CD Part 6

Kidney Diseases

A.	Definitions	CD-105
В.	General Information	CD-107
	1. Causes of Kidney Failure	CD-107
	2. Nephrotic Syndrome	CD-107
	3. Urinary Tract Disorders	CD-108
C.	Specific Listings and Residual Functional Capacity	CD-108
	1. Listing 6.02: Chronic Kidney Disease (Adults)	CD-108
	2. Listing 106.02: Chronic Kidney Disease (Children)	CD-110
	3. Listing 6.06: Nephrotic Syndrome (Adults)	CD-110
	4. Listing 106.06: Nephrotic Syndrome (Children)	CD-111
	5. Listing 106.07: Congenital Genitourinary Impairments (Children)	CD-111

A. Definitions

The following definitions are for words used in this chapter and during the SSA disability process. If you need additional definitions, consult a good medical dictionary, available in most bookstores and libraries. You can also look at online medical dictionaries like the one at www.medlineplus.gov.

Agenesis. Congenital absence of an organ or body structure.

Albumin. Protein made only in the liver that accounts for half of the protein in the bloodstream. Serves as a carrier for numerous bodily substances, as well as some drugs. Normal albumin levels are about 3.5–5.0 grams/deciliter (gm/dl or gm/100 ml).

Anasarca. Severe form of *edema* in which the entire body is swollen from the retention of water.

Anemia. Low red blood cell count, usually determined by a decrease in the *hematocrit*.

Anorexia. Loss of appetite. Anorexia is a frequent problem in chronic disorders, including advanced kidney disease.

Atresia. Congenital absence or blockage of an opening or tubular organ, such as a poorly developed ureter

Autoimmune diseases. Disorders of the immune system, characterized by the body erroneously reacting to some of its own tissues as foreign (antigens). Antigen-antibody complexes can damage organs such as the kidneys.

Biopsy. The process of taking a sample of tissue for detailed analysis of various kinds. Biopsy specimens are observed grossly with the eyes, microscopically with a variety of possible tissue stains, and in some cases may involve specific chemical and DNA analysis.

Congenital. Any abnormality present at birth; does not distinguish between genetic and intrauterine causes.

Creatinine. Waste product of muscle metabolism that is normally filtered out of the blood by the kidneys. Therefore, serum creatinine levels provide information about the functional state of the kidneys. Normal serum creatinine is about 0.5–1.5 mg/dl (0.5–1.5 mg/100 ml).

Creatinine clearance. Amount of blood per minute that is cleansed of creatinine by the kidneys. It is

measured by taking both blood and urine samples. In males, normal creatinine clearance is about 125 ml/min/1.73 m² body surface area and in females about 115 ml/min/1.73 m². In many adults, the body surface area in interpreting creatinine clearance is not critical to accuracy, but must be used for children.

Cyst. Closed cavity, usually containing fluid. Benign cysts of the kidney are common in middle-aged individuals. Also see *polycystic kidney disease* and *renal osteodystrophy*.

Dialysis. Artificial removal of metabolic waste products from the blood. See *hemodialysis* and *peritoneal dialysis*.

Diastolic blood pressure. Pressure inside arteries during the time between heart beats. The diastolic pressure is the second number in a blood pressure reading. For example, 120/80 means the diastolic blood pressure is 80 mm Hg.

Ectopic. Occurrence of a tissue or organ outside of its normal location, such as being born with a bladder outside of the body.

Edema. Excessive fluid retention in a tissue, such as peripheral edema in the legs or pulmonary edema in the lungs. See *vascular congestion*.

Electrolyte imbalance. Low or high electrolyte levels in the blood. The electrolytes most likely to be out of balance are sodium and potassium. In congenital urinary tract disorders, electrolyte imbalance is caused by abnormal kidney function.

Glomeruli. Microscopic, round tufts of arteries in the filtering units of the kidney (*nephrons*). Each nephron has one glomerulus. It is the blood flowing through the glomeruli that is filtered of waste materials.

Glomerulonephritis. Kidney disease characterized by inflammatory damage to the glomeruli.

Hematocrit (Hct). The percentage of red blood cells in a volume of blood. For example, a hematocrit of 50% means that half of the blood volume is made up of red cells. In men, a normal Hct is about 42%–48% and in women about 38%–44% at sea level. At high altitudes, normal values are higher. Also known as the *volume of packed red cells (VPRC)*.

