Preexposure Prophylaxis for HIV Prevention in the United States: An Overview and Update

Nurses play a pivotal role in the battle against HIV.

ABSTRACT: There were 36,136 new HIV diagnoses in the United States and dependent areas in 2021, despite a 12% reduction in estimated HIV incidence from 2017 to 2021. The burden of HIV remains disproportionately high among certain populations, including gay and bisexual men, Black/African American individuals, and Hispanic/Latino individuals, and racial and ethnic health care disparities persist. The Ending the HIV Epidemic initiative aims to significantly reduce new infections, with a focus on HIV prevention, particularly the use of preexposure prophylaxis (PrEP). However, challenges remain in achieving equitable PrEP distribution. As frontline health care providers, nurses play a pivotal role in this battle against HIV. This article provides an update on PrEP screening recommendations, the types of PrEP available, dosing, adverse effects, and the role of nurses in patient support and monitoring.

Keywords: Ending the HIV Epidemic, HIV, preexposure prophylaxis, PrEP, prevention, public health, sexual health assessment

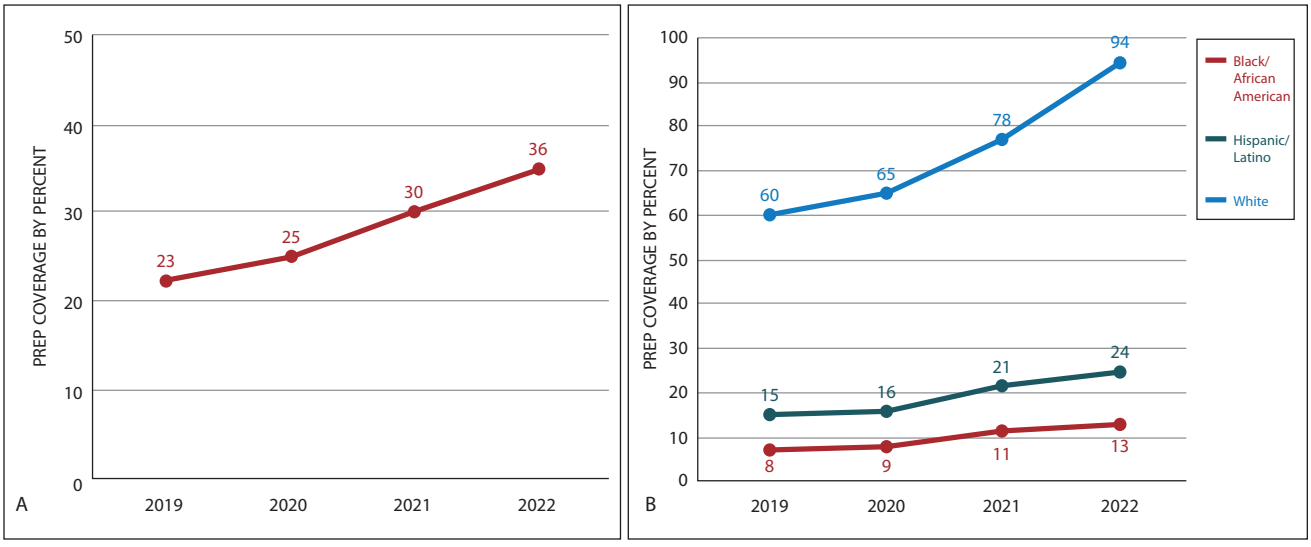
According to the Centers for Disease Control and Prevention (CDC), a total of 36,136 people in the United States and dependent areas were newly diagnosed with HIV in 2021.[1] Although the estimated HIV incidence in this population decreased by 12% from 2017 to 2021,[1] it remains disproportionately high among specific populations, including gay and bisexual men, Black/African American individuals, and Hispanic/Latino individuals.[2]

The CDC estimates that in 2021, gay and bisexual men who reported male-to-male sexual contact accounted for 71% of new U.S. HIV diagnoses, while heterosexual persons accounted for 22% (of whom women accounted for an alarming 15%), and people who inject drugs accounted for 7%.[1] Transgender persons accounted for about 2% of new HIV diagnoses.[1] Racial and ethnic disparities persist in the United States, and estimates show that between 2017 and 2021, Black/African American (40%) and Hispanic/Latino individuals (29%) accounted for a greater proportion of HIV infections than White individuals (26%).[2] Alarmingly, people living in the South accounted for more than half (52%) of new HIV infections in 2021.[1]

Ending the HIV Epidemic in the United States (EHE) is a new, ambitious initiative from the U.S. Department of Health and Human Services (HHS) to reduce the number of new HIV infections by 75% by 2025 and by 90% by 2030.[3] EHE's four focus areas are diagnosis, treatment, prevention, and response. Prevention calls for implementing HIV prevention efforts with the use of preexposure prophylaxis (PrEP)—a strategy that is highly effective in preventing HIV infection in people who are at high risk for acquiring HIV.[3]

The challenge, however, is that we are nowhere near reaching these goals. Despite our progress in reducing HIV incidence in the United States, there is still work to be done to ensure that everyone has ac-

Figure 1. Estimated PrEP Coverage in the United States, 2022



A. Overall PrEP coverage and B. PrEP coverage by race and ethnicity. Images courtesy of the Centers for Disease Control and Prevention.[6]

cess to the prevention and treatment services they need.

