

Initial Evaluation

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Module 2: [Basic HIV Primary Care](#)

Lesson 1: [Initial Evaluation](#)

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<https://www.hiv.uw.edu/go/basic-primary-care/staging-initial-evaluation-monitoring/core-concept/all>.

Introduction

Background

Untreated HIV causes significant disease, beginning with an acute, self-limited viral syndrome and ultimately progressing to acquired immunodeficiency syndrome (AIDS), with the time between initial acquisition of HIV and development of AIDS varying widely from a few months to longer than 10 years ([Figure 1](#)).^[1,2] Early diagnosis, linkage to care, antiretroviral therapy, and retention in care all play an important role in preserving the health of individuals with HIV as well as preventing forward transmission of HIV to others. The initial medical visit provides an opportunity to have a positive interaction and to reinforce the importance of engagement in care. A similar evaluation can also occur at the time of transfer of care or with reengagement into care after a prolonged absence. At any of these initial encounters, the interaction between the individual with HIV and the medical provider may influence the patient's likelihood of returning for further medical care.

Goals of Initial Evaluation

The goals of the initial evaluation, as outlined in the Adult and Adolescent ART Guidelines Baseline Evaluation section, are to confirm the diagnosis of HIV, obtain a complete medical history and perform a comprehensive physical examination, obtain appropriate baseline and historical laboratory data, assess the individual's understanding of HIV and transmission of HIV to others, and initiate medical care as recommended in the HIVMA/IDSA Primary Care Guidance.^[3,4] If the individual is not already taking antiretroviral therapy, the initial visit should also address starting antiretroviral therapy as soon as possible. During the initial encounter, it is important to establish a positive relationship with the patient. Further, since HIV can have a significant psychosocial impact on the individual with HIV, as well as on their partner, family, and community, the clinical care should ideally be culturally sensitive, nonjudgmental, client-centered, and multidisciplinary. This review will explore the initial evaluation and monitoring of persons who are newly diagnosed with HIV and/or newly entering into care for HIV.

Staging and Classifying the Patient's HIV Disease

Overview of HIV Surveillance Case Definition

The Centers for Disease Control and Prevention (CDC) HIV/AIDS case definition and classification systems were developed for surveillance purposes and are not intended for clinical purposes. Nevertheless, these classification systems are sometimes referred to when determining the eligibility of persons with HIV for social security and disability benefits, medication benefit programs, and housing benefits, particularly for AIDS-defining criteria. The CDC established the first HIV surveillance case definition in 1982, with major revisions in 1987, 1993, 2008, and most recently in 2014. The following summarizes the key criteria in the 2014 surveillance case definition.^[5]

Laboratory Criteria for HIV Diagnosis

The CDC has established laboratory criteria to meet the 2014 case definition for HIV.^[5] These include three possible methods of establishing an HIV diagnosis that meets the CDC case definition ([Table 1](#)).^[5]

Staging

The initial evaluation of a person diagnosed with HIV is an important time to determine the stage, or status, of the HIV disease. In the most recent 2014 case definition, a 5-stage system (0, 1, 2, 3, or unknown) is used ([Figure 2](#)).^[5]

- Stage 0 indicates early HIV infection, inferred from a negative or indeterminate HIV test result within 6 months of HIV diagnosis.
- Stage 1 is defined by a CD4 count equal to or greater than 500 cells/mm³, or a percentage equal to or greater than 26%, without the presence of an AIDS-defining clinical condition.
- Stage 2 is defined by a CD4 count equal to or greater than 200 cells/mm³ and less than 500 cells/mm³, or a percentage between 14 and 25%, without an AIDS-defining clinical condition.
- Stage 3 is defined by a CD4 count of less than 200 cells/mm³, or a percentage less than 14%, or the presence of an AIDS-defining illness. The absolute CD4 count takes precedence over the CD4 percentage, and the percentage is only considered if the corresponding CD4 count is unknown.
- Stage unknown refers to a person with laboratory confirmation of HIV infection but no information about CD4 cell count or percentage (and no information about the presence of AIDS-defining clinical conditions).

Clinical Criteria for HIV Diagnosis

According to the 2014 case definition, clinical criteria for a confirmed case is met when there is a note in a medical record by a physician or other qualified medical provider that states that the person has HIV, and they have any one of the following:

- Laboratory criteria meeting the case definition,
- Presumptive evidence of HIV (i.e. receipt of HIV antiretroviral therapy or prophylaxis for an opportunistic infection),
- An otherwise unexplained low CD4 count,
- An otherwise unexplained diagnosis of an opportunistic illness

AIDS-Defining Clinical Conditions

In persons with laboratory-confirmed HIV infection, stage 3 (AIDS) is defined based on laboratory criteria (CD4 cell count) or clinical conditions. The list of AIDS-defining clinical conditions is extensive.^[5] ([Table 2](#))

Initial Assessment: History Taking

The initial evaluation and the focus of the first visit should take into account whether the client is newly diagnosed with HIV or has established HIV and is new to the clinic. For some initial visits, the client may have active HIV-related issues that need to be immediately addressed and these issues may take priority and dominate the visit. In general, the interaction that occurs while obtaining the initial history can have a major impact on the subsequent client-provider relationship. Thus, the initial intake should take a client-centered, multidisciplinary approach with the interview performed in an open and nonjudgmental manner. The initial encounter is an opportunity for the clinician to establish rapport with the patient, assess the client's support network. Key elements of the medical history are listed below and are also outlined in detail in the HIVMA/IDSA Primary Care Guidance.[\[4\]](#)

