



# ESRD Network #12 Patient Educational Newsletter

*Providing kidney patients and their families information on diet, health and treatment.*

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FOR  
KIDNEY  
PATIENTS  
&  
FAMILIES

## Putting “U” in Fist-U-la



In 2003, Centers for Medicare & Medicaid (CMS) announced a national initiative to increase the placement and use of fistulas in hemodialysis patients. Medicare is interested in improving the quality of care dialysis patients receive in addition to reducing patient hospitalizations and surgeries for hemodialysis access.

“The best access for hemodialysis patients is a vein in the forearm that is enlarged by creating a fistula. A fistula allows blood from the artery to flow into the vein. The higher blood pressure in the artery forces blood into the vein and safely enlarges the vein, creating a good site for the large gauge dialysis needles at the end of the flexible blood transport tubes.

Other access types include grafts (using a synthetic tube to connect the artery to a vein in the arm) and catheters (needles “permanently” inserted into a regular vein, but left protruding from the skin). *Grafts and catheters usually require more maintenance, deliver less than optimal cleaning of the blood, lead to more infections and hospitalizations and cost more in the long run.*”

<http://www.cms.hhs.gov/media/press/release.asp?Counter=1007>

This newsletter will provide basic information on the benefits of a fistula, surgical placement and care of a fistula, and ways a patient can advocate for themselves to obtain a fistula.

“A fistula that performs well during the first 6 months, can be expected to last from 10 – 15 years” (Fillinger MF and Kerns DB, Vascular Access for Hemodialysis IV, 1996).



# Did "U" Know?

Most patients are candidates for placement of a fistula, regardless of diabetes or other disease processes. Currently, vascular surgeons are encouraged to perform vein mapping and vessel studies before attempting to place a fistula. Isometric exercises may help develop and enlarge your veins before a fistula is placed and help the fistula mature after placement. The following are a few examples of isometric exercises...



## Upper-arm Isometrics

Tighten the muscles of your upper arm by slightly bending the elbow and pulling the arm in toward your body. Hold for a count of six; relax for one to two seconds before repeating.

Repeat 10 times 4 times a day.



## Lower-arm Isometrics

Turn your hands palms up. Make a fist and curl up your wrist. Hold for a count of six; relax for one to two seconds before repeating.

Repeat 10 times 4 times a day.



## Hand-Squeeze

Use exercise putty or a sponge ball.  
Squeeze them in your hand.

Repeat 10 times 4 times a day.

## Finger Isometrics

Exercising the fingers is important too. Try squeezing a clothespin several times alternating each finger with your thumb.

Repeat 10 times 4 times a day.





## Subj“U”gate Fear of the Unknown

Subjugate = conquer, defeat,  
reduce, overcome

Your dialysis access is considered your “lifeline”, without it hemodialysis is not possible. You may have some fears related to having a fistula created - such as surgery, needles and pain. The following are real patient excerpts from [http://www.kidneyschool.org/mod\\_08/mod8\\_01.shtml](http://www.kidneyschool.org/mod_08/mod8_01.shtml) We encourage you to visit their website to further increase your knowledge about your lifeline and it’s care.

*“I was 13 when I first went on dialysis, and had to have a second surgery to get a good fistula. I was told even back then to exercise the fistula arm by lifting light weights and squeezing a tennis ball three or four times a day. It worked so well for me that the fistula ‘ripened’ in half the time and is still working today, 30 years later! I have had to have four revisions to the fistula over the years, but the first revision was not needed for 12 years!” —Bruce, 44 years old, began hemodialysis in 1971*

### Is There a Lot of Pain with Surgery?

*“Other than a local anesthetic for my fistula surgery, I had no anesthetic or sedative whatsoever. I demanded it that way because I have quite a fear of anesthesia... The only pain was the initial sting of the lidocaine needle. After that, I felt absolutely nothing...through the 45-minute procedure. After surgery, I was allowed to go home totally clear-headed one-half hour later. It was basically like a dental visit... Pain was only moderate after the local wore off but I was given Vicodin®, which would wipe it out.” —Bill, 45 years old, began dialysis in 1999*

