

UNDERSTANDING YOUR HEMODIALYSIS OPTIONS



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INTRODUCTION

If you are reading this brochure, it means you need treatment for **kidney failure** now or in the near future. Or you may have started treatment already, but want to learn more about other treatment options. There are two types of treatments for kidney failure – **dialysis** and **kidney transplant**.

Dialysis comes in two forms—**hemodialysis** and **peritoneal dialysis**. Both remove waste products and extra fluid (water) from your blood. A **kidney transplant** is an operation that places a healthy kidney in your body.

This brochure will help you understand hemodialysis. To learn more about kidney transplantation, or peritoneal dialysis, please read the **AAKP Understanding Kidney Transplantation** brochure and **AAKP Understanding Your Peritoneal Dialysis Options** brochure. To download a **FREE** copy or to order a copy online, visit www.aakp.org. You may also call **1-800-749-2257** to request a copy.

WHAT IS KIDNEY DISEASE?

Your **kidneys** keep you healthy. They clean your blood, help make red blood cells, help keep blood pressure under control, keep the right balance of fluid in your body, and much more. If you have kidney failure, it means:

- Your kidneys have become damaged from an injury or disease like **diabetes** or **high blood pressure** (or a **hereditary** condition, such as **Fabry Disease**, **Alport Syndrome**, **Polycystic Kidney Disease**)
- 85-90% of your kidney function is gone forever
- Your kidneys do not work well enough to keep your body functioning properly

Having kidney failure does not mean you are going to die, but you will need treatment with dialysis or a kidney transplant for your lifetime. There is no cure for kidney failure. With treatment, you can live and do all the things you enjoy. You can work, travel, go to school, raise a family, be active, and enjoy your life.

WHAT IS HEMODIALYSIS?

Hemodialysis is one of the treatments for kidney failure. A machine with a special filter is used to clean your blood and replace some of the jobs your kidneys would normally do.

Here is how it works:

At the start of every treatment, two needles are placed in your arm. Depending on what type of hemodialysis treatment you are doing (in-center or home), the individual inserting the needles may be a nurse, dialysis technician, care partner or you (the patient).

Each needle is attached to a soft tube connected to the dialysis machine. If needles bother you, a numbing cream or spray can be used. Some people prefer to put their own needles in (called self-cannulation).

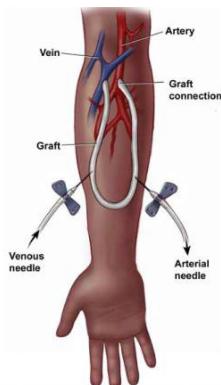
Your blood is pumped through the soft tubes into the dialysis machine. Don't be afraid! Only a small amount of blood is out of your body at any time, and you cannot feel the blood being pumped out. Once inside the machine, your blood goes through a special filter. The filter is called a "dialyzer" or "artificial kidney."

The **dialyzer** allows waste and extra water to pass through, but keeps the important things your body needs, like nutrients. The wastes and extra water go into a cleansing fluid inside the dialysis machine (called "dialysate"), and your cleaned blood flows back to you. This process can take several hours.

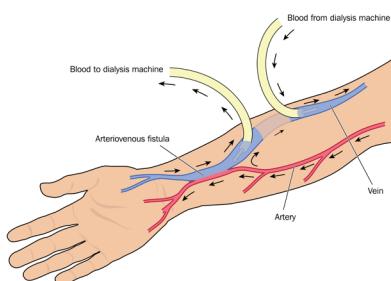
HOW DO I PREPARE FOR HEMODIALYSIS?

Before you can begin hemodialysis, you will need a permanent **access** (an entrance) to your blood vessels. This is where the two needles will be inserted each time you have treatment. An access is created during a minor operation. There are three types of access – a fistula, a graft, or a catheter.

