A Guide to Pre-Exposure Prophylaxis (PrEP) and Non-Occupational Post-Exposure Prophylaxis (nPEP) for the Primary Care Physician

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Sex is a normal part of life. However, health care practitioners often neglect discussions about sexual health.[1] Without such discussions, clinicians cannot adequately assess patients' risk of sexually transmitted infections (STIs) or offer human immunodeficiency virus (HIV) pre-exposure prophylaxis (PrEP) or non-occupational post-exposure prophylaxis (nPEP) to appropriate candidates.

PrEP and nPEP are tools used to combat the acquisition of HIV with the goal of ending the HIV epidemic. Yet prescribing rates remain low, in part because clinicians remain unfamiliar with the clinical guidelines.[2] In this article, we review taking a comprehensive sexual history and summarize the guidelines for prescribing and monitoring PrEP and nPEP. We aim to help clinicians gain the familiarity and confidence needed to prescribe PrEP and nPEP to appropriate candidates.

TAKING A SEXUAL HISTORY

Taking a brief, targeted sexual history is recommended for all adult and adolescent patients as part of ongoing primary care.[3] Barriers such as time constraints and clinician and patient discomfort can hinder collection of comprehensive sexual histories.[1] However, the sexual history provides an important opportunity to discuss behavioral risks and mitigation strategies, and to determine appropriate STI screening.[1]

Despite the importance of taking a comprehensive sexual history, only 56% of surveyed primary care physicians feel adequately trained to take a sexual history. Moreover, only 58% reported asking about sexual activity at routine visits.[1]

Clinicians also exhibit bias when taking sexual histories. For example, clinicians take sexual histories at higher rates in female and Black patients, those on Medical Assistance, and those presenting for STI-related concerns.[4] Conversely, clinicians take fewer sexual histories in older adults, although 54% of adults aged 65-80 years in romantic relationships report being sexually active.[4,5] Additionally, younger clinicians take fewer sexual histories in older patients, compared to their older colleagues. Relying on demographics alone in risk stratification can lead to missed opportunities for care or, conversely, the over-medicalization of normal behavior.

As the prevalence of STIs reaches historic highs in the United States, the importance of a framework for routinely obtaining comprehensive sexual histories cannot be overstated.[3] The Centers for Disease Control and Prevention (CDC) recommends utilizing the "Five Ps" as a standardized strategy for eliciting key information about patients' sexual histories. These include information about patients' partners, practices, protection from STIs, history of STIs, and prevention of pregnancy.[3] The Five Ps help keep a comprehensive sexual history simple and organized. (Refer to the Fall 2023 *JLGH* article, "Updates in the Treatment of Sexually Transmitted Diseases," for a more detailed discussion about the Five Ps.[6])

PRE-EXPOSURE PROPHYLAXIS

A comprehensive sexual history helps identify patients at increased risk of acquiring HIV who may benefit from PrEP. The U.S. Preventive Services Task Force (USPSTF) recommends clinicians offer PrEP to all sexually active adults and adolescents at substantial risk of acquiring HIV (see Fig. 1 on page 104).[7]

The USPSTF also recommends clinicians offer PrEP to people who have injected drugs (PWID) in the past six months and share injection equipment.[7] Not only does PrEP mitigate the risk of HIV transmission,

Individuals who have had vaginal or anal sex in the past 6 months AND any of the following:
≥ One sexual partner(s) with unknown HIV status and inconsistent condom use
HIV+ partner with unknown or detectable viral load
A recent bacterial sexually transmitted infection (STI) in the past 6 months
OR the following alone:
People who have injected drugs (PWID) in the past 6 months and share injection drug equipment

Fig. 1. Identifying substantial risk for HIV acquisition. *Source: USPSTF.*[7]

but a PrEP office visit provides an opportunity to discuss patients' mental health, provide referrals to behavioral health specialists or drug treatment centers, and offer medications for opioid use disorder.[8]

Initiation

For patients who are interested in starting or restarting PrEP and meet the eligibility criteria, the first step is to rule out a current HIV infection through laboratory testing and a review of systems.[8] The appropriate HIV laboratory test to rule out current infection depends on whether a patient has recently taken antiretroviral medications.[8]

Antiretrovirals used for PrEP can suppress early viral replication, which can delay development and detection of antibodies to HIV (seroconversion). Thus, if exposed to oral antiretrovirals in the past three months or injectable antiretrovirals within the past 12 months, it is important to obtain both an HIV antigen/antibody (Ag/Ab) test *and* an HIV viral load (HIV RNA).[8]