### What will people think when they see my Arm?

*“I know it’s hard to even conceive of this right now, but I think of my fistula as something that keeps me alive! Who cares what it looks like?! If you’re feeling in a good mood, you could explain to people about dialysis. If you’re not feeling in an educating mode, think of some wild story like, ‘that’s where a tiger bit me on my last safari to the deepest, dark Indian jungles.’” —Robin, 47 years old*

### What is Next? What Do I Look For?

*Once your access has been placed, the doctor or nurse will keep an eye on it and decide when it seems ready to use. A fistula is ideally mature and ready for use after approximately 3 or 4 months. After your fistula or graft surgery, be sure to tell the doctor right away if your hand or arm feels cold, numb, or painful - This can mean that your hand is not getting enough blood—a rare complication that is more common in people with diabetes. This condition is sometimes called “steal” syndrome.*

# Subj“U”gate Fear of the Unknown

## Continued

### I Don't Like Needles!

It is not uncommon for patients to fear needles. Before or after your access is checked and cleaned, a medication can be used to numb the needle sites. The medication will make you less likely to feel the needles—and can help you a lot if you are afraid of needles or worried about pain.

### Available Meds...Ask Your Doctor or Nurse

Liquid lidocaine – This product is left on the skin for 5 to 10 minutes with a gauze pad over it instead of being injected. This saves two needle sticks per treatment.

Chloroethane spray – This spray “freezes” the surface of the skin. If your access is deep, you may still feel some pain.

EMLA® cream – EMLA cream must be put on in a thick layer an hour or two before dialysis. Then it needs to be covered with a plastic dressing. Before dialysis, it is wiped off. EMLA is costly, but it works very well. Insurance may not cover it—you may need to pay for it yourself.

Topicaine® – This clear gel must be applied in a thick layer 30 minutes to 1 hour before dialysis, and covered with a dressing. One study found that over-the-counter Topicaine worked faster than EMLA®, ELA-Max®, and tetracaine ointment, and it is often cheaper.

(NOTE: ESBA Laboratories has offered a 20% discount on Topicaine to any dialysis patient who mentions Kidney School. For more information, visit: <http://www.topicaine.com> or call 800-677-9299.)

### Putting in Your Own Needles? People Do That?!

They do! And people who put in their own needles find that it hurts less and makes them feel safer. This is probably not something you'll want to try right away, but it can be done—and putting in your own needles is the best way to have your dialysis lifeline last as long as possible.

This information provided by the Life Options Rehabilitation Program Kidney School. They can be found on the web at [http://www.kidneyschool.org/mod\\_08/mod8\\_01.shtml](http://www.kidneyschool.org/mod_08/mod8_01.shtml)

Photos courtesy and utilized with express written consent of Dr. William Jennings, M.D., F.A.C.S



The patient is undergoing a doppler study (left). Below is a patient's "road map".

## Vein Mapping and Doppler Studies



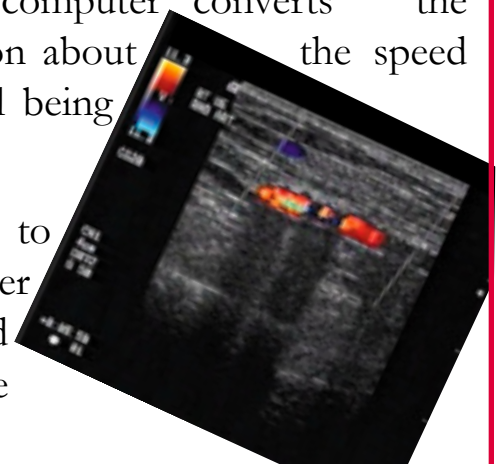
A Doppler ultrasound test uses sound waves to evaluate blood as it flows through a blood vessel. It assists a doctor in evaluating the flow of blood through the major arteries and veins in your arm. It also allows the doctor to make a "road map" of your veins and arteries.

During duplex Doppler ultrasound, a handheld instrument (transducer) is passed lightly over the skin above a blood vessel. The transducer sends and receives sound waves that are amplified through a microphone. The sound waves bounce off solid objects, including blood cells. The movement of blood cells causes a change in pitch of the reflected sound waves (called the Doppler effect). If there is no blood flow, the pitch does not change. Information from the sound waves can be processed by a computer to provide graphs or pictures that represent the flow of blood through the blood vessels. These graphs or pictures can be saved for future review or evaluation.

