

HIV Pre-Exposure Prophylaxis (PrEP) Clinical Updates

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Financial Disclosure

Dr. Kalumi Ayala Rivera, faculty of this CE activity, has no relevant financial relationships with ineligible companies to disclose.

Objectives

At the end of the CPE activity the pharmacists should be able to:

- Describe the difference between HIV pre-exposure prophylaxis (PrEP) and post-exposure prophylaxis (PEP).
- Recognize which patients are potential candidates for PrEP.
- Identify recommendations by CDC guidelines regarding PrEP management.
- Present an overview of community base PrEP programs or models that have been established in the United States.
- Describe the pharmacy team role in PrEP and HIV transmission prevention efforts.

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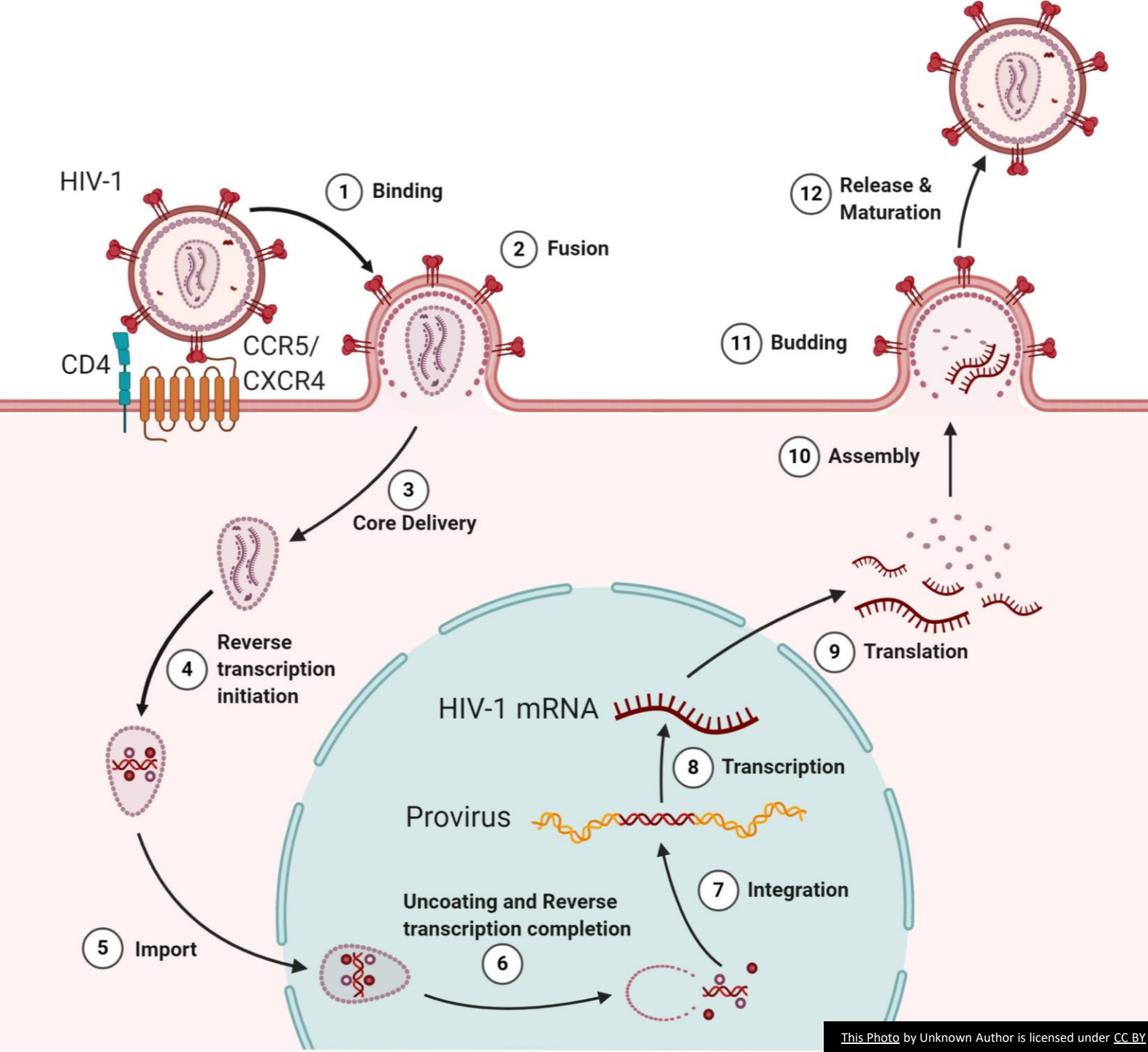
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HIV Overview

- HIV-Human Immunodeficiency Virus
 - Virus that attacks T-cells
 - Increases the risk for opportunistic infections
- Transmission
 - Contact with body fluids
 - Blood
 - Semen
 - Rectal fluids
 - Vaginal fluids
 - Breast milk*
 - Through sexual contact, mother-to-child, needle-sharing, occupational





HIV Overview

- HIV Life Cycle
 1. Binding
 2. Fusion
 3. Reverse transcription
 4. Integration
 5. Replication
 6. Assembly
 7. Budding

HIV Overview

HIV Stages		
Acute infection	Chronic infection	AIDS

HIV Overview

- HIV Management
 - Goals of therapy
 - Suppress plasma HIV RNA
 - Restore and preserve immunologic function
 - Reduce HIV-associated morbidity
 - Improve quality of life
 - Prevent HIV transmission
 - Treatment
 - INSTI + 2 NRTI
 - INSTI + 1 NRTI
 - Boosted PI + 2 NRTI
 - 1 NNRTI + 2 NRTI

Abbreviations: INSTI= integrase strand transfer inhibitor; NRTI= nucleoside/nucleotide reverse transcriptase inhibitor; PI= protease inhibitors; NNRTI= non-nucleoside reverse transcriptase inhibitors.

Adapted from: Panel on Antiretroviral Guidelines for Adults and Adolescents. Guidelines for the use of antiretroviral agents in HIV-1-infected adults and adolescents. Department of Health and Human Services. Available at <https://clinicalinfo.hiv.gov/sites/default/files/inline-files/AdultandAdolescentGL.pdf> Section accessed [June 2023]



HIV Overview

- Worldwide, there were 39 million people living with HIV and 1.3 million new infections in 2022
- In the United States, there were 1.2 million people living with HIV and 32,100 new infections in 2021
- In Puerto Rico, there were 15,801 people living with HIV and 410 new infections in 2021

<https://www.cdc.gov/media/releases/2023/p0523-hiv-declines-among-young-people.html>

