PROCEDURE

Open heart surgery

Open heart surgery treats heart problems through an incision in the chest.

PURPOSE
Repair, replace, or bypass damaged heart structures

PROCEDURE TYPE
Therapeutic surgical operation through an opened chest

WHERE IT IS DONE
Operating theatre

ANAESTHESIA
General

HOW LONG IT TAKES
Usually 3 to 6 hours, based on the operation

PREPARATION
Fasting and a medication review, including blood thinners

RECOVERY
Several hospital days; no driving until medically cleared

MAIN RISKS
Bleeding, infection, abnormal heartbeat, stroke

RESULTS
Surgical outcome discussed afterward; recovery assessed over weeks

Overview

Open heart surgery is a group of operations performed through an opening in the chest. It may be used to treat the heart muscle, valves, major blood vessels, or arteries supplying the heart.

The surgeon often reaches the heart by dividing the breastbone. This is called a sternotomy . Some operations use a smaller incision between the ribs.

Many procedures use a heart-lung bypass machine. It temporarily pumps blood and adds oxygen while the surgeon works on a still heart. Some operations are performed while the heart continues beating.

Open heart surgery is major surgery. The exact operation, likely benefits, and recovery plan depend on the heart problem being treated and your overall health.

Why the procedure is performed

Open heart surgery may be recommended when a heart problem is causing serious symptoms, threatening heart function, or creating a substantial future health risk.

Common reasons include:

Surgery is usually considered after tests such as an echocardiogram, coronary angiogram, CT scan, or cardiac catheterization. These tests show the structure of your heart and how well it works.

- Bypassing severely narrowed heart arteries during coronary artery bypass grafting
- Repairing or replacing a narrowed or leaking heart valve
- Repairing an enlarged or damaged section of the aorta
- Correcting a heart defect present from birth
- Removing certain heart growths or treating severe heart muscle damage
- Implanting some types of mechanical heart-support device

Who should and should not have it

Open heart surgery may be suitable when it is expected to improve survival, heart function, symptoms, or quality of life more effectively than medicines or less invasive procedures.

It is not automatically the best option for everyone. The team considers the exact heart problem, its severity, your age, other medical conditions, frailty, and your goals.

Planned surgery may be delayed because of an active infection, uncontrolled blood sugar, severe anaemia, or another condition that first needs treatment. Smoking, poor nutrition, lung disease, kidney disease, and previous chest surgery can affect risk and preparation.

For some people, the expected benefit may not outweigh the risks. A catheter-based procedure, medical treatment, or supportive care may then be more appropriate. In an emergency, there may be less time to treat other conditions before surgery.

How to prepare

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

Tell the surgical team about all prescription medicines, non-prescription medicines, vitamins,

supplements, allergies, and previous reactions to anaesthesia. Blood thinners and some diabetes medicines may need adjustment. Do not stop any medicine unless your team tells you to.

You will usually have blood tests, an electrocardiogram, and imaging before surgery. You may also meet the surgeon, anaesthesia team, and other members of the heart-care team.

Follow the facility's instructions about:

Arrange help for after discharge. Recovery commonly limits lifting, driving, shopping, and household work. If you smoke, stopping before surgery can support wound and lung healing, even when the available time is short.

- When to stop eating and drinking
- Which medicines to take on the day
- Washing with any supplied antiseptic product
- When to arrive and what to bring

What happens during the procedure

You receive general anaesthesia, so you are unconscious and do not feel the operation. A breathing tube is placed after you are asleep.

The surgeon opens the chest, usually through the breastbone. For many operations, tubes connect you to a heart-lung bypass machine. The heart may be temporarily stopped with a protective solution. Other procedures can be done on a beating heart.

What happens next depends on the operation. The surgeon may attach blood vessels to bypass blocked arteries, repair or replace a valve, or repair damaged heart tissue or a major blood vessel.

After the repair, the team checks that the heart is working and that bleeding is controlled. If bypass was used, the heart is restarted and the machine is disconnected. The breastbone is usually secured with wires, which normally remain in place. The skin is then closed.

Temporary chest drains, pacing wires, bladder catheters, and intravenous lines are often left in place during early recovery.

Recovery and what to expect afterward

Pain: Chest and incision pain are expected, especially with coughing, movement, and deep

breathing. Medicine can make this manageable. Holding a pillow against your chest may make coughing more comfortable. Pain should gradually improve rather than become more severe.

