

Anaesthesia explained

Introduction.

This booklet explains how the team at Blackrock Clinic will prepare you for an anaesthetic and then care for you, as you have your operation and afterwards. It provides a basis for you to make an informed choice about what kind of anaesthetic you will have and gives basic information about the side effects and complications of anaesthesia. This booklet offers you and your relatives an explanation of how you may receive anaesthesia and pain relief for your operation. You can find out more from your surgeon, from a pre-assessment clinic or from your own anaesthetist.

What is anaesthesia?

The word anaesthesia means 'loss of sensation'. It can involve a simple local anaesthetic injection which numbs a small part of the body, such as a finger or around a tooth. It can also involve using powerful drugs which cause unconsciousness. These drugs also affect the function of the heart, the lungs and the circulation. As a result, general anaesthesia is only given under the close supervision of an anaesthetist, who is trained to consider the best way to give you an effective anaesthetic but also to keep you safe and well.

The anaesthetist

Anaesthetists are doctors who have had specialist training in anaesthesia. Your anaesthetist is responsible for:

- assessing whether you are fit enough to have the anaesthetic for your operation
- talking to you about which type of anaesthetic might be best and getting your permission (consent) for it
- giving the anaesthetic and organising pain control afterwards, and
- looking after you immediately after the operation in the recovery room or in an intensive care unit.

Types of anaesthesia

Choice of anaesthetic

Sometimes there is a choice about which kind of anaesthetic and pain relief is best for you. Having talked about the benefits, risks and your preferences, you and your anaesthetist can decide together which anaesthetic you will have. You can refuse the treatment, or ask for more information or more time to decide.

1. Local anaesthesia

A local anaesthetic numbs a small part of the body. It is used when the nerves can be easily reached by drops, sprays, ointments or injections. You stay conscious, but free from pain. Common examples include having teeth removed and some common operations on the eye.

2. Regional anaesthesia

This is when local anaesthetic is injected near to the nerves which supply a larger or deeper area of the body. The area of the body affected becomes numb.

3. Spinal and epidural anaesthetics

These are the most common regional anaesthetics. These injections can be used for operations on the lower body, such as Caesarian section, bladder operations, or replacing a hip. You stay conscious, but free from pain.

4. Other types of regional anaesthetic

Other regional anaesthetics involve an injection placed near to a nerve or group of nerves, for example in the arm or leg. This is often called a 'nerve block'. This can allow you to have the operation without a general anaesthetic. Nerve blocks are also useful for pain relief after the operation, as the area will stay numb for a number of hours.

5. Sedation

Sedation involves using small amounts of anaesthetic drugs to produce a 'sleep-like' state. It makes you physically and mentally relaxed, but not unconscious. If you have sedation, you may remember little or nothing about the operation or procedure.

6. General anaesthesia

General anaesthesia is a state of controlled unconsciousness during which you feel nothing. You will have no memory of what happens while you are anaesthetised. A general anaesthetic is essential for a very wide range of operations. Anaesthetic drugs are injected into a vein, or anaesthetic gases are given for the patient to breathe. These drugs stop the brain from responding to sensory messages travelling from nerves in the body. You cannot be woken from an anaesthetic until the drugs are stopped and their effects wear off. While you are unconscious, the team in theatre look after you with great care.

Meeting your anaesthetist

You will normally meet your anaesthetist before your operation. Your anaesthetist will look at the information from your health check or pre-assessment. They may listen to your chest and look in your mouth. They will ask you about any loose or crowned teeth.

Benefits and risks of having an anaesthetic

Anaesthesia has made modern surgery possible. Sophisticated operations can be offered with a high degree of comfort and safety. However, there are risks associated with having an anaesthetic. These may be weighed up against the likely benefits of the operation. Everyone varies in the risks they are willing to take. Your anaesthetist will describe the risk to you, but only you can decide how much the risk affects your plan to have the operation you would like.

Thinking about risk

The risk to you as an individual depends on:

- whether you have any other illness
- personal factors such as whether you smoke or are overweight, and
- whether the operation is complicated, long, or done as an emergency.

