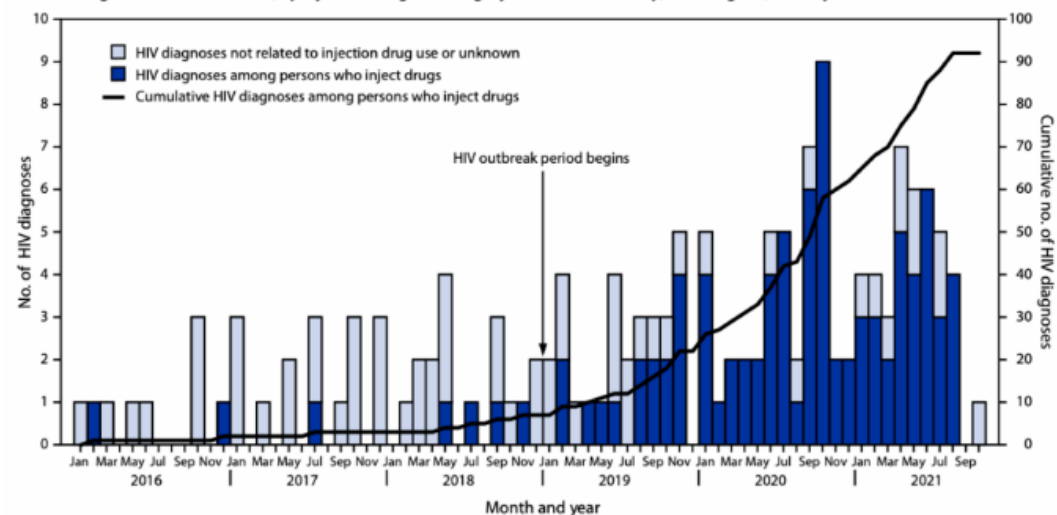
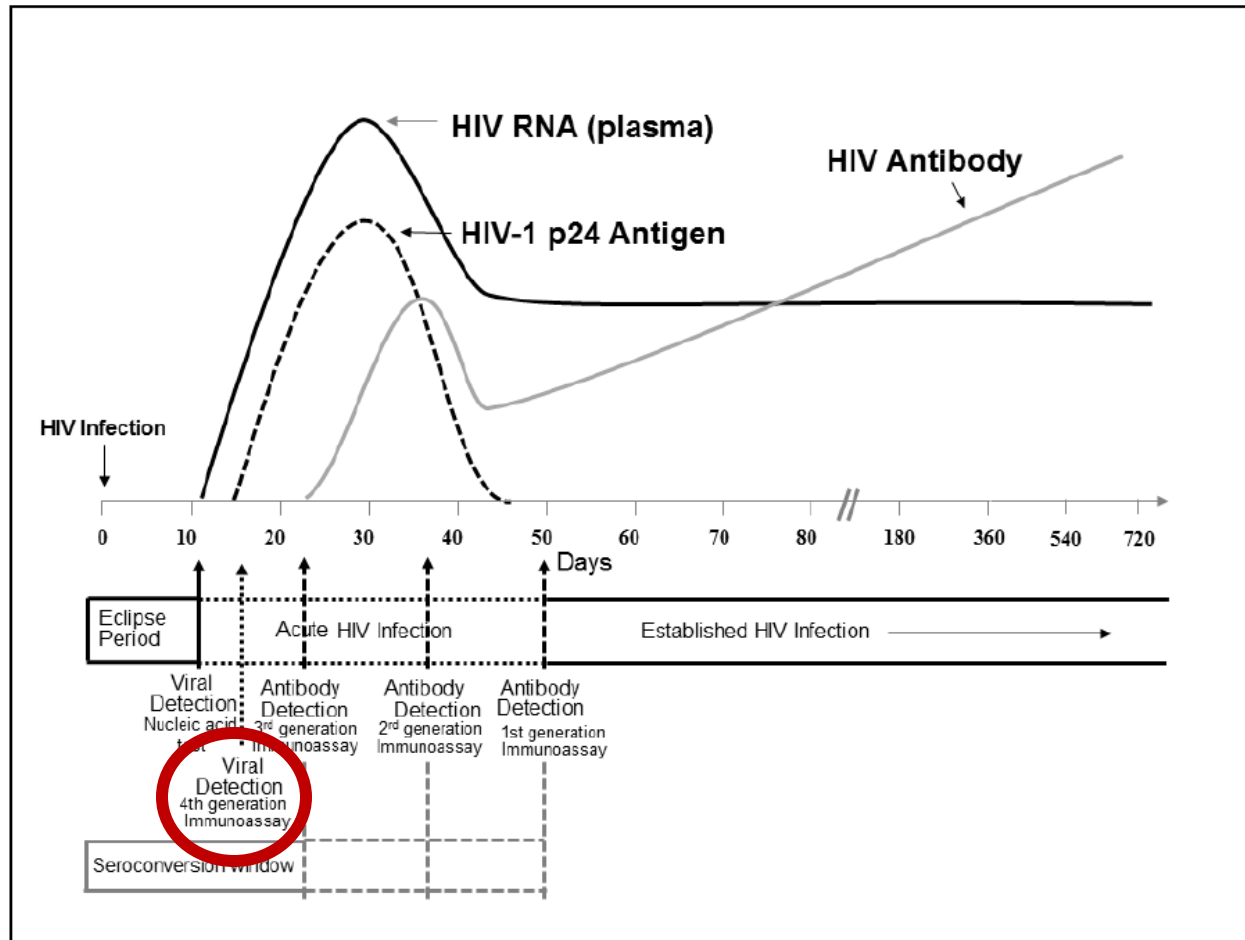


FIGURE. Diagnoses of HIV infection, by injection drug use category — Kanawha County, West Virginia, January 2016–October 2021



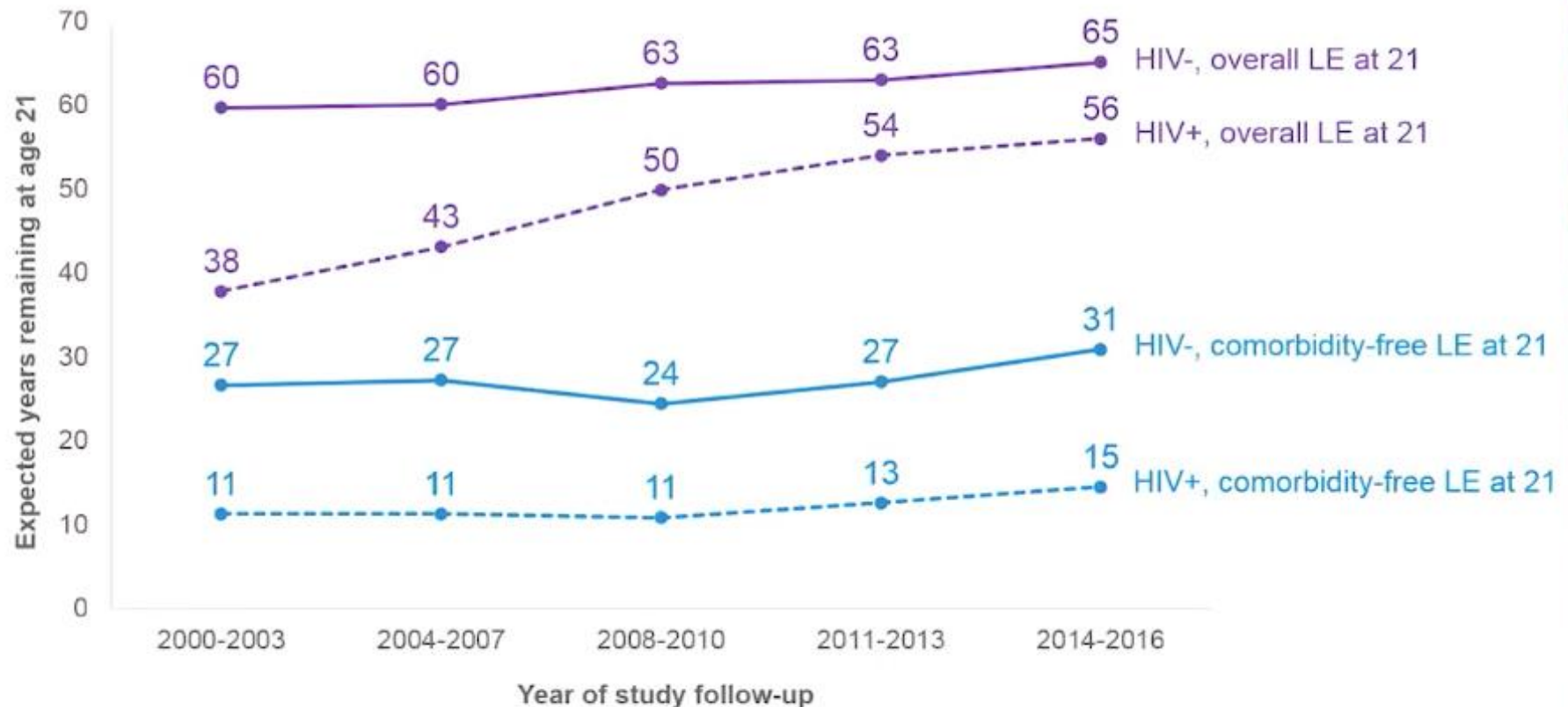
HIV Diagnosis

Figure 1. Sequence of appearance of laboratory markers for HIV-1 infection



Note. Units for vertical axis are not noted because their magnitude differs for RNA, p24 antigen, and antibody. Modified from MP Busch, GA Satten (1997)⁵⁰ with updated data from Fiebig (2003),⁴⁸ Owen (2008),⁴⁹ and Masciotra (2011, 2013).^{46,66}