There are several types of Doppler ultrasound that may be used. These are:

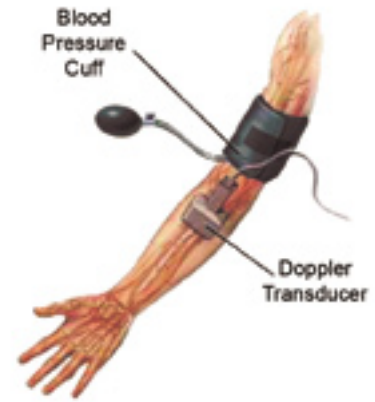
1. Duplex Doppler ultrasound uses standard ultrasound methods to produce a picture of a blood vessel and surrounding organs. In addition, a computer converts the Doppler sounds into a graph that provides information about the speed and direction of blood flow through the blood vessel being evaluated.

2. Color Doppler uses standard ultrasound methods to produce a picture of a blood vessel. In addition, a computer converts the Doppler sounds into colors that are overlaid on the image of the blood vessel and that represent the speed and direction of blood flow through the vessel.





# Doppler Studies... What “U” Can Expect



## How to Prepare

Nicotine causes blood vessels to constrict; therefore, you may be asked to avoid products that contain nicotine (cigarettes, chewing tobacco) for 30 minutes to 2 hours before the test.

## How is it Done

You will need to remove any jewelry that might interfere with the Doppler ultrasound scan. For an arm scan, your head is slightly raised and the exposed arm is turned slightly outward.

Gel is applied to the skin to promote the passage of the sound waves. The transducer is placed in the gel and moved along the skin. You need to lie very still during the procedure. You may hear sounds that represent the flow of blood through the blood vessels.

## Arteries in the Arms

This test is often performed on both arms for comparison. Depending on which blood vessels are being tested, a blood pressure cuff may be wrapped around one or both limbs so the blood pressure can be taken at several different places. When testing the arms, the pressure cuff may be wrapped first around the forearm and then around the upper arm.

## Veins in the Arms

For this test, you will be asked to lie down and breathe normally. You must lie very still. Any changes in blood flow that occur as a response to your breathing patterns are noted.

## How the Test Feels

There is normally no discomfort involved with having a Doppler ultrasound test. The gel may feel cold when it is applied to your skin unless it is first warmed to body temperature. If your blood pressure is taken during the test, you will feel pressure when the blood pressure cuffs are inflated.

## Risks

There are no known risks associated with a Doppler ultrasound.



**'U' Are Getting a Fist "U" la!...**

## **Pre & Post Surgical Information**

Talk with your surgeon about your diagnosis, the operation, and your recovery. Also discuss the medications to be taken the day of your procedure, and any medicines (such as blood thinners) you should stop taking prior to surgery. Bring the following with you to the surgery center or hospital: Insurance card/authorization number/copayment, any other papers your physician has given you, current list of medicines (with dosages) and any medicine allergies. Your surgeon may have ordered an EKG or chest x-ray prior to surgery, ask if they will be forwarded the results.

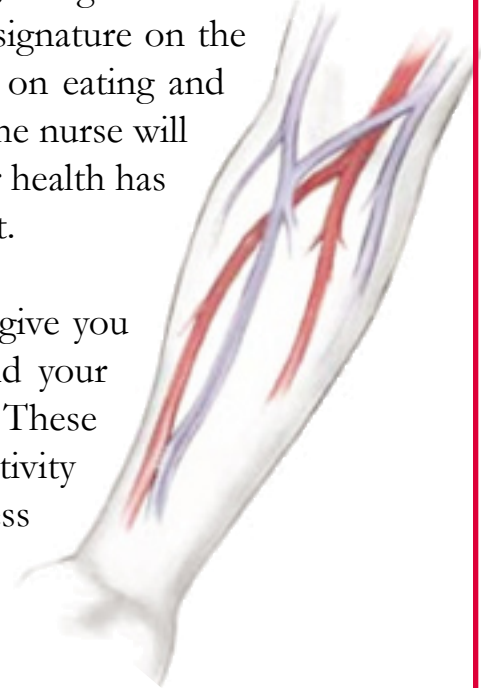
Notify your physician of any changes in your health such as a cold, fever, flu or other illnesses.