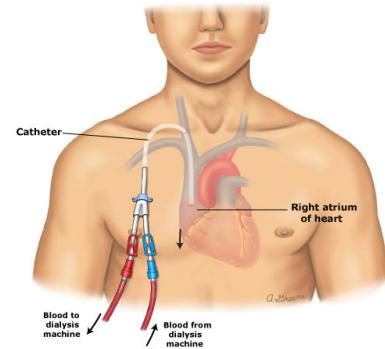
Fistula. A fistula is the recommended choice for an access. It has fewer problems and lasts longer. It is made by joining an artery to a nearby vein under the skin in your arm. (An **artery** is a blood vessel that carries blood away from your heart. A **vein** is a blood vessel that carries blood to your heart.) When an artery and vein are joined, the vein grows wider and thicker, making it easier to place the



GRAFT



AV FISTULA



CATHETER

needles for dialysis. It may sound scary, but it is a simple procedure. A fistula should be made several months before starting dialysis to give it enough time to fully heal and be ready for use.

Graft. If your blood vessels have certain problems, a fistula may not work for you. In that case, a graft may be used. A graft is made by joining an artery and nearby vein with a small, soft, man-made tube. The graft (including the tube) is completely under your skin.

Catheter. A catheter is a thin, flexible tube that is inserted through your skin into a large vein in the neck, chest, or groin. It is a safe procedure. The ends of the tube stick out through your skin all day and every day.

Doctors use catheters on people who only need dialysis for a short time (temporarily due to a possible acute kidney injury – which is a sudden episode of kidney failure or kidney damage that happens within a few hours or a few days). It can also be used for people on long-term dialysis, but only if a fistula or graft cannot be placed – since catheters having a higher rate of infection.

If you would like more information about the different kinds of access for hemodialysis, please read the **AAKP Understanding Your Hemodialysis Access Options** brochure. To download a FREE copy or to order a copy online, visit www.aakp.org. You may also call **1-800-749-2257** to request a copy.

WHERE IS HEMODIALYSIS DONE?

You can do hemodialysis at home or in a **dialysis center**. Your **healthcare team** can help you decide which option is best for you. In making a choice, you will need to consider many things, including your lifestyle, your health, and your wishes. You will also need to consider whether you want to do your treatments during the daytime or nighttime—and how many treatments per week.

Choosing where, when, and how often you will do your treatments is important. Start by asking yourself these questions: *Would you be more comfortable doing hemodialysis at home or in a center? At night while you sleep or during the daytime? More treatments per week for shorter times or fewer treatments per week for longer times?* Learning about each treatment choice will help you and your healthcare team select one that works best for you.

HOW MANY TIMES PER WEEK WILL I DO HEMODIALYSIS?

This will depend on which type of schedule you choose. There are three choices:

- **Conventional Hemodialysis**
- **Short Daily Hemodialysis** (also called “Short Frequent”)
- **Nocturnal Hemodialysis**

All three can be done at home or in a dialysis center. Each is explained in the following pages.



QUICK SUMMARY

Hemodialysis can be done:

- At home
- In a dialysis center

There are three types of schedules to choose from. All three can be done at home or in a dialysis center:

- Conventional
- Short Daily
- Nocturnal

WHAT ARE MY CHOICES FOR HEMODIALYSIS?

In-Center Hemodialysis

A dialysis center is located in a clinic or hospital. Trained staff does all aspects of your treatment. They place the access needles and tubing; monitor the machines; watch your vital signs during treatment; clean the equipment after each use; and order supplies. You may be able to do some things yourself, like insert the needles into your access (called self-cannulation).

The time you spend during each dialysis treatment will depend on your body size, lab results, and general health. Your kidney doctor (called a “**nephrologist**”) will prescribe the length of your treatment.

It’s helpful to tour a dialysis center to see how it looks and sounds before choosing this type of treatment. Most dialysis centers are designed as an open area with reclining chairs along the wall and a dialysis machine beside each chair. There are usually televisions at each chair. While you’re having treatment, you can read, sleep, watch TV, or work on your computer.

