APS Healthcare

# Lab Values Chart

| Name of Test | Purpose | Normal Range (Adult) | High Results Mean | Low Results Mean |
|---|---|---|---|---|
| Albumin (blood) | Diagnose, evaluate, and monitor disease state of cancer, intestinal/renal protein-wasting states, immune disorders, liver dysfunction, impaired nutrition, and chronic edematous states | 3.5 - 5 | Dehydration | Malnutrition, liver disease, pregnancy, and overhydration |
| Alkaline phosphatase (ALP) (blood) | Used to detect and monitor diseases of the liver or bone | 30-120 | Primary cirrhosis, liver tumor, Paget's disease, Rheumatoid arthritis, myocardial infarction | Scurvy (Vitamin C deficiency), pernicious anemia, malnutrition, hypophosphatemia, milk-alkali syndrome |
| ALT | Identify diseases of the liver | 4-36 | Hepatitis, hepatic necrosis, cirrhosis, hepatic tumor, obstructive jaundice | No low results available |
| Ammonia (NH3) | Supports diagnosis of liver disease | 80-110 | Liver disease, Reye's Syndrome | Essential or malignant hypertension |
| Amylase (AMS) | Detects and monitors the course of pancreatitis | 60-120 | Pancreatitis | No low results available |
| Antidiuretic Hormone (ADH) | Performed on people complaining of increased thirst or frequent urination | 1-5 or 1.5 (depends on unit of measure) | Syndrome of Inappropriate Antidiuretic Hormone (SIADH), Diabetes Inspidus (DI), Central nervous system tumors | Low in people who have had the pituatary removed, Increased blood volume |
| Antinuclear Antibody (ANA) | Diagnose lupus and other autoimmune diseases | Negative (< 1:20) | Lupus, rheumatoid arthritis, scleroderma | No low results available |
| AST | Used to evaluate suspected coronary artery occlusive disease or hepatocellular disease | 0-35 | Heart diseases, liver diseases, skeletal muscle diseases, anemia, pancreatitis | Acute renal disease, beriberi, diabetic ketoacidosis, pregnancy, chronic renal dialysis |
| Basic Metabolic Panel (BMP) | Detects various chemical components in blood-includes electrolytes, BUN, Creatinine. Measures sugar glucose levels, electrolyte, fluid balance and kidney function. | Per each individual test-see components - Sodium, Potassium, Calcium, Chloride, Carbon Dioxide or Bicarbonate, Glucose, Blood Urea Nitrogen(BUN), Creatinine | Dependent on test – refer to each component | Dependent on test – refer to each component |

APS Healthcare

| | | | | |
|---|---|---|---|---|
| Bilirubin (blood) | Evaluates liver function and patients with hemolytic anemias | 0.3-1.0 | Gallstones, extrahepatic duct obstruction (tumor, inflammation, gallstones, scarring, surgical trauma), lover metastasis, cholestasis from drugs, Dubin-Johnson syndrome, Rotor's syndrome, anemias, cirrhosis | No low results available |
| Blood Urea Nitrogen (BUN) | Indirect measurement of kidney function | 10-20 mg/dl | Low blood volume, shock, kidney disease, drug toxicity to the kidney | Liver failure, overhydration, nephrotic (kidney) syndrome |
| Calcium (Ca) | Evaluates parathyroid function and calcium metabolism | 9.0-10.5 | Hyperparathyroidism, metastatic tumor to bone, Paget's disease | Hypoparathyroidism, renal failure, vitamin D deficiency |
| Carbon Dioxide (CO2) | measures levels of carbon dioxide in the blood | 23-30 | vomiting, COPD, use of some diuretics | diarrhea, use of some diuretics, kidney disease |
| Chloride (Cl) | used with other electrolytes to determine acid-base status and hydration status | 98-106 | Dehydration | Overhydration |
| Cholesterol (CH, Chol) (Part of lipid panel) | Determines risk factor for coronary artery disease | < 200 | Familial high cholesterol and lipids | Malabsorption, malnutrition |
| Complete Blood Count with Differential (CBC with diff) | Provides information about various organ systems-major components listed below | Per each individual test-see components on this list – RBC, hemoglobin, hematocrit, WBC, Platelet | Dependent on test – refer to components | Dependent on test – refer to components |
| Creatinine (Cr) | Used to diagnose impaired kidney function | Male: 0.6-1.2 Female: 0.5-1.1 | Kidney disease | Debilitation, decreased muscle mass |
| Electrolytes (lytes) | Measures levels of active chemicals in the body-see individual components below | Per each individual test-see components on this list | Dependent on test | Dependent on test |