- **HIV-Related History**
 - Date of diagnosis of HIV and, if known, the approximate date of initial HIV acquisition
 - Identified risk factors related to HIV acquisition
 - Prior HIV-associated complications and comorbidities, including opportunistic infections, malignancies, and other HIV-related conditions
 - Obtain and review past medical records, if possible, including all prior HIV drug genotype resistance testing results
- **Past Medical, Surgical, and Psychiatric History**
 - Past medical history, including chronic medical conditions
 - Prior history of tuberculosis exposure, testing, and/or treatment
 - Past immunization history
 - Past surgical history, including complications with or from surgery
 - Psychiatric history, especially any history of depression, bipolar disorder, post-traumatic stress disorder, and intimate partner or domestic violence
- **Medication and Allergy History**
 - Medication history (including prior and/or current antiretroviral therapy, prior medications used for HIV preexposure prophylaxis or postexposure prophylaxis, over-the-counter drugs, pain medications, and dietary or herbal supplements)
 - Allergies and intolerances to medications, including hypersensitivity reactions to antibiotics and antiretroviral medications
- **Sexual History**
 - Sexual practices, including exposure sites with sex, condom use, and contraceptive use (if needed)
 - History of prior sexually transmitted infections and treatment for these infections
 - HIV status of their partners, and whether the individual has disclosed their HIV status to their partners
- **Substance Use History**
 - Assess for current or past tobacco, vaping, alcohol, and illicit drug use
 - If substance use is present, address the impact on daily activities
 - Review current and past treatment for any substance use disorders
- **Social, Family, and Travel History**
 - Social support, coping strategies (including how the individual is dealing with a new HIV diagnosis or established HIV), employment status and history, financial status, housing, marital status, and desires related to family planning/reproduction
 - Family history, including history of cardiovascular disease and/or cancer
 - Residence and travel history (to determine if a patient has lived in or traveled to regions endemic to certain diseases, such as histoplasmosis or coccidioidomycosis)
- **Comprehensive Medical Review of Symptoms**
 - Perform a general review of symptoms, with emphasis on oral, cutaneous, respiratory, gastrointestinal, and neurologic systems

Initial Evaluation: Physical Examination

A complete physical examination should be performed at the initial encounter, with particular attention given to the oral, integumentary, and lymph node examinations. Key components of the physical examination are listed below and also outlined in detail in the HIVMA/IDSA Primary Care Guidance:[\[6\]](#)

- **Vital signs and General Appearance:** including height and weight, evidence of obesity, wasting, or lipodystrophy
- **Skin:** rashes, bruising, inflammatory dermatoses, cutaneous lesions, and cutaneous manifestations of systemic disease (e.g., spider angiomas, caput medusae suggestive of liver disease)
- **Lymph nodes:** generalized or localized lymphadenopathy (cervical, axillary, inguinal)
- **Eye:** retinal exudates or cotton wool spots, hemorrhages, pallor, icterus
- **Oropharynx:** abnormalities of dentition, gingiva, or mucosa, including ulcers, candidiasis, and oral hairy leukoplakia
- **Cardiovascular:** peripheral pulses, auscultation, and presence/absence of edema
- **Chest:** auscultation for breath sounds, airway movement, and wheezing
- **Breast:** nodules, nipple discharge
- **Abdomen:** masses, tenderness, hepatosplenomegaly
- **Genitourinary:** ulcers, warts, discharge, and appearance of cervix on gynecologic examination
- **Anorectal:** ulcers, warts, fissures, hemorrhoids, masses
- **Neuropsychiatric:** speech problems, gait abnormalities, focal deficits (motor or sensory), headaches, seizures, signs of dementia or memory impairments, depression and anxiety inventory, signs of drug or alcohol intoxication

Baseline Laboratory Studies

As part of the initial evaluation for persons with HIV, a number of routine laboratory analyses are recommended in addition to HIV-related tests.[\[3,6,7\]](#) Recommendations from the Adult and Adolescent ART Guidelines, the Adult and Adolescent OI Guidelines, and the HIVMA/IDSA Primary Care Guidance are outlined below.[\[3,6,7\]](#) Where noted, recommendations are also included from the 2021 STI Treatment Guidelines.[\[8\]](#)

Baseline HIV-Related Tests

- **Laboratory Confirmation of HIV Diagnosis:** This test is not routinely needed since most individuals seen for an initial HIV evaluation have laboratory documentation of their HIV diagnosis. If, however, documentation of the HIV diagnosis is not available, appropriate confirmatory HIV diagnostic testing should be performed, with the logic that individuals may have undergone referral based only on a preliminary positive HIV test, or, in rare cases, individuals have factitiously claimed to have HIV.[\[7,9\]](#)
- **CD4 Cell Count with Percentage:** This test is recommended at baseline for all persons diagnosed with HIV, since the CD4 cell count and percentage are excellent indicators of immune function in persons with HIV. Further, the CD4 count and percentage help to estimate the individual's risk for specific HIV-associated complications and to determine the need for prophylaxis against opportunistic infections. The CD4 counts can vary, especially during an acute illness. The absolute cell count is the number most often used in clinical practice, but the percentage can also be used to assess immune function and is somewhat less variable than the absolute count. Falsely elevated CD4 counts may occur in persons with anatomical or functional asplenia.[\[10\]](#)
- **Quantitative Plasma HIV RNA Level (viral load):** A quantitative plasma HIV RNA should be performed in all persons with HIV at entry into care.[\[7,11\]](#) The plasma HIV RNA level defines a baseline viral load, which can predict the pace of disease progression, with higher HIV RNA levels clearly correlating with more rapid disease progression and greater risk of developing AIDS ([Figure 3](#)).[\[12,13\]](#) In addition, HIV RNA levels, particularly when greater than 100,000 copies/mL, can impact the efficacy of some regimens and thus impact the initial choice of antiretroviral therapy. The U.S. Food and Drug Administration (FDA) has approved several HIV RNA assays, and the lower limits of detection threshold for the most commonly used assays range from 20 to 50 copies/mL.
- **HIV Genotypic Drug-Resistance Testing:** For all persons entering HIV care, a baseline standard genotypic resistance test is recommended to detect mutations in the reverse transcriptase and protease genes.[\[14\]](#) Results from the test provide information on the likely activity of nucleoside reverse transcriptase inhibitors (NRTIs), non-nucleoside reverse transcriptase inhibitors (NNRTIs), and protease inhibitors (PIs). Routine baseline resistance testing of the integrase gene, which requires ordering a separate drug resistance test, is not routinely recommended in antiretroviral-naïve individuals, unless there is concern for transmitted integrase strand transfer (INSTI) drug resistance, such as in a person who has taken injectable cabotegravir for HIV preexposure prophylaxis (PrEP) or they have a sex partner with HIV who has known integrase resistance.[\[7,14,15\]](#)
- **HLA-B*5701:** Routine baseline screening for HLA-B*5701 is not recommended at the initial visit, unless the patient is being considered for an antiretroviral regimen that includes abacavir.[\[7\]](#) The HLA-B*5701 is used to identify individuals at high risk for an abacavir hypersensitivity reaction.[\[16\]](#) A negative test does not rule out the possibility of a hypersensitivity reaction but makes it extremely unlikely.
- **Coreceptor Tropism Testing:** Tropism testing is not recommended as a routine test for the initial visit; this test is recommended when considering the use of the CCR5 antagonist maraviroc as a component of an antiretroviral regimen. Maraviroc is not recommended as a preferred agent in treatment-naïve individuals.[\[17,18\]](#)
- **Pregnancy Test:** For women who have the potential to become pregnant, pregnancy testing should be performed at initiation or modification of antiretroviral therapy, since certain medications may be teratogenic.

