

## UNDERSTANDING LABORATORY VALUES

Lab values are blood tests that are performed to evaluate dietary management, medication compliance and an effective dialysis treatment. These blood tests are usually done monthly but some can be done more or less frequently. It is important for you and your family to understand what these tests are and how they affect your body.

You should know:

- What each test measures
- Why these tests important to you
- What can happen when results are out of normal range

Please note that the following lab tests are guidelines and may vary from person to person. The information is only a tool to help you manage your overall health. If you have any questions regarding your values please consult with your physician and dietitian.

- **BUN** (Blood Urea Nitrogen) — a waste product in the blood that comes from the breakdown of food protein. A high number usually means not enough dialysis to adequately clean the blood. It can also signal an active infection process in the body.
- **K<sup>+</sup>** (Potassium) — regulates muscle action. Too much or too little can affect the way your heart beats.

- **Ca** (Calcium) — helps support bone growth and muscle strength.
- **PO<sub>4</sub>** (Phosphorus) — helps maintain bone strength. It is a mineral that works with calcium to keep bones strong. Often a high phosphorus level will cause a low calcium level and vice versa.
- **Serum Albumin** — measures protein and nutritional status. A lower value usually means you need to eat more high protein foods.
- **Hgb** (Hemoglobin) — the amount of red blood cells available to carry oxygen to all parts of the body.
- **Hct** (Hematocrit) — percentage of your blood that is made up of red blood cells. The higher the percent of healthy blood cells in your blood stream the more oxygen is available for your body to use.
- **Glu** (Glucose) — necessary for energy and maintaining normal body tissue.

Remember that being actively involved in your care, having good nutritional status, receiving adequate dialysis and a healthy attitude can contribute to a better quality of life and a sense of well-being.

## Understanding Laboratory Values

Blood Chemistry	Normal Values	Accepted Values for Dialysis Patients	Possible Causes for Abnormal Levels	Signs and Symptoms Associated with Abnormal Levels
<b>BUN</b> (Blood Urea Nitrogen)	7-25 mg/dl	40-85 mg/dl	<b>High Levels</b> — usually caused by inadequate dialysis. May also be from eating too much protein (beef, chicken, turkey, fish, eggs, pork). <b>Low Levels</b> — not eating enough protein or residual kidney function.	<b>High Levels</b> — Fatigue, nausea, insomnia, dry, itchy skin, funny taste in mouth.
<b>K<sup>+</sup></b> (Potassium)	3.5-5.5 meq/L	3.5-6.0 meq/L	<b>High Levels</b> — eating too many foods high in potassium (potatoes, avocado, dried cooked beans, bananas, fresh fruit) <b>Low Levels</b> — eating too little potassium containing foods.	<b>High Levels</b> — Extreme weakness and tingling of arms and legs, irregular heart beats.
<b>Ca</b> (Calcium)	8.5-10.8 mg/dl	8.5-10.8 mg/dl	<b>High Levels</b> — excess calcium intake, certain medications will cause increase. <b>Low Levels</b> — elevated phosphorus levels.	<b>High Levels</b> — Confusion, metallic taste, bone pain, loss of appetite. <b>Low Levels</b> — Muscle twitching, cramping, seizures, hair loss.
<b>PO<sub>4</sub></b> (Phosphorus)	2.5-4.5 mg/dl	3.5-5.5 mg/dl	<b>High Levels</b> — not taking phosphorus binders (i.e. Tums) when eating high phosphorus foods (dairy products, dry cooked beans, bran, whole grains, nuts, chocolate). <b>Low Levels</b> — Usually poor nutritional intake. Can also be caused by taking too many phosphorus binders.	<b>High and Low</b> — Breaking of bones, bone pain in hips, heels, knees and ankles. <b>Low Levels</b> — Fatigue, muscle weakness and irregular heart rhythm.
<b>Alb</b> (Albumin)	4.0-5.5 mg/dl	3.5 gm/dl Ideal > 4.0 mg/dl	<b>Low Levels</b> — inadequate protein intake, history of liver disease, nephrotic syndrome, infection.	<b>Low Levels</b> — Tired, poor wound healing, weight loss.
<b>Hgb</b> (Hemoglobin)	Men: 13-18 Women: 12-16	11-12 Men/Women	<b>Low Levels</b> — lack of erythropoietin hormone (EPO) which makes red blood cells.	<b>Low Levels</b> — Tired and weak, loss of appetite, feeling cold, insomnia.
<b>Hct</b> (Hematocrit)	Men: 40-54% Women: 37-47%	33-36% Men/Women	<b>Low Levels</b> — decreased production red cells. Blood loss during or after dialysis. Shortened life span of red cells.	<b>Low Levels</b> — Fatigue, shortness of breath, chest pain on exertion.
<b>Glu</b> (Glucose)	65-120 mg/dl	65-120 mg/dl	<b>High Levels</b> — diabetes (not enough diabetes medication). <b>Low Levels</b> — lack of food intake or too much diabetes medication.	<b>High Levels</b> — Excessive thirst, blurry vision. <b>Low Levels</b> — Sweaty, dizzy, tired.