York and Scarborough Teaching Hospitals
NHS Foundation Trust

Vascular Access for Haemodialysis

Information for patients, relatives, and carers

Renal Unit

ⓘ For more information, please contact:

York Renal Haemodialysis Unit
Tel: 01904 725370
Open Monday – Saturday 7am until 11pm

Carl Taylor, Renal Access Nurse
Tel: 01904 721852
Monday – Friday

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You have been referred for vascular access for haemodialysis. The operation will be performed on your **left** or **right** arm

It is important to avoid any damage to your blood vessels where your operation is planned. Avoiding damage to the veins in the areas between your wrist and elbow (your forearm veins) in both arms is advised in case you need a further fistula operation in the future.

Please avoid blood tests, cannulas, or drips in the arm where your fistula operation is planned. Wherever possible, the veins in the back of the hand in your other arm should be used.

It is important that you tell any hospital staff before they take any blood or put in a cannula.

What is vascular access?

Your doctor has explained to you that you will need haemodialysis treatment. In order to undertake haemodialysis, we need to be able to ‘access’ your blood stream.

There are three ways to do this:

- ❒ A fistula,
- ❒ A graft
- ❒ A central line.

What kind of vascular access will I have?

A fistula is the best kind of access in the long term. It has two advantages. There is a low risk of infection in a fistula and a fistula will usually last longer than a graft or a line.

We always try to arrange a fistula for haemodialysis access. This will need to be done as early as possible and ideally at least three to six months before you need to start dialysis.

What is a fistula and how is it formed?

A fistula is usually created at the wrist or elbow by a surgeon during a minor operation.
You will have had a scan and be seen by a surgeon to identify the most suitable site for the operation.

A fistula is where a join is made between an artery and a vein. An artery takes blood away from your heart, down your arm and towards your hand. This blood is under high pressure and flows quickly. A vein takes blood from your hand back to your heart. The blood is under low pressure and flows slowly.

By joining the artery and vein together we make a fast-flowing blood supply through the vein for dialysis. With time the vein wall will thicken, and the vein will enlarge to allow needles to be placed in the fistula for your haemodialysis treatment.

It usually takes six to eight weeks before the fistula is ready to be used for dialysis.

The surgeon will make the area to be operated on numb with local anaesthetic so that you should not feel any discomfort.

Throughout the operation the surgeon will talk to you to ensure that you are not in pain.

Occasionally a different anaesthetic is used and the whole arm is made numb, this is called an arm block. Sometimes a general anaesthetic can be given. Once the anaesthetic has been given the surgeon makes a small cut (usually between 5 and 8 centimetres long) and joins the artery and vein together. Sometimes a bigger cut may be made, depending on the site of your operation.

After the operation you may have some pain, but this is usually controlled with simple painkillers (for example, paracetamol which is safe for patients with kidney failure). If you need stronger pain killers, please tell the nurses on the ward, or contact your GP if you are at home.

How will I know if my fistula is working?

A successful fistula has a fast flow of blood from the artery into the vein. This can be heard through a stethoscope (the tubes that a doctor uses to listen to your heart) as a ‘whooshing’ noise or felt as a ‘buzzing’ sensation. The nurse will check your fistula after the operation to see if it is working. You will be shown how to do this. When your fistula is new check it at least twice daily. After a few weeks it should be checked at least once a day.

If you cannot hear or feel the blood flow, or it seems weaker please contact the Renal Unit or your specialist nurse for advice. See the contact numbers on the front of this leaflet.

When can my fistula be used for dialysis?

Following the formation of your fistula it can take anything between two weeks and three months for the vein to develop sufficiently to allow needles to be placed for dialysis. Everybody is different and their fistulas develop at different rates.

What is a Graft and how is it made?

A graft is inserted if your arteries and veins are too small to make a fistula. Instead of joining the artery and vein directly together, a piece of plastic tubing is used to form a connection (or pipeline) between them.

