



UNDERSTANDING YOUR LAB TESTS

CHEMISTRY

GLUCOSE

Glucose is a simple sugar that serves as the main energy source for the body. Under normal circumstances, insulin transports glucose into the body's cells, directs the body to store any excess, and keeps the level of glucose stable. It is usually ordered to detect high levels (hyperglycemia) and low levels (hypoglycemia) of glucose, to help diagnose diabetes, and to monitor diabetes treatment.

SODIUM

Sodium is an electrolyte vital to fluid regulation. It is present in all body fluids but is found in highest concentration in the blood and in the fluid surrounding the body's cells. Low levels can be due to sodium loss (through diarrhea, excessive sweating or diuretic administration), kidney disease, too much water intake or retention, or fluid accumulation in the body (edema). High levels are almost always due to dehydration without enough water intake.

POTASSIUM

Potassium is an electrolyte found mainly within the body's cells. It is vital to proper function of the nerves, heart, and other muscles. Decreased levels may be caused by dehydration, heavy sweating, vomiting, diarrhea, and kidney disease. Increased levels can indicate kidney disease and can be caused by some medications or an increased intake of dietary potassium. Because it is present within cells, falsely elevated levels can be caused by destruction of red cells during difficult venipuncture procedures.

CHLORIDE

Chloride is an electrolyte vital to fluid regulation. It also helps maintain the acid base balance. It is present in all body fluids but is found in highest concentration in the blood and in the fluid outside the body's cells. Increases and decreases usually parallel those of sodium. Decreased levels may be caused by excessive sweating, vomiting, and kidney disease. Increased levels can indicate dehydration but can also occur in Cushing's Syndrome or in kidney disease.

CO2

CO2 measures the total amount of carbon dioxide in the blood, mostly in the form of bicarbonate (HCO_3^-). Bicarbonate is used to help maintain the body's acid base balance and to work with sodium, potassium, and chloride to maintain electrical neutrality. Decreased CO2 levels can be seen in kidney disease, metabolic acidosis, diabetic ketoacidosis, and chronic diarrhea. Increased levels may be due to metabolic alkalosis, severe vomiting, and Cushing's Syndrome.

BUN

BUN (Blood Urea Nitrogen) is produced in the liver and carried to the kidneys where it is filtered out of the blood and excreted in urine. If increased amounts of BUN are produced by the liver (such as if there are significantly increased proteins in the diet) or decreased amounts are excreted by the kidneys because they are damaged or diseased, blood concentrations will increase. Increases may also be seen in conditions that cause decreased blood flow to the kidneys (such as congestive heart failure), dehydration, or blood in the GI tract. If significant liver damage or disease or malnutrition inhibits production of urea, blood concentrations may be decreased.

CREATININE

Creatinine is a waste product produced in the muscles. Almost all creatinine is excreted by the kidneys, so blood levels are a good way to assess kidney function. Elevations indicate kidney disease.

BUN/CREATININE RATIO

BUN/Creatinine Ratio is determined by dividing the BUN result by the creatinine result. An increased ratio can be due to a condition that causes a decrease in blood flow to the kidneys, such as congestive heart failure or dehydration. High ratios are also seen when there is increased protein (such as in blood in the GI tract or increased protein in the diet). Ratios may be decreased in liver disease and malnutrition.

GFR

GFR (Glomerular Filtration Rate) is the approximate rate that blood is filtered by the kidneys and is the best test to measure the level of kidney function. The GFR is calculated using the serum creatinine result, age, and gender.

TOTAL PROTEIN

Total Protein includes two main types of protein found in the blood- albumin and globulin. Low total protein results can indicate a liver or kidney disorder, a condition in which protein is not digested or absorbed properly, or severe malnutrition. High total protein levels may be seen in chronic inflammation, multiple myeloma, or some infections.

ALBUMIN

Albumin is the most abundant protein in the fluid portion of the blood (the plasma). It keeps fluid from leaking out of blood vessels, nourishes tissues, and transports hormones, vitamins, drugs, and ions throughout the body. Low levels are seen in liver damage, kidney disease that causes nephrotic syndrome, malnutrition, mal-absorption conditions, inflammation, or shock. High levels can be seen in dehydration (this is a relative increase that occurs as the volume of plasma decreases).

