



**FRESENIUS
MEDICAL CARE**



Treatment options

Renal Replacement Therapy (RRT)

NephroCare



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Treatment options for Renal Replacement Therapy

At a glance

- Your kidneys do more than you might think. They filter excess water and waste products from the body, which are removed via urine. They also regulate electrolytes such as potassium and sodium (salt) concentration in your body and produce hormones that help to control blood pressure, produce red blood cells, and keep your bones strong.
- If your kidneys stop working well enough to keep you healthy, Renal Replacement Therapy will become necessary. The 3 types of Renal Replacement Therapy are Peritoneal Dialysis, Haemodialysis and Kidney Transplantation.
- Dialysis is a procedure to replace some of the kidneys' functions. Dialysis is often accompanied by medication therapy and new recommendations for your diet and lifestyle.
- PD treatment is usually done at home, HD treatment can be done in a Dialysis Unit Setting, a self-care setting or at home.
- Kidney transplantation is the implantation of a healthy kidney from another person (donor) into a patient with kidney disease (recipient). In order for transplantation to be successful continuous medication is required.
- The best treatment is the one that fits your medical condition, your lifestyle and your personal likes and dislikes.

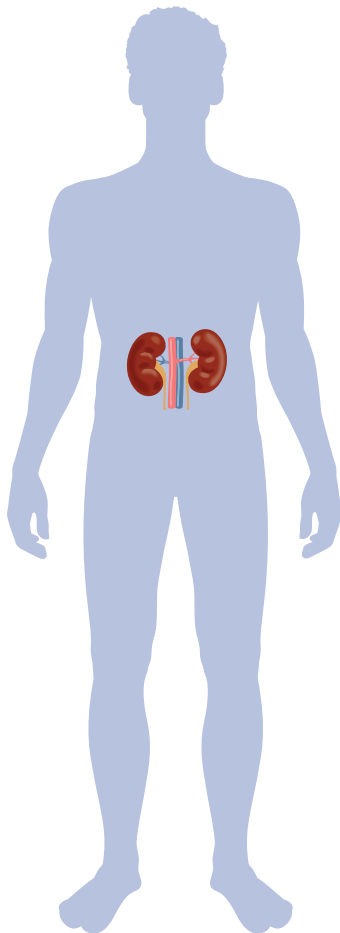
You have received this brochure because you have been told that the function of your kidneys needs to be replaced in the near future. There are different options to replace renal function through what are called Renal Replacement Therapies (RRTs). RRTs are not only life-saving, but also life-changing.

Therefore, we would like to introduce you to the different RRT options so that you and your family, together with your healthcare team, can choose the therapy that is most suitable for you.

Please note that this brochure does not replace or supersede any medical advice by your doctor. Always seek advice for your individual therapy situation from your doctor.

What do kidneys do?

Humans normally have two bean-shaped kidneys the size of your fist which are located in the upper abdominal area, below the rib cage on each side of the spine.



They have several important functions, such as:

- Removing waste products
- Balancing the body's water and mineral levels
- Helping to control blood pressure
- Helping to produce red blood cells
- Keeping your bones healthy

Chronic Kidney Disease (CKD)

CKD is a condition in which kidneys at least partially lose their ability to remove waste products and excess water from the body. The disease is considered chronic if the conditions are present for more than three months. Kidneys typically do not stop working from one day to the next; their function is slowly lost over the course of months or years.

Symptoms of CKD are typically rather subtle until the late stages of the disease. This is the reason why it often goes undiscovered for a long time. The amount of urine produced usually remains normal or close to normal, which gives the false impression that everything is all right.

As your kidney function decreases, you may experience one or more of the following symptoms:

- Decreased amount of urine
- Swelling in your hands, face and/or legs
- Shortness of breath
- Sleeping problems
- Loss of appetite, nausea/vomiting
- High blood pressure
- Feeling cold and tired

When your kidneys stop working

If your kidneys stop working, excess water and waste products build up in your body, which creates a life-threatening situation. Also, the production of kidney hormones can be impacted and can result in anaemia (a shortage of red blood cells), bone disease and high blood pressure. At this stage, doctors often refer to it as End Stage Renal Disease (ESRD). Generally, there are two types: acute and chronic.

Acute kidney injury means a sudden, severe loss of kidney function, which can happen if the blood flow in your kidneys is impaired, for example. Acute kidney injury can be fatal and requires intensive medical attention. However, in many cases, acute kidney failure may be reversible.

Chronic kidney disease means that the loss of kidney function is irreversible and permanent. You may start to generally feel unwell due to the accumulation of water and waste products and the decreased production of certain hormones. The treatment of CKD typically relies on controlling the underlying cause to slow down the progression of the disease. If the disease reaches a point where the kidneys become unable to continue their life-maintaining functions, the function of the kidneys needs to be replaced in order to sustain life.

There are many different causes of kidney disease, the three most common causes being diabetes mellitus, high blood pressure and glomerulonephritis. Some of the causes can be positively influenced by medication therapy, a suitable diet and a healthy lifestyle. You can find additional information on the main causes in the Glossary at the end.

Different treatment options

Your doctor has discussed with you that your kidney function is severely impaired and that you will likely need to select an RRT option that is most suitable for you in the near future – to sustain both life and your quality of life. As many patients have more than one choice, it is important that you take the opportunity to learn more about them to make the right choice for you personally.

The main treatment options are

- Dialysis treatment
- In-Centre, HomeHD and PD

You can also choose not to have any kind of RRT (“conservative treatment”); however, patients deciding against any form of RRT usually have a shorter lifespan than those on RRT, as the function of the kidneys is not replaced.

The rate of transplants is impacted by the availability of available donors and not all patients are medically suited for transplantation. The most common form of RRT is dialysis.

The different therapy options are shown in the overview in Figure 1 (see pages 8–9) and are explained in more detail in this brochure.

Each therapy option has its own benefits and downsides. Together with your healthcare team and your family or your caregiver, you can decide which RRT option is the right treatment for you, in terms of medical outcome and your personal quality of life. Your doctor will explain all available options, as they depend on factors such as your overall health, your individual medical history and your situation at home.