Narrowing gap in **overall** but not **comorbidity-free** life expectancy by HIV status

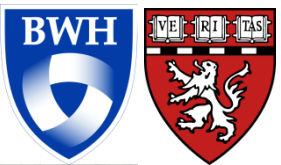


CROI 2020

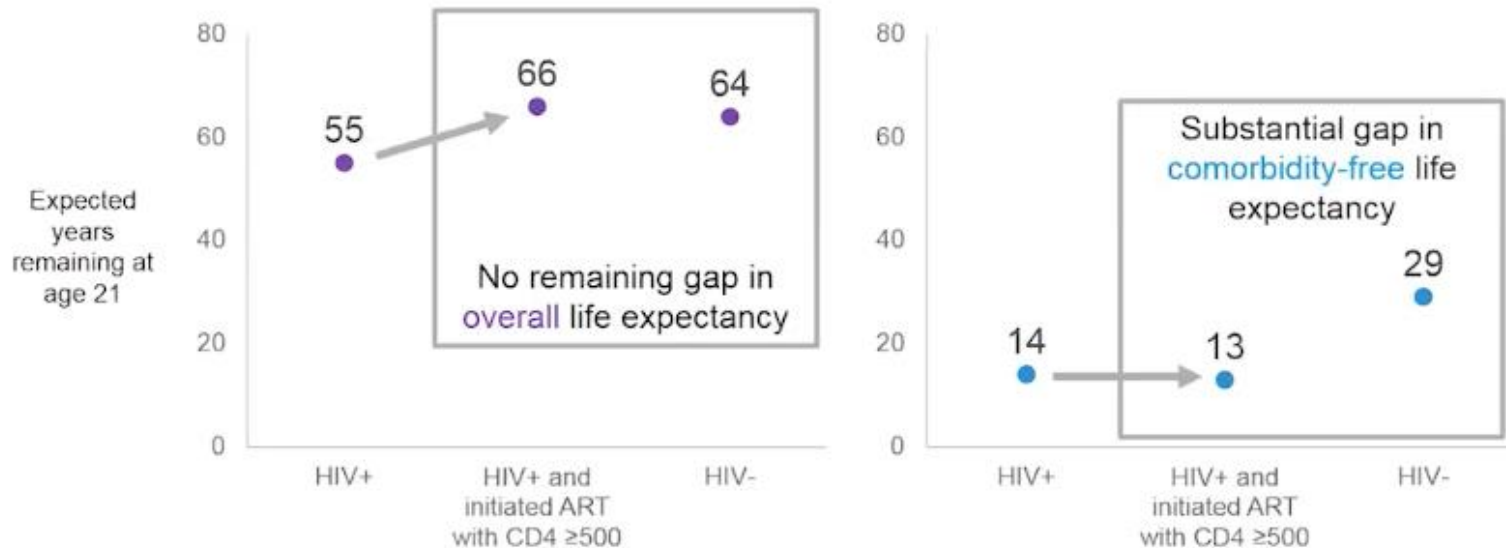
For live Q & A at the end of the session, please email Questions to: CROIroom310@gmail.com

Marcus JL, Leyden W, Anderson AN, et al. Increased overall life expectancy but not comorbidity-free years for people with HIV. Conference on Retroviruses and Opportunistic Infections (CROI). March 8-11, 2020. Boston. Abstract 151.

http://www.natap.org/2020/CROI/croi_134.htm



Overall and comorbidity-free life expectancy for PWH who initiated ART with CD4 ≥ 500 , 2011-2016



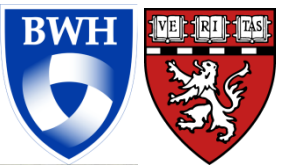
For PWH who initiated ART with CD4 ≥ 500 , improved **comorbidity-free** life expectancy for **cancer** and **cardiovascular disease** but not diabetes or liver, kidney, or lung disease

CROI 2020

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Case 1

26yo man clinic visit for new HIV diagnosis. 2 weeks prior had STI testing for rectal discharge, + gonorrhea by NAAT on rectal swab, and HIV screening same day was positive. Received IM ceftriaxone, drew more labs: CD4 470, HIV-1 VL 12,743, no resistance mutations. Syphilis serology, HCV Ab and HBsAg all negative. Which of the following would be appropriate?

- A. Initiate antiretroviral therapy with tenofovir/emtricitabine/bictegravir
- B. Initiate sulfamethoxazole/trimethoprim daily for prophylaxis and to ensure medication adherence, return in 6 months to discuss ART
- C. Initiate post-exposure prophylaxis with tenofovir/emtricitabine/raltegravir for 28 day course
- D. No medications, follow-up in 12 months for repeat bloodwork

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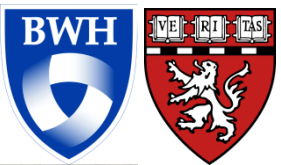
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Case 1 – answer explanation

- **A) All HIV-positive patients should be offered ART. In this case his CD4 cell count is > 350 so not immediate risk of opportunistic infections, but evidence supports benefits of initiation of ART even at high CD4 cell count, and risks of drug resistance and ART-toxicities are low with current treatments. From public health perspective this also decreases his risk of transmission to others.**
- B) SMX/TMP prophylaxis for PCP not necessary or of benefit at CD4 count > 200 , and there is no evidence to support test of adherence prior to initiation of ART
- C) Patient already has documented HIV infection, too late for PEP
- D) 12 months is too long to wait for follow-up, even for patient who elects not to start ART immediately.

Who should be treated with ART?

ALL HIV-POSITIVE PERSONS



How urgently should ART be initiated?

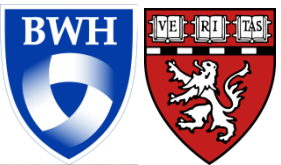
Urgently

- For those with risk of AIDS-related complications
 - $CD4 < 200-350$
 - Current opportunistic infection (OI) – start within 2 weeks
- For pregnant women or others at high risk of transmission
- (Acute HIV)
- Hep B or hep C coinfection
- If any HIV-related complications
 - HIV Associated Neurocognitive Disorder (HAND)
 - HIV Associated Nephropathy (HIVAN)

There's time to breath

- $CD4 > 500$, asymptomatic, not pregnant

Patients starting ART should ideally be willing and able to commit to lifelong treatment; for stable patients clinicians may postpone therapy if needed to manage problems that may interfere with medication adherence (eg. Psychiatric, substance abuse...).



What ART to start?

First-line regimens:

- 1 integrase inhibitor (INSTI) – bictegravir or dolutegravir

+

- 1-2 nucleos(t)ide reverse transcription inhibitor(s) (NRTI):
 - TAF + FTC
 - TAF or TDF or ABC + 3TC
 - 3TC alone - except if HIV RNA >500,000, HBV coinfection, or without HIV resistance testing
- If prior INSTI exposure (cabotegravir for PrEP) then pre-tx resistance testing or use boosted-PI based regimen (darunavir/cobicistat/TAF/FTC)

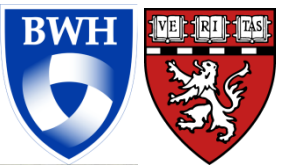


Table 6a. Recommended Initial Regimens for Most People With HIV

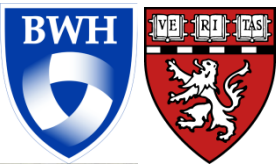
Recommended regimens are those with demonstrated durable virologic efficacy, favorable tolerability and toxicity profiles, and ease of use. Choice of ART during pregnancy should be guided by recommendations from the Perinatal Guidelines.

For people who do not have a history of using CAB-LA as PrEP, one of the following regimens is recommended^a:

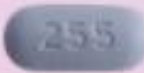
- BIC/TAF/FTC **(AI)**
- DTG plus (TAF or TDF)^b plus (FTC or 3TC) **(AI)**
- DTG/3TC **(AI)**, except for individuals with HIV RNA >500,000 copies/mL, HBV coinfection, or in whom ART is to be started before the results of HIV genotypic resistance testing for reverse transcriptase or HBV testing are available.

For people who have a history of CAB-LA use as PrEP, INSTI genotype resistance testing should be performed before starting ART. If ART is to be started before results of genotypic testing results, the following regimen is recommended:

- DRV/c^c or DRV/r with (TAF or TDF)^b plus (FTC or 3TC)—pending the results of the genotype test **(AIII)**



Single tablet regimens

Single-Tablet Regimens						Long-Acting Injectable Regimens
Atripla⁺ (EFV/TDF/FTC) 	Biktarvy (BIC/TAF/FTC) 	Complera (RPV/TDF/FTC) 	Delstrigo (DOR/TDF/3TC) 	Dovato (DTG/3TC) 	Genvoya (EVG/COBI/TAF/FTC) 	Cabenuva (CAB/RPV) 
Juluca (DTG/RPV) 	Odefsey (RPV/TAF/FTC) 	Stribild (EVG/COBI/TDF/FTC) 	Symtuza (DRV/COBI/TAF/FTC) 	Triumeq (DTG/ABC/3TC) 		

So many antiretroviral agents/formulations...