As frontline health care providers, nurses and NPs are in a unique position in the battle against HIV and in supporting the EHE plan. The frequency of their interactions with patients and their deep understanding of local communities make them pivotal to HIV prevention efforts. Nurses serve as advocates, policy influencers, and changemakers, championing initiatives that raise awareness, reduce stigma, and promote sexual health.

To ensure that nurses continue to have access to and increased knowledge of HIV PrEP, this article will provide an overview and update on screening recommendations, the types of PrEP available, dosing, adverse effects, and patient support and monitoring.

PrEP

PrEP is an HIV prevention method in which antiretroviral drugs are taken to prevent HIV by people at high risk for acquiring HIV infection.[4] Keeping the HIV viral load—or amount of HIV in the body—at low or undetectable levels reduces the risk of transmission. When taken consistently as prescribed, PrEP reduces the risk of getting HIV from sex by about 99% and from injection drug use by at least 74%.[5]

Despite PrEP's effectiveness, its equitable distribution to the populations most susceptible to contracting HIV remains a challenge. In 2022, of the estimated 1.2 million adults and adolescents who could benefit from PrEP, only 36% were prescribed it, and there were stark racial and ethnic disparities in prescribing as well.[6] (See Figure 1.[6])

INDICATIONS AND SCREENING

Information about PrEP for HIV prevention should be provided to all HIV-negative sexually active adults and adolescents regardless of injection drug use. Nurses play a critical role in conducting comprehensive sexual health assessments and identifying patients who may benefit from PrEP. Providing patients with knowledge and information about HIV prevention empowers them to openly address their risk assessment and talk about PrEP with their families and with those in their social circles who could benefit from it.[7]

Obtaining a complete sexual history is a crucial first step in identifying patients who engage in sexual activity, including with same-sex partners, and assessing their HIV risk factors, protective behaviors, and pleasure-based sexual health factors. Health care providers should conduct sexual history assessments in all patients, regardless of gender, marital status, or sexual orientation, as HIV and other sexually transmitted infections affect diverse demographics. Beginning these assessments in adolescence, typically around the ages of 10 to 13, is especially important as this time coincides with the onset of sexual exploration. It is also important to note that even individuals who consistently report condom use during sexual encounters may still face some level of risk. Studies have shown that HIV transmission was reduced by only 80% in heterosexual couples and by 70% in men who have sex with men, despite reported condom use.[8,9]

In addition to sexual history, patients must be screened for risk factors such as alcohol use, injection drug use (particularly the sharing of needles), and substance use disorder. In this way, health care providers can educate patients on the complex interplay of risks and pleasures associated with these activities, reassure patients of their commitment to patient confidentiality, and introduce HIV screening as a necessary and routine part of patient care. The assessment algorithms in Figures 2[10] and 3[10] from the CDC's guideline, *Preexposure Prophylaxis for the Prevention of HIV Infection in the United States—2021 Update*, present concise questions aimed at evaluating specific sexual behaviors and injection drug use linked to the potential risk of acquiring HIV.[10]

Some patients, out of fear of encountering stigmatization in health care settings, might hesitate to disclose their sexual behaviors or injection drug use despite their interest in PrEP for HIV prevention. When attempting to assess these behaviors, if patients express a desire for PrEP, it should be offered to them even if they have not disclosed any specific risk behaviors.