ALT

ALT (Alanine transaminase) is an enzyme found primarily in the liver. Smaller amounts are found in the kidneys, heart, and muscles. Normally, ALT levels are low. When cells are damaged, they release ALT into the blood. Elevations indicate liver disease (such as hepatitis) or damage (such as cirrhosis). Certain drugs (such as statins), strenuous exercise, or an injection into muscle tissue can also cause elevations.

AST

AST (Aspartate transaminase) is an enzyme found primarily in the liver and heart. Smaller amounts are found in other muscles. Normally AST levels are low. When liver or muscle cells are damaged, they release AST into the blood. Increased AST levels can indicate liver disease (such as hepatitis) or damage (such as cirrhosis), heart attack, certain drugs, strenuous exercise, or injection into muscle tissue. AST can also be falsely increased if red cells are damaged during venipuncture.

ALKALINE PHOSPHATASE

Alkaline Phosphatase is an enzyme found primarily in the liver and bone. It can be elevated along with other liver test results during liver disease or damage. Alkaline Phosphatase may also be increased in bone diseases, such as Paget's disease, or if cancers have metastasized to bone. Pregnancy will also cause elevations. Children have elevated results because their bones are growing.

GGTP

GGT (Gamma Glutamyltransferase) is an enzyme found mainly in the liver. Normally GGT levels are low. During liver injury or obstruction, the GGT level will rise. It is the most sensitive liver enzyme in detecting bile duct problems, but is usually not helpful in distinguishing between different causes of liver damage. Elevated levels can also occur after the consumption of alcohol, with some medications, and in congestive heart failure.

LDH

LDH (Lactate Dehydrogenase) is an enzyme contained in many body tissues. When cells are damaged or destroyed, LDH is released into the blood stream, making it a good general marker for cell injury. An elevated LDH can indicate injury to several different organs or body systems, including the heart, red blood cells, kidney, lungs, white blood cells, muscle, liver, and skeletal muscle.

TOTAL BILIRUBIN

Bilirubin is an orange-yellow pigment found in bile. Normally levels are low. Bilirubin levels become high in conditions where too much is being produced (such as hemolytic anemia, sickle cell disease, pernicious anemia, or a transfusion reaction) or when the liver is incapable of removing bilirubin (such as in blockage of the bile ducts, liver disease, or inherited disorders of bilirubin processing). When bilirubin levels in the blood increase, skin and eyes take on a yellowish color (jaundice).

DIRECT BILIRUBIN

Direct Bilirubin is a specific type of bilirubin produced in the liver. Elevations may indicate some kind of blockage of the liver or bile ducts, hepatitis, liver trauma, a drug reaction, or long term alcohol abuse.

AMYLASE

Amylase is an enzyme produced by the pancreas and, to a lesser extent, the salivary glands. When pancreatic cells are injured (as in pancreatitis) or the pancreatic duct is blocked, increased amounts of amylase are released into the blood.

CALCIUM

Calcium is essential for the proper functioning of muscles, nerves, and the heart. It is also required for blood clotting and in bone formation. Calcium is elevated in the blood in hyperparathyroidism and cancer which has metastasized to the bone. Low levels may be found when protein levels (especially albumin) are low. Calcium levels may also be decreased in kidney disease, vitamin D deficiency, malnutrition, and alcoholism.

PHOSPHORUS

Phosphorus is vital for energy production, muscle and nerve function, and bone growth. Much of the phosphorus of the body is combined with calcium to help form bones and teeth. This test is usually performed to follow up an abnormal calcium result. Low levels can be seen in hypercalcemia, usually due to hyperparathyroidism, hypothyroidism, and rickets. High levels may be seen in kidney failure.

MAGNESIUM

Magnesium is a mineral vital to energy production, muscle contraction, nerve function, and maintenance of strong bones. About half of the body's magnesium is combined with calcium and phosphorus in the bones. Low levels may mean there is dietary insufficiency, insufficient absorption by the intestines, or over excretion by the kidneys. Increased levels are usually the result of an excretion problem or excessive supplementation.

URIC ACID

Uric Acid is produced by the breakdown of body cells and is also obtained from food. Most uric acid is excreted in the urine. The rest passes out of the body in stool. If too much uric acid is produced or not enough is excreted, it can accumulate in the blood and in joints in the form of crystals (gout). High levels can also lead to kidney stones. Low levels are seldom a cause for concern.