ATRIPLA*
efavirenz + tenofovir disoproxil fumarate + emtricitabine
One tablet once a day. Each tablet contains 600 mg efavirenz + 300 mg tenofovir disoproxil fumarate + 200 mg emtricitabine. Take on an empty stomach. Dose should be taken at bedtime to minimize dizziness, drowsiness and impaired concentration.

BIKTARVY
bictegravir + tenofovir alafenamide + emtricitabine
One tablet once a day. Each tablet contains 50 mg bictegravir + 25 mg tenofovir alafenamide + 200 mg emtricitabine. Take with or without food.

CABENUVA
cabotegravir + rilpivirine
A long-acting injectable regimen administered as two intramuscular injections every four weeks or eight weeks. A one-month lead-in period with Vocabria (cabotegravir) + Edurant (rilpivirine) pills is optional. Take with food.

COMPLERA
rilpivirine + tenofovir disoproxil fumarate + emtricitabine
One tablet once a day. Each tablet contains 25 mg rilpivirine + 300 mg tenofovir disoproxil fumarate + 200 mg emtricitabine. Take with a meal.

DELSTRIGO
dorzavirine + tenofovir disoproxil fumarate + lamivudine
One tablet once a day. Each tablet contains 100 mg dorzavirine + 300 mg tenofovir disoproxil fumarate + 300 mg lamivudine. Take with or without food.

DOVATO
dolutegravir + lamivudine
One tablet once a day. Each tablet contains 50 mg dolutegravir + 300 mg lamivudine. Take with or without food.

GENVOYA
elvitegravir + cobicistat + tenofovir alafenamide + emtricitabine
One tablet once a day. Each tablet contains 150 mg elvitegravir

CIMDUO
tenofovir disoproxil fumarate + lamivudine
One tablet once a day. Each tablet contains 300 mg tenofovir disoproxil fumarate + 300 mg lamivudine. Take with or without food.

DESCOXY
tenofovir alafenamide + emtricitabine
One tablet once a day. Each tablet contains 25 mg tenofovir alafenamide + 200 mg emtricitabine. Take with or without food.

EMTRIVA*
emtricitabine (also known as FTC)
One 200 mg capsule once a day. Take with or without food.

EPIVIR*
lamivudine (also known as 3TC)
One 300 mg tablet once a day, or one 150 mg tablet twice a day. Take with or without food. Also approved for the treatment of hepatitis B virus but at a lower dose. People living with both viruses should use the HIV dose.

EPZICOM*
abacavir + lamivudine
One tablet once a day. Each tablet contains 600 mg abacavir + 300 mg lamivudine. Take with or without food. Should be used only by individuals who are HLA-B*57:01 negative.

TEMIXYS
tenofovir disoproxil fumarate + lamivudine
One tablet once a day. Each tablet contains 300 mg tenofovir disoproxil fumarate + 300 mg lamivudine. Take with or without food.

TRUVADA*
tenofovir disoproxil fumarate + emtricitabine
One tablet once a day. Each tablet contains 300 mg tenofovir disoproxil fumarate + 200 mg emtricitabine. Take with or without food.

VIREAD*
tenofovir disoproxil fumarate
One 300 mg tablet once a day. Take with or without food.

ZIAGEN*
abacavir
One 300 mg tablet twice a day, or two 300 mg tablets once a day. Take with or without food. Should be used only by individuals who are HLA-B*57:01 negative.

EVOTAZ
atazanavir + cobicistat
One tablet once a day. Each tablet contains 300 mg atazanavir + 150 mg cobicistat. Take with food.

KALETRA*
lopinavir + ritonavir
Two tablets twice a day, or four tablets once a day, depending on HIV drug resistance. Each tablet contains 200 mg lopinavir + 50 mg ritonavir. Take with or without food.

PREZCOBIX
darunavir + cobicistat
One tablet once a day. Each tablet contains 800 mg darunavir + 150 mg cobicistat. Take with food.

PREZISTA
darunavir
One 800 mg tablet, or two 400 mg tablets plus one 100 mg tablet once a day, or one 600 mg tablet plus one 100 mg tablet twice a day, depending on drug resistance. Take with food.

REYATAZ*
atazanavir
Two 200 mg capsules once a day, or one 300 mg capsule or one 100 mg Norvir tablet once a day. Take with food.

ISENTRESS
raltegravir
Two 400 mg Isentress HD tablets (shown) once a day, or for those who have not used an integrase inhibitor on an initial regimen of Isentress. One 400 mg Isentress twice daily for people with HIV treatment experience with or without food.

TIVICAY
dolutegravir
One 50 mg tablet once a day for those first starting ART or for those who have not used an integrase inhibitor in the past. One 50 mg tablet twice a day for people with experience who have HIV that is resistant to other integrase inhibitors and when taken with certain ARVs. Take with or without food.

VOCABRIA
cabotegravir
One 30 mg tablet taken once a day with once-daily Edurant as an optional lead-in regimen before switching to Cabenuva injections or for short-term treatment. Take with food.

JULUCA
dolutegravir + rilpivirine
One tablet once a day. Each tablet contains 50 mg dolutegravir + 25 mg rilpivirine. Take with a meal.

ODEFSEY
rilpivirine + tenofovir alafenamide + emtricitabine
One tablet once a day. Each tablet contains 25 mg rilpivirine + 25 mg tenofovir alafenamide + 200 mg emtricitabine. Take with a meal.

STRIBILD
elvitegravir + cobicistat + tenofovir disoproxil fumarate + emtricitabine
One tablet once a day. Each tablet contains 150 mg elvitegravir + 150 mg cobicistat + 300 mg tenofovir disoproxil fumarate + 200 mg emtricitabine. Take with food.

SYMFI AND SYMFI LO
efavirenz + tenofovir disoproxil fumarate + lamivudine
One tablet of either Symfi or Symfi Lo once a day. Each tablet of Symfi contains 600 mg efavirenz + 300 mg tenofovir disoproxil fumarate + 300 mg lamivudine. Each tablet of Symfi Lo (shown) contains 400 mg efavirenz + 300 mg tenofovir disoproxil fumarate + 300 mg lamivudine. Take on an empty stomach. Dose should be taken at bedtime to minimize dizziness, drowsiness and impaired concentration.

SYM TUZA
darunavir + cobicistat + tenofovir alafenamide + emtricitabine
One tablet once a day. Each tablet contains 800 mg darunavir + 150 mg cobicistat + 10 mg tenofovir alafenamide + 200 mg emtricitabine. Take with food.

TRIUMEQ
dolutegravir + abacavir + lamivudine
One tablet once a day. Each tablet contains 50 mg dolutegravir + 600 mg abacavir + 300 mg lamivudine. Take with or without food. Should be used only by individuals who are HLA-B*57:01 negative.

EDURANT
rilpivirine
One 25 mg tablet once a day. Take with food.

INTELENCE
etravirine
One 200 mg tablet twice a day. Take with food.

PIFELTRO
dorzavirine
One 100 mg tablet once a day. Take with or without food.

SUSTIVA*
efavirenz
One 600 mg tablet (shown) once a day, or three 200 mg capsules once a day. Take on an empty stomach or with a low-fat snack. Dose should be taken at bedtime to minimize dizziness, drowsiness and impaired concentration.

RUKOBIA
fostemsavir
One 600 mg tablet twice a day for people with HIV treatment experience. Take with or without food.

SELZENTRY
maraviroc
One 150 mg, 300 mg (shown) or 600 mg tablet twice a day, depending on other meds used, for people with HIV treatment experience. Take with or without food.

TROGARZO
ibalizumab
A long-acting injectable administered intravenously as a single loading dose of 2,000 mg followed by a maintenance dose of 800 mg every two weeks for people with HIV treatment experience.

NORVIR*
ritonavir
Norvir is usually taken to boost the levels of other ARVs in the blood. Take with food.

TYBOST
cobicistat
One 150 mg tablet once a day in combination with ARVs that require boosting. Used only to boost other drugs. Take with food.

SUNLENCA
tenacapavir
Sunlenca tablets are taken as a loading dose, with injections once every six months thereafter. Take with or without food.

These antiretroviral medications are rarely prescribed and no longer recommended:

APTIVUS
tipranavir

COMBIVIR*
zidovudine + lamivudine

CRIXIVAN
indinavir

FUZEON
enfuvirtide

INVRASE
saquinavir

LEXIVA
fosamprenavir

RETROVIR*
zidovudine (AZT)

TRIZIVIR
abacavir + zidovudine + lamivudine

VIRACEPT
neftrape

VIRAMUNE
nevirapine

ZERIT
stavudine (d4T)

Visit poz.com/drugchart-prevention for a list of ARV options to prevent HIV.

