

Neurovascular Ultrasound



The Neurodiagnostic Laboratory provides a comprehensive range of diagnostic investigations to help doctors in the evaluation, diagnosis and treatment of epilepsy, stroke, neuromuscular and neurological diseases. Neurology services are also provided at the Specialist Outpatient Clinics, Emergency Department, Intensive Care Unit and as an inpatient service.

What is a Neurovascular Ultrasound?

Neurovascular ultrasound uses non-invasive ultrasound imaging techniques to assess the circulation of blood flow to and within the brain. Neurovascular ultrasounds determine if blood vessels are narrowed by plaque(s) or have gone into spasm. They are also used to determine if anticoagulation medications are effective in dissolving blood clots in the blood vessels. Typically, Neurovascular ultrasound procedures are used to evaluate patients who already suffered a stroke/transient ischemic attack (TIA) or are at risk of a stroke.

Neurovascular ultrasounds include:

- Extracranial Doppler Study (ECD)
- Transcranial Doppler Study (TCD)



Extracranial Doppler Study (ECD)

Extracranial Doppler Study assesses the blood circulation of major arteries of the neck which supplies blood to the brain, mainly the carotid arteries and vertebral arteries. This procedure measures the blood flow velocity in the vessels and creates images of the vessels to identify structural abnormalities such as blockages or narrowing of the vessels.

Transcranial Doppler Study (TCD)

Transcranial Doppler Study assesses the blood circulation of major arteries inside the head which supplies blood to various parts of the brain. This procedure measures the blood flow velocity in the vessels to identify blockages or narrowing of the vessels.

There are also specialised TCD applications which your physician may require you to undergo.

TCD Emboli Monitoring monitors the presence of mobile blood clots or small pieces of plaques which may cause blockages in the arteries. Detecting emboli can provide a better understanding of what is causing a stroke and help to direct therapeutic management or identify patients at higher risk of contracting a stroke. During the procedure, you will wear a headframe with ultrasound probes attached to it.

TCD Vasomotor Reactivity (VMR) assesses the brain's vasomotor reactivity, and ability to react to changes such as variations in breathing patterns or when there is an increased demand for oxygen. You will be asked to hold your breath for 30 seconds or more for this procedure.

Bubble Study (right to left shunt detection) identifies the presence of a shunt (hole) which allows blood to cross between two sides of the heart. A cannula will be inserted into the veins of your arm where a sterile salt solution is shaken until tiny bubbles form and are injected into your bloodstream. A technologist will then monitor for the presence of injected bubbles in the brain's blood circulation.

What can I expect?

- You will be asked to lie down and relax throughout the procedure in a dimly lit room.
- During the examination, an ultrasound probe and water soluble gel will be placed at various points of your neck and head (over the eyelid, sides of the head, back of the head). The gel will not harm your skin or stain your clothes, and will be wiped off after the procedure. Should the gel get on your clothing, allow some time for it to dry off.



- All procedures lasts between 45 minutes to one hour (or longer). This depends on the complexity and number of procedures required.

How should I prepare?

You do not need to prepare specially for the tests. However, do take note of the following:

- Procedures will involve assessing the neck and head area. Please remove any headwear and loosen your neck collar.
- Do not apply oil, lotion, cream or gel on your head or neck.
- Continue with your current medication unless otherwise instructed.
- There is no need to fast and you can take a light meal.
- Do not wear long-sleeved tops if you are coming for a Bubble Study.

Are tests safe? Will there be any side effects?

All tests are generally safe, painless and do not report any side effects unless indicated. Ultrasound is very safe and no complications have been documented even with repeated examinations. The sterile salt solution used in a Bubble Study can be easily absorbed into your bloodstream.

When will I know the results?

A team of neurologists will review and interpret the studies. Your referring physician will inform you of the test results at your next appointment.

For more information

Ng Teng Fong General Hospital and Jurong Community Hospital

1 Jurong East St 21, Singapore 609606

www.ntfgh.com.sg | 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

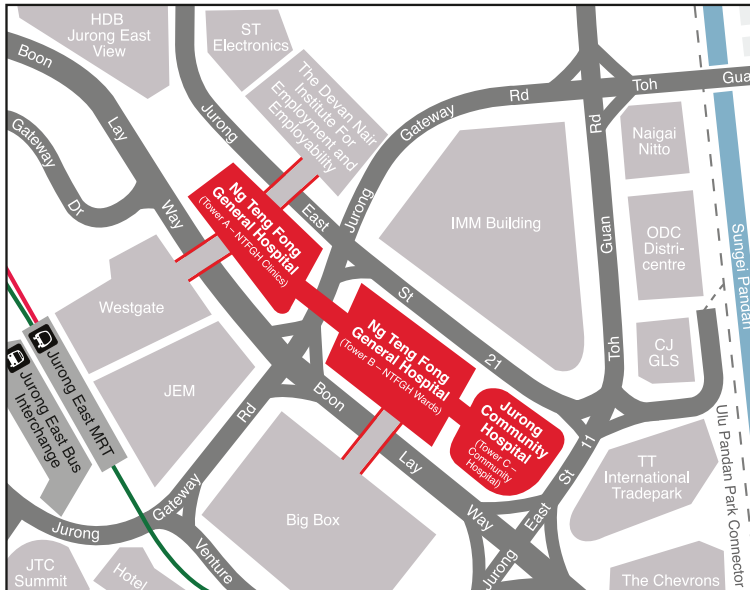
Appointment line: 6908 2222 (Monday – Friday: 8.00am – 5.30pm, Saturday: 8.00am – 12.30pm)

Fax: 6716 2200 | Email: appointment@nuhs.edu.sg

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

Fax: 6716 2200 | Email: 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.