Disease and disorders of the white cells

SOURCE: Pagana, K.D. and T.J. Pagana. *Mosby's Diagnostic and Laboratory Test Reference.* 3rd ed. St. Louis: Mosby, 1997.

Causes for abnormalities in the white blood cell (WBC) differential count		
Type of WBC and normal differential count	**Elevated**	**Decreased**
Neutrophils 55–70%	Neutrophilia	Neutropenia
	Physical or emotional stress	Aplastic anemia
	Acute suppurative infection	Dietary deficiency
	Myelocytic leukemia	Overwhelming bacterial infection
	Trauma	Viral infections
	Cushing's syndrome	Radiation therapy
	Inflammatory disorders	Addison's diseas
	Metabolic disorderse	Drug therapy: myelotoxic drugs (as in chemotherapy)
Lymphocytes 20–40%	Lymphocytosis	Lymphocytopenia
	Chronic bacterial infection	Leukemia
	Viral infection	Sepsis
	Lymphocytic leukemia	Immunodeficiency diseases
	Multiple myeloma	Lupus erythematosus
	Infectious mononucleosis	Later stages of HIV infection
	Radiation	Drug therapy: adrenocorticosteroids, antineoplastics
	Infectious hepatitis	Radiation therapy
Monocytes 2–8%	Monocytosis	Monocytopenia
	Chronic inflammatory disorders	Drug therapy: prednisone
	Viral infections	
	Tuberculosis	
	Chronic ulcerative colitis	
	Parasites	
Eosinophils 1–4%	Eosinophilia	Eosinopenia
	Parasitic infections	Increased adrenosteroid production
	Allergic reactions	
	Eczema	
	Leukemia	
	Autoimmune diseases	
Basophils	Basophilia	Basopenia

Causes for abnormalities in the white blood cell (WBC) differential count		
Type of WBC and normal differential count	**Elevated**	**Decreased**
0.5–1.0%	Myeloproliferative disease	Acute allergic reactions
	(e.g., myelofibrosis, polycythemia rubra vera)	Hyperthyroidism
	Leukemia	Stress reactions

WBC count: 4,500-11,000/µL
Polymorphonuclear neutrophils: 1800-7800/µL; (50-70%)
Band neutrophils : 0-700/µL; (0-10%)
Lymphocytes : 1000-4800/µL; (15-45%)
Monocytes : 0-800/µL; (0-10%)
Eosinophils : 0-450/µL; (0-6%)
Basophils : 0-200/µL; (0-2%)