<https://www.hiv.gov/hiv-basics/overview/data-and-trends/global-statistics/>

<https://www.cdc.gov/hiv/basics/statistics.html>

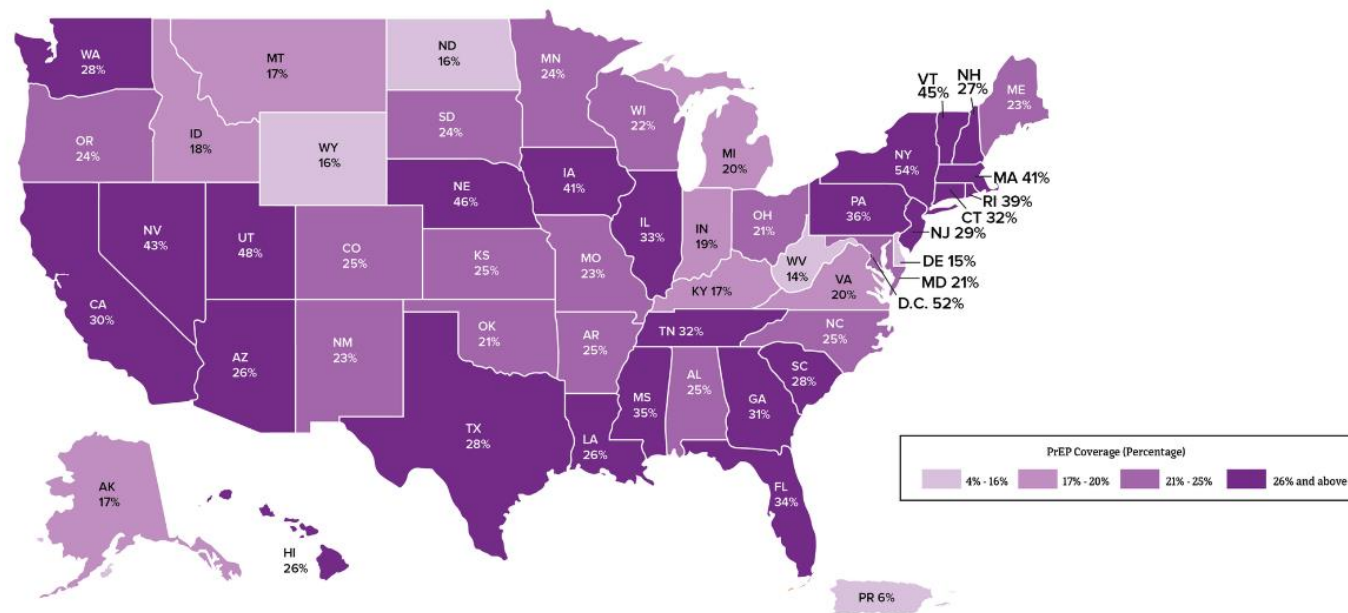
HIV PrEP Status

ONLY



Of the 1.2 million people in the United States who could benefit from PrEP, only 30% were prescribed PrEP in 2021.

PrEP Coverage in the US and Puerto Rico by Area of Residence, 2021*



*Among people aged 16 and older.

Ending the HIV Epidemic Goal

- **Decrease the yearly number of new HIV diagnoses by 75% by 2025 and 90% by 2030**
- **Increase knowledge of HIV status to 95% by 2025**
- **Increase the percentage of people with diagnosed HIV who are virally suppressed to 95% by 2025**
- **Increase PrEP coverage to 50% by 2025**

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Pre-exposure prophylaxis (PrEP) vs Post-exposure prophylaxis (PEP)

PrEP

- Antiretroviral medication given to prevent HIV infection
 - Reduces the risk of acquiring HIV from sex
 - Reduces risk of acquiring HIV from injection drug use

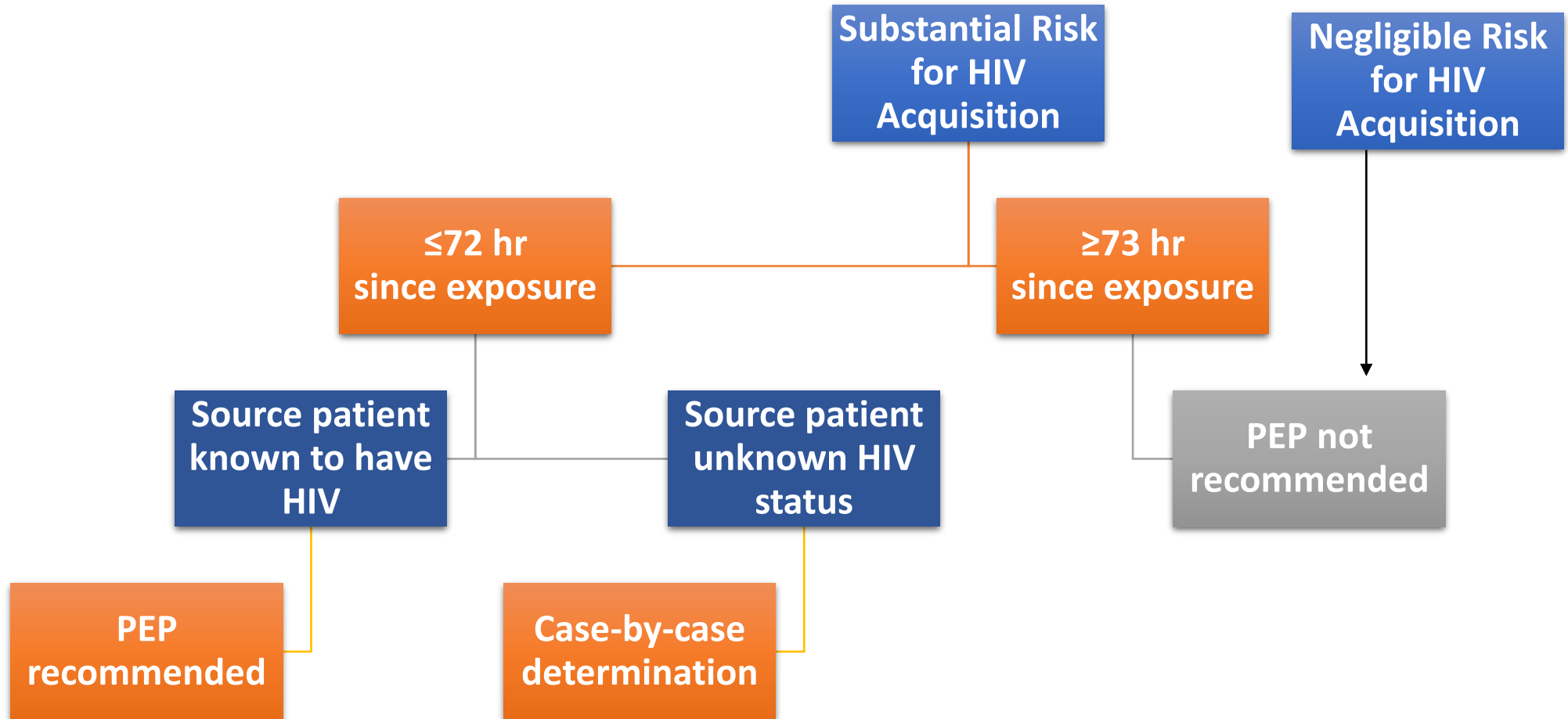
PEP

- Combination of antiretroviral medications given after being posed or potentially exposed to HIV
- Needs to be given within 72 hours of exposure
- Types of exposure:
 - Occupational
 - Non-Occupational

HIV Risk Exposure

Type of Exposure	Risk per 10,000 Exposures
Parenteral	
Blood transfusion	9,250
Needle Sharing	63
Percutaneous (needle-stick)	23
Sexual	
Receptive anal intercourse	138
Insertive anal intercourse	11
Receptive penile-vaginal intercourse	8
Insertive penile-vaginal intercourse	4
Receptive or insertive oral intercourse	Low
Other	
Biting	Negligible
Spitting	Negligible
Throwing body fluids	Negligible
Sharing sex toys	Negligible

Algorithm for Evaluation and Treatment of Potential HIV Exposures



HIV PEP

- Recommendations for Occupational and Non-Occupational exposure

Preferred

- Dolutegravir 50 mg PO once daily + TDF/FTC 300/200 mg PO once daily

Alternative

- Elvitegravir/cobicistat/TDF/FTC (Stribild®) PO once daily

Treatment to be given for 28 days. If full course of medication can't be provided, supply a 7-day starter pack.



HIV PrEP Management

Medications Approved for HIV PrEP

- Emtricitabine/Tenofovir disoproxil fumarate (FTC/TDF)-Truvada®- Available generic
- Emtricitabine/Tenofovir alafenamide (FTC/TAF)-Descovy®
- Cabotegravir (CAB)-Apretude®



HIV PrEP

Medication	Dose	Risk Group Recommendations
FTC/TDF	200/300 mg PO once daily*	Heterosexual cisgender woman Heterosexual cisgender men Men who have sex with men (MSM) Transgender women (TGW) People who inject drugs (PWID)
FTC/TAF	200/25 mg PO once daily*	Heterosexual cisgender men MSM TGW PWID
CAB IM	600 mg IM every 2 months *oral lead-in optional*	Heterosexual cisgender woman Heterosexual cisgender men MSM TGW PWID

*Provide a prescription or refill authorization of daily PrEP medication for no more than 90 days (until the next HIV test)

HIV PrEP

Cabotegravir Dosing



APREUDE is administered by a HCP as a single 600-mg (3-mL) gluteal intramuscular injection

APREUDE injections can be given up to 7 days before or after the scheduled injection date [‡]

*After optional oral lead-in and initiation injections.

[†]For patients concomitantly receiving rifabutin, please see the full Prescribing Information for the adjusted recommended dosing schedule for APREUDE.

[‡]After the first injection.

Needle size: 1.5-in needle if BMI <30 kg/m²
2-in needle if BMI ≥30 kg/m²

HIV PrEP

Cabotegravir Dosing

Optional oral lead-in

Oral lead-in is not required but may be used prior to the initiation of APRETUDE to assess the tolerability of cabotegravir.



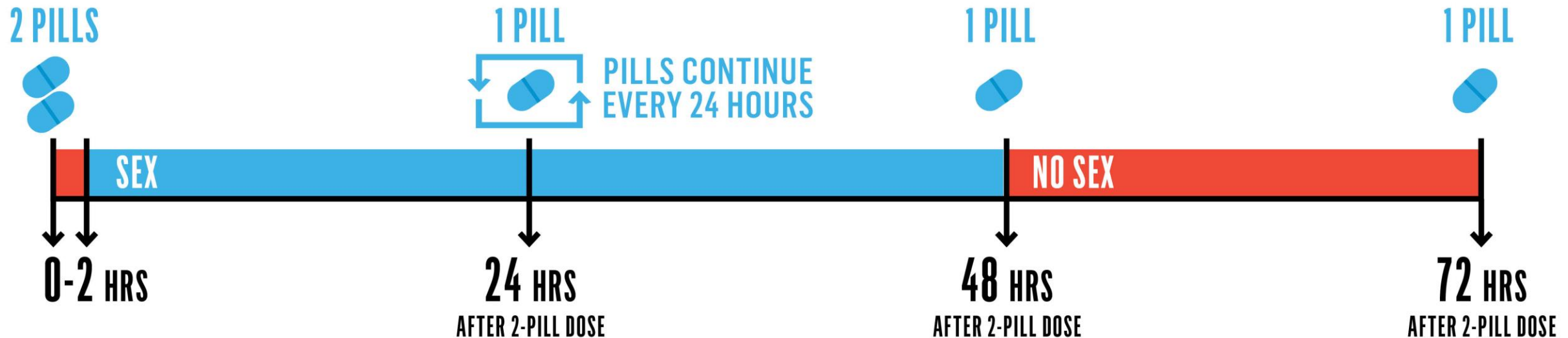
The recommended oral lead-in dose is one 30-mg tablet of cabotegravir daily for approximately 1 month (at least 28 days).

Initiation injections should be administered on the last day of oral lead-in, if used, or within 3 days thereafter.

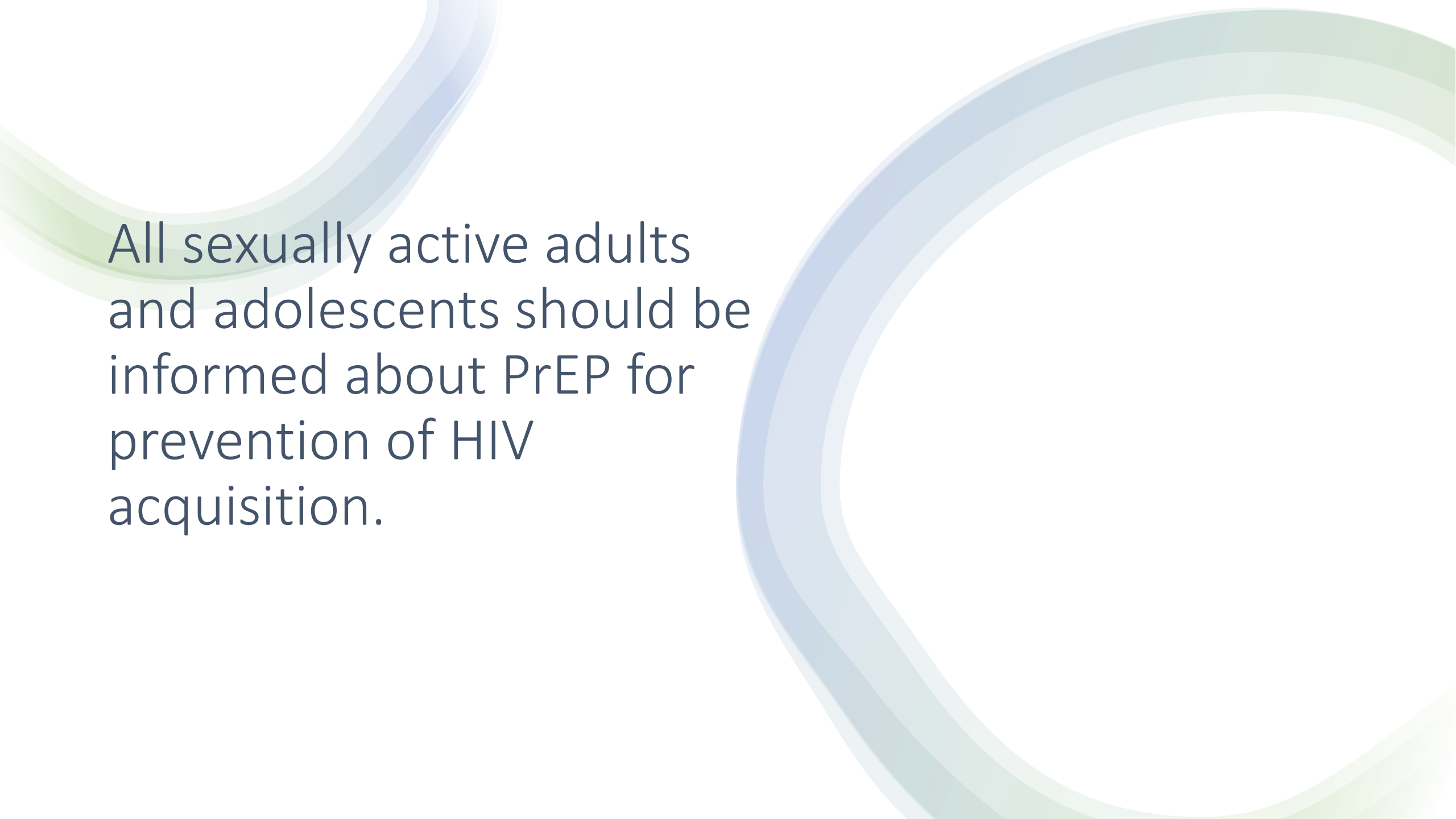
HIV PrEP

- On-demand PrEP with FTC/TDF: 2-1-1 rule

If you have sex beyond 24 hours of the first dose



Off-label recommendations made by WHO, and IAS-USA guidelines for MSM based on IPERGAY study



All sexually active adults
and adolescents should be
informed about PrEP for
prevention of HIV
acquisition.

