

# Kidney Disease: Kidney replacement therapy

## What is kidney replacement therapy?

Kidney replacement therapy (KRT) is a general term to describe medical procedures that help to replace the work of healthy kidneys. Kidneys filter wastes from the blood and keep important chemicals in balance. There are 2 general types of KRT:

- 1 Kidney transplant.** This treatment involves implanting one healthy kidney from a living donor or someone who has recently died (deceased donor). The transplanted kidney takes over the functions of your current kidneys.
- 2 Dialysis.** This is a treatment that replaces the normal blood-filtering function of the kidneys. There are 2 types of dialysis: **Peritoneal dialysis (PD)** and **hemodialysis (HD)**. PD is performed at home while HD can be performed at home or in a dialysis center.

## When is it needed?

You can have kidney disease for a long time before you need KRT. But if your kidney disease reaches the point where your kidneys lose most of their function — often called **end-stage renal disease (ESRD)** — your healthcare provider will suggest KRT.

Some people may choose not to start KRT at all or may choose to stop it at some point. This is also a valid option and is explained on [page 4](#).

## What’s right for me?

When it’s time for KRT, you’ll face some important questions. For example: Should I pursue a kidney transplant? Which type of dialysis is best for me? Should I have treatments at home or a center? What schedule best fits my needs?

Your choices can affect your health, quality of life, and finances. Your healthcare provider or a kidney care navigator can help you talk through these factors.

This fact sheet has information to help you understand each option, including a summary of reasons to choose or not choose each one. (Not all options may be available in your area. Ask your healthcare provider about what is available.)

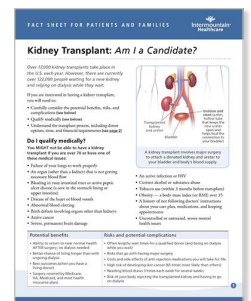
## Kidney Transplant

A kidney transplant is the next best thing to having healthy kidneys. Afterward, you don’t need dialysis, you may feel healthier, and you have fewer diet restrictions.

Here are some things to keep in mind:

- **It requires surgery.** Your doctor will explain the risks in more detail.
- **You’ll need to take anti-rejection medications.** These medications prevent your body from rejecting the transplanted kidney.
- **It’s not for everyone.** Some people have health conditions that mean they can’t have major surgery or take anti-rejection medications.
- **It can mean a long wait.** You’ll need tests to make sure you’re a good transplant candidate. (Ask your healthcare provider for the Intermountain fact sheet, **Kidney Transplant: Am I a Candidate?**) This process takes time, and you may have a long wait for a donor.

Even if you pursue a kidney transplant, you’ll probably have dialysis for a time. To help you choose which type of dialysis is best for you, read the information on [page 2](#) and [page 3](#).



## Dialysis

Most patients who choose KRT will have dialysis. Not only can dialysis improve your quality of life, but there are also more dialysis options available now. It helps to know how the basic types of dialysis work:

- **Peritoneal dialysis (PD)** filters your blood using the lining of your abdomen (belly) and a liquid solution called **dialysate**. The solution is put into your belly through a catheter (narrow tube). After the solution absorbs wastes for some time, it's emptied through the catheter and the new solution is put in. This process of switching solutions is called an **exchange**.

- **Hemodialysis (HD)**. A dialysis machine and a filter called a **dialyzer** are used to clean your blood. To get access to your blood, an **access** is created that allows 2 needles to be placed during dialysis. One needle takes blood from your body through the dialyzer, and the other needle is where the blood is returned to your body after going through the dialyzer.

Both types of dialysis work well, and there are different options for each type. Your choice may depend on scheduling, health benefits or risks, and lifestyle factors. **See the table below for information on your options.**