- **Glucose-6-Phosphate Dehydrogenase (G6PD) Deficiency Screening:** Routine baseline screening for G6PD deficiency is not recommended, but is indicated before using oxidant drugs, such as dapsone, nitrofurantoin, and primaquine, or sulfamethoxazole, in persons with a predisposing racial or ethnic background. Individuals with a higher genetic predisposition for G6PD include Black men and women, as well as men from the Mediterranean, Middle East, India, and Southeast Asia.[\[19\]](#) Persons with G6PD deficiency who have exposure to oxidant drugs have an increased risk of developing acute hemolysis.

Baseline Routine Medical Laboratory Tests

- **Complete Blood Count (CBC) with Differential:** Obtaining a baseline CBC is recommended since anemia, leukopenia, and thrombocytopenia are common among persons with HIV infection. Also, the CBC is used to calculate the total CD4 count.
- **Basic Chemistry Panel and Calculated Creatinine Clearance:** A chemistry panel is recommended and should include serum sodium, potassium, bicarbonate, chloride, blood urea nitrogen, glucose (preferably fasting), and creatinine. As part of the basic chemistry panel, the test should determine the creatinine-based estimated glomerular filtration rate.
- **Hepatic Aminotransferase Levels:** Baseline evaluation of hepatic aminotransferase levels is recommended, and testing should include alanine aminotransferase (ALT) and aspartate aminotransferase (AST) levels.
- **Urinalysis:** A baseline urinalysis is recommended because individuals with HIV have an increased risk of developing HIV-associated nephropathy and chronic kidney disease. This risk is disproportionately higher among African Americans. The presence of proteinuria may be an early marker of disease in patients with normal renal function.
- **Lipid Profile (Total cholesterol, HDL, LDL, triglycerides):** A baseline lipid panel is recommended because antiretroviral drugs, HIV itself, and host factors are all associated with an increased risk of cardiovascular disease and dyslipidemia. If the initial lipid profile obtained is non-fasting and the results are abnormal, then a fasting lipid profile should be obtained.
- **Random or Fasting Glucose:** Baseline evaluation of blood glucose is recommended. If a random glucose is obtained, and it is abnormal, then a fasting glucose should be ordered. Screening for diabetes is important since it is more prevalent in people with HIV.
- **Serum Testosterone:** Routine screening for testosterone levels is not recommended, but serum testosterone testing should be considered in men with HIV who have fatigue, weight loss, loss of libido, erectile dysfunction, depression, or evidence of reduced bone mineral density. An early-morning (fasting) free testosterone test is preferred.

Coinfection and Comorbidity Screening

- **Bartonella Screening:** Routine serologic screening for *Bartonella* infection in persons with HIV is not recommended. In addition, routine screening of pets for *Bartonella* infection is not recommended.[\[20\]](#)
- **Cryptococcal Screening:** Some experts recommend routine screening for cryptococcal antigen in individuals newly diagnosed with HIV and a CD4 count of less than 200 cells/mm³ (and particularly when the CD4 count is less than 50 cells/mm³).[\[21\]](#)
- **Cytomegalovirus (CMV):** Routine serologic testing (anti-CMV antibody) for evidence of established CMV infection is recommended only for persons with HIV who have a lower risk of acquiring CMV infection; routine CMV antibody screening is not recommended for men who have sex with men or persons who inject drugs, since these individuals can be assumed to be CMV seropositive. Individuals with a CD4 count less than 50 cells/mm³ should receive education to report symptoms that may indicate CMV retinitis, particularly floaters, flashing lights, or a change in visual acuity.[\[22\]](#) In addition, some specialists recommend routine referral of patients with a CD4 count of less than 50 cells/mm³ to an ophthalmologist for a dilated ophthalmologic examination to screen for CMV retinitis.
- **Hepatitis A Virus (HAV):** Screen with hepatitis A antibody to evaluate for evidence of prior HAV infection or immunity.

