

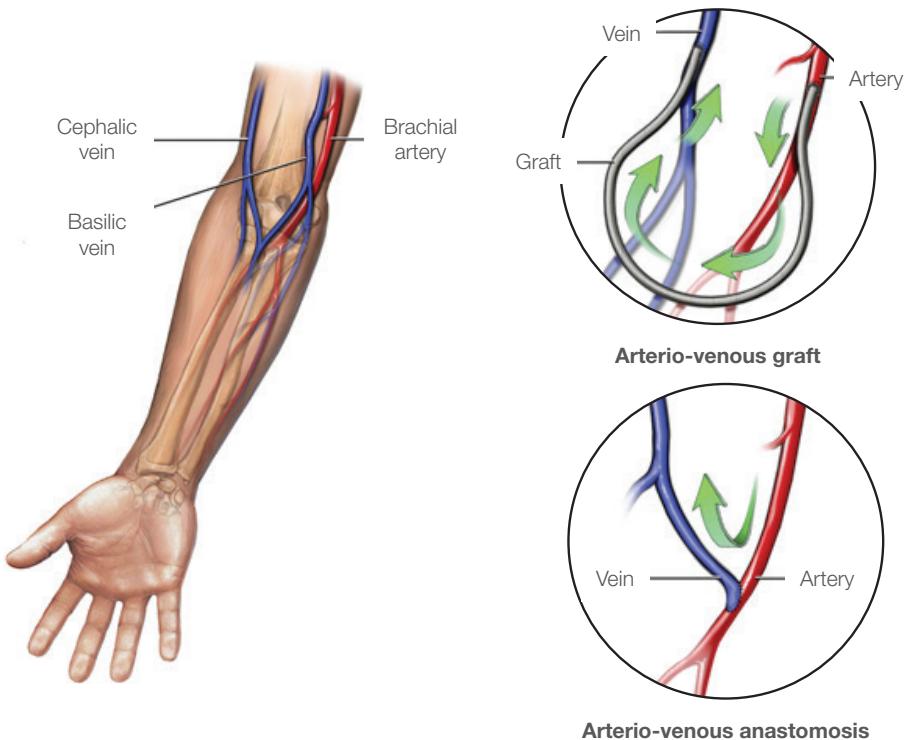
# Vascular Access Surgery



The Department of Surgery sees patients for a wide range of surgical services. These include Colorectal, Endocrine, Breast, Upper GI, Bariatrics, Hepatobiliary, Plastics, Neurosurgery, Urology and Vascular Surgery. Our highly qualified consultants use minimally-invasive surgery and surgical endoscopy for diagnostic and therapeutic interventions in the treatment of these conditions. We provide inpatient and outpatient care with a 24-hour acute surgical service. Day surgery (endoscopy) and minor surgery (lumps and bumps) are also offered at Jurong Medical Centre.

# What is vascular access surgery?

Vascular access surgery is a surgery that creates a fistula or graft for long-term access to the bloodstream for dialysis. It can either be an arteriovenous fistula (AVF) or arteriovenous graft (AVG), and will allow blood to be withdrawn, processed and filtered by a dialysis machine before being returned back to the body.



# Who needs vascular access surgery?

Patients with end-stage kidney disease often cannot eliminate the toxins and excess fluid in their body easily. This can make them very sick. A kidney doctor will discuss with you the most appropriate method to start on renal replacement therapy. If you have opted for haemodialysis, vascular access surgery is usually recommended.

# **What are the options available?**

## **Arteriovenous Fistula (AVF)**

An AVF connects your vein directly to the artery to increase blood flow and pressure in the vein for easier haemodialysis. It can be constructed in the arm, wrist, forearm or upper arm, and is often performed in the non-dominant limb. AVF creation is a day procedure that can be performed under local anaesthetic. After surgery, the fistula will take approximately six to 12 weeks to mature and be ready for use. Further surgery may be required in patients whose AVF do not mature successfully and AVF is preferred for its durability, lower cost, and lower rate of infection and complications.

## **Arteriovenous Graft (AVG)**

An AVG involves connecting an artificial graft between an artery and a vein. Performed as an open surgery in the non-dominant arm, AVG is used when there are no suitable native veins for a fistula. The graft is placed under the skin and in the forearm, upper arm or upper thigh. AVG creation is performed under a regional or general anaesthetic. The graft will be ready for use approximately one or two weeks after surgery. It is specially designed to seal after needling and can be used repeatedly. Compared to AVF, an AVG has a higher chance of infection and blockage, and tends to be less durable.

# How is an AVF/AVG created?

A vein and artery mapping ultrasound scan is performed on both arms to determine the quality and size of your arm vessels. Doing so will allow your surgeon to assess the blood flow in your arteries as he discusses with you the most appropriate position for your AVF/AVG. This will be guided by considerations such as the quality of your blood vessels, hand dominance, arm's functional ability and your occupation.

- **Radio-cephalic fistula**

A 3 to 5cm incision is made at the wrist to join one of the superficial veins of the upper limb (cephalic vein) to the radial artery.

- **Brachio-cephalic fistula**

A superficial vein of the upper limb (cephalic vein) is joined to the major blood vessel of the upper arm (brachial artery) at the elbow.

