

# Anaesthesia



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# Inhoud

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# Anaesthesia

**You will soon be having an operation in our hospital. Your specialist will have informed you about this. You will need some form of anaesthetic during this operation. This leaflet will give you information about the different kinds of anaesthetic and about how things will proceed on the day of your operation.**

If you have any further questions after reading this leaflet, please ask your anaesthesiologist or the staff at the pre-operative screening unit. This leaflet is intended as a supplement to the information you will be given in person during the pre-operative screening and is not intended to replace it. This means that you can read everything again when you get home.

## **Pre-operative screening**

Every patient who needs surgery will need to be assessed to see if the surgery is going to present any additional health risks. You will also receive information about the type of anaesthetics that is required for the operation:

general or local anaesthetic. This assessment before surgery is called a pre-operative screening. Attending the pre-operative screening unit is by appointment only. At the unit, you will be asked to complete a medical history questionnaire. If you are taking medication, please remember to bring a list of your current medications.

A doctor or nurse will ask you a few questions about your health, the medication you take, allergies, previous illnesses and/or operations. If necessary, the doctor will examine your heart and lungs. You may also be referred to an internal medicine consultant, cardiologist (heart specialist) or lung specialist for further assessment. This will depend on your age and your medical history.

The anaesthesiologist who will administer the general or local anaesthetic before your operation may be a different anaesthesiologist to the one you met at the pre-operative screening.

The Catharina Hospital is a teaching hospital and you will therefore come across anaesthesiologists who have been trained as well as anaesthesiologists in training.

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## **Preparing for surgery**

### **Pre-operative fasting**

It is very important you have an empty stomach during the operation; this applies for a general as well as local anaesthetic. Having an empty stomach is very important, because if your stomach isn't empty during surgery, there is an increased risk that food and drink from your stomach will end up in your lungs during the operation. This can lead to very serious pneumonia. It is therefore important for your own health and wellbeing that you keep to the instructions listed below.

This means:

Nothing to eat for 6 hours before your scheduled arrival time:

**Patients can have a light meal up 6 hours before their scheduled appointment time.**

For example: If you need to be at the hospital at 8 a.m., you are not allowed to eat anything after 2 a.m.

If you need to be at the hospital at 2 p.m., you are not allowed to eat anything after 8 a.m.

**Nothing to drink for 2 hours before your scheduled arrival time:**

- Patients can have clear fluids up to 2 hours before their scheduled appointment time. These are: water, apple juice and tea WITHOUT milk.

For example: If you need to be at the hospital at 8 a.m. in the morning, you are not allowed to drink anything after 6 a.m. in the morning.

**Any agreed medication can be taken with a sip of water on the day of your operation.**

*If you are admitted one day before your operation:*

- For some operations, it is necessary for you be admitted the day before. This may be because tests or special preparations need to be carried out.

You are allowed to eat that day and you are also allowed to eat and drink at home before you come to hospital. We will let you know in advance if you are not allowed to eat.

The following rules apply to infants:

- You can give your baby a bottle of formula milk up to 6 hours before surgery and you can breast-feed up to 4 hours before surgery.
- You can give your baby clear fluids (water, apple juice) up to 2 hours before surgery.

It is possible that the anaesthesiologist has given you different instructions during your pre-operative screening. This may happen, for example, in the case of bariatric procedures. In that case, please follow those instructions.

Please note: your operation will be cancelled if you do not have an empty stomach!

## **Smoking**

We recommend that you do not smoke 24 hours before your operation. It is a known fact that smokers have more complications following an operation and anaesthesia. The respiratory system of smokers is often irritated and therefore more susceptible to infections. Also, coughing after surgery can be very painful. If you stop smoking for at least 24 hours, your blood will be better able to carry oxygen to the affected areas. This is very important for wound healing.

## **Jewellery, glasses, dentures**

You must remove contact lenses, glasses and jewellery such as a watch, piercings, rings and bracelets before surgery. Ladies are asked not to wear make-up or nail polish. You do not need to remove clear acrylic nails. You need to leave your glasses, contact lenses and dentures in the ward. In some cases, it is advisable to keep your hearing aid in, for example, if you are going to have a local anaesthetic.