Hemodialysis. Direct dialysis of the blood to remove metabolic waste products that cannot be cleared by diseased kidneys. Blood is usually obtained for dialysis by surgically sewing an artery

and vein together in the wrist. Such a shunt provides easy permanent access to blood, which is then removed, circulated through a machine and returned to the body.

Hydronephrosis. Kidney damage caused by the inability of urine to drain properly through the ureters to the bladder. Blockage of a ureter could be caused by kidney stones, pressure from tumors in the ureter, or tumors pressing on the ureter from outside. Infection or other diseases of the ureter causing scarring and narrowing could also interfere with the normal flow of urine through it.

Hyperlipidemia. Excessive amount of blood fats (lipids), including cholesterol and triglycerides.

Hypertension. High blood pressure. Hypertension usually means systemic hypertension—high blood pressure in the arterial system of the body other than the lungs. Hypertension in adults is defined as any pressure of 140/90 or greater. In children, normal expected blood pressure varies with age.

Hypoalbuminemia. Decreased blood *albumin* levels. **Metabolism.** The total chemical and physical activity of the body associated with the production and maintenance of life.

Nephritis. General term meaning inflammation of a kidney. Diseases that affect the glomeruli of the kidneys are types of *glomerulonephritis*. Bacterial infection of a kidney is known as *pyelonephritis*. Diseases affecting the cells between the nephrons are called interstitial nephritis.

Nephrolithiasis. Kidney stones. The danger of nephrolithiasis is obstruction of urine flow and development of hydronephrosis. Nephrolithiasis can block urine flow either within the kidney itself or move into and block the ureter that drains the kidney to the bladder.

Nephrons. The microscopic filtering units of kidneys. Each kidney has about one million nephrons.

Nephrotic syndrome. A condition resulting from kidney disease with proteinuria, *hypoalbuminemia* (decreased blood albumin levels), *edema*, and hyperlipidemia (excessive amount of blood fats).

Neuropathy. Any disease of peripheral nerves. Peripheral nerves are those connecting the spinal cord to the various organs and tissues of the body. Kidney failure is one possible cause of neuropathy.

Neuropathy is best demonstrated by weakness, decreased reflexes, loss of sensation, and decreased nerve conduction velocity (NCV). Motor neuropathy means that affecting the motor nerves which carry impulses away from the spinal cord to stimulate muscles. Sensory neuropathy means that affecting the sensory nerves which carry touch, pain, vibration, limb position, and heat and cold sensations from the tissues of the body to the spinal cord for transmission to the brain. Not every type of sensation need be affected by the neuropathy.

Parenteral. Drugs delivered by means other than oral—intravenous, intramuscular, or subcutaneous.

Pericarditis. Inflammation of the pericardial membrane that surrounds the heart. There are many possible causes of pericarditis, including kidney failure.

Peritoneal dialysis. Method of removing waste products from the blood by placing fluids (dialysis solution or dialysate) in the abdominal cavity. Waste products in the blood such as urea cross the peritoneal membrane lining the abdominal cavity and enter the fluid, which can then be withdrawn and discarded after a certain amount of time. In intermittent peritoneal dialysis (IPD), dialysis solution is infused into the abdominal cavity through a catheter (hollow artificial tube), then removed in about 20 minutes and the procedure repeated several times. Multiple cycles of treatment weekly are usually required, the number depending on the severity of the kidney disease. IPD is done in special facilities. In continuous ambulatory peritoneal dialysis (CAPD), the patient performs his or her own dialysis. Fresh dialysis solution is put in the abdominal cavity three to four times daily, after removing the prior instilled solution. In this way, a patient can lead a more normal life. Continuous cycling peritoneal dialysis (CCPD) involves peritoneal dialysis at nighttime with the assistance of a machine to carry out several exchanges of dialysis fluid. Some dialysis fluid is also left in the abdominal cavity during the day.

Pleural effusion. Collection of fluid between the inside of the chest wall and the outer surface of the lungs.

Polycystic kidney disease. Genetic disorder characterized by the replacement of normal kidney tissue with multiple cysts.

Proteinuria. Excessive loss of protein in the urine as a result of kidney disease. The main protein lost is *albumin*.

Pruritus. Itching.