PrEP and other HIV prevention measures should also be seamlessly incorporated into comprehensive health care services that address the various health concerns of people who inject drugs; these include but are not limited to hepatitis B and C infections, abscesses/septicemia, endocarditis, and overdose prevention.[10] Individuals may also benefit from referrals to substance use disorder treatment, mental health services, harm reduction programs, syringe service programs that offer access to sterile injection equipment, and various social support services, as needed.[10]

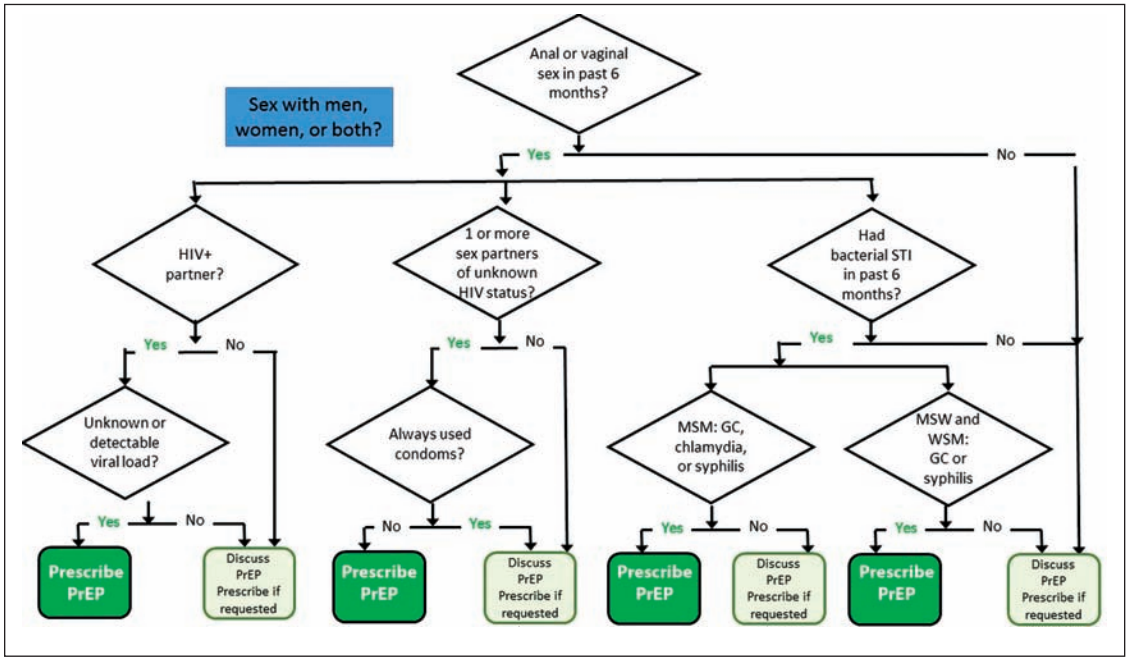
ORAL VS. INJECTABLE PREP

There are currently two oral tablets and one injectable form of PrEP approved for use by the Food and Drug Administration (FDA). The first to be approved was a fixed-dose combination of emtricitabine (F) and tenofovir disoproxil fumarate (TDF) (F/TDF; Truvada) in 2012, followed by a fixed-dose combination of emtricitabine and tenofovir alafenamide (TAF) (F/TAF; Descovy) in 2019.[10] An injectable form of PrEP, cabotegravir (Apretude), was approved in 2021.[11]

Oral PrEP. Truvada is indicated for all people at risk for HIV through sex or injection drug use, and Descovy is indicated for men and transgender women at similar risk for HIV.[10] It is important to note that Descovy is not approved for PrEP in women at risk for HIV through receptive vaginal sex; Truvada is the recommended option in that case.[10] Truvada and its generic version remain the most frequently prescribed PrEP medications.[10]

Dosing. Truvada is given as a once-daily tablet of 200 mg F/300 mg TDF. Descovy is given as a once-daily tablet of 200 mg F/25 mg TAF.[10,12] A nondaily

Figure 2. Assessing Sexually Active Persons for PrEP



GC = gonorrhea; MSM = men who have sex with men; MSW = men who have sex with women; PrEP = preexposure prophylaxis; STI = sexually transmitted infection; WSM = women who have sex with men.
Reprinted from *Preexposure Prophylaxis for the Prevention of HIV Infection in the United States—2021 Update.*[10]

dosing approach for Truvada that is only approved in men who have sex with men is known as "2-1-1," or the event-driven or on-demand PrEP approach. The 2-1-1 regimen involves timing oral Truvada doses in relation to sexual activity.[10, 13] This method reduces the risk of HIV acquisition from sex by 86%.[13] For men who have sex with men prescribed the 2-1-1 regimen, the recommended dosing schedule is as follows (see Figure 4[10])[10]:

- Take two Truvada tablets two to 24 hours before sexual activity (closer to 24 hours is preferred).
- Take one Truvada tablet 24 hours after the initial two-tablet dose.
- Take one Truvada tablet 48 hours after the initial two-tablet dose.