To understand the risk fully you need to know:

- how likely it is to happen
- how serious it could be, and
- how it can be treated if it happens.

The anaesthetist can also advise you whether there are any anaesthetic techniques that will reduce those risks.

Preparing for an operation

As soon as you know that you may be having an operation, it is helpful to think about how you can be as healthy and fit as possible. The time that you have to prepare will vary depending on the reason for the operation. If your operation is not too urgent, you can ask for extra time to get fit, if you want to. If your operation is an emergency, your doctors and nurses will give you good care in the condition you are in.

Medical problems

If you have a long-term condition, such as diabetes, asthma or bronchitis, heart problems or high blood pressure, you should make sure you are as well as possible before your operation. If you think you could make some improvement, you can ask your GP for an extra check-up. You should do this as soon as you know that you are having an operation.

1. Smoking

If you smoke, you should consider giving up before your operation. Smoking reduces the amount of oxygen in your blood and increases the risk of breathing and heart problems during and after the operation.

2. Your weight

Many of the risks of having an operation are increased if you are very overweight. Your GP can give you advice about weight loss and put you in touch with an organisation that can help.

3. Alcohol

If you drink more than the recommended amount, you should cut down before an operation.

4. Your teeth

Ideally, loose teeth should be secured before an anaesthetic. On the day of your operation, your anaesthetist will want to know which teeth are loose, or have crowns or a bridge.

The pre-assessment clinic

Before your anaesthetic we need to know about your general health. For some procedures, you may be invited to a pre-assessment clinic. If you are having an urgent operation, the pre-assessment will be done by your doctors and nurses on the ward. In most pre-assessment clinics you will see a pre-assessment nurse specialist.

Tests that you need will be arranged. This may include blood tests, an ECG (electrocardiogram or heart tracing), an X-ray, or other tests.

Health-check information

You may be asked about:

- your general health and activity level
- serious illnesses you have had
- problems with previous anaesthetics
- problems you know about when people in your family have had an anaesthetic
- symptoms relating to the heart or lungs such as chest pain, shortness of breath, palpitations
- or dizzy spells
- heartburn or indigestion pain

- medicines that you take, including those you can buy over the counter and vitamins. An accurate list of your medicines is very important. Please bring with you either the pills themselves, or a complete list from your GP.
- herbal remedies
- allergies
- smoking habits and the amount of alcohol you drink, and
- if you use recreational drugs such as cocaine or marijuana, heroin or the so called 'legal highs'.

In the few days before your operation

Medicines

You should continue to take your medicines up to and including the day of the operation unless you are told not to. Please follow carefully the instructions you have been given in the pre-assessment clinic. Please look out for specific instructions if you take:

- drugs to thin your blood (for example, warfarin, dabigatran, rivaroxaban, clopidogrel, aspirin)
- drugs for diabetes
- all herbal remedies, and
- some blood-pressure pills.

Taking a shower

Some hospitals give patients a disinfecting shower gel to use for several days before the operation. It helps prevent serious infections such as MRSA.

On the day of your operation

The hospital should give you clear instructions about eating and drinking, which you should follow carefully. You may be given:

- a time to stop eating, or drinking anything except water, and
- a time to stop drinking water.

The reason is that if there is food or liquid in your stomach during your anaesthetic, it could come up into the back of your throat and then go into your lungs causing serious damage to your lungs.

Normal medicines

If you are asked to take your normal medicines, you can do so with a small sip of water at any time. If you feel unwell on the day of your operation. You should phone the ward that is expecting you and ask for their advice.

Jewellery

It is best to leave most jewellery at home.

Premedication

A 'pre-med' is a drug which is sometimes given shortly before an operation. You may be offered drugs to help with anxiety, to prevent sickness or to treat pain.

Will my operation be cancelled?

Very occasionally, your anaesthetist may find something about your health which is not expected. They might recommend that your operation is delayed until the problem has been reviewed or treated. This will be discussed with your surgeon.

