

Human Immunodeficiency Virus (HIV) Diagnosis (OLD VERSION)

Human immunodeficiency virus (HIV) infection is caused by an RNA retrovirus and leads to immunosuppression. Diagnosis of HIV infection is determined by assessing for the presence of HIV antibodies and/or antigens in the blood (refer to the Picmonic on "HIV Assessment"). An ELISA screening is performed for the presumptive diagnosis of HIV. HIV diagnosis is confirmed with the Western blot test. In neonates, a polymerase chain reaction (PCR) test is completed to determine the presence of HIV. Considerations include determining the patient's viral load and realizing a positive HIV diagnosis occurs weeks after the initial exposure.



PLAY PICMONIC

Screening with ELISA

Screen with Elizabeth

The patient suspected with HIV will be screened with an enzyme-linked immunoassay (ELISA) test for presumptive diagnosis. This extremely sensitive test is considered the "rule-out" test and determines the presence of HIV antibodies in the bloodstream. Since false positives may occur, a second ELISA test is performed if the first test is positive.

Confirmed with Western Blot

Confirmed with Western-cowboy Blot

HIV diagnosis is confirmed with a Western blot test. This HIV-specific antibody test is usually done after the patient tests positive for HIV antibodies. Since the Western blot test has a low false-positive rate, it is considered a "rule-in" test for diagnosis HIV. After confirming the diagnosis of HIV, a plan of treatment should be initiated (refer to the Picmonic on "HIV Interventions").

Polymerase Chain Reaction (PCR) in Neonates

Polly-mirror with Chain Reacting to Neon-natal-baby

A woman with HIV infection may transplacentally transmit the virus to the newborn. The PCR test is performed neonate's blood whose mothers have HIV in order to determine the presence of HIV-1 DNA. This test differentiates between the mother's HIV antibodies and the actual presence of HIV-1 DNA in the newborn.

Considerations

Viral Load Tests

Virus Load Tested

Viral load tests, such as the P24 Antigen Assay, are used to determine the amount of RNA in the patient's plasma. The level of the patient's viral load helps determine the progression of HIV (refer to the Picmonic on "HIV Stages"). If the patient's viral load is considered "undetectable," the test is unable to report the viral load but does not indicate the virus has been eliminated.

Test Positive 6 to 12 Weeks after Exposure

Testing Positive with (6) Sax and (12) Dozen after Exposed to Band-AID

The formation of HIV-specific antibodies in the blood may take weeks after the initial infection. A positive HIV diagnosis may take 6 weeks to 12 weeks after exposure. It is not unusual for the patient to test negative until 1 year after the initial exposure.