- **Hepatitis B Virus (HBV):** All persons diagnosed with HIV should undergo testing for HBV with hepatitis B surface antigen (HBsAg), hepatitis B surface antibody (HBsAb), and hepatitis B core antibody (anti-HBc total).[\[23\]](#)
- **Hepatitis C Virus (HCV):** At entry into care, all persons with HIV infection should undergo routine testing for HCV infection with HCV antibody; confirmatory testing of all positive HCV antibody tests with HCV RNA testing is recommended.[\[24\]](#) Due to possible seronegative HCV infection among individuals with HIV infection, HCV RNA testing should be considered in some individuals who have a negative HCV antibody, particularly those with a history of injection drug use, a CD4 less than 200 cells/mm³, or an abnormal ALT.[\[25\]](#)
- **Mycobacterium avium Complex (MAC) Screening:** Routine screening for MAC infection is not recommended. Obtaining a blood culture for acid-fast bacilli (AFB) to screen for disseminated MAC infection may be considered in persons with a CD4 count of less than 50 cells/mm³ if they are initiating MAC prophylaxis.[\[26\]](#) The need for MAC screening in persons with a CD4 count of less than 50 cells/mm³ has taken on less importance since routine MAC prophylaxis is no longer recommended in this setting if the individual is starting antiretroviral therapy.[\[26\]](#)
- **Mycobacterium tuberculosis:** All individuals with HIV entering care should undergo screening for tuberculosis with tuberculin skin testing (TST) or interferon-gamma release assay (IGRA).[\[27\]](#) Individuals with a positive tuberculosis test result should receive treatment for latent *M. tuberculosis* infection after active tuberculosis has been excluded by a thorough history and chest radiographic imaging. Repeat TST or IGRA testing is recommended in persons with advanced HIV disease who initially had negative results but subsequently experienced an increase in the CD4 cell count to greater than 200 cells/mm³ after receiving antiretroviral therapy; in this situation, these individuals may have developed sufficient immune reconstitution to mount a positive TST or IGRA reaction.
- **Toxoplasma gondii:** All persons with HIV should have baseline screening for toxoplasmosis with anti-*Toxoplasma* IgG. If *Toxoplasma* serology is negative, patients should be counseled about methods to avoid exposure.[\[28\]](#) To minimize exposure risk, individuals with HIV who are *Toxoplasma*-seronegative should avoid eating raw or undercooked meat and shellfish; they should wash their hands after handling raw meat or after gardening or contact with soil; and if they own cats, they should not change the litter box and should be encouraged to keep their cats inside.[\[28\]](#) If a person with HIV has a negative *Toxoplasma* serology at baseline but then has a CD4 count decline to less than 100 cells/mm³ (or they have a high risk for *Toxoplasma* exposure), the *Toxoplasma* serology should be repeated.

Screening for Sexually Transmitted Diseases

- **Syphilis:** All persons with HIV should undergo screening for syphilis at the initial visit and periodically thereafter if ongoing risk factors exist. In recent years, there have been high rates of syphilis in persons with HIV, especially among men with HIV who have sex with men.[\[8\]](#) Screening for syphilis is performed either with the traditional algorithm, which screens first with a nontreponemal test (RPR or VDRL), or the reverse screening sequence, which uses a treponemal test first.[\[29\]](#)
- **Herpes Simplex Virus (HSV):** Routine serologic screening for past herpes infection with type-specific (HSV-1 and HSV-2) antibody tests is not recommended. Consideration of type-specific herpes serologic screening for herpes should be considered for persons with HIV who present for an STI evaluation, particularly for those individuals who have multiple sex partners.[\[8\]](#)
- **Routine STD Screening in Women:** All women should be screened for *Neisseria gonorrhoeae*, *Chlamydia trachomatis*, and *Trichomonas vaginalis* at baseline and periodically thereafter, depending on risk and the prevalence of sexually transmitted infections in the community. Retesting in 3 months is indicated for women found to be positive for any of these infections on initial screening because of high reinfection rates. Nucleic acid testing (NAT) or polymerase chain reaction (PCR) testing of urine is the preferred method of screening, but for clinics that do not have urine PCR testing for trichomoniasis, screening should utilize a wet mount or culture for *T. vaginalis*.
- **Routine STD Screening in Men:** All men should be screened for gonorrhea and chlamydia at baseline and at least annually thereafter, depending on risk and the prevalence of sexually

transmitted infections in the community. Retesting in 3 months is indicated for men found to be positive for gonorrhea or chlamydia infection because of high reinfection rates. Further, all men who have sex with men should have testing for urethral and rectal gonorrhea and chlamydia, as well as testing for oral gonorrhea—if they report receptive sex at these sites.[8] The NAT is the preferred method for these screening tests at urethral, rectal, and pharyngeal sites.[8,30] Routine screening for oropharyngeal chlamydia is not recommended. When testing for urethral infection, testing of a urine sample (not a urethral swab) with a NAT is the preferred approach and is FDA-approved. There are no guidelines for screening men for *T. vaginalis*.

- **Cervical Cancer Screening:** All persons with HIV who have a cervix and are at least 21 years of age should undergo cervical cancer screening at initial entry to HIV care.[31] The cervical cancer screening test method should be determined by the individual's age.[31] For those younger than 30 years of age, Pap testing is the initial recommended screening test.[31] For individuals with a cervix who are 30 years of age or older, the initial testing should consist of either (1) Pap testing alone or (2) Pap testing plus simultaneous HPV co-testing.[31]
- **Anal Cancer Screening:** Recommendations regarding routine screening for anal cancer in persons with HIV remain highly controversial. Available guidelines state that for persons with HIV, an annual digital anorectal examination may be useful to detect a mass that could be anal cancer.[8,31] The Adult and Adolescent OI Guidelines state that some specialists recommend anal cytologic screening, but screening for anal cancer with anal cytology should not be done without the availability of a referral for high-resolution anoscopy (HRA).[31] The 2021 STI Treatment Guidelines state there are insufficient data to recommend routine anal cancer screening with anal cytology in persons with HIV.[8] The HIVMA/IDSA Primary Care Guidance recommends anal Pap screening in men who have sex with men, women with a history of receptive anal intercourse (or abnormal cervical Pap test results), and all persons with HIV who also have genital warts.[6]

Immunizations

Providing appropriate immunizations is an important component of comprehensive HIV clinical care and should be addressed at the first visit. In general, response to any vaccine will be greatest in patients with higher CD4 cell counts and in those receiving suppressive antiretroviral therapy. Some routine immunizations, such as hepatitis A and hepatitis B, require baseline serologic testing first to determine whether the patient has immunity. The Advisory Committee on Immunization Practices (ACIP) provides annual recommendations for routine immunizations of adults, including specific recommendations for adults with HIV infection.[32] In addition, see the Adult and Adolescent OI Guidelines section *Immunizations for Preventable Diseases in Adults and Adolescents Living with HIV*. [33] Last, for a detailed discussion in this curriculum, see the topic [Immunizations in Adults](#) in the Module *Basic HIV Primary Care*.