The Catharina Hospital will do its utmost to prepare you as well as possible, but we cannot give you the exact time of your operation in advance. When you are admitted, we can give you an estimated time. Please bear in mind that this is only an indication and that, due to unforeseen circumstances, it is possible that your operation will take place later in the day or it may even be postponed.

## **Different types of anaesthetic**

There are different types of anaesthetic. Broadly speaking, there are two options:

- General anaesthetic
- Regional anaesthetic (epidural or regional nerve block)

During your pre-operative screening, we will discuss with you which anaesthetic is most suitable for you. For some operations you have no choice, for others there are several options. Depending on the type of procedure and your state of health, the anaesthesiologist will discuss the possible options with you so you can decide together.

It may be that the anaesthesiologist who administers the anaesthetic on the day of your surgery uses a different type of anaesthetic than the one you agreed and/or preferred. The anaesthesiologist will only do this if there are serious reasons for doing so.

We will explain the different types of anaesthetic in more detail below:

### **General anaesthetic**

Before the anaesthetic is administered, you will be connected to the monitoring equipment. Electrodes will be placed on your chest to measure your heart rate and a clip will be placed on your finger to check

the oxygen level in your blood. Your blood pressure is measured on your arm. An infusion will be attached to your hand or arm. This infusion will be used by the anaesthesiologist to administer the anaesthetic. You will fall into a deep sleep within one minute.



*The nurse anaesthetist will monitor you during your operation*

When you are asleep, (depending on the type of surgery), a tube will be inserted in the mouth-throat cavity or trachea in order to monitor your breathing while you are asleep. There is a small risk that inserting the tube may cause damage to your teeth. Fortunately, this is very rare. However, it is important that you inform us in advance if you have any dental problems.

If necessary for the surgery, a urinary catheter, gastric tube (via the nose) and/or central catheter in the neck will be inserted. You will not notice this as you will be asleep.

### *After-effects of anaesthesia*

It is quite common for you to feel under the weather for a while after surgery. That is not only because of the anaesthetic, but also because of the fact that surgery is a very stressful event. Your body needs to recover at its own pace and that takes time. You may still feel drowsy and occasionally nod off for a while after surgery. That is quite normal. When the anaesthetic starts to wear off, you may feel pain in the area where you had surgery. The anaesthesia, as well as the operation itself, may cause nausea. You can ask the nurse for some pain relief or something to stop the nausea. If your throat feels sore or itchy, that is caused by the tube that was in your throat during surgery to regulate your breathing. That irritation will disappear by itself within a few days.

### *Children and anaesthesia*

Sometimes children are afraid of injections. That's why children are often given anaesthetic by letting them breathe through a mask that releases anaesthetic gas. It is also possible to use an anaesthetic cream. This cream makes sure that a child hardly feels the injection. The anaesthesiologist will discuss with you and your child which method will be best and will explain the reasons. The preferred method depends on different factors, including your child's length, weight and the type of operation.

One of the parents may be present while your child is given a general anaesthetic. When your child is asleep, we will take you to the waiting room or you can go back to the children's ward. After the operation, we will come and tell you how it went and you can go and see your child in the recovery room.

### **Regional anaesthetic**

Regional anaesthetic means that a specific part of the body, for example, an arm or the lower half of the body, is made temporarily numb and motionless. By injecting an anaesthetic around a nerve, nerves or nerve pathways are temporarily disabled.

### *Spinal anaesthetic*

Spinal anaesthetic is used to numb the body below the navel for a few hours. Using a very thin needle, a small amount of local anaesthetic is injected between 2 vertebrae, in the space where the spinal fluid is located.

The effect is almost instantly noticeable: the legs will feel warm with a tingling sensation and will become heavy.

During the operation, the anaesthesiologist or nurse anaesthetist will be constantly at your side. You will remain conscious. You will not see anything of the operation: your entire body will be covered in drapes. Depending on the medication that was used, it may take several hours before the anaesthetic has fully worn off.

### *Side effects of spinal anaesthetic*

In some cases, people experience back pain at the location of the injection. This has to do with the posture you were in during surgery. The pain usually disappears within a few days. After a spinal anaesthetic, you may also get a headache. This headache is different from a 'normal' headache because the pain subsides when you lie down and gets worse when you sit up. Usually this headache disappears by itself within a week.

If your symptoms are so severe that you have to stay in bed, please contact the anaesthesiologist (during office hours on 040 - 239 85 01, outside office hours via the switchboard 040 - 239 91 11).