Long-Acting Cabotegravir and Rilpivirine for HIV-1

PHASE 3, OPEN-LABEL, MULTICENTER, RANDOMIZED TRIAL

616

Participants receiving
antiretroviral therapy
without virologic failure

Long-acting therapy
(cabotegravir and rilpivirine
intramuscular injections
every 4 wk)



(N=308)

Current oral therapy



(N=308)

**HIV-1 RNA
≥50 copies/ml
at 48 wk**

1.6%

1.0%

Adjusted difference, 0.6 percentage points; 95% CI, -1.2 to 2.5

83% of participants who received long-acting therapy reported injection-site reactions

A few selected drug interactions

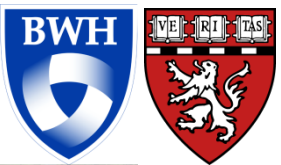
- Tenofovir alafenamide – lower risk of nephrotoxicity and osteopenia than with TDF
- Oral rilpivirine – requires fatty meal for optimal absorption, not absorbed well in presence of any antacids (H2B, PPI, etc)

The screenshot shows a web application for drug interactions. At the top is a navigation bar with tabs: Home, Drug Interactions (selected), IV Compatibility, Drug ID, Drug Comparison, CareNotes, and Tox & D Product. Below the navigation bar is the title 'Drug Interactions'. A search instruction reads: 'Type the drug name (brand or generic) in the search field. Select the drug and click the (Add) button.' There is a search input field with the placeholder 'Enter search term:'. Below the input field, it says 'Matching drug names: (4967)'. A list of drug names is shown, starting with 'A & D' and 'A & D Jr.'. To the right of the list is a 'Drugs to check:' box with an 'Add Allergies' button. At the bottom, there are 'Clear' and 'Submit' buttons. A small note at the bottom reads: 'Capitalized item with asterisk (*) indicates allergy.'

- Ritonavir and cobicistat – potent CYP 450 inhibitors, interact with **MANY** medications

Dolutegravir at conception

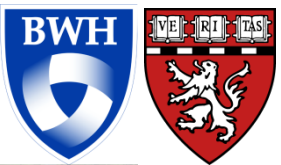
- Data from Botswana presented at IAS 2018 showed increased neural tube defects (0.95%) with dolutegravir exposure in first trimester
- Subsequent data presented at IAS 2019 showed risk of neural tube defects is much lower than initially thought (0.67%)
- Follow-up data and review of limitations (lack of folate fortification) in these data alleviated concerns regarding dolutegravir – **now recommended as first-line therapy including during pregnancy**



Zash R, et al. *N Engl J Med*. 2018 Sep 6;379(10):979-981
Zash R, et al. *N Engl J Med*. 2019; Jul 22

Treatment failure

- Assess adherence (discuss with patient, call pharmacy, review viral load trend)
- Assess drug-drug interactions
- Drug resistance testing:
 - HIV genotype (with integrase resistance testing)
- New regimen should include ideally 3 active agents



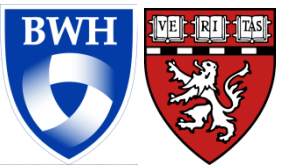
Complications of HIV

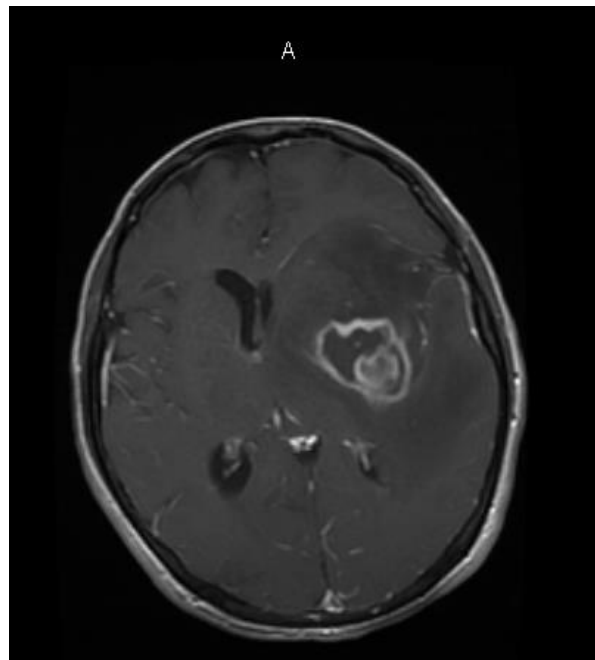
On ART and Off ART

- **Cardiovascular disease**
- Malignancies (lung, anal, oropharyngeal, liver, skin)
- Toxicities of ART: bone demineralization (TDF), renal toxicity (TDF), metabolic syndrome

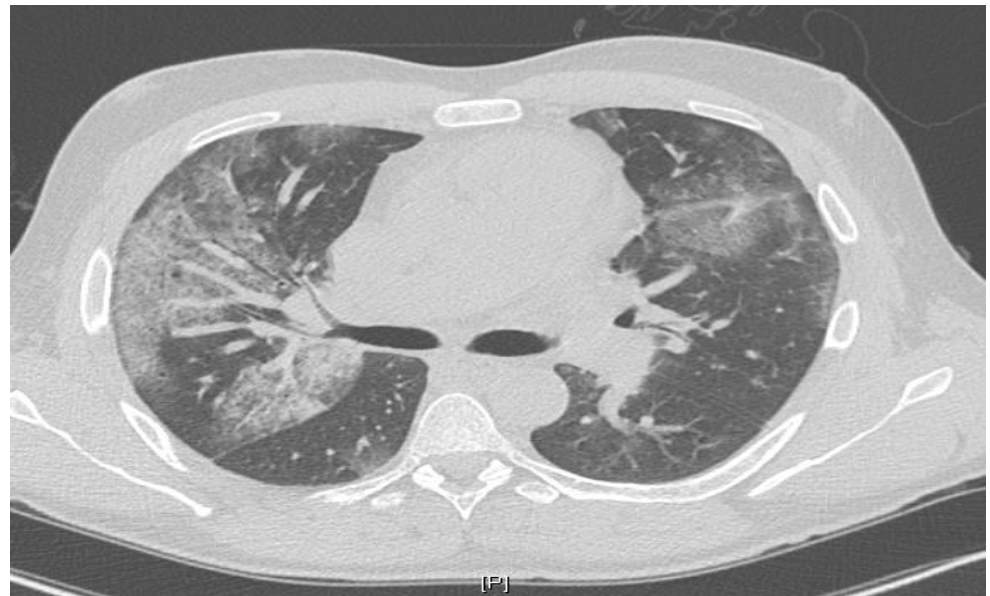
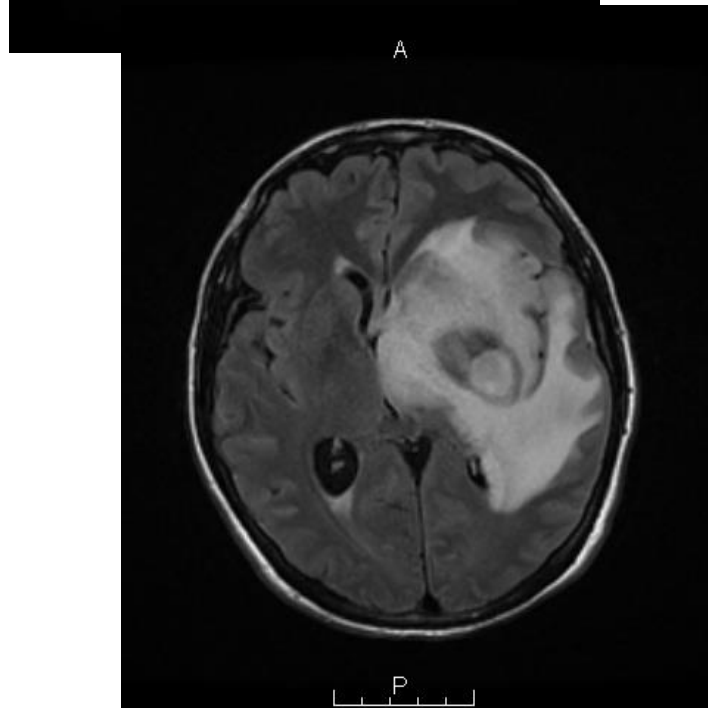
Off ART

- Opportunistic infections (PCP, MAI, cryptococcal meningitis, toxoplasmosis)
- Malignancies (Kaposi's sarcoma, non-Hodgkin lymphoma)
- HIV-associated dementia (HAD)



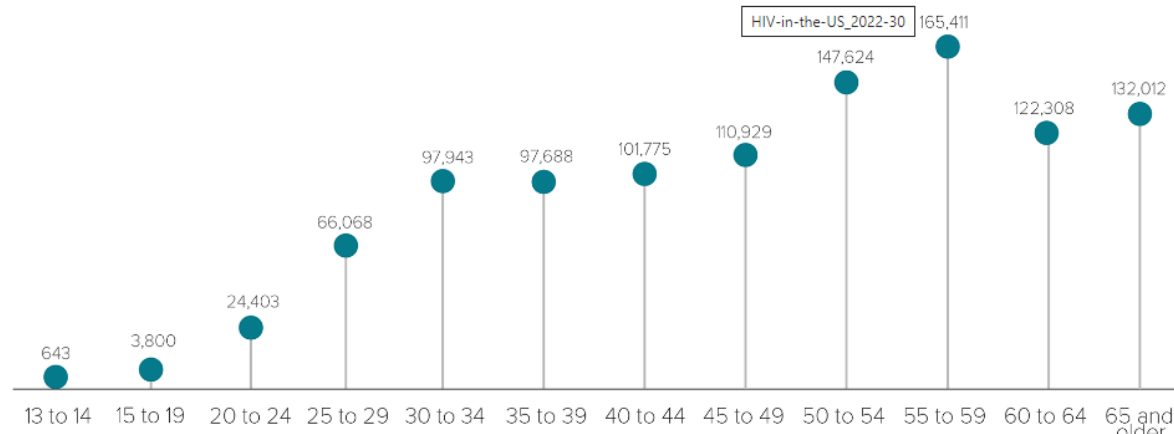


CD4 count	Opportunistic Infections
Any CD4	TB, bacterial pneumonia, other STIs
< 200	Pneumocystis pneumonia, candidal infections
< 100	Toxoplasma encephalitis
< 50	CMV infections, disseminated MAI, cryptococcal meningitis

