Patient Information

University Hospitals Coventry and Warwickshire NHS Trust

Cardiothoracic Surgery

Anaesthetic for heart surgery

We aim for you to have all the pre-operative tests you need done on the same day of your outpatient consultation with the surgeon. The Cardiac Liaison Team will contact you and give you written information about having heart surgery.

Your anaesthetist will give you more detailed information, tailored to your individual circumstances. This will be on the day of your admission or on the day of surgery.

Before you come into hospital

Getting fit for surgery

Preparing for surgery includes taking steps to improve your fitness. We should all follow the below advice, but it's even more important before surgery on your heart. The outcome of surgery can be improved by following this advice:

Smoking

If you smoke, then you should consider giving up. The longer you can give up for, the better. After 6 weeks without a cigarette, your blood will carry more oxygen around your body. Your lungs are also less likely to develop an infection after surgery.

If you need help to stop smoking, can ask your GP, your pharmacist, or telephone 0300 123 1044 for smoking cessation. You can also visit www.nhs.uk/smokefree

Alcohol

If you're drinking a lot of alcohol, it may affect the ability of your heart to function correctly. Cutting down your alcohol intake before you come into hospital will improve your overall health. The maximum alcohol intake recommended per week is 14 units.

Weight loss

Being overweight increases the chance of complications associated with anaesthesia and surgery. This is especially if your body mass index (BMI) is above 35 kg/m^2. Sensible weight loss will help reduce such risks.

Your GP practice should be able to help you diet to lose weight and reduce your cholesterol.

Find out what your BMI is by visiting the body mass index calculator at https://www.nhs.uk/live-well/healthy-weight/bmi-calculator/.

Exercise

A regular walk will boost your stamina and cardiovascular fitness before surgery. A regular walk can also help if you are overweight.

Fasting on the day of surgery

- Do not chew gum or suck mints or sweets on the day of surgery.
- You can have small sips of water up until the time of your surgery.

For morning operations

Stop taking:	At:
Food or milk	2:30 am
Black tea/coffee, juices	2:30 am
Free amounts of water	6:30 am

For afternoon operations

Stop taking:	At:
Food or milk	7:30 am
Black tea/coffee, juices	7:30 am
Water, free amounts	11 am

Coming into hospital

Your anaesthetist

An anaesthetist is a fully qualified doctor who has specially trained in anaesthesia. This is the treatment of pain, and the care of very ill patients (intensive care medicine).

Your anaesthetist is responsible for your safety, comfort, and wellbeing before, during, and after your surgical procedure. A consultant anaesthetist will direct your anaesthetic care, and another qualified doctor (an anaesthetist in training) will often be looking after you as well.

Your anaesthetist will visit you before your operation. At this time, you can discuss any further points or concerns about your anaesthetic care plan.

COVID-19 PCR Test

The presence of an active or very recent COVID-19 infection may affect the decision to carry out elective cardiac surgery.

Since the beginning of the COVID-19 pandemic, we test patients for the presence of COVID-19 antigens using a COVID-19 PCR test. This test involves the collection of samples by placing a swab in the back of your mouth and nose. The procedure may feel mildly uncomfortable but should not be painful.

You may also be asked relevant questions related to the presence of symptoms suggestive of COVID-19 infection.

Pre-operative assessment

You'll have all your pre-operative investigations completed at the outpatient clinic. The results from this will be checked and verified before your admission.

If we need to do any additional tests, we'll contact you as soon as possible.

During the preoperative assessment, we evaluate your general health and your medical history. This is so we can properly plan your care. We'll ask you questions about the following areas:

General health

- How well have you been in the last 6 to 12 months?

Heart problems

Questions will be focused on your symptoms:

- How long have you been suffering from the symptoms?
- What makes your symptoms better or worse?
- We'll ask about your blood pressure control, any previous heart attacks and strokes.

Medical history

- Do you have additional medical problems such as diabetes, epilepsy, thyroid, symptoms of gastric reflux, or asthma?
- Have you had any operations in the past?

Previous anaesthetics

We'll ask about any problems or reactions that you or your family have had in relation to anaesthesia.

Medications

We'll ask about tablets or preparations that you take whether prescribed by your GP or bought "over-the-counter". This includes herbal remedies and other complementary therapies.

It is important to continue most medications up to the time of your surgery.

Certain medicines may need to be stopped before your admission to hospital. These are usually medicines used to "thin the blood" and prevent clotting, such as aspirin, clopidogrel and warfarin. You will be advised of which medicines to stop taking.

Allergies

We'll ask about any reactions you've had to medicines, foods, or substances such as latex (contained in rubber gloves, balloons, and condoms).

Dental Work

Your anaesthetist needs to know if you have any loose teeth, caps, crowns, or bridgework. This is so that damage can be avoided when breathing tubes and monitor probes are placed in your mouth after you're anaesthetised.

Dental damage is a possibility even when all protective measures have been put into place.

Particular attention will be paid to your heart and lungs, and assessment of your ability to open your mouth and move your neck.