Pulmonary edema. Collection of fluid within the lungs.

Pyelonephritis. Bacterial infection of a kidney. **Renal.** Referring to the kidney.

Renal osteodystrophy. Abnormal bone caused by kidney disease and consisting of several abnormalities. Osteitis fibrosa cystica is a form of fibrous bone degeneration with bone cysts. Osteoporosis refers to thinning of the substance of bone. Pathologic fractures are breakage of bone with minimal trauma that would not break normal bones and results from osteitis fibrosa cystica and osteoporosis.

Stenosis. Narrowing.

Systemic. Affecting the entire body.

Ureters. Tubes that carry urine from the kidneys to the bladder. Each kidney normally has one ureter, although some people have an extra one.

Urethra. Tube that carries urine from the bladder to exit the body.

Urinary tract. Kidneys, *ureters* (tubes that carry urine from the kidneys to the bladder), bladder, urethra (tube that carries urine from the bladder to exit the body).

Vascular congestion. Retention of excessive fluid in blood vessels, which then leaks to other tissues. If sufficiently severe, vascular congestion can cause swelling in the hands or feet (peripheral edema), excessive fluid in the lungs (pulmonary edema), swelling along the shin (tibia) known as pretibial edema, swelling in the lower back area (presacral edema), fluid accumulation in the pleural space between the inner chest wall and the surface of the lungs (pleural effusion), puffiness around the eyes (periorbital edema), and fluid accumulation in the abdomen (ascites).

B. General Information

Sometimes kidney failure is short term, and such acute kidney failure will not satisfy the disability requirement that an impairment last at least 12 months. This disability is for irreversible (chronic)

kidney disease. The SSA requires both of the following to determine chronic kidney disease:

- History, physical examination, and laboratory evidence of kidney disease.
- Indications of the worsening nature of the kidney disease, such as laboratory evidence of deteriorating kidney function. Laboratory evidence of particular interest to the SSA are kidney function blood tests, such as the serum creatinine, creatinine clearance, and kidney biopsies. Because biopsies are invasive, the SSA will not request that they be done. If your treating physician has done a biopsy, however, make sure the SSA has the results, including a description of the microscopic findings.

1. Causes of Kidney Failure

Several disorders can cause chronic renal disease, including diabetes; infections (parasitic, viral, and bacterial); drug use; exposure to toxic heavy metals; hereditary disorders such as polycystic kidney disease; autoimmune diseases such as systemic lupus erythematosus and inflammation of arteries; and cancers such as leukemia, lymphoma, and solid tumors. These examples also have the potential to cause nephrotic syndrome (see just below). Chronic renal failure may also result from high blood pressure, polycystic kidney disease, hydronephrosis, and nephrolithiasis.

2. Nephrotic Syndrome

Nephrotic syndrome is not itself a kidney disease, but a malfunction of the kidney that may be of unknown origin, or may occur as a result of a specific renal disease. Most of the protein lost in the urine in nephrotic syndrome is albumin. Decreased blood albumin results in edema with the associated swelling in the feet, hands, around the eyes, lower back, or face.

The amount of protein loss in nephrotic syndrome is usually greater than three grams per day, which is much higher than normal. Serum albumin is usually decreased to less than 2.5 grams per 100 ml serum (2.5 gm/dl). The severity of proteinuria is related to body size, and so corrections for body surface are

sometimes necessary. These corrections are especially important in children because body size can differ greatly at different ages.

Nephrotic syndrome may be accompanied by a fall in blood pressure while standing (orthostatic hypotension) or blood clots (venous thromboses).

3. Urinary Tract Disorders

Although the listings concern disease of the kidneys, keep in mind that disorders of the urinary tract can limit a claimant's ability to work. One example is interstitial cystitis (IC), an inflammation of the urinary bladder. IC is of unknown cause, usually begins in middle age, and affects about 500,000 people in the U.S.—about 90% women. IC may be misdiagnosed as a bladder infection because of the burning pain and need to urinate frequently to relieve the pain. IC is a much more serious disorder than a simple urinary tract infection, however, and severe cases can be functionally debilitating. Many treatments have been tried with variable success.