Your treatment days and times will be scheduled by the center.

Conventional In-Center Hemodialysis

Hemodialysis. Treatments are usually three times a week. Each treatment is usually between three to five hours. Treatments are done during the daytime in a dialysis center. The days and times are scheduled by the center. An example of a conventional in-center hemodialysis schedule is: Monday, Wednesday, and Friday from 9:00 am to 1:00 pm. Most dialysis centers offer two or three shifts for treatment times.

Short Daily In-Center Hemodialysis

Hemodialysis. Treatments are usually five to seven times a week. Each treatment is less than three hours. A recent study suggests that having dialysis more than three times a week may give you a better quality-of-life and health. The majority of people who want short daily hemodialysis will need to do dialysis at home. (You will learn more about home hemodialysis in the next section.)

HOME HEMODIALYSIS

You can also do dialysis in the comfort of your own home. This option may require help from a **care partner**. If the home hemodialysis machine you are

Your Hemodialysis Choices*

This chart may help you compare where, when, and how often you will do dialysis depending on your treatment choice. Not all choices are available in all areas.

In Center Hemodialysis	Home Hemodialysis
Conventional How Often: Usually 3 times a week Each Treatment: 3-5 hours Time of Day: Daytime Where: Dialysis center (clinic or hospital)	Conventional How Often: Usually 3 times a week Each Treatment: 3-5 hours Time of Day: Daytime Where: Home
Short Daily How Often: 5-7 times a week Each Treatment: Less than 3 hours Time of Day: Daytime Where: Dialysis Center	Short Daily How Often: 5-6 times a week Each Treatment: 2-3 hours Time of Day: Daytime Where: Home
Nocturnal How Often: Usually 3 times a week Each Treatment: Over 5 hours Time of day: Nighttime Where: Dialysis center	Nocturnal How Often: 5-7 times a week Each Treatment: Over 5 hours Time of day: Nighttime Where: Home

*Adapted from KDOQI HD Adequacy Guidelines; 2015 Update.
Am J Kidney Dis. 2015; 66(5) 884-930.

using requires a partner, your care partner will need to be with you and assist you each time you do a dialysis treatment. It is important for you to choose a dependable person with whom you work well.

Some people hire a nurse or technician to be their care partner (not covered by Medicare), but most care partners are a family member, spouse/partner, or close friend.

You and your care partner will get special training from a nurse on how to do your treatments safely. Training generally lasts three to eight weeks and is done in a dialysis clinic that offers home treatment options. Once you and your healthcare team are confident in your ability to do treatment at home, you can begin home hemodialysis. Your center will arrange for you to get the equipment and regular delivery of supplies.

With home dialysis, you are in charge of your treatment. You will set up your machine, prepare it for treatment, and clean it afterwards. After treatment, you will dispose of used supplies. You will also need to set up your home for the machine and other

equipment. This could include some changes to your home's plumbing and electricity. There must be suitable electrical outlets and plumbing to make the dialysis solution and to drain the machine. Medicare may help with the cost of some these changes. Be sure to discuss with your healthcare team.

A nurse will be available by telephone at all times who can answer questions, assist you in dealing with problems, arrange for technical support of the machine, and give you advice. And you will be followed closely by your healthcare team. They will see you every month for blood tests and checkups. You will still have access to the same professional team as someone who does treatments in a center. Your healthcare team can also arrange for you to dialyze in a center when you or your care partner travel or take vacations. They can also guide you on how best to travel with your home hemodialysis machine.

Many people feel that doing dialysis at home allows them a greater sense of control, more independence, the flexibility to choose a time of day for dialysis, and overall better health. Plus,

there is no need to travel to a dialysis center, except for monthly checkups.