### *Epidural*

An epidural anaesthetic is mainly used for pain management during and after lung and abdominal surgery. An epidural anaesthetic is the most effective method of pain relief for these procedures.

An epidural also has some other benefits: A faster recovery of bowel function, less risk of pneumonia and less nausea and drowsiness after an operation. However, it is difficult to prove whether epidural anaesthetic results in quicker recovery after surgery than general anaesthetic.

With an epidural anaesthetic, a thin tube (epidural catheter) is inserted through a needle between 2 vertebrae, in the outer layer of the spinal cord. A local anaesthetic is administered through this tube. The effect is slowly noticeable: depending on the location of the catheter, the chest or abdomen will become numb. During surgery, you will also be given a general anaesthetic. After surgery, a pump with local anaesthetic is connected to the epidural catheter. This allows the pain management to continue for a few days (usually 2 to 4 days).

The pain nurse will come and see you every day to assess your pain relief. The ward nurse will also keep a record of your pain score.

Sometimes the pain-relieving effect is accompanied by a numbness of one or both legs or reduced strength in the legs.

If you experience this, please tell the nurse in the ward. As a result of this pain relief, you will not be able to pass urine properly, which is why you will be given a urinary catheter.

### *Nerve or brachial plexus block*

With this technique, a limb is anaesthetised by temporarily blocking a nerve or bundle of nerves (plexus). An echo device is used to see where the nerves are situated. The nerve is then located using a needle that emits small electric impulses. You will notice this because you will feel very small electric shocks in the muscles of the arm or leg. When the correct location is found, a sedative is injected locally, leaving the arm or leg totally or partially numb. On average, the anaesthetic wears off after 12 to 24 hours and the feeling and the movement will return. After the anaesthetic has worn off, irritated nerves caused by the injection or the medication used can cause a tingling feeling in your arm and hand or leg and foot for some time. In most cases, this tingling sensation will disappear within a few days.

This anaesthetic allows you to remain awake during certain operations. For other operations, this anaesthetic is given as additional postoperative pain relief, in addition to general anaesthetic.

## **Complications**

Modern anaesthesia is very safe. However, as with any medical procedure, complications can also occur with anaesthesia. Although we take the utmost care, we cannot always prevent complications. Serious complications with lasting consequences are very rare. The most common complications and side-effects are summarised in the tables below. Some complications are so rare that it is difficult to quantify them with a number. To give you an idea of what the risks are of getting a complication, the tables below show whether something occurs 'often', 'sometimes', 'rarely', 'very rarely' or 'extremely rarely'.

Often	1/10
Sometimes	1/100
Rarely	1/1,000
Very rarely	1/10,000
Extremely rarely	1/100,000

## Risks associated with general anaesthesia

Complications	How often does it happen?	Comments
<b>Nausea or vomiting</b>	Often	Your anaesthetist will assess your risk. If you are high-risk, the anaesthetist will give you medication to try to prevent this from happening. Some operations and pain medication increase the risk of PONV (post-operative nausea and vomiting)
<b>Throat pain</b>	Often	This can last for a few hours up to a few days
<b>Dizziness and weakness</b>	Often	This may be due to certain medications or low blood pressure
<b>Shivering after the operation</b>	Often	During the operation, you are often kept warm with a warm air blanket; however, you might still feel cold. Some anaesthetics can also cause shivering
<b>Itching</b>	Often	This can be caused by strong pain medication (such as morphine) or an allergy.
<b>Headache</b>	Often	This can be caused by the fact that you have an empty stomach or due to the type of operation

Complications	How often does it happen?	Comments
Stiffness, muscle pain, back pain	Often	This is caused by lying in the same position for a long time during the operation. Although you are placed carefully in a certain position, it might still cause pain.
Urinary problems	Often	After some operations you may have trouble passing urine. If your operation takes a long time, you will be given a bladder catheter once you are asleep
Painful bruising	Sometimes	An infusion or an injection can sometimes result in a bruise
Minor damage to lips or tongue	Sometimes	
Pneumonia	Sometimes	This depends on the type of surgery and your lung condition.
Damage to teeth	Rarely	This is more likely to occur if your teeth are in poor condition
Slight eye irritation	Rarely	
Nerve damage after general anaesthesia	Rarely	This is caused by lying in the same position for a long time during the operation.

