Royal College of Anaesthetists

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Your anaesthetic for heart surgery

This leaflet gives you information about your anaesthetic for adult heart (cardiac) surgery and what you can expect before, during and after your operation.

You should read this leaflet together with our leaflet **You and your anaesthetic** which is available here: rcoa.ac.uk/patientinfo/you-your-anaesthetic and any other information provided by your hospital.

Contents

This leaflet explains:

- how to prepare for heart surgery
- what happens before the operation
- what happens on the day of the operation
- what happens after the operation
- how to discuss risks and options with your anaesthetist
- where to find more information.

Preparing for the operation

Fitter patients who are able to improve their health and lifestyle recover from surgery more quickly and with fewer complications.

There is much that you can do to prepare yourself for an operation. Even small changes can make a big difference. You might want to increase your levels of physical activity and improve your diet. If you drink or smoke, you should consider cutting back or even stopping.

If you have a long-standing medical problem, check with your GP surgery whether there is anything you can do to improve it well ahead of the surgery.

Our **Fitter Better Sooner** resources will provide you with the information that you need to become fitter and better prepared for your operation. Please see our website for more information: rcoa.ac.uk/patientinfo/fitterbettersooner.

How will I be assessed before the operation?

Most hospitals have a preoperative assessment clinic (preassessment clinic). This clinic will help you prepare for your heart surgery and will arrange any tests needed on your blood, heart, lungs and kidneys. You may need to attend more than one appointment.

An anaesthetist or preoperative nurse will want to know about your general health and activity levels. They will ask questions about medicines you take, any allergies you have, your heart problems and anaesthetics that you might have had in the past. It's a good idea to bring with you a list of all the medicines that you normally take (you can get a copy of this list from your pharmacist or GP).

They will also ask about your teeth, crowns or dentures, and whether you have any problems opening your mouth or moving your neck.

A nurse or anaesthetist will let you know exactly when you need to stop eating and drinking before your operation. Usually, you will be able to eat up to six hours and drink water up to two hours before the operation, or less in some cases.

An anaesthetist or nurse will give you instructions about which medicines you should take on the day of surgery. These can be taken with a sip of water right up to the time of surgery if necessary.

At the preoperative assessment clinic, you will have the chance to ask any questions and discuss any concerns that you might have about the operation and the anaesthetic.

Risk and shared decision-making

Modern anaesthetics are very safe. There are some common side effects from the anaesthetic drugs, or the equipment used during heart surgery, which are usually not serious or long lasting. Risks will also vary between individuals.

Your anaesthetist will discuss with you the risks that they believe to be more significant for you. They will discuss less common risks only if they are relevant to you. If you wish to read more detail about risks associated with anaesthesia, please visit: rcoa.ac.uk/patientinfo/risk-leaflets.

Shared decision-making

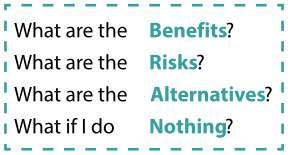
Shared decision-making ensures that individuals are supported to make decisions that are right for them. It is a collaborative process through which a clinician supports a patient to reach a decision about their treatment.

The conversation brings together:

- the clinician's expertise, such as treatment options, evidence, risks and benefits
- what the patient knows best: their preferences, personal circumstances, goals, values and beliefs.

Find out more on the National Institute for Health and Care Excellence website: https://bit.ly/NICE-SDMinfo.

Here are some tools that you can use to make the most of your discussions with your anaesthetist or preoperative assessment staff:



Choosing Wisely UK BRAN framework

Use this as a reminder to ask questions about treatment.
https://bit.ly/CWUK_leaflet

NHS ask three questions

There may be choices to make about your healthcare.
https://bit.ly/NHS_A3Qs

The Centre for Perioperative Care (CPOC)

CPOC has produced an animation to explain shared decision-making.
cpoc.org.uk/shared-decision-making

Questions ?

you might like to ask

If you have questions about your anaesthetic, write them down (you can use the examples below and add your own in the space below them). For heart surgery you will usually see an anaesthetist before the day of the operation. You can also contact the preoperative assessment team, who may be able to arrange for you to speak to an anaesthetist on the phone or to see them in a clinic.

1. **Do I have any special risks from the anaesthetic?**
2. **How long is my recovery going to take?**
3. **How long will I stay in the HDU (high dependency unit) or ICU (intensive care unit)?**
4. **When will I be able to go home?**
5. ...
6. ...

What happens at the time of the actual operation?

The anaesthetist who will look after you will visit you in hospital before your operation. In some hospitals, your anaesthetist may offer you a sedative drug before your anaesthetic to help you relax.

