

The essential role of laboratory diagnostics in SARS-CoV-2 infection¹⁻¹³



Essential lab testing

Daily labs	CBC with differential (trend total lymphocyte count) Comprehensive metabolic panel: <ul style="list-style-type: none"> • Electrolytes: Na, K, Total CO₂, Chloride • Total protein and Albumin • Creatinine • Bilirubin, ALT, AST CPK (total creatine kinase) Lactate
Risk stratification	D-dimer, Ferritin, CRP, ESR, LDH, Cardiac troponin
Viral serologies	HBV, HCV, HIV 1/2/O

Frequent laboratory abnormalities in patients with COVID-19*



Decreased

Blood lymphocyte count (35–75%)
Albumin (50–98%)
Hemoglobin (41–50%)



Increased

Neutrophil count
Erythrocyte sedimentation rate (ESR; up to 85%)
C-reactive protein (CRP; 75–93%)
Lactate dehydrogenase (LDH; 27–92%)
Alanine aminotransferase (ALT)

Aspartate aminotransferase (AST)
Total bilirubin
Cardiac troponin
Procalcitonin (6–25%)
Prothrombin time (PT)
D-dimer (36–43%)

Additional essential lab testing	Test	Potential clinical significance
Arterial blood gas	pH, PaCO ₂ , PaO ₂ , and aHCO ₃	For ventilator adjustments
Hematology	Lymphopenia with atypical lymphocytes Leukocytosis, Neutrophilia, low eosinophils Thrombocytopenia: Platelet count	Decreased immunological response to the virus Bacterial (super) infection Consumption (disseminated) coagulopathy
Hemostasis	Prothrombin time, D-Dimer	Activation of blood coagulation and/or disseminated coagulopathy PT and D-dimer are significant predictors of disease severity
Inflammation/Infection	CRP, Ferritin, IL6, TNF α , SAA Procalcitonin	Severe viral infection/viremia Bacterial (super) infection
Cardiac	High-sensitivity troponin, CK-MB, BNP/NT-proBNP	Increased levels may be associated with higher mortality [†]
Liver	Albumin, ALT, AST, Bilirubin	Impairment of liver function, Liver injury
Renal	Creatinine, Cystatin C	Kidney injury

*Approximate percentage of patients

†This information represents a potential novel clinical utility. Data have not been reviewed by FDA or any other regulatory agency

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