Diagnosis of IC depends on direct visualization of the mucosa lining the inside of the bladder and can be done with a procedure known as cystoscopy. A bladder biopsy is usually done to rule out other disorders like cancer, but a biopsy cannot reliably be used to determine the severity of the IC. Diet, other medical disorders, emotional and physical stress, allergies, and medications may trigger worsening of symptoms. About half of IC patients describe their pain as severe or excruciating. Urinary frequency in severe cases consists up to 60 trips to the bathroom a day and sleep deprivation from needing to urinate multiple times nightly. Associated pain can be severe. Pain during sexual intercourse affects a majority of patients with IC, but the SSA would not consider such pain to be functionally limiting for disability determination purposes.

If you have IC, clearly and fully document the nature of your symptoms and exactly how these symptoms limit your ability to function. Your treating doctors must be able to support your allegations, along with your treatment failures or successes. The most debilitating cases of IC might be considered of equivalent severity to Listing 6.02, although the kidneys are fine. Other cases might sufficiently limit

your ability to perform particular types of jobs and qualify you on a medical-vocational basis.

The SSA should apply reasonable medical judgment to each case individually, even if the medical disorder is not specifically given in the Listings of impairments. IC is just one example.

C. Specific Listings and Residual Functional Capacity

The listings that follow are in the federal regulations. They have been interpreted and commented on for greater ease of understanding while explaining their requirements. It is impossible to discuss here all of the medical possibilities related to every kind of disorder, and you may need to seek help from your treating doctor to more fully understand how your particular impairment relates to these listings. The discussion of residual functional capacity does not apply to children.

1. Listing 6.02: Chronic Kidney Disease (Adults)

Many medical disorders can cause chronic renal failure (CRF), as noted above under General Information. Any type of kidney disease can qualify under this listing as long as it results in chronic kidney disease of the severity required by the listing. Acute kidney failure, such as severe dehydration, viral infection, or drug toxicity, cannot qualify under this listing unless the damage becomes irreversible.

a. Listing Level Severity

For your condition to be severe enough to meet the listing, you must have decreased kidney function, due to any chronic kidney disease that is expected to last 12 months. Additionally, you must satisfy (a), (b), or (c), below.

- ambulatory peritoneal dialysis are able to work, but that is a matter of choice. All forms of chronic dialysis qualify. You have to actually be receiving dialysis—planned dialysis does not qualify. Nor does short-term dialysis.
- ® Kidney transplant. SSA would consider you to be under a disability for 12 months following surgery. A kidney transplant must actually have been done, not simply planned or anticipated. Benefits for 12 months after a transplant are automatically granted, because of the possibility of complications. These include infection, rejection of the transplanted kidney, the side effects of drugs (steroids or other immune-suppressing drugs), and other facets of kidney failure such as anemia and damage to the peripheral nervous system. However, you are not required to have any complications to qualify. After the 12-month recovery period, you'll be examined again to determine if you have reached a stable state of improvement.
- © Persistent increase of serum creatinine to 4 mg/100 ml or greater (4 mg/dl) or reduction of the creatinine clearance to 20 ml/minute (29 liters/24 hours) or less; these laboratory abnormalities must be present at least three months. The listing anticipates possible complications of chronic kidney disease lasting at least three months evidenced by at least two serum creatinine or creatinine clearance measurements. If the serum creatinine or the creatinine clearance are sufficiently abnormal, then you must also satisfy 1, 2, 3, or 4.
 - 1. Renal osteodystrophy, manifested by severe bone pain. Imaging (such as x-rays) must also show abnormalities that can be associated with chronic kidney disease—such as pathologic fracture, osteitis fibrosa cystica, or significant (more than slight) osteoporosis. Not all bone abnormalities that chronic kidney disease can cause need be present on an x-ray, but a doctor must be able to conclude that the x-rays show kidney-related bone disease.
 - 2. Persistent motor or sensory neuropathy. Decreased ability to feel touch, heat or vibration can suggest damage to sensory nerves complete numbness is not required. Damage to