Tell the anaesthetist if you have:

- any pain or stiffness when moving your neck,
- dental decay
- any dental work (crowns, bridges, implants). You should also inform the anaesthetist of

- anything affecting your cervical spine, including previous trauma to your neck.

After the pre-operative assessment

The anaesthetist will tell you about

- the procedures associated with your surgery and
- the anaesthetic technique they will use

Any choices that are available will be discussed with you, along with their associated risks and benefits. The anaesthetist will also discuss the following aspects of your care:

Pre-medication

You may be given sedative medicines an hour or two before surgery. This is usually in the form of tablets. This sedation is termed the ‘pre-med’ and it may help to reduce anxiety.

Routine medications

Many of the medicines you take daily have a protective effect on your heart. It’s important that this protection is continued during the perioperative period.

Your surgeon and your anaesthetist will tell you which of your medicines to take before surgery and which of them should be stopped. You can take medicines with a sip of water right up to the time of surgery.

During surgery

Your anaesthetic

General anaesthesia means a state of controlled unconsciousness. While under general anaesthesia, you will be completely unconscious, pain free and unaware of events.

We say ‘falling asleep’ when we talk about anaesthesia. But you are in fact much more deeply unconscious when under an anaesthetic than when you’re asleep at night.

Anaesthetic drugs can be injected into a vein or breathed into the lungs as gases. They are carried to the brain by the blood. In the brain, they stop the brain from recognising messages coming from the nerves of the body.

The operating department

When you arrive in the Operating Department, (‘theatres’), you’ll be met by one of the operating department assistants. They will check through your details and paperwork with you.

After this you will be transferred into the anaesthetic room or the operating theatre itself. The team will then prepare you for the anaesthetic and the operation. You will again be checked at this stage by the surgical and theatre teams to ensure that all your details are correct.

Monitoring

The following monitoring equipment will be set up to assist the anaesthetist during surgery:

ECG

Sensors will be attached to your limbs and chest to monitor your heart rate and rhythm.

Pulse oximeter

A clip will be placed on your finger to measure the amount of oxygen your blood is carrying.

Blood pressure cuff

This will be used to check your blood pressure.

The following monitoring lines may be put in before, or more commonly after you are asleep. There is little or no discomfort from having this done:

Arterial cannula

Your anaesthetist will inject the skin in your wrist with a local anaesthetic to prevent you feeling pain. Your anaesthetist will then place a cannula into the artery in your wrist. The arterial cannula allows samples of your blood to be taken for testing during surgery.

Central venous line

This is a large cannula, or drip, which is placed in a large vein located in your neck. Through this cannula:

- we can measure the pressure of the blood entering your heart
- we can administer various drugs during surgery

Pulmonary artery catheter

This is a special monitoring device that is sometimes used to measure your heart function and the pressures inside your heart.

Complications related to central venous line and pulmonary artery catheter insertion are rare. But they can be significant. The most common complications that may happen are:

- infection
- bleeding
- abnormal positioning (malposition)
- abnormal heart rhythm (arrhythmias)

The use of an ultrasound guided technique has reduced some of these complications significantly.

Other monitoring may be introduced after you are anaesthetised. This includes the following:

Transoesophageal echocardiogram (TOE)

This probe is designed to scan the heart and assess its function during surgery. It’s essential when you are having an operation on one of your heart valves.

This probe is placed through your mouth and into the oesophagus. The oesophagus is sometimes called the gullet or the food pipe, and connects your mouth to your stomach.

Complications associated with a transoesophageal echocardiogram are rare but can be significant. The risk of a significant complication is 1 in 1300 examinations. These are some of the more frequent complications:

- Dental and lip trauma
- Oro-pharyngeal erosions
- Oesophageal and gastric perforations
- Gastrointestinal bleeding
- Infections

Urinary catheter

This is placed in the bladder to collect urine to assess how well the kidneys are working during the operation.

Induction of anaesthesia

Once all the needed monitors and ‘drips’ are in place, your anaesthetist will administer oxygen via a facemask, as a safety measure. Anaesthetic drugs are then injected slowly through one of the ‘drips’ in your arm.

These drugs may make you feel a little dizzy at first and can cause your arm to feel very cold and stiff as they pass through your veins. You may also feel the urge to cough. These sensations are all normal. They only last a few seconds as you drift off to sleep under the anaesthetic.

Once you are asleep and deeply anaesthetised, the anaesthetist will place a breathing tube into your airway. Placement of central venous lines and a urinary catheter complete the initial preparation for surgery.

Maintenance of anaesthesia

During surgery, your anaesthetic will continue to be given either through your drip, or as a gas that you breathe into the lungs. Most operations take

about 4 to 6 hours, and your anaesthetist will ensure your safety throughout.

Many patients worry about the possibility of being awake during the surgery and being able to re-call events during an operation. This is termed ‘awareness’.

This risk of awareness for general anaesthesia is approximately 1 in 20,000 procedures. The risk of being ‘aware’ during heart surgery could be higher than this (1 in 700 cases). These figures come from the NAP5 report for accidental awareness during anaesthesia published in 2014.