CK

CK (Creatine Kinase) is an enzyme found mostly in the heart, skeletal muscles, and brain. The small amount normally present in the blood is due to that released from muscles. Blood levels rise after a heart attack- CK will begin to rise in the first 4-6 hours after a heart attack, peak in 18-24 hours, then return to normal within 2-3 days. CK levels also rise when skeletal muscles are damaged and can even show elevations after very heavy exercise, accidents, surgery, or an injection into muscle tissue. Some drugs, including statins, can damage muscle and increase CK levels.

IRON

Iron is necessary component of hemoglobin, the protein in red blood cells that enables them to carry oxygen through the body. It is also used in the production of other proteins. If insufficient iron is taken in from the diet, levels in the blood can drop, which can deplete iron stored in the body. Over time, this can lead to iron deficiency anemia. Increased levels of iron in the blood can lead to accumulation of iron in the organs (hemochromatosis).

TIBC

TIBC (Total Iron Binding Capacity) measures the total amount of iron that can be bound by proteins in the blood. Because transferrin is the primary iron-binding protein, TIBC is a good indirect measurement of transferrin. Elevated levels of TIBC are seen in iron deficiency anemia, pregnancy, and in patients on oral contraceptives. Decreased levels are seen in hemochromatosis, chronic illness, and sometimes in hemolytic and other anemias.

IRON SATURATION

Iron Saturation reflects the amount of iron being transported in the blood and its capacity to carry more. It is calculated by using the Iron and TIBC results and represents the percentage of the transferrin that is saturated with iron. Elevated iron saturation is seen in hemochromatosis, hemolytic and other anemias, and iron poisoning. Decreased levels are seen in iron deficiency and chronic illness.

HGB A1C

Hemoglobin A1C is an indicator of glucose control over the preceding two to three months. It is used to monitor diabetes treatment. High values indicate poor glucose control and may necessitate a change in habits and/or medication.

LIPID PROFILE

CHOLESTEROL

Total Cholesterol forms the membranes for cells in all organs and tissues of the body. It is also used to make hormones essential for growth and reproduction and bile acids need to absorb nutrients from food. Excess cholesterol, either from diet or a genetic predisposition, can be deposited along the walls of blood vessels, which can lead to hardening of the arteries and an increased risk for heart disease and stroke. Measurement of cholesterol is used to classify coronary risk and to monitor therapeutic medications.

HDL CHOLESTEROL

HDL Cholesterol consists of protein with a small amount of cholesterol. It is called the “good cholesterol” because it removes excess cholesterol from tissues and transports it to the liver for disposal. Higher concentrations of HDL can decrease the risk of developing plaques in blood vessels by removing cholesterol from the blood. Low concentrations are associated with high cardiovascular risk.

LDL CHOLESTEROL

LDL Cholesterol is a lipoprotein that transports cholesterol in the blood. Unlike HDL, LDL is considered to be undesirable (“bad cholesterol”) because it deposits excess cholesterol into the walls of the blood vessels. LDL is calculated by subtracting the VLDL and HDL results from the total cholesterol. Elevated levels are associated with increased cardiovascular risk.

VLDL CHOLESTEROL

VLDL Cholesterol is a lipoprotein that transports triglycerides. Like LDL, VLDL is considered to be undesirable. VLDL is calculated by dividing the triglyceride result by 5.

TRIGLYCERIDES

Triglycerides are a form of fat and a major source of energy. Increased levels are found in the blood after eating, as the body converts the energy not needed into fat. This is one of the reasons it is important to fast for 10-12 hours prior to performing venipuncture for blood testing. Most triglycerides are carried in the blood by very low density lipoproteins (VLDL). High levels of triglycerides are associated with cardiovascular risk.

CBC

WBC

WBC (White Blood Cell) is the number of white blood cells present in the blood. White blood cells fight infection. High levels can result from bacterial infections, inflammation, leukemia, trauma, intense exercise, or stress. Low levels can result from chemo or radiation therapy or diseases of the immune system.

GRANULOCYTES

Granulocytes, also known as neutrophils, are the most abundant type of white blood cell found in healthy adults. Results are often increased in bacterial infections and are reported in an absolute number and a percentage of the total white count.

LYMPHOCYTES

Lymphocytes are a type of white blood cell that is present in two forms- B Cells, which produce antibodies, and T Cells, which recognize and process foreign substances for removal. Results are reported in an absolute number and a percentage of the total white count.

MONOCYTES

Monocytes are the largest type of white blood cell. They are capable of ingesting bacteria, other foreign substances, and dead body cells. Results are reported in an absolute number and a percentage of the total white count.

