

Understanding the Window Period

HIV testing is a key component of HIV prevention, and there are multiple testing options. Antigen/antibody (Ag/Ab) lab-based tests are highly sensitive and specific but require a blood draw and may take up to a week for the laboratory to return a result. Point-of-care (POC) tests are performed on finger-stick whole blood or oral secretions and provide clients and healthcare professionals with immediate results but are less sensitive and may have a longer window period than lab-based tests. POC tests can facilitate expedited HIV prevention interventions for clients with negative test results. For clients with a positive HIV POC test, healthcare professionals can offer 1) immediate linkage to a clinical provider, 2) access to lab-based follow-up or confirmatory HIV testing, 3) immediate repeat testing with a second HIV POC test.

When offering HIV testing, it is important to understand the limitations of each test. In this document, we review the current testing technology and the time range after an exposure between when each type of test can first detect HIV and when HIV-infection should be detectable with a specific test. Understanding these key features of HIV tests can help healthcare providers appropriately counsel clients about timing for repeat testing after a given exposure and can facilitate choice of testing method to optimize use of other HIV prevention options such as post-exposure prophylaxis (PEP) and pre-exposure prophylaxis (PrEP).^{1,2}

Evolution of HIV Tests³

There are POC and lab-based tests in each category except the whole viral lysate.

- Whole viral lysate immunoglobulin (Ig) G tests (1st generation): Use a preparation of dissolved whole virus and detects anti-HIV-1/HIV-2 IgG antibody (Ab). The only remaining available test is the Western blot.
- IgG sensitive antibody tests (2nd generation): Use synthetic peptides and detects anti-HIV-1/HIV-2 IgG Ab
- IgG/IgM sensitive antibody tests (3rd generation): Use synthetic peptides and detects anti-HIV-1/HIV-2 IgM and IgG Abs
- Antigen (Ag)/Antibody (Ab) tests (4th generation): Detect P24 antigen allowing detection of HIV-1 infection before seroconversion and detect anti HIV-1/HIV-2 IgM and IgG .

What You Should Know About HIV Testing Technology and the Window Period

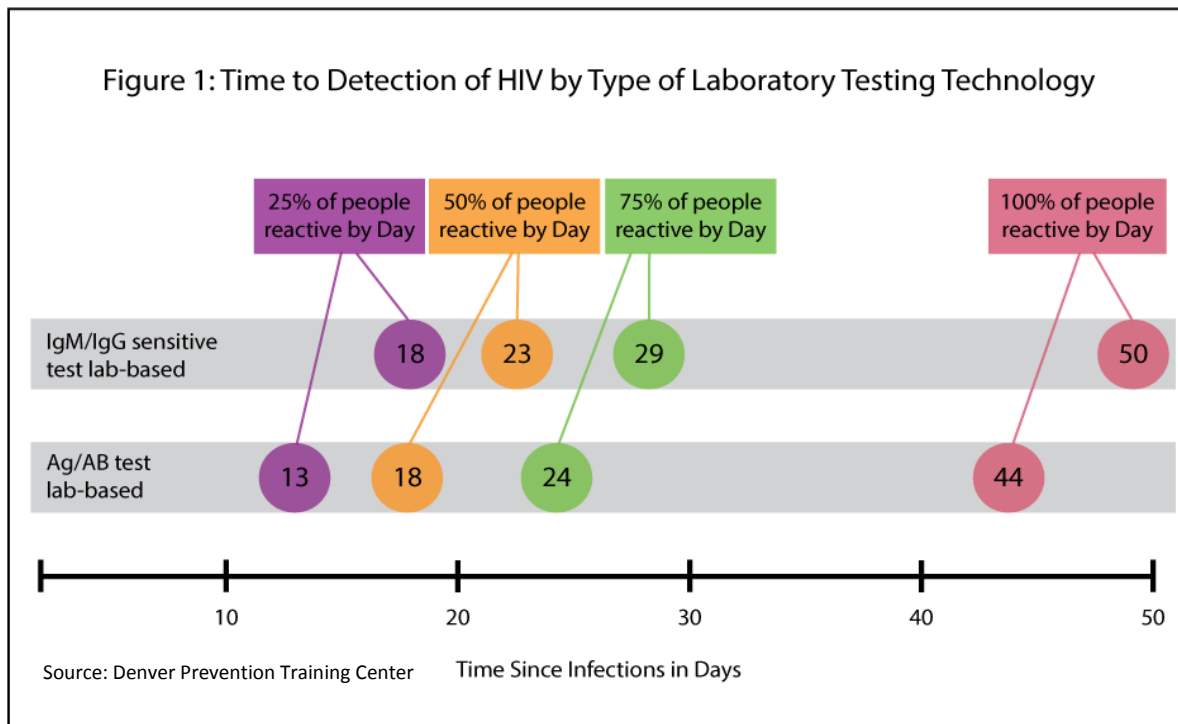
After a client has been infected with HIV-1, there is a 10-33 day eclipse in which no test can detect the HIV infection.^{4,5,6} The window period for a test is the time between HIV exposure and when a test can diagnose a resulting HIV infection. The end of the window period marks the point in time after exposure when a healthcare professional can reliably use a given test to determine if a client has been infected with HIV. Symptoms of acute HIV include fever, lymphadenopathy, and sore throat and can occur during the window period for HIV tests including Ag /Ab and IgG/IgM sensitive antibody tests. Therefore, in patients with symptoms of acute HIV, an HIV-1 viral load or nucleic acid test (NAT) is recommended.