Complications	How often does it happen?	Comments
Confusion after the operation	Rarely to sometimes	This depends on your age and state of health
Being awake or feeling pain during the operation	Very rarely	
Severe allergic reaction	Very rarely	
Cardiac or cerebral infarction	Very rarely	This could also happen even if you did not have the operation, this depends on your state of health
Death	Extremely rarely	

## Risks associated with spinal anaesthetic and epidural

Complications	How often does it happen?	Comments
Back pain, irritation or bruise at the puncture site	Often	Usually, these problems disappear by themselves within a few days
Tingling sensation in the buttocks and legs during the first 1-2 days after spinal anaesthetic	Often	Usually, these problems disappear by themselves within a few days
Blood pressure drop	Often	This can be easily treated with medication via the infusion
Nausea and vomiting	Often	This can be easily treated with medication via the infusion
Difficulty passing urine	Often	Sometimes you will need a bladder catheter
Insufficient epidural pain relief	Often	The dose will be adjusted, other pain medication is added or you will be given pain relief in another way
Itching	Often	This might be caused by strong pain medication or an allergy
Insufficient spinal anaesthetic	Sometimes	You will be operated on under general anaesthetic instead

Complication	How often does it happen?	Comments
Headache	Sometimes	This can have different causes: having an empty stomach, type of operation and it can also be caused by the epidural. Tell the nurse in your ward
Cardiac arrest	Rarely	This can happen during or immediately after the operation
Temporary nerve damage	Rarely	
Permanent nerve damage	Very rarely	
Meningitis	Very rarely	If you have a stiff neck or a fever, please notify the nurse immediately
Abscess in the spinal canal	Very rarely	If you notice an increased loss of feeling/strength in your legs, please call a nurse immediately.
Bleeding in the spinal canal	Very rarely	If you notice an increased loss of feeling/strength in your legs, please call a nurse immediately.

## Risks associated with a peripheral nerve block

Complications	How often does it happen?	Comments
Irritation or bruise at the puncture site	Often	Usually, this disappears by itself within a few days
Insufficient anaesthetic for the operation	Sometimes	You will be given a light sedation or general anaesthetic
Insufficient pain relief after the operation	Sometimes	You will be given a different form of pain relief.
Nerve function is temporarily reduced	Sometimes to rarely	This will repair itself within a few days to weeks, on very rare occasions up to 1 year.
Infections	Rarely	
Epileptic seizure	Rarely	This can happen when the anaesthetic fluid is accidentally injected in a blood vessel.
Collapsed lung	Rarely	This is only a risk with certain nerve blocks
Permanent nerve damage	Very rarely	
Cardiac arrest	Very rarely	

## After the operation



*The recovery room: this is where you will wake up after surgery*

### **The recovery room**

After surgery, the anaesthesiologist and/or nurse anaesthetist will take you to the recovery room. That is a separate room close to the operating theatre.

Specialised nurses ensure that you come round quietly from the operation. You are connected to the monitoring equipment here as well. Sometimes you will have a tube through your nose to relieve the pressure on your stomach or to provide you with extra oxygen.

### **Transfer to the nursing ward**

Once you are sufficiently awake from the anaesthetic, you will return to the nursing ward. It is also possible that you will have to stay in a special monitoring unit for a while, because the nature of your surgery requires a longer period of intensive care. In that case, you will be taken to the Intensive Care Unit. Visitors can come to see you if you are in the Intensive Care Unit or on the nursing ward, after consultation with the nursing staff.

### **Going home**

If you are allowed to go home the same day, make sure that you are accompanied by an adult and that you won't be home alone. Make arrangements for transport by taxi or by private car. Please note: you do not have the physical capacity and are not allowed to drive yourself.

Take it easy during the first 24 hours after the operation. Do not operate any machinery. Do not make important decisions. Eat and drink easily digestible food.

## **Pain relief**

### Pain relief for children

#### *Before the operation:*

It is not necessary to give your child any pain medication before coming to the hospital. If necessary, your child will be given paracetamol when he/she is admitted to the Catharina Hospital.

#### *After the operation:*

After the operation, you can give your child paracetamol if necessary. You can buy this from a pharmacy. The patient information leaflet will tