Renal Failure: Choosing a Treatment

If you have been told your kidneys are failing, you may wonder what this means to you. Be assured there are several treatment options available. Choosing what is right for you may depend on many factors, including your lifestyle and other health problems. Discuss these options in detail with your physician or healthcare team. They will help you and your family understand the risks and benefits of each. This brochure will help you get started by explaining kidney failure and each of these treatment options:

- Hemodialysis
- Peritoneal dialysis
- Kidney transplant

Kidney failure

The kidneys:
- Remove waste and extra fluid from the blood.
- Regulate certain chemicals (hormones) in the blood.
- Control blood pressure.

In kidney disease, wastes, fluids, chemicals and blood pressure can rise to unsafe levels. This can lead to serious health problems. There are 5 stages of kidney disease. (See table below.) Each stage is defined by a test called the glomerular filtration rate (GFR). The GFR is estimated from the creatinine blood test. As kidney disease worsens, the kidneys are less able to filter creatinine out of the blood and excrete it in the urine. The less the kidneys can filter, the lower the GFR. Kidney failure occurs when the GFR has dropped to 15 or less.

However, it is best to consider treatment options before then—when you are still in Stage 4 or your GFR has dropped to 30 or less. This gives you time to consider the treatment options and prepare accordingly. Treatment must begin when your GFR is less than 15 (Stage 5).

Stages of Chronic Kidney Disease

| Stage 1: | The GFR is still normal (90 or higher). But there are signs of early kidney damage such as protein in the urine. |
| Stage 2: | The GFR is between 60 and 89. Kidney damage starts to get worse. |
| Stage 3: | The GFR is between 30 and 59. Kidney disease is moderate. |
| Stage 4: | The GFR is between 15 and 29. Kidney disease is severe. |
| Stage 5: | The GFR is less than 15. Kidney disease has progressed to kidney failure. |
As kidney disease worsens, you may have the following:

- Feeling tired or fatigued
- Anemia (a low red blood cell count—a common cause of fatigue)
- Shortness of breath or difficulty breathing
- Loss of appetite, nausea
- Difficulty sleeping
- Dry, itchy skin
- Muscle cramping, especially at night
- Frequent urination, especially at night
- Swelling of the ankles and feet
- Puffiness or swelling around the eyes, especially after waking up
- Numbness, tingling or other signs of nerve damage
- A tendency to bruise or bleed more than usual after an injury

Living with kidney failure can be challenging. However, your healthcare team can provide help and support. We encourage you to:

- Ask questions about your condition.
- Ask for help if you feel overwhelmed or don’t understand something.
- Ask about support groups. Sharing your concerns with others may be helpful.
- Learn all you can about your medications, treatment options and diet.

Treatments for kidney failure are either hemodialysis, peritoneal dialysis or kidney transplant. Each is discussed below. As you read, consider writing down any questions or concerns to discuss with your healthcare provider. No matter which treatment you choose, it is important to follow the treatment plan and schedule, take all medications as prescribed and continue your special diet. Proper care has been shown to help those with kidney failure live longer, feel better and have more active lives.

**Hemodialysis**

Dialysis is a treatment that takes over some of the work of the kidneys. It allows extra wastes, chemicals and fluid that have built up in the blood to be removed. During dialysis, blood is slowly pumped from a vein through the filter (dialyzer) in the dialysis machine. The filter, or dialyzer, is also called the “artificial kidney.” The filter strains out the wastes, which passes through a membrane to be discarded into a cleansing solution called a dialysate. Figure 1 shows what a dialyzer looks like.
After the blood is filtered, it is pumped back into your blood stream. Hemodialysis is usually done 3 times a week. Allow at least 4 hours for a treatment. The length of time may vary, depending on how much fluid and waste needs to be removed.

**Hemodialysis access**

If you choose hemodialysis as a treatment, either a graft or fistula must first be created. Grafts and fistulas allow access to your blood vessels during hemodialysis.