Arrange for a ride home. Patients receiving any type of anesthesia or sedation are not allowed to drive home. Usually smoking is not allowed within or after 24 hours of surgery. No food, water, hard candy, chewing gum or tobacco after the specified time. Brushing teeth is permitted the morning of surgery, rinse and spit, do not swallow water. Do not wear make-up or jewelry. Remove nail polish from one finger, unless artificial nails. Please bring your hearing aids to the hospital. Please bring your inhaler to the hospital, if you use one for asthma or other reasons. If you wear glasses or contact lenses, bring them (and your case and contact solution).

### **What to Expect the Day of Surgery**

Arrive at the hospital 1-1/2 hours prior to your scheduled surgery wearing loose, comfortable clothing. You may be asked to change into a hospital gown; the gown ties in the back. A nurse will verify: your diagnosis, surgery, surgical site, your signature on the informed consent, and that you have followed instructions on eating and drinking restrictions in addition to verifying your allergies. The nurse will conduct a brief physical assessment. Notify the nurse if your health has changed since your pre-admit visit or telephone appointment.

After surgery, you may have discomfort and the nurse will give you pain medicine as appropriate. The nurse will give you and your family/friends written and verbal discharge instructions. These instructions will include information on medicines, eating, activity restrictions, care of your incision, care for your dialysis access and a follow-up appointment with your surgeon.



## Fast-Forward from 1960 to 2005



This is a picture of the first permanent hemodialysis access invented by Dr. Belding Scribner in 1960. It was called a Scribner Shunt. Two prongs extended from the patients body, one arterial, one venous to make dialysis possible. The access was prone to infection



Dr. Belding Scribner in 2002.

## The First AV Fistula - 1965

The first surgical creation of an arteriovenous fistula for the purpose of hemodialysis was performed in 1965 by Brescia, Cimino and co-workers in New York—a real break-through in the field of vascular access. The arteriovenous fistula was created in the United States, however, other countries have perfected surgical placement techniques as well as utilization of av fistulas. The United States and other country rankings are listed below:

## How the “U” SA stacks Up!

Although the fistula was invented in the United States, we place fistulas in the least amount of dialysis patients compared with other countries. Germany, for example places fistulas in 83% of their patients, compared to only 15% of US patients receiving AV fistulas.

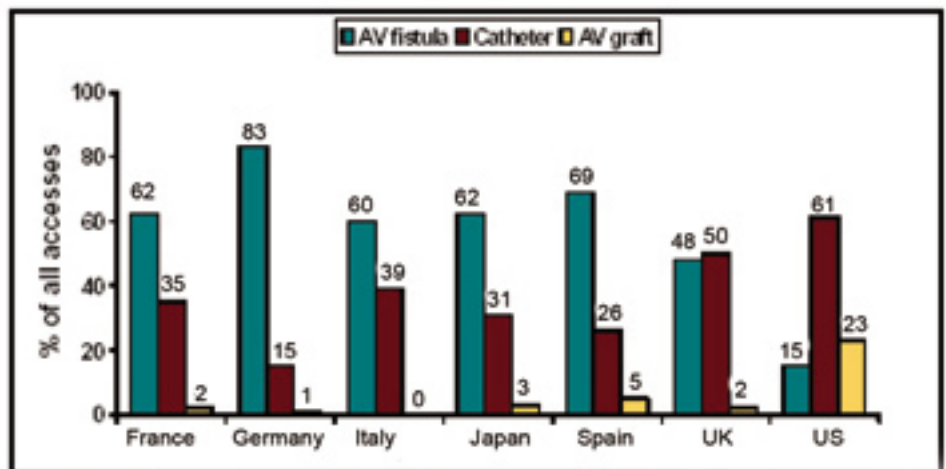


Figure 1: Significant differences in vascular accesses used for incident hemodialysis patients in Europe, Japan, and the US. Catheters are either cuffed or uncuffed. Analysis included incident patients who entered DOPPS within 5 days of their first dialysis treatment; n= 3674. DOPPS data from 1996-2001 [2].

If you are using a fistula, YOU can help it last longer, prevent clotting, and stay healthier by doing two simple steps:



Ask your nurse to teach you how to check the venous pressure of your graft or fistula each treatment.