Before your operation, you will be asked to change into a theatre gown. Your nurse will put a wrist band on you to confirm your identity and, if necessary, any allergies. For some operations, you will put on compression stockings to help prevent you getting blood clots in your legs.

When you arrive at the operating theatre, the anaesthetic assistant will meet you and check all your details. They will then connect you to several machines (monitors). These include an ECG (electrocardiogram) machine (to monitor your heartbeat), a blood pressure machine and a clip on your finger or ear to measure the oxygen levels in your blood. You may have some stickers placed on your forehead to measure how deeply asleep you are during your anaesthetic and the level of oxygen in your brain.

You will have two or three cannulas (plastic tubes or 'drips') put into your veins and an artery, usually in the hand or forearm. Local anaesthetic will numb your skin so it should not hurt any more than a normal blood test. During this, you may be offered sedation to relax you and extra oxygen to breathe. For more information about sedation, please see our **Sedation explained** leaflet which is available on our website: rcoa.ac.uk/patientinfo/sedation-explained.

What happens during the operation?

The anaesthetic drugs are injected slowly through one of the drips in your arm. Once you are completely anaesthetised, the anaesthetist will place a breathing tube via your mouth. A machine called a ventilator will then blow oxygen into your lungs, as well as the anaesthetic gas to keep you anaesthetised.

Also, after you have been anaesthetised, a soft tube (catheter) will be connected to your bladder to show how much urine your kidneys are making. Once anaesthetised they will also insert an ultrasound tube (for a transoesophageal echocardiogram or TOE) through your mouth down towards the stomach to give pictures of your heart during the operation. This will be taken out before you wake up. The risk of damage to your oesophagus (food pipe) from the ultrasound tube for the TOE is rare – fewer than 1 in 2,000 cases.

Another larger cannula is placed in your neck after you have been anaesthetised (asleep with the anaesthetic). This is used to give certain drugs and will help tell how well your heart is pumping. This is usually done once you are asleep. If your anaesthetist thinks that there is a need to put it in before you are anaesthetised (using local anaesthetic to numb the skin), they will discuss this with you.

For many operations on the heart, surgery is not possible if your heart is beating. If this is the case for your surgery, your team will connect you to a special pump called a cardiopulmonary bypass machine (heart–lung machine). This machine takes over the work of the heart and pumps the blood around your body. It also adds oxygen to your blood. This means that the team can safely stop your heart beating for part of the operation. Many heart operations last between three hours and five hours. Your anaesthetist and the technician who looks after the bypass machine will watch you closely during this time.

It is normal to lose some blood during heart surgery. Your team will inject fluids through the cannulas to replace any lost blood. Where possible, they will collect your own blood using a special machine (cell saver) and transfuse it back into you. You may, however, need a blood transfusion during or after your operation. Blood used for transfusions is carefully checked and modern blood transfusions are extremely safe. They will not give you any more blood than is needed for your safe recovery. You may also need other blood components, such as fresh frozen plasma or platelets. Your anaesthetist will discuss all of this with you and may ask you to sign a separate consent form.

What happens after the operation?

After your operation, you will be taken to the intensive care unit (ICU) or high dependency unit (HDU). This is because you will need a higher level of nursing and medical care and more specialised equipment, which cannot be provided on a normal ward.

The ICU team will carefully watch your heart rate, blood pressure, breathing and kidney function. Your nurse will adjust the fluids and medication according to what you require.

They will keep you sedated and connected to the ventilator until it is the right time to bring you round from the anaesthetic completely.

The ICU team will then remove your breathing tube and give you oxygen through a mask over your mouth and nose. This usually happens four to six hours after the end of your operation. It can be later than this (even days) in complex cases or if you have breathing problems. Your surgeon and anaesthetist will discuss this with you before your operation if they think that your breathing will need additional support after the surgery.

When you wake up, you will still be connected to all the drips and monitors. You will also have one or two tubes that drain any fluids from your chest. There may be some fine wires attached to your heart (pacing wires) that your anaesthetist can use, if necessary, to control your heart rate. These are usually kept in for just a few days. You may also still have the catheter in your bladder to help you pass urine.

During and after your operation, your anaesthetist will give you strong pain-killing drugs through the drip to keep you comfortable. Once they take out your chest drains, you will be less likely to need strong pain-killers and you will be able to take tablets orally (by mouth) instead.

Your nurse will check your pain levels regularly. It is important that you take enough pain relief so that you can manage to take deep breaths in and cough well. It is important to cough up mucus to keep your lungs working well and prevent you getting a chest infection. A physiotherapist will explain the breathing exercises to you and show you how to cough properly.

You may be able to have visitors while on ICU or HDU. Your nurse can advise you and family members on visiting times and the number of visitors allowed. As you may be looked after in an area where there are very ill patients, it may not be suitable for young children to visit.

You will transfer to the ward when you no longer need all the monitoring and treatment in intensive care. This will usually be two or three days after your operation.

You can discuss with your surgeon how long they anticipate your recovery to take and when you might be able to return home.

Recovery from cardiac surgery can be more complex compared with other types of surgery. Depending on your specific case, you may need some extra treatments. The following are examples.

- Your lungs may need help with ventilation for longer than normal and you will usually be sedated during this time. This is very common – around 1 in 10 cases.
- If you need to be on a ventilator for more than a few days, the breathing tube in your mouth will need to be changed to a 'tracheostomy'. This is a tube going through the front of your neck directly to your airway. This is common – 1 in 100 cases. A tracheostomy tube can easily be taken out when it's no longer needed.
- It's normal for some internal bleeding to occur after the operation and your doctors and nurses will monitor this carefully. If the bleeding is excessive, the anaesthetist and surgeon may make the decision to take you back to theatre for a further operation to stop the bleeding. This is part of the reason why you are kept anaesthetised for a few hours after the operation is complete.
- Three in every ten people who undergo cardiac surgery will have some abnormality of their heart rhythm during their recovery. Temporary pacing wires are often put in place by your surgeon during your operation to help your heart beat normally if needed. A small number of patients require a permanent pacemaker after surgery.
- Your kidneys sometimes need extra help to work properly and a dialysis machine may be used to clean your blood of waste products while your kidneys recover. This is common – around 1 in 50 cases. Your anaesthetist will need to put another large drip into one of your veins if you need this.
- Your heart may need help to pump blood well while it recovers. This is common – around 1 in 100 cases. In most cases your anaesthetist will give you drugs to do this, but occasionally artificial pumps are used until the heart can work by itself again.

Your surgical team will discuss the risks of these procedures with you before your operation if they think that you are likely to need them.

Recovering on the ward and going home

When the team looking after you in the ICU or HDU are satisfied that you are recovering safely, you will return to the surgical ward.

The length of time that you spend in the ICU or HDU and when you will be able to go home will depend on what type of operation you have had, any complications and any other health problems that you may have.

Some hospitals offer rehabilitation programmes such as Enhanced Recovery. You can find out more about this on the NHS website: nhs.uk/conditions/enhanced-recovery.

You will not be able to drive after surgery, so you should arrange for a taxi or someone to pick you up. Hospitals normally require that an adult comes to pick you up when you are discharged, even if taking a taxi home.

Before being discharged, you will be given information on any exercises you should do to help you recover and information on how to look after your wound.

You should contact your GP or the hospital where you had your surgery if:

- you have severe pain or your pain increases
- you develop pain and swelling where you had the surgery
- you develop a discharge from the wound
- your breastbone feels like it's moving
- you experience chest pain or breathing difficulty
- you have any concerns that are not covered in the discharge information that you have been given by the hospital.

Where can I get further information?

Most hospitals produce their own information leaflets about heart surgery and many of these contain information about anaesthesia.

You can find more information leaflets on anaesthesia on the College website at: rcoa.ac.uk/patientinfo/leaflets-video-resources.

The leaflets may also be available from the anaesthetic department or preassessment clinic in your hospital.

Detailed information about cardiac surgery and possible complications can be found on the Society for Cardiothoracic Surgery (SCTS) and the British Heart Foundation (BHF) websites:

- patients (scts.org/patients)
- treatments for heart and circulatory conditions (bhf.org.uk/informationsupport/treatments).

Disclaimer

We try very hard to keep the information in this leaflet accurate and up-to-date, but we cannot guarantee this. We don't expect this general information to cover all the questions you might have or to deal with everything that might be important to you. You should discuss your choices and any worries you have with your medical team, using this leaflet as a guide. This leaflet on its own should not be treated as advice. It cannot be used for any commercial or business purpose. For full details, please see our website: rcoa.ac.uk/patientinfo/resources#disclaimer.

Information for healthcare professionals on printing this leaflet

Please consider the visual impairments of patients when printing or photocopying this leaflet. Photocopies of photocopies are discouraged because these tend to be low-quality prints and can be very difficult for patients to read. Please also make sure that you use the latest version of this leaflet, which is available on the RCoA website: rcoa.ac.uk/patientinfo/leaflets-video-resources.

Tell us what you think

We welcome suggestions to improve this leaflet. Please complete this short survey: surveymonkey.co.uk/r/testmain or scan the QR code with your mobile.

If you have any general comments, please email them to: patientinformation@rcoa.ac.uk.

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