The cut for a graft is bigger than a fistula. Usually you will have a general anaesthetic, or sometimes an arm block is used to make your whole arm numb. The artery and vein are joined together with a piece of plastic tubing (about 20 to 25 centimetres long) that is tunnelled under the skin. It can be placed in the forearm, upper arm or thigh, depending on where the blood vessels are most suitable to join the graft.

After the operation you cannot see the plastic tubing.

You are likely to have some pain after the operation and need to take painkillers such as regular paracetamol. If you need stronger pain killers, please tell the nurses on the ward or contact your GP if you are at home.

If you have a general anaesthetic, you will also be given another patient leaflet called ‘You and Your anaesthetic’ that has details on what to expect when you have an anaesthetic.

How will I know if my graft is working?

The flow of blood through the graft should be checked by listening through a stethoscope. The Renal Unit or your Renal Specialist Nurse will provide this.

If you cannot hear or feel the blood flow, or it seems weaker please contact the Renal Unit or Specialist Nurse for advice. See the contact numbers on the front of this leaflet.

When can my graft be used for dialysis?

A graft can be used after two weeks if needed as long as the wound is healed.

What are the complications of having fistula and graft operations?

Unfortunately, any operation can give rise to new problems. Luckily the complications of vascular access are rare.

Some operations do not work, and a further operation may be necessary. Because all access operations involve blood vessels there is some risk of bleeding after the procedure.

- **Haematoma**
  This is a collection of blood around the operation site. It may disperse itself over time or require a small drainage tube to be inserted temporarily.

- **Steal Syndrome**
  This is where the blood flow to the hand (or foot) is reduced. This happens because some of the blood that would have normally gone to the hand or foot has been diverted into the vein in the fistula, or through the graft. If this is severe it can cause coldness and pain in the hand or foot or very rarely ulcers on the fingers or toes. This may require further surgery and could mean the fistula or graft has to be removed.

- **Infection**
  Any surgical cut can become infected. Infection is more common following a graft insertion than a fistula formation. It is important to have any infection treated promptly.

- **Numbness and altered sensation**
  Nerves run very close to the artery. Occasionally the area around the operation site can feel numb or have an abnormal feeling. This often resolves within a few weeks but in rare cases may be permanent.

- **Swelling**
  The hand and arm, or leg (if you have had a leg graft), can become swollen after the operation. It is more common following a graft insertion. This usually resolves within a few days or occasionally a few weeks.

- **Failure to mature**
  In some cases the fistula may work initially but not have a strong enough blood flow through it to allow a bigger vein to develop. This would mean the possibility of a further procedure in the future.

There is an information leaflet available on how to care for your wound after your operation. Please ask the nurse looking after you on the ward for a copy if you are not offered this leaflet.

How do I care for my fistula or graft after my operation?

Keep your fistula or graft arm or leg warm in cold weather.

Never let anyone take blood, put up a drip, insert a needle or take your blood pressure on the arm with your fistula or graft.

Don’t wear tight clothing, a wristwatch or tight jewellery on your arm or leg, this could restrict the blood flow and damage your fistula or graft.

Do not pick scabs on your arm or leg.

Do not have a tattoo put on your arm or leg.

Try to avoid sleeping on your arm that has the fistula or graft.

Follow up

The Renal Team will monitor the development of your fistula or graft after surgery. If you are on dialysis already your Renal Unit will monitor the wound and development of your access.

If you are not yet on dialysis the Renal Specialist Nurse will contact, you within two weeks of your operation to see how things are and arrange to see you either at home or in the hospital.

Exercises to help your fistula to develop

If you have a fistula there are some simple exercises you can do that may help it to develop. You should start doing the exercises when your operation wound has fully healed, normally after two weeks. Do the exercises three or four times a day or as often as possible. They are quite simple and can be done sitting down, for example while reading a book or watching television.

What is a Central Line?

A central line is a plastic tube that is placed into a large vein, usually in your neck or occasionally the top of your leg.

When may a central line be used?

A central line is used if there is no other access for haemodialysis available. In some people kidney failure comes on suddenly and requires urgent dialysis. A line may also be used for people who have a fistula that is not developed enough to be used at the time dialysis is required. A line is also used if a fistula or graft has stopped working. Ideally lines are only used for a short time while a fistula is made (or the existing fistula has developed enough to be used).