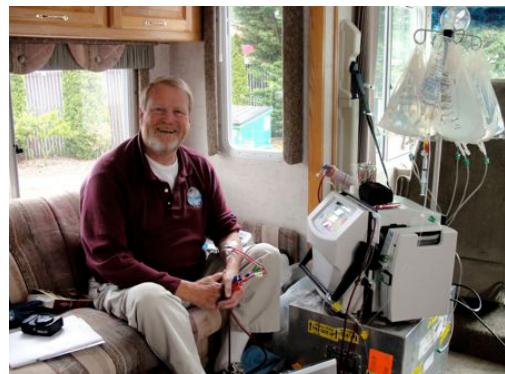
For more information on home dialysis options, please read the **AAKP Understanding Your Home Hemodialysis Options** brochure or the **AAKP Understanding Your Peritoneal Dialysis Options** brochure. To download a **FREE** copy or to order a copy online, visit www.aakp.org. You may also call **1-800-749-2257** to request a copy.

Conventional Home Hemodialysis.

Treatments are usually three times a week. Each treatment lasts between three to five hours. Treatments are done during the daytime at home with the help of a care partner.

Short Daily Home Hemodialysis. With short daily home hemodialysis, you will have more treatments per week for shorter periods. Treatments are usually five to six times a week, and each treatment lasts about two to three hours. Treatments are done during the daytime at home with a care partner. Many people feel their quality of life improves with this schedule-- they sleep better and feel more comfortable. In fact, short daily hemodialysis

matches normal kidney function more closely than having treatment only three times a week at an in-center facility. Less fluid and waste gathers in the body between treatments. You may also find that you have more flexibility with your kidney-friendly diet!



A NEW HOME HEMODIALYSIS MACHINE

A new hemodialysis machine for home use is now available that may not require a care partner—but only if you do your treatments during the daytime and your healthcare team agrees you are able to do treatments alone. People doing home hemodialysis treatments at night will still need a care partner or must be monitored by a dialysis nurse over the phone or internet.

NOCTURNAL HEMODIALYSIS

Nocturnal (nighttime) dialysis involves longer, slower treatments while you sleep. It can be done in a dialysis center or at home. Nocturnal dialysis is twice as long and twice as often as conventional hemodialysis. It does a better job of cleaning the blood of wastes, salt, and water. It is the closest method to normal kidney function. You may have more energy, less nausea, more stamina, and a better appetite. There are fewer complaints of itchy, dry skin or “restless leg syndrome.” Since dialysis takes place at night during sleeping hours, you have more time for work or school, family, friends, and other activities. Not all centers offer this type of dialysis. Your healthcare team can tell you if this option is available in your area.

In-center nocturnal hemodialysis. In-center nocturnal hemodialysis means you sleep at the dialysis center overnight. The center will be in “sleep mode” with the lights off. You will sleep in a bed. The dialysis staff will start and end your treatment and watch you while you sleep. They will

connect your access to the dialysis machine with a secure line that sounds an alarm if it senses any wetness around your access, and they will look after the machine. It can take time to get used to sleeping in a center. You may hear the staff walking around or the noises made by the dialysis machine. Some people may find that difficult. It is usually done three times a week. Treatments last five hours or more.

Home nocturnal hemodialysis. With this option, you will do your treatments at home while you sleep. It is usually done five to seven times a week. The length of each treatment can be as long as you want to sleep, with six to eight hours being the average. At some locations, a trained nurse oversees your treatment from outside your home by using an internet or telephone connection. The nurse will monitor your machine, and evaluate pressures, flows, fluid removal, and alarms. If you have any problems, the machine will “alert.” If you do not respond within a reasonable time, the staff will contact you by phone. If remote monitoring isn’t available at your center, you may need a care partner instead. This may be a spouse or family member who lives with you. You and your care

partner will be trained on how to do your treatments at home, care for your machine, insert the needles, order supplies, and much more. You will also have a 24-hour telephone number to call if you have questions, problems, or need advice. Your healthcare team will see you every month for blood tests and checkups. You will have the same professional healthcare team looking after your health as those who do hemodialysis in a center.