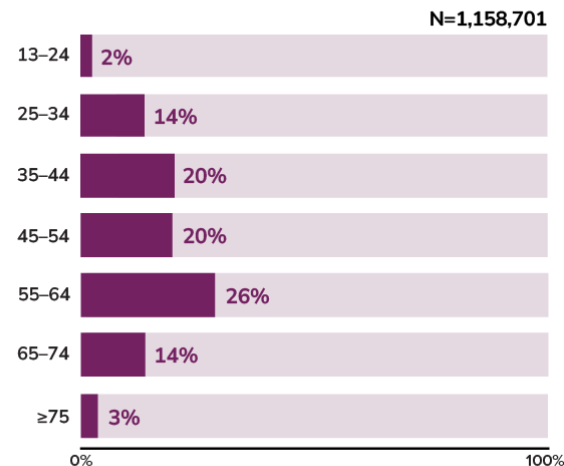


People with Diagnosed HIV in the US and Dependent Areas by Age, 2020

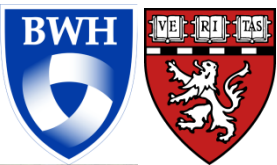
People with diagnosed HIV are living longer, healthier lives because of effective HIV treatment.
At the end of 2020, over half of people with diagnosed HIV were aged 50 and older.



Persons living with diagnosed HIV (prevalence) by age, 2024–United States and 7 territories and freely associated states



Note. Data are presented for persons aged ≥13 years at year-end 2024.



Case 2

22yo man, generally healthy, MSM, presents for evaluation of rash and fever. Found to have secondary syphilis with RPR 1:128.

Treated with IM penicillin. In discussion reports > 6 sex partners in last 6 months, 50% condom use. Interested in HIV risk reduction, including PrEP. The next best steps are:

- A. Initiate tenofovir/emtricitabine today, return in 3 mo for HIV test
- B. HIV Ag/Ab and HIV viral load (RNA) today, initiate tenofovir/emtricitabine/raltegravir x 28 days for PEP then transition to tenofovir/emtricitabine for PrEP
- C. HIV Ag/Ab and HIV RNA today, initiate tenofovir/emtricitabine if HIV-negative, return in 3 months for repeat HIV test
- D. HIV Ag/Ab and HIV RNA today, risk reduction counseling and condoms for now, return in 3 months to start PrEP if still interested

Case 2

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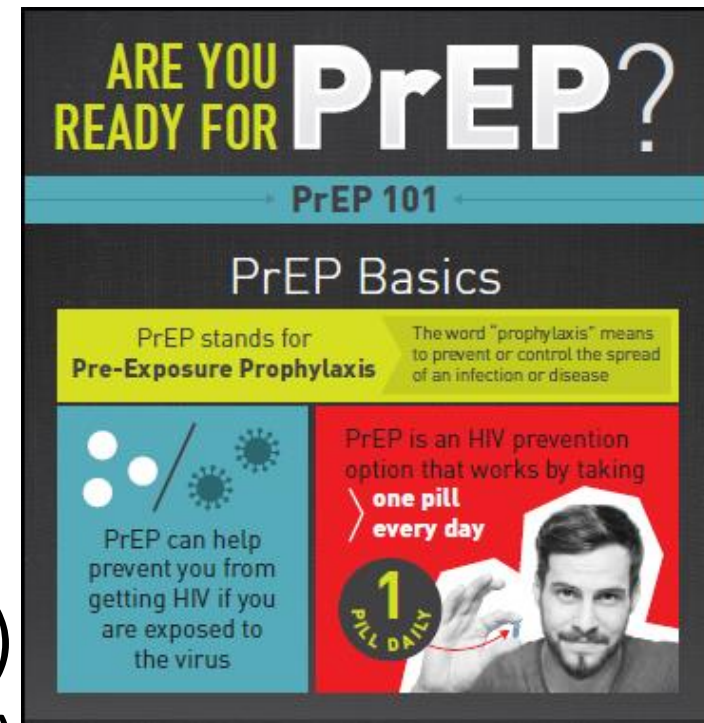
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- C. HIV Ag/Ab and HIV RNA today, initiate tenofovir/emtricitabine if HIV-negative, return in 3 months for repeat HIV test**
- D. HIV Ag/Ab and HIV RNA today, risk reduction counseling and condoms for now, return in 3 months to start PrEP if still interested

Case 2

- **C) Baseline HIV test is critical to confirm patients starting PrEP are not already infected with HIV. Other routine baseline bloodwork and STI screening is also important. Once these are reviewed and HIV-negative confirmed, no reason to delay PrEP for this high-risk individual, should start right away. Needs HIV testing every 3 months while on PrEP and other STI testing at least every 6 months.**
- A) Do not initiate PrEP before confirming that patient is HIV-negative
- B) Unclear date of last exposure, no indication for PEP, should start PrEP once confirmed HIV-negative
- D) No reason to delay PrEP if HIV-negative and interested.

HIV Prevention

- Risk reduction counseling
- Needle exchange programs
- Barrier protection (condoms)
- Pre-exposure prophylaxis (PrEP)
- Post-exposure prophylaxis (PEP)
- Prevention of mother-to-child transmission (PMTCT)
- Treatment as prevention (TASP)
- Male circumcision
- (HIV vaccines? Someday...)



<http://www.cdc.gov/actagainstaids/pdf/campaigns/starttalking/stsh-prep-infographic-basics.pdf>

<https://wwwn.cdc.gov/hivrisk/>

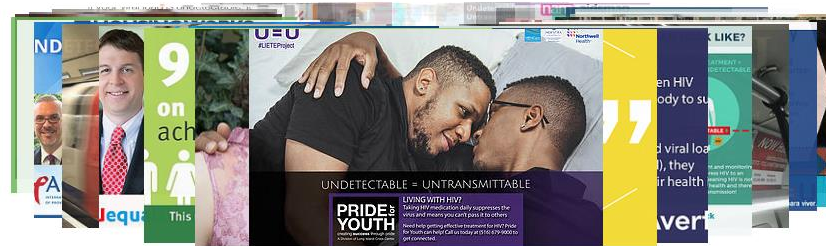
U=U: Undetectable = Untransmittable



Undetectable = Untransmittable



Celebrate Love U=U
Moses Supercharger with
the Stigmaless Band
Kampala, Uganda

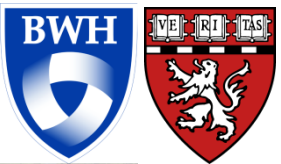


Click on the photos to scroll through examples of Community Partner U=U campaigns.
For an extensive list of U=U messaging from around the world see our [U=U Message Guide](#).

#UequalsU

"People who take ART daily as prescribed and achieve and maintain an undetectable viral load have effectively no risk of sexually transmitting the virus to an HIV-negative partner." The U.S. [Centers for Disease Control and Prevention \(CDC\)](#) (September, 2017)

- "The science really does verify and validate U=U." Anthony S. Fauci, M.D., Director, NIAID, NIH [Speech at United States Conference on AIDS](#) (September, 2017)

