TEST

# Screening and diagnosis for HIV

HIV testing checks blood or oral fluid for signs of human immunodeficiency virus infection.

**WHAT IT MEASURES**
HIV antibodies, p24 antigen, or viral genetic material

**SAMPLE**
Blood or oral fluid, depending on test

**FASTING NEEDED?**
No

**HOW LONG IT TAKES**
Usually 5 to 15 minutes

**RESULTS IN**
Minutes to several days; timing varies by laboratory

**USED FOR**
Screening and diagnosis

**MAIN LIMITATION**
Testing during the window period can miss infection

## Overview

HIV testing looks for evidence of infection with human immunodeficiency virus. HIV affects the immune system, which helps the body fight infections.

Different tests look for different signs of HIV:

Laboratory antigen-antibody testing on blood from a vein is commonly used for screening. Rapid finger-prick and oral-fluid tests are also available. A reactive screening result is not usually considered a diagnosis until follow-up testing confirms it.

- Antibody tests look for proteins your immune system makes after exposure to HIV.
- Antigen-antibody tests look for antibodies and p24 antigen, a part of the virus that can appear earlier.
- Nucleic acid tests , sometimes called NATs, look for HIV's genetic material in blood.

## Why the test is ordered

HIV testing may be offered as part of routine health care, during pregnancy, after a possible exposure, or when starting medicines that prevent HIV, such as PrEP.

Testing may also be ordered if another sexually transmitted infection is diagnosed, after sharing injection equipment, or if you have an illness that could be related to reduced immune function. These situations do not mean you have HIV. Testing is the only way to find out.

A NAT may be used when exposure was recent, symptoms suggest very early HIV infection, or initial test results do not agree.

## Who should have the test

Many health authorities recommend that HIV testing be offered routinely, even when no specific risk is reported. Exact age ranges and testing schedules differ between countries.

Testing may be especially relevant if you:

How often to test depends on your exposures and local guidance. Some people need only routine one-time screening, while people with ongoing exposure may be offered regular testing.

- Have had sex without a condom or without effective PrEP
- Have a new sexual partner or more than one partner
- Share needles, syringes, or other injection equipment
- Have a partner whose HIV status is unknown or whose HIV is not suppressed
- Have been diagnosed with another sexually transmitted infection
- Are pregnant or planning a pregnancy
- Are considering or taking PrEP
- Had a recent possible occupational or sexual exposure

## How to prepare

You do not need to fast. You can eat, drink coffee, exercise, and take your usual medicines unless you have separate instructions for another test being done at the same time.

Tell the testing service when the possible exposure happened. Also mention whether you have taken PrEP, post-exposure prophylaxis (PEP), or HIV treatment. These medicines can affect how soon a test detects infection.

If you participated in an HIV vaccine study, tell the laboratory. An experimental vaccine can sometimes cause an antibody test to react even though the person does not have HIV.

## What happens during the test

For a laboratory test, a healthcare worker usually takes a small blood sample from a vein in your arm. The collection takes a few minutes.

A rapid test may use blood from a finger prick. Some self-tests use a swab rubbed along the gums to collect oral fluid. Oral-fluid tests do not test saliva itself; they detect antibodies present in fluid from the gum tissue.

Rapid results may be available in about 20 to 30 minutes. Laboratory results often take one or more days, depending on the test and laboratory.

If an initial laboratory antigen-antibody test is reactive, the laboratory usually performs another test that distinguishes HIV-1 from HIV-2. If those results do not agree, a NAT may be used to look directly for the virus.

## Understanding your results

HIV results are usually reported as nonreactive , reactive , positive , negative , or inconclusive , rather than as a number with a reference range. Wording and interpretation vary by laboratory, age, sex, pregnancy status, medicines, and clinical context.

A nonreactive or negative result means the test did not detect the HIV marker it was designed to find. It does not always exclude a very recent infection.

A reactive screening result means the test detected a possible sign of HIV. Screening tests are designed to avoid missing infections, so they can occasionally react when HIV is not present. Follow-up testing is needed before the result is considered confirmed.

An inconclusive or indeterminate result means the tests do not yet give a clear answer. This can happen early after infection or because of an uncommon false reaction. Repeat testing or a NAT may be needed.

A NAT may be reported as HIV RNA detected or not detected . Its meaning depends on exposure timing and whether you are taking antiretroviral medicine.

## What affects the results

The most important factor is the window period : the time between acquiring HIV and when a test can reliably detect it. A test taken too early may be negative even if infection has occurred.