CAN HEMODIALYSIS DO EVERYTHING MY KIDNEYS ONCE DID?

Dialysis will save your life, but it cannot do everything that healthy kidneys can do. In addition to dialysis, you will need to follow a treatment plan. For most people, this means taking medication(s), following a kidney-friendly diet as directed by your doctor and/or dietitian, and limiting how much water and other liquid you drink or take in through foods. Your healthcare team will create a treatment plan ***just for you***. A **dietitian** trained in kidney disease can help you create meals that give you the right amount of **nutrients**.

CAN I CHANGE TREATMENTS?

Yes. If you start on one type of treatment, you may be able to change to a different treatment later on – if that's what you want. In fact, many people with kidney failure have had more than one type of treatment during the years. For example, you can choose hemodialysis now, but still change to peritoneal dialysis at a later date. Even if you want a kidney transplant, you may need to do dialysis while you wait for an available kidney. If you are interested in changing your treatment at any time, talk to your healthcare team. You should choose a treatment option that matches your lifestyle, your goals and your wishes.

CONCLUSION

When choosing a treatment for kidney failure, you should consider your health, your family, your lifestyle, and your personal preference. Learn all you can about each treatment option and discuss it with your family and healthcare team. Making an informed choice will help you choose the treatment that's best for you. The more you learn, the easier it will be

to make a choice. Here are some key points to remember:

- There are two types of treatments for kidney failure – dialysis and kidney transplant.
- Dialysis comes in two forms—hemodialysis and peritoneal dialysis. Both remove waste products and extra fluid from your blood. A kidney transplant is an operation that places a healthy kidney in your body.
- Hemodialysis can be done at home or in a dialysis center. It can also be done at night while you sleep (at home or in a center).

- If you start on one type of treatment, you may still be able to change treatment types at a later date.
- Not all types of hemodialysis treatments are available in all areas.
- In addition to dialysis, you will need to follow a treatment plan for your best health (take medication(s), follow a kidney-friendly diet, and limit fluids.)

To learn more about treatments for kidney failure, talk to your healthcare team. You can also call the AAKP at [1-800-749-257](tel:1-800-749-257) or visit the website at www.aakp.org.

DEFINITIONS

Access: The site where needles are connected to your body so that blood can flow into the dialysis machine.

Alport Syndrome: A genetic condition characterized by kidney disease, hearing loss, and eye abnormalities. People with Alport syndrome experience progressive loss of kidney function.

Artery: A blood vessel that carries blood away from your heart.

Care Partner: A person who helps you do hemodialysis at home.

Catheter: A soft, flexible tube that is put into your body for dialysis.

Conventional Hemodialysis: A treatment that is usually done three times a week. It can be done at home or in a dialysis center.

Diabetes: A condition that happens when your body cannot make enough insulin or cannot use insulin properly. Insulin is a hormone that controls how much sugar is in your blood. Diabetes is a leading cause of kidney failure.

Dialysis: A process that filters waste products and extra fluid from your blood when your kidneys cannot do this well enough to keep you alive. It is one of the basic forms of treatment for kidney failure.

Dialyzer: A part of the hemodialysis machine that removes wastes and extra fluid from your blood.

Dialysis center: A place in a hospital or clinic where dialysis treatments are given to kidney patients.

Dietitian: A member of your healthcare team who will help you plan what to eat and drink to help you feel your best.

Fabry Disease: A rare genetic disorder caused by a defective gene (the GLA gene) in the body.

Fistula: A permanent entrance for hemodialysis. It is created by connecting a vein and artery in your arm during minor surgery.

Graft: A man-made blood vessel that is inserted under your skin during a minor operation. It creates an access (entrance) for dialysis.