RBC

RBC (Red Blood Cell) is the number of red blood cells present in the blood. Red blood cells carry oxygen from the lungs to other tissues of the body and then carry carbon dioxide from tissues to the lungs, where it can be removed. A low RBC can indicate blood loss or anemia. A high RBC can indicate polycythemia or dehydration.

HEMOGLOBIN

Hemoglobin is a protein found in red blood cells that is capable of binding to oxygen and transport it to tissues in the body. A low hemoglobin result can indicate blood loss or anemia. A high result can indicate polycythemia or dehydration.

HEMATOCRIT

Hematocrit is the percentage of red blood cells present in a whole blood sample. Low values can indicate blood loss or anemia. High values can indicate polycythemia or dehydration.

MCV

MCV (Mean Corpuscular Volume) is the average size of red blood cells in a blood sample. MCV results are often used to classify anemias. Increased MCV can be seen in anemias that cause an increase in red cell size (anemia caused by vitamin B12 deficiency, for example). Decreased MCV can be seen in anemias that cause a decrease in red cell size (iron deficiency anemia, for example).

MCH

MCH (Mean Corpuscular Hemoglobin) is a calculation of the average amount of hemoglobin inside a red blood cell. MCH results help in classifying anemias. Large RBC's tend to have higher MCH results and would be found in anemias that cause an increase in red cell size. Small RBC's have smaller MCH results and would be found in anemias that cause a decrease in red cell size.

MCHC

MCHC (Mean Corpuscular Hemoglobin Concentration) is a calculation of the average concentration of hemoglobin inside a red blood cell. Decreased MCHC's are seen in conditions where there is low amounts of hemoglobin inside red cells (such as iron deficiency anemia). Increased MCHC's are seen in conditions where hemoglobin is abnormally concentrated inside red cells, such as in burn patients and hereditary spherocytosis.

RDW

RDW (Red Cell Distribution Width) is a calculation that expresses the variation in size of red blood cells in a sample of blood. In some conditions, like pernicious anemia, there is marked variation in red cell size, which is reflected in a higher than normal RDW. RDW can also be elevated after a transfusion, due to the difference in red cell size between the patient and the donor.

PLATELETS

Platelets are small fragments of cells that are essential to clot formation. Because they are "sticky", they adhere together and to other blood components to form a plug. Decreased counts, which can be seen in patients with bone marrow disease or some autoimmune conditions, can be life-threatening, as they predispose a patient to spontaneous and excessive bleeding. Increased platelet counts can, in some patients, lead to clot formation inside blood vessels.

MISCELLANEOUS HEMATOLOGY

PT

PT (Prothrombin Time) measures how long it takes for a clot to form in a blood sample. It may be ordered in patients with bleeding problems or unexplained bruising to narrow down the possible cause; a prolonged PT can indicate deficiency or insufficiency in one or more clotting factors. A PT may also be ordered prior to surgery; a prolonged PT can indicate a bleeding disorder that may prevent surgery. Because it measures clotting factors affected by blood-thinning drugs, the PT is also used to monitor patients on coumadin. For patients on coumadin, the goal is to elevate the PT so that it is within a therapeutic range, depending on the goal of therapy.

INR

INR (International Normalized Ratio) is a calculation based on a patient's PT result and a factor that varies with the PT reagent. In this way, results used to monitor patients on coumadin are standardized and not affected by the variability between reagent sensitivities.

PTT

PTT (Partial Thromboplastin Time) measures how long it takes for a clot to form in a blood sample. It measures clotting factors not measured by the PT test. The PTT may be ordered in patients with bleeding problems or unexplained bruising to narrow down the possible cause; a prolonged PTT can indicate deficiency or insufficiency in one or more clotting factors. It may also be ordered prior to surgery to ensure there are no bleeding disorders.

ESR

ESR (Erythrocyte Sedimentation Rate) measures the rate of fall of red blood cells when whole blood is placed into a tall, thin tube. Normally, red cells fall slowly, leaving little clear plasma. Certain disorders, such as inflammation, cancers, infections, and autoimmune diseases, can cause the red blood cells to fall more rapidly, increasing the ESR result. The ESR is a nonspecific test and is used in conjunction with other test results.

IMMUNOASSAY

THA

TSH (Thyroid Stimulating Hormone) stimulates production and release of T4 and T3 by the thyroid gland. A low TSH result can indicate hyperthyroidism while a high result can indicate hypothyroidism.