In contrast, for individuals without recent exposure to antiretroviral therapy, a combination HIV Ag/Ab test is sufficient. Clinicians can use the algorithms in Figs. 2 and 3 from the CDC's 2021 PrEP clinical practice guideline to confidently determine the HIV status of a patient interested in PrEP.[8]

The detection of acute HIV prior to starting PrEP is crucial to prevent the development of drug-resistant virus strains; PrEP is sufficient to prevent but not treat HIV, and clinical trials reveal drug-resistant virus can emerge in individuals who start PrEP with unrecognized acute HIV infection.[8-10] Acute infections may not be picked up by HIV screening tests during the window period. The window period refers to the time between potential exposure to HIV and the point when tests can reliably detect the virus or the body's response to it.

The duration of the window period varies depending on the type of test used, with viral load (RNA) capable of detecting infection earlier than Ag/Ab tests (10 to 33 days versus 18 to 45 days after exposure, respectively).[11] If patients report symptoms of acute HIV, further history (e.g., recent exposures) should be elicited prior to prescribing PrEP. Common symptoms of acute infection include fever, fatigue, myalgia, skin rash, headache, pharyngitis, cervical adenopathy, arthralgia, night sweats, and diarrhea.[12]

Clinicians should test all individuals starting PrEP for syphilis, gonorrhea, and chlamydia based on sites of sexual activity (oropharyngeal, urine/endocervical, and/or rectal). Reduced renal function impacts medication selection, so a serum creatine needs to be measured.

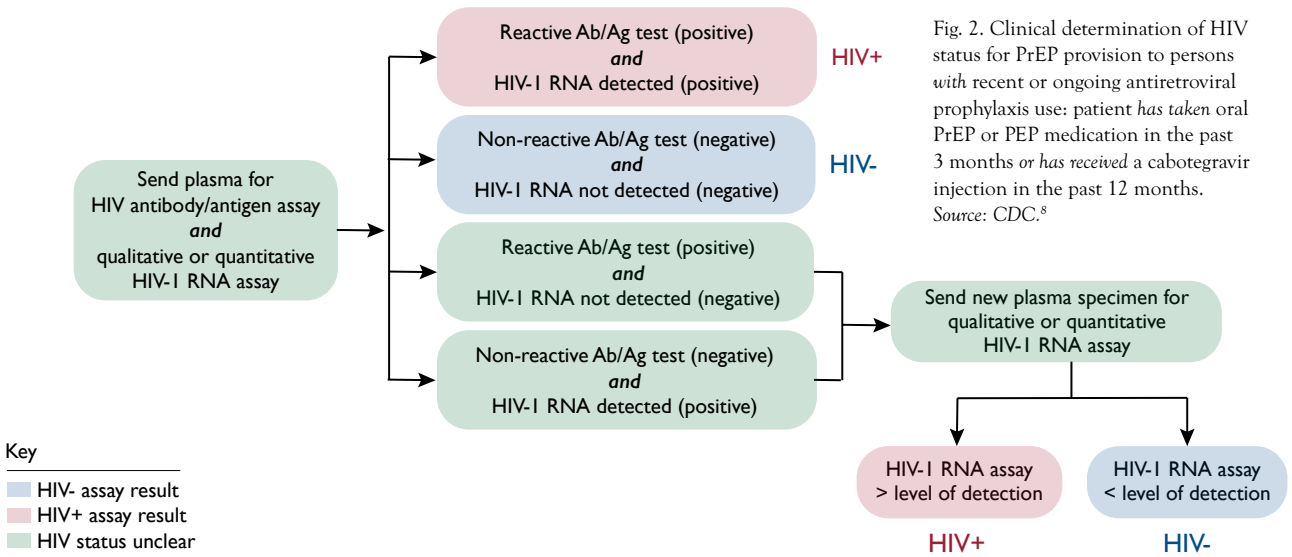

Fig. 2. Clinical determination of HIV status for PrEP provision to persons *with* recent or ongoing antiretroviral prophylaxis use: patient *has taken* oral PrEP or PEP medication in the past 3 months *or has received* a cabotegravir injection in the past 12 months. *Source: CDC.*[8]