Checks

When you arrive in the theatre department, staff will check your name, your identity band and what operation you are having. If relevant, they will ask you if the operation is on the right or left side of your body. These are compulsory safety checks that make sure you have the correct care.

Having a general anaesthetic

Many anaesthetists will ask you to breathe pure oxygen from a light plastic face mask before the anaesthetic begins. If you are worried about using a face mask, please tell your anaesthetist. There are two ways of starting a general anaesthetic

- Anaesthetic drugs are given through your cannula. This is the usual way of starting the anaesthetic if you are an adult or older child.
- Or, you can breathe a mixture of anaesthetic gases and oxygen through the light plastic face mask. The gases smell quite strong, and it usually takes two or three minutes to become unconscious.

Looking after your breathing

Your anaesthetist will choose a way of making sure that oxygen and gases can move in and out of your lungs easily. Usually this means a tube is placed in your airway.

Compulsory checks

Before the operation begins, the whole team take a moment to make final checks on your care. The World Health Organization (WHO) recommends that these checks happen before every operation. A 'stop' moment for the team as the WHO checks are done

Having a regional or local anaesthetic

These anaesthetics are started in the anaesthetic room or in the operating theatre. There are many kinds of regional or local anaesthetic. Almost all types involve an injection. You will be awake unless you have asked to have sedation.

Spinal or epidural anaesthetic

These are used for operations on the lower half of your body. They both involve an injection in the back.

Starting a spinal anaesthetic

You will normally have the injection sitting or lying on the trolley or operating table. The anaesthetist and the team will explain what they want you to do. Local anaesthetic is given into the skin to reduce the pain of the injection. Your anaesthetist will ask you to stay as still as possible and to tell them if you feel any tingling or shock sensations. It can take more than one attempt to get the needle in the right place. You may notice a warm tingling effect as the anaesthetic starts to take effect. The anaesthetist will not let the operation begin until they are satisfied that the area is numb. Most people feel well immediately after an operation with a spinal anaesthetic.

Other types of regional anaesthetic

Other regional anaesthetics involve an injection placed near to a nerve or group of nerves. This is often called a 'nerve block'. This can allow you to have the operation without a general anaesthetic. Or, if you want a general anaesthetic, you can have a nerve block also, for longer-lasting pain relief. A nerve block is useful for:

- operations on the arm or lower leg
- operations on the artery in the neck, and
- operations on the abdomen, where a nerve block can be used for extra pain relief, but a general anaesthetic will always be needed as well.

Recovering from a regional anaesthetic

It will take some hours for feeling to return to the area of your body that was numb. This ranges from one hour to about 18 hours depending on the type of nerve block you have had. During this time staff will make sure that the numb area is protected from injury. You can expect tingling as the feeling returns. This passes within the first hour, but then you will feel the pain of the operation. You should tell staff immediately so they can give you some pain relief medicine.

More information about general anaesthesia

These are some of the drugs that you may receive during a general anaesthetic.

Anaesthetic drugs or gases

- Injected drugs are given into your cannula. The most commonly used is called propofol. It is a white liquid.
- Anaesthetic gases. There are several of these – the commonest are sevoflurane and isoflurane.

You will receive one of these continuously, to keep you unconscious as long as the operation lasts.

Pain relieving drugs

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These are given to reduce your body's reaction to the surgery, as well as to provide pain relief afterwards.

Muscle relaxants

These are needed for certain operations only. They relax the muscles completely and the anaesthetist uses a ventilator to do the breathing for you. At the end of the operation, you will not be woken up until the anaesthetist is sure they have worn off.

Other drugs

- Antibiotics to prevent infection.
- Anti-sickness drugs.
- Paracetamol to help with pain relief.
- Drugs to treat low blood pressure.

Preventing blood clots

As well as surgical stockings, the theatre team may also use wraps around your calves or feet which inflate every now and then to move the blood around in your legs.

In the recovery room

After most anaesthetics you will be cared for in a recovery room. This is close to the operating theatre. Your surgeon or anaesthetist can quickly be told about any change in your condition. Staff are trained to deal with critical situations that can happen after surgery, such as bleeding or low blood pressure. They will also treat any pain or sickness that you have. You will be taken back to the ward when the recovery room staff are satisfied that you are safely recovering normally. You can eat or drink according to the instructions of the surgeon.

