Introduction

Most patients evaluated for kidney transplantation are already on dialysis, but this is not an absolute requirement. The evaluation process for a kidney transplant ensures that the patient can safely undergo the operative procedure and that they have no unidentified risk factors such as heart disease. Once a patient has successfully completed the evaluation for a kidney transplant and understands the need to take immunosuppressive medications for life, the patient is placed on the national waiting list. If the patient has a living donor candidate, the potential donors are then evaluated. The waiting time for a deceased donor transplant may vary from as short as one year to as long as several years. This is another reason why living donor kidney transplants are preferred.

Kidney transplant is one treatment for kidney failure. It will let you live a more normal, productive, and potentially longer life free of dialysis. However, transplant is not a cure. It can have its own set of complications because of long term use of immunosuppression (special medications to prevent rejection of the new kidney).

Kidney transplant can benefit a wide range of patients including all ages. Most patients evaluated for kidney transplant are already on dialysis, but this is not a requirement. In fact, outcomes are often better with pre-emptive transplant (kidney transplant before starting dialysis), because you avoid the cardiovascular and infectious complications associated with long-term dialysis. All patients on dialysis should be evaluated for a transplant. There can be reasons that transplant is not for you, such as recent cancer history, certain infections, or medical problems that make transplant a risk. You should talk to your kidney doctor about your specific medical condition. If you still have questions call us for more information.

Evaluation

Usually your nephrologist (kidney doctor) will make the transplant referral, but anyone, including you, can call to make the transplant appointment. Sometimes insurance companies will tell the policy holder which transplant centers are covered in their network. Our financial counselor can also check on this for you.

A transplant evaluation is the process by which you prepare for transplant. It includes a history and physical, psychosocial assessment, nutritional consultation, and financial evaluation. The first appointment will take approximately 4-6 hours. This is just the first step in the evaluation for many patients, as you may need additional tests and consultations with other physicians. Your Transplant Coordinator will be able to tell you what additional tests you may need before you leave after this first appointment, but sometimes we may not be able to tell you until after the whole team reviews your case.

The transplant coordinator will be your guide through this transplant appointment. While you are here you will be given information about transplant and living kidney donations, see a film, and talk with all of us about transplantation. After you have seen everyone in clinic you will be directed to the laboratory, the radiology department for your chest
x-ray, and to cardiology for your EKG. Please have your parking validated before leaving the clinic. You will not leave without a plan for completing your workup. If you are un-sure, ask us to review it again before you leave.

What To Bring

You will need to bring your insurance, Medicare or Medicaid card for us to copy for our records. You also must present a picture ID so we can verify your identity. You also need to bring

1. A complete list of all the medications you are currently taking, including the amount you take and how often you take them.
2. A copy of your most recent blood test results from your dialysis center.
3. A complete list of all the doctors that you see for your healthcare. We will need the doctors full name, mailing address, and telephone number. Otherwise we will not be able to communicate with your doctors.
4. A list of any surgeries you have had.
5. A list of your major medical problems and approximate years they developed.
6. If you have had any heart tests or procedures, know the name and telephone number of the doctor so we can request a copy on your behalf.
7. Most importantly, bring a list of the questions you want to ask us.

It will be easier for you if you have a family member who can come with you to this appointment – there will be a lot of information given to you during the evaluation. One of the important aspects of undergoing a kidney transplant is having people around you to help you in your recovery. We need to meet these people so they too can be educated about what you will need. Our Social Worker will also want to meet with a family member or friend who is your close support.

Your Transplant Coordinator will call you after all your results have been received and have been reviewed by our team at our Candidate Selection Meeting. This is a meeting of the whole team to review your case and to make a decision about transplant for you. We meet every week so within a week or two after we have received all the results of your tests, you can expect to hear from us. After we discuss your case at the Candidate Selection Meeting and make a decision to place you on the UNOS/OPTN national waiting list, the Transplant Coordinator will call you to let you know of our decision. We will first get clearance from your insurance carrier before we place you on the waiting list. Once we do, you will get a letter in the mail telling you this. We will also send a letter to your kidney doctor and to your dialysis unit. If you do not receive a letter from us, you should call us.
Schematic of the Evaluation

Referral from nephrologist (kidney specialist)
↓
Call to set up appointment for education seminar and clinic visit
↓
Education seminar
↓
Clinic appointment (full day)

1. meet with
   • Pre-transplant coordinator and/or nurse practitioner
   • Nephrologist and/or surgeon
   • Social worker
   • Financial coordinator
   • Dietitian

2. initial lab work, chest x-ray, and EKG
3. set up appointments with necessary consultants
   (cardiology, gynecology, gastroenterology, etc…)

Once complete, your case will presented at our weekly candidate selection committee meeting. We will then call to notify you of your status.