Option	Where and when	What you'll need	More Information
<b>Continuous ambulatory peritoneal dialysis (CAPD)</b>	CAPD is done at home. About 4 times a day (every 4 to 6 hours), you do an exchange — you drain used solution and replace it with new solution. Each exchange takes 20 to 30 minutes.	For CAPD, you need: <ul style="list-style-type: none"> <li>• Placement of a catheter in your abdomen.</li> <li>• Room for bags of dialyzer solution.</li> </ul>	CAPD is 7 days a week, so you need to do exchanges every day. You can do them when you choose, as long as you do the required number each day.
<b>Continuous cycling peritoneal dialysis (CCPD)</b>	CCPD is also done at home, overnight. While you sleep, a machine cycles the solution. You also do an exchange in the morning and perhaps once in the afternoon.	For CCPD, you need: <ul style="list-style-type: none"> <li>• Placement of a catheter in your abdomen.</li> <li>• Room for a small cyclor machine and bags of dialysate solution.</li> </ul>	The CCPD cyclor machine is about the size of a large suitcase. You need ample space to store dialysis supplies.
<b>Home hemodialysis (HHD)</b>	HHD treatments are done at home. This gives you more control over the timing. Two approaches are common: <ul style="list-style-type: none"> <li>• Short daily sessions — 2½ to 3 hours, 4 to 5 days a week.</li> <li>• Nocturnal (overnight) sessions — 6 to 8 hours, 3 to 6 nights a week (this treatment may not be available in all areas).</li> </ul>	For HHD, you need: <ul style="list-style-type: none"> <li>• Surgery to create a strong vein for access (see the top of page 3).</li> <li>• Space at home for the dialysis machine and to store equipment and supplies.</li> <li>• A partner to help you at home.</li> <li>• 3 to 5 weeks of training and the commitment to be responsible for your treatments.</li> </ul> Depending on your home, you may need minor electrical or plumbing changes.	<ul style="list-style-type: none"> <li>• Learning to use a dialysis machine is like learning to drive a car — it takes some time, but it isn't difficult.</li> <li>• With HHD, you have phone support 24 hours a day.</li> </ul>
<b>In-center hemodialysis (HD)</b>	For in-center HD, you go to a dialysis center about 3 times a week, for 4 hours each time. The days and times depend on the “shifts” at the center. Some centers have evening hours or overnight shifts.	For in-center HD, you need: <ul style="list-style-type: none"> <li>• Surgery to create a strong vein for access (see the top of page 3).</li> <li>• A way to get to and from the center (ask your healthcare provider or the center whether it's safe to drive yourself).</li> </ul>	<ul style="list-style-type: none"> <li>• Compare centers at <a href="http://www.medicare.gov/dialysis">www.medicare.gov/dialysis</a>.</li> <li>• Arrange to visit a dialysis center. Ask about education, support, and what's available to do during treatments.</li> </ul>

## Access for hemodialysis

To be able to use needles to send a good flow of blood to and from the dialysis machine, you need a large, strong blood vessel. It is created in one of two ways:

- **A fistula (preferred).** A surgeon connects an artery (usually in your arm) to a vein. This is usually an outpatient surgery, and the combined blood vessel is ready to use for dialysis in several weeks. A fistula lasts longer than any other type of access and is less prone to infections or clots.
- **A graft.** A surgeon connects an artery to a vein by grafting in a small tube. This type of access is ready to use more quickly, but it's a bit more prone to infections and blood clots than a fistula.

If you need dialysis suddenly, you may need to start it with a catheter (small tube) in a large vein, usually in your neck or chest. **This should be temporary** — a catheter in a major blood vessel poses a much higher risk of infections and clots.

**It's important to preserve your options for HD access.** Even if you choose peritoneal dialysis or a transplant, it's likely that you might use HD at some point. To protect your veins so a fistula can be placed, ask your healthcare providers to avoid:

- IV placement, blood draws, or injections in your non-dominant arm. (If you're right-handed, this would be your left arm.)
- Central lines or PICC line placement.

## Dialysis options: Health and lifestyle considerations

This table helps you compare the unique health benefits, side effects and risks, and quality of life issues for each option.

Option	Where and when	What you'll need	More Information
<b>Continuous ambulatory peritoneal dialysis (CAPD)</b>	CAPD is continuous, so your blood is always being filtered. You may not have as many ups and downs, and you may need fewer medications or diet restrictions.	Both CAPD and CCPD have these complications: <ul style="list-style-type: none"> <li>• Weight gain for some people — the dialyzer solution contains dextrose (a type of sugar), so some calories are absorbed into your abdomen.</li> </ul>	<ul style="list-style-type: none"> <li>• You can't swim or bathe, because of the catheter.</li> <li>• You're freer to choose the time and place for dialysis.</li> <li>• You need to be able to do exchanges throughout the day.</li> </ul>
<b>Continuous cycling peritoneal dialysis (CCPD)</b>	CCPD gives similar health benefits as CAPD.	<ul style="list-style-type: none"> <li>• Peritonitis, a serious infection in your abdomen. This can happen if bacteria (germs) get in the catheter. You'll learn how to make sure the catheter stays clean to help prevent this condition.</li> </ul>	<ul style="list-style-type: none"> <li>• You can't swim or bathe, because of the catheter.</li> <li>• You're freer to choose the time and place for dialysis.</li> <li>• With CCPD, your days are freer than with CAPD.</li> </ul>
<b>Home hemodialysis (HHD)</b>	<ul style="list-style-type: none"> <li>• The short, daily HHD sessions or overnight HHD may help you avoid feeling "washed out" after dialysis treatments.</li> <li>• Able to take fewer medications which may give you more energy.</li> <li>• Fewer dietary restrictions.</li> </ul>	Both HHD and in-center HD have these complications: <ul style="list-style-type: none"> <li>• Minor pressure when the needles are inserted and removed — a numbing cream can be used, and/or coping strategies may help, and the discomfort often eases over time.</li> <li>• Problems caused by changes in your body's fluids and chemical balance during treatment, such as cramps or a drop in blood pressure. (Cramping is rarely reported in HHD.)</li> </ul>	<ul style="list-style-type: none"> <li>• HHD often involves fewer diet limits than in-center HD.</li> <li>• Shorter, more frequent, treatments more closely mimic normal kidney function.</li> <li>• You have more freedom to schedule appointments.</li> <li>• You need to be trained and take on more responsibility.</li> <li>• You can't choose this method if you live alone.</li> </ul>
<b>In-center hemodialysis (HD)</b>	If you're unable to perform home dialysis therapy, in-center HD is an option where you have assistance.		<ul style="list-style-type: none"> <li>• In-center HD has the strictest diet limits.</li> <li>• You must visit the center 3 times a week for up to 4 hours for each treatment.</li> </ul>