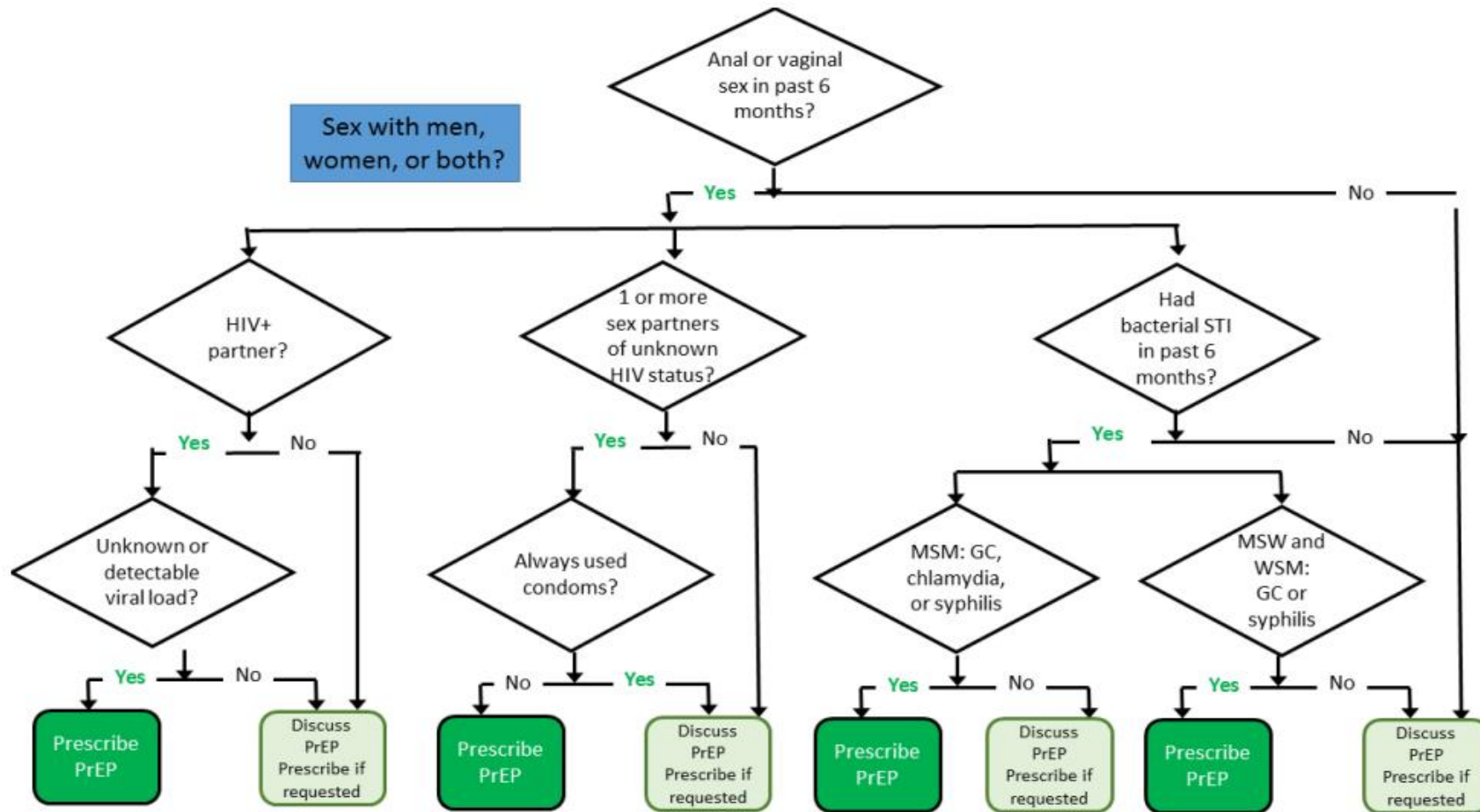
Clinical Guidance of HIV PrEP

- Identifying substantial risk of acquiring HIV infection

Sexually Active adults	Persons who inject drugs
Anal or vaginal sex in past 6 months AND any of the following: <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 months• History of inconsistent or no condom use with sexual partner(s)	HIV-positive injecting partner OR Sharing injection equipment

