

## Dialysis Lab Tests At a Glance

Blood Test	Normal Values	Normal Values for CKD	Signs/Symptoms
Albumin	3.5 – 5 gm/dl	Goal is >4.0	Weight loss, poor appetite, medication side effects
Aspartate aminotranferase [AST] (formerly SGOT)	8-20 U/L	Same	Jaundice, nausea/vomiting, abdominal pain
Alanine aminotransferase [ALT] (formerly SGPT)	7-56 U/L	Same	Abdominal pain, nausea/vomiting, other medication side effects e.g. muscle cramps
Bicarbonate [CO <sub>2</sub> ]	21–30 mEq/L	>22 mEq/L	Rapid breathing, shortness of breath
Bilirubin - Direct - Total	<0.3 mg/dL 0.2-1.3 mg/dL	Same	Jaundice, abdominal pain, fatigue, appetite changes
Blood Cultures	Negative or no growth	Same	Depends on source: fever, malaise, rigors, hypotension, nausea, abdominal discomfort, cough, etc.
Blood Urea Nitrogen [BUN]	7-21 ml/dL Expect ratio of BUN:Creatinine ~ 10:1	<100; depends on protein intake	Fatigue, nausea, insomnia, dry or itching skin, urine-like body odor and breath
Ca X PO <sub>4</sub>	NA	≤55	High = calcification of blood vessels and soft tissues and bone demineralization
Calcium	8.5–10.5 mg/dl	Same although preferred upper level is <10	Low = muscle twitching/cramping, seizures, depression, hair loss, cataracts High = muscle weakness, fatigue, symptoms same as sodium, mental changes ranging from mild confusion to psychosis
Chloride [Cl]	95–108 mEq/L	Same	Low: hyperexcitable nervous system, low blood pressure, shallow breathing, tetany High: muscle weakness, fatigue, deep breathing
Creatinine	0.5-1.4 mg/dL	12–20 mg/dL: varies with muscle mass	
Ferritin	12-300 ng/mL male 10-150 mg/mL female	100-500 ng/mL CKD 1-4 and PD; 200-500 ng/mL HD patients	If anemic: pallor, fatigue, tachycardia, cold intolerance If infection or inflammation: abscess/wounds, fever
Glucose	Fasting: <126 mg/dL	Same	High = Excessive thirst Low = hunger, fatigue, vertigo, mood changes, sweating, anxiety, poor memory
Hematocrit [Hct]	45-52% male 37-46% female	30-36% if on erythropoiesis stimulating agent (ESA)	Fatigue, shortness of breath, chest pain, cold intolerance, weakness
Hemoglobin	13.2-16.2 gm/dL male 12-15.2 gm/dL female	10-12 gm/dL if on erythropoiesis stimulating agent (ESA)	See hematocrit
Hemoglobin A1c	<7%	Same	May be inaccurate in ESRD due to the decreased RBC lifespan
Hepatitis Antibody [Anti HBs]	Negative (Positive if recovered or vaccinated)	Same	Patients are susceptible to infection by the hepatitis B virus
Hepatitis B surface antigen [HBsAg] (formerly Australian Antigen)	Negative	Same	Abdominal pain, anorexia, nausea/vomiting, jaundice, fatigue, or asymptomatic
Hepatitis C Antibody [anti-HCV]	Negative	Same	80% of persons have no signs or symptoms; symptoms may include: jaundice, fatigue, dark urine; abdominal pain, loss of appetite, nausea

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Homocysteine	5–15		
Magnesium [Mg]	1.6 – 2.4 mEq/L	Same	Decreased mental function, nausea, and hypotension
Mean corpuscular volume [MCV]	82-102 male 78-101 female	Same	
Parathyroid Hormone Level [PTH] Intact PTH	10-65 pg/ml	Stage 3 35-70 pg/ml Stage 4 70-110 pg/ml Stage 5 150-300 pg/ml	Initially, asymptomatic; later, itching, bony changes on X-ray, fractures
Phosphorus [PO <sub>4</sub> ]	3.0–5.0 mg/dL	Goal: 3.5 – 5.5 mg/dL	High: causes elevated PTH by lowering Ca Abnormal: bone fractures
Platelet count	140-450 x 10 <sup>3</sup> /μL	Same	
Potassium [K]	3.6-5 mEq/L	Same, with some patients tolerating values up to 6.0 without problem	With ESRD, few symptoms below 7.0. Extreme weakness preceding cardiac arrest
Red Blood Cells [RBC]	4.3-6.2 x 10 <sup>6</sup> /μL male 3.8-5.5 x 10 <sup>6</sup> /μL female	Same	
Reticulocyte Count	0.5 – 1.5%	Same but will be higher in states of increased RBC production	
Sodium [Na]	133–145 mEq/L	Same	Thirst, leading to drinking more, fluid gain, elevated BP and shortness of breath
Total Protein	6–8 gm/dL	Same	
Transferrin saturation [TSAT]	15-50%	Goal: 20-50%	Anemia symptoms: fatigue, shortness of breath, cold intolerance
White Blood Count [WBC]	4.8–10.8 x 10 <sup>3</sup> /μL	Same	Fever

Table revised July 2008 with the assistance of Matthew Arduino, MS, DrPH, Donna Bednarski, MSN, RN, CS, CNP, CNN; Deborah Brooks, MSN, RN, ANP, CNN, CNN-NP; Lesley Dinwiddie, MSN, RN, FNP, CNN; and Glenda Payne, RN, MS, CNN

### References:

- Clinical Practice Recommendations (2008). American Diabetes Association. [http://care.diabetesjournals.org/cgi/reprint/31/Supplement\\_1/S12](http://care.diabetesjournals.org/cgi/reprint/31/Supplement_1/S12) Accessed 2/21/08.
- NKF-KDOQI Clinic Practice Guidelines and Clinical Practice Recommendations for Anemia in Chronic Kidney Disease. (May, 2006). *American Journal of Kidney Diseases*, 47(5) suppl 3.
- NKF-KDOQI Clinical Practice Guidelines for Bone Metabolism and Disease in Chronic Kidney Disease (October 2004). *American Journal of Kidney Diseases*.
- NKF-KDOQI Clinical Practice Guidelines and Clinical Practice Recommendations for Diabetes for Chronic Kidney Disease (February 2007 Supplement). *American Journal of Kidney Diseases*.
- Pagana, K.D. & Pagana, T.J. (1999). *Mosby's Diagnostic and Laboratory Test Reference*, 4<sup>th</sup> ed. Mosby, St. Louis: MO.
- Recommendations for Preventing Transmission of Infections Among Chronic Hemodialysis Patients (April 27, 2001). MMWR. <http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5005a1.htm> Accessed 2/18/08.
- Recommendations for Prevention and Control of Hepatitis C Virus (HCV) Infection and HCV-Related Chronic Disease (October 16, 1998). MMWR. <http://www.cdc.gov/mmwr/preview/mmwrhtml/00055154.htm>