Mechanism of action. Emtricitabine is a type of nucleoside reverse transcriptase inhibitor (NRTI) that, after undergoing phosphorylation, disrupts the function of HIV viral DNA polymerase and hinders viral replication.[14, 15] It operates as a cytosine analog. Tenofovir, another NRTI, functions by undergoing hydrolysis and phosphorylation. This process enables it to impede HIV-1 reverse transcriptase by vying with adenosine monophosphate as a substrate. TAF is a prodrug of NRTI tenofovir,[14] and is a more targeted form of tenofovir than TDF. TAF has demonstrated remarkable antiviral efficacy at a 10 times lower dosage than TDF. TAF also offers an improved safety profile for renal and bone health. TAF works by inhibiting HIV-1 reverse transcriptase primarily by competing with the natural substrate, deoxyadenosine 5′-triphosphate. Additionally, after being incorporated into DNA, it facilitates DNA chain termination.[16, 17]

Adverse effects. A small percentage of people prescribed Truvada or Descovy may experience what is referred to as "start-up syndrome."[10, 18] Characterized by symptoms that include headache, nausea, and abdominal discomfort, start-up syndrome typically resolves within the first month of taking the medication.[10, 18]

Both Truvada and Descovy demonstrate similar high efficacy and safety profiles. For most patients, switching from Truvada to Descovy is unnecessary.[10] Although some studies have shown minor variations in laboratory markers of bone metabolism and renal function, no significant differences in clinically relevant adverse events have been observed. Nevertheless, Descovy is indicated in patients whose estimated creatinine clearance is less than 60 mL/min but at or above 30 mL/min.[10] Patients can opt for either drug based on their specific medical circumstances.[10] Health care providers should check the potential for drug–drug interactions before initiating PrEP.

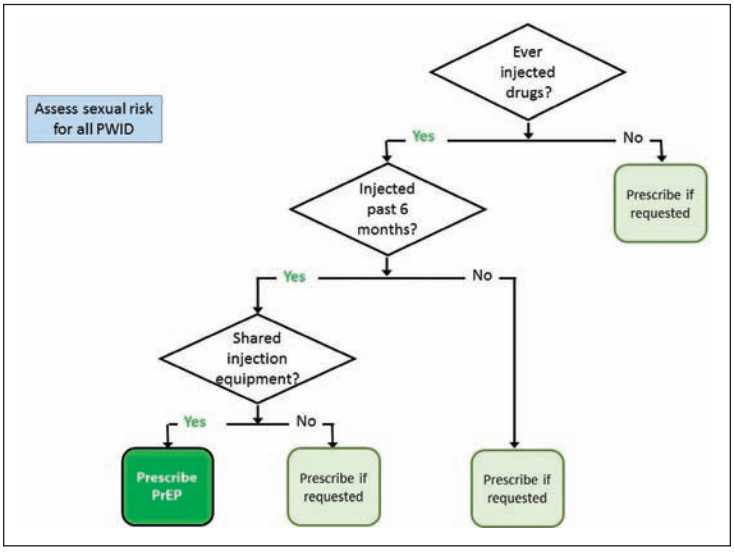
Monitoring. After starting oral PrEP, patients should schedule follow-up appointments about every three months. These can be conducted in person, virtually, or over the phone. See *Monitoring for Oral PrEP* for more details.[10]

Support and counseling. Health care providers must support a patient's PrEP journey through appropriate medication adherence counseling. See *Oral PrEP Adherence Counseling.*[10]

Injectable PrEP. Cabotegravir (Apretude) is given every two months and is at least as effective in preventing transmission as daily oral Truvada if not more so.[19] The long-acting cabotegravir injectable is particularly suitable for individuals with kidney-related issues, those who are challenged taking oral PrEP consistently, and those who favor injections every two months over a daily oral PrEP regimen. Cabotegravir is approved for all people at risk for HIV through sex or injection drug use.[10]

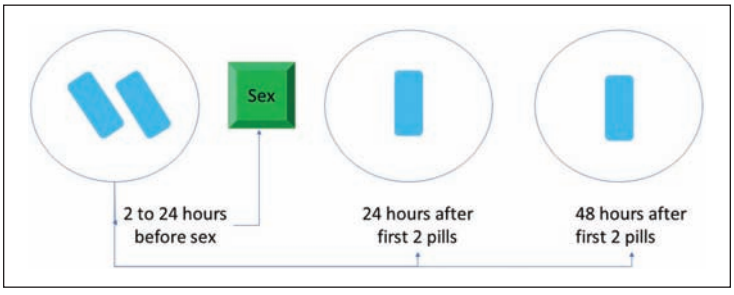
Dosing. Cabotegravir is given as 600 mg (3 mL) injections into the gluteal medius or maximus.[19] The two first injections are given one month apart; subse-

Figure 3. Assessing People Who Inject Drugs for PrEP



PrEP = preexposure prophylaxis; PWID = people who inject drugs.
Reprinted from *Preexposure Prophylaxis for the Prevention of HIV Infection in the United States —2021 Update.*[10]

