

## Vascular Access Surveillance

Both AVF and AVG may develop narrowing after a certain period of time, which can lead to clogging. Periodic monitoring of vascular access can help identify narrowing. Prompt intervention for the narrowing can prolong the patency of AVF / AVG.

### Non-Invasive Monitoring

- Hemodialysis chart.
- Transonic measurements.
- Duplex ultrasound study.

### Treatment Options

- Balloon angioplasty, with or without stenting.
- Surgical revision.
- Mild coolness or numbness in the hand with AVF/ AVG is common. However, if the sensation is severe, tell your surgeon. The access may reduce blood flow to your hand, a condition call 'steal' syndrome.
- You should perform hand exercises to enhance growth of your fistula after the pain from the surgery subsided.
- Avoid lifting heavy object(s) or activities that can stress the access area.
- Avoid tight clothing or lying on top of your access arm while sleeping, as this can slow down the blood flow and raise the risk of clotting.
- Do not allow blood pressure measurement or blood taking from the access arm.
- Feel the thrill or vibration of the blood through your access few times a day. If the thrill or vibration feels weak or absent, contact your dialysis centre or doctor.
- Encourage dialysis nurses to use different spots of AVF / AVG for needling.

## Location



- A** Linkway @ Level 1  
Via MRT station  
(Exit A)
- B** Linkway @ Level 1
- C** Linkway @ Level 4
- Drop off only
- Bus Stop
- Carpark
- Taxi Stand / Drop off
- Kent Ridge MRT  
Station @ Level 1



**National University Hospital**  
5 Lower Kent Ridge Road, Singapore 119074  
Tel: 6779 5555 Fax: 6779 5678 Website: [www.nuh.com.sg](http://www.nuh.com.sg)

### Contact Information

#### National University Heart Centre, Singapore

1 Main Building of NUH, Diagnostic Vascular Laboratory, Level 3.

**Opening Hours:** 8.30 am - 5.30 pm (Monday - Friday)

Closed on Weekend & Public Holidays

**Website:** [www.nuhcs.com.sg](http://www.nuhcs.com.sg)

### Getting to NUH

#### Circle Line Kent Ridge MRT Station

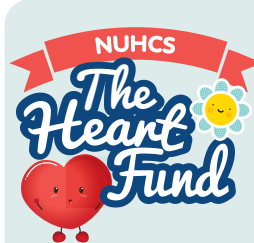
Commuters can transit at the Buona Vista MRT Interchange and alight two stops after at the Kent Ridge Station. The station is served by three exit-entry points.

**Exit A:** Right at the doorstep of National University Heart Centre, Singapore.

**Exit B:** Along South Buona Vista Road, which links to Singapore Science Park 1.

**Exit C:** Leads to NUH Medical Centre.

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**National University  
Heart Centre, Singapore**  
A member of the NUHS



## Vascular Access Surgery

**View patient education videos  
on NUHCS YouTube page!**

STEP 01



Download a FREE  
QR Reader on your  
smartphone and  
scan the QR code.

STEP 02



The QR code will decode  
instantly. You'll be brought to  
[www.youtube.com/user/NUHCS](http://www.youtube.com/user/NUHCS)



Scan the QR code

## What is Vascular Access Surgery?

It is a surgery that creates a long term vascular access for hemodialysis, either in the form of an Arteriovenous Fistula (AVF) or Arteriovenous Graft (AVG). Blood can then be drawn out and returned between your body and the dialysis machine via the vascular access.

## Who needs Vascular Access Surgery?

If you have end stage kidney disease, and have decided on hemodialysis, your kidney doctor will inform you about it.