FREE T4

Free T4 (non-protein bound thyroxine) is produced by the thyroid gland and is a good reflection of thyroid status. Low results indicate hypothyroidism while high results indicate hyperthyroidism.

FREE T3

Free T3 (non-protein bound triiodothyronine) is produced by the thyroid gland and is a good reflection of thyroid status. Low results indicate hypothyroidism while high results indicate hyperthyroidism.

PSA

PSA (Prostate Specific Antigen) is a protein produced by cells in the prostate gland. PSA is measured to screen for and monitor therapy for prostate cancer. Elevated levels are associated with prostate cancer but can also be seen in prostatitis or benign prostatic hyperplasia.

FERRITIN

Ferritin is an iron-containing protein that is the primary form of iron stored inside cells. When iron is insufficient to meet the body's needs (such as in iron deficiency anemia), iron stores are depleted, and ferritin levels decrease. Iron storage and ferritin level increase when more iron is absorbed than the body can use, as happens in hemochromatosis.

VITAMIN B12

Vitamin B12 is part of the B complex of vitamins and is necessary for normal red blood cell formation, tissue and cellular repair, and DNA synthesis. Vitamin B12 is also important for nerve health. A deficiency in vitamin B12 can lead to a type of anemia characterized by fewer, but larger, red blood cells. It can also lead to neuropathy, nerve damage that can cause tingling and numbness in the hands and feet.

FOLATE

Folate is part of the B complex of vitamins and is necessary for normal red blood cell formation, tissue and cellular repair, and DNA synthesis. Folate is also required for cell division such as is seen in fetal development. A deficiency in folate can lead to a type of anemia characterized by fewer, but larger, red blood cells. A deficiency in early pregnancy can increase the risk of neural tube defects in the fetus.

TESTOSTERONE

Testosterone is a steroid hormone produced by the testes in males, by the ovaries in females, and by the adrenal glands in small amounts in both sexes. It is responsible for the development of secondary sex characteristic in males. It is used to diagnose erectile dysfunction and testicular tumors in men, decreased sex drive and infertility in both sexes, and hirsutism and virilization in girls and women.

FREE TESTOSTERONE

Free testosterone circulates in plasma unbound to albumin or sex hormone binding globulin. Free testosterone can be calculated once the Testosterone, SHBG, and serum albumin have been determined.

SHBG

SHBG (Sex Hormone Binding Globulin) is a protein produced by the liver. It binds tightly to testosterone and estradiol and transports them in an inactive form. Changes in SHBG levels can affect the amount of testosterone that is available to be used by the body. SHBG levels are measured as a supplement to testosterone determinations. Decreased SHBG levels can be found in hirsutism and polycystic ovary syndrome. Elevated levels may be seen in hyperthyroidism and during pregnancy.

BIOAVAILABLE TESTOSTERONE

Bioavailable Testosterone is the sum of the free testosterone and that which is bound to albumin. Because bioavailable testosterone is not bound to SHBG, it readily enters cells and better reflects the bioactivity of the hormone than total testosterone. Bioavailable testosterone can be calculated once the Testosterone, SHBG, and serum albumin have been determined.

ESTRADIOL

Estradiol is a hormone produced in women mainly in the ovary. Normal levels provide for proper ovulation, conception, and pregnancy. It also promotes healthy bone structure. Estradiol levels are used to evaluate ovarian function. In reproductive technology, serial measurements are used to monitor follicle development. It can also be used to monitor menopausal hormone replacement therapy.

FSH

FSH (Follicle-Stimulating Hormone) is produced in the pituitary gland and stimulates the growth and maturation of ovarian follicles during the follicular phase of the menstrual cycle. During the luteal phase, FSH stimulates the production of progesterone. In men, FSH stimulates the testes to produce mature sperm. FSH is used in conjunction with other tests in the workup of infertility in both men and women. It is also helpful in the investigation of menstrual irregularities and to aid in the diagnosis of pituitary disorders or diseases involving the ovaries or testes.

LH

LH (Luteinizing Hormone) is produced in the pituitary gland and increases at the middle of the menstrual cycle to help trigger ovulation in women. In men, LH stimulates the testes to produce testosterone. LH is used in conjunction with other tests in the workup of infertility in both men and women. It is also helpful in the investigation of menstrual irregularities and to aid in the diagnosis of pituitary disorders or diseases involving the ovaries or testes.

