PROCEDURE

Heart valve surgery

Heart valve surgery repairs or replaces a damaged valve to improve blood flow through the heart.

PURPOSE
Restore blood flow through a damaged heart valve

PROCEDURE TYPE
Therapeutic; open or minimally invasive surgery

WHERE IT IS DONE
Operating theatre

ANAESTHESIA
General

HOW LONG IT TAKES
About 2 to 6 hours

PREPARATION
Fasting, medication review, blood tests, and heart imaging

RECOVERY
Several hospital days; no driving until cleared

MAIN RISKS
Bleeding, infection, stroke, and abnormal heart rhythms

RESULTS
Valve function checked during surgery and before discharge

Overview

Heart valve surgery repairs or replaces one or more of the heart's four valves. These valves open and close to keep blood moving in the correct direction.

A valve may become too narrow, called stenosis , or may not close properly, causing blood to leak backward. Surgery can improve blood flow, reduce strain on the heart, and help prevent further heart damage.

The operation may be performed through an incision down the middle of the chest or through smaller incisions between the ribs. The best approach depends on the valve involved, your anatomy, previous operations, and the type of repair or replacement needed.

Whenever possible, the surgeon may repair your own valve. If replacement is necessary, the

new valve may be mechanical or made from animal or donated human tissue.

Why the procedure is performed

Heart valve surgery is usually considered when valve disease is severe, is causing symptoms, or is beginning to affect how well the heart works.

Reasons for surgery may include:

The timing matters. Waiting too long can allow permanent heart damage, while operating too early may expose you to risks before there is a clear benefit. Your team will use heart scans, symptoms, overall health, and your preferences to recommend when treatment is appropriate.

- Shortness of breath, chest discomfort, fainting, or reduced ability to exercise
- An enlarged or weakened heart caused by valve disease
- A severely narrowed or leaking valve, even before symptoms develop
- A valve infection that has damaged the valve or is difficult to control
- A valve problem found while another heart operation is planned

Who should and should not have it

Heart valve surgery may be suitable if the expected improvement in health or quality of life is greater than the risks of an operation. Decisions are often reviewed by a heart team that includes cardiologists, imaging specialists, and heart surgeons.

It is not the right treatment for every valve problem. Mild or moderate disease may only need regular monitoring. Some people are better suited to a catheter-based procedure, which treats the valve through a blood vessel without opening the chest.

Elective surgery may be avoided or delayed when:

Age alone does not decide whether someone can have surgery. Frailty, kidney and lung health, previous operations, expected lifespan, and personal goals are also important.

- The valve problem is unlikely to improve symptoms or heart function
- Another serious illness makes meaningful recovery unlikely
- An unrelated infection needs treatment first
- A temporary health problem makes anaesthesia or surgery unusually risky

- Pregnancy allows the procedure to be safely postponed
- Less invasive treatment offers a better balance of benefit and risk

How to prepare

Your treating facility's own instructions take priority because preparation differs by operation and hospital.

You will usually have blood tests, an electrocardiogram to check the heart's electrical activity, and heart imaging. A coronary angiogram may be needed to look for narrowed heart arteries. Dental assessment is sometimes recommended because untreated dental infection can spread through the bloodstream.

Give your team a complete list of medicines, supplements, allergies, and previous reactions to anaesthesia. Blood thinners like warfarin or apixaban may need adjustment, but do not stop them unless the team managing your operation tells you to.

You will receive instructions about when to stop eating and drinking. Ask which regular medicines to take on the morning of surgery.

Plan for help after discharge. Arrange transport home, prepare easy meals, and consider support with shopping, cleaning, and caring responsibilities during early recovery.

Smoking increases lung and wound problems. If you smoke, stopping before surgery can support recovery even when the available time is short.

What happens during the procedure

You receive general anaesthesia, so you are unconscious and do not feel the operation. A breathing tube supports your breathing.

For many operations, the surgeon opens the breastbone to reach the heart. Some procedures use smaller chest incisions. A heart-lung bypass machine often circulates and oxygenates your blood while the surgeon works on the valve.

A repair may reshape the valve, support it with a ring, or repair the tissue and cords that control it. Repair keeps your natural valve and may avoid some problems associated with replacement, but a lasting repair is not always possible.

If the valve is replaced, the main options are:

Your age, pregnancy plans, bleeding risk, ability to take blood thinners, and preferences all affect this choice.

Before finishing, the team checks the valve with ultrasound imaging. Temporary wires, chest drains, and intravenous lines may remain in place afterward.

- Mechanical valves: Very durable, but usually require lifelong blood-thinning medicine and regular blood tests
- Tissue valves: Usually do not require lifelong blood thinning solely because of the valve, but can wear out over time

Recovery and what to expect afterward

Pain and soreness are expected around the chest incision. If the breastbone was opened, coughing, moving, and getting out of bed may be uncomfortable at first. Pain medicine and supporting the chest with a pillow can help.

You will usually start with drinks and light food, then return to normal meals as nausea settles. A reduced appetite is common during early recovery. Follow any advice about salt, fluids, or diet.

Nurses and physiotherapists help you sit, stand, walk, and perform breathing exercises soon after surgery. Activity should increase gradually. If the breastbone was opened, you may need temporary limits on lifting and upper-body strain while it heals. Cardiac rehabilitation provides supervised exercise and recovery support.

Do not drive until your surgical team says it is safe. You must be able to turn, control the vehicle, and make an emergency stop without pain or hesitation. You should also check any licensing and insurance requirements.

Returning to work may take several weeks. A desk-based job may be possible sooner than physical work. Recovery is often faster after a smaller-incision operation, but the valve treated and your general health also matter.

Risks and possible complications

Your team should explain your individual level of risk before you consent. Possible complications include bleeding, wound or chest infection, stroke, blood clots, kidney problems, lung problems, and reactions to anaesthesia.

Abnormal heart rhythms can occur after surgery. Some settle with treatment, while a small number of people need a permanent pacemaker.

There is also a risk of heart attack, failure of the repaired or replacement valve, or death. The

likelihood is influenced by the urgency and complexity of the operation, your age, and other health conditions.

Mechanical valves can form dangerous clots if blood thinning is inadequate. Blood thinners also increase bleeding risk. Tissue valves can gradually stiffen or leak and may eventually need another procedure.

Results and follow up

The surgical team can usually tell you soon after the operation whether the repair or replacement is working as planned. An echocardiogram, which is an ultrasound scan of the heart, is commonly performed before discharge or during early follow-up.

Routine follow-up checks the incision, heart rhythm, symptoms, medicines, and valve function. Further echocardiograms are used to establish a baseline and monitor the valve over time.

Take prescribed medicines exactly as directed. If you have a mechanical valve, blood-thinning treatment and regular monitoring are especially important.

Tell dentists and other healthcare professionals that you have had valve surgery. Some people with replacement valves or valve-repair material need antibiotics like amoxicillin or doxycycline before certain dental procedures. Your heart team can tell you whether this applies to you.

Alternatives

Regular monitoring may be appropriate when valve disease is not yet severe or is not damaging the heart. This avoids an operation now, but the valve can worsen and requires dependable follow-up.

Medicines may ease fluid buildup, control blood pressure, or manage an abnormal rhythm. They can improve symptoms but usually cannot open a narrowed valve or permanently stop a severe leak.

Catheter-based valve procedures reach the heart through a blood vessel. Transcatheter aortic valve replacement is an alternative to surgery for many people with severe aortic stenosis. Catheter-based edge-to-edge repair may help selected people with leaking mitral or tricuspid valves. These options avoid a large chest incision, but they are not suitable for every valve or anatomy, and long-term durability may differ.

Balloon valvuloplasty uses a balloon to widen certain narrowed valves. It may provide temporary relief or help in selected situations, but the valve can narrow again.

Choosing no procedure is also an option. It avoids immediate treatment risks but may allow symptoms, heart damage, or other complications to progress.

When to call your healthcare team

Contact your surgical team promptly for increasing wound redness, warmth, swelling, drainage, worsening pain, fever, new palpitations, rapid weight gain, increasing leg swelling, or breathlessness that is getting worse rather than better.

Seek emergency help for severe trouble breathing, fainting, heavy or uncontrolled bleeding, sudden chest pain, or signs of a stroke such as facial drooping, arm weakness, confusion, or difficulty speaking.

Routine questions about activity, medicines, appetite, sleep, or return to work can usually wait for your follow-up appointment unless symptoms are worsening.

Common questions

Will I be asleep?

Yes. Heart valve surgery is performed under general anaesthesia. You are unconscious during the operation and receive breathing support.

Can I drive home?

No. Someone else must take you home. Do not resume driving until your team confirms that your chest movement, concentration, and reaction time are safe.

How painful is heart valve surgery?

Chest soreness is common, especially if the breastbone is opened. Pain medicine should make breathing, coughing, sleeping, and walking manageable. Tell your team if pain remains severe or suddenly worsens.

When will I know if it worked?

The valve is checked during surgery, and the team usually discusses the early result soon afterward. Imaging before discharge or during follow-up confirms how the valve and heart are working.

How long will the new valve last?

Mechanical valves are designed for long-term durability but require blood thinning. Tissue valves can wear out. Their lifespan is influenced by the valve type, your age, and other health

factors.

Sources

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