- **Brachio-basilic fistula**

A superficial vein (basilic vein) on the upper limb is joined to the major blood vessel of the upper arm (brachial artery) at the elbow. The basilic vein is normally located on the inner aspect of the arm and needs to be moved to the front of the upper arm so that it is more easily accessed during dialysis. Two operations may be required for this and can be performed under regional or general anaesthetic.

- **Arteriovenous graft**

There are various configurations for an arteriovenous graft: forearm loop graft, upper arm graft or upper thigh loop graft. The graft is inserted under the surface of the skin.

## How do I care for my vascular access?

- Keep it clean and dry at all times.
- Perform hand exercises to enhance the growth of the fistula.
- Avoid sleeping on your access arm or wearing tight clothing/jewelry.
- Avoid bumping or cutting your vascular access by accident.
- Avoid lifting heavy objects that press directly on your vascular access.
- Do not allow blood pressure measurements or your blood to be taken from the arm with the AVF/AVG.
- Check the flow in your vascular access daily and seek immediate help if you cannot feel a 'buzzing' or vibration under the skin where the vascular access is, or if it is swollen or red.
- Encourage your dialysis nurse to use different areas along the AVF/AVG for needling.

Avoid  
sleeping on  
your access  
arm



## **Monitor your Vascular Access**

AVF/AVG may develop “narrowing’s” over time and cause haemodialysis to be inefficient. It can also cause clotting and blockage of your vascular access. Quick intervention can prevent this and prolong the lifespan of your vascular access.

Regular monitoring of the AVF/AVG can be performed by:

- Inspecting your vascular access site daily
- Checking the dialysis machine for information, flow and pressure
- Using Doppler ultrasound scanning to get information on flow and areas of narrowing

If narrowing occurs, your Vascular Surgeon can repair it by performing an endovascular procedure (balloon angioplasty +/- stenting) or open surgical revision.

## For more information

### Ng Teng Fong General Hospital and Jurong Community Hospital

1 Jurong East St 21, Singapore 609606

[www.ntfgh.com.sg](http://www.ntfgh.com.sg) | [www.jch.com.sg](http://www.jch.com.sg)

### Clinic opening hours

Monday – Friday: 8.30am – 5.30pm

Saturday: 8.30am – 12.30pm (Selected clinics only\*)

Dental Clinic: Monday – Thursday: 8.00am – 5.30pm, Friday: 8.00am – 5.00pm

\*Please refer to our websites for more details.

### General enquiries & appointments

General enquiries line: 6908 2222 (24-hr)

Fax: 6716 5500 | Email: [contactus@nuhs.edu.sg](mailto:contactus@nuhs.edu.sg)

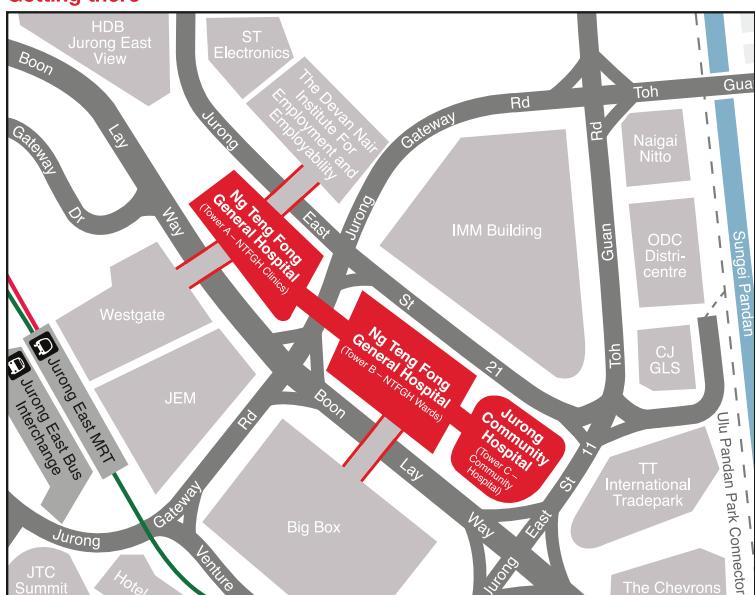
Appointment line: 6908 2222 (Monday – Friday: 8.00am – 5.30pm, Saturday: 8.00am – 12.30pm)

Fax: 6716 2200 | Email: [appointment@nuhs.edu.sg](mailto:appointment@nuhs.edu.sg)

Dental appointment line: 6716 2233 (Monday – Friday: 8.00am – 5.30pm)

Fax: 6716 2200 | Email: [JHCampus\\_Dental@nuhs.edu.sg](mailto:JHCampus_Dental@nuhs.edu.sg)

### Getting there



### By train

Alight at Jurong East MRT Station

### By bus

#### Jurong East Bus Interchange

41, 49, 51, 52, 66, 66B, 78, 78A, 79, 79A, 97, 97E, 98, 98M, 105, 143, 143M, 160, 160A, 160M, 183, 183B, 197, 333, 334, 335, 506

### Along Boon Lay Way

49, 99, 333, Private bus service 625, 990

### Disclaimer:

The information in this brochure is meant for educational purposes and should not be used as a substitute for medical diagnosis or treatment. Please seek your doctor's advice before starting any treatment or if you have any questions related to your health, physical fitness or medical condition. Information is accurate at the time of printing.