Common Laboratory Values

CBC

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 1-23 months 2-9 years 10-18 years	 6,000-14,000/mm^3 4,000-12,000/mm^3 4,000-10,500/mm^3	Measures host defense against inflammatory agents	Low: aplastic anemia, drug toxicity, specific infections High: inflammation, trauma, toxicity, leukemia

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	12.7-15.4 sec	Measures extrinsic clotting of blood	Prolonged in liver disease, impaired Vitamin K production, surgical trauma with blood loss
Partial thrombo-plastin 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	150,000-400,000/mm^3	Measures clotting potential	Increased in polycythemia, leukemia, severe hemorrhage; decreased in thrombocytopenia purpura
Bleeding time (adult)	< 7.1 min	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 hemogobinuric-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) *range is age dependent*	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

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