Summary Points

- The goals of the initial evaluation are to confirm the HIV diagnosis, obtain a complete medical history and physical examination, obtain appropriate baseline and historical laboratory data, provide basic education regarding HIV and its transmission, and initiate antiretroviral therapy.
- Establishing rapport at the initial evaluation is critical for keeping the person with HIV engaged in clinical care.
- Medical care for persons with HIV should be culturally sensitive, nonjudgmental, client-centered, and multidisciplinary.
- The 2014 CDC case definition for HIV is divided into 5 stages based on CD4 count (or percentage) and the presence or absence of AIDS-defining conditions.
- Acceptable diagnostic tests to meet the HIV case definition include HIV antibody tests, combination antibody-antigen tests, and virologic tests.
- The initial history intake should be comprehensive and cover medical, surgical, past HIV treatment, and psychiatric history, as well as address sexual behaviors, substance use, financial issues, interpersonal/family issues, and cultural influences that may impact care.
- A complete physical examination should be performed at the first visit, with special attention given to the oral, skin, and lymph node examinations.
- Baseline laboratory evaluation includes HIV disease tests, antiretroviral-specific tests, basic blood counts and chemistry panels, and comorbidity and coinfection tests.
- Screening for STIs is an important component of evaluation at entry into HIV care.
- Providing appropriate immunizations is an important component of comprehensive HIV clinical care and should be addressed at the first visit.

Citations

1. Enger C, Graham N, Peng Y, et al. Survival from early, intermediate, and late stages of HIV infection. JAMA. 1996;275:1329-34.
[[PubMed Abstract](#)] -
2. Feinberg MB. Changing the natural history of HIV disease. Lancet. 1996;348:239-46.
[[PubMed Abstract](#)] -
3. Panel on Antiretroviral Guidelines for Adults and Adolescents. Guidelines for the use of antiretroviral agents in adults and adolescents with HIV. Department of Health and Human Services. Baseline evaluation. September 21, 2022.
[[HIV.gov](#)] -
4. Thompson MA, Horberg MA, Agwu AL, et al. Primary Care Guidance for Persons With Human Immunodeficiency Virus: 2020 Update by the HIV Medicine Association of the Infectious Diseases Society of America. Clin Infect Dis. 2021;73:e3572-e3605
[[HIVMA](#)] -
5. Centers for Disease Control and Prevention. Revised surveillance case definition for HIV infection--United States, 2014. MMWR Recomm Rep. 2014;63:1-10.
[[PubMed Abstract](#)] -
6. Aberg JA, Gallant JE, Ghanem KG, Emmanuel P, Zingman BS, Horberg MA. Primary care guidelines for the management of persons infected with HIV: 2013 update by the HIV medicine association of the Infectious Diseases Society of America. Clin Infect Dis. 2014;58:e1-34.
[[HIVMA](#)] -
7. Panel on Antiretroviral Guidelines for Adults and Adolescents. Guidelines for the use of antiretroviral agents in adults and adolescents with HIV. Department of Health and Human Services. Laboratory testing: laboratory testing for initial assessment and monitoring of people with HIV receiving antiretroviral therapy. September 21, 2022.
[[HIV.gov](#)] -
8. Workowski KA, Bachmann LH, Chan PA, et al. Sexually transmitted infections treatment guidelines, 2021. Screening Recommendations and Considerations Referenced in Treatment Guidelines and Original Sources. MMWR Recomm Rep. 2021;70(No. RR-4):1-187.
[[2021 STI Treatment Guidelines](#)] -
9. Craven DE, Steger KA, La Chapelle R, Allen DM. Factitious HIV infection: the importance of documenting infection. Ann Intern Med. 1994;121:763-6.
[[PubMed Abstract](#)] -
10. Fairley CK, Spelman D, Street A, Jennens ID, Spicer WJ, Crowe S. CD4 lymphocyte numbers after splenectomy in patients infected with the human immunodeficiency virus. Int J STD AIDS. 1994;5:177-81.
[[PubMed Abstract](#)] -
11. Panel on Antiretroviral Guidelines for Adults and Adolescents. Guidelines for the use of antiretroviral agents in adults and adolescents with HIV. Department of Health and Human Services. Laboratory testing: plasma HIV-1 RNA (viral load) and CD4 count monitoring. September 21, 2022.
[[HIV.gov](#)] -

12. Mellors JW, Munoz A, Giorgi JV, et al. Plasma viral load and CD4+ lymphocytes as prognostic markers of HIV-1 infection. *Ann Intern Med.* 1997;126:946-54.
[[PubMed Abstract](#)] -
13. Mellors JW, Rinaldo CR Jr, Gupta P, White RM, Todd JA, Kingsley LA. Prognosis in HIV-1 infection predicted by the quantity of virus in plasma. *Science.* 1996;272:1167-70.
[[PubMed Abstract](#)] -
14. Panel on Antiretroviral Guidelines for Adults and Adolescents. Guidelines for the use of antiretroviral agents in adults and adolescents with HIV. Department of Health and Human Services. Laboratory testing: drug-resistance testing. March 23, 2023.
[[HIV.gov](#)] -
15. Koullias Y, Sax PE, Fields NF, Walensky RP, Hyle EP. Should We Be Testing for Baseline Integrase Resistance in Patients Newly Diagnosed With Human Immunodeficiency Virus? *Clin Infect Dis.* 2017;65:1274-81.
[[PubMed Abstract](#)] -
16. Ma JD, Lee KC, Kuo GM. HLA-B*5701 testing to predict abacavir hypersensitivity. *PLoS Curr.* 2010;2:RRN1203.
[[PubMed Abstract](#)] -
17. Panel on Antiretroviral Guidelines for Adults and Adolescents. Guidelines for the Use of Antiretroviral Agents in Adults and Adolescents with HIV. Department of Health and Human Services. What to Start. Initial Combination Antiretroviral Regimens for People With HIV. September 12, 2024.
[[HIV.gov](#)] -
18. Panel on Antiretroviral Guidelines for Adults and Adolescents. Guidelines for the use of antiretroviral agents in adults and adolescents with HIV. Department of Health and Human Services. Laboratory testing: co-receptor tropism assays. October 25, 2018.
[[HIV.gov](#)] -
19. Frank JE. Diagnosis and management of G6PD deficiency. *Am Fam Physician.* 2005;72:1277-82.
[[PubMed Abstract](#)] -
20. Panel on Opportunistic Infections in Adults and Adolescents with HIV. Guidelines for the prevention and treatment of opportunistic infections in adults and adolescents with HIV: recommendations from the Centers for Disease Control and Prevention, the National Institutes of Health, and the HIV Medicine Association of the Infectious Diseases Society of America. Bartonellosis. Updated: November 14, 2023.
[[HIV.gov](#)] -
21. Panel on Opportunistic Infections in Adults and Adolescents with HIV. Guidelines for the prevention and treatment of opportunistic infections in adults and adolescents with HIV: recommendations from the Centers for Disease Control and Prevention, the National Institutes of Health, and the HIV Medicine Association of the Infectious Diseases Society of America. Cryptococcosis. Updated: October 29, 2024.
[[HIV.gov](#)] -
22. Panel on Opportunistic Infections in Adults and Adolescents with HIV. Guidelines for the prevention and treatment of opportunistic infections in adults and adolescents with HIV: recommendations from the Centers for Disease Control and Prevention, the National Institutes of Health, and the HIV Medicine Association of the Infectious Diseases Society of America. Cytomegalovirus disease. Last updated: July 21, 2021.
[[HIV.gov](#)] -