Therapy options for patients with End Stage Renal Disease

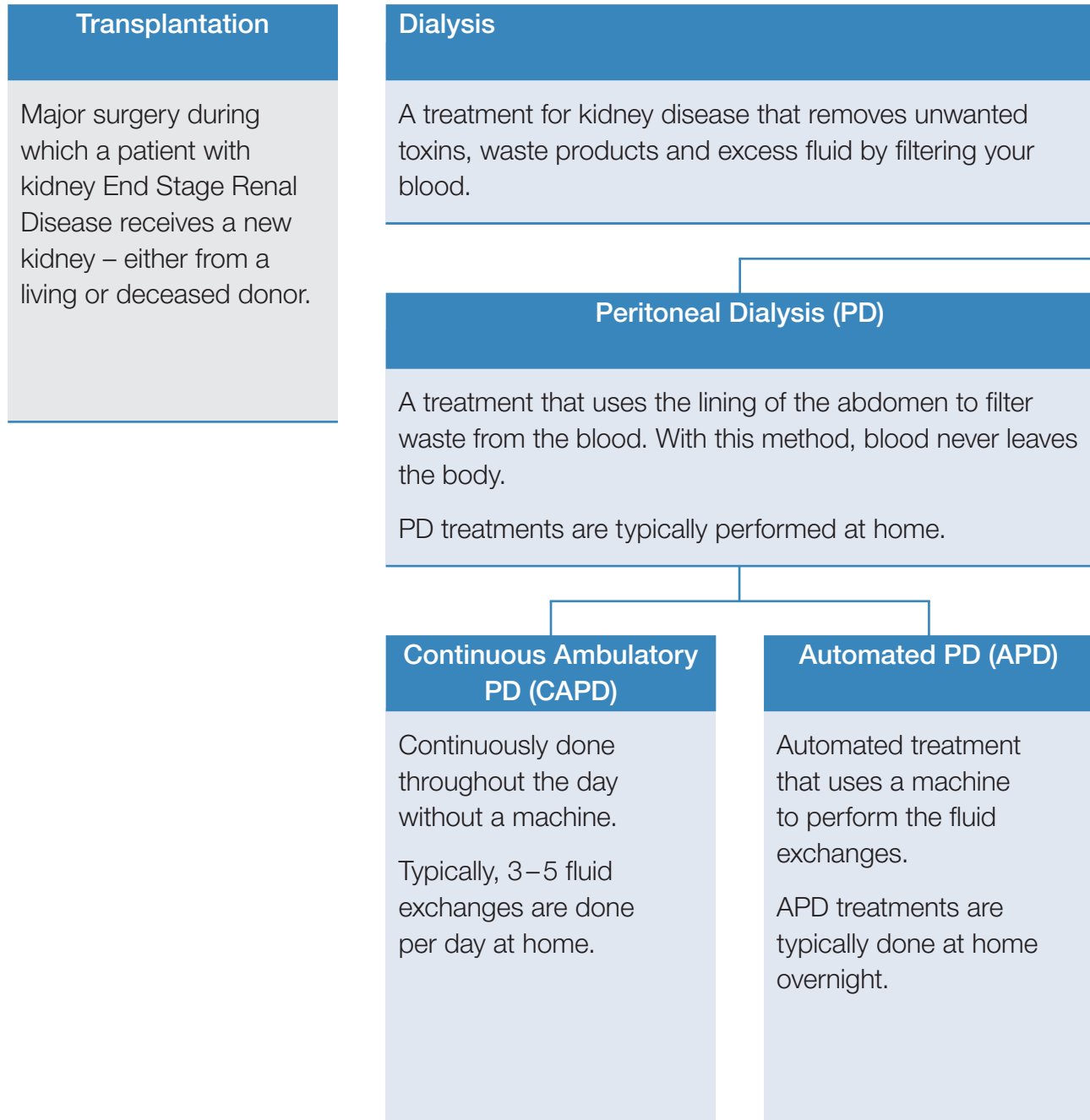


Figure 1: Overview of different therapy options.

Dialysis

The treatment is regularly performed 3–7 days each week depending on your medical condition and therapy.

Haemodialysis (HD)

A treatment where the patient's blood is filtered outside the body through a dialyser or "artificial kidney".

The cleaned blood is then returned to the bloodstream.

In-centre HD

Treatment takes place in a dialysis centre.

The clinical staff will prepare, perform and monitor the treatment.

Shared or Self Care

Treatment is performed in a self-care facility or dialysis centre either partly or fully by the patient.

Trained Nursing staff are available to support in the facility, if necessary.

Home HD (HHD)

Treatment is performed in the comfort of the patient's own home, with the help of a care partner, if necessary.

Conservative treatment

Focus on sustaining the quality of life, not extending life.

Therapy is based on relief from discomfort and the pain of kidney failure symptoms, such as swelling and shortness of breath.

Dialysis treatment

Dialysis is a procedure to replace some of the kidneys' life-essential functions. For example, to a large extent, the removal of excess body water and waste products can be replaced by dialysis. As the kidneys also fulfil other functions, in order to replace them, dialysis treatment is usually supplemented with medication and dietary recommendations.

How long can you survive on dialysis? Patients can live on dialysis treatment for decades; however, each patient is different. Life expectancy depends on various factors, such as other medical conditions and how well you follow your treatment plan. Please ask your doctor and your healthcare team any questions you may have and how you can support your treatment plan.

There are two modes of dialysis that will be explained in the following pages in this brochure:

- Peritoneal Dialysis (PD)
- Haemodialysis (HD)

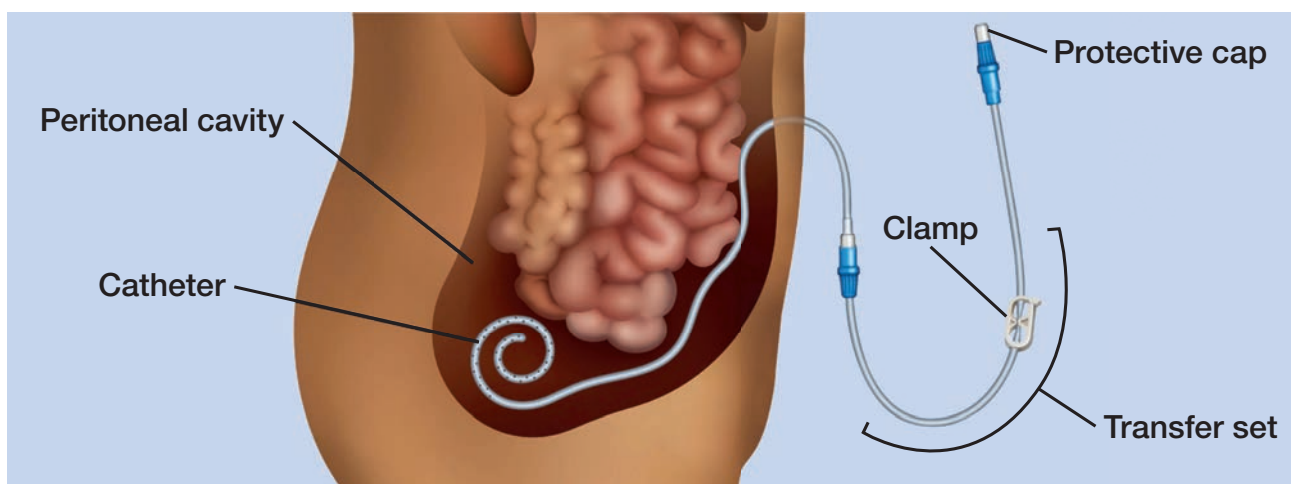
Dialysis treatments can be performed in different locations, such as in a clinic or hospital, in self-care settings or at home.

Peritoneal Dialysis (PD) treatment

In PD, your body's natural filter, the blood vessels in the lining of your abdomen, are used to replace kidney function.

The peritoneal cavity is a space in everybody's abdomen. A thin lining called the peritoneal membrane covers this space. The peritoneum secretes and absorbs peritoneal fluid. In PD, this ability is used to clean blood and remove excess body fluids.