Approximate window periods differ by test. CDC information describes typical ranges of about 10 to 33 days for NATs, 18 to 45 days for laboratory antigen-antibody tests, and 23 to 90 days for antibody tests. Some finger-prick antigen-antibody tests may take up to 90 days to detect infection.

Other factors include:

Food, coffee, routine exercise, time of day, kidney function, and most medicines do not meaningfully change HIV test results. A recent routine blood transfusion is not normally expected to cause a positive result because donated blood is screened, but tell the testing service if the transfusion occurred in a setting where screening may have been limited.

- PrEP, PEP, or HIV treatment: These medicines may reduce the amount of virus or delay antibody development, making early results harder to interpret.
- Infancy: Antibodies transferred during pregnancy can remain in a baby's blood, so antibody tests cannot reliably diagnose HIV in young infants. Tests that detect viral genetic material are used instead.
- Pregnancy: Standard testing remains useful, but any reactive result still requires confirmation.
- HIV vaccine research: An investigational vaccine may cause a reactive antibody result without infection.
- Collection or testing errors: An inadequate self-test swab, incorrect timing, or an invalid control indicator can make a result unusable.

## Accuracy and limitations

Approved HIV tests are highly accurate when performed correctly after their window period. Accuracy is not identical across all test types or at every stage after exposure.

The main way a test misses HIV is testing too soon. Oral-fluid and antibody-only tests generally take longer to become positive than laboratory antigen-antibody tests. A NAT can detect infection earlier, but even it may miss an exposure from only a few days ago.

A screening test can occasionally be reactive when HIV is not present. This is why a single rapid or laboratory screening result should not be treated as a final diagnosis. Confirmatory testing greatly reduces the chance of an incorrect diagnosis.

A laboratory antigen-antibody test is generally a better early screening test than an oral

self-test. A NAT may be the better test after a very recent high-risk exposure, when early HIV is suspected, or when screening and confirmation results disagree.

## Risks and complications

A blood draw may cause brief discomfort, a small bruise, or light-headedness. Oral-fluid and finger-prick tests have minimal physical risk.

An unexpected or unclear result can be stressful. Testing services can explain the confirmation process and discuss confidential support.

## What happens next

After a negative result, no further testing may be needed if the test was taken after the relevant window period and there have been no later exposures. If testing occurred sooner, repeat testing may be advised at a time matched to the test used.

A reactive result needs prompt, routine follow-up for confirmatory testing. If HIV is confirmed, a healthcare service can arrange treatment and additional blood tests. This follow-up is important, but the screening result itself is not usually a medical emergency.

If a possible exposure happened within the past 72 hours, seek urgent medical advice about PEP rather than waiting for a test result. PEP must be started quickly. Emergency care is appropriate for an immediate medical emergency, such as serious injury or complications following an assault.

## Common questions

Can I drink coffee before an HIV test?

Yes. Coffee, other drinks, and food do not affect HIV testing. Fasting is not required.

Does the time of day matter?

No. HIV tests can be collected at any time of day.

Can I exercise beforehand?

Yes. Routine exercise does not cause a false-positive or false-negative HIV result.

How soon after sex should I test?

It depends on the test. A NAT may detect HIV earlier than an antigen-antibody or antibody

test. Testing immediately can provide a baseline, but a later test may still be needed. If the exposure was within 72 hours, seek urgent advice about PEP.

Is a home HIV test accurate?

Home tests can be accurate when used correctly after their window period. Most test for antibodies, so they may miss earlier infection. A reactive home result needs laboratory confirmation.

Can I trust a negative rapid test?

A negative rapid test is reassuring if enough time has passed since the last possible exposure. If the test was taken during its window period, repeat testing or a laboratory antigen-antibody test may be appropriate.

## Sources

- Centers for Disease Control and Prevention. Getting Tested for HIV
- Centers for Disease Control and Prevention. Clinical Testing Guidance for HIV
- Centers for Disease Control and Prevention and Association of Public Health Laboratories. Laboratory Testing for the Diagnosis of HIV Infection: Updated Recommendations, 2014
- US Preventive Services Task Force. Screening for HIV Infection: Recommendation Statement. JAMA. 2019;321(23):2326-2336
- British HIV Association, British Association for Sexual Health and HIV, and British Infection Association. Adult HIV Testing Guidelines 2020
- US Department of Health and Human Services. Diagnosis of HIV Infection in Infants and Children