Published on *DPC Education Center* (http://www.dpcedcenter.org)

Hemodialysis (HD)

Hemodialysis is the most common treatment for people whose kidneys have failed in the United States. Kidney failure is also called end stage renal disease end-stage renal disease (ESRD), also known as kidney failure.

Hemodialysis uses a machine and a filter called a dialyzer that acts as an artificial kidney to remove waste products or toxins and water from the blood.

Most people on hemodialysis go to a dialysis center for treatment, but home hemodialysis (HHD) is becoming more popular.

- Nocturnal hemodialysis (NHD) is a therapy that is done at night while you sleep.
- Short daily hemodialysis (SDHD) is done more often and almost every day, but for less time. Nocturnal hemodialysis and short daily hemodialysis are becoming more popular but may not be available everywhere.

Talk to you doctor about what type will work best for you.

-HD summary:

	How often	How long	Equipment	Location
Conventional (CHD)	3 times per week	3-4 hours?	Large machine built for in-center use	Dialysis center or at home
Short Daily (SDHD)	5-6 times per week	2 ½ - 3 hours?	Small machine built for home use	Home
Nocturnal (NHD)	3-6 times per week	7-8 hours?	Both types of machines	Dialysis center or at home while sleeping

?On average; treatment times will vary based on each patient?s situation.

HD ACCESS

In order for the blood to be cleaned, there must be a way to get it from the body to the

machine. There are three ways that the blood can be ?accessed?: Arteriovenous (AV) fistula, AV graft, and catheter. The fistula is often considered the gold standard because it has fewer problems and usually lasts much longer that the other options. Care must be taken to prevent infection with any type of dialysis access.

The access is connected to the HD machine using two needles. A small amount of the patient?s blood at a time flows through one needle to the hemodialysis machine through special tubing. In the machine the blood goes through the dialyzer (filter) where waste products and extra fluids are removed. The blood then goes back into the body through the second needle, and the cycle continues for the length of the treatment.

AV fistula is made during outpatient surgery by connecting an artery to a vein to increase blood flow. This causes the vein to get larger and stronger, so that the dialysis needles can be used for every treatment. The fistula is usually placed in the lower arm, but can also be in the upper arm or thigh. Fistulas are the ?gold standard? of hemodialysis access because they have much less chance of clotting and infection, and they typically last longer than other types of access. A fistula needs to ?mature? for 2-3 months before it can be used for dialysis.

AV graft, a synthetic or artificial tube is used to connect an artery and vein under the skin. Grafts are normally used when veins are too small or fragile to make into fistula. Problems can include clotting and infection, and the graft may need to be replaced if the problems cannot be fixed. A graft can be used for treatment 2-3 weeks after placement.

A catheter is a tube normally inserted through the skin near the collar bone and connected to the large vein from the heart. A catheter is sometimes needed when dialysis first starts, while a fistula is maturing, or if there are no other access options. **These are normally for short term or temporary access only** because of problems such as infection, clotting and poor dialysis treatments. A catheter can be used right away.

To learn more about hemodialysis access, go to the National Kidney and Urologic Diseases Information Clearing House at http://kidney.niddk.nih.gov/kudiseases/pubs/vascularaccess/ [1] or Fistula First at http://www.fistulafirst.org/ [2].

Links
[1] http://kidney.niddk.nih.gov/kudiseases/pubs/vascularaccess/
[2] http://www.fistulafirst.org/