How will I know if my central line is working?

The nurses in the Haemodialysis Unit will use your central line. Occasionally, the lines can become blocked. Sometimes it can be unblocked using anticoagulant medication injected into the lines.
If the line continues to be blocked it may need to be replaced.

How soon can my central line be used for dialysis?

If your line is in your neck you will have a chest x-ray done to check the position of the lines and to identify any possible complications. After the x-ray, some types of lines can be used immediately, others after 24-48 hours.

What are the complications of having a central line inserted?

- **Infection**
  There is a risk of infection, at the 'exit' site (where the plastic tubing leaves the skin), and directly in the bloodstream (septicaemia). It is very important that you report any signs of infection (such as fevers or shaking episodes) to the Renal Unit as soon as possible or to the Emergency Department

- **Damage to the artery or other structures**
  The central line is usually placed into a large vein in your neck (jugular vein). The most severe complication is damage to the artery in the neck. This is rare. Damage to other structures such as nerve or lung tissue is also rare.

The chances of these complications occurring are small and are far outweighed by the benefits of being able to offer you haemodialysis treatment.

There is an information leaflet available about how to care for your central line. Please ask the nurses in the Renal Unit if you need one.

Where can I get more information?

If you need more information then please discuss this with your kidney specialist, specialist nurse or contact the renal unit (see the numbers on the front of this booklet).

Please contact the Renal Team if you have any concerns.

If you think you may have an infection contact your GP or the hospital as soon as possible (day or night).

If you think your fistula or graft is not working properly, ring your Renal Unit or Renal Specialist Nurse during working hours.

How to contact us

If you are already on dialysis please contact your own Haemodialysis Unit on the numbers listed below.

York Renal Haemodialysis Unit: Tel: 01904 725370
Open Monday – Saturday 7am until 11pm

Scarborough Renal Haemodialysis Unit
Tel: 01723 342601
Open Monday – Saturday 7am until 7pm

Easingwold Renal Satellite Unit: Tel: 01904 724800
Open Monday – Saturday 7am until 7pm

Harrogate Renal Satellite Unit: Tel: 01423 554519
Open Monday – Saturday 7am until 11pm

Out of hours contact Ward 33 York Hospital
Tel: 01904 726033

If you are not yet on dialysis please contact:

York Renal Haemodialysis Unit
Tel: 01904 725370
Open Monday – Saturday 7am until 11pm

Renal Specialist Nurses
Tel: 01904 721852 or 725486
Monday – Friday

Out of hours contact Ward 33 Tel: 01904 726033

Tell us what you think of this leaflet

We hope that you found this leaflet helpful. If you would like to tell us what you think, please contact:
Carl Taylor, Renal Access Nurse,
The York Hospital, Wigginton Road, York, YO31 8HE or telephone 01904 721852

Teaching, training and research

Our Trust is committed to teaching, training and research to support the development of health and healthcare in our community. Healthcare students may observe consultations for this purpose. You can opt out if you do not want students to observe. We may also ask you if you would like to be involved in our research.

Patient Advice and Liaison Service (PALS)

PALS offers impartial advice and assistance to patients, their relatives, friends and carers. We can listen to feedback (positive or negative), answer questions and help resolve any concerns about Trust services.

PALS can be contacted on 01904 726262, or email pals@york.nhs.uk.

An answer phone is available out of hours.

Leaflets in alternative languages or formats

Please telephone or email if you require this information in a different language or format, for example Braille, large print or audio.

如果你要求本資 不同的 或 式提供，電 或發電

Jeżeli niniejsze informacje potrzebne są w innym języku lub formacie, należy zadzwonić lub wysłać wiadomość e-mail

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Owner	Carl Taylor, Renal Access Nurse
Date first issued	December 2005
Review Date	September 2025
Version	4 (Re-issued September 2022)
Approved by	Dr C H Jones, Consultant Physician
Document Reference	PIL 9 v4.4