23. Panel on Opportunistic Infections in Adults and Adolescents with HIV. Guidelines for the prevention and treatment of opportunistic infections in adults and adolescents with HIV: recommendations from the Centers for Disease Control and Prevention, the National Institutes of Health, and the HIV Medicine Association of the Infectious Diseases Society of America. Hepatitis B virus infection. Last Updated: December 16, 2024.
[\[HIV.gov\]](#) -
24. Panel on Opportunistic Infections in Adults and Adolescents with HIV. Guidelines for the prevention and treatment of opportunistic infections in adults and adolescents with HIV: recommendations from the Centers for Disease Control and Prevention, the National Institutes of Health, and the HIV Medicine Association of the Infectious Diseases Society of America. Hepatitis C virus. Last Updated: January 18, 2023
[\[HIV.gov\]](#) -
25. Chamie G, Bonacini M, Bangsberg DR, et al. Factors associated with seronegative chronic hepatitis C virus infection in HIV infection. Clin Infect Dis. 2007;44:577-83.
[\[PubMed Abstract\]](#) -
26. Panel on Opportunistic Infections in Adults and Adolescents with HIV. Guidelines for the prevention and treatment of opportunistic infections in adults and adolescents with HIV: recommendations from the Centers for Disease Control and Prevention, the National Institutes of Health, and the HIV Medicine Association of the Infectious Diseases Society of America. *Mycobacterium avium* complex disease. Updated: August 15, 2024.
[\[HIV.gov\]](#) -
27. Panel on Opportunistic Infections in Adults and Adolescents with HIV. Guidelines for the prevention and treatment of opportunistic infections in adults and adolescents with HIV: recommendations from the Centers for Disease Control and Prevention, the National Institutes of Health, and the HIV Medicine Association of the Infectious Diseases Society of America. *Mycobacterium tuberculosis* infection and disease. Last update: May 2, 2024.
[\[HIV.gov\]](#) -
28. Panel on Opportunistic Infections in Adults and Adolescents with HIV. Guidelines for the prevention and treatment of opportunistic infections in adults and adolescents with HIV: recommendations from the Centers for Disease Control and Prevention, the National Institutes of Health, and the HIV Medicine Association of the Infectious Diseases Society of America. *Toxoplasmosis*. Updated: September 16, 2024.
[\[HIV.gov\]](#) -
29. Centers for Disease Control and Prevention (CDC). Discordant results from reverse sequence syphilis screening--five laboratories, United States, 2006-2010. MMWR Morb Mortal Wkly Rep. 2011;60:133-7.
[\[MMWR\]](#) -
30. U.S. Food and Drug Administration. FDA clears first diagnostic tests for extragenital testing for chlamydia and gonorrhea. FDA news release. May 23, 2019.
[\[U.S. FDA\]](#) -
31. Panel on Opportunistic Infections in Adults and Adolescents with HIV. Guidelines for the prevention and treatment of opportunistic infections in adults and adolescents with HIV: recommendations from the Centers for Disease Control and Prevention, the National Institutes of Health, and the HIV Medicine Association of the Infectious Diseases Society of America. Human papillomavirus disease. July 9, 2024.
[\[HIV.gov\]](#) -
32. Advisory Committee on Immunization Practices (ACIP). Recommended Adult Immunization Schedule

by Medical Condition and Other Indications, United States, 2025.

[[ACIP](#)] -

33. Panel on Opportunistic Infections in Adults and Adolescents with HIV. Guidelines for the prevention and treatment of opportunistic infections in adults and adolescents with HIV: recommendations from the Centers for Disease Control and Prevention, the National Institutes of Health, and the HIV Medicine Association of the Infectious Diseases Society of America. Immunizations for Preventable Diseases in Adults and Adolescents Living with HIV. Last updated: December 16, 2024.

[[HIV.gov](#)] -

References

- Gardner EM, McLees MP, Steiner JF, Del Rio C, Burman WJ. The spectrum of engagement in HIV care and its relevance to test-and-treat strategies for prevention of HIV infection. Clin Infect Dis. 2011;52:793-800.
[[PubMed Abstract](#)] -
- McGee KS, Okeke NL, Hurt CB, McKellar MS. Canary in the Coal Mine? Transmitted Mutations Conferring Resistance to All Integrase Strand Transfer Inhibitors in a Treatment-Naive Patient. Open Forum Infect Dis. 2018;5:ofy294.
[[PubMed Abstract](#)] -
- Panel on Opportunistic Infections in Adults and Adolescents with HIV. Guidelines for the prevention and treatment of opportunistic infections in adults and adolescents with HIV: recommendations from the Centers for Disease Control and Prevention, the National Institutes of Health, and the HIV Medicine Association of the Infectious Diseases Society of America. Herpes simplex virus. Last updated: May 26, 2020.
[[HIV.gov](#)] -
- Rubin LG, Levin MJ, Ljungman P, et al. 2013 IDSA clinical practice guideline for vaccination of the immunocompromised host. Clin Infect Dis. 2014;58:309-18.
[[PubMed Abstract](#)] -
- Schneider E, Whitmore S, Glynn KM, Dominguez K, Mitsch A, McKenna MT. Revised surveillance case definitions for HIV infection among adults, adolescents, and children aged

Figures

Figure 1 Natural History of Untreated HIV

Following acquisition of HIV, persons with untreated HIV typically develop a steady decline in CD4 cell count, usually progressing to AIDS within 10 years of the initial infection.