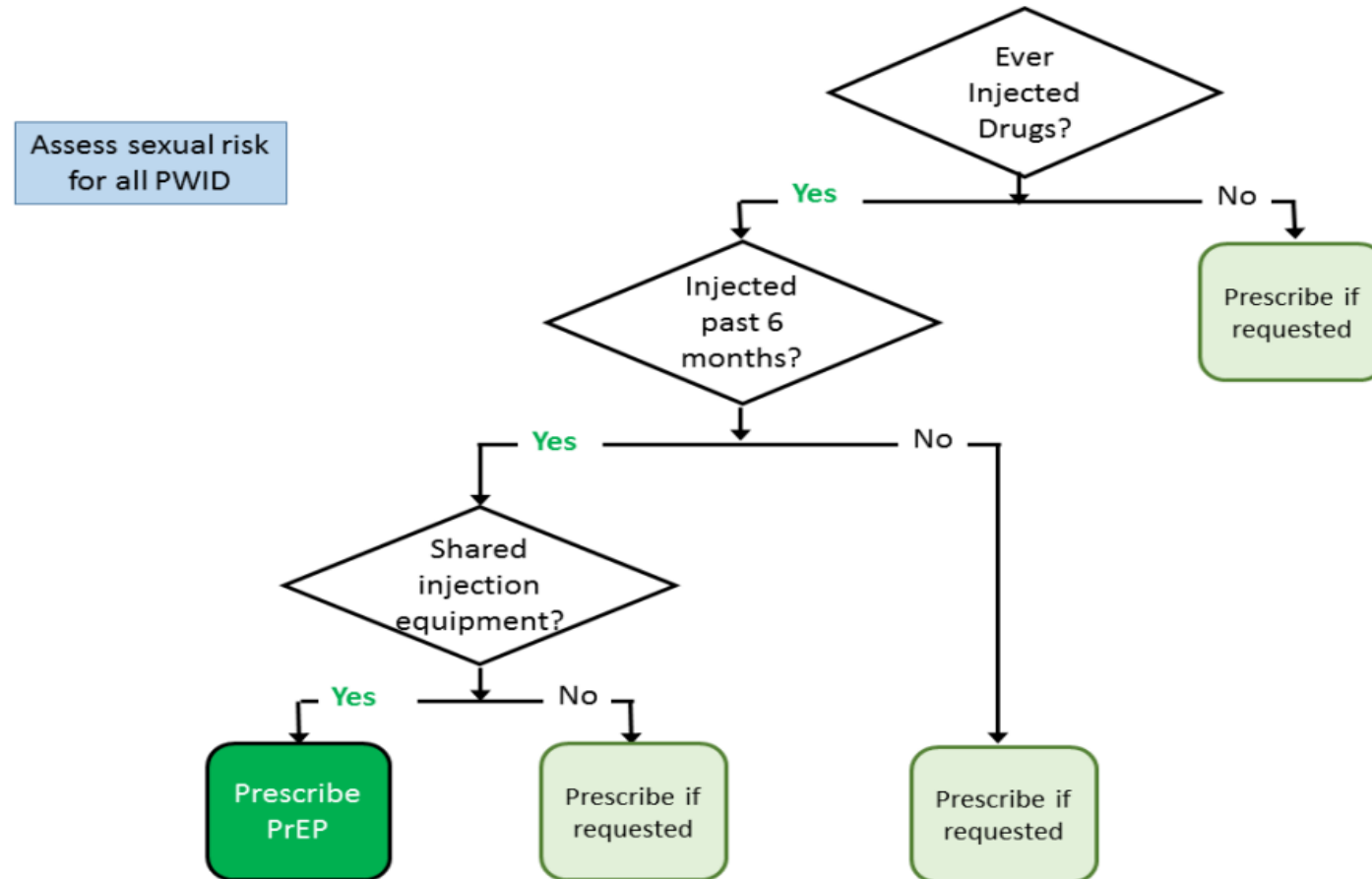
Assessing HIV Acquisition Risk

Figure 2 Assessing Indications for PrEP in Sexually Active Persons



Assessing HIV Acquisition Risk

Figure 3 Assessing Indications for PrEP in Persons Who Inject Drugs

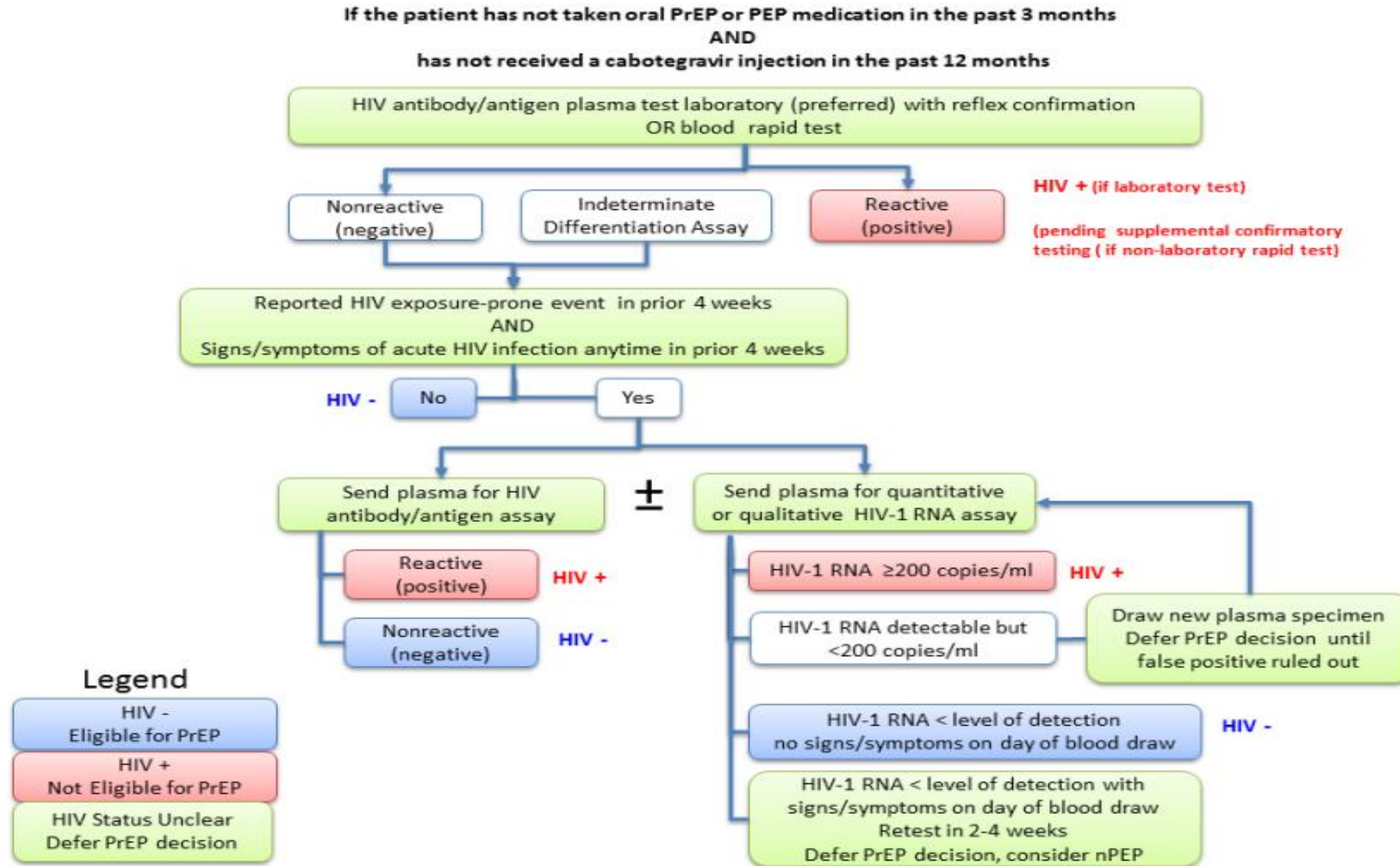


Clinical Guidance of HIV PrEP

- Clinical eligible if all of the following conditions are met
 - 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/min (For FTC/TDF or FTC/TAF)
 - No contraindicated medications



Figure 4a Clinician Determination of HIV Status for PrEP Provision to Persons without Recent Antiretroviral Prophylaxis Use



Clinical Guidance of HIV PrEP

- Follow-up visits for oral PrEP
 - Every 3 months
 - HIV Ag/Ab test and HIV-1 RNA assay
 - Medication adherence and behavioral risk reduction support
 - Bacterial STI screening for MSM and transgender women who have sex with men3 – oral, rectal, urine, blood
 - Access to clean needles/syringes and drug treatment services for PWID
 - Every 6 months
 - Assess renal function for patients aged ≥ 50 years or who have an eCrCl at PrEP initiation
 - Bacterial STI screening for all sexually-active patients – [vaginal, oral, rectal, urine- as indicated], blood
 - Every 12 months
 - Assess renal function for all patients
 - Chlamydia screening for heterosexually active women and men – vaginal, urine
 - For patients on F/TAF, assess weight, triglyceride and cholesterol levels

Follow-up & Monitoring: Oral PrEP

Test	Screening/ Baseline visit	Every 3 months	Every 6 months	Every 12 months	When stopping PrEP
HIV Test	X*	X			X
eCrCl	X	X	If age ≥50 or eCrCL <90 mL/min	If age < 50 or eCrCL ≥ 90 mL/min	X
Syphilis	X	MSM/TGW	X		MSM/TGW
Gonorrhea	X	MSM/TGW	X		MSM/TGW
Chlamydia	X	MSM/TGW	X		MSM/TGW
Lipid Panel	X			X	
Hep B serology	X				
Hep C serology	MSM, TGW and PWID only			MSM, TGW and PWID only	

Adapted from: Centers for Disease Control and Prevention: US Public Health Service: Preexposure prophylaxis for the prevention of HIV infection in the United States—2021 Update: a clinical practice guideline. <https://www.cdc.gov/hiv/pdf/risk/prep/cdc-hiv-prep-guidelines-2021.pdf>. Published 2021.

