

UNDERSTANDING KIDNEY TRANSPLANTATION



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UNDERSTANDING KIDNEY TRANSPLANTATION

WHAT IS CHRONIC KIDNEY DISEASE (CKD)?

Chronic Kidney Disease (CKD) occurs when your kidneys gradually lose function over time. Common causes include diabetes and high blood pressure, but some people are born with conditions that affect kidney function.

CKD has five stages. By Stage 5, the kidneys have lost most of their ability to work and a kidney replacement therapy (KRT) is required. Learning about treatment options during Stages 3–4 can help you prepare and make informed decisions.

TREATMENT OPTIONS FOR KIDNEY FAILURE?

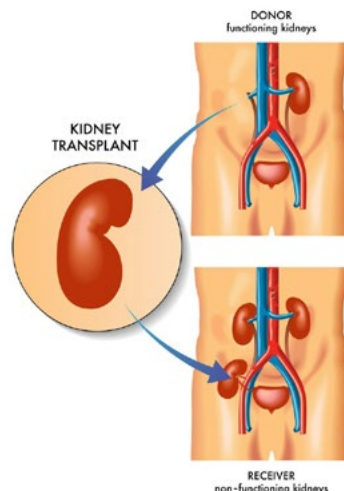
There are three main treatment options for kidney failure, also known as CKD Stage 5 or End-Stage Kidney Disease (ESKD):

- Hemodialysis (HD) (including in-center hemodialysis and home hemodialysis)
- Peritoneal dialysis (PD)
- Kidney transplant

A kidney transplant is often considered the best treatment for many patients because it

can improve quality of life and survival.

Understanding all kidney replacement therapy options empowers you to choose the treatment that best fits your life goals and aspirations. As life changes, your needs and priorities may change too—and it's okay to adjust your treatment plan over time.



UNDERSTANDING KIDNEY TRANSPLANTATION

A kidney transplant is surgery to place a healthy kidney from a donor into your body.

There is a national waiting list for organ transplants. Most people on the list are waiting for a kidney.

The average wait time is 3–5 years, but this varies by region as well as by person.

Some patients may receive a transplant before needing dialysis (pre-emptive transplant), especially if they have a living donor.

WHAT IS “TRANSPLANT READINESS”

The American Association of Kidney Patients (AAKP) defines “transplant readiness” as a patient’s opportunity and ability to pursue kidney transplantation when it aligns with their aspirations and goals of care, not simply whether they meet a clinician’s medical checklist.

It is fundamentally about care choice, access to FDA-approved treatments, and empowerment, and includes the following elements:

- Understanding all kidney replacement therapies.
- Removal of barriers to access all safe and effective FDA-approved treatments, as decided by the patient in consultation with the doctor(s) they choose to care for them, that support an individual’s ability to remain healthy to receive a transplant.
- Alignment with a patient’s life goals and aspirations as they define them, whether they include full or part time employment, family obligations, hobbies, or retirement.
- Empowerment through education and respect for autonomy.

TYPES OF KIDNEY TRANSPLANTS

Deceased Donation

This type of organ donation is from donors who have passed away. Deceased donation is currently the most common form of kidney donation. These kidneys come from people who have indicated they wish to donate their organs upon their death. These kidneys need to be transplanted soon after the donor has died, so it’s important for their family to know if they want to be a deceased organ donor.

Anyone can sign up to be an organ donor. Visit Donate Life America’s website at donatelife.net to learn more.

Living Donation

A person can donate one of their healthy kidneys to another person who may be a friend, loved one,

or someone they know or who is related to them, or it may be donated to someone they do not know. Receiving a kidney from a living donor may take away the long wait on the transplant wait list for a deceased donor kidney. A kidney from a living donor often lasts longer than a deceased donor kidney. A living organ donor will be told about any risks related to donating a kidney. Living donors can live a healthy life with one kidney.

Living organ donors and their care partners may be eligible to receive financial assistance from the National Living Donor Assistance Program (NLDAC) for travel, lodging, meals, lost wages, and dependent care. Visit www.livingdonorassistance.org for more information.

Paired Donation or Paired Exchange

This type of living organ donation may be an option for patients who know someone who wants to donate a kidney but is not a match for them. Sometimes a living donor is cleared to donate but is not a good match for the individual they want to donate their organ to. If this happens, the patient and donor may be able to enter into a paired kidney donation program. These programs pair the kidney and

the patient with the best kidney match. This can start a “chain” of kidney donations! Ask the transplant team if they have a program like this. If they don’t, they can tell you about transplant centers who do.

