Need to Know Lab Values

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

Need to Know Vocab

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

Need to Know Vocab (cont)	
Anti-embolism Hose (TED hose)	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
Apnea	Absence of breathing for several seconds
Arteriosclerosis	A thickening or hardening of the arterial wall that's often associated with aging
Atelectasis	The collapse of all of part of a lung
Atherosclerosis	The build up of plaque in coronary arteries around the heart (is a type of arteriosclerosis)
Basal Metabolic Rate (BMR)	The minimum amount of energy required to maintain body functions in the resting, awake state
Bradypnea	Abnormally slow breathing (<10 BPM)
Borborygmus	Increased high-pitched bowel sounds, especially loud, gurgling sounds, result from increased motility of the bowel
Bruits	"Swooshing" sounds over the abdominal aorta, the renal arteries, & the iliac arteries
Cachexia	Physical wasting
Cardiac Index	Can be calculated by dividing cardiac output by the body surface area; Normal range is 2.8-4.2
Cardiac Output	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
Catabolism	The breaking down of substances from complex to simple, resulting in a release of energy
Chyme	Semiliquid product of digestion that travels from the stomach through the intestines
Contractility	The ability of atrial & ventricular muscle cells to shorten their fiber length in response to electrical stimulation
Coronary Artery Disease	Narrowing of the arteries by atherosclerosis, spasms, or congenital malformations
Dual X-Ray Absorptiometry (DXA)	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
Dysphagia	Difficulty swallowing

Need to Know Vocab (cont)	
ECG/EKG	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
Guaiac-based Fecal Occult Blood Test	Tests for blood in the stool; more likely to yeild a false positive than fecal immunochemical test due to requiring an active component of guaiac
Hemoptysis	The presence of blood in the sputum
Hypercapnia	Abnormally high levels of CO2 in the blood (>45 mmHg in arterial blood), may have respiratory depression when supplemental oxygen levels are too high
Hyperlipidemia	Elevation of plasma cholesterol, triglycerides, or both
Hyperventilation	Over expansion of the lungs, characterized by rapid & deep breaths; CO2 levels increase & alkalosis happens
Hypoventilation	Under expansion of the lungs, characterized by shallow, slow respirations
Ischemia	Reduced blood flow
Kwashiorkor	Lack of protein accompanied by fluid retention
Macronutrients	Nutrients that are needed in large amounts
Marasmus	A protein & caloric deficiency
Mean Arterial Pressure	Factors that influence MAP include: Total blood volume (viscosity), Cardiac output (HR x Stroke volume), & Size & integrity of the vascular bed, especially in capillaries
Metabolism	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
Micronutrients	Nutrients that are needed by the body in limited amounts
Osteomalacia	Bone loss & softening caused by lack of calcification; Cause = lack of vitamin D
Osteoporosis	Chronic disease of cellular regulation in which bone loss causes significant decreased density & possible fracture; Caused by: lack of Ca+ & estrogen or testosterone

Need to Know Vocab (cont)	
Peripheral Artery Disease	Is a result of systemic atherosclerosis; Is a chronic condition in which partial or total arterial occlusion decreases perfusion to the extremities
Peripheral Vascular Disease	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
Peristalsis	Wavelike muscular movement through the digestive tract
Postural Drainage	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
Preload	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
Pulse Deficit	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
Pulse Intensity	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
Pulse Pressure	The difference between the systolic & diastolic values
Renin-Angiotensin System	Regulates BP & fluid balance through vasoconstriction & excretion or reabsorption of sodium
Sequential Compression Devices	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

Need to Know Vocab (cont)	
Stroke Volume	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
Tachypnea	Increased respiratory rate of >24 BPM in an adult with quick shallow breaths

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