PROLACTIN

Prolactin is a hormone produced by the anterior pituitary gland. It is normally present in low amounts in men and nonpregnant women but rises during pregnancy. It's primary role is to promote lactation.

PYRILINKS-D

Pyrilinks-D is a crosslink of collagen in bone. It is used to monitor the effectiveness of therapies in patients diagnosed with osteoporosis.

HSCRIP

hsCRP- C-Reactive Protein is made by the liver and secreted into the blood. It has been known for years to be a marker for inflammation. Recent evidence suggests that even minor elevations, such as those measured by the high sensitivity tests at very low concentrations, can be associated with cardiovascular risk.

URINE TESTS

COLOR

The color of urine is usually yellow, although it can vary from straw color to amber. Different disease states, conditions, and even diet can affect urinary color.

CLARITY

Urine is normally clear. Urine can appear cloudy under normal circumstances or during pathology, such as when an infection is present.

GLUCOSE

Glucose is not normally present in urine. Glucose in the urine indicates either an excessively high level of glucose in the blood (diabetes) or a lowered glucose threshold (the kidneys excrete glucose into the urine at a relatively low blood glucose level).

BILIRUBIN

Bilirubin is not normally present in urine. In some liver diseases, such as biliary obstruction or hepatitis, bilirubin may leak from the liver into the bloodstream and is excreted in the urine. The presence of bilirubin in the urine can indicate liver disease prior to the appearance of clinical symptoms.

KETONES

Ketones are not normally present in urine. They are products of fat metabolism and can form when a person does not consume enough carbohydrates or when carbohydrates cannot be metabolized properly. Ketones in urine can be an early indicator of insufficient insulin in a patient with diabetes. They can also occur after fasting, after strenuous exercise, or during pregnancy.

SPECIFIC GRAVITY

Specific gravity measures the concentration of urine. First morning samples and those obtained from dehydrated patients would tend to be more concentrated and would have a higher specific gravity than samples from someone who drinks large amounts of water.

PH

pH measures the acidity/alkalinity of urine. Because the kidneys perform an important role in maintaining the acid-base balance in the body, conditions that affect this balance can affect urinary pH. Diet can also modify pH; one high in proteins will make the urine more acidic while a vegetarian or low carbohydrate diet will make the urine more alkaline.

PROTEIN

Protein is not normally detectable in urine. The presence of urine can indicate kidney disease, an over production of proteins (such as multiple myeloma), inflammation, or vaginal contamination.

UROBILINOGEN

Urobilinogen is normally present in urine in low concentrations. High results suggest possible liver diseases such as hepatitis and cirrhosis or conditions associated with red blood cell destruction (such as hemolytic anemia). Low or absent urobilinogen in a patient with a positive urine bilirubin test can suggest the presence of hepatic or biliary obstruction.

NITRITE

Some bacteria can convert nitrate to nitrite in urine. A positive nitrite result indicates bacterial infection. However, because not all bacteria are capable of converting nitrate to nitrite, a negative nitrite result does not necessarily mean no infection is present.

BLOOD

Red blood cells can be present in the urine of normal patients in very small amounts undetectable by this method. Once detectable, the amount of red blood cells present in urine is significant. Numerous diseases of the urinary tract, trauma, medications, and even strenuous exercise can cause blood in the urine.

LEUKOCYTES

Leukocyte esterase is an enzyme present in most white blood cells. When the number of white blood cells in urine becomes significant, this test will detect the presence of leukocyte esterase. A positive test for leukocytes indicates inflammation or infection in the urinary tract.

MICROALBUMIN

Microalbumin measures tiny amounts of albumin that the body begins to release into the urine several years before significant kidney damage becomes apparent. Normally the kidneys don't allow albumin into the urine. If kidneys become damaged or diseased, such as in diabetes and hypertension, they lose their ability to filter proteins out of the urine.

MICROALBUMIN/CREATININE RATIO

Microalbumin/Creatinine Ratio is the amount of albumin in the urine divided by the amount of creatinine in the urine. Creatinine is excreted into the urine on a consistent basis. Because the concentration of urine varies throughout the day, the creatinine measurement is used as a corrective factor for the albumin measurement.

URINE CREATININE

Urine creatinine is excreted into the urine on a consistent basis and is often used as a corrective factor for other urine measurements, such as albumin and Pylilinks-D.

URINE CULTURE

A urine culture detects and identifies bacteria or yeast that may be causing a urinary tract infection.