If your graft or fistula begins to narrow (called stenosis), you may see the venous pressure monitor go higher on your dialysis machine or handheld monitor. Your facility staff look for changes in blood flow and may refer you to a vascular surgeon if changes are seen.

**Track your venous pressure each treatment and notify your doctor or nurse if it changes.**

A change in your venous pressure may be a sign that your access is getting ready to clot. The rise in venous pressure may be due to some form of narrowing in your access that does not allow the blood to flow through your graft or fistula. If you see the venous pressure rise over several treatments, let your doctor or nurse know. They may check your access and if needed send you to a doctor for treatment to keep it from clotting.



### Venous Pressure Defined

“Venous Pressure” is the measure of pressure on the vein side of your access. Each facility may measure it differently, however all facilities are encouraged to monitor your fistula. Venous Pressure detects the “force” from the access on the blood – the resistance to blood returning from the dialysis machine. The higher the pressure, the higher the force needed to return the blood, the more the access may have narrowed. (See Pictures)



Normal



Narrowing



Clotted



## How Long Have “U” Had Your Fistula?

ESRD Network #12 is hosting a “Longest Working Fistula Contest”. In order to participate, simply fill out this form and ask your social worker to mail it to the Network office, ATTN: FISTULA CONTEST. The winners will be randomly drawn from all entries received and notified by March 30th, 2005. Deadline for submission March 11th, 2005. Prizes range from movie tickets, gift certificates and a 5” portable b/w tv!

1. Are you currently on hemodialysis? How long? Have you ever used another modality of dialysis?

\_\_\_ Yes, on hemodialysis

\_\_\_ No, previously on hemodialysis. Currently on peritoneal dialysis.

\_\_\_ No, previously on hemodialysis, received a transplant.

\_\_\_ Years on hemodialysis, \_\_\_\_\_ years on other modality(peritoneal or transplant)

2. Are you currently using your fistula for hemodialysis? \_\_\_ Yes \_\_\_ No

3. How long has your fistula been working? \_\_\_\_\_ Years \_\_\_ Months

4. Do you dialyze at home or in a dialysis unit? \_\_\_ Home \_\_\_ Dialysis Unit

5. Who sticks your fistula? \_\_\_ Self \_\_\_ Family/Partner \_\_\_ Facility Staff

6. If the facility staff stick your access, do you have the same person each treatment, or does your facility rotate staff? \_\_\_\_\_ Same Staff \_\_\_ Different Staff

7. What is your secret for keeping your fistula for so long? \_\_\_\_\_

\_\_\_\_\_.

8. What advice would you give to other patients who need a vascular access? \_\_\_\_\_

\_\_\_\_\_.

9. When the needles are placed in your fistula, are the sites rotated, or is the same site “buttonhole” technique used? \_\_\_ Sites Rotated \_\_\_ Buttonhole Technique

10. Do you use any medicine to “dull” or “numb” your needle sites before sticking?

No - skip to question 12       Yes - continue

Is the medicine  injected or  topical?

11. If you have tried several, what works the best? \_\_\_\_\_

12. Before the needles are inserted, do you \_\_\_\_\_. (Check all that apply)

Wash your access with antibacterial soap       Clean with betadine

Apply lotion       Clean with alcohol       Wash with regular soap

Do not use betadine (allergy)       No special care       Other \_\_\_\_\_

13. How do you prefer to learn? (Hands on, written, audio/visual -Check all that apply)

Hands on       Written       Audio       Visual

14. Who/What helped you decide in having a fistula?

Nephrologist       Dialysis Nurses/Staff       No choice offered

15. Do you take anticoagulants / “blood thinners” (Coumadin and/or aspirin)

Coumadin       Aspirin

16. Have you had to have interventions performed on your fistula? (Declots/revisions)

(Check all that apply)

Revision       Declot       None       Number of times

17. I have adapted to my fistula and my body change in the following ways.

(Check all the apply)

I educate anyone that asks       I don't care who sees it       I tell a wild story

I hide my arm       It doesn't affect my daily life       I wear long sleeves

18. Is there any other information about your fistula and/or the experience of having a fistula you would like to share? \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

19. Can we quote any of your comments in a future newsletter?  Yes       No

Your Name (please print) \_\_\_\_\_