- A graft is a small plastic tube that connects an artery and vein together under the skin.
- A fistula joins an artery and vein together to make a bigger blood vessel. Figure 2 shows each.
Grafts and fistulas require minor surgery and are usually placed in the arm by a vascular surgeon. If possible, it is best to have this surgery about 6 months before you start dialysis. This allows the graft or fistula to heal well enough so it can be used by the time you need to start dialysis.

Before starting, an ultrasound test is done to evaluate your blood vessels. This helps the surgeon choose the best ones for the fistula. In general, a fistula is the preferred access because it lasts longer and has fewer complications. However, if your blood vessels are not well suited for a fistula, then a graft may be done.

In some cases, a special tube or catheter may be placed into a large vein in your neck or chest for hemodialysis. This can be accessed for dialysis until a graft or fistula can be used. The catheter is usually meant to be used for short periods of time; however, it may be used as a permanent access site if a graft or fistula cannot be placed.

During dialysis, 2 needles are placed in the graft or fistula. They are connected to tubes that are attached to the dialysis machine. One needle removes the blood which goes through the dialysis machine for filtering. The second needle is used to return the cleansed blood to you. The needles are removed at the end of dialysis (see Figure 3).

**Figure 2. Graft and fistula**

![Diagram of graft and fistula](image)

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**Figure 3. Hemodialysis**

During hemodialysis, needles placed into your access carry blood to and from the dialyzer.
Where to do hemodialysis
You can choose to have hemodialysis at:

- An outpatient dialysis center within a hospital.
- An independent dialysis center (not part of a hospital).
- Home.

Your healthcare provider can help you choose the best place for your treatments. This may depend on your health, insurance coverage and personal preference.

Before choosing where to have hemodialysis, it is important to understand what is involved.

Dialysis center
The primary advantages to going to a dialysis center is that trained staff perform all aspects of the treatment.

However, some of the disadvantages may include:

- **Scheduling.** Your hemodialysis schedule is determined by the center.
- **Travel.** You will need to travel to and from the center. If you are unable to drive yourself, you will need to make arrangements for this.
- **Privacy.** There will be others receiving dialysis at the same time. Visitation, eating or drinking may be limited.

Home hemodialysis
Advantages to home hemodialysis include:

- Flexibility to schedule when to have dialysis
- Feeling of independence and control

However, there are several things you need to consider.

- **A partner.** Both you and a partner must be trained how to do dialysis. The partner can be anyone, but they must be there for you during dialysis. Medicare does not cover the cost of hiring a partner.
- **Training.** Both you and your partner must attend training. This may involve taking time off work.
- **Motivation.** Both you and your partner need to stick to the training and treatment plan.
- **Clean space.** There must be enough room in a clean area to keep the equipment.
- **Water drainage and electric power.** These must be adequate for draining the dialysis machine and for the water cleansing process (purification unit).
- **Insurance/Medicare.** Please contact your insurance provider about your coverage for home dialysis. If you have Medicare, it may cover up to 80% of your home dialysis costs. This is the same as for outpatient hemodialysis. It may also cover costs related to minor plumbing or electrical work that is needed for home hemodialysis.

If you do select hemodialysis as your treatment, ask for the Northwestern Memorial
Hospital brochure *Hemodialysis*. This will explain hemodialysis in more detail, including medications, lifestyle, and how to care for your fistula or graft.

**Peritoneal dialysis**

Another way to treat kidney failure is peritoneal dialysis (PD). This type of dialysis involves placing a soft tube (catheter) into an empty cavity inside your abdomen. This requires minor same-day surgery. Part of the catheter is inside the abdomen, and part remains outside. The outer part of the catheter will be connected to special tubing for dialysis (see Figure 4). PD can begin after the surgical area is completely healed. It can be done while you are at home or work, or even when travelling. However, if doing this away from home, you will need to ensure that you can transport the supplies and perform PD in a clean location. There are 2 types of PD:

- **Continuous ambulatory peritoneal dialysis (CAPD).** This is done 3 to 4 times a day. You will be taught how to perform the PD process that is explained below.