Eating: You may begin with drinks and light food once you are awake and nausea is controlled. Appetite can be reduced for a while. Protein and balanced meals support healing, although your team may recommend limits on salt or fluids.

Activity: You will usually sit up and walk with help soon after surgery. Breathing exercises lower the risk of lung problems. After a sternotomy, you will receive instructions about lifting and upper-body movement while the breastbone heals. Cardiac rehabilitation provides supervised exercise, education, and support.

Driving: You cannot drive home. Do not drive until your surgical team says it is safe. Pain, reduced movement, fatigue, medicines, and breastbone healing can affect safe driving.

Work: Returning to work may take several weeks or longer. Timing depends on the operation, healing, stamina, and whether your work involves driving, lifting, or physical labour.

You will usually spend time in intensive care before moving to a hospital ward. Tiredness, sleep changes, low mood, and difficulty concentrating can occur during early recovery. Tell your team if these problems are persistent or difficult to manage.

Risks and possible complications

Your team should explain your individual risk before you consent. Risks differ according to the operation, whether it is planned or urgent, and your general health.

Possible complications include:

These possibilities do not mean they will happen. Ask the surgeon to explain both the expected benefit and your estimated personal risk.

- Bleeding that may require a transfusion or another operation
- Infection of the skin, breastbone, lungs, or urinary tract
- An abnormal heartbeat, especially atrial fibrillation
- Heart attack, stroke, or blood clots
- Temporary or lasting kidney, lung, or heart problems
- Reactions to anaesthesia
- Poor wound or breastbone healing
- Confusion or memory and concentration problems

- Death

Results and follow up

The surgeon can usually explain the immediate surgical result soon afterward. If tissue is sent to a laboratory, those findings may take several days.

Routine follow-up checks your incision, heart rhythm, medicines, symptoms, and recovery. You may have blood tests, an electrocardiogram, or an echocardiogram. Keep taking prescribed heart medicines unless your team changes them; surgery does not always remove the need for long-term treatment.

Cardiac rehabilitation and control of blood pressure, cholesterol, diabetes, smoking, diet, and activity can help protect the result.

Alternatives

Alternatives depend on the heart problem and may not offer the same benefit.

Ask what is likely to happen with each option, including choosing no procedure now.

- Medicines and monitoring: Avoid surgery but may not correct a severe blockage, damaged valve, or structural problem.
- Coronary angioplasty and stenting: Uses a catheter rather than opening the chest. Recovery is faster, but bypass surgery may provide a more durable result for some patterns of coronary disease.
- Transcatheter valve treatment: Repairs or replaces certain valves through a blood vessel. It is less invasive, but suitability and long-term trade-offs depend on the valve problem, anatomy, age, and surgical risk.
- Minimally invasive or robotic surgery: Uses smaller chest incisions. Recovery may be easier, but these methods are not suitable for every operation and may not be available.
- Supportive or palliative care: Focuses on comfort and personal goals when an operation is unlikely to provide enough benefit.

When to call your healthcare team

Routine tiredness, mild incision discomfort, and a slowly improving appetite can usually be discussed at planned follow-up.

Contact your surgical team promptly if you develop wound redness, warmth, drainage, opening, worsening pain, new palpitations, increasing leg swelling, or a fever at or above the threshold in your discharge instructions. Also call if your recovery stops improving or you cannot manage food, fluids, medicines, or daily activity.

Seek emergency help for severe trouble breathing, fainting, uncontrolled bleeding, sudden weakness or difficulty speaking, or chest pressure that feels different from incision pain. Do not drive yourself in an emergency.

Common questions

Will I be asleep?

Yes. Open heart surgery is performed under general anaesthesia. You will be unconscious, and a breathing machine will support you during the operation.

Can I drive myself home?

No. Someone else must take you home. You should not drive again until your surgical team has cleared you.

How painful is open heart surgery?

Pain is expected, particularly after a sternotomy, but it should be controlled with medicine and improve over time. Report severe or worsening pain.

How long will I be in hospital?

Many people remain in hospital for several days. A longer stay may be needed after a complex operation or if complications occur.

When will I know if it worked?

The surgeon can usually discuss the immediate result after surgery. The full benefit may become clearer as your heart and body recover over the following weeks or months.

Will the breastbone wires be removed?

Usually not. They generally stay in place permanently unless they later cause a specific problem.

Sources

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