High-dependency unit (HDU) or intensive care unit (ICU)

After some major operations, you may need care in the HDU or ICU. If this is planned, it will be discussed with you beforehand.

Pain relief

Good pain relief after your operation is important. As well as making you comfortable, it helps you get better more quickly. If you have good pain relief, you will be able to:

- breathe deeply and cough, at least gently; and
- move about freely. Exactly how much and how soon you will move around the bed, or get out of bed, will depend on the operation you have had. Early movement helps prevent blood clots in your legs (deep-vein thrombosis or DVT). Getting out of bed helps you to expand your lungs and to avoid a chest infection.

A physiotherapist helps patients take breaths and expand his lungs fully. Good pain control is essential for this care to be effective. Not everyone needs to see a physiotherapist for this type of care. Your doctors and nurses will ask for this kind of physiotherapy for you if they think it is needed.

Planning your pain relief

Your anaesthetist will talk with you before your operation about pain relief afterwards. You can discuss any preferences you have, and decide together what pain relief you will have. They will prescribe some pain relief, and more will be available if you need it. The amount of pain relief you need depends on the operation you are having.. Most pain-relief treatments also have side effects. Your doctors will need to take these into consideration as they advise you on which type of pain relief is best for you. Occasionally, pain is a warning sign that all is not well, so you should tell your nurses about it. It is much easier to relieve pain if it is dealt with before it gets bad. So, you should ask for help if you think the pain is bad or getting worse.

Ways of taking pain relief

Your anaesthetist will be able to talk with you about which types of pain relief are appropriate for you.

1. Tablets or liquids to swallow

These are used for all types of pain. They take 30 minutes to work and are best taken regularly. You need to be able to eat and drink without feeling sick for these drugs to work.

2. Injections into a muscle

These are not needed very often, but may be prescribed as an extra form of pain relief if you unexpectedly have a lot of pain. They may be given into your leg or buttock muscle and take 10 to 15 minutes to work.

3. Suppositories

These waxy pellets are placed in your rectum (back passage). The drug dissolves and is absorbed into the body, taking 10 to 20 minutes to work. They are useful if you cannot swallow or feel very sick.

4. Intravenous pain relief (into a vein)

During your anaesthetic and in the recovery room your anaesthetist and nurses may give you drugs into your cannula. This means they work more quickly than if the same drugs are given as a tablet or injection into a muscle.

Pain relief drugs

Two basic types of pain relief drug are given commonly.

- Paracetamol.
- Anti-inflammatory medicines (for example, ibuprofen and diclofenac).

They can be used together as they belong to different chemical groups. Anti-inflammatory drugs have a number of side effects which make them unsuitable for some people. Your anaesthetist will consider this before prescribing them for you.

Opiate pain relief medicines

These drugs are used after operations that are expected to cause considerable pain. Morphine, diamorphine, pethidine, codeine, tramadol and oxy-codone are all opiate pain-relief medicines. They may be given as a tablet or liquid to swallow, as an injection into a muscle, or intravenously into your cannula. Side effects are common with these drugs. These include feeling sick, vomiting, itching, drowsiness and, if used over a few days, constipation. Larger doses can cause very slow breathing and low blood pressure. The nursing staff will watch you closely for all of these side effects. Your reaction to opiates will affect you considerably. Anti-sickness drugs will be given as well.

Other ways of giving pain relief

- Patient-controlled analgesia (PCA)

This is a system which allows you to control your own pain relief. Opiate drugs are put into a pump which is connected to your cannula. The pump has a handset with a control button which you will be shown how to operate. When you press the button, a small dose of the opiate drug goes straight into your cannula. Using a PCA allows you to help yourself to a small dose of pain relief very frequently. The drug goes straight into a vein, and so works very quickly. You can continue to press the button at intervals until your pain is reduced to a suitable level. You can then have further doses to top up your pain relief as you need them, and keep yourself comfortable. Your nurses watch you carefully while you are using a PCA, to make sure that you are reacting safely to the pain-relief medicine. This type of pain relief is at least as safe, or safer, than other ways of giving opiate pain relief.