Illustration: David H. Spach, MD

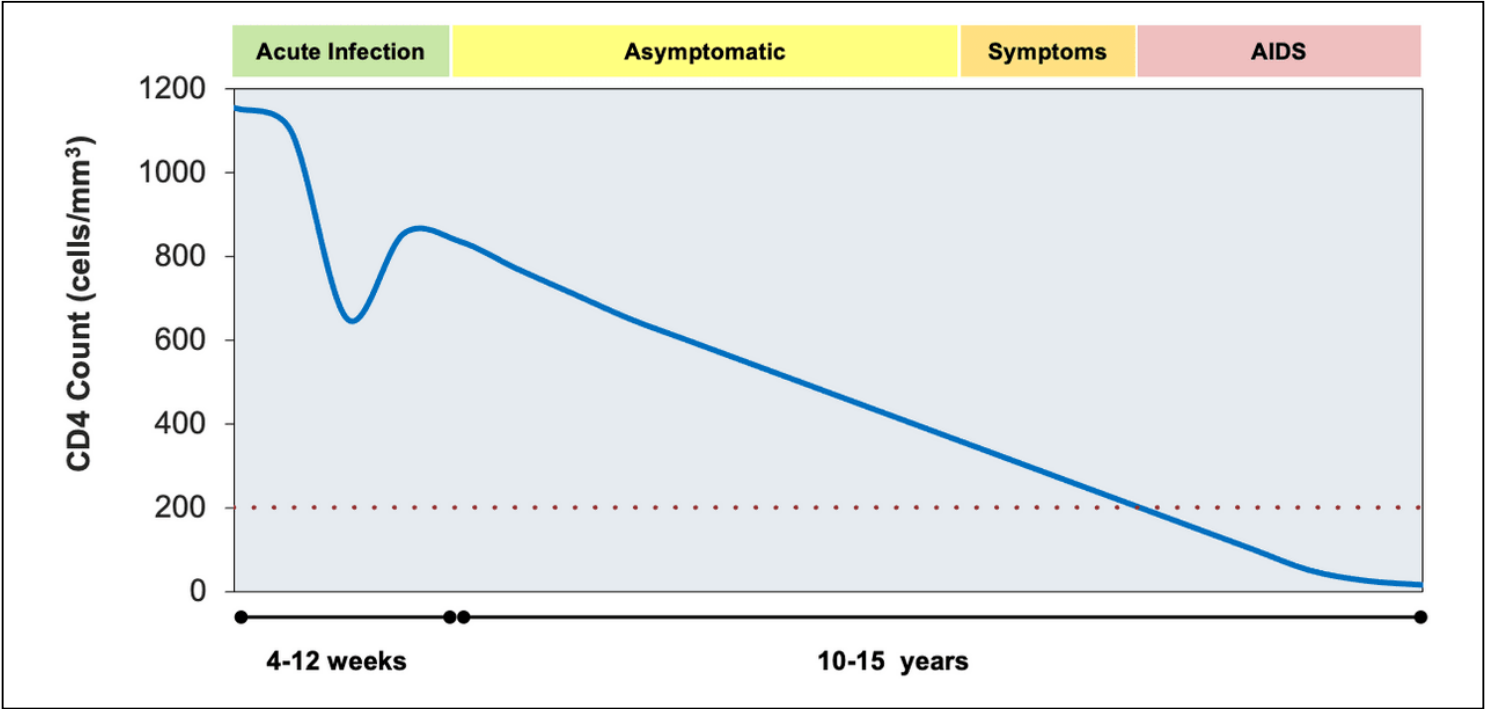


Figure 2 2014 CDC Case Definition for HIV Infection for Adolescents and Adults

Source: Centers for Disease Control and Prevention. Revised surveillance case definition for HIV infection—United States, 2014. MMWR Recomm Rep. 2014;63(RR-03):1-10.

2014 CDC Case Definition for HIV Infection Among Adolescents and Adults			
Stage	CD4 Count	CD4 %*	Clinical Evidence
Stage 0	Early HIV Infection		
Stage 1	≥500 cells/mm ³	≥26	No AIDS-defining condition
Stage 2	200-499 cells/mm ³	14-25	No AIDS-defining condition
Stage 3	<200 cells/mm ³	<14	or Documentation of AIDS-defining condition
Stage unknown	No data	No data	and No information on AIDS-defining conditions
*Use CD4 percentage only if no data available for CD4 count			

Figure 3 HIV RNA Levels and CD4 Cell Counts and Risk of Developing AIDS

Source: Mellors JW, Rinaldo CR Jr, Gupta P, White RM, Todd JA, Kingsley LA. Prognosis in HIV-1 infection predicted by the quantity of virus in plasma. Science. 1996;272:1167-70.