The peritoneal cavity is filled with PD solution through a small plastic tube called a catheter. The catheter is a soft, flexible tube about the size of a straw. It is placed in the lower abdomen during a minor surgical



procedure and is usually ready to use two weeks after surgery. The catheter stays in place permanently when you undergo PD treatment and can stay in your abdomen for several years. Baths and hot tubs are not recommended, in order to prevent complications and/or infections of the catheter. Once the area around the catheter on the abdomen is well healed, taking showers is generally okay.

There are two types of PD: Continuous Ambulatory Peritoneal Dialysis (CAPD) and Automated Peritoneal Dialysis (APD). Both types of PD have slightly different advantages, so it really comes down to your

personal preference and schedule, along with your doctor's recommendation.

During a PD treatment, dialysis fluid is filled into your abdomen and after some time, usually several hours, is then exchanged.

Both treatment options, APD and CAPD, are normally done at home after you have been trained. The training is done over the course of a few weeks by your care team. The choice between them depends on personal likes/dislikes, lifestyle choices and medical conditions. Please ask your healthcare team if you have further questions.

Tomasz has been a PD patient for several years. He takes the advantage of home dialysis to find the most convenient time and place to conduct the daily exchanges: "It is the therapy that suits my schedule and not the other way around." That is why Tomasz is committed to staying on PD as long as possible.

Tomasz says that allowing the therapy to become a part of his active life has been worth the effort. "With PD, you can stay flexible and, best of all, you are mobile. If you consider three or four exchanges, it takes up one hour, maximum, of your day. This is something you definitely can do! It gives you freedom, the possibility to travel and to continue with sports."

With his positive attitude, he is confident he will be able to manage this and many, many more things besides: "If you want to achieve something, you need to accept dialysis as a part of your life and integrate it. You can do it."

If you want to read the entire interview and find more articles on patient stories, please visit our Fresenius Medical Care (www.freseniusmedicalcare.com/en/media/stories) or NephroCare (www.nephrocare.com/patients-home/enjoying-life/patient-voices) websites on the internet.



Continuous Ambulatory Peritoneal Dialysis (CAPD)

In CAPD, the treatments are performed continuously without a machine. Typically, three to five exchanges are done per day in a clean environment – at home, at work or while travelling. You are not connected to a machine of any kind, so that means that you are able to move around during the treatment.

What is involved in a CAPD exchange?

- You start by connecting the set of CAPD bags to your catheter. The set of CAPD bags typically consists of two bags, one empty bag and one bag filled with 2–2.5 litres of dialysis fluid, or “dialysate”. You drain the used PD fluid via your catheter, which takes about 20 minutes.
- After draining the used fluid, the tubing is flushed with a small amount of fresh dialysate.



- Now you can fill the fresh dialysate in your abdomen. By raising the plastic bag to shoulder level, gravity pulls the fluid into your abdomen. This process is called “filling” and takes about 10 minutes. After this, you can disconnect the set and cap your catheter.
- This whole process, which is comprised of three steps – draining, flushing, and filling – is called an “exchange”.
- The actual time for one exchange takes about 30 minutes. It’s completed during your regular daily activities. Some people like to do their exchanges around mealtimes and at bedtime.
- The fluid stays inside your abdomen for several hours. This is called “dwelling”. During this dwell time, which is the time between two exchanges, the waste products and extra fluid move out of your blood through the peritoneum membrane into the dialysate.



**3 to 5 times
each day**

Automated Peritoneal Dialysis (APD)

APD is an automated process that uses a machine called a cycler to perform the exchanges that are described above in the CAPD section. With APD, you can choose between a variety of different times and places for dialysis sessions. APD can be done as a longer, single session while you sleep, as multiple shorter sessions during the day or night or as a combination of these options. Typically, the time for treatment adds up from eight to twelve hours per day. You will be trained to operate the machine. Everyone's treatment is different, so talk to your doctor about what will work best for you.

While performing PD at home, you are responsible for complying with the treatment prescription and diet recommendation. Being responsible does not mean that you are alone; you can contact your care team if you have questions or need help.



What are the benefits of PD?

PD may be right for you if you work, go to school, travel or value your flexibility during the day.

- You can do PD at home without assistance, while still having regular monitoring and support via the phone 24hrs per day 7 days per week.
- You have the flexibility of making your own schedule. You can do PD almost anywhere – at work, at home and while traveling. All you need is a space that is well-lit, clean and indoors.
- PD may help preserve residual kidney function.
- There are no needles used. PD treatments are generally painless.
- By not having to travel to a dialysis centre, you have more time for yourself and no weekly travel worries.
- You have more freedom to work and be social.

What you need to succeed at PD

- You'll receive detailed training at home or in your local centre to ensure you feel comfortable doing PD on your own. You'll also learn proper catheter care.
- Know that it may take some time to get used to the feeling of fluid in your belly.
- Following certain precautions will help you avoid the risk of an infection called peritonitis. Your nurse will give you instructions on how to avoid infection.
- You will need ample storage space for your supplies.
- If you have diabetes, know that your doctor may need to adjust your dose of insulin. That's because the sugar in the dialysis fluid may make your blood sugar levels higher.
- You will need to do your treatments every day, seven days a week, unless advised otherwise by your doctor
- You will be reviewed on a regular basis by your care team.

Haemodialysis (HD) treatment

During a HD treatment, your blood is filtered outside of your body through a dialyser, often called a filter or artificial kidney, to remove unwanted waste, toxins and excess fluids. HD uses a solution called dialysate to remove unwanted substances from your blood. Clean, chemically-balanced blood is then returned to your body.

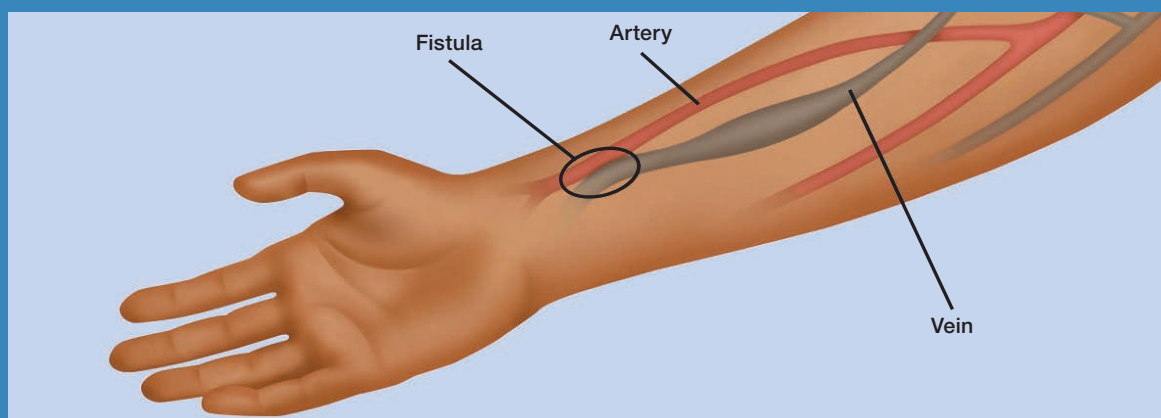
A typical HD treatment takes 4 hours and is repeated three times a week. However, the time, length and frequency of HD treatment depend on medical issues, your lifestyle and the dialysis unit.