Figure 4. The '2-1-1' Dosing Schedule for Oral PrEP



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Oral PrEP Adherence 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

Reprinted from *Preexposure Prophylaxis for the Prevention of HIV Infection in the United States—2021 Update.*[10]

quent injections are given every two months after that. Injections are not to be self-administered at home. Some providers may prescribe 30 mg of daily oral cabotegravir (Vocabria) for a four-week period before starting injections to assess for tolerability.[19] This is not typical, however. For intramuscular injection, it is recommended to use a two-inch needle for patients whose body mass index (BMI) is 30 or greater and a 1.5-inch needle for those with a BMI of less than 30.[19]

Mechanism of action. Cabotegravir blocks the strand transfer step of retroviral DNA integration, which is crucial for the HIV replication cycle, by binding to the integrase-active site and thereby inhibiting HIV integrase.[20]

Adverse effects. Injection site reactions (pain, tenderness, induration) were frequent following cabotegravir injections in clinical trials.[20] These reactions were generally mild or moderate, lasted only a few days, and occurred with the first two or three injections.[20] Patients can be advised to use over-the-counter pain medication and warm compresses as needed. Health care providers should check the potential for drug–drug interactions before initiating injectable PrEP.

Monitoring. Once cabotegravir injections are started, patients should return for follow-up visits at various intervals.[10] See *Monitoring for Injectable PrEP*[10] for more details.

Support and counseling. As with oral PrEP, health care providers must support patients prescribed injectable PrEP and provide adherence counseling. Patients should be scheduled for their next injection one month after the initial injection. At this appointment, patients should receive education on how to safely discontinue injections should they choose to do so, and how to restart injections if they missed or were late for an injection. Since drug levels gradually decrease, falling below a protective threshold, after discontinuing injections, the patient is exposed to both the risk of acquiring HIV and the risk of developing a drug-resistant strain of HIV.[10] Patients who discontinue cabotegravir should be provided with another effective HIV prevention method. Providers should emphasize the importance of adhering to periodic follow-up appointments even if patients have chosen not to continue with cabotegravir injections for PrEP.

U = U AND SERODIFFERENT COUPLES

When evaluating the appropriateness of PrEP for couples with different HIV statuses (one is positive and the other is negative), health care providers should inquire about the treatment and viral load status of the partner living with HIV if known to the HIV-negative partner. Individuals with HIV who consistently maintain a plasma HIV RNA viral load of < 200 copies/mL with use of antiretroviral therapy are not at risk for sexually transmitting HIV. This concept is commonly referred to as "undetectable equals untransmittable," or "U = U," or "treatment as prevention."[10]

However, it is essential to acknowledge that some partners who are aware of their HIV-positive status may not be engaged in medical care or receive effective

Monitoring for Oral PrEP[10]

See Table 1 for the relevant laboratory monitoring schedule.

Every 3 months:

- Repeat HIV testing and check for signs/symptoms of acute infection to verify patients maintain HIV-negative status.
  - Clinical indicators and manifestations of early or acute HIV infection include fever, fatigue, myalgia, skin rash, headache, pharyngitis, cervical adenopathy, arthralgia, night sweats, and diarrhea.
- Obtain a prescription or refill authorization for daily PrEP medication, ensuring coverage for a maximum of 90 days (until next HIV test).
- Assess and offer assistance for medication adherence as well as risk-reduction behaviors.
- Conduct STI testing for sexually active patients who exhibit signs/symptoms of infection. Conduct routine screenings for asymptomatic MSM or TGW at increased risk for recurrent bacterial STIs, such as those with prior diagnoses of syphilis, gonorrhea, chlamydia, or who have multiple sexual partners.
- Answer questions and provide any new information on PrEP use.

Every 6 months:

- Monitor eCrCl for those ages ≥ 50 years or with an eCrCl < 90 mL/min when starting PrEP.
  - If other factors posing a risk to renal safety are present, such as hypertension or diabetes, monitor renal function more frequently, conducting tests (such as urinalysis) to check for proteinuria.
  - An increase in serum Cr levels should not be a reason to withhold treatment so long as eCrCl remains ≥ 60 mL/min for Truvada or ≥ 30 mL/min for Descovy.
  - If there is a consistent decrease in eCrCl (while still above ≥ 60 mL/min for Truvada or ≥ 30 mL/min for Descovy), ask about the patient's use of high doses of NSAIDs or protein powders. In such cases, it may be advisable to consult a nephrologist or conduct a more comprehensive renal evaluation.
- Perform STI testing for all sexually active individuals receiving PrEP, including screening for syphilis and gonorrhea. For MSM and TGW, also include screening for chlamydia, even in the absence of symptoms.
- Evaluate the patient's willingness to continue PrEP.

Every 12 months:

- Monitor eCrCl for all patients remaining on PrEP.
- Regularly assess triglyceride and cholesterol levels, and also monitor the patient's weight, when prescribing Descovy for PrEP.
- Perform chlamydia screening for heterosexual individuals, both women and men, even if no symptoms.

Table 1. Oral PrEP Laboratory Monitoring/Schedule

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

eCrCl = estimated creatinine clearance; F/TAF = emtricitabine/tenofovir alafenamide; MSM = men who have sex with men; NSAID = nonsteroidal antiinflammatory drug; PrEP = preexposure prophylaxis; PWID = people who inject drugs; STI = sexually transmitted infection; TGW = transgender women; X = all PrEP patients.

antiretroviral therapy, be on other highly effective treatment regimens, or adhere to their prescribed medications. Consequently, they might not consistently maintain viral loads associated with minimal transmission risk to an uninfected sexual partner. Additionally, research has shown that self-reported viral load status may not always be accurate.[21] Unfortunately, health care providers attending to the HIV-negative partner may not have access to the medical records of the HIV-positive partner, which would document their recent viral load status and the consistency of viral suppression over time.

Consideration for PrEP use may arise when the partner with HIV has experienced inconsistent viral suppression or their viral load status is unknown. PrEP might also be recommended if the partner with-

Monitoring for Injectable PrEP[10]

See Table 2 for the relevant laboratory monitoring schedule.

After the first cabotegravir injection, patients should return for a follow-up visit and injection one month later and then every two months after that.

One month after the initial injection (second injection visit, month 1):

- Conduct a follow-up HIV-1 RNA test.
- Assess for any indications of acute HIV infection.
- Administer the scheduled CAB injection.
- Address any new questions.

At each bimonthly visit (starting with the third injection, month 3):

- Conduct a follow-up HIV-1 RNA test.
- Assess for any indications of acute HIV infection.
- Administer the scheduled CAB injection.
- Ensure availability of sterile needles and syringes and offer access to drug treatment programs for PWID.
- Address any new inquiries and offer updated information on CAB.
- Discuss the advantages of consistent use of CAB and emphasize the importance of adhering to scheduled injection appointments.

At least every 4 months (every other injection visit, starting with the third injection at month 3):

- Perform testing for bacterial STIs in MSM and TGW who engage in sexual activity with men; this includes screening through blood tests and at various sites, such as the mouth, rectum, and urethra.

At least every 6 months (starting with the fifth injection, month 7):

- Perform bacterial STI screening for all sexually active heterosexual women and men, including vaginal, rectal, and urine samples, as appropriate, along with blood tests when necessary.

At least every 12 months (from the initial injection):

- Evaluate patient's willingness to continue PrEP injections.
- Perform chlamydia screening for sexually active heterosexual individuals, even in the absence of symptoms.

Table 2. Injectable PrEP Laboratory Monitoring Schedule

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	X	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

CAB = cabotegravir; MSM = men who have sex with men; PrEP = preexposure prophylaxis; PWID = people who inject drugs; STI = sexually transmitted infection; TGW = transgender women; X = all PrEP patients.
* HIV-1 RNA assay.

out HIV engages in sexual activity with other individuals whose HIV status is unknown. In studies involving HIV serodifferent couples, reports of sexual activity with outside partners were not uncommon, and HIV infections occurred in the HIV-negative partner that were genetically unrelated to the partner living with HIV.[10, 14] Finally, PrEP can offer an extra layer of protection to the HIV-negative partner whose HIV-positive partner is reported to have achieved and maintained viral load suppression. Consequently, PrEP should not be denied to such HIV-negative individuals who request it.

WOMEN AND PREGNANCY

Women whose sexual partner is HIV positive have an elevated risk of acquiring HIV during critical times such as conception, pregnancy, and breastfeeding.[10] To mitigate this risk, health care providers should proactively present the option of PrEP with Truvada to women in this situation who are planning to conceive (and thus are engaging in unprotected sex) and to those who are currently pregnant or breastfeeding.[10] This recommendation is especially important for women whose partner's viral load is unknown, detectable, or cannot be confirmed as undetectable.[10] Recommendations in the perinatal antiretroviral treatment guidelines from the HHS appear to endorse PrEP with Truvada in this population.[10, 22] Although cabotegravir can be prescribed for women, no data are available yet for pregnancy-related outcomes.[10]

MINORS/ADOLESCENTS

PrEP is recommended for adolescents weighing at least 35 kg (77 lbs.) whose sexual or injection behaviors put them at risk for acquiring HIV.[10] As part of comprehensive primary health care, HIV screening should be discussed with all sexually active adolescents and those with a history of injection drug use. The U.S. Preventive Services Task Force recommends HIV screening for all adolescents ages 15 years and older.[10, 23] While parental or guardian involvement in an adolescent's health care is typically encouraged, there are situations where it may be inadvisable for the safety of the adolescent. Laws and regulations governing PrEP-related services for minors, such as HIV testing, vary by jurisdiction and encompass issues like consent, confidentiality, parental notification, and mandatory reporting to local authorities.[10] Health care providers considering PrEP for a minor should familiarize themselves with their region's laws, regulations, and policies.

