# Common Laboratory Values

**CBC**

| Test | Normal value | Function | Significance |
|---|---|---|---|
| Hemoglobin | 12-18 g/100 mL | Measures oxygen carrying capacity of blood | Low: hemorrhage, anemia<br>High: polycythemia |
| Hematocrit | 35%-50% | Measures relative volume of cells and plasma in blood | Low: hemorrhage, anemia<br>High: polycythemia, dehydration |
| Red blood cell | 4-6 million/$mm^3$ | Measures oxygen-carrying capacity of blood | Low: hemorrhage, anemia<br>High: polycythemia, heart disease, pulmonary disease |
| White blood cell<br>Infant<br>4-7 y<br>8-18 y | <br>8,000-15,000/$mm^3$<br>6,000-15,000/$mm^3$<br>4,500-13,500/$mm^3$ | Measures host defense against inflammatory agents | Low: aplastic anemia, drug toxicity, specific infections<br>High: inflammation, trauma, toxicity, leukemia |

**Differential Count**

| Test | Normal value | Significance |
|---|---|---|
| Neutrophils | 54%-62% | Increase in bacterial infections, hemorrhage, diabetic acidosis |
| Lymphocytes | 25%-30% | Viral and bacterial infection, acute and chronic lymphocytic leukemia, antigen reaction |
| Eosinophils | 1%-3% | Increase in parasitic and allergic conditions, blood dyscrasias, pernicious anemia |
| Basophils | 1% | Increase in types of blood dyscrasias |
| Monocytes | 0%-9% | Hodgkin's disease, lipid storage disease, recovery from severe infections, monocytic leukemia |

**Absolute Neutrophil Count (ANC)**

| Calculation | Normal value | Significance |
|---|---|---|
| $\frac{(\%\ \text{Polymorphonuclear Leukocytes} + \%\ \text{Bands}) \times \text{Total White Cell Count}}{100}$ | >1500 | <1000 Patient at increased risk for infection; defer elective dental care |

**Bleeding Screen**

| Test | Normal value | Function | Significance |
|---|---|---|---|
| Prothrombin time | 1-18 sec | Measures extrinsic clotting factors | Prolonged in liver disease, impaired Vitamin K production, surgical trauma with blood loss |
| Partial thromboplastin time | By laboratory control | Measures intrinsic clotting of blood, congenital clotting disorders | Prolonged in hemophilia A,B, and C and Von Willebrand's disease |
| Platelets | 140,000-340,000/mL | Measures clotting potential | Increased in polycythemia, leukemia, severe 237 hemmorhage; decreased in thrombocytopenia purpura |
| Bleeding time | 1-6 min | Measures quality of platelets | Prolonged in thrombocytopenia |
| International Normalized Ratio (INR) | Without anticoagulant therapy: 1<br>Anticoagulant therapy target range: 2-3 | Measures extrinsic clotting function | Increased with anticoagulant therapy |

**Urinalysis**

| Test | Normal value | Function | Significance |
|---|---|---|---|
| Volume | 1,000-2,000 mL/d | | Increase in diabetes mellitus, chronic nephritis |
| Specific gravity | 1.015-1.025 | Measures the degree of tubular reabsorption and dehydration | Increase in diabetes mellitus; decrease in acute nephritis, diabetes insipidus, aldosteronism |
| pH | 6-8 | Reflects acidosis and alkalosis | Acidic: diabetes, acidosis, prolonged fever<br>Alkaline: urinary tract infection, alkalosis |
| Casts | 1-2 per high power field | | Renal tubule degeneration occuring in cardiac failure, pregnancy, and hemoglobinuric-nephrosis |

**Electrolytes**

| Test | Normal value | Function | Significance |
|---|---|---|---|
| Sodium (Na) | 135-147 mEq | Reflects acid-base balance | Increase in Cushing's syndrome |
| Potassium (K) | 3.5-5 mEq | | Increase in tissue breakdown |
| Bicarbonate (HCO3) | 24-30 mEq | | |
| Chloride (Cl) | 100-106 mEq | | Increase in renal disease and hypertension |