Only a small portion of your blood, approximately one cup (200-250millilitres) is outside the body at any time during the treatment, compared to four to five litres of blood that an average adult typically has in

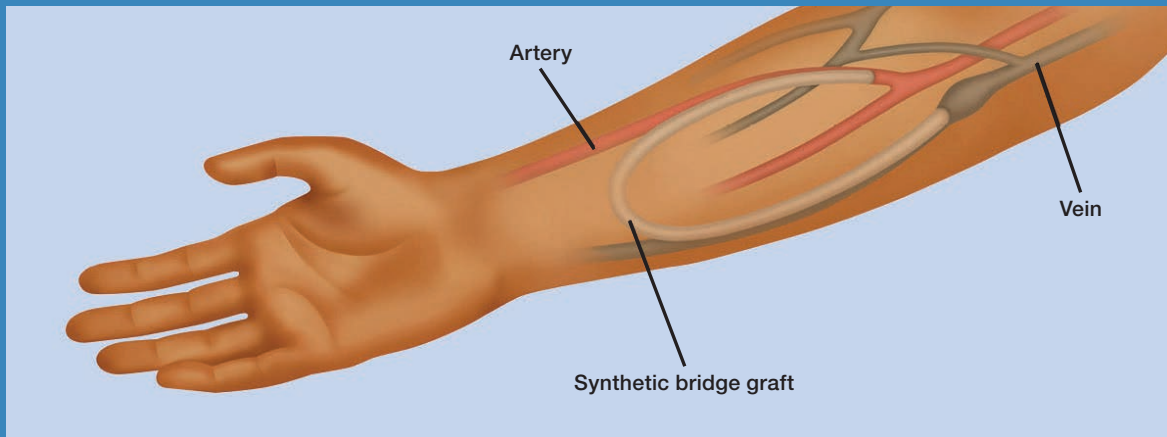
its body. Most patients can tolerate this amount well.

For the HD treatment, access to the blood stream is required. A surgeon will create this access, usually in the arm or sometimes in the leg. The preferred way to do this is by joining your vein and artery in a small surgical procedure; this is known as a 'fistula'. Other types of access are a 'graft' or a catheter.

- **Fistula:** A connection is made between an artery and a vein during a minor surgical procedure. It is helpful to create the fistula well before your first dialysis treatment, so that the fistula can heal after the surgery. The fistula is considered the preferred choice for access.

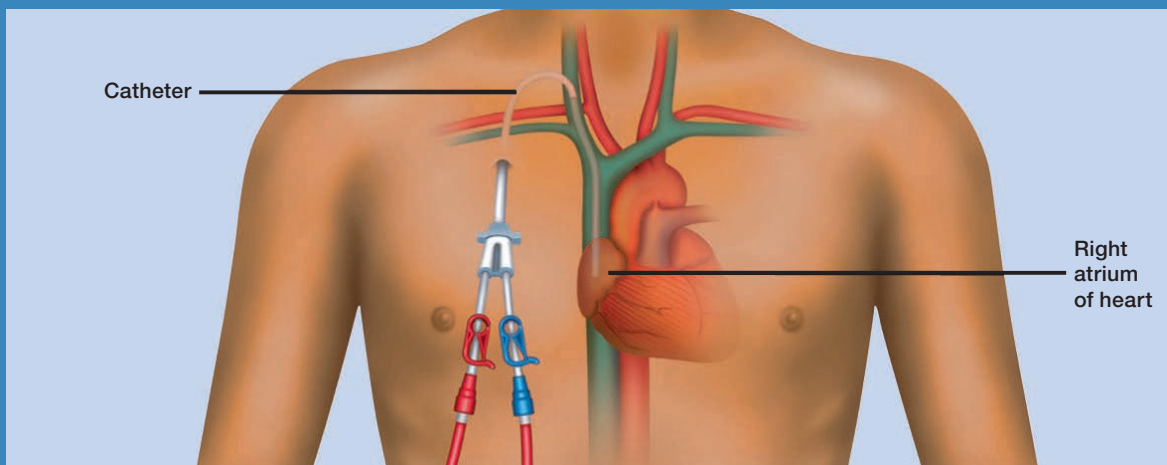


- **Graft:** An artificial vessel (tube) is placed under the skin, connecting an artery to a vein during a minor surgical procedure.



For dialysis treatments for patients with a fistula or a graft, a nurse places two needles into the fistula/graft. These needles are connected to tubing that lead to and from the dialysis machine. During dialysis, your blood flows out of your body through one needle that is inserted into your vein (fistula) or the synthetic tube (graft) and into the dialysis machine. After your blood is filtered, it returns to your body through the other needle.

- **Catheter:** A temporary catheter is inserted into a large vein. This is typically used for temporary access, but special, tunneled catheters might be used long-term if a fistula or graft cannot be placed. A long double tube (catheter) is placed in your neck, chest or groin and leads into a central vein. The other end of the tubing exits your skin and is attached to the tubing on the dialysis machine.



HD treatments can be performed in a variety of settings: in a clinic or hospital, typically referred to as in-centre dialysis, in a self-care facility where the patient performs the treatment themselves in a medical facility or at home (Home Haemodialysis, or HHD).

Typically, patients start their HD treatment in a centre. Depending on what is best for you and what you and your doctor decide, you might choose to change the dialysis setting to self-care or home care or change back to in-centre.