Clinical Guidance of HIV PrEP

- Follow-up visits for LA PrEP
 - 1 month after first injection (beginning with the second injection-month 1)
 - HIV-1 RNA assay
 - Assess for acute HIV infection symptoms
 - Administer CAB injection (second dose)*
 - Every 2 months (beginning with the third injection – month 3)
 - HIV-1 RNA assay
 - Assess for acute HIV infection symptoms
 - Administer CAB injection (third dose)*
 - Access to clean needles/syringes and drug treatment services for PWID
 - Respond to new questions and provide any new information about CAB PrEP
 - Discuss the benefits of persistent CAB PrEP use and adherence to scheduled injection visit

Clinical Guidance of HIV PrEP

- Follow-up visits for LA PrEP
 - Every 4 months (every other injection visit, beginning with the third injection month 3)
 - Bacterial STI screening for MSM and transgender women who have sex with men³ – oral, rectal, urine, blood
 - Every 6 months (beginning with the fifth injection – month 7)
 - Bacterial STI screening¹ for all heterosexually-active women and men – [vaginal, rectal, urine - as indicated], blood
 - Every 12 months (after the first injection)
 - Assess desire to continue injections for PrEP
 - Chlamydia screening for heterosexually active women and men – vaginal, urine

Follow-up & Monitoring: LA Injectable PrEP

Test	Screening/ Baseline visit	1 month visit	Every 2 months	Every 4 months	Every 6 months	Every 12 months	When stopping PrEP
HIV Test	X	X	X	X	X	X	X
Syphilis	X			MSM/TGW	Heterosexual cisgender women and men	X	MSM/TGW
Gonorrhea	X			MSM/TGW	Heterosexual cisgender women and men	X	MSM/TGW
Chlamydia	X			MSM/TGW	MSM/TGW	Heterosexual cisgender women and men	MSM/TGW

Management of Adverse Drug Events



RENAL-MONITOR IF ON FTC/TDF
OR TAF



BONE-ONLY MONITOR IF
NECESSARY; DEXA NOT
RECOMMENDED FOR INITIATION
OR MONITORING UNLESS
PATIENT HAS SIGNIFICANT RISK
FACTOR FOR OSTEOPOROSIS



WEIGHT GAIN- MONITOR
WEIGHT IF ON FTC/TAF OR CAB
AT LEAST EVERY 12 MONTHS;
RECOMMEND LIFESTYLE
CHANGES

Management of Adverse Drug Events



LIPID CHANGES-MONITOR LIPID PANEL IF ON FTC/TAF AT LEAST EVERY 12 MONTHS; RECOMMEND LIFESTYLE CHANGES, ASSESS THE NEED TO START STATIN THERAPY



HEADACHE/GI- OCCURS WITHIN FIRST MONTH OF THERAPY- MONITOR AND RECOMMEND OTC MEDICATIONS



INJECTION SITE REACTION (COMMON AND TRANSIENT)-RECOMMEND OTC PAIN MEDICATION SUCH AS ACETAMINOPHEN AFTER THE INJECTION AND MAY CONTINUE AS NEEDED, APPLY A WARM COMPRESS TO INJECTION SITE FOR 15-20 MINS. AVOID RUBBING THE AREA.

Management of Drug Interaction

INTERACTIONS

TDF	FTC	TAF
<ul style="list-style-type: none">• Renal elimination• P-gp substrate• No major interactions expected	<ul style="list-style-type: none">• Renal elimination• No interactions expected	<ul style="list-style-type: none">• Renal elimination• P-gp substrate• Do not coadminister with P-gp inducers: Rifampin, Carbamazepine (TAF ↓)

Management of Drug Interactions

CAB PO INTERACTION HIGHLIGHT

Drug	ARV	Interaction	Management
Antacids (Al, Mg, Ca)	CAB (PO)	CAB↓ expected	Administer antacid at least 2 hours before or 4 hours after CAB PO
Supplement (Mg, Al, Ca , Fe , Zn)	CAB (PO)	CAB↓ expected	Administer CAB 2 hours before or 4 hours after the supplement
Rifampin	CAB (PO)	CAB PO AUC ↓ 59% and Cmin ↓ 50%	Contraindicated
Carbamazepine, Phenytoin, Phenobarbital, Oxcarbazepine	CAB (PO)	CAB↓ expected	Contraindicated

Management of Drug Interactions

CAB IM INTERACTION HIGHLIGHT

Drug	ARV	Interaction	Management
Rifampin	CAB (IM)	CAB ↓ expected	Contraindicated
Carbamazepine, Phenytoin, Phenobarbital, Oxcarbazepine	CAB (IM)	CAB ↓ expected	Contraindicated

Rifabutin **Use with caution** due to potential ↓ CAB exposure

Management of Missed Doses

Oral PrEP

- If one dose missed:
 - Recommend to take the missed dose as soon as remember.
 - If it is almost time for the next dose, recommend to skip the missed dose and continue with the regular dosing schedule.
 - Do not recommend double dose of PrEP pills to make up for a missed one.
- If doses are missed frequently consider LA-CAB if HIV test negative

Long-acting injectable PrEP

- If dose missed >7days
 - Give oral cabotegravir 30 mg daily for up to 2 months to replace 1 missed injection
 - First dose of oral cabotegravir should be taken ~2 months after last injection dose
 - Restart injections on day oral dosing ends or within 3 days
- Alternative oral PrEP regimen recommended if oral PrEP intervals longer than 2 months are necessary

Switching PrEP

Patients who have been taking daily oral PrEP, can initiate CAB injections as soon as HIV-1 RNA test results confirm that they remain HIV negative.

Consider confirming patient is HIV negative and initiate daily oral FTC/TDF or FTC/TAF beginning within 8 weeks after last CAB injection