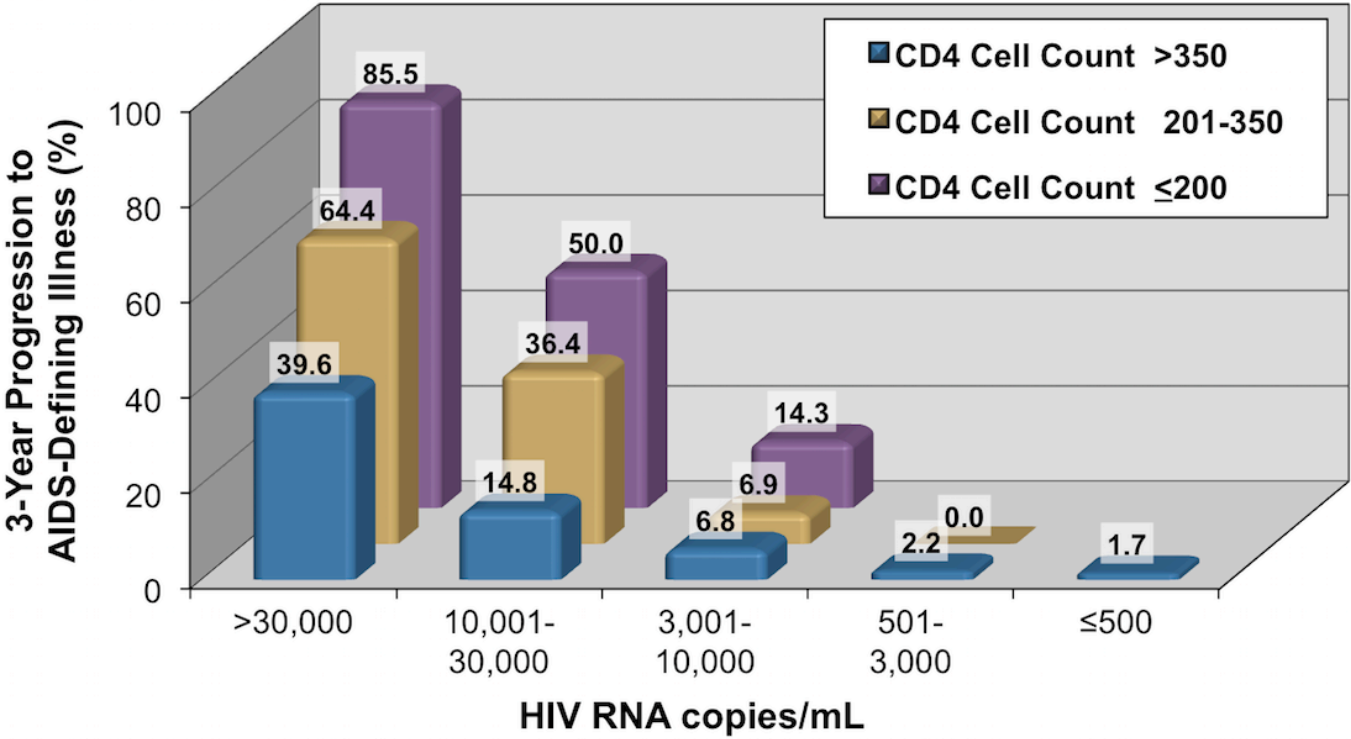


Table 1.

Laboratory Criteria: 2014 CDC Case Definition for HIV Infection

Multitest Algorithm Consisting of:

- Positive (reactive) result from initial HIV antibody or combination antigen/antibody test, and
- Accompanying or subsequent positive result from a supplemental HIV test different from initial test

Positive Result of a Multitest Antibody Algorithm from which only final result reported (including a single positive result on a test used only as a supplemental test) or on a test that might be used as either an initial test or a supplemental test (e.g., HIV-1/2 type-differentiating rapid antibody immunoassay) when it might reasonably be assumed to have been used as a supplemental test (e.g., because the algorithm customarily used by the reporting laboratory is known)

Positive HIV Virologic (non-antibody) Test: Positive result or report of a detectable quantity (i.e., within the established limits of the laboratory test) from any of the following HIV virologic (i.e., non-antibody) tests:

- Qualitative HIV NAT (DNA or RNA)
- Quantitative HIV NAT (viral load assay)
- HIV p24 antigen test
- HIV isolation (viral culture)
- HIV nucleotide sequence (genotype)

Source:

- Centers for Disease Control and Prevention. Revised surveillance case definition for HIV infection--United States, 2014. MMWR Recomm Rep. 2014;63:1-10. [[PubMed Abstract](#)]

<p>Table 2.</p> <p>Stage 3-Defining Opportunistic Illnesses in HIV Infection</p>	
<ul style="list-style-type: none"> • Bacterial infections, multiple or recurrent* • Candidiasis of bronchia, trachea, or lungs • Candidiasis of esophagus • Cervical cancer, invasive⁺ • Coccidioidomycosis, disseminated or extrapulmonary • Cryptococcosis, extrapulmonary • Cryptosporidiosis, chronic intestinal (>1 month's duration) • Cytomegalovirus disease (other than liver, spleen, or nodes), onset age >1 month • Cytomegalovirus retinitis (with loss of vision) • Encephalopathy attributed to HIV[^] • Herpes simplex: chronic ulcers (>1 month's duration) or bronchitis, pneumonitis, or esophagitis (onset at age >1 month) • Histoplasmosis, disseminated or extrapulmonary • Isosporiasis, chronic intestinal (>1 month's duration) • Kaposi's sarcoma 	<ul style="list-style-type: none"> • Lymphoma, Burkitt (or equivalent term) • Lymphoma, immunoblastic (or equivalent term) • Lymphoma, primary, of brain • <i>Mycobacterium avium</i> complex or <i>Mycobacterium kansasii</i>, disseminated or extrapulmonary • <i>Mycobacterium tuberculosis</i> of any site, pulmonary⁺, disseminated, or extrapulmonary • <i>Mycobacterium</i>, other species or unidentified species, disseminated or extrapulmonary • <i>Pneumocystis jirovecii</i> (previously known as "<i>Pneumocystis carinii</i>") pneumonia • Pneumonia, recurrent⁺ • Progressive multifocal leukoencephalopathy • <i>Salmonella</i> septicemia, recurrent • Toxoplasmosis of brain, onset at age >1 month • Wasting syndrome attributed to HIV
<p>*Only among children aged <6 years</p> <p>⁺Only among adults, adolescents, and children aged ≥6 years</p> <p>[^]Suggested diagnostic criteria for these illnesses are defined in prior surveillance case definitions</p>	

Source:

- Centers for Disease Control and Prevention. Revised surveillance case definition for HIV infection--United States, 2014. MMWR Recomm Rep. 2014;63:1-10. [\[PubMed Abstract\]](#)