- Local-anaesthetic catheters

These are fine tubes which the surgeon can place under the skin, near to your surgical wound or to the nerves that supply the area. A fine tube (epidural catheter) is placed into your back, using a needle. A pump is used to run local anaesthetic continuously into the epidural catheter. This makes the lower half of your body become numb. The numbness lasts as long as the catheter is in place and the pump is running. When the catheter is removed, feeling in the area returns to normal. An epidural can be used for pain relief for most major operations on the lower body.

Pain relief at home

Your anaesthetist or doctors and nurses on the ward (or both) will make a plan for your pain relief at home.

You may be asked about pain-relief drugs that you already have at home, such as paracetamol. It is a good idea to stock up on pain-relief tablets before you come into hospital. Staff at the pre-assessment clinic will be able to advise you about which pain-relief drugs may be useful. If appropriate, you may be given a supply of pain-relief drugs to take home with you. You may be advised to take several different types of pain relief.

Who can give me advice when I am at home?

Before you leave the ward, you should make sure you know how and who to contact if you develop significant pain or other problems at home. You may get this information from:

- the nurse who arranges your discharge from hospital
- the doctors on the ward, or
- your surgeon or anaesthetist.

This is especially important if you go home on the day of your operation.

After an anaesthetic

How you feel afterwards depends mainly on the operation you have had, and on the pain-relief medicine that you need to treat any pain that you have. General anaesthetics can cause side effects which are generally short-lived (last a few hours). You may feel tired or even exhausted for some days after the operation. After major surgery this can last weeks or months. These will gradually improve as you leave hospital and you are healing.

Side effects and complications

Anaesthetic risks can be described as side effects or complications. These words are somewhat interchangeable, but are generally used in different circumstances, as shown below. Side effects are the effects of drugs or treatments which are unwanted, but are generally predictable and expected. For example, sickness is a side effect of a general anaesthetic, although steps are taken to prevent it. Complications are unwanted and unexpected events due to a treatment. However, they are recognised as events that can happen. Anaesthetists are trained to prevent complications and to treat them if they happen.

Index of side effects and complications

The following index lists possible side effects and complications according to how likely they are to happen.

Very common and common risks (RA= regional, GA= general)

1. Feeling sick and vomiting RA GA

Some operations, anaesthetics and pain-relieving drugs are more likely to cause sickness than others. Anti-sickness drugs are routinely given with most anaesthetics to treat feeling sick (nausea) or vomiting.

2. Sore throat GA

For most general anaesthetics, the anaesthetist will place a tube in your airway to help you breathe. This can give you a sore throat. It is treated with pain-relieving drugs.

3. Dizziness and feeling faint RA GA

Anaesthetics can cause low blood pressure. Your anaesthetist will treat low blood pressure with drugs and fluid into your drip, both during your operation and in the recovery room..

4. Shivering RA GA

You may shiver if you get cold during your operation. Care is taken to keep you warm and to warm you afterwards if you are cold. A hot-air blanket may be used. Shivering can also happen even when you are not cold, as a side effect of anaesthetic drugs.

5. Headache RA GA

There are many causes of headache after an anaesthetic. These include the operation, dehydration, and feeling anxious. Most headaches get better within a few hours and can be treated with painrelief medicines. Severe headaches can happen after a spinal or epidural anaesthetic. If this happens to you, your nurses should ask the anaesthetist to come and see you. You may need other treatment to cure your headache.

6. Chest infection RA GA

A chest infection is more likely to happen after major surgery on the chest or abdomen, after emergency surgery and after surgery in people who smoke. It is treated with antibiotics and physiotherapy. In some circumstances, having an RA, rather than a GA, can reduce the risk of a chest infection. Occasionally severe chest infections develop which may need treatment in the intensive-care unit. These infections can be life-threatening.

