

# Information About Screening Tests

Here you will find general information about specific tests used for screening asymptomatic patients for cervical cancer and various STIs. These services are recommended by the USPSTF, CDC, and leading medical organizations. This section does not include services that lack a clear recommendation (e.g., I grade) or are recommended against by the USPSTF for asymptomatic patients at average risk, nor information about diagnostic testing for symptomatic patients.

## Cervical cancer screening

The Pap test is the standard of care for the early detection and prevention of cervical cancer starting at age 21. A Pap test may use the conventional method of smearing a cervical sample onto a slide and staining it for microscopic analysis; or a liquid-based method, where a cervical specimen is placed in a vial of liquid preservative and sent to a lab for analysis. Some liquid-based tests allow for additional testing of the cervical specimen to detect HPV, chlamydia, gonorrhea, and trichomoniasis. Additional testing cannot be done via the conventional method.

Cervical cancer screening guidelines for women age 30 and over recommend co-testing, which combines a Pap test using the liquid-based methodology with DNA testing for high-risk HPV genotypes. HPV genotypes that are low-risk for cervical cancer and precursor lesions are not included in the test. A separate test may be conducted to identify high-risk types if a positive HPV result is obtained.

### Sensitivity and specificity

#### Traditional Pap method

The sensitivity of a single conventional Pap test is about 68% and the specificity is about 75% (using atypical squamous cells of undetermined significance [ASC-US] as the test threshold and CIN 1 as the reference threshold).

#### Liquid-based method

The sensitivity of a single liquid-based test is 93%.

#### Pap-HPV co-testing

Pap-HPV co-testing is more sensitive than Pap testing alone but has lower specificity, meaning that it generates more false positive results. Sensitivity of co-testing is around 95%.

### Resources

#### National Cancer Institute

[Cervical Cancer Screening PDQ](#)

#### American Society for Colposcopy and Cervical Pathology

[Algorithms](#)

## Chlamydia and gonorrhea screening

The Nucleic Acid Amplification Test (NAAT) is the gold standard for identifying chlamydial and gonorrheal infections. These tests detect and then amplify chlamydial or gonorrheal nucleic acid present in the collected specimen. NAATs that can test for both chlamydia and gonorrhea are available. NAATs are FDA-cleared for use with a first-catch urine sample and a swab specimen (endocervical, vaginal, and urethral). Not all NAATs test each of those specimens, however. For women, vaginal specimens are recommended. Endocervical specimens are also acceptable. For men, a first-catch urine sample is recommended.

NAATs have not yet been FDA-cleared for use with rectal or oropharyngeal specimens, although some laboratories have met the [Clinical Laboratory Improvement Amendments \(CLIA\)](#) standards needed to test extra-genital specimens.

The exception to using NAAT is when testing male-to-female transwomen who have a neovagina. In this case, do a culture swab.

### Sensitivity and specificity

The NAAT is the most sensitive and specific of available tests. Sensitivity is greater than 90% and specificity is greater than 99%.

False positives are more likely when testing low-prevalence populations.

### Resources

#### Centers for Disease Control and Prevention

[Recommendations for the Laboratory-based Detection of Chlamydia trachomatis and Neisseria gonorrhoeae —2014](#)

## Hepatitis B screening

There are three tests to screen for the hepatitis B virus: (1) The hepatitis B surface antigen (HBsAg) test detects antigens (surface protein found on the virus), (2) the hepatitis B surface antibody (HBsAb or anti-HBs) test detects antibodies produced in response to antigen, and (3) the hepatitis B core antibody (anti-HBc or HBcAb) test detects IgM antibodies to hepatitis B core antigen. The HBsAg test is most often used for screening asymptomatic individuals. The anti-HBs and the anti-HBc are used to distinguish between immunity and infection status. A combination of these tests may need to be performed and the results evaluated collectively to determine whether the patient is immune (due to either vaccination or past infection) or has an acute or chronic infection. These tests require a blood sample.

### Sensitivity and specificity

HBsAg immunoassays have a sensitivity and specificity greater than 98%.