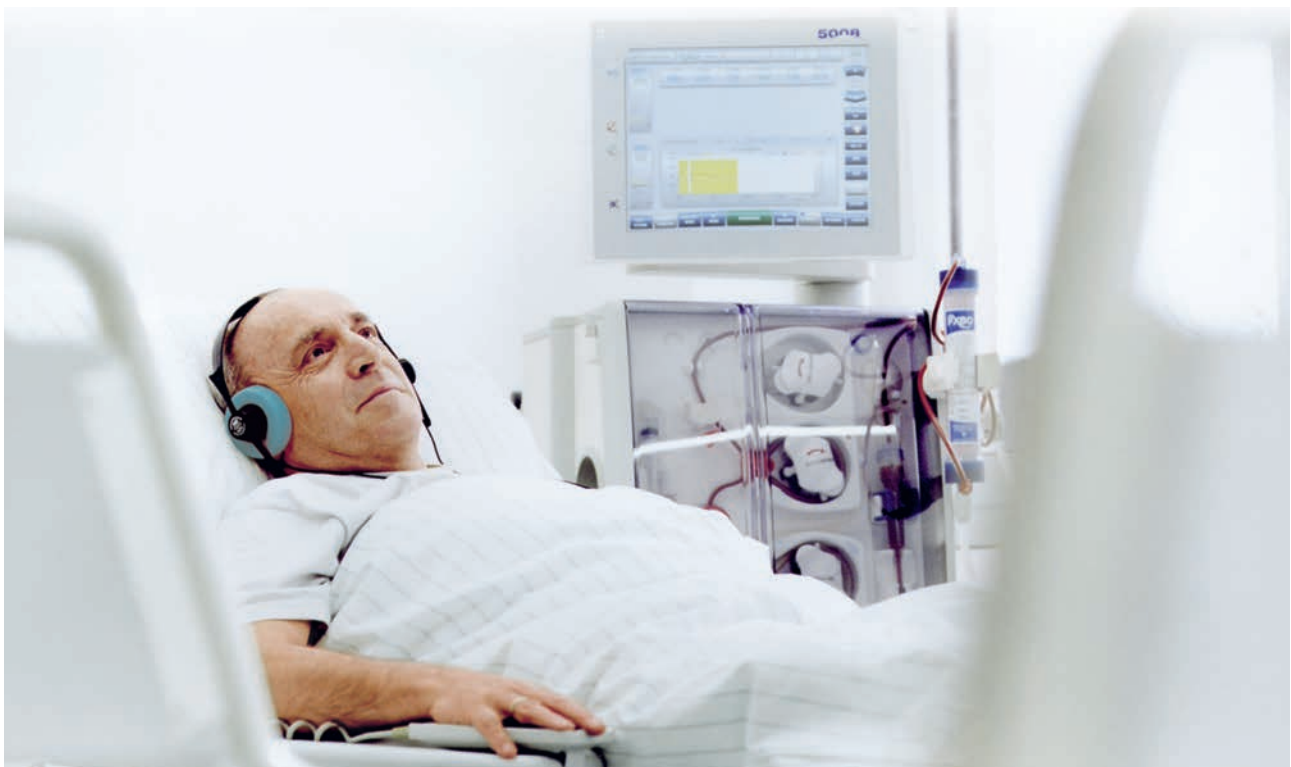
Because it is critical to your long-term health to attend every treatment session, choosing a treatment schedule that works best for the way you live can help you keep your appointments and stay on your treatment plan. The return for your time investment? A fuller, more active and healthier life.

In-centre dialysis

If you choose in-centre dialysis, you will typically need to commit to three appointments every week. The Nursing Staff will prepare, perform and monitor the treatment for you, or you can participate in Shared Care which involves....

Shared Care

If you choose In-Centre dialysis, you will also have the option to learn parts of your treatment and perform these yourself. Nursing staff are available to train you on various tasks and will support you where necessary. Shared Care isn't mandatory, it's your choice as to how much of your treatment you'd like to perform independently.



What are the benefits of HD performed in-centre or at a self-care facility?

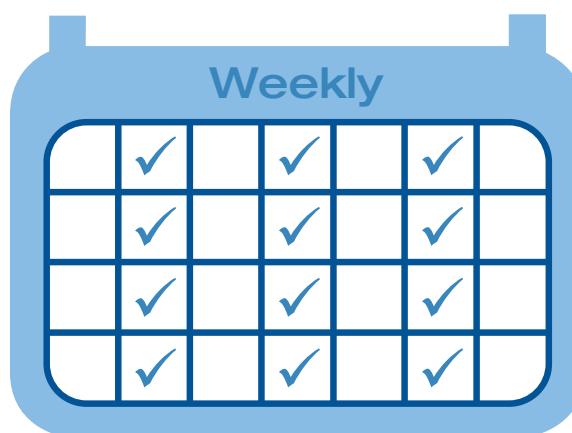
- Treatments in-centre are performed by trained nurses. If you are sharing in your care or are self-caring, you will perform the treatment with the necessary level of support and supervision.
- All your treatments and tests and sometimes your checkups are done in one place. There's no need to store dialysis equipment or supplies at home.
- You can use your dialysis time to read, rest, work on your computer, watch TV, listen to music or do something else that you enjoy such as drawing or specially designed exercise.
- You may also enjoy chatting with others just like you – knowing you're not alone on this journey can be a comforting thing.

What you need to succeed at HD in-centre or a self-care facility

- Fully commit to your treatment time: usually three times a week, four to five hours a day, plus travel time.
- Stay for the full session. Stopping even five minutes early makes dialysis less effective and has a negative impact on your health.
- You may feel very tired and unsteady on your feet during the first several months of treatment and you will need to arrange for someone to drive you to and from each treatment session. You can speak to your Healthcare team about help available to get you to and from the hospital or clinic, or you may wish, to ask a trusted family member or friend to help. If you feel well enough, you may wish to drive yourself or take public transportation on your own.



During the day



3 times a week

Shared Care

Shared haemodialysis care gives you the opportunity to participate in any aspect of your dialysis treatment, with guidance and support from nursing staff. It allows you to choose which aspects of your care you would like to undertake, from small tasks such as taking your own blood pressure and weight, to any (or all) of the other dialysis tasks. The emphasis is on taking part and feeling involved at a level that suits you as an individual.

You can learn to do as little or as many of the tasks as you wish and in any order. As you learn and become more confident, you and your nursing team decide when it is time for you to safely carry out the tasks unsupervised.

As well as receiving formal training from the nursing team, you can also learn from watching others, asking questions and getting staff to explain what they're doing as they work. In this way, you can gain knowledge a little at a time.

A few of the tasks you could learn to perform independently are listed below;



Recording your weight



Recording your blood pressure



Preparing your pack



Lining your machine



Prime your machine



Programme your machine



Prepare your fistula



Discontinue your dialysis



Caring for yourself during dialysis

Your nursing team would teach you to do the tasks you choose and check that you were competent and confident before you did anything on your own. Even then they would always be around for support and guidance, or to carry out the task if you didn't want to or were unable to complete it.

Shared Care is not compulsory, and you can opt in and out whenever you see fit, there would never be any pressure put on you to complete all tasks or in a certain amount of time. Patient choice is central to Shared Care, you are completely in control.

Patients who Share in their care comment that they feel a sense of achievement and community whilst in a Shared Care setting. It is a chance to form friendships with others who are on this journey, and in time you could help others to become involved in their treatments.

Some people participating in Shared Care become completely independent and choose to do their dialysis at Home. This is not the aim of Shared Care however.

What are the benefits of participating in Shared Care?

- It will help you to have a better understanding of dialysis and to feel more confident and in control of your condition.
- You will feel more independent as you slowly become an expert in your own care.
- For certain tasks, you may feel more comfortable if performing these yourself, no one knows your body better than you.
- Shared Care can be a stepping stone to Home Haemodialysis if this is something you wish to do but perhaps lack confidence to begin with. Home Dialysis allows you to fit your treatment around your work and social life.

What you need to succeed with Shared Care?