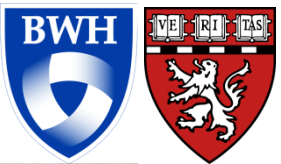


<https://www.preventionaccess.org/undetectable>

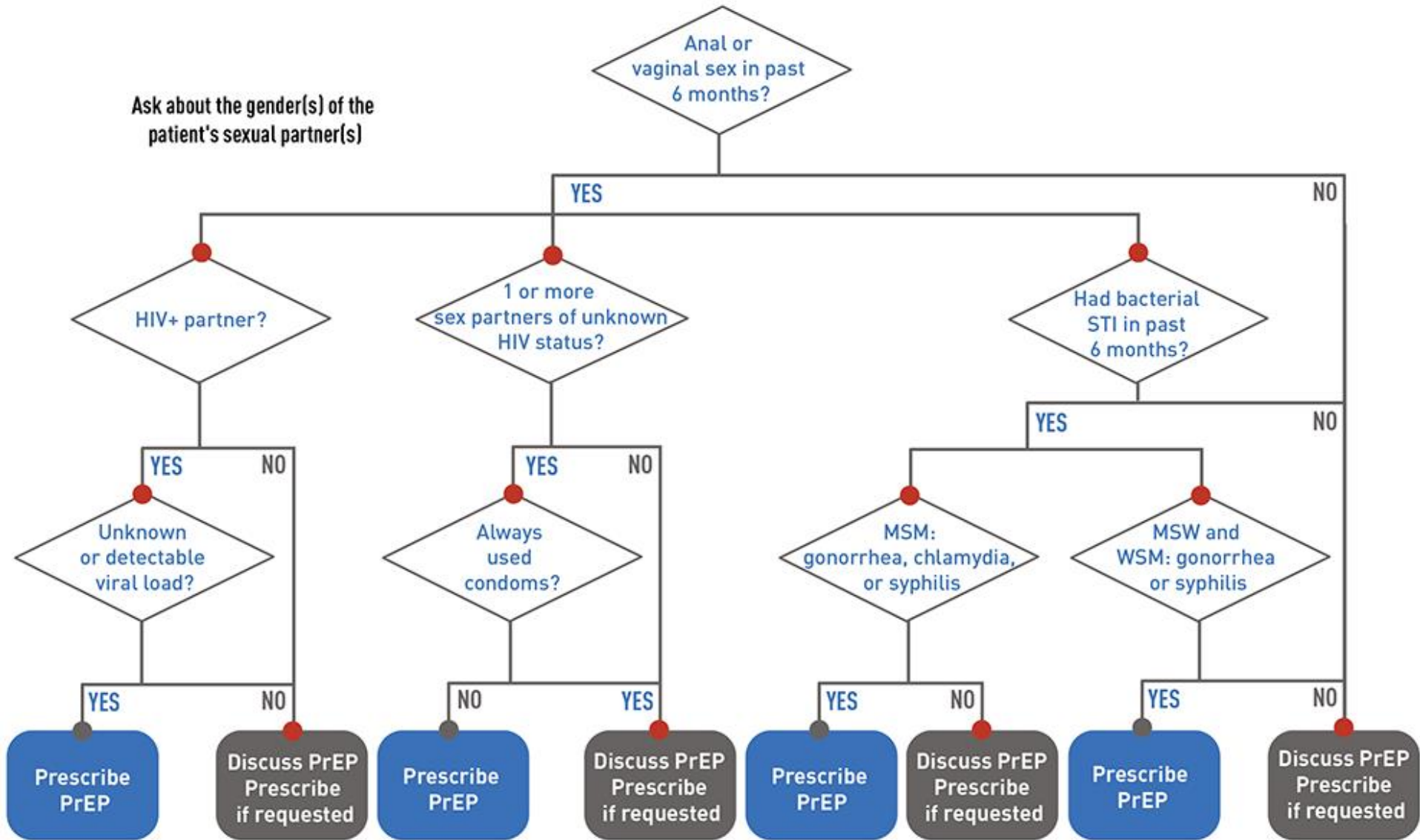
PrEP

- **Pre-testing:** HIV Ag/Ab test and HIV-1 RNA for patients who are high risk for recent exposure (most patients) or recently receiving PrEP
- **Prescribe PrEP:**
 - **Oral options:** emtricitabine/tenofovir disoproxil fumarate (Truvada) or emtricitabine/tenofovir alafenamide (Descovy) – Descovy not studied in cis-gender females with heterosexual exposure or PWID. Dosing is once daily continuous. OFF-LABEL on-demand dosing for MSM on 2-1-1 schedule
 - **Injectable option:** cabotegravir (Apretude) IM once every 2 months or lenacapavir (Yeztugo) PO x 2 days then IM every 6 months
 - **Start SAME-DAY** when feasible
- **Monitoring:** STI testing every 3-6 months, HIV Ag/Ab every 2-3 months, kidney function every 6-12 months, lipid panel annually for Descovy

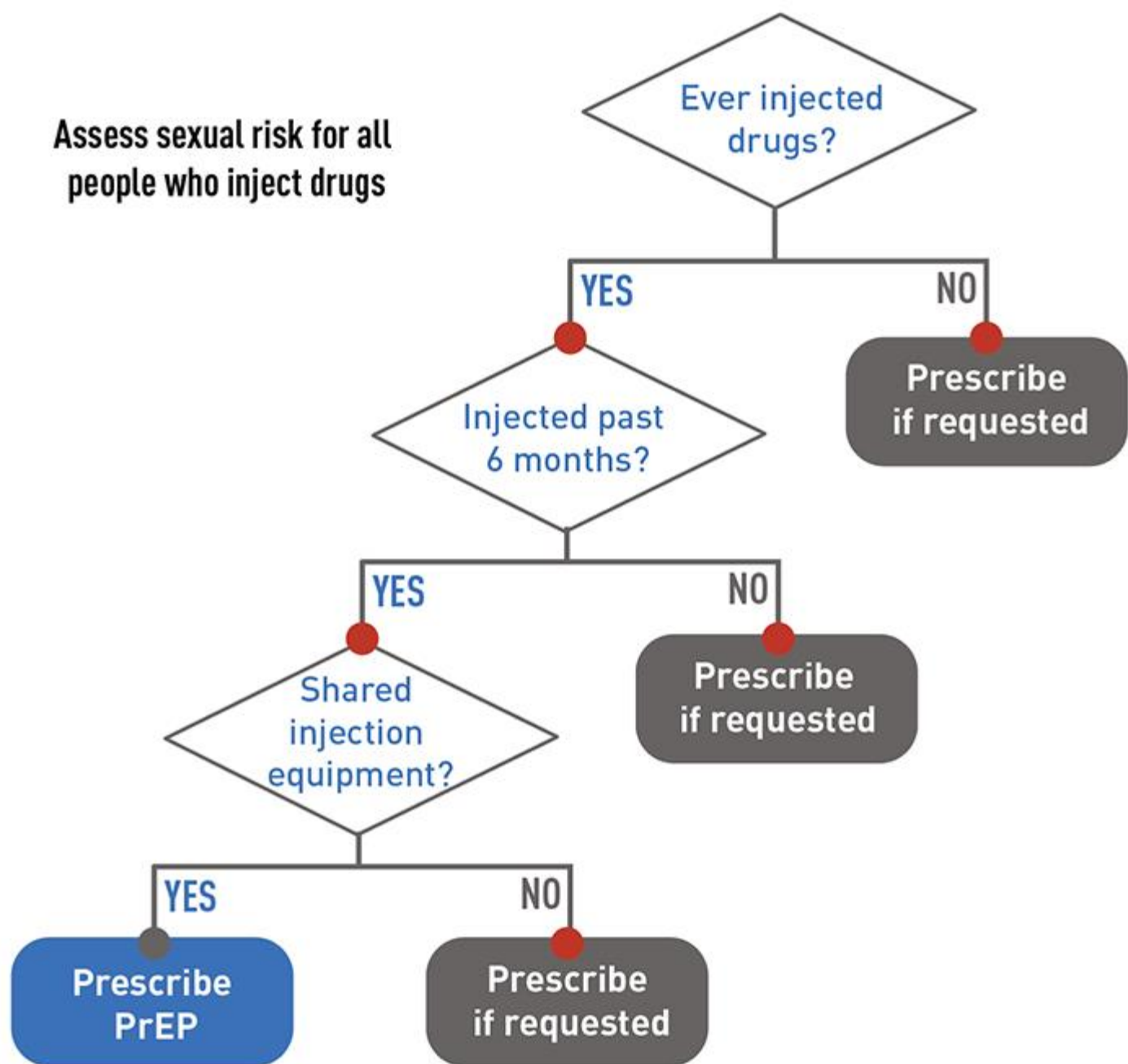
Transmission Route	Effectiveness Estimate	Interpretation
Sexual	~99%	Very high levels of adherence to PrEP provide maximum effectiveness.
Injection drug use	74% – 84%	These estimates are based on tenofovir alone and not necessarily when taken daily. The effectiveness may be greater for the two-drug oral therapy and if used daily.



Ask about the gender(s) of the patient's sexual partner(s)



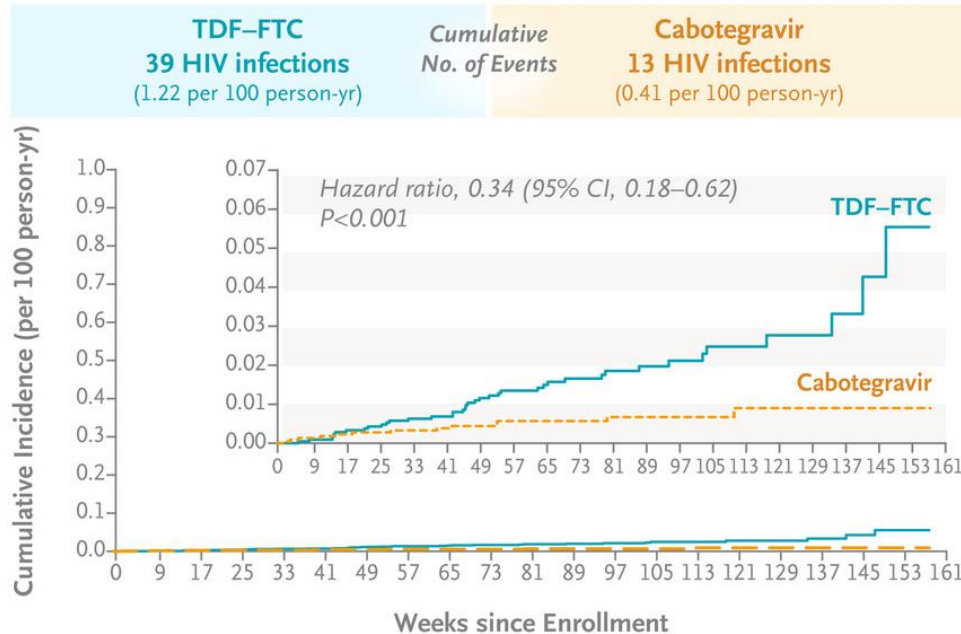
Assess sexual risk for all
people who inject drugs



