

### Need to Know Lab Values

<i>Labs</i>	<i>Normal Ranges</i>	
<i>Sodium</i>	136-145	Na <sup>+</sup> swells the body
<i>Potassium</i>	3.5-5	K <sup>+</sup> pumps the heart
<i>Chloride</i>	98-106	Cl <sup>-</sup> maintains serum osmolarity
<i>Calcium</i>	9-10.5	Ca contracts the muscles & maintains bone density
<i>Magnesium</i>	1.3-2.1	Mg <sup>+</sup> mellows the muscle
<i>Albumin</i>	3.5-5	Used to determine liver function; tells how much protein the body is getting
<i>Creatinine</i>	(M)= 0.6-1.3; (F)=0.5-1.1	Is excreted by the kidneys; >1.3 = bad kidneys
<i>BUN</i>	10-20	Urea is a by-product of protein metabolism; tests kidney function
<i>Glucose</i>	74-106	Hypogly = Brain die
<i>RBC</i>	(M)= 4.7-6.1; (F)= 4.2-5.4	Low = anemia, renal disease, vitamin B deficiency
<i>Hemoglobin</i>	(M)= 14-18; (F)= 12-16	<7 = blood transfusion
<i>Hematocrit</i>	(M)= 42-52; (F)= 37-47	Low = over-hydrated; high = dehydrated
<i>Platelets</i>	150,000-400,000	AsaParin, CloPidogrel
<i>WBC</i>	5,000-10,000	High = infection/trauma
<i>Neutrophils (segs)</i>	2,500-8,000	Nonspecific ingestion & phagocytosis of microorganisms & foreign proteins
<i>Neutrophils (bands)</i>	250-500	Immature neutrophils; If higher than segs = bandemia/shift to the left
<i>Lymphocytes</i>	1,000-4,000	
<i>Monocytes</i>	100-700	Destruction of bacteria & cellular debris; matures into macrophage
<i>Eosinophils</i>	50-500	Releases vasoconstrictive amines during allergic reactions & in response to parasitic infection
<i>Basophils</i>	25-100	Releases histamines, kinins, & heparin in areas of tissue damage; Causes signs & symptoms of inflammation

### Need to Know Vocab

<i>Term</i>	<i>Definition</i>
<i>Adventitious Lung Sounds</i>	Abnormal sounds that originate in the lungs & airways
<i>Afterload</i>	The pressure or resistance that the ventricles overcome to eject blood through the semilunar valves & into the peripheral blood vessels
<i>Anabolism</i>	The use of energy to change simple materials into complex body substances & tissue



### Need to Know Vocab (cont)

<i>Anti-embolism Hose (TED hose)</i>	Tightly fitting elastic stockings that are used to promote blood flow of venous return & prevent edema in the lower extremities, DVT, venous stasis, & pulmonary embolism
<i>Apnea</i>	Absence of breathing for several seconds
<i>Arteriosclerosis</i>	A thickening or hardening of the arterial wall that's often associated with aging
<i>Atelectasis</i>	The collapse of all of part of a lung
<i>Atherosclerosis</i>	The build up of plaque in coronary arteries around the heart (is a type of arteriosclerosis)
<i>Basal Metabolic Rate (BMR)</i>	The minimum amount of energy required to maintain body functions in the resting, awake state
<i>Bradypnea</i>	Abnormally slow breathing (<10 BPM)
<i>Borborygmus</i>	Increased high-pitched bowel sounds, especially loud, gurgling sounds, result from increased motility of the bowel
<i>Bruits</i>	"Swooshing" sounds over the abdominal aorta, the renal arteries, & the iliac arteries
<i>Cachexia</i>	Physical wasting
<i>Cardiac Index</i>	Can be calculated by dividing cardiac output by the body surface area; Normal range is 2.8-4.2
<i>Cardiac Output</i>	Calculated by multiplying the heart rate in bpm times the stroke volume in liters per beat; is the amount of blood pumped from the left ventricle each minute
<i>Catabolism</i>	The breaking down of substances from complex to simple, resulting in a release of energy
<i>Chyme</i>	Semiliquid product of digestion that travels from the stomach through the intestines
<i>Contractility</i>	The ability of atrial & ventricular muscle cells to shorten their fiber length in response to electrical stimulation
<i>Coronary Artery Disease</i>	Narrowing of the arteries by atherosclerosis, spasms, or congenital malformations
<i>Dual X-Ray Absorptiometry (DXA)</i>	Measures bone mineral density; Spine & hip are most often assessed on a central DXA; Calculates T-score (0= healthy, -1 to -2.5= osteopenia, & <-2.5= osteoporosis)
<i>Dysphagia</i>	Difficulty swallowing



### Need to Know Vocab (cont)

<i>ECG/EKG</i>	A recording of the electrical current generated by the heart during depolarization & repolarization; Test results are interpreted for HR & rhythm, lack of blood supply, abnormalities of conduction system, & arrhythmias
<i>Guaiac-based Fecal Occult Blood Test</i>	Tests for blood in the stool; more likely to yield a false positive than fecal immunochemical test due to requiring an active component of guaiac
<i>Hemoptysis</i>	The presence of blood in the sputum
<i>Hypercapnia</i>	Abnormally high levels of CO <sub>2</sub> in the blood (>45 mmHg in arterial blood), may have respiratory depression when supplemental oxygen levels are too high
<i>Hyperlipidemia</i>	Elevation of plasma cholesterol, triglycerides, or both
<i>Hyperventilation</i>	Over expansion of the lungs, characterized by rapid & deep breaths; CO <sub>2</sub> levels increase & alkalosis happens
<i>Hypoventilation</i>	Under expansion of the lungs, characterized by shallow, slow respirations
<i>Ischemia</i>	Reduced blood flow
<i>Kwashiorkor</i>	Lack of protein accompanied by fluid retention
<i>Macronutrients</i>	Nutrients that are needed in large amounts
<i>Marasmus</i>	A protein & caloric deficiency
<i>Mean Arterial Pressure</i>	Factors that influence MAP include: Total blood volume (viscosity), Cardiac output (HR x Stroke volume), & Size & integrity of the vascular bed, especially in capillaries
<i>Metabolism</i>	The process of chemically changing nutrients, such as fats & proteins, into end products that are used to meet the energy needs of the body or stored for future use, thereby helping maintain homeostasis
<i>Micronutrients</i>	Nutrients that are needed by the body in limited amounts
<i>Osteomalacia</i>	Bone loss & softening caused by lack of calcification; Cause = lack of vitamin D
<i>Osteoporosis</i>	Chronic disease of cellular regulation in which bone loss causes significant decreased density & possible fracture; Caused by: lack of Ca <sup>+</sup> & estrogen or testosterone



### Need to Know Vocab (cont)

<i>Peripheral Artery Disease</i>	Is a result of systemic atherosclerosis; Is a chronic condition in which partial or total arterial occlusion decreases perfusion to the extremities
<i>Peripheral Vascular Disease</i>	Includes disorders that change the natural flow of blood through the arteries and veins of the peripheral circulation, causing decreased perfusion to body tissues; is an umbrella term
<i>Peristalsis</i>	Wavelike muscular movement through the digestive tract
<i>Postural Drainage</i>	A therapeutic way to position a patient to use gravity to help mobilize respiratory tract secretions; Improves ventilation & perfusion & normalizes the functional residual capacity of the lungs
<i>Preload</i>	The degree of myocardial fiber stretch at the end of diastole & just before contraction; Is determined by the amount of blood returning to the heart from both sides
<i>Pulse Deficit</i>	When a patient's radial pulse is slower than the apical pulse because of cardiac contractions that are weak or ineffective at pumping blood to the peripheral tissues & extremities
<i>Pulse Intensity</i>	The strength of the pulse with each beat; Described as normal (able to palpate with normal pressure), diminished (weaker than expected/difficult to palpate), absent (unable to palpate), or bounding (may be able to see pulsation; does not disappear with palpation); rated on a scale of 0-3 with 0 being absent & 3 being Bounding
<i>Pulse Pressure</i>	The difference between the systolic & diastolic values
<i>Renin-Angiotensin System</i>	Regulates BP & fluid balance through vasoconstriction & excretion or reabsorption of sodium
<i>Sequential Compression Devices</i>	Inflatable sleeves that wrap around the legs of patients & are attached to an air source that inflates & deflates, creating a massaging action for the lower extremities



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### Need to Know Vocab (cont)

<i>Stroke Volume</i>	The amount of blood ejected by the left ventricle during each contraction; A decrease in SV can result from an increase in afterload without the benefit of compensatory mechanisms, thus leading to a decrease in cardiac output
<i>Tachypnea</i>	Increased respiratory rate of >24 BPM in an adult with quick shallow breaths

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