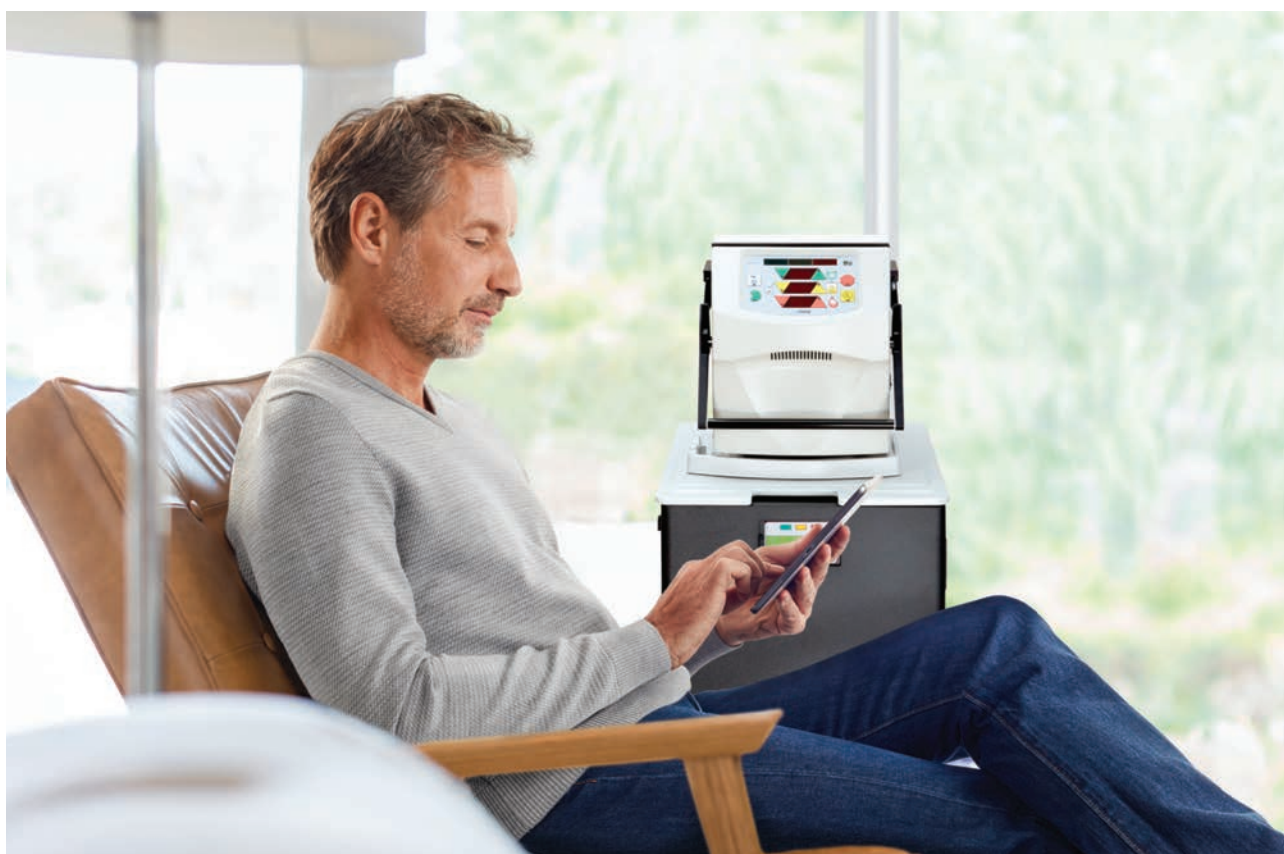
- A willingness to learn
- Patience with yourself; everyone is different and will pick up tasks at a different pace. Don't feel frustrated if others are learning quicker than you, as long as you are going comfortably at your own pace.



Home Haemodialysis (HHD)

If you choose HHD, you need to prepare, perform and monitor the treatment yourself at home. The basic process is exactly the same as in-centre haemodialysis, only it's done in the comfort of your own home, with a dialysis machine and disposals. Depending on the treatment system you use for HHD, modifications may need to be made to your home. Support is available over the phone if required.

Home Haemodialysis (HHD) is a good choice for patients who would like to continue working, prefer an independent and flexible lifestyle and would like to perform the treatments in a trusted and familiar environment outside of the clinic. Home patients play an active role in their dialysis treatment.



What are the benefits of HHD?

- You may have more energy and less nausea and cramping, as you can stay on your machine longer or more frequently, which can help you feel better – if prescribed by your doctor.
- You have more flexibility for work or school or other social activities, as you can choose your treatment times, along with your doctor or nurse's advice.
- You have more freedom with your diet if your doctor prescribes more frequent dialysis treatments.
- You have the comfort of being home during treatment, while having access to support over the phone.
- You don't need to leave home for treatment, which saves on travel time and transportation costs, plus alleviates weather-related travel worries.
- You may be able to do HHD on your own, without assistance.
- You or your care partner will put in your own needles, which some people prefer.

What you need to succeed at HHD

- Anywhere from four to eight weeks of training together with your care partner (a family member or friend), if you need one. A longer training period might be necessary.
- If you have a care partner, he or she needs to be dependable. Your care partner needs to commit to either participating in your HHD treatments or staying with you to monitor them.
- You or your care partner must be willing to set up treatments and clean up afterwards.
- Your water and electrical systems need to be checked in case they need to be upgraded or modified.
- You will also need space that's set aside in your home to store supplies and equipment.

Kidney transplantation

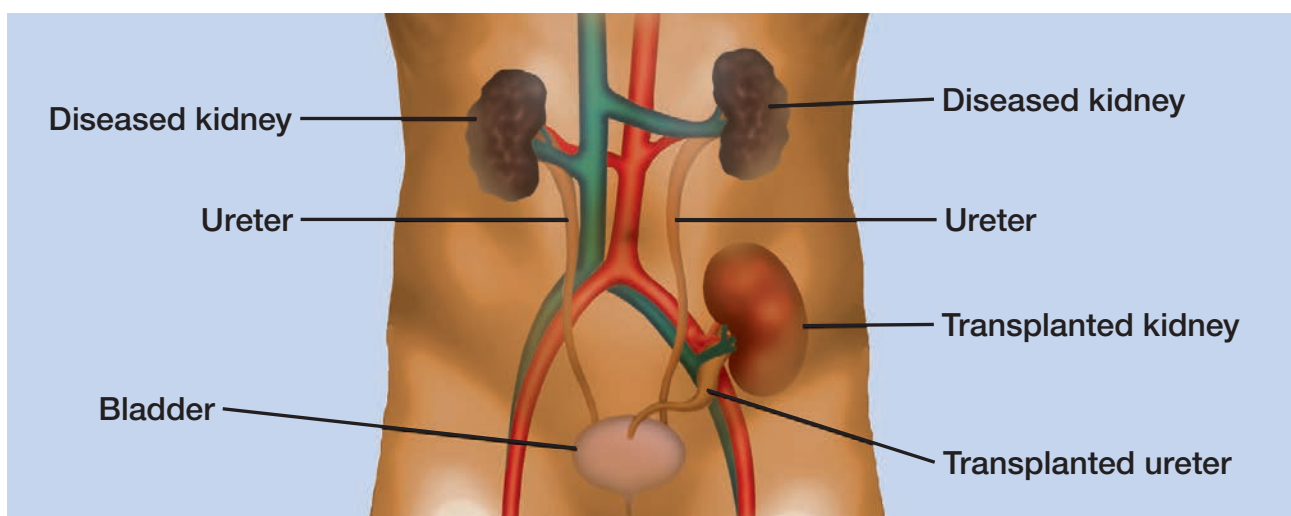
Kidney transplantation is a major surgery during which a healthy kidney from another person (donor) is implanted into a patient with ESRD (recipient). A successful kidney transplant is close to natural kidney function and is considered the most effective treatment for ESRD. The suitability for a kidney transplant is dependent on certain medical conditions, match of tissue type and blood type and the availability of donor kidneys. The waiting time for a kidney transplant is typically several years. Your options will be discussed with you by your doctor or in the transplantation centre.

