



National University
Heart Centre
Singapore



Heart Valve Surgery

What are heart valves?

Heart valves are “doors” that control the flow of blood between the different parts or chambers of the heart.

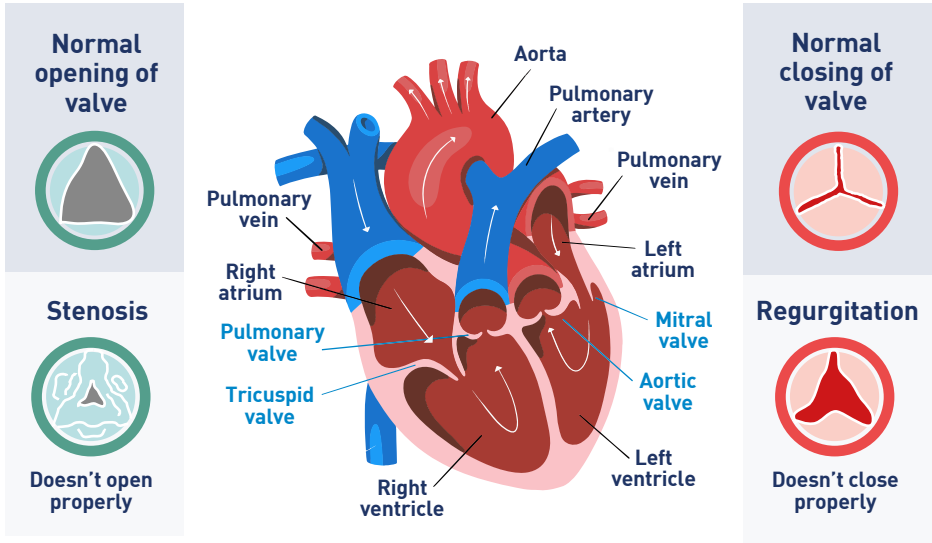


Diagram showing the cross-section of the heart and the two common types of valve disease - Stenosis and Regurgitation.

What is Valvular Heart Disease?

In Valvular Heart Disease, one or more of the heart valves become damaged and cannot function properly. Different diseases affect different valves. Certain diseases tend to affect one heart valve more than the others. The valves in the left side of the heart that transports oxygenated blood are more commonly affected than those in the right side of the heart.

What are the symptoms?

In general, valves can either 'leak' (do not close properly) and cause blood to flow backwards, or become 'tight' (do not open properly) and cause a narrowing that prevents blood from passing through.

In the early stages of Valvular Heart Disease, you may have no symptoms and feel alright even if your valve is badly damaged. The symptoms may appear later and become worse as the disease progresses.

Common symptoms include:

- Shortness of breath on exertion
- Fatigue or tiredness
- Feeling of faintness
- Irregular heart beat
- Chest pain
- Swelling of legs

If you have experienced these symptoms, you would have been referred to a Cardiologist for further evaluation. The Cardiologist would perform an Echocardiogram, a painless cardiac test using ultrasound, to help evaluate the heart and its different structures. This will help your doctor to accurately diagnose any Valvular Heart Disease and provide the correct treatment.



What are the treatment options?

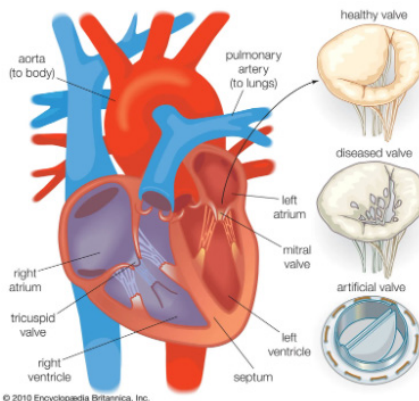
Depending on the diagnosis, you may be:

- Given medications and be followed up regularly
- You may be required to undergo further evaluation such as Endoscopic Ultrasound (Transesophageal Echocardiography) or CT scan
- Referred to an interventional cardiologist
- Referred to a cardiac surgeon

The cardiac surgeon will:

- Explain why open heart surgery may be the best option for your condition
- Explain the different ways of treating the valves
- Describe the surgical procedure
- Explain the risks, benefits and possible complications
- Explain the post-operative care
- Address any further doubts or concerns
- Help you reach a decision and set a date for the surgery

Example of Mitral Valve Replacement for Mitral Stenosis



What are the types of valve surgery?

Your damaged valve may be repaired or replaced. If suitable, a repair of your valve will be preferred. If a repair is not possible, the surgeon will then replace your heart valve. Depending on your heart condition and valve affected, your surgeon will counsel you on the best option.

Valves can be **repaired** with an annuloplasty ring, and other repair techniques.

Valves can be **replaced** with either:

- Mechanical (metal and plastic) options
- Tissue (animal heart tissue)



Annuloplasty
Ring



Mechanical
Valve



Bioprosthesis
(Tissue) Valve

How do you prepare for the surgery?

Pre-Admission

- All the necessary tests (e.g. blood tests, X-Ray, etc) will be done within two weeks before your admission to the hospital. In this way, you will only need to be admitted the day before surgery, helping you save on your hospital bill.
- Should any of your tests be abnormal, you can be treated in time so as not to delay surgery. You may also be booked into the Anaesthesia Outpatient Consultation Clinic (AOCC) to screen your investigations and ensure that there are no other issues to address before surgery.
- You should stop smoking at least 2-3 weeks before surgery to enable faster recovery and to reduce the risk of complications.
- You should eat a healthy balanced diet and rest well before the surgery.

- Traditional alternative herbal remedies – such as Traditional Chinese Medicine, Jamu, Ayurvedic treatments etc. - should be stopped three weeks before surgery, as these can interfere with the body's response to major surgery and increase the risk of serious complications.
- When you come for your blood tests and orientation, you will be given a bottle of anti-bacterial soap for bathing. Please use this for three consecutive days before admission to reduce your risk of infection.

Admission

- You will usually be admitted a day before your heart surgery. You may need to be admitted earlier if your condition needs to be optimised or improved first to make the surgery safer.
- A team of doctors will perform a thorough check on you to ensure that everything is in order.
- They will explain the surgery to you again, and you may also address any further concerns with them.
- The Anaesthetist will visit you to ensure no new issues have arisen since your AOCC consult and to address any further questions you may have about the anaesthesia.
- You are recommended to shower with antibacterial soap both the night before and on the morning of the surgery in order to reduce your risk of infection.
- You will not be allowed to eat or drink after midnight.

Operation and post-operative care

- Your surgeon will advise on the expected duration of the surgery based on the requirements of the operation.
- After your operation, you will be transferred to the Cardiothoracic Intensive Care Unit (CTICU) for close monitoring during your recovery phase.

- Before you transfer from the CTICU back to the general ward, the monitoring lines and urine catheter that were inserted just before the start of your operation will be removed. Chest tubes inserted during the operation may be removed in the CTICU or general ward.
- A routine hospital stay is usually about 4-7 days if no complications arise. Patients who are deconditioned after surgery and need more intensive therapy to regain their strength may benefit from a period of inpatient rehabilitation in a community hospital. This will be assessed by the Physiotherapy and Occupational Therapy teams in the ward.
- Recovery usually takes 4-6 weeks. Depending on your work commitments, you may be granted a longer period of hospitalisation leave in order to complete your cardiac rehabilitation before returning to work.
- You will be given an appointment for early review by the surgical team. This usually takes place 2-3 weeks after hospital discharge, enabling the team to review your wound healing, blood tests, ECG and chest X-ray results.
- You will also be given appointments to see your Cardiac Surgeon and Cardiologist.
- Cardiac Rehabilitation is strongly recommended to optimise the long-term benefits of heart surgery. After discharge, you will be referred to the Cardiac Rehabilitation Programme either at the NUHCS Heart Clinic at NUH, or at a hospital near you.



Follow us:



National University Heart Centre, Singapore (NUHCS)

- NUHCS at National University Hospital (NUH), Kent Ridge - Main Operations
Main Building Zone F
Operating Hours: 8:00am - 5:30pm (Monday - Friday)
Closed on Weekends & Public Holidays
- NUHCS Heart Clinic @ Ng Teng Fong General Hospital (NTFGH)
Tower A - Specialist Outpatient Clinics Level 3, Clinic A34
Operating Hours: 8:00am - 5:30pm (Monday - Friday)
8:30am - 12:30pm (Saturday)
Closed on Sundays & Public Holidays
- NUHCS Heart Clinic @ Alexandra Hospital (AH)
Operating Hours: 8:30 am - 5:30 pm (Monday - Friday)
Closed on Weekends & Public Holidays
- NUHCS Heart Clinic @ Jurong Medical Centre (JMC)
Operating Hours: 8:30 am - 5:30 pm (Monday - Friday)
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