For referral please call (504) 988-5344 or long distance (888) 988-5344. Our operator will direct you to the proper person.

Waiting list

After your pre-transplant evaluation, if the selection committee determines that you are a good candidate for transplant, you, your referring physician, and your dialysis unit will receive a letter stating that you have been placed on the United Network for Organ Sharing (UNOS) computerized national list.

The waiting time for a kidney varies. If you do not have a living donor who can donate a kidney to you, the waiting time for a kidney transplant varies depending on your blood type and also the tissue typing we did at your evaluation. It can be anywhere from 6 months to 6 years. You can discuss this with your Transplant Coordinator who can review your results with you.

Once on the list, our protocol requires you to keep in touch with us to update your medical conditions. Depending on your health, you may have to see us as little as once a every two years, or we may need to see you every 6 months. Your Transplant Coordinator will be able to advise you of this also after you have been listed. Staying on the list also requires you to keep your blood samples updated. It is very important that you regularly send a blood sample that can be used to check if you would match with any
potential donor kidneys that become available. Each month, blood tubes with return mailing labels are sent to your dialysis unit or to you if you are on peritoneal dialysis or not yet on dialysis. To remain eligible for a transplant, you must send in this blood sample every month.

It is impossible to say exactly where a patient is on the list. Kidneys are given out by a formula based upon age, blood group, Panel Reactive Antibody (PRA) matching, and time on the waiting list. Each time a deceased donor kidney becomes available, tissue typing is performed and the UNOS computer system produces a list of possible recipients unique for each donor based on these factors.

**Living Donor Kidney Transplant**

There are several advantages to the recipient of a living donor kidney transplant. First, the operation can be scheduled when it is convenient for the donor and recipient, and when both are in their best state of health. Second, the kidney function after a live donor transplant (either from related donors and unrelated donors) last significantly longer. On average, they last 15 years as compared to kidney from deceased donors (7-10 years average function).

Living donor transplantation is possible because we are born with two kidneys. After removal of one kidney, the remaining kidney takes over completely. Recent studies that examined the long-term effects of kidney donation have not demonstrated any increased risk of kidney disease or decreased lifespan compared to the general population.

The donor must be more than 18 years of age and must either be related to the recipient, or have a close emotional attachment. An example of an unrelated donor would be a spouse. The donor’s medical expenses related to the evaluation, surgery, hospitalization, and immediate postoperative care are covered by the recipient’s insurance company. If any problems arise in the future that are directly related to the kidney donor surgery, these expenses are covered as well.

If you know someone who is interested in donating a kidney to you, ask them to call us at our toll free number and ask to speak to our living donor coordinator. The potential donor must call us; we cannot call potential donors on your behalf. Please keep in mind that a phone call to the transplant center does not commit you to becoming a donor. We would be happy to answer any questions you may have to help you make a decision about wanting to go through with the donor evaluation.

**Being Called in For Transplant**

Nurses are on call 24 hours a day to accept offers of organs for transplant. Our doctors screen these offers to accept the best possible organs for our patients. A transplant nurse will call you by telephone to tell you when an organ has become available for you. It is
very important to make sure we can get in touch with you 24 hours a day, 7 days a week. If your telephone number changes or if you will be out of town, be sure and notify your coordinator of the telephone numbers where we can reach you. You should pack a suitcase to stay in the hospital about a week. Bring all medications you are currently taking and anything else you will need for a week in the hospital. Come to Tulane University Hospital as soon as possible. The transplant nurse coordinator will guide you through this process when you are called in for transplant. Sometimes, multiple patients are brought in for a transplant. We do this in order to “back-up” the first person on the list.

You will be admitted to the Abdominal Transplant Unit where a nurse who will prepare you for your transplant surgery will greet you. The nurse will get you settled into the room and will take several vials of blood. Some of the blood will be sent to the HLA lab where a final cross-match will be performed. A doctor will complete a history and physical to update your medical information and to be sure that you do not have any new medical problems that will make the transplant operation unsafe. Depending on your medical history, kidney specialists, diabetic specialists, heart specialists or other types of specialists may be consulted to be sure all aspects of your medical care are addressed.

