**Figure.** Laboratory Tests Used in the Management of Confirmed HIV-1 Infection

## Pre-ART

### Baseline

- CD4 count/percentage
- HIV viral load
- Genotypic resistance testing (consider INSTI genotype test if transmitted resistance is a concern or if CAB-LA was used for PrEP)
- Complete blood count with differential
- Chemistry profile including Na, K, Cl, $HCO_3/CO_2$, BUN, creatinine, eGFR
- Random or fasting lipid profile
- Liver function tests including ALT, AST, ALP, total bilirubin
- Random or fasting glucose and hemoglobin A1c
- Urinalysis
- HAV, HBV, and HCV serology (if HCV positive, confirm with HCV RNA test)
- Pregnancy test in people of childbearing potential

### Pre-ART follow-up (frequency)

- CD4 count (every 3-6 months)
- HIV viral load optional
- Chemistry profile (every 6-12 months)
- Liver function (every 6-12 months)
- Random or fasting glucose and hemoglobin A1c (annually unless abnormal)
- Random or fasting lipid profile (every 5 years unless abnormal)

## Post-ART initiation

### ART initiation or modification

- CD4 count
- HIV viral load
- Genotypic resistance testing (optional if done at baseline); consider INSTI genotype test if transmitted resistance is a concern or if CAB-LA was used for PrEP
- *HLA-B*5701* testing if considering abacavir
- Tropism testing if considering a CCR5 antagonist
- Complete blood count with differential
- Chemistry profile
- Liver function
- Random or fasting glucose
- HBV serology if patient nonimmune and starting a regimen without TDF or TAF
- Pregnancy test in people of childbearing potential

### Soon after ART initiation or change (frequency)

- HIV viral load (every 4-8 weeks until undetectable or <50 copies/mL)
- Chemistry profile
- Liver function
- Random or fasting lipid profile (within 1-3 months)
- Random or fasting blood glucose (within 1-3 months)

### Every 3–6 months

- CD4 count 3 months after ART initiation, then every 3 months if CD4 <300 cells/$mm^3$ and every 6 months if ≥300 cells/$mm^3$ for first 2 years
- HIV viral load every 3-4 months; consider longer interval (every 6 months) if well controlled (see text)
- Complete blood count with differential (if monitoring CD4 count)
- Random or fasting glucose in patients with diabetes

### Every 6 months

- CD4 count after 2 years of ART (if viral load undetectable and CD4 <300 cells/$mm^3$)
- Chemistry profile
- Liver function
- Random or fasting lipid profile (if at risk or abnormal at last evaluation)

### Every 12 months

- CD4 count after 2 years of ART (if viral load undetectable and CD4 300-500 cells/$mm^3$)
- Complete blood count with differential (if no longer monitoring CD4 count)
- Random or fasting lipid profile (if at risk but normal at baseline)
- Random or fasting glucose
- Urinalysis (if at risk for kidney disease)
- HCV serology for at-risk patients (if negative at baseline)

### ART failure

- CD4 count
- HIV viral load
- Resistance testing; consider including INSTIs if part of the failed regimen or being considered for treatment
- Tropism testing if considering treatment with CCR5 antagonist or on failure of such treatment
- *HLA-B*5701* testing if considering abacavir
- Random or fasting glucose

ALP, alkaline phosphatase; ALT, alanine aminotransferase; ART, antiretroviral therapy; AST, aspartate aminotransferase; BUN, blood urea nitrogen; CAB-LA, long-acting cabotegravir; Cl, chloride; eGFR, estimated glomerular filtration rate; HAV, HBV, HCV, hepatitis A, B, C virus, respectively; HBsAg, hepatitis B surface antigen; INSTI, integrase strand transfer inhibitor; $HCO_3/CO_2$, bicarbonate/carbon dioxide; K, potassium; Na, sodium; PrEP, pre-exposure prophylaxis; TAF, tenofovir alafenamide; TDF, tenofovir disoproxil fumarate.

This figure was developed by Quest Diagnostics based on recommendations from US Department of Health and Human Services[4] and Infectious Diseases Society of America[7] guidelines. It is provided for informational purposes only and is not intended as medical advice. Test selection and interpretation, diagnosis, and patient management decisions should be based on the clinician's education, clinical expertise, and assessment of the patient. See guidelines for detailed recommendations on the use of laboratory testing in the management of HIV infection, including additional guidance on testing that is not directly related to antiretroviral treatment or that applies to specific patient populations.



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