7. Itch RA GA

This is a side effect of opiate pain-relief medicines. It can also be caused by an allergy to anything you have been in contact with, including drugs, sterilising fluids, stitch material, latex and dressings. It can be treated with drugs.

8. Aches, pains and backache RA GA

During your operation you may lie in the same position on a firm operating table for a long time. You will be positioned with care, but some people still feel uncomfortable afterwards.

9. Pain when drugs are injected RA GA

Some drugs used for general anaesthesia or for sedation given with regional anaesthesia cause pain when injected.

10. Bruising and soreness RA GA

This can happen around injection and drip sites. It may be caused by a vein leaking blood around the cannula or by an infection developing. It normally settles without treatment.

11. Confusion or memory loss GA

This is common among older people who have had a GA. It may be due to an illness developing such as chest or urine infection. It usually recovers but this can take some days, weeks or months.

12. Bladder problems RA GA

Difficulty passing urine, or leaking urine, can happen after most kinds of moderate or major surgery. If this happens, the team looking after you will consider whether you need a urinary catheter (soft tube) placed in the bladder, which drains the urine into a bag. Most bladder problems get better, so that your normal urinary habit returns before you leave hospital.

Uncommon risks

1. Breathing difficulty GA

Some people wake up after a general anaesthetic with slow or slightly difficult breathing. If this happens to you, you will be cared for in the recovery room with your own recovery nurse until your breathing is better.

2. Damage to teeth, lips and tongue GA

Damage to teeth happens in 1 in 4,500 anaesthetics. Your anaesthetist will place a breathing tube in your throat at the beginning of the anaesthetic, and this is when the damage can happen. It is more likely if you have fragile teeth, a small mouth or a stiff neck. Minor bruising or small splits in the lips or tongue are common, but heal quickly.

3. Awareness GA

Awareness is becoming conscious during some part of a general anaesthetic. It happens because you are not receiving enough anaesthetic to keep you unconscious. The anaesthetist uses monitors during the anaesthetic which show how much anaesthetic is being given and how your body is responding to it. These should allow your anaesthetist to judge how much anaesthetic you need. If you think you may have been conscious during your operation, you should tell any member of the team looking after you. Your anaesthetist will want to know so they can help you at this time and with any future anaesthetic you may have.

4. Damage to the eyes GA

It is possible that surgical drapes or other equipment can rub the cornea (clear surface of the eye) and cause a graze. Anaesthetists take care to prevent this. Small pieces of sticky tape are often used to keep the eyelids together, or ointment is used to protect the surface of the eye. Serious and permanent loss of vision can happen, but it is very rare.

5. Nerve damage RA GA

Nerve damage (paralysis or numbness) has a number of causes during local, regional or general anaesthetics. It varies with the type of anaesthetic you are having. Temporary nerve damage can be common with some types of anaesthetic, but full recovery often follows.

6. Existing medical conditions getting worse RA GA

Your anaesthetist will make sure that any medical condition you have is well treated before your surgery. If you have previously had a heart attack or a stroke, the risk that you will have another one is slightly increased during and after your operation. Other conditions such as diabetes, high blood pressure and asthma will be closely monitored and treated as necessary.

Rare or very rare complications

1. Serious allergy to drugs RA GA

Allergic reactions can happen with almost any drug. Your anaesthetist uses continuous monitoring which helps make sure that any reaction is noticed and treated before it becomes serious. It is important to tell your anaesthetist about any allergies you know you have.

2. Damage to nerves in the spine RA GA

Permanent damage to the nerves in your spine is very rare after either a general anaesthetic, spinal or epidural anaesthetics.

3. Death RA GA

Deaths caused by anaesthesia are very rare. There are probably about five deaths for every million anaesthetics given in the UK.

In Conclusion

Feel free to ask as many questions as you need to assist you in being fully informed. This booklet will help as a resource that will help prepare you for your procedure with us, and is filled with words that may surround your visit to this hospital.

It is our intention that this information will help, but not replace our explanation to you. We strive to have open communications with you throughout every stage of your journey with us.