APS Healthcare

| | | | | |
|---|---|---|---|---|
| Erythrocyte Sedimentation Rate (ESR) | Used to detect illnessess associated with acute and chronic infection, inflammation (Collagen-Vascular Disease), advanced neoplasm and tissue necrosis or infarction. | Male: up to 15mm/hr Female: up to 20mm.hr | Chronic renal failure, Malignant diseases, Bacterial infections, Inflammatory diseases, Necrotic diseases, Diseases associated with increased proteins, and Severe Anemias | Sickle cell anemia, Spherocytosis, Hypofibrinogenemia, and Polycythemia vera |
| Ferritin (FTN, Fer, FT, Fe, FRT Ferr, Fn) | Determines iron deficiency anemia | Male:12-300 Female 10-150 | Diseases where there I too much iron stored, such as hemochromatosis | Iron deficiency anemia, hemodialysis |
| Glucose (GLU or BS) | Direct measurement of blood sugar level – maybe done as fasting | 70-105 | Diabetes, stress response | too much insulin production, hypothyroidism, insulin overdose |
| Hematocrit (Hct) | Indirect measurement of red blood cell number and volume | Male: 42%-52% Female 37%-47%; Values may be slightly decreased in the elderly | Congenital heart disease, dehydration, COPD | Anemia, cirrhosis, hemorrhage |
| Hemoglobin A1C (HbA1c) | Monitors diabetes treatment and provides a picture of glucose control over a 3 month period | Good diabetic control: 2.5-5.9 Fair diabetic control 6-8 Poor diabetic control >8 | poorly controlled diabetes or newly diagnosed diabetes | anemia, chronic blood loss, chronic renal failure |
| Hemoglobin (Hb or Hgb) | Rapid indirect measurement of the red blod cell count | Male: 14-18 Female: 12-16 Values may be slightly decreased in the elderly | Congenital heart disease, dehydration, COPD | Anemia, hemorrhage, cirrhosis of the liver |
| Iron level (Fe) | Direct measurement of bound iron in the blood | Male: 80-180 Female: 60-160 | Diseases where there I too much iron stored, such as hemochromatosis | Insufficient dietary intake of iron or poor absorption of iron, iron deficiency anemia |
| Lipase (LPL) | used to evaluate pancreatic disease | 0-160 | pancreatic disease, biliary disease, peptic ulcer disease | No low results available |
| Liver Function Tests (LFT) | Measures function of the liver | differs according to component of test – refer to each component - ALT, AST, Alkaline phosphatase, PT, INR, Albumin, and bilirubin | liver disease or decreased function | malnutrition, anemia |

APS Healthcare

| | | | | |
|---|---|---|---|---|
| Platelets (PLT) | Checks blood's ability to clot | 150,000-400,000 | Malignant disorders, rheumatoid arthritis, anemia | Hemorrhage, infection, cancer therapy |
| Potassium (K) | evaluates and monitors fluid and electrolyte status; provides information on heart function | 3.5-5.0 | Excessive dietary intake, kidney disease or failure, Addison's disease | Deficient dietary intake, use of diuretics, Cushing's syndrome |
| Prolactin (PRL) | Used to diagnose and monitor prolactin secreting tumors of the pituitary | Male: 0-20<br>Female: 0-25 | Amenorrhea (no menstrual period), pituitary tumor | Sheehan's syndrome-death of pituatary gland due to circulatory collapse after having a child |
| Prostatic Specific Antigen (PSA) | Screening method for prostate cancer. Also monitors the disease after treatment | < 4 | Prostate cancer, benign prostatic hypertrophy (BPH), Prostatitis | No low results available |
| Prothrombin Time (PT) with International Normalized Ratio (INR) | Checks blood clotting; regularly checked on people taking anticoagulants, such as Coumadin | >1.5-2.0 times the control.<br>INR number is more specific, and physician dtermines what number should be based on why the individual takes Coumadin. Number will be higher for people with a prosthetic heart valve. | Blood too thin | Blood too thick |
| Red Blood Cell Count (RBC) | Used to evaluate anemia; tells number of circulating red blood cells | Male: 4.7-6.1 Female 4.2-5.4 | Illness, high altitude, congenital heart disease, chronic obstructive pulmonary disease (COPD) | Anemia, hemorrhage, cirrhosis of the liver |
| Rheumatoid Factor (RF) | Helps diagnose rheumatoid arthritis | Negative | Rheumatoid arthritis or other autoimmune diseases | No low results available |
| Sodium (Na) | evaluates and monitors fluid and electrolyte status | 136-145 | increased dietary intake, Cushing's syndrome, | Decreased dietary intake, Addison's disease, excessive oral water intake |
| Thyroid Stimulating Hormone (TSH) | Used to diagnose hypothyroidism | 2-10 mU | Hypothyroidism, thyroiditis, | Secondary hypothyroidism, hyperthyroidism |

APS Healthcare

| | | | | |
|---|---|---|---|---|
| Thyroxine (T4) | Assess thyroid function and monitors replacement therapy or suppressive therapy (when someone is taking Synthroid or Tapazole, for example) | Male 4-12<br>Female: 5-12 | Hyperthyrodisim (Grave's disease), Acute thyroiditis | Hypothyroidism, pituitary insufficiency |
| White Blood Cell Count (WBC) | Evaluates infection or immunosuppression | 5,000-10,000 | Infection, leukemic cancer, steroid usage | Drug toxicity, bone marrow failure, overwhelming infections |
| | | | | |
| Drug Levels | Monitors level of medication in the blood | | Too much medication | Too little medication |
| Depakote | | 50-100 | | |
| Digoxin | | 0.8-2.0 | | |
| Dilantin | | 10-20 | | |
| Lithium | | 0.8-1.3 | | |
| Phenobarbital | | 4.0-12.0 | | |
| Tegretol | | 10-20 | | |
| *Reference: Mosby's Manual of Diagnostic and Laboratory Tests, Second Edition* | | | | |

Updated 11-30-2011 by ret

References:

Mosby's Manual of Diagnostic and Laboratory Tests, Second Edition
BMP panel information retrieved from webmd on 11-30-11 at http://www.webmd.com/a-to-z-guides/basic-metabolic-panel-topic-overview by ret.
Liver Function tests information retrieved from Webmd on 11-30-11 at http://www.webmd.com/a-to-z-guides/liver-function-test-lft by ret
Drug level results from Lippincott Williams & Wilkins Drug Handbook 2011 retrieved by ret on 11-30-11.