Discontinuing PrEP

Reasons for discontinuing PrEP

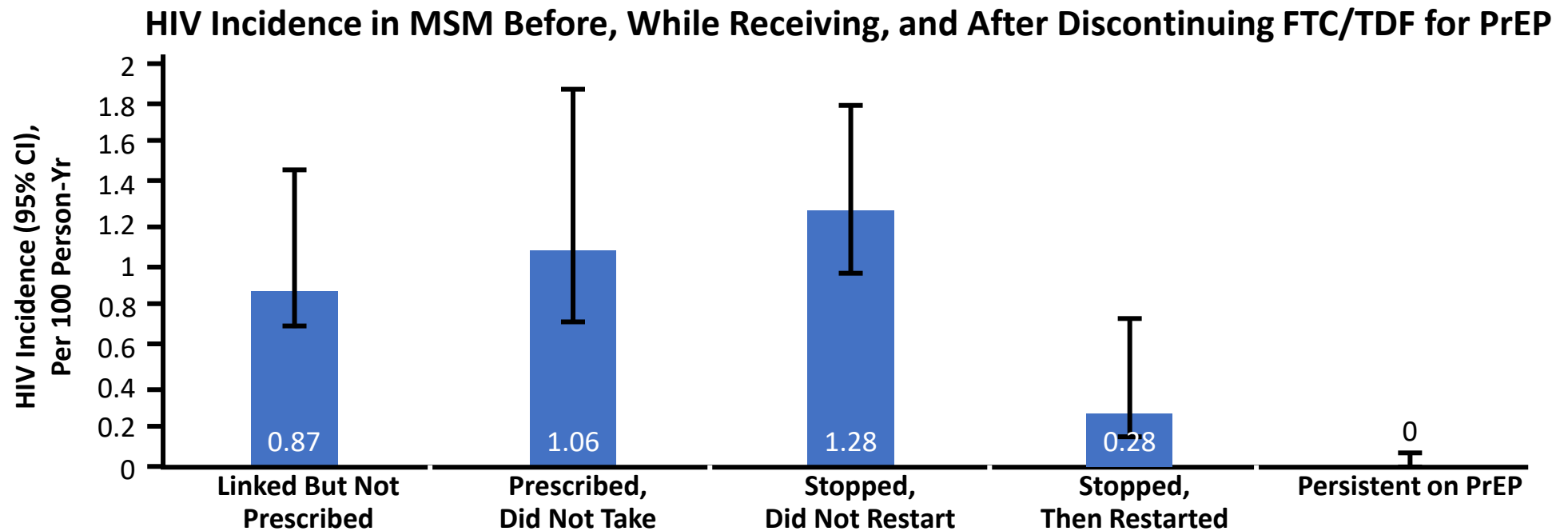
Patient
choice

Lifestyle
changes

Intolerance/
toxicities

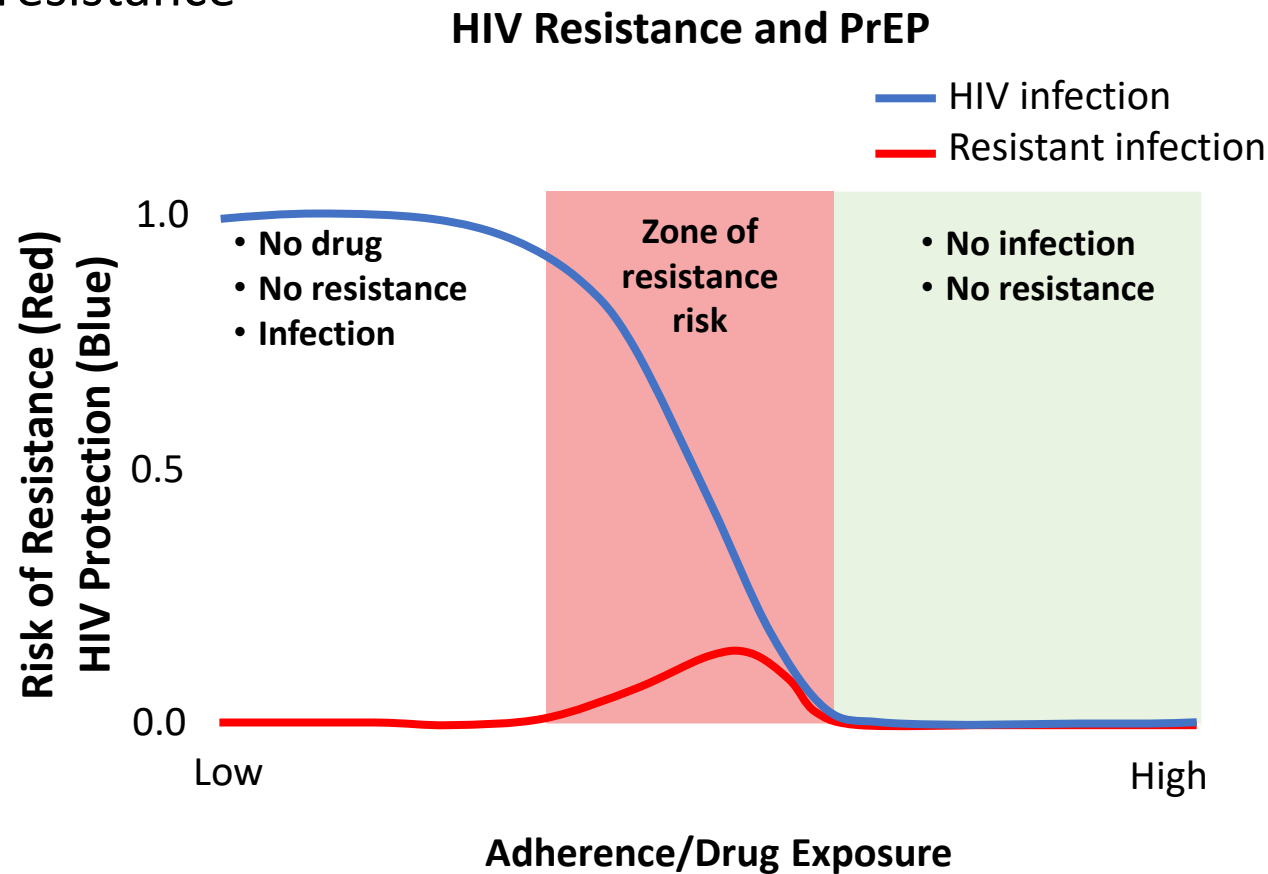
Discontinuing PrEP

- Possible concerns:
 - Protection decreases
 - 7-10 days after discontinuing Prep (Oral)
 - HIV incidence increases



Discontinuing PrEP

- Possible concerns cont.
 - Potential risk for resistance



Discontinuing PrEP

- Strategies to decrease HIV acquisition after **discontinuing LA-CAB**
 - Re-educate patients about the “tail” and the risks during declining CAB levels
 - Assess ongoing risk/indications
 - If PrEP is indicated, prescribe daily oral FTC/TDF or FTC/TAF beginning within 8 weeks after last injection
 - Educate about nPEP
 - Continue follow-up visits quarterly for 12 months
 - Conduct HIV-1 RNA tests at each quarterly follow-up visit after discontinuing CAB injections



HIV PrEP Special Considerations

Patients with renal disease

HIV serodiscordant couples

Pregnant or Breastfeeding women

HIV PrEP Counseling



Oral PrEP

How to take medication

Adherence

Side Effects

Time to achieve protection



LA injectable PrEP

Medication information

Adherence

Side effects

Time to achieve protection*

HIV PrEP Counseling

Establish trust and bidirectional communication. Provide simple explanations and education

- Medication dosage and schedule
- Management of common side effects
- Relationship of adherence to the efficacy of PrEP
- Signs and symptoms of acute HIV infection and recommended actions

Support adherence

- Tailor daily dose to patient's daily routine
- Identify reminders and devices to minimize forgetting doses
- Identify and address barriers to adherence
- Reinforce benefit relative to uncommon harms

Monitor medication adherence in a non-judgmental manner

- Normalize occasional missed doses, while ensuring patient understands importance of daily dosing for optimal protection
- Reinforce success
- Identify factors interfering with adherence and plan with patient to address them
- Assess side effects and plan how to manage them

Community-based Pharmacy Provided PrEP

Collaborative Practice Agreements (CPA)

- Under the direction of a supervising physician
- Role of the pharmacist is expanded
 - Drug therapy management
- Improves patient care and health care outcomes

State protocols

- Pharmacist prescribing PrEP

Possible benefits and challenges of community-based PrEP programs

- Benefits
 - Improves PrEP uptake
 - Reduces HIV transmission
- Challenges
 - Time constraints
 - Reimbursement issues