### Resources

#### Centers for Disease Control and Prevention

[Hepatitis B Information for Health Professionals](#)  
[Interpretation of Hepatitis B Serologic Test Results](#)

## Hepatitis C screening

Hepatitis C screening looks for antibodies to the virus using an anti-HCV test. Screening can occur using either a rapid test (OraQuick HCV Rapid Antibody Test) or a laboratory-based serologic assay (enzyme immunoassay (EIA) or chemiluminescent assay (CIA)). The EIA is a commonly used screening test. The rapid test uses a finger prick and the laboratory-based tests require a blood sample.

A reactive test result is followed by a test that looks for and amplifies viral RNA. If confirmatory testing is positive, the patient has an active hepatitis C infection. If no viral RNA is detected, the patient had a previous infection that has resolved, or the antibody test was a false positive.

### Sensitivity and specificity

#### Rapid Test

Sensitivity is 97.8%–99.3% and specificity is greater than 99.5%.

#### EIA

Sensitivity is at least 98%. Specificity is greater than 99% but depends on the likelihood of infection. False positives can occur among lower-risk patients.

### Resources

#### Centers for Disease Control and Prevention

[Testing for HCV Infections: An Update of Guidance for Clinicians and Laboratorians](#)

## HIV testing

Testing for HIV can be performed on blood or oral fluid specimens, which can be sent to a lab for analysis or tested on site via a rapid test. There are pros and cons of both laboratory and rapid tests. Laboratory tests are more accurate than rapid tests at detecting early infection, but require a blood draw. The patient must also wait for up to a week for the result. Rapid tests provide initial results in up to 20 minutes and thus ensure that patients receive their results. Rapid tests also test oral fluid, which is more acceptable to many patients, particularly youth. It is recommended that laboratory testing of blood or plasma begin with a test that detects HIV-1 and HIV-2 antibodies, as well as HIV-1 p24 antigen. Rapid tests usually test for HIV-1 and HIV-2.

### Sensitivity and specificity

HIV tests are highly sensitive (>99.5%) and specific (>99.5%). HIV has a window period when antibodies are not yet at detectable levels. This window varies depending on the test being used and the individual that has been infected. Most individuals have begun producing antibodies after 12 weeks. A false negative can result if a patient tests during this period.

### Resources

#### Centers for Disease Control and Prevention

[Laboratory Testing for the Diagnosis of HIV Infection: Updated Recommendations](#)

#### American Academy of HIV Medicine

[Coding Guide for Routine HIV Testing Health Care Settings](#)

## Syphilis screening

There are two algorithms for screening for syphilis. Option one starts with a non-treponemal antibody test. These tests look for antibodies that are produced during infection. A reactive result would be followed up with a treponemal test, which looks specifically for antibodies produced in response to the syphilis bacterium. The second algorithm reverses this process and starts with a treponemal test, followed by a non-treponemal test if the initial screening result was positive.

Treponemal antibody tests include the fluorescent treponemal antibody absorption (FTA-ABS), Treponema pallidum particle agglutination assay (TP-PA), enzyme immunoassays (EIAs), and chemiluminescence immunoassays (CIAs). Non-treponemal tests include the Rapid plasma reagin (RPR) test and the Venereal disease research laboratory (VDRL) test. The RPR is performed on blood and the VDRL can be performed on blood or spinal fluid. The RPR test is easier to use and does not require microscopy.

A rapid syphilis test is also available for screening patients in a variety of health care settings. It requires a finger prick, rather than venipuncture.

### Sensitivity and specificity

Treponemal antibody tests are highly specific. The FTA-ABS has a sensitivity of 84% for primary syphilis and 100% for secondary and tertiary syphilis. Its specificity is 96%.

The RPR and VDRL are most accurate at detecting secondary syphilis. The sensitivities are 78%–86% for primary syphilis, 100% for secondary syphilis, and 95%–98% for tertiary syphilis. Specificity is in the range of 85%–99%. False positives can result because the tests have low specificity.

### Resources

#### Centers for Disease Control and Prevention

[Self-Study STD Module for Clinicians – Syphilis](#)

[Reverse Sequence Syphilis Screening: An Overview by CDC](#)