Before we know that we can absolutely do the transplant, a final test (crossmatch) must be performed. The final cross-match is a test in which your blood is mixed with cells from the donor. A negative cross-match means that when your blood was mixed with the donor’s cells there was not a reaction, and your body should accept the new organ. A positive cross-match means that the blood reacted and that this organ would not be acceptable for you.

The organ cannot be given to you if you have a positive cross-match; it could be life threatening to receive an organ that has reacted positively with your blood. A member of the transplant team will tell you that unfortunately you reacted positively to the cross-match. This does not mean that you will never receive an organ. You will be called in again when another organ is found for you and the process will start again. Do not be discouraged, some patients are called in several times before an acceptable organ is found.

It takes approximately 6-12 hours to complete the transplant evaluation, preparations for surgery and the final crossmatch. You will probably not be allowed to eat during this time.

**Kidney Transplant Surgery**

Once we make the decision to proceed with transplant, you will be brought to the operating room where you’ll meet the anesthesiologist who will put you to sleep and monitor your vitals during the operation. Once asleep, a tube will be placed into your bladder. The kidney transplant surgery itself involves an incision in your lower abdomen. The final decision about which side will depend upon your anatomy (history
of past surgery, etc) and that of the donor organ. The incision is 8-9 inches long extending from the pubic bone to the hip bone. The kidney is then attached to the blood vessels in the pelvis. Placing the kidney in the pelvis allows for easier hook-up of the ureter (urine tube) to the bladder. The surgery lasts about 2 hours, although you’ll be in the operating room area usually about 4 hours.

Unless there is a reason to take out your native kidneys (the ones you were born with), they will be left alone. The transplant kidney is not placed near your native kidneys. If there is a reason to remove your native kidneys, this is usually done at another time.

If you receive peritoneal dialysis, then usually the surgeon will remove the catheter during surgery. Your surgeon will discuss this with you prior to the surgery.

Once the operation is finished, you will wake up, off the ventilator and recover in our transplant ward.

**Hospital Stay**

After surgery, you will return to the transplant unit after surgery, and will probably be very groggy from the anesthesia. You will have a dressing over the incision site that will stay in place for about 24 hours. A tube will be in your bladder for the first 3 days to drain urine that your new kidney should make. An IV will be in your arm to give you fluid and medications. You will have one nurse devoted to taking care of you. These nurses are specially trained to care for transplant patients. He or she will be in your room frequently monitoring your progress. After you have been settled into your room, your family will be asked to join you.

One of the most important aspects to your recovery is early walking and we expect you to do that by 12 hours after surgery. Deep breathing and coughing are important exercises right after surgery. Your nurse will give you a breathing device that is used to encourage deep breathing. Deep breathing and walking are the keys to a speedy recovery. Both of these exercises will decrease the chance of developing pneumonia which is a common complication after surgery. Walking will also decrease the chance of developing a DVT (deep vein thrombosis). If you do not move and walk enough, there is a chance of blood clots getting stuck in the veins. This is called a DVT and can cause pain, swelling of the extremities, and decreased blood flow.

Most patients do not experience much pain after surgery. However, you will be given IV pain medication that you can control. It is called a PCA (patient controlled analgesic). The pain medication is on a pump and you will have a button to push when you want the pump to deliver more medicine. The pump is set so that you cannot get too much medication, but just enough to keep you comfortable.

Right after surgery you probably will not be hungry, but may be thirsty. You will be allowed ice chips. Your throat may be sore and the ice chips will help to keep you
comfortable. Once you start to feel hungry, you will be started on a liquid diet. If you do not feel nauseated after drinking liquids, you will be given a regular diet with no added salt. Most patients are able to tolerate a regular diet just one day after transplant surgery.

In most cases the transplant kidney starts making urine right away. Blood work will be monitored daily to make sure your kidney is filtering properly. Sometimes the transplanted kidneys do not make urine right away. This is called delayed graft function or a “sleeping kidney”. If this happens, you may need dialysis in the hospital and after you go home. However, this does not mean your transplant kidney will never work. A transplanted kidney with delayed graft function can take days to a few months before it starts to work.