- **Automated peritoneal dialysis (APD).** You will be connected to a machine that does the dialysis while you sleep. Depending on your remaining kidney function, you may also need to use it during the day.

**Figure 4. PD Catheter**

![PD Catheter Diagram](image)

**PD process**

During PD, 2 to 3 quarts of a special cleansing fluid (dialysate), flows through the catheter into the abdominal cavity. This fluid dwells inside for a few hours. The length of *dwell time* depends on your body size and how much waste needs to be removed.

During the dwell time, wastes and fluids pass through the lining of your abdomen into the dialysate. This lining acts as a filter and prevents other important blood products from being washed out of your body.

If you use the CAPD method, the catheter is capped off after the dialysate fills your belly. This prevents leakage.
At the end of the dwell time, the dialysate is drained into an empty bag. Then the catheter is capped again and the bags are removed and emptied.

This process is repeated several times throughout the day. Each sequence of filling the belly with fresh dialysate, letting the fluid dwell, then draining it is called an exchange. Figure 5 shows how PD is set up.

If you choose the APD method, the machine will do the exchanges for you. You will be taught how to set it up.

**Figure 5. CAPD**

Your healthcare provider will prescribe:
- How many exchanges you need each day.
- How long the dialysate should stay in your belly (dwell time).
- How much dialysate to use for each exchange.
- What type of dialysate to use.

Your prescription will depend on several factors, including:
- Body size
- Overall health
- Nutrition status
- Remaining kidney function

**Learning to do PD**

Before doing PD at home, you will be taught how to:
- Do the exchanges if you are using CAPD.
- Set up the machine if you are using APD.
- Order supplies.
- Clean and care for your catheter each day.
- Protect yourself from infection. You may need to avoid underwater activities.
If you choose PD to treat your kidney failure, be sure to ask for the Northwestern Memorial Hospital brochure *Peritoneal Dialysis*. This goes into more detail about preventing infection, caring for your catheter, diet and lifestyle.

**Kidney transplant**

Kidney transplant is another treatment option for kidney failure. In this case, a donated kidney is placed into the abdomen. It is then connected to the blood vessels and bladder in order to function properly. The donated kidney may come from a living person or someone who has died.

Please know that this is not a cure for a disease that may have caused your renal failure. You may still need to take medicines that you took before your transplant to manage your condition.

If you choose to receive a kidney, you may still need to have some type of dialysis until one is available. You can be placed on a waiting list for a kidney. Or, if you know of a donor, you may be able to receive a kidney before starting dialysis. In general, a living donor is preferred because that kidney may last longer. Also, surgery to receive a living donor kidney may be scheduled at your convenience.

**Kidney donation**

A living donor may be a family member, friend or even a stranger who wishes to be a donor. However, a donor must meet certain criteria before being accepted as a donor. First, special tests are done to ensure a donor kidney is compatible (a “match”) with your body. If it is not, it cannot be used for you. (The same matching tests are done for kidneys that come from someone who has recently died.) If someone you know wishes to donate a kidney to you, your transplant team will discuss this process with you and them.

**Transplant surgery**

Transplant surgery may take about 3 to 6 hours. The new kidney is usually placed in the lower part of your abdomen. Often, your own kidneys will not be removed. This is because they may still have some function left or release some chemicals that are useful to you. Figure 6 shows one way your transplanted kidney may be placed.

**Figure 6. Kidney Transplant**

Source: Bruce Blaus, Blausen Medical Communications
Your new kidney will begin functioning soon after it is in place. However, there is a risk that your body will reject the kidney or that the transplanted kidney may fail for other reasons. The transplant team will discuss all risks with you.

You may expect to stay in the hospital 2 to 3 days after surgery. After surgery, you will be carefully monitored by the transplant team for a few months. This will require regular visits to the transplant clinic and frequent blood tests to monitor how well your new kidney is working. Over time, these visits will be needed less often.