How to Counsel Clients

After a possible exposure, an initial HIV test should be performed. If the initial HIV test is performed within the window period and is negative, several options are available for follow-up testing.

- Offer a lab-based Ag/Ab test at greater than or equal to 44 days after exposure.
- Offer an HIV IgM/IgG sensitive lab-based test at greater than or equal to 50 days after exposure.
- Offer POC testing at greater than or equal to 90 days after exposure.
- If symptoms of acute HIV infection are present, perform a NAT or viral load

For clients who present for care within 72 hours after a possible HIV exposure, PEP should be offered if the client's HIV test result is negative.² All clients with ongoing HIV exposure should be offered PrEP.¹ In clients meeting criteria for PEP, PrEP can be initiated immediately at completion of the PEP regimen if the client's repeat HIV test result is negative. If PEP and PrEP services are not available at the testing site, clients should be offered referral for these services.



What to Understand Before Implementing HIV Testing

- POC tests add convenience and immediate counseling opportunities but have an undefined window period. When using POC HIV tests, after a negative test in the window period, a client should be retested 90 days or greater after an HIV exposure. A client who is concerned about waiting this long can be referred for an Ag/Ab lab-based test at 44 days after an exposure.
- Clients testing during the window period need to be counseled on the importance of engaging in safer sex and injecting practices to avoid the potential for onward transmission of HIV.
- Clients with symptoms of acute HIV such as fever, lymphadenopathy, and sore throat should be evaluated with an HIV-1 viral load or NAT if the client's lab-based Ag/Ab testing is negative.
- Clients on PrEP with ongoing HIV exposures should be tested for HIV every three months.

For a full listing of HIV tests and test specifications access the CDC test resource page³:

<https://www.cdc.gov/hiv/pdf/testing/hiv-tests-advantages-disadvantages.pdf>

Resources

1. CDC Preexposure prophylaxis for the prevention of HIV infection in the United States – 2014 Clinical Practice Guideline
2. CDC Updated guidelines for antiretroviral postexposure prophylaxis after sexual, injection drug use, or other nonoccupational exposure to HIV – the United States, 2016
3. CDC test resource page: <https://www.cdc.gov/hiv/pdf/testing/hiv-tests-advantages-disadvantages.pdf>
4. Delaney KP et al. Time until Emergence of HIV Test Reactivity Following Infection with HIV-1: Implications for Interpreting Test Results and Retesting after Exposure. *Clin Infect Dis*. 2017;64 (1)53 -59
5. Keele BF, Giorgi EE, Salazar-Gonzalez JF, Decker JM, Pham KT, et al. Identification and characterization of transmitted and early founder virus envelopes in primary HIV-1 infection. *Proc Natl Acad Sci USA* 2008;105:7552-7.