The usual length of stay following a kidney transplant is 4 – 5 days. Of course, this depends on how well the new kidney works and whether there are any complications. If you have a complication after surgery, you may need to stay longer. The transplant team will not keep you in the hospital any longer than necessary. Leaving the hospital as soon as you are ready will decrease the chance of getting an infection.

Before you leave the hospital you will be assigned to a transplant coordinator. Your coordinator will monitor your blood work and medications throughout the life of your transplant and will be available to you if you have any questions or concerns. A transplant coordinator is available even at night and on the weekends. You will always have someone to help you if you have any questions or concerns about your transplant.

**Medications**

In addition to your previous medications, you will be taking immunosuppression medication. Your immune system recognizes foreign bodies that are not its own and tries to fight to get rid of it, kill it or reject it. The immune system sends out white blood cells to combat what it sees as an intruder. The transplant kidney is seen by the body as an intruder. To minimize the body’s ability to reject your new organ, you will be given medication that will decrease the body’s ability to make white blood cells. These medicines will also decrease your body’s ability to fight infection. It is a delicate balance to give you enough medication to limit your body’s ability to reject your new organ, and its own ability to fight viruses, bacteria and other things you come into contact with on a daily basis. Because of this delicate balance, your immunosuppressive medication doses will be increased or decreased based on blood levels and how your body reacts to the medication. You must take these medications every day for the rest of the life of your transplant organ. Your risk for rejection is much higher if you do not take your medications as prescribed.

**Immunosuppression**

There are a variety of different medications that can be used to suppress the immune system and prevent rejection. Most patients take at least 2 or 3 of these special
medications. The Tulane Abdominal Transplant Institute has developed our own guidelines for immunosuppressive medications. We also tailor these guidelines to individual patient’s needs when appropriate.

The main immunosuppressive medication is either Prograf (Tacrolimus) or cyclosporine (Neoral). These are the most important medications in the prevention of rejection. Sometimes Rapamycin (Sirolimus) is used in place of or along with Prograf or Neoral; this is usually done to help avoid side effects from the other immunosuppressants.

Steroids have always been used to prevent rejection in transplant patients. Gradually the dose of steroids you take is decreased (usually during the first 3 months after transplant). In some cases we consider early withdrawal from steroids or using no steroids at all in patients who have had bad side effects. In our experience, this small amount of steroids is an important part of preventing rejection and most patients have very few side effects at such small doses.

Another type of immunosuppressive medication that you take is called Cellcept or Myfortic. Research shows that patients who take this type of medication in addition to the other immunosuppressants will have transplanted organs that work better for longer.

This method of using a combination of medications helps to decrease the possible side effects from any 1 medication.

Other Meds
We prescribe other medications for our transplant patients that include antibiotics to prevent infection, blood pressure medications, and medications to prevent stomach ulcers that may be caused by the new medications.

Your blood pressure medication may be changed after transplant depending on the type of medication you used. Some blood pressure medications do not work as well after transplant or some may need to be changed due to side effects.

Special Considerations

Rejection

Your body is able to recognize substances inside your body that are not yours. When your body recognizes that the transplant organ is not yours, your immune system will attack and try to destroy the transplant organ. This response is similar to what happens when your body fights off infection. Immunosuppressive medications decrease the body’s ability to activate the immune system; they try to trick the body into thinking that the organ is actually yours. Rejection is most common in the first 6 months of transplant, however, may occur at any time. It is important to always take your immunosuppressive medications as directed; missing just one or two doses can put you at risk for rejection.
Having rejection does not always mean that you will lose your organ. Rejection is treatable, but only if it is found early. Call the transplant team if you have any of the warning signs of rejection.

Some signs of rejection include:

1. Fever over 100.5°
2. Flu-like symptoms: chills, aches, pains, fatigue, headaches, nausea, and vomiting
3. Fluid retention with weight gain, swelling, increased blood pressure
4. Pain, tenderness or fullness over the area of your transplant

These signs are much like the signs of infection. If you ever have any of these signs, you should notify your transplant coordinator immediately.

Rejection is often seen first on your routine blood work. This is one of the reasons why it is so important to always get your blood work done as prescribed. Rejection is best treated when it is found early.

If your transplant team suspects that you have rejection, you will be admitted to the hospital for further evaluation. Tests will be run including, blood work, an ultrasound of the transplant, and possibly a biopsy.

Rejection can be treated with a few days of high dose steroids, or another drug called Thymoglobulin which is a very strong immunosuppressant. Both drugs work to decrease the body’s ability to reject the transplant. You will stay in the hospital for 3 – 7 days while these medications are given.