Altruistic Donation

This is a living donor who donates a kidney to any patient on the kidney transplant wait list. These donors usually do not know the person receiving their kidney.

Pre-emptive Transplant

Studies show that receiving a transplant before dialysis begins can result in better kidney and health outcomes. This type of transplant is more likely if a person has a living donor. The sooner you learn about your treatment choices, the better.

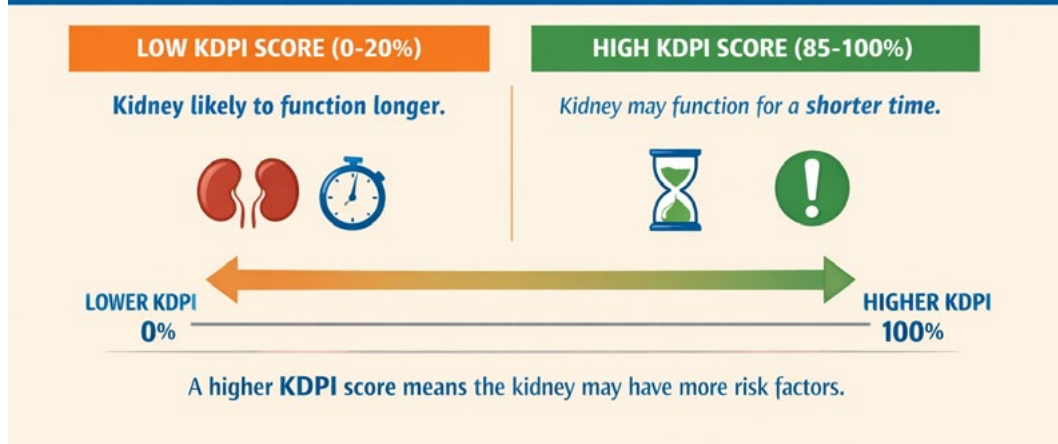
CONSIDERATIONS WHEN ACCEPTING A KIDNEY FROM A DECEASED DONOR

What Is Kidney Donor Profile Index?

When considering a kidney from a deceased donor, the Kidney Donor Profile Index (KDPI) score helps describe the quality of a deceased donor kidney. It is based on

Understanding the Kidney Donor Profile Index (KDPI)

KDPI is a score that measures the quality of a deceased donor kidney based on factors that may affect how long the kidney might function.



several factors about the donor, such as age, medical history, and how well the kidney is expected to function over time.

KDPI is expressed as a percentage from 0% to 100%. A **lower KDPI score** generally means the kidney is expected to last longer, while a **higher KDPI score** may indicate a kidney that may not function as long but could still work well for many patients.

KDPI is one of the tools used by transplant teams to match deceased donor kidneys with patients. Accepting a kidney with a higher KDPI score may mean receiving a transplant sooner, while waiting for a lower KDPI kidney could take longer.

Every patient's situation is different. Your transplant team will help you understand what KDPI means for you and support you in making the best decision based on your health, preferences, and goals.

Deciding whether to accept a kidney offer is a personal choice. Understanding KDPI can help you weigh your options.

Reasons to Consider Accepting a Higher KDPI Kidney

- You may receive a transplant sooner.
- You would spend less time on dialysis, which can improve overall health.

- You have other health conditions, and this may be a good option for you.
- It can still provide years of kidney function and improved quality of life.

Reasons You Might Choose to Wait for a Lower KDPI Kidney

- You may prefer to wait for a kidney that is expected to last longer.
- You are younger or have fewer health concerns.
- Your transplant team believes waiting is a safe option for you.

Questions to Ask Your Transplant Team

- How long might I wait for a lower KDPI kidney?
- How would accepting this kidney affect my health and future options?
- What are the risks of waiting longer?
- How long might I have this kidney for?

WHAT IF I AM TOLD I AM HIGHLY SENSITIZED?

If you are told you are “highly sensitized,” it means your immune system has developed antibodies that may react against many donor kidneys. These antibodies

can make it more difficult to find a compatible match for transplantation.

People can become sensitized for several reasons, including:

- Previous kidney or other organ transplants
- Blood transfusions
- Pregnancy

Being highly sensitized does not mean you cannot receive a transplant—it simply means that finding the right match may take longer and may require additional planning.

Currently, there are some options for patients who are highly sensitized. Special programs, such as kidney paired donation, are designed to help match patients with compatible donors. In some cases, transplant centers may offer treatments to lower antibody levels or help the body better accept a donor kidney. Your transplant team will evaluate your specific situation and discuss the options that may be available to you.