## What treatment options are available?

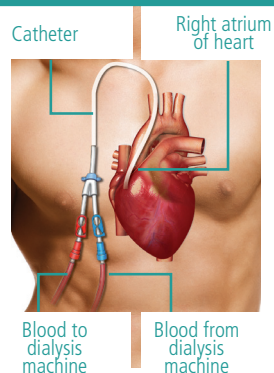
### Arteriovenous Fistula (AVF)

Patient's native vein is connected to one's artery under an open surgery. Right-handed patients will generally have the left arm chosen for surgery and vice versa. AVF can be created at the forearm, upper arm, or upper thigh and takes 6-12 weeks to mature (ready for use). About 60-70% of AVF will successfully mature, those that did not mature will require another access surgery. Good artery inflow and native superficial vein are prerequisites of a successful AVF. It is the preferred method of access for dialysis patients because it has lower associated costs, higher durability, lesser chance of infection and hospitalization associated with the procedure.

### Arteriovenous Graft (AVG)

It is an artificial blood vessel (graft) joined between an artery and a vein surgically. It is used for patients with small or diseased native veins. The entire graft is placed beneath the skin and can be situated in the forearm, upper arm, or upper thigh. After surgery, it takes 1-2 weeks to be ready for needling. Body tissue will grow around and hold the AVG. After needling, the hole in the graft is sealed by body tissue, and can therefore be used repeatedly. Compared to AVF, grafts tend to have more problems with clotting or infection. Their durability is shorter than AVF in general.

### Catheter



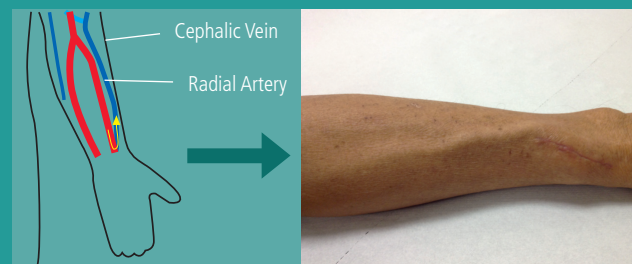
Catheter is a temporary access inserted at the neck, upper chest or groin area. For patients who need immediate hemodialysis, this is a bridging method until a long term vascular access is available. The complications include clogging, infection or central vein narrowing or blockage.

## Creation Process of AVF / AVG

After a vein mapping (ultrasound) is done on your limb, your surgeon will assess and advise on the type of fistula suitable for you. Below are some commonly used AVF / AVG:

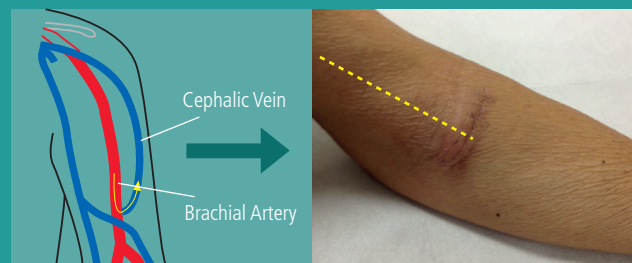
### 1 Radiocephalic Fistula

The incision is in the forearm and is usually 3-5 cm long. Operation is typically done under local anesthesia and takes about 1 to 2 hours.



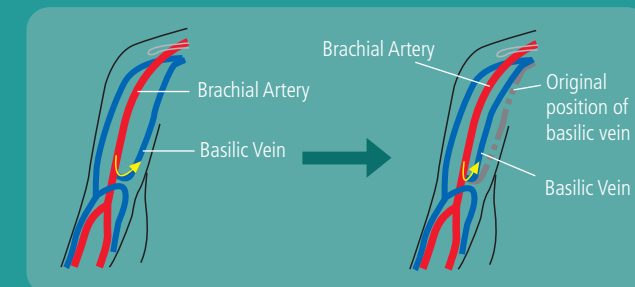
### 2 Brachiocephalic Fistula

This AVF uses a vein at the elbow level. It is performed under local or regional anesthesia. Needling of the AVF may be more challenging for people with thick subcutaneous fat.



### 3 Brachio basilic Fistula

The basilic vein used for this fistula lies deep in the inner side of the arm. The vein has to be moved to a more superficial level under the skin to allow easy needling. Usually, it takes 2 operations to create this AVF. Occasionally, one combined procedure can be done. Regional or general anesthesia is required to mobilize the vein fistula.



## Arteriovenous Graft