Community-based Pharmacy Provided PrEP

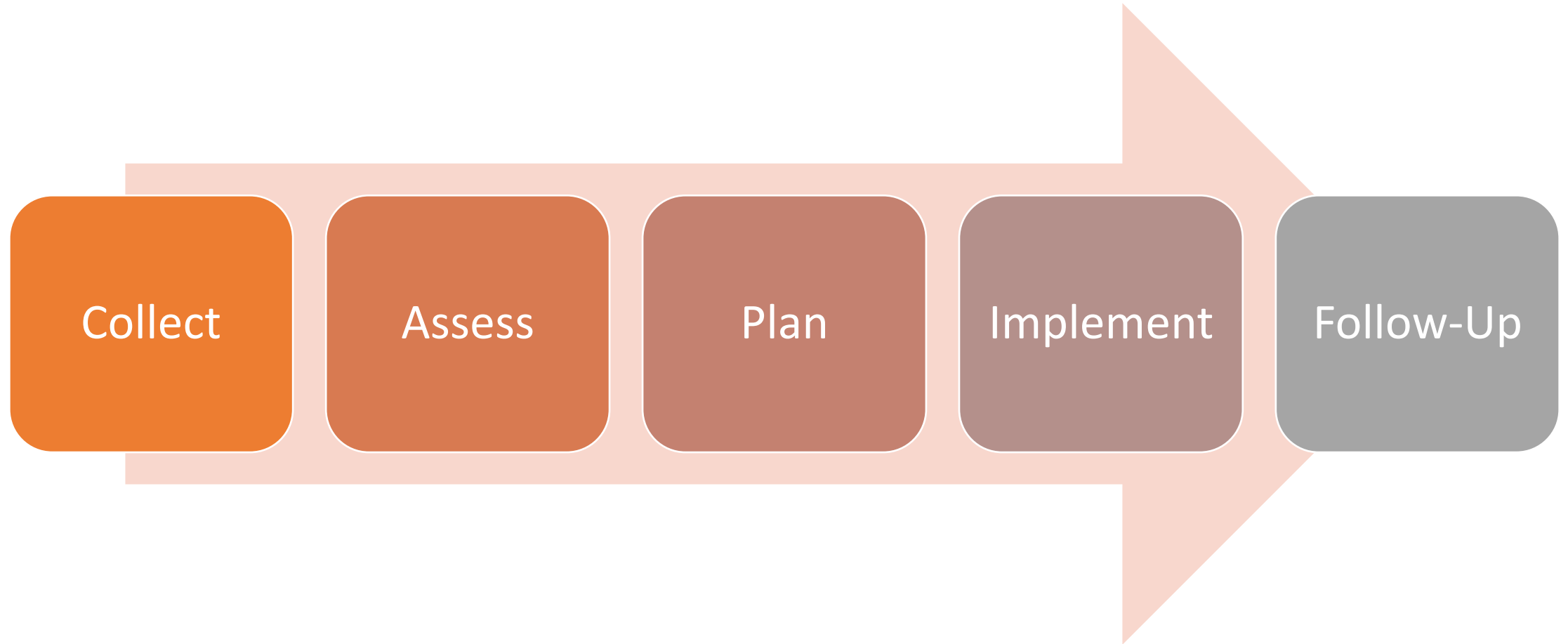
- Pharmacists Prescribing PrEP and PEP
 - **Delegated Prescribing Authority/Collaborative Practice Agreements:**
 - Illinois, Michigan, Minnesota, Montana, Nebraska, New Mexico, North Dakota, South Dakota, Tennessee, Vermont, Washington, and Wisconsin



Community-based Pharmacy Provided PrEP

- Pharmacists Prescribing PrEP and PEP
 - **Direct Prescribing Authority:**
 - [California](#) (2019): can furnish PrEP and PEP if certain conditions met
 - [Colorado](#) (2020/2021): can prescribe drugs for conditions that have a test used to guide diagnosis or clinical decision-making and is CLIA-waived; also has specific statewide protocol for HIV PrEP and PEP
 - [Idaho](#) (2018): can prescribe drugs for conditions that have a test used to guide diagnosis or clinical decision-making and is CLIA-waived
 - [Illinois](#) (2022): can initiate, dispense, or administer drugs for HIV PrEP and PEP via standing order by a physician or a medical director of a county/local health department
 - [Maine](#) (2021): can prescribe, dispense, and administer HIV prevention drugs pursuant to statewide protocol, standing order, or CPA
 - [Nevada](#) (2021): can prescribe, dispense, and administer drugs for preventing HIV, via statewide protocol
 - [New Mexico](#) (2020): issued new statewide protocol for prescribing PEP
 - [Oregon](#) (2021): can prescribe, dispense, and administer PrEP (and PEP in accordance with Board rules)
 - [Utah](#) (2021): prescribe PrEP and PEP (via statewide protocol or standing order)
 - [Virginia](#) (2021): initiate treatment, dispense, and administer, via statewide protocol, controlled substances for prevention of HIV, including for PrEP and PEP

Community-based Pharmacy Provided PrEP



Pharmacists' patient care process for PrEP in the community setting with point of care testing

Community-based Pharmacy Provided PrEP

Collect

- Consent
- Demographic information
- Allergies
- Age
- Sexual orientation
- Gender identity
- Sexual history
- Condom use
- Drug use
- Prior testing results
- Prior PrEP use
- Insurance
- Medical provider
- Medical history
- Medication List
- Immunization history
- Weight and height
- Blood pressure

Pharmacists' patient care process for PrEP in the community setting with point of care testing

Community-based Pharmacy Provided PrEP

Assess

- PrEP and PEP knowledge and readiness
- Risk factors based on sexual history, gender, condom use, drug use
- Assess precautions for testing
- PEP indication
- Contraindications for PrEP and PEP if indicated
- Immunization needs

Plan

- Based on risk factors
 - Determine plan for testing
 - Prevention strategies
 - Education and linkage (if applicable)
- Offer to immunize or refer if needed

Pharmacists' patient care process for PrEP in the community setting with point of care testing

Community-based Pharmacy Provided PrEP

Implement

- Rapid test for HIV and HCV
- Order other tests (confirmatory, Hep B, Syphilis)
- Provide education and written handout
- Provide rapid test results
- Initiate PrEP
- Offer behavioral strategies and other referrals

Follow-up

- Ensure linkage to care
- Monitor
 - Adherence
 - Side effects
 - Lab tests
- Schedule follow-up visits

Pharmacists' patient care process for PrEP in the community setting with point of care testing

Pharmacist Role in HIV PrEP



Pharmacy Tech Role in HIV PrEP

Greet and assess eligibility for HIV PrEP*



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graph TD; A[Greet and assess eligibility for HIV PrEP*] --> B[Eligibility for insurance]; B --> C[Eligibility for manufacturer assistance programs];
```

Eligibility for insurance

Eligibility for manufacturer assistance programs



Pharmacy Team Role in HIV PrEP

- PrEP and STI community awareness
- PrEP medication affordability
- Professional development

PrEP Resources

- Centers for Disease Control and Prevention
 - <https://www.cdc.gov/nchhstp/highqualitycare/provider-resources.html>
- Pharmacy Times-PrEP Resource Center
 - <https://www.pharmacytimes.org/pages/hiv-prep-resource-center>
- HealthHIV-PrEP Provider Certification Program
 - <https://healthhiv.org/programs/hpcp/>
- Clinical Care Options
 - <https://clinicaloptions.com/CE-CME/hiv>
- Northeast/Caribbean AIDS Education Training Center
 - <https://www.necaaetc.org/>
- American Academy of HIV Medicine (AAHIVM)
 - <https://aahivm.org/provider-resources/>



Thank you

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