- motor nerves can produce muscle weakness, but not all muscles need be involved. Complete paralysis of a muscle is unnecessary. In other words, the severity of the motor or sensory neuropathy isn't specified; it must be more than slight or mild. A test called a nerve conduction velocity study is more accurate than a physical examination. The SSA can order this test done if it was not performed by your treating doctor.
- 3. Persistent fluid overload syndrome resulting from diastolic hypertension (110 mm Hg or above) or signs of vascular congestion. Poorly functioning kidneys do not adequately clear the body of water through the formation of urine. This may be demonstrated in several ways: (1) edema, as shown on physical examination or a chest x-ray showing pleural effusion or pulmonary edema, (2) a high diastolic blood pressure resulting from overloading the vascular system with water, or (3) accumulation of fluid in the abdomen (ascites). Although fatigue and shortness of breath are symptoms common in fluid overload, they are too general to be diagnostic for purposes of the listing. The persistence should be thoroughly documented in your medical records.
- 4. Persistent anorexia with recent weight loss and current weight meeting the values in Listing 5.08 (see CD Part 5), Table III or IV. This listing recognizes the fact that malnutrition from loss of appetite and abnormal metabolism is a serious problem in chronic kidney disease.

b. Residual Functional Capacity

RFCs for CRF are determined on a case-by-case basis. You must let the SSA know exactly how your daily activities are limited. If you have bone pain, neuropathy, weight loss, or anemia, do you have the strength to stand and walk six to eight hours a day? If not, your RFC should be reduced to sedentary work. Does swelling in your feet affect your ability to wear shoes? Do you have neuropathy in your hands that affects your ability to handle small objects, like picking up coins or buttoning your clothes? Are you distracted by severe itching—for example, does it keep you from getting restful sleep? Do you have side effects from drugs? Do you get tired vacuuming,

cooking, driving, shopping, or engaging in social or other activities? Is your treating doctor aware of your limitations and, if so, are they recorded in your medical records?

Anemia is the most important cause of fatigue in CRF. The SSA has no definite rules, but if you have CRF with anemia and hematocrits in the 31–33% range, it is doubtful you can do more than sedentary work. If you are anemic, the SSA should take into account two important factors when determining your RFC:

- The fatigue resulting from anemia.
- Your heart rate. The more severe your anemia, the faster will be your resting heart rate as your body attempts to compensate for your anemia. Because your heart has to work hard, it will have less reserve for exercise.

2. Listing 106.02: Chronic Kidney Disease (Children)

The discussion under Listing 6.02 applies here.

a. Listing Level Severity

The child's condition must satisfy (a), (b), (c), or (d), below.

- ① Chronic hemodialysis or peritoneal dialysis necessitated by irreversible renal failure. Chronic dialysis is a condition that qualifies for benefits because permanent dialysis is only done in irreversible kidney failure. Also, dialysis is so time-consuming that most children cannot engage in normal activities appropriate for their age and receive daily dialysis. All forms of chronic dialysis qualify. The child has to actually be receiving dialysis—planned dialysis does not qualify. Nor does short-term dialysis.
- ® Kidney transplant. SSA will consider the child to be under a disability for 12 months following surgery. A kidney transplant must actually have been done, not simply be planned or anticipated. Benefits for 12 months after a transplant are automatically granted, because of the possibility of postsurgery complications. These include infection, rejection of the transplanted kidney, the side effects of drugs (steroids or other immune-suppressing drugs), and other facets of

- kidney failure such as anemia and damage to the peripheral nervous system. However, the child is not required to have any complications to qualify. After the 12-month recovery period, the child will be examined again to determine if he has reached a stable state of improvement.
- © Persistent elevation of serum creatinine to 3 mg/100 ml (3 mg/dl) or greater over at least three months. The SSA will require at least two creatinine measurements over a three-month period to show persistence of the kidney disorder.
- ® Reduction of creatinine clearance to 30 ml per minute (43 liters/24 hours) per 1.73 m² of body surface area over at least three months. As with part ®, the SSA will require at least two creatinine measurements over a three-month period to show persistence of the kidney disorder. The SSA or your treating doctor will have to adjust the results to your child's body surface area.

3. Listing 6.06: Nephrotic Syndrome (Adults)

Nephrotic syndrome is associated with kidney diseases that permit an excessive loss of protein (albumin) into the urine. See the discussion of nephrotic syndrome under "General Information."

Granting benefits under this listing is rare because most cases of nephrotic syndrome can be controlled by treatment, and the requirement for persistent total body edema is difficult to satisfy. The listing assumes that three months of failed treatment are an indication that impairment will be expected to last 12 months. If you have nephrotic syndrome, your treating doctor should have done all the necessary tests to make the diagnosis.

a. Listing Level Severity

For your condition to be severe enough to meet the listing, you must have nephrotic syndrome with anasarca, which has been persistent for at least three months despite prescribed therapy. Additionally, you must satisfy 0 or 0, below.