New innovations are being developed to help highly sensitized patients overcome barriers to transplant. These approaches, often called desensitization therapies, are designed to reduce or remove harmful antibodies so that a transplant can be possible.

Some newer treatments focus on:

- Removing antibodies quickly using advanced therapies
- Targeting the cells that produce antibodies to reduce them long-term
- Preventing new antibodies from forming after treatment

These treatments are still evolving and may not be available at all transplant centers, but they represent important progress in expanding access to transplantation.

EMERGING INNOVATIONS IN TRANSPLANTATION

Artificial Kidneys

Researchers are working on new technologies called artificial kidneys that may one day change how kidney disease is treated. These innovations are designed to do the work of a real kidney—removing waste and extra fluid from the body—without relying on traditional dialysis or the need for a human donor organ.

While these technologies are still being studied and are not yet widely available, they offer hope for the future by aiming to improve quality of life, increase

independence, and reduce the burden of treatment.

- An **implantable bioartificial kidney** is a device that would be surgically placed inside the body. It is designed to work continuously, similar to a natural kidney.
- A **wearable artificial kidney** is a portable device that can be worn on the body. It performs dialysis continuously throughout the day, rather than in scheduled sessions.

These innovations are still in development.

Xenotransplantation

Another exciting area of research in kidney transplantation is called **xenotransplantation**.

This refers to using organs from animals—most commonly pigs—to transplant into humans.

Because there are not enough human donor kidneys for everyone who needs one, researchers are exploring xenotransplantation as a way to increase the number of available organs and reduce wait times.

Researchers use genetically modified pigs whose organs are specially designed to be more compatible with the human body. Recent medical breakthroughs (including early human transplants) have shown that

these organs can function for a period of time, offering important insights for the future.

Xenotransplantation offers hope for increasing the supply of kidneys and reducing wait times, but it is still in the early stages of research and is currently limited to experimental studies.

THE TRANSPLANT WAITLIST

How Do I Get on the Waitlist?

Getting on the kidney transplant waitlist is an important step toward receiving a transplant. The process begins with a referral to a transplant center, which can be made by your kidney doctor or healthcare team. You can also ask for a referral if you are interested in pursuing transplantation.

Once referred, you will go through a comprehensive medical evaluation through the transplant center (hospital that performs kidney transplants). This evaluation is designed to determine whether a transplant is a safe and appropriate option for you. It may include blood tests, imaging studies, heart and lung evaluations, cancer screenings, and consultations with different members of the transplant team. In addition to your physical health, the team may also assess

your emotional readiness, support system, and ability to follow a treatment plan after transplant.

After your evaluation is complete, the transplant team will review your results. If you are approved, you will be placed on the national transplant waiting list. This list is managed through a national system that matches donor organs with patients based on medical criteria and other factors.

It is important to understand that the evaluation process can take several months. Staying engaged, completing testing on time, and keeping in close communication with your transplant team can help move the process forward.

Staying Active on the Waitlist

Being added to the waitlist is only the beginning. To receive a kidney offer, you must remain active on the list. If you become inactive—even temporarily—you will not be eligible to receive an organ offer during that time.

Staying active requires ongoing participation in your care. This includes keeping all medical and transplant appointments, completing required lab work and testing on time, and maintaining your health as much as possible.

Can I Be on More Than One Waitlist?

Yes, patients may be listed at more than one transplant center. This is known as multiple listing. Because wait times can vary by region and transplant center, being listed at more than one center may increase your chances of receiving



a transplant sooner.

However, multiple listing requires careful planning. You will need to consider whether your insurance covers care at more than one center, as well as your ability to travel—sometimes on short notice—if an organ becomes available. Each transplant center may also have its own policies and requirements for listing patients.





Talking with your transplant team can help you decide whether multiple listing is a good option for you and how to navigate the process.

It is often recommended that you join the national waitlist for a deceased donor transplant even if you have a potential living donor. This helps ensure you have another option if your donor is not able to move forward or if a deceased donor kidney becomes available sooner.

WHO IS ON YOUR TRANSPLANT TEAM?

You are the most important member of your transplant team. Staying involved in your care will help you stay healthy and live a better life. The other members of the team want you to have a successful transplant and good life too.