**You will need to take special anti-rejection medications the rest of your life.** These help prevent your body from rejecting your new kidney. If a transplanted kidney does fail, you may be able to receive a second transplant. However, there is a high success rate: Up to 95% of transplanted kidneys continue to work correctly 1 year after transplant surgery. Following the plan of care is critical to success.

If you choose to have a transplant, the transplant team will talk with you in detail about all aspects of the process.

**After choosing your treatment**

No matter what treatment you choose—dialysis or transplant—following the treatment plan will soon help you feel better. Many of your symptoms may improve as your body gets rid of the excess wastes and fluids that have built up. It is also possible to change treatment plans. For example, if you start with one form of dialysis, you may need to change to another type or elect to receive a kidney transplant. Be sure to discuss this with your healthcare team if you feel the need to make changes.

Your treatment for kidney failure may also include changes to your medications or lifestyle. Some may have already been started. Your healthcare provider will talk with you about the changes that are relevant for you.

**Activity and work**

As you adjust to your treatments, you may find you can do more than before. In general, some exercise is good for you. Follow the activity and exercise guidelines given to you by your healthcare provider. Unless you have specific restrictions, consider activities such as walking on a regular basis.

Many people do go back to work after starting dialysis or having a transplant.

- If you have dialysis at a center, talk with the staff about scheduling your dialysis to fit your work schedule.
- If you have home dialysis, talk with your partner to set up a schedule that works.
- After transplant surgery, returning to work will depend on your recovery. Your transplant team will discuss this with you and recommend when it is safe for you to return to work.
Insurance coverage
Contact your insurance carrier to determine the type of coverage provided for your treatment of choice. Both private insurance and Medicare often cover many of the costs for transplant donors.

Medicare. Up to 80% of the costs of dialysis or transplant surgery may be covered. If you are under 65, you may still qualify for Medicare if you are disabled. Contact your local Social Security office, which can be found at socialsecurity.gov/locator. Or you may call 800.772.1213 to enroll. Your physician will need to fill out a form to confirm your condition. To learn more about Medicare coverage for dialysis or transplant, go to medicaresupplement.com/articles/medicare-dialysis-kidney-transplants.

Consider exploring other sources of insurance coverage:
- Medigap (Medicare supplemental coverage)
- Private health insurance, employer health plans, Consolidated Omnibus Budget Reconciliation Act (COBRA) continuation health coverage
- Medicaid, high-risk insurance pools
- Veteran’s benefits
- State kidney programs
- National Kidney Foundation Help Line (toll free 855.653.2273)
- Financial aid coordinator or social worker at your dialysis or transplant center
- County or state social service department

Coping with kidney failure
It may be hard to accept the changes in your life caused by kidney failure. Feelings of frustration, denial, anger, depression or guilt are not uncommon. Adjusting to changes in routine, diet, medicines and activity while coping with the demands of work, school or other commitments can be challenging. Share your feelings and concerns. Talk with your family, friends and others willing to support you. Also, please talk with your healthcare team. They are trained to address your concerns and help you make the necessary lifestyle changes. If needed, they may recommend a counselor to help you cope.

Resources
These resources may help you learn more about various aspects of kidney failure, treatments, support care and more.
- End Stage Renal Disease National Coordinating Center: esrdncc.org or call 516.209.5253.
  - Locate the renal failure network for your area. Networks are under contract with Medicare to help those with kidney failure receive quality care from their dialysis and/or transplant center.
  - It also offers a variety of patient education information and resources for those with renal failure, including a site to learn about fistulas: fistulafirst.org.
- American Association of Kidney Patients: aakp.org. Their focus is education, advocacy and support.
- Medicare: medicare.gov
- Social Security benefits: socialsecurity.gov
- Northwestern Memorial Hospital:
  - Dialysis treatments: nm.org/conditions-and-care-areas/treatments/dialysis