Cabotegravir for HIV Prevention in Cisgender Men and Transgender Women

Landovitz RJ et al. DOI: 10.1056/NEJMoa2101016

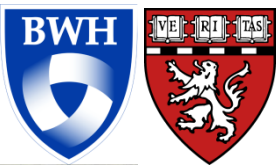
Incident HIV Infection



Adverse Events	TDF-FTC (N=2282)	Cabotegravir (N=2280)
	no. (%)	no. (%)
Any adverse event of grade 2 or higher	2216 (92.7)	2106 (92.4)
Any adverse event of grade 3 or higher	767 (33.6)	727 (31.9)
Serious adverse event	121 (5.3)	120 (5.3)
Adverse events of special interest		
Seizure	5 (0.2)	2 (0.1)
Liver-related adverse event resulting in discontinuation of oral tablets or both oral tablets and injections	48 (2.1)	47 (2.1)

CONCLUSIONS

Injectable cabotegravir given every 8 weeks was superior to daily oral TDF-FTC for preventing HIV infection among high-risk cisgender men and transgender women who have sex with men.



The NEW ENGLAND JOURNAL of MEDICINE

ESTABLISHED IN 1812

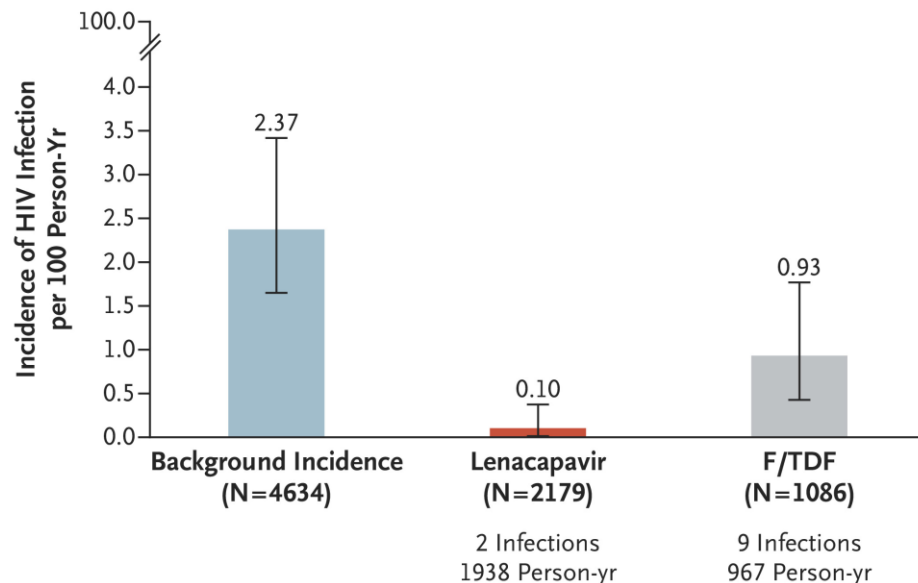
APRIL 3, 2025

VOL. 392 NO. 13

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

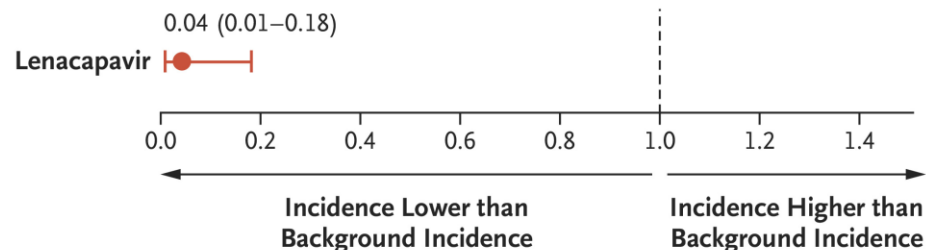
C.F. Kelley,^{1,2} M. Acevedo-Quinones,³ A.L. Agwu,⁴ A. Avihingsanon,⁵ P. Benson,⁶ J. Blumenthal,⁷ C. Brinson,⁸ C. Brites,⁹ P. Cahn,¹⁰ V.D. Cantos,¹¹ J. Clark,¹² M. Clement,¹³ C. Creticos,¹⁴ G. Crofoot,¹⁵ R.S. Diaz,¹⁶ S. Doblecki-Lewis,¹⁷ J.A. Gallardo-Cartagena,¹⁸ A. Gaur,¹⁹ B. Grinsztejn,²⁰ S. Hassler,²¹ J.C. Hinojosa,²² T. Hodge,²³ R. Kaplan,²⁴ M. Lacerda,²⁵ A. LaMarca,²⁶ M.H. Losso,²⁷ J. Valdez Madruga,²⁸ K.H. Mayer,²⁹ A. Mills,³⁰ K. Mounzer,³¹ N. Ndlovu,³² R.M. Novak,³³ A. Perez Rios,³⁴ N. Phanuphak,³⁵ M. Ramgopal,³⁶ P.J. Ruane,³⁷ J. Sánchez,³⁸ B. Santos,³⁹ 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*

A Background HIV Incidence and Incidence in the Lenacapavir Group and F/TDF Group



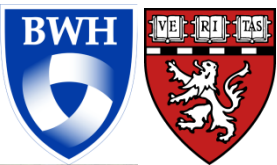
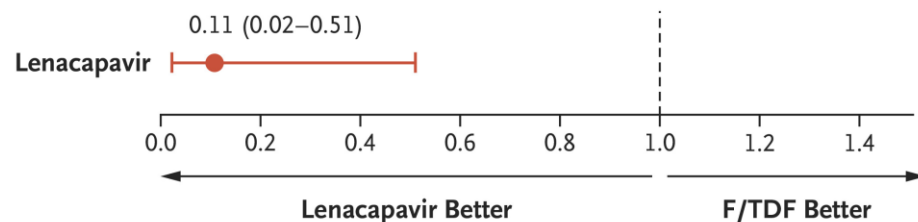
B Incidence Rate Ratio Comparing Lenacapavir with Background Incidence

HIV Incidence Rate Ratio (95% CI)



C Incidence Rate Ratio Comparing Lenacapavir with F/TDF

HIV Incidence Rate Ratio (95% CI)



PEP

- If potential exposure, evaluate and offer PEP within 72 hours
- In most cases PEP = tenofovir/emtricitabine + raltegravir or dolutegravir x 28 days

Kuhar DT, Infect Control Hosp Epidemiol 2013.

P

E

P



PEP involves taking anti-HIV drugs as soon as possible after having been exposed.



You can get PEP from your doctor's office, emergency rooms, urgent care clinics, or a local HIV clinic.



To be effective, PEP must begin within 72 hours of exposure, before the virus has time to rapidly replicate in your body.



The medications have serious side effects that can make it difficult to finish the program.