Most transplant teams consist include:

-  **Transplant coordinators** coordinate the evaluation and follow-up care. They work closely with the transplant physicians.
-  **Transplant Physicians** manage a patient's medical care, order tests, and prescribe medications.
-  **Transplant Surgeons** are specially trained doctors who do the transplant surgery.
-  **Financial coordinators** help patients with issues related to the cost of the transplant.

They can help with hospital bills, Medicare, and insurance plans. They are there to help you before, during, and after surgery. It is important to meet with a financial coordinator when considering a transplant so you can understand your insurance coverage and any potential out-of-pocket costs for surgery and follow-up care.



Transplant social workers help you and your family know what to expect and how to cope. They are there to help you before and after the transplant.



Dietitians work with you and your family on your diet and food intake post-transplant. If you were previously on dialysis, you will likely have fewer dietary restrictions once you receive a transplant, but there are certain things you will need to avoid that could interfere with your anti-rejection medications. They will also explain the importance of food safety post-transplant.



Care partners also play a key role in supporting you. This can be a spouse, partner, close friend, or adult children. They can help you with medications, meal planning, and exercise. They may worry about how you're doing so consider

bringing them to your medical appointments for an extra set of ears. They may think of questions to ask that you have not. Don't forget to thank them for their help and support along the way.

TRANSPLANT SURGERY

A kidney transplant is a major operation, but it is also a commonly performed and well-established procedure carried out by experienced transplant teams. The surgery is generally the same whether the kidney comes from a living donor or a deceased donor. Most transplant surgeries take between two and four hours, and you will be under general anesthesia, meaning you will be asleep and closely monitored throughout the procedure.

During the surgery, the transplant surgeon makes an incision in the lower part of your abdomen and carefully places the donor kidney inside your body. In most cases, your own kidneys are not removed unless there is a specific medical reason to do so. The surgeon then connects the blood vessels of the donated kidney to your blood vessels so that blood can flow through the new organ. The final step is attaching the ureter—the tube that carries urine from the kidney—to your bladder.

Once everything is connected, the new kidney may begin producing urine right away, although in some cases it can take a few days for it to start working fully and “short-term” dialysis may be needed.

Most patients stay in the hospital to recover for several days to about a week. During this time, your care team will check how well the new kidney is working, watch for any signs of infection or rejection, and begin adjusting your medications. You will also start learning how to care for yourself and your new kidney, including how and when to take your medications, which are essential to prevent rejection.

It is normal to feel tired or sore after surgery, and many patients experience a mix of emotions, including excitement and anxiety. Your transplant team is there to support you through both the physical and emotional aspects of recovery.

AFTER YOU GET YOUR TRANSPLANT

Receiving a kidney transplant is a life-changing experience, but it is also the beginning of a new phase of care. After surgery, your focus will shift to recovery, protecting your new kidney, and adjusting to new routines.

While many patients feel an improvement in their energy and overall well-being, it is important to understand that a transplant is a treatment—not a cure—and it requires lifelong care and attention.

In the days and weeks following your transplant surgery, your transplant team will monitor you closely to make sure your new kidney is working well. You will have frequent follow-up visits and blood tests to check kidney function and to make sure your body is not rejecting the new organ. These appointments are very important and may be more frequent at first, gradually decreasing over time as you recover.

One of the most important parts of life after a transplant is taking your medications exactly as prescribed. You will need to take anti-rejection medications for as long as your transplanted kidney is working. These medications help prevent your immune system from attacking the new kidney, but they can also have side effects. Some patients may experience changes in appetite, weight gain, mood changes, or an increased risk of infections. Your transplant team will work with you to adjust your medications and manage any side effects.

Because your immune system is suppressed, you will need to take extra care to avoid infections. This includes practicing good hygiene, staying up to date on recommended vaccinations, and avoiding exposure to people who are sick. It is also important to report any signs of illness, such as fever or unusual symptoms, to your transplant team right away.

As you continue to recover, you will begin to return to your normal daily activities. Your transplant team will guide you on when it is safe to resume work, exercise, and other routines. Staying active, eating a healthy diet, and maintaining a healthy weight are all important steps in protecting your new kidney and your overall health.

It is normal to experience a range of emotions after a transplant. Some patients may feel relief and excitement, but also anxiety about caring for their new kidney, concerns about the future, or even feelings of guilt about receiving a kidney from someone who has passed or accepting a kidney from a living person—these feelings are common and valid.

THE DONOR EXPERIENCE

Choosing to donate a kidney is a generous and life-changing decision. People become kidney



donors for many reasons. Some want to help a family member or friend, while others choose to donate to someone they have never met and are motivated by the desire to improve or save another person's life.