Humans only need one working kidney to be healthy, so only one kidney is transplanted during the surgery. Your two original kidneys will usually remain in place and the new donor kidney will be placed in another part of your abdomen. The ureter (urine tube) attached to the donor kidney will be

attached to your bladder. If the surgery is successful, your new kidney will take over the tasks of filtering your blood and making urine, just like your own kidneys did before you had kidney disease.

A successful transplantation may last for many years. If the transplant fails, dialysis is still an option. That is the reason why many ESRD patients have experienced different treatment options during their life, e.g. started with PD while on a transplantation list, received a transplanted kidney, transferred to HD after the transplant failed, etc.

A successful transplantation may help you to return to a state of good health without dialysis. To maintain the function of the transplanted kidney, it is important that you commit to taking anti-rejection medication daily and to having regular follow-up visits with your doctor.



What are the benefits of a successful kidney transplantation?

- No need for dialysis treatments which also saves you a significant amount of time
- Feeling more energetic
- Achieving better overall health
- Having fewer restrictions on your diet which can make your daily life a bit more carefree in terms of meal planning and food preparation

Potential risks and side effects

As with any surgery, there may be issues and complications. To understand your individual risk, please seek advice from your doctor. Potential risks after kidney transplantation surgery include:

- Temporary lack of kidney function – Your new kidney may not start working immediately and you may need dialysis until it resumes normal kidney function.

- Organ rejection – Your body may reject the donor organ and you may need medication to help your body accept the new kidney.
- Kidney failure – Your new kidney may fail after a number of years and you may need to have a second transplant or go back on dialysis.
- Cancer – Immunosuppressant medication taken after the transplantation may leave you more vulnerable to disease.
- Diabetes – Medications taken after a transplant can cause diabetes.
- Heart attack or stroke – A transplantation puts you at a higher risk than a healthy person who hasn't had a transplant, especially if you have high blood pressure, high cholesterol or diabetes.

To give you an overview of the benefits and downsides of the different therapy options described in this brochure, a summary is provided in Figure 2 on the following page.

Therapy options for patients with End Stage Renal Disease (ESRD)

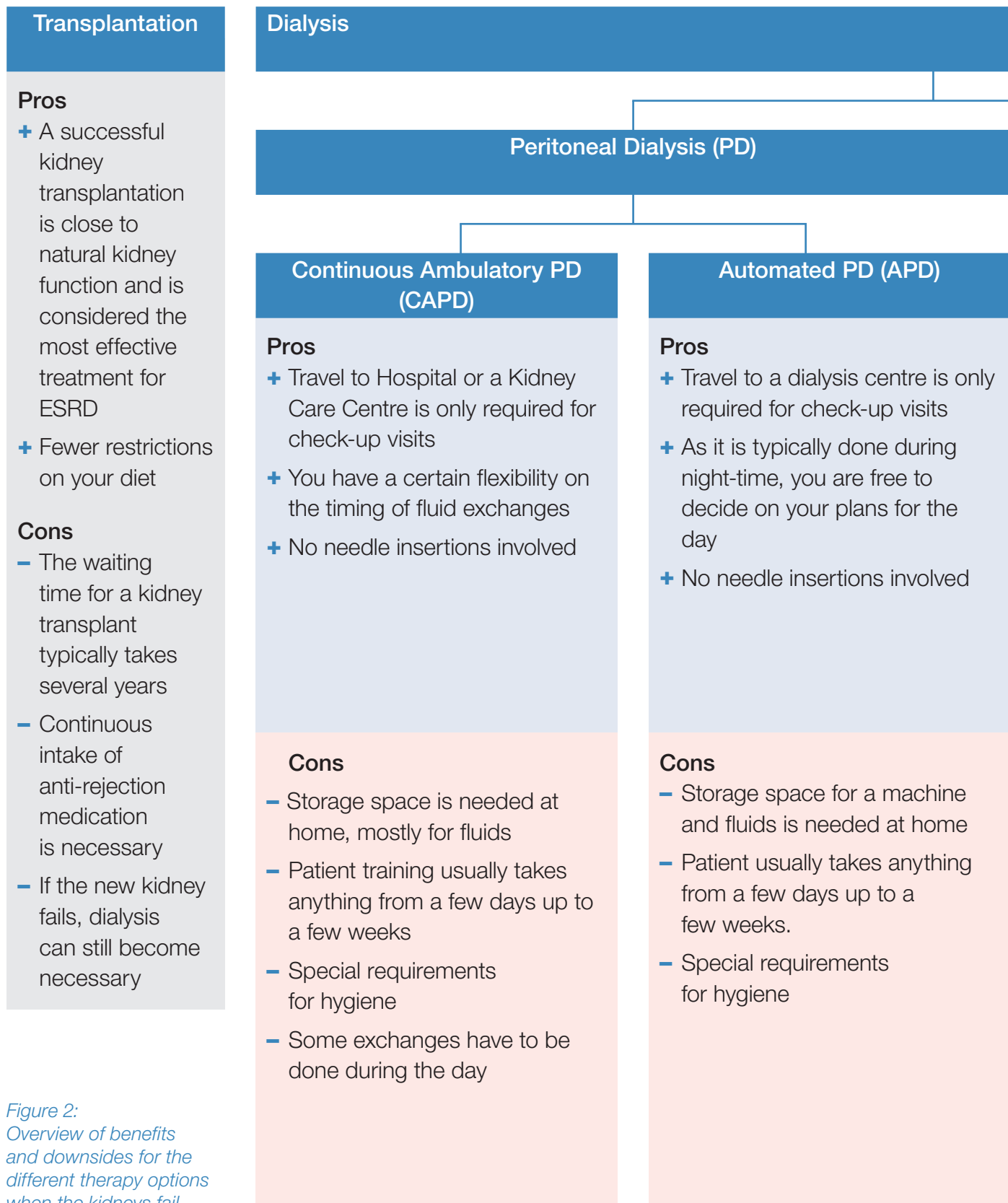


Figure 2:
Overview of benefits and downsides for the different therapy options when the kidneys fail.

Dialysis

Haemodialysis (HD)

In-centre HD

- Pros**
- + The treatment will be done for you by an experienced care team
 - + Continuous surveillance during the treatment
 - + No storage at home required
- Cons**
- Significant amount of time spent at the centre and travelling to the centre
 - Limited flexibility and freedom during the treatment
 - Needle insertions are typically necessary for blood access

Shared or Self Care

- Pros**
- + You may have more flexibility with scheduling if you are able to perform all or part of your care
 - + In case you need assistance, Nursing Staff are available
 - + No storage at home required
- Cons**
- Significant amount of time spent at the centre and travelling to the centre
 - Needle insertions are typically necessary for blood access

Home HD (HHD)

- Pros**
- + More flexible and convenient treatment possible in a familiar environment
 - + Better control of your plans for the day since you can decide when to dialyse
 - + Travel to a Hospital or Dialysis Centre is only required for check-up visits
- Cons**
- Storage at home required for machine and equipment
 - Infrastructural adaptations in your home might be required (water systems and electricity access); energy and water consumption will increase
 - Needle insertions are typically necessary for blood access

Conservative treatment

- Kidney function is not replaced and your kidneys will eventually stop working, leading to natural death
- Focus lies on maintaining quality of life (not extending life) and treating symptoms
- The decision to choose conservative treatment should be made with careful consideration and involve your Renal Team and loved ones

Living and thriving with dialysis

Finding out that you will need a form of RRT often comes as a shock and can be hard to cope with. You might feel scared, at unease or fearful when thinking about dialysis or a kidney transplantation. New routines, time-consuming treatments, many medical tests and strange-looking machines can add to this feeling.