Healthcare Team: A team of people who help with your medical care. Your team may include a nephrologist, advanced practitioner, nurse, dialysis technician, dietitian, social worker, transplant coordinator and transplant surgeon. You are also a member of your team!

Heredity: A condition that is passed down from a parents' genes.

Hemodialysis: One of the basic forms of dialysis treatment. In hemodialysis, your blood is cleaned of wastes and extra fluid through a machine.

High Blood pressure: A condition in which the force of blood pushing against the inner walls of your blood vessels is too high. It is a leading cause of kidney failure.

DEFINITIONS

Kidneys: Two organs located on either side of the spine. Kidneys remove waste products from the body, balance the body's fluids, and release hormones that control blood pressure, make red blood cells, and keep bones healthy.

Kidney disease: The loss of some or all of your kidney function. Kidney disease can result from conditions such as high blood pressure, diabetes, or an injury to the kidneys.

Kidney failure: The stage of kidney disease at which dialysis or a transplant is needed to stay alive.

Kidney transplant: An operation that places a healthy kidney in your body. It is one of the basic forms of treatment for kidney failure.

Nephrologist: A doctor who is specially trained in treating kidney disease and kidney failure.

Nocturnal Hemodialysis: A treatment for kidney failure that is done while you sleep. It involves long, slow treatments at home or in a dialysis center.

Nutrients: Chemicals that you get from food that are needed live and grow.

Peritoneal dialysis: One of the basic forms of dialysis treatment. A solution flows into your abdominal cavity (belly), where it removes waste and extra fluid, and then is drained out.

Polycystic Kidney Disease: A genetic disorder that causes many fluid-filled cysts to grow in your kidneys. These cysts may enlarge the size of your kidneys and cause kidney failure.

Short Daily Hemodialysis: A treatment for kidney failure that involves short treatments five to seven days per week. It can be done at home or in a dialysis center.

Vein: A blood vessel that carries blood to your heart.

HEMODIALYSIS OPTIONS: ADVANTAGES			
IN-CENTER	HOME	NOCTURNAL	SHORT-DAILY
<ul style="list-style-type: none"> • Staff performs all aspects of treatment • Friendships might develop with those dialyzing during your same shift 	<ul style="list-style-type: none"> • Dialysis is done in the comfort of your home • Flexibility to choose a time of day for dialysis • More flexibility for activities, including work, school, family, and friends • No need to travel to a dialysis center • Allows for more independence and control • Allows for a more flexible diet • Many people feel their overall health (physical, social, mental) improves with home dialysis 	<ul style="list-style-type: none"> • Long, slow treatments do a better job of cleaning your blood • You may have more energy, less nausea, better health • Closest method to normal kidney function • More time for daytime activities, including work, school, family, and friends • No need to travel to a dialysis center • Allows for a more flexible diet 	<ul style="list-style-type: none"> • Less fluid and waste gathers in the body between treatments • Most people have better health and quality-of-life compared to dialysis three times weekly • Less time needed to recover after dialysis³ • Allows for a more flexible diet

HEMODIALYSIS OPTIONS: DISADVANTAGES			
IN-CENTER	HOME	NOCTURNAL	SHORT-DAILY
<ul style="list-style-type: none"> • You may have little control and/or involvement in your treatment as staff performs all aspects of treatment • You must travel to a center at least three times weekly • Treatment days and times are scheduled by the center and may not be accommodating • May not fit your schedule or lifestyle • There may be rules against eating or drinking in the facility 	<ul style="list-style-type: none"> • A care partner may be needed depending on the home hemodialysis machine being used (No care partner is needed for peritoneal dialysis - another type of home treatment) • Training is required • Space is needed to store equipment and supplies 	<ul style="list-style-type: none"> • Not available in all areas • For home nocturnal, you need a care partner, training, and space in your home for equipment and supplies • Some people find it hard to sleep while doing dialysis 	<ul style="list-style-type: none"> • Higher risk of your access needing repairs

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