Before someone can donate a kidney, they must go through a thorough evaluation to make sure donation is safe for them. This process includes medical tests, imaging studies, and discussions with members of the transplant team. Donors are carefully evaluated not only for their physical health, but also for their emotional well-being. The goal is to ensure that donating a kidney will not put them at unnecessary risk now or in the future.

If a donor is approved, the transplant team will work with both the donor and recipient to plan the surgery. In some cases, a donor may not be a direct

match for their intended recipient. When this happens, they may be able to participate in a paired exchange donation program. This allows the donor to give a kidney to another patient while their intended recipient receives a compatible kidney from a different donor.

Kidney donor surgery is typically performed using minimally invasive techniques. Most donors undergo a laparoscopic procedure, where the surgeon makes several small incisions and uses specialized instruments to remove the kidney. This approach often results in less pain and a faster recovery compared to traditional surgery. Donors are placed under general anesthesia during the procedure and are closely monitored throughout.

After surgery, most donors stay in the hospital for a few days. Recovery times can vary, but many donors are able to return to normal activities within a few weeks. The transplant team will provide detailed instructions on how to care for themselves during recovery, including guidance on activity levels, lifting restrictions, and follow-up care.

Living with one kidney is generally safe for healthy individuals. Most donors go on to live full, active lives without significant long-term health

problems. However, like any surgery, donation does carry some risks, and these should be discussed with the transplant team during the evaluation process.

There are also financial and practical considerations for donors. While the recipient's insurance typically covers the medical costs of the donation, donors may still face expenses such as travel, lodging, lost wages, or childcare. Assistance programs, such as the National Living Donor Assistance Center (livingdonorassistance.org), may be available to help with these costs, and transplant centers can provide information about available resources.

Donating a kidney can be a deeply meaningful experience. Many donors report a strong sense of satisfaction knowing they have helped improve or save someone's life. At the same time, it is important for donors to have support from family, friends, and the transplant team throughout the process.

HOW LONG WILL THE TRANSPLANT LAST?

One of the most common questions people have is how long a transplanted kidney will last. The truth is that there is no exact answer. Every person and

every transplant is different. Some transplanted kidneys last many years or even decades, while others may not function as long.

Several factors can influence how long a transplanted kidney continues to work. Kidneys from living donors often last longer than those from deceased donors. A good match between donor and recipient, overall health at the time of transplant, and how well the body accepts the new kidney can all play a role. In addition, advances in medications and transplant care have helped improve outcomes over time.

One of the most important factors in how long a transplant lasts is how well you take care of yourself after surgery.

- Taking anti-rejection medications (also called immunosuppressant drugs) exactly as prescribed is essential. These medications help prevent your immune system from attacking the new kidney. Missing doses or stopping medications without medical guidance can increase the risk of rejection and shorten the life of the transplant.
- Regular follow-up care is also critical. Attending all appointments, completing lab tests, and staying in close

contact with your transplant team allows any problems to be identified and treated early.

- Living a healthy lifestyle plays an important role as well. Eating a balanced diet, staying physically active, avoiding tobacco, and limiting alcohol can all support long-term kidney health.
- Preventing infections and managing other medical conditions, such as diabetes or high blood pressure, are also key to maintaining the function of your transplant.

It is also important to understand that over time, a transplanted kidney may slowly lose function. This does not mean you have done anything wrong—it is a known possibility with transplantation. If this happens, your healthcare team will work with you to explore next steps, which may include dialysis or another transplant.

QUESTIONS YOU MAY WANT TO ASK YOUR TRANSPLANT TEAM

- How can I stay “transplant ready”?
- What does a transplant evaluation include?
- How long will the evaluation take?
- Will the results of the evaluation affect whether I can go on the transplant list?
- How will I know when I am on the transplant list?
- What is the usual wait time for a transplant at this center?
- Can I be taken off the transplant list? If so, why?
- Will you tell me and my kidney care team about any changes to the plan?
- Why does the kidney need to be a good match?
- What does a good match mean for me?
- Where can someone who wants to donate a kidney to me go to learn more about it?
- What if the person who wants to give me a kidney is not the best match for me? Can we enter into a paired exchange program so they donate their kidney to someone else and I get a kidney from someone who is a better match?
- How often will I need to come in for appointments?
- Will you let my dialysis care team know about my progress?

Disclaimer: This brochure provides general information and is not medical advice. Always talk with your doctor or transplant team about what is best for your health.



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