Studies of young adolescents (under age 18) given Truvada for PrEP reported persistent decreases in bone mineral density. Less of an impact on bone health was seen with Descovy, however, due to pharmacodynamic variations between the two drugs. Therefore, health care providers may consider prioritizing Descovy over Truvada for adolescent boys starting PrEP.[10] It is worth noting that research has yet to be conducted on cabotegravir for PrEP in boys and girls under age 18.[10]

DELIVERING PREVENTION THE RIGHT WAY

To end the HIV epidemic, prevention strategies to deliver HIV PrEP must be implemented the right way. This requires a comprehensive approach that considers the needs and desires of the communities affected by HIV. Community engagement, cultural sensitivity, and the affirmation of diverse identities and orientations are fundamental principles that should guide PrEP programs. To end HIV, we must recognize that a one-size-fits-all approach will not suffice. Instead, we should prioritize inclusivity, accessibility, and respect for the unique experiences of at-risk individuals. In addition, by ensuring that prevention methods align with the preferences of our communities, we can increase their acceptability and utilization, ultimately leading to better outcomes. By doing so, we can maximize the impact of PrEP and move closer to our goal of ending the HIV epidemic.

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THE VITAL ROLE OF NURSES

Nurses play a pivotal role in HIV prevention that includes various responsibilities, from conducting sexual health assessments and screenings for at-risk individuals to providing essential education on PrEP, its benefits, and proper adherence. Nurses can have a significant impact by offering confidential and nonjudgmental counseling, fostering trust, and addressing patients' concerns. Moreover, nurses are instrumental in implementing PrEP programs, ensuring patient access to this lifesaving medication. NPs also have a crucial role, as they can prescribe PrEP, evaluate patient eligibility for treatment, and monitor its effectiveness. As advocates and change-

makers, nurses are at the forefront of policy change, advocating for inclusive and equitable PrEP access. They are the leaders in PrEP delivery and implementation, consistently striving to break down barriers, reduce stigma, and improve the overall quality of care for individuals at risk for HIV. Their dedication and expertise are essential in the fight against the HIV epidemic.

CONCLUSION

As the world grapples with increasing incidence rates of HIV and persistent disparities in care, the advent of PrEP offers a ray of hope. Available as daily oral pills or as a daily long-acting injectable, PrEP has effectively reduced HIV transmission. It is a versatile tool in our arsenal against HIV, catering to diverse patient needs.

One of PrEP's strengths is its ease of administration and management. Daily oral tablets provide an option for those comfortable with following a routine, while the long-acting injectable offers convenience for those with adherence challenges. However, to maximize PrEP's potential, health care professionals, especially nurses on the front lines of patient care, must take advantage of their ideal position to acquire, implement, and disseminate knowledge about PrEP. With appropriate training and resources, they can seamlessly integrate PrEP into clinical practice, ensuring that patients at risk for HIV receive comprehensive and equitable care. Moreover, nurses are pivotal in educating patients about PrEP, addressing concerns, and providing ongoing support to enhance adherence.

In the battle against HIV, PrEP is a powerful weapon, and nurses are the champions who can wield it effectively. By embracing this innovative approach and sharing their expertise, nurses can contribute significantly to reducing HIV incidence rates and bridging the gaps in care, bringing us closer to a future free from the burden of this devastating disease. ▼