You may find it helpful to learn as much as possible about dialysis and its effects on your body and your life, which will eventually help you to cope with your treatment.

You might only know a little about dialysis unless you know someone on dialysis, such as a friend or a family member.

You can also ask your care team or patient organisations whether they can connect you to someone living with dialysis. Although dialysis will be needed to sustain life, it is still possible to live well on dialysis if you understand your condition and the treatment.

It is normal that you might experience feelings of self-consciousness due to body changes that go along with kidney disease. Frequently-asked questions from patients starting on dialysis are:

- **Will my weight change?** Your weight may vary due to changes in your body. With the help of your dietitian, you can work on a suitable diet, control your liquid intake and achieve a healthy weight.



- **Are skin tone changes or itchy skin side effects I need to worry about?**

As your kidneys are no longer able to remove waste products in your blood, you may see changes in your skin. If you experience itchy skin, you should speak to your nurse and/or doctor to explore solutions to ease the itching.

- **What can I do against the smell of my breath?** With declining kidney function, patient breath sometimes smells. Regularly brushing your teeth and using chewing gum and mouthwash can reduce the smell of your breath.

- **Can I still have sex?** Yes! However it's important to be aware that at a certain point, some people experience changes in their desire for sexual activity due to changes in physical and emotional health. Sexual difficulties can often occur amongst kidney patients, both men and women. Impotence, the inability of the male to have or maintain an erection, may occur. In women, the menstruation cycle may become irregular. There is no known single cause for these changes, but there are several physical and psychological factors that are thought to contribute to them. Stress and anxiety due to kidney disease and treatment may affect your sexual desire and ability to enjoy sex. Other factors that may influence your interests in sex include medication, diet, anaemia, inadequate dialysis (insufficient removal of waste products and excess water) and changes in hormonal balance. If you have sexual problems or concerns,

your healthcare professional is available to discuss them. Counselling may be helpful for both partners. Because some sexual problems may stem from physical problems that can be treated, you may also want to talk to your doctor.

- **Will others see my vascular access/ catheter?** Undergoing dialysis treatment means you have to get a vascular access or a catheter during a minor surgical procedure. If you have decided on HD treatment, the arteriovenous fistula appears as a visible, thicker-than-usual vein. Don't be afraid that others will give you any strange looks due to the fistula on your arm; it is your lifeline needed for you to go on with your life. All forms of access (fistula, graft or catheters) still allow you to go out and enjoy some sun, wear short-sleeve shirts or engage in sexual activity. By focusing on the positive sides of your dialysis treatment, such as helping you to prolong your life and improving your quality of life, you can overcome and handle self-conscious thoughts you might initially have.

- **Can I still travel being on dialysis?** Being on dialysis does not mean you cannot get out and see the world. In fact, travelling can be healthy for the mind, body and soul. All it takes is the right information and some careful planning.

Take care of yourself by staying as active as possible and do not isolate yourself from family and friends. These are people who can care for you and can provide support and understanding.

Remember, dialysis is part of your life, but it should not control your whole life. Although there will be changes following kidney disease and treatment, life will go on!

Many people, just like you, have learned how to live their lives around dialysis treatments. There are many resources, both professional and patient-sponsored, that can give you information and assistance with most of the issues that concern you and your family:

- Work/school
- Dining out
- Travel
- Exercise/activity
- Sexuality
- Social services
- Support systems

Nutrition and dialysis

Eating is an important part of our lives. It not only serves to provide our bodies with necessary nutrients, but is also often associated with our social lives. Compliance with dietary recommendations is an important part of your therapy. For patients with ESRD, dietary needs change and they differ from when there was still some kidney function left. There are recommendations for the type and amount of different nutrients an ESRD patient should eat. A good state of nutrition contributes to a person's well-being. Malnourishment or malnutrition increases the risk of illness.



Travel tips

- Always keep medication and medical records with you in your hand luggage.
- Start early – the more time you allow for planning your journey, the smoother and easier things are likely to be.
- Ensure all of your travel insurance is in order before you leave on your trip.

Remember that you are not alone. If you need assistance at any time, please contact your healthcare team for help and advice.

A special focus on the dietary recommendations will be on the intake of

- Daily fluids
- Salt
- Potassium
- Protein and phosphate

A renal dietitian will help to develop an appropriate diet for you. You and your renal dietitian will choose food you like to eat and ensure that it contains the important nutrients your body needs. Following a suitable diet will help you to minimise potential complications related to inadequate food intake.



Your healthcare team is there for you

No matter which form of therapy you choose, you will have a dedicated team of healthcare professionals to support you. You will see these people on a regular basis. You should not hesitate to talk with them about your treatment or about issues you face while dealing with your kidney disease.

Please ask your healthcare team to provide you with the required information about

- Support systems: local agencies, social services, patient associations
- Financial issues: reimbursement, financial aid

The choice is yours

We hope this information has been of help to you. The best treatment is the one that fits your medical condition, your lifestyle and your personal likes and dislikes.

You may have more questions about the various treatment options. Ensure that you get all the information you need to make a well-informed decision.

No matter which therapy you choose, you can count on the active and competent support from your medical staff and support team. Do not hesitate to ask your doctor and your nurse for advice.

Glossary

Diabetes mellitus

Diabetes mellitus is a condition where the body does not produce enough insulin or cannot utilise normal amounts of insulin properly. Insulin is the hormone that regulates the amount of sugar in your blood. A high blood sugar level can cause problems in many parts of your body. For instance, it can damage small blood vessels, and, as a result, also the cells in the kidneys, impacting kidney function.

Hypertension

Over time, high blood pressure can damage blood vessels throughout the body. This may reduce the blood supply to major organs such as the kidneys. High blood pressure also damages the tiny filtering units in the kidneys. As a result, the kidneys may stop removing waste products and excess fluid from the blood. The excess fluid in the blood vessels can build up and raise blood pressure even more. But CKD may also result in hypertension, which may worsen the CKD. This vicious circle can result in ESRD if not treated properly.

Glomerulonephritis

Glomerulonephritis is the inflammation of the glomeruli, which are bundles of very small blood vessels and comprise part of the kidneys' filtering units. Over time, the inflammation damages the glomeruli. If the kidneys are damaged, waste products and extra fluid in the body cannot be removed sufficiently. If this process continues, the kidneys may stop working completely. In a small number of cases, the disease is due to a genetic disorder. Some forms are caused by changes in the immune system or by infection. However, in many cases, the cause is unknown.

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Notes

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