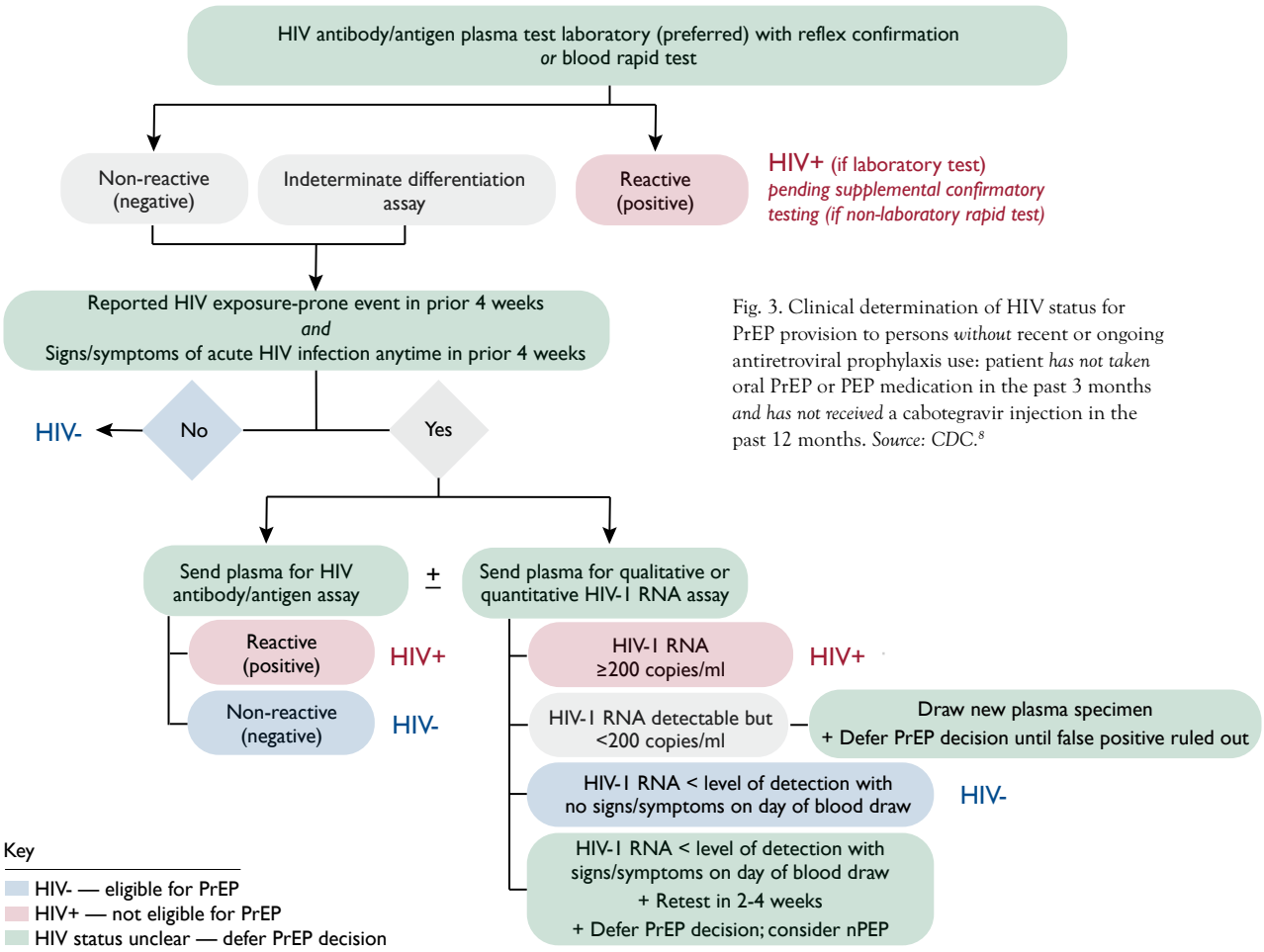

Fig. 3. Clinical determination of HIV status for PrEP provision to persons *without* recent or ongoing antiretroviral prophylaxis use: patient *has not taken* oral PrEP or PEP medication in the past 3 months *and has not received* a cabotegravir injection in the past 12 months. *Source: CDC.*[8]

Hepatitis B and C testing should be conducted, as co-infection with HIV is not uncommon due to shared routes of transmission.[8] Hepatitis B screening is of particular importance as some medications used for PrEP (tenofovir and emtricitabine) are also used to treat hepatitis B.[8] These medications suppress hepatitis B viral replication, but do not cure infection, and pose a risk of a hepatitis flare upon PrEP discontinuation.[8]

Medication Options for PrEP

The Food and Drug Administration (FDA) approved tenofovir disoproxil fumarate (300 mg/day)/emtricitabine (200 mg/day) (Truvada®) as the first oral PrEP medication for adults in 2012. In 2018, approval was expanded to include adolescents weighing at least 35 kg.[13] It is highly efficacious in preventing HIV in all populations.[14] Headache, abdominal pain, and decreased weight are common side effects.[15-17]

The long-term safety concerns with this medicine include decreased bone mineral density and mildly decreased kidney function, thus it should not be initiated if the creatinine clearance (CrCl) <60 mL/min. Recent studies demonstrate that these changes are usually reversible after medication cessation.[18] Tenofovir disoproxil fumarate/emtricitabine is available in generic form.