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REFERENCES

1. Centers for Disease Control and Prevention. *HIV incidence*. Atlanta; 2023 Jun 23. HIV in the United States and dependent areas; https://www.cdc.gov/hiv/statistics/overview/in-us/incidence.html.
2. Centers for Disease Control and Prevention. Estimated HIV incidence and prevalence in the United States, 2017–2021. *HIV surveillance report, supplemental report*. 2023;28(3). https://www.cdc.gov/hiv/library/reports/hiv-surveillance/vol-28-no-3/index.html.
3. Office of Infectious Disease and HIV/AIDS Policy, HHS. *About ending the HIV epidemic in the U.S.* 2023. https://www.hiv.gov/federal-response/ending-the-hiv-epidemic/overview.
4. Ó Murchú E, et al. Oral pre-exposure prophylaxis (PrEP) to prevent HIV: a systematic review and meta-analysis of clinical effectiveness, safety, adherence and risk compensation in all populations. *BMJ Open* 2022;12(5):e048478.
5. Centers for Disease Control and Prevention. *Pre-exposure prophylaxis (PrEP)*. 2022. https://www.cdc.gov/hiv/risk/prep/index.html.
6. Centers for Disease Control and Prevention. *Dear Colleagues: information from CDC's Division of HIV Prevention*. Atlanta: Policy, Planning, and Strategic Communication; 2023 Oct 17. Dear colleague letters; https://www.cdc.gov/hiv/policies/dear-colleague/dcl/20231017.html.
7. Ambrosioni J, et al. Primary HIV-1 infection in users of pre-exposure prophylaxis. *Lancet HIV* 2021;8(3):e166-e174.
8. Smith DK, et al. Condom effectiveness for HIV prevention by consistency of use among men who have sex with men in the United States. *J Acquir Immune Defic Syndr* 2015;68(3):337-44.
9. Weller S, Davis K. Condom effectiveness in reducing heterosexual HIV transmission. *Cochrane Database Syst Rev* 2002;(1):CD003255.
10. Centers for Disease Control and Prevention. *Preexposure prophylaxis for the prevention of HIV infection in the United States—2021 update*. Atlanta; Centers for Disease Control and Prevention, U.S. Public Health Service; 2021. Clinical practice guideline; https://www.cdc.gov/hiv/pdf/risk/prep/cdc-hiv-prep-guidelines-2021.pdf.
11. Durham SH, et al. Cabotegravir: the first long-acting injectable for HIV preexposure prophylaxis. *Ann Pharmacother* 2023;57(3):306-16.
12. Chou R, et al. Preexposure prophylaxis for the prevention of HIV: updated evidence report and systematic review for the US Preventive Services Task Force. *JAMA* 2023;330(8):746-63.
13. Molina JM, et al. Daily and on-demand HIV pre-exposure prophylaxis with emtricitabine and tenofovir disoproxil (ANRS PREVENIR): a prospective observational cohort study. *Lancet HIV* 2022;9(8):e554-e562.
14. Mayer KH, et al. Emtricitabine and tenofovir alafenamide vs emtricitabine and tenofovir disoproxil fumarate for HIV pre-exposure prophylaxis (DISCOVER): primary results from a randomised, double-blind, multicentre, active-controlled, phase 3, non-inferiority trial. *Lancet* 2020;396(10246):239-54.
15. Patel PH, Zulfiqar H. Reverse transcriptase inhibitors. In: *StatPearls [internet]*. Treasure Island, FL: StatPearls Publishing; 2023. https://www.ncbi.nlm.nih.gov/books/NBK551504.
16. Paintsill E, Cheng YC. Antiviral agents. In: Schaechter M, editor. *Encyclopedia of Microbiology*. 3rd ed. Amsterdam: Elsevier/Academic Press; 2009. p. 223-57. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7149689/pdf/main.pdf.
17. Wassner C, et al. A review and clinical understanding of tenofovir: tenofovir disoproxil fumarate versus tenofovir alafenamide. *J Int Assoc Provid AIDS Care* 2020;19:2325958220919231.
18. Grant RM, et al. Preexposure chemoprophylaxis for HIV prevention in men who have sex with men. *N Engl J Med* 2010;363(27):2587-99.
19. Landovitz RJ, et al. Cabotegravir for HIV prevention in cisgender men and transgender women. *N Engl J Med* 2021;385(7):595-608.
20. Blair HA. Cabotegravir extended-release injectable suspension: a review in HIV-1 pre-exposure prophylaxis. *Drugs* 2022;82(14):1489-98.
21. Stephenson R, et al. Brief report: accuracy in self-report of viral suppression among HIV-positive men with HIV-negative male partners. *J Acquir Immune Defic Syndr* 2020;83(3):210-4.
22. Panel on Treatment of HIV During Pregnancy and Prevention of Perinatal Transmission. *Recommendations for the use of antiretroviral drugs during pregnancy and interventions to reduce perinatal HIV transmission in the United States*. Washington, DC: U.S. Department of Health and Human Services; 2023 Jan 31. https://clinicalinfo.hiv.gov/sites/default/files/guidelines/documents/perinatal-hiv/guidelines-perinatal.pdf.
23. U.S. Preventive Services Task Force, et al. Preexposure prophylaxis for the prevention of HIV infection: US Preventive Services Task Force recommendation statement. *JAMA* 2019;321(22):2203-13.