

Common Laboratory Values

| Complete Blood Count | | | |
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| Test | Normal value | Function | Significance |
| Hemoglobin | 10.5-18 g/dL | Measures oxygen-carrying capacity of blood | Low: hemorrhage, anemia High: polycythemia |
| Hematocrit | 32-52% | Measures relative volume of cells and plasma in blood | Low: hemorrhage, anemia High: polycythemia, dehydration |
| Red blood cell | 4-6 million/mm ³ | Measures oxygen-carrying capacity of blood | Low: hemorrhage, anemia High: polycythemia, heart disease, pulmonary disease |
| White blood cell | | Measures host defense against inflammatory agents | Low: aplastic anemia, drug toxicity, specific infections High: inflammation, trauma, toxicity, leukemia |
| 1-23 months | 6,000-14,000/mm ³ | | |
| 2-9 years | 4,000-12,000/mm ³ | | |
| 10-18 years | 4,000-10,500/mm ³ | | |
| Differential Counts | | | |
| Test | Absolute counts | Significance | |
| Neutrophils | 1,500-8,000/mm ³ | Increase in bacterial infections, hemorrhage, diabetic acidosis. Absolute Neutrophil Count (ANC) <1,000/mm ³ : patient at increased risk for infection. Defer elective dental treatment. | |
| Lymphocytes | 1,500-3,000/mm ³ | Viral and bacterial infections, acute and chronic lymphocytic leukemia, antigen reaction | |
| Eosinophils | 50-250/mm ³ | Increase in parasitic and allergic conditions, blood dyscrasias, pernicious anemia | |
| Basophils | 15-50/mm ³ | Increase in types of blood dyscrasias | |
| Monocytes | 285-500/mm ³ | Hodgkin's disease, lipid storage disease, recovery from severe infections, monocytic leukemia | |
| Bleeding Screen | | | |
| Test | Normal value | Function | Significance |
| Prothrombin time | 10.1 to 15.9 seconds (age-related) | Measures extrinsic clotting of blood | Prolonged in liver disease, impaired Vitamin K production, surgical trauma with blood loss |
| Activated partial thromboplastin time | Age-related reference ranges (laboratory dependent) | Measures intrinsic clotting of blood, congenital clotting factor deficiency | Prolonged in hemophilia A, B, and C and Von Willebrand's disease |
| Platelets | 150,000-400,000/mm ³ | Measures clotting potential | Increased in polycythemia, inflammation/infection, severe hemorrhage; decreased in leukemia, immune thrombocytopenia purpura |
| Bleeding time (adult) | <7.1 minutes | Measures quality of platelets | Prolonged in thrombocytopenia |
| International Normalized Ratio (INR) | Without anticoagulant therapy: 1; Anticoagulant therapeutic range: 2-3 | Measures extrinsic clotting function | Increased with anticoagulant therapy |
| Urinalysis | | | |
| Test | Normal value | Function | Significance |
| Volume | 1,000-2,000 mL/day | | Increased in diabetes mellitus, chronic nephritis |
| Specific gravity | 1.015-1.025 | Measures the degree of tubular reabsorption and dehydration | Increased in diabetes mellitus; decreased in acute nephritis, diabetes insipidus, aldosteronism |
| pH | 5.0-9.0 | Reflects acidosis and alkalosis | Acidic: diabetes, acidosis, prolonged fever Alkaline: urinary tract infection, alkalosis |
| Casts | 1-2 per high power field | | Renal tubule degeneration occurring in cardiac failure, pregnancy, and hemoglobinuric-nephrosis |
| Electrolytes | | | |
| Test | Normal value | Function | Significance |
| Sodium (Na) | 134-143 mmol/L | | Increased in Cushing's syndrome |
| Potassium (K) | 3.3-4.6 mmol/L | | Increased in tissue breakdown |
| Bicarbonate (HCO ₃) | 22-29 mmol/L (venous) 21-28 mmol/L (arterial) | Reflects acid-base balance | |
| Chloride (Cl) | 98-106 mmol/L | | Increased in renal disease and hypertension |
| Markers | | | |
| Test | Normal value | Significance | |
| C-reactive protein (CRP) (age-related) | 0.08-1.58 mg/dL | Increase in infection; indicates an acute phase of the inflammatory metabolic response | |
| Hemoglobin A1C (HbA1C) | <5.6 % | Increased in hyperglycemia; pre-diabetes: 5.7-6.4%; diabetes mellitus: >6.5%. | |

References

- Kliegman RM, St Geme JW, Blum NJ, Shah SS, Tasker RC, Wilson KM, eds. Nelson Textbook of Pediatrics. 21st ed. Philadelphia, Pa.: Elsevier; 2020.
- Loscalzo J, Fauci A, Kasper D, Hauser S, Longo D, Jameson J, eds. Harrison's Principles of Internal Medicine. 21st ed. New York, N.Y.: McGraw Hill; 2022.