In 2019, the FDA approved tenofovir alafenamide (25 mg/day)/emtricitabine (200 mg/day) (Descovy®) for PrEP.[19] It has similar efficacy to tenofovir disoproxil fumarate/emtricitabine and is safer to use in those with renal dysfunction. It can be initiated with a CrCl ≥30 mL/min.[14] Mild increases in low-density lipoprotein (LDL) and weight have been observed with use of this medication.[16] Tenofovir alafenamide is only approved as PrEP for men who have sex with men (MSM) and transgender women (TGW).[16] Common side effects include diarrhea, nausea, and mild weight gain.[16,20] There is no generic formulation available.

Cabotegravir (600 mg/injection) (Apretude®), the first injectable PrEP medication, was approved by the FDA in 2021.[21] It is an excellent option for individuals who struggle with taking daily pills, as injection is

only needed every two months for maintenance.[21] Additionally, it is a good choice for those who are intolerant of oral regimens or who have more severe kidney disease as it can be used with a CrCl <30 mL/min.[16]

Cabotegravir is the most effective form of PrEP, likely attributable to patients' lack of compliance with prescribed oral medications.[22] However, cabotegravir has a "long tail" of up to 12 months, meaning it can remain in the body at detectable, but not necessarily therapeutic, levels for long periods of time.[23] This long tail can breed drug resistance in patients who miss doses or who discontinue the medication but have ongoing risk.[24,25] There is no generic formulation available.

All regimens have demonstrated efficacy and safety, and the choice depends on individual patient factors.[16] See Table 1 for a side-by-side comparison of PrEP medications.

PrEP Protective Efficacy

Although there is no consensus on the drug concentrations in different body tissues associated with protection from HIV acquisition, pharmacokinetics studies have assessed the relationship of PrEP dosing frequency to HIV protective efficacy.[26-28] These studies suggest the rectal or vaginal mucosa concentrations of tenofovir disoproxil fumarate +/- emtricitabine that correlate with HIV protectivity.[26-28]

In one study, tenofovir concentrations were found to be significantly higher in the rectal mucosa with fewer weekly doses compared with the female genital tract.[27] This finding suggests patients who have a female genital tract need greater compliance to achieve protectivity.[27] In another study of tenofovir concentrations in MSM, HIV risk reduction was estimated to be 76% for patients taking two doses per week, 96% for patients taking four doses per week, and 99% for patients taking seven doses per week.[28] Thus, perfect compliance is likely not necessary to confer protection in MSM, but increased compliance rates confer more protectivity.[26,28] Similar pharmacokinetics data are not currently available for tenofovir alafenamide or cabotegravir.[8]

CDC guidance states that oral PrEP reaches maximum protection from HIV for receptive anal sex (bottoming) after about seven days of daily use.[29] For receptive vaginal sex and injection drug use, oral PrEP reaches maximum protection at about 21 days of daily use.[29] There are no sufficient data available on the time required for oral or injection PrEP to reach maximum protection for insertive anal sex (topping) or insertive vaginal sex.[29]

On Demand or 2-1-1 PrEP

For MSM and TGW, there is an alternative to a daily dosing regimen. The 2-1-1 or "on-demand" dosing regimen involves taking two tablets of tenofovir disoproxil fumarate/emtricitabine 2-24 hours before anticipated sexual activity, followed by one tablet daily for the next two days (see Fig. 4).[30] This method aims to provide HIV protection during times of increased risk, with the benefit of reducing the total number of pills taken compared to daily PrEP.