Newer monitoring techniques are likely to reduce the risk of being ‘aware”. This includes techniques for measuring the level of anaesthetic agents in your blood, and the activity of the brain (such as BIS) during anaesthesia.

Blood transfusion

During most operations, some blood will be lost. Your anaesthetist can usually make up for this blood loss by giving you other types of fluid into a vein through a drip. However, that you may need a blood or blood product transfusion during or after surgery.

Blood used for transfusion (donor blood) is extensively screened. This prevents complications associated with blood transfusions such as transmission of infections.

Modern transfusion practice in the UK is very safe. You can be assured that your doctors will keep the extent of blood transfusion to the minimum needed for your safety.

Under most conditions, you’ll be asked to sign a consent form for the administration of blood and blood products before surgery. The only exception is in an emergency, or if the condition of the patient does not allow the medical team to make such a request.

Inform the medical and nursing team if you do not want to receive any blood or blood products through your hospital stay. This may have implications for your care pathway.

After the operation

The Intensive Care Unit

After surgery, you'll be transferred from the operating theatre to an Intensive Care Unit (ICU) or High Dependency Unit (HDU). Here, other anaesthetists (intensivists) will keep you heavily sedated to allow you to recover from the operation.

Your vital functions will be closely monitored, and all the fluids and medicines you receive will be carefully controlled. Your breathing will be assisted by a ventilator until its appropriate and safe to turn off the sedation and to let you wake up completely.

The breathing tube will then be removed, and oxygen administered via a clear plastic facemask.

This awakening process usually takes place 4 to 6 hours after the end of the operation. But it can be considerably longer than this (even days) in some patients depending on age, medical condition and type of surgery.

When you awaken, most of the drips and monitors that the anaesthetist placed before, during or after to surgery will still be present.

In addition to this, you will have tubes in the chest that help drain blood and fluids from the operation area. You may also have some wires attached to your heart (pacemaker wires) that can be used to control your heart rate and rhythm after surgery.

Pain control

After surgery, we will ensure that you receive strong pain-controlling drugs to keep you comfortable. However you may temporarily experience some mild/moderate discomfort.

Painkillers are given in the following ways:

Intravenous infusions

Powerful pain killing drugs (morphine) are usually given intravenously (into a vein via a drip). The infusion may be controlled by the nurses but often a patient-controlled system (PCA) is used. Using this system, once awake, a patient can press a button to deliver a dose of painkiller when they feel the need for it.

Safety features are built into this system to prevent overdose.

Tablets

These are administered when you can eat and drink. If you experience pain and discomfort after your operation, it's important to let the nurses and doctors know.

The nurses and doctors will ask you about your pain and discomfort regularly. If they know your pain relief is not optimal, they can change your treatment to improve matters. Our hospital has an acute pain relief team to supervise this aspect of your care.

Risks and complications

What are the risks?

Any heart surgery is a major operation. The risks of surgery and anaesthesia are assessed in relation to the risk of not having surgery. In most cases the risk associated with not having surgery is far greater. This will be discussed with you in detail before surgery.

Modern anaesthesia is very safe, and, for heart surgery, the risk of the whole procedure far outweighs the risk of anaesthesia by itself. We are not all the same, so the risks will be different for different people.

Common risks associated with anaesthesia are:

- Nausea and vomiting
- Dental and lip damage. Dental damage requiring repair or removal happen in 1 in 4500 cases.

- Eye abrasions
- Shivering
- Sore throat
- Incomplete pain relief
- Headaches
- Soreness at the drip sites.

More serious risks, but much less frequent, include:

- Allergic reactions that could be life threatening - 1 in 10,000 cases
- Aspiration pneumonia
- Post-operative transient confusion
- Air embolism and airway complications leading to oxygen starvation. If severe and prolonged, this could cause severe harm, including neurological damage.
- Awareness – 1 in 7000 cases
- Death directly related to anaesthesia is extremely rare, with an estimated frequency of 1 in 185,000 in 200,000 cases in the UK.

More information

There are many sources of information that are available to patients scheduled for heart surgery.

British Heart Foundation (BHF)

The British Heart Foundation produces a series of booklets on heart disease and its treatment. These can be downloaded from the BHF website: http://www.bhf.org.uk.

The Society of Cardiothoracic Surgeons of Great Britain and Ireland (SCTS)

The SCTS also have patient information on their website at: http://www.scts.org.

Royal College of Anaesthetists

The Royal College of Anaesthetists have extensive information on all aspects of anaesthesia. This can be found on the Royal College of Anaesthetists website: www.rcoa.ac.uk/patientinfo.

If you have any other questions please contact the Cardiac Liaison Team on 024 7696 5803.

The Trust has access to interpreting and translation services. If you need this information in another language or format, please contact us on 024 7696 5803. We will do our best to meet your needs.

The Trust operates a smoke-free policy.

Did we get it right?

We would like you to tell us what you think about our services. This helps us make further improvements and recognise members of staff who provide a good service.

Have your say. Scan the QR code or visit: www.uhcw.nhs.uk/feedback

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