Serum albumin of 3 gm/100 ml (3 gm/dl) or less and proteinuria of at least 3.5 grams per 24 hours. This part requires a blood test and a 24-hour urine collection. ® Proteinuria of at least ten grams per 24 hours. This part requires only a urine collection, but with much larger amounts of protein being lost in the urine than under part . To see if you qualify, you can check the test result numbers in your medical records against those in the listing. The SSA may need more up-to-date information than is in your file, however, and require that the tests be done again.

b. Residual Functional Capacity

The RFC discussion under Listing 6.02 applies here. RFC restrictions must be adjusted to the type of kidney disease causing the nephrotic syndrome and the symptoms. For example, a pleural effusion or pulmonary edema can cause shortness of breath, fluid in the abdomen can cause pain, and swelling in the knees may decrease ability to stand and walk or use leg controls. You may also suffer loss of appetite and weakness related to muscle wasting. If you are retaining fluid, you can be more malnourished and weaker than would otherwise be supposed from your weight. Your blood pressure may be too high or too low, and you may have trouble with physical exertion.

Most important is for the SSA to know how your daily activities are limited and why. To the extent that your medical records and treating doctor support your statements about your limitations, your case will be stronger. The most critical factor is whether you can stand and walk six to eight hours daily. If you cannot, your RFC would be reduced to sedentary work. Each case is evaluated based on the particular abnormalities present, however there are far too many possibilities to have any set rules for RFC.

4. Listing 106.06: Nephrotic Syndrome (Children)

The comments under Listing 6.06 apply here. Note that although the adult listing requires total body edema, this listing requires only that some edema be present—and therefore could be mild. Nevertheless, granting benefits under this listing is unusual because most cases of nephrotic syndrome in children can be controlled with treatment.

Although not stated by this listing, the SSA generally requires the abnormalities to be present for

a minimum of three months before deciding that the child's disability is likely to last a year.

a. Listing Level Severity

For the child's condition to be severe enough to meet the listing, the child must have nephrotic syndrome with edema not controlled by prescribed therapy. Additionally, the child's condition must satisfy (a) or (b), below.

- (a) Serum albumin less than 2 gm/100 ml (2 gm/dl).
- ® Proteinuria of at least 40 milligrams (mg) per square meter (m²) of body surface area per hour. This would be a little less than one gram of protein spilled in the urine over a 24 hour period. It is important to supervise urine collections in children because incomplete collections will give falsely low values that could result in erroneous denial of the claim. The SSA or your treating doctor will have to adjust the results to your child's body surface area.

5. Listing 106.07: Congenital Genitourinary Impairments (Children)

The genitourinary tract (GU tract) consists of the urinary tract and the genitals to the extent that they are involved in urinary functions. The SSA recognizes that congenital abnormalities of the GU tract are not rare. Congenital disorders can either be genetic or arise from problems occurring during development before birth. The most common congenital impairments are: (1) absence of a GU organ, such as a kidney, ureter, or bladder, (2) malformation of some part of the GU tract, or (3) abnormal location of a GU organ, such as the bladder being outside of the body.

a. Listing Level Severity

For each part of the Listing, the SSA must be able to obtain medical records showing that at least three events have occurred within the same 12-month period, along with periods of improvement between those events. Events include GU surgical procedures, hospitalizations, and treatment with parenteral antibiotics. To be sure that separate events are being considered, the SSA requires at least one month (that is, 30 days) between each event.

After the presence of a GU disorder is established, then the child's condition must satisfy (a), (b), or (c), below.

- At least three urologic surgical procedures, performed during the same 12 month period. Direct visualization of the inside of the bladder by a doctor for diagnostic purposes (diagnostic cystoscopy) does not qualify as a surgical procedure.
- ® Documented episodes of systemic infection, each requiring an initial course of parenteral antibiotics

- and occurring at least three times in the same 12-month period.
- ⑤ Hospitalization for episodes of electrolyte disturbance, occurring at least three times in the same 12-month period. The SSA does not specify numbers to represent the required electrolyte abnormalities. The need to be hospitalized for treatment demonstrates that the condition is medically severe.