Individuals who benefit most from the 2-1-1 dosing strategy are those who have infrequent, but some-

Table 1. Comparison of Medications Used for PrEP

	Tenofovir disoproxil fumarate	Tenofovir alafenamide	Cabotegravir
Who can use?	All exposures, including sexual and injection drug use	Sexual exposures in cisgender men, TGW, and adolescents weighing ≥35 kg	Sexual exposures in all adults and adolescents weighing ≥35 kg
Exclusions	Approved in all populations; should not use with CrCl <60 mL/min	Not approved for those exposed through receptive vaginal sex or PWID; should not use with CrCl <30 mL/min	Not approved for PWID
Safety concerns	Potential decrease in renal function and bone mineral density	Small increase in LDL	Long medication tail
Side effects	Headache, abdominal pain, and decreased weight are common side effects	Diarrhea, nausea, headache, fatigue, abdominal discomfort, mild weight gain	Mild weight gain Mild injection site reaction, usually improves with time
Dosing	Daily or on demand	Daily only	Optional 30-day oral lead-in, followed by first injection First two injections given 4 weeks apart; thereafter, dosed every 2 months
Used to treat hepatitis B?	Yes	Yes	No
Generic available?	Yes	No	No

TGW = transgender women; CrCl = creatinine clearance; PWID = persons who inject drugs; LDL = low-density lipoprotein

Adapted from Vail et al.[16]

what planned, sexual activity or who have challenges with daily medication adherence. It does require a high level of engagement and awareness of potential sexual activity to ensure efficacy. Two large randomized clinical trials, IPERGAY and Prevenir, have demonstrated protective efficacy with the 2-1-1 dosing regimen.[31-33] When administered as instructed, tenofovir disoproxil fumarate/emtricitabine had a relative reduction of 86% in the risk of HIV-1 infection in the population studied.[31] Although on-demand dosing is not FDA approved at this time, the International Antiviral Society-USA endorses it as an optional dosing method.[34]

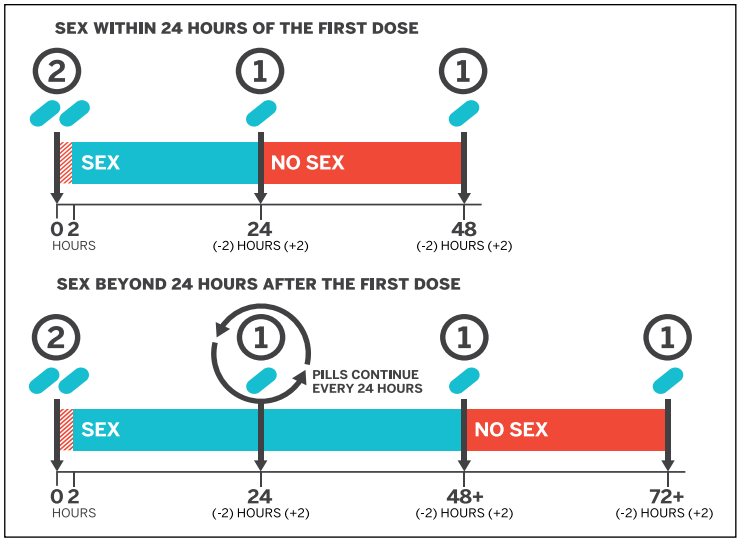

Fig. 4. Visual representation of the PrEP 2-1-1 dosing. *Source: San Francisco AIDS Foundation.*[30] *Used with permission.*

Same-Day PrEP Initiation

Most patients can start PrEP the same day as their appointment, while their labs are in process. A 2019 study demonstrated same-day prescribing is both safe and convenient.[35] Almost 80% of same-day start study participants came to at least one follow-up appointment, and 100% reported they liked having the option for a same-day start.[35]

Shortening the time to initiate PrEP is useful for patients with time constraints, significant barriers to returning to clinic, or those at high risk for HIV acquisition between visits.[8] Candidates for same-day starts should have access to a clinic with the following capabilities:

- Immediately able to draw necessary lab tests.
- Can assist uninsured or underinsured patients in obtaining health insurance or copayment assistance.
- Can provide rapid follow-up contact for patients whose laboratory test results indicate HIV infection or renal dysfunction.
- Can provide scheduled follow-up care appointments.
- Have clinicians available to dispense or prescribe oral PrEP medication.

However, same-day PrEP initiation is not appropriate for everyone. Patients who are ambivalent about starting PrEP, unable to undergo necessary laboratory testing, exhibit signs of acute HIV infection, have a history of renal disease, lack insurance or payment means for medication, or do not have reliable contact information for follow-up are not suitable candidates.[8]

PrEP Monitoring

Patients taking oral PrEP should follow-up every three months.[8] At these visits, clinicians should conduct repeat HIV screening, assess medication compliance, and continue to discuss additional risk-reduction strategies.[8] It should be noted that taking PrEP is an incredibly important risk-reduction strategy for which patients should be commended.

Repeat STI screening should be conducted for MSM and TGW every three months, and every six months for all sexually active individuals on PrEP.[8] Clinicians should check serum creatinine — every six months for individuals aged ≥50 years or with a CrCl <90 mL/min, and every 12 months for individuals aged <50 years with a CrCl >90 mL/min.[8] For individuals on tenofovir alafenamide, a yearly lipid panel is recommended.[8] See Table 2 on page 108 for a full laboratory monitoring schedule.

All patients receiving injectable cabotegravir for PrEP should return one month after their first injection for repeat HIV viral load testing. Starting after the second injection, patients should return every two months for repeat HIV viral load testing and cabotegravir injection. Unlike oral PrEP, patients receiving injection therapy do not need routine creatinine, lipids, and hepatitis serologies monitoring unless these values have previously been noted to be abnormal. Screen for bacterial STIs per Table 2 on page 108.[8]

NON-OCCUPATIONAL POST-EXPOSURE PROPHYLAXIS

Occupational post-exposure prophylaxis (PEP) emerged in the 1990s as a safe and effective intervention for preventing HIV acquisition in health care workers exposed to HIV-contaminated blood or body fluids. It reduced transmission rates in one study by as much as 81%.[36,37]

Table 2. Timing of PrEP-Associated Laboratory Tests[8]

Oral PrEP-Associated Laboratory Tests

Test	Screening/Baseline Visit	Q3 months	Q6 months	Q12 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 or 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	

Injectable PrEP-Associated Laboratory Tests

Test	Initiation Visit	1 month visit	Q2 months	Q4 months	Q6 months	Q12 months	When Stopping CAB
HIV*	X	X	X	X	X	X	X
Syphilis	X			MSM/TGW only	Heterosexually active women and men only		MSM/TGW only
Gonorrhea	X			MSM/TGW only	Heterosexually active women and men only	X	MSM/TGW only
Chlamydia	X			MSM/TGW only	MSM/TGW only	Heterosexually active women and men only	MSM/TGW only

X = all PrEP patients; eCrCl = estimated creatinine clearance; MSM = men who have sex with men; TGW = transgender women; F/TAF = emtricitabine and tenofovir alafenamide; PWID = persons who inject drugs
** HIV-1 RNA assay*

However, it is important to note that no prospective randomized placebo controlled clinical trials exist to evaluate the efficacy of *non*-occupational PEP (antiretroviral therapy use after HIV exposure through sexual contact or injection drug use). Instead, recommendations for nPEP are extrapolated from observational and animal studies.[37,38]

Candidacy for nPEP

Prompt evaluation of individuals potentially exposed to HIV is paramount. The 2016 CDC and Department of Health and Human Services nPEP Guidelines[38] recommend offering nPEP to individuals who meet all the following:

- Patient has had exposure with substantial risk for HIV acquisition (defined in Fig. 5).
- Patient presents to care within 72 hours of the exposure.
- Known source individual is HIV positive.

If the source individual's HIV status is unknown, nPEP can be offered on a case-by-case basis.[38]

Locally, the Penn Medicine Lancaster General Health Emergency Department has three-day supplies of nPEP medications to give to patients, who can then follow-up for the rest of their medication and testing with their primary care clinician, or if that is not possible, with the STI clinic at LGHP Comprehensive Care. nPEP is not recommended for negligible risk exposures (defined in Fig. 5) or if the patient presents >72 hours after the exposure.[38]

Laboratory Evaluation

The CDC recommends clinicians check baseline labs from both the source and exposed individuals prior to prescribing nPEP. Laboratory evaluation should include tests for HIV antigen/antibody, hepatitis B serologies (surface antigen, surface antibody, and core antibody), hepatitis C serology (hepatitis C antibody), and STI screening (gonorrhea, chlamydia, syphilis).[38] For exposed individuals, obtain serum creatinine, liver function tests, and a pregnancy test for anyone with childbearing potential.

If the source individual is known to be HIV positive, obtain a viral load and genotype.[38] Clinicians should repeat labs at the four- to six-week, three-month, and six-month marks to monitor for delayed seroconversion. See Table 3 on page 110 for full testing recommendations from the CDC.

Medication Options for nPEP

Strong evidence identifying an optimal combination of antiretroviral medication for nPEP is lacking. Consequently, CDC-recommended nPEP regimens are based on expert opinion and observation of drug efficacy, tolerance, and adherence.[37,38]

The CDC recommends a three-drug regimen be utilized because it maximizes viral suppression and confers greater protection from drug-resistant virus.[38] The preferred three-drug regimen for adults and adolescents aged ≥13 years consists of a 28-day course of tenofovir disoproxil fumarate (300 mg/day) + emtricitabine (200 mg/day) + either raltegravir (400 mg twice daily) or dolutegravir (50 mg/day).[38] Dolutegravir has the benefit of daily dosing, whereas raltegravir is dosed twice daily, which may present a challenge for some patients. Common side effects of this regimen include nausea, vomiting, diarrhea, fatigue, headaches, and insomnia.[38]

The preferred regimen cannot be used with CrCl <60 mL/min due to safety concerns with the tenofovir disoproxil fumarate component. The alternative regimen recommended by the CDC for individuals with impaired renal function is renally dosed zidovudine and lamivudine + either raltegravir or dolutegravir (dosing as above).[38] However, it is important to note that newer medications with better safety profiles and tolerability have become available since the CDC nPEP guidelines were published in 2016.

Tenofovir alafenamide (25 mg/day)/emtricitabine (200 mg/day) (Descovy®) was approved by the FDA for PrEP less than six months before the nPEP guidelines were published. Many clinicians now prescribe Descovy® in place of tenofovir disoproxil fumarate/emtricitabine (Truvada®) in the preferred 28-day nPEP regimen, as it can be used to a CrCl ≥30 mL/min.[39,40]

Growing evidence further suggests that the single-tablet regimen of tenofovir alafenamide (25 mg/day) + emtricitabine (200 mg/day) + bictegravir (50 mg/day) (Biktarvy®) is an effective and more tolerable option for nPEP than older agents.[41,42] Consequently, some clinicians have begun offering it for this purpose for the standard 28-day course. However, it is important to note that Biktarvy® and tenofovir alafenamide are not currently FDA approved for nPEP.

Further research is needed to explore and evaluate new medications for nPEP to ensure their safety, efficacy, and tolerability in preventing HIV infection.

Duration

Exposed individuals should continue nPEP until the source patient's HIV status is confirmed. If negative, they can stop the medication.

If the source patient is known or found to have HIV and has a detectable or unknown viral load, the exposed individual should continue nPEP for a 28-day course.[43]

FINANCIAL COVERAGE FOR PrEP AND nPEP

When PrEP first became available, its high cost (approximately $1,800 per month) limited access to only a fraction of eligible individuals.[44] However, in 2019, the USPSTF granted PrEP a grade A recommendation, meaning it is strongly recommended to

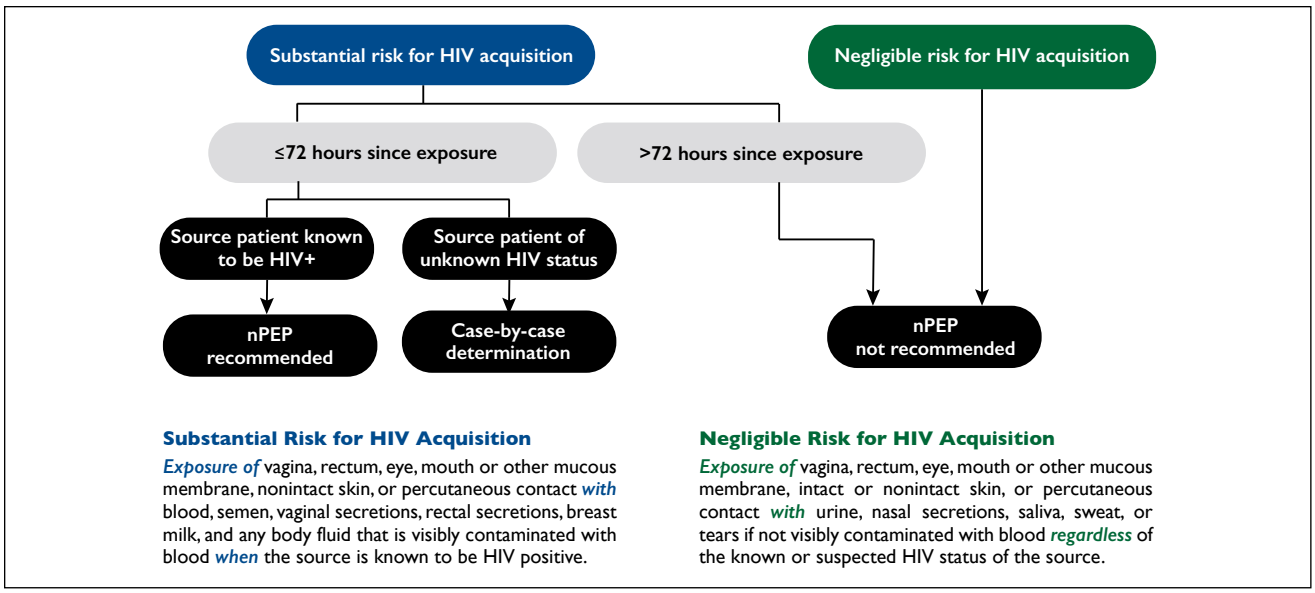

Fig. 5. Algorithm for evaluation and treatment of possible non-occupational HIV exposures. *Source: CDC.*[38]

eligible patients.[45] Preventive services with an A or B recommendation from the USPSTF are covered by most insurers without cost sharing.[46] The Affordable Care Act further ensures comprehensive PrEP coverage under most insurance plans and state Medicaid programs, making PrEP accessible at no cost to many individuals.[47]

In Pennsylvania, Medicaid covers PrEP- and nPEP-associated laboratory testing and medications.[47,48] For individuals with private insurance, medication co-pay assistance programs are available through Gilead Sciences and ViiVConnect to pay for Descovy® and Apretude®, respectively.[48] The national Ready, Set, PrEP program covers the cost of Truvada® and Descovy® for individuals without insurance.[8]

Locally, free PrEP-associated laboratory testing for individuals without insurance is available at the STI clinic at LGHP Comprehensive Care, located at 554 N. Duke Street in Lancaster, through a state-funded provider agreement. If nPEP medication access is an issue, clinicians can contact LGHP Comprehensive Care at 717-544-4943 to request a limited supply.

Table 3. CDC Testing Recommendations Prior to nPEP Consideration[38]

	Source	Exposed Persons			
	Baseline	Baseline	4-6 weeks after exposure	3 months after exposure	6 months after exposure
Test		For all persons considered for or prescribed nPEP for any exposure			
HIV Ag/Ab testing[a] (or antibody testing if Ag/Ab test unavailable)	√	√	√	√	√ [b]
Hepatitis B serology, including: hepatitis B surface antigen, hepatitis B surface antibody, hepatitis B core antibody	√	√	—	—	√ [c]
Hepatitis C antibody test	√	√	—	—	√ [d]
		For all persons considered for or prescribed nPEP for sexual exposure			
Syphilis serology[e]	√	√	√	—	√
Gonorrhea[f]	√	√	√ [g]	—	—
Chlamydia[f]	√	√	√ [g]	—	—
Pregnancy[h]	—	√	√	—	—
		For all persons prescribed tenofovir DF + emtricitabine + raltegravir *or* tenofovir DF + emtricitabine + dolutegravir			
Serum creatinine (for calculating estimated creatinine clearance[i])		√	√	—	—
Alanine transaminase, aspartate aminotranferase		√	√	—	—
		For all persons with HIV infection confirmed at any visit			
HIV viral load		√	√ [j]		
HIV genotypic resistance		√	√ [j]		

Ag/Ab = antigen/antibody combination test; HIV = human immunodeficiency virus; nPEP = non-occupational postexposure prophylaxis; tenofovir DF = tenofovir disoproxil fumarate.

[a] *Any positive or indeterminate HIV antibody test should undergo confirmatory testing of HIV infection status.*

[b] *Only if hepatitis C infection was acquired during the original exposure; delayed HIV seroconversion has been seen in persons who simultaneously acquire HIV and hepatitis C infection.*

[c] *If exposed person susceptible to hepatitis B at baseline.*

[d] *If exposed person susceptible to hepatitis C at baseline.*

[e] *If determined to be infected with syphilis and treated, should undergo serologic syphilis testing 6 months after treatment.*

[f] *Testing for chlamydia and gonorrhea should be performed using nucleic acid amplification tests. For patients diagnosed with a chlamydia or gonorrhea infection, retesting 3 months after treatment is recommended.*
- *For men reporting insertive vaginal, anal, or oral sex, a urine specimen should be tested for chlamydia and gonorrhea.*
- *For women reporting receptive vaginal sex, a vaginal (preferred) or endocervical swab or urine specimen should be tested for chlamydia and gonorrhea.*
- *For men and women reporting receptive anal sex, a rectal swab specimen should be tested for chlamydia and gonorrhea.*
- *For men and women reporting receptive oral sex, an oropharyngeal swab should be tested for gonorrhea.*

[g] *If not provided presumptive treatment at baseline, or if symptomatic at follow-up visit.*

[h] *If woman of reproductive age, not using effective contraception, and with vaginal exposure to semen.*

[i] *eCrCl = estimated creatinine clearance calculated by the Cockcroft-Gault formula: eCrClCG = [(140 - age) x ideal body weight] + (serum creatinine x 72)(x 0.85 for females).*

[j] *At first visit where determined to have HIV infection.*

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