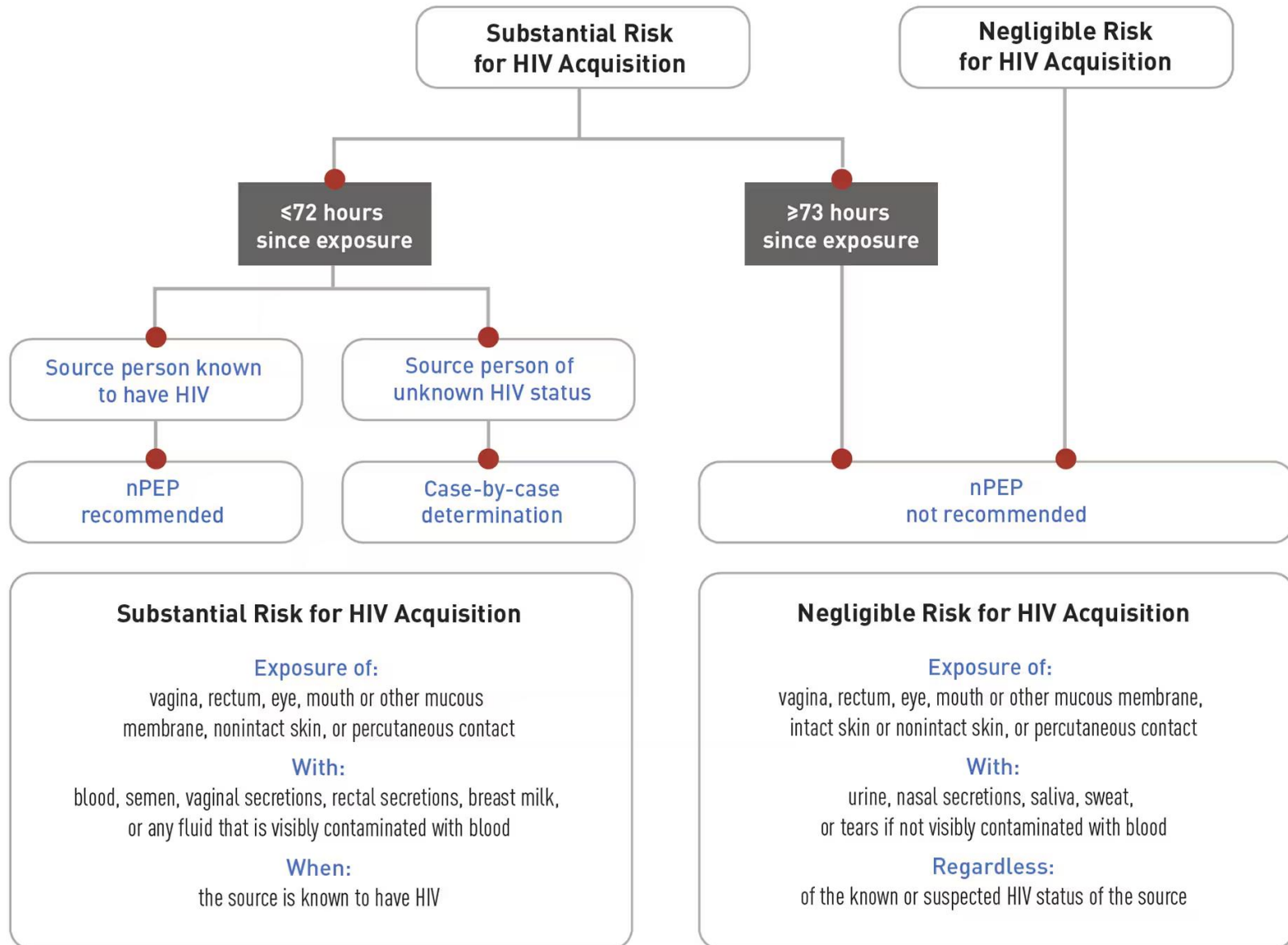


PEP consists of 2-3 antiretroviral medications taken for 28 days.



PEP is not 100% effective. It does not guarantee someone exposed to HIV will not become infected with HIV.

Algorithm for Evaluation and Treatment of Possible Nonoccupational HIV Exposures

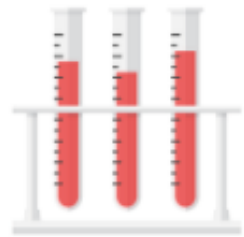


Prevention Challenges

Stigma, homophobia, and discrimination put gay and bisexual men of all races/ethnicities at risk for multiple physical and mental health problems and affects whether they seek and receive high-quality health services, including HIV testing, treatment, and other prevention services. In addition to stigma and other risk factors affecting [all gay and bisexual men](#), several factors are particularly important for African American gay and bisexual men. These include the following:



Delay in linkage to HIV medical care. According to [an MMWR](#), only 67% of African American gay and bisexual men with newly diagnosed HIV, and 58% with previously diagnosed HIV, were linked to HIV medical care within 90 days of the diagnosis. Early linkage to HIV medical care is essential to achieving viral suppression.



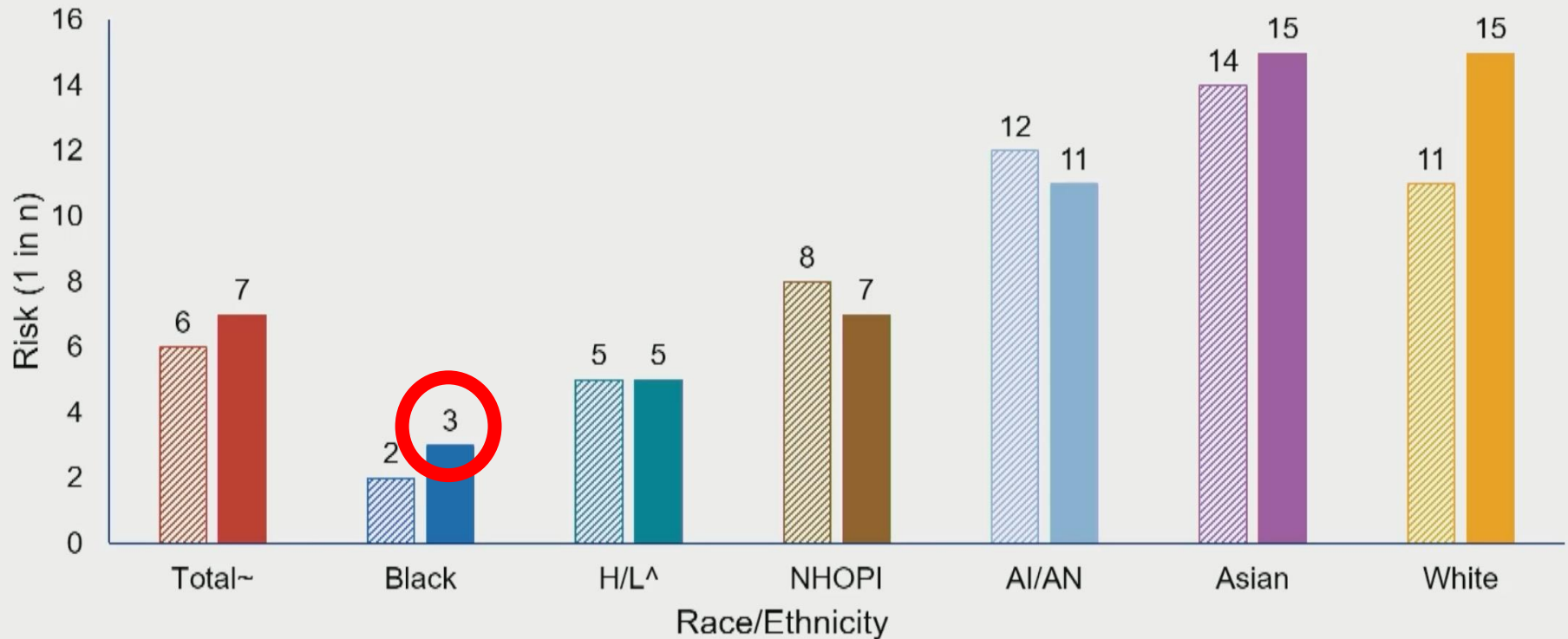
Low percentages of viral suppression. African American gay and bisexual men have lower percentages of viral suppression compared to gay and bisexual men of other races/ethnicities. Because of the low percentages of viral suppression, the higher prevalence of HIV in that population, and the greater likelihood of having sexual partners of the same race, compared with other races/ethnicities, African American gay and bisexual men are at greater risk of being exposed to HIV.



Socioeconomic factors. The poverty rate among African Americans is high. The **socioeconomic factors** associated with poverty—including limited access to high-quality health care, housing, and HIV prevention education—directly and indirectly increase the risk for HIV infection and affect the health of people living with and at risk for HIV. These factors may explain why African Americans have worse outcomes on the **HIV continuum of care**, including lower rates of linkage to care and viral suppression.

Still a long way to go

Lifetime Risk of an HIV Diagnosis Among MSM by Race/Ethnicity, 2010–2014* vs. 2017–2021

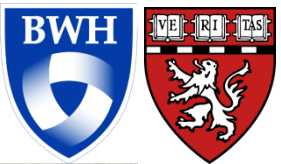


AI/AN – American Indian/Alaskan Native; H/L – Hispanic/Latino; NHOPI – Native Hawaiian/Other Pacific Islander

*Hess, et al. Lifetime risk of a diagnosis of HIV infection in the United States. *Ann Epidemiol* 2017;27(4):238–243

~Includes 4,181 multiracial persons for 2017–2021 and 4,572 multiracial persons for 2010–2014

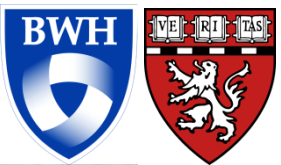
^Hispanic/Latino persons can be of any race



<https://www.croiconference.org/abstract/estimating-lifetime-risk-of-a-diagnosis-of-hiv-infection-among-msm-united-states-2017-2021/>

MOC Reflective Statements

- Most new HIV diagnoses in the US are among men who have sex with men – US incidence is slowly decreasing.
- Routine HIV screening with combination HIV Ag/Ab testing is critical to early diagnosis of HIV, to decrease risk of HIV-related complications
- All patients with HIV should be offered antiretroviral therapy which is available in many forms including many co-formulated single tablet regimens and injectable cabotegravir-rilpivirine which may be ideal for some patients
- It is important to review all new medications for drug-interactions for patients taking antiretroviral therapy.
- ART nonadherence is the most common cause for virologic failure and is often difficult to manage, new viral drug resistance is uncommon.
- Patients living with HIV are at increased risk of cardiovascular disease, even when HIV is well-controlled.
- There are many strategies for effective prevention of transmission of HIV, including pre-exposure prophylaxis with antiretroviral medications such as injectable cabotegravir



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- Injectable cabotegravir for PrEP: RJ Landovitz et al. NEJM 2021;385(7):595-608
- PEP: <https://www.aids.gov/hiv-aids-basics/prevention/reduce-your-risk/post-exposure-prophylaxis/>
- Lifetime risk of HIV: <https://www.croiconference.org/abstract/estimating-lifetime-risk-of-a-diagnosis-of-hiv-infection-among-msm-united-states-2017-2021/>



Thank you!