## Making a choice

You and your healthcare provider will make the choice together, based on your condition, medical needs, and preferences. The table below might be helpful in this process. Check the statements that apply to you to see which option may be the best one for your situation.

Option	Where and when	What you'll need
<b>Kidney transplant</b>	<input type="checkbox"/> You're comfortable with having surgery. <input type="checkbox"/> Your healthcare provider feels you might be a good candidate for a transplant. <input type="checkbox"/> You're okay with taking anti-rejection medications for the life of the kidney.	<input type="checkbox"/> You don't want to have surgery. <input type="checkbox"/> Your doctor feels you're not a good candidate for a transplant. <input type="checkbox"/> You don't want to take anti-rejection medications for the life of the kidney.
<b>Continuous ambulatory peritoneal dialysis (CAPD)</b>	<input type="checkbox"/> You want the freedom to plan your treatments around your schedule. <input type="checkbox"/> You'd like a home treatment option that is easier to manage independently. <input type="checkbox"/> You're comfortable managing your treatments. <input type="checkbox"/> You can do an exchange of solution (takes 20 to 30 minutes) several times each day.	Both CAPD and CCPD have the same reasons for NOT choosing them, including: <input type="checkbox"/> You'd rather not manage treatments by yourself. <input type="checkbox"/> You like to swim or take tub baths (not possible with a permanent catheter). <input type="checkbox"/> You'd rather not worry about treatments 7 days a week, or doing an exchange of solution several times each day. <input type="checkbox"/> You're concerned about potential weight gain from absorbing calories in the solution.
<b>Continuous cycling peritoneal dialysis (CCPD)</b>	<input type="checkbox"/> You want to do your treatments mostly at night. <input type="checkbox"/> You'd like a home treatment option that is easier to manage independently.	
<b>Home hemodialysis (HHD)</b>	<input type="checkbox"/> You want the freedom to plan your treatments around your schedule, including overnight. <input type="checkbox"/> There are no dialysis centers nearby, or getting to the center is a problem. <input type="checkbox"/> You're comfortable managing your treatments.	<input type="checkbox"/> You'd rather not manage treatments by yourself. <input type="checkbox"/> You're not able to make the minor electrical or plumbing changes that may be needed — or you don't have room at home to store equipment and supplies.
<b>In-center hemodialysis (HD)</b>	<input type="checkbox"/> There's a dialysis center nearby and getting there is not a problem. <input type="checkbox"/> You'd like to have healthcare providers do your treatments. <input type="checkbox"/> You'd enjoy spending time with other patients and providers during treatments.	<input type="checkbox"/> You want more freedom to plan your treatments around your schedule. <input type="checkbox"/> There are no dialysis facilities nearby, or transportation is difficult.

## Choosing conservative care

In some cases, people with many health problems may feel that KRT will not add to the quality of their life and will simply prolong their suffering. If you choose not to undergo KRT, conservative care (including hospice), can help keep you comfortable as you come to the end of your life. If you're considering this option, it's very important to discuss it with your loved ones and healthcare providers.

Intermountain Health complies with applicable federal civil rights laws and does not discriminate on the basis of race, color, national origin, age, disability, or sex. Se proveen servicios de interpretación gratis. Hable con un empleado para solicitarlo. 我們將根據您的需求提供免費的口譯服務。請找尋工作人員協助。

© 2019-2024 Intermountain Health. All rights reserved. The content presented here is for your information only. It is not a substitute for professional medical advice, and it should not be used to diagnose or treat a health problem or disease. Please consult your healthcare provider if you have any questions or concerns. FS314 - 09/24 (Last reviewed - 07/22) Also available in Spanish.