Ethnicity
There is a misconception in the medical field that African-American transplant patients have worse outcomes as compared to non-African American counterparts. Fortunate to have a large African American transplant recipient population, we have not found this to be true at Tulane Abdominal Transplant Institute. In fact, we have published our experience showing that there is no difference in survival and there is growing data in the literature to support this. Certain differences do exist, for example metabolism of medication is less predictable and often our patients require larger doses to obtain appropriate blood levels.

Hepatitis C Virus & Kidney Transplant

In today’s epidemic of Hepatitis C Virus (HCV), transplant centers are evaluating more and more HCV positive patients with kidney failure. While previously controversial, HCV positive kidney recipients have improved success and it clearly is beneficial when compared to staying on dialysis. Before proceeding with transplant, a comprehensive evaluation of liver function is necessary to ensure it is safe to undergo surgery. Most patients have chronic disease and therefore are eligible to receive kidneys from HCV positive donors—which actually shortens the waiting time considerably.
Approximately 15-20% of patients with kidney failure who get evaluated here at Tulane for kidney transplant have the hepatitis C virus (HCV). This is about 10 times more than the number of people in the general population who have HCV. All patients being evaluated for transplant will be tested for HCV.

Not all people who test positive for Hepatitis C virus (HCV) have hepatitis. To find out if you have an active hepatitis C infection, we will test your blood for hepatitis C virus RNA (HCV RNA). This test shows whether your infection is active or not. If the HCV RNA test is positive, you will need to have a liver biopsy. A liver biopsy is important because it is the only way your doctors can tell you if the hepatitis infection is mild or severe. The biopsy shows how much inflammation (activity) and how much fibrosis (scarring) is present in the liver. People with severe scarring or severe inflammation on biopsy are not accepted for transplant unless the hepatitis can be treated. Patients with severe disease have a worse outcome following transplant, therefore we usually attempt to treat these patients before considering them for a kidney transplant.

For most people with little or no evidence of liver disease on liver biopsy who undergo a kidney transplant, there is usually little change. In some patients, however, the combination of the transplant surgery and the medications given to prevent rejection may speed up the course of the Hepatitis C virus (HCV). Some of these patients will develop cirrhosis and complications of liver disease within 10 years of their transplant. Overall, the outcome through 10 years following a kidney transplant is similar in patients with HCV as it is in people who have a transplant and do not have HCV. However, beyond 10 years from the time of transplant, there may be more liver complications seen in the transplanted patients with HCV.

Hepatitis C can be cured in 40-45% of treated patients. The treatment consists of a combination of 2 different medications given for a total of 6-12 months. One medication, Interferon, is given as an injection under the skin (like insulin) 1 to 3 times per week. The other medication, Ribavirin, is a capsule given 2 times a day. Unfortunately, Ribavirin cannot be given to people with kidney disease. As a result, patients with kidney disease can only be treated with interferon. Treatment with interferon alone is much less effective than combination therapy with interferon + Ribavirin. In addition, interferon therapy alone rarely, if ever, works in African-American patients with hepatitis C. Since interferon therapy alone is rarely effective and often associated with side effects, we only treat HCV infected patients with severe liver disease, who otherwise would not be candidates for kidney transplant. Interferon therapy after a transplant is avoided because it may lead to the development of rejection that fails to respond to anti-rejection medication.

Patients already infected with the Hepatitis C virus (HCV) may be eligible to receive a kidney from people who are also infected with hepatitis C. Since hepatitis C can be
transmitted by kidney transplant, we never transplant an organ from a person known to have HCV into somebody without hepatitis C. Patients already infected with HCV can benefit by receiving organs from people infected with hepatitis C. By accepting these organs, patients with hepatitis C can get transplanted sooner than if they waited for a HCV negative donor, and fewer organs will go to waste without benefiting a needy recipient.

HIV & Kidney Transplant

Advances in treatment for HIV have resulted in longer survival of infected patients and it is no longer considered a terminal disease. HIV positive, viral load negative patients with either kidney failure or liver failure (often due to coinfection with Hepatitis C virus) are now potential candidates for transplant. Strict criteria developed by the National Institutes of Health (NIH) are used for selection of patients. Each patient is evaluated and considered on an individual basis. If you have any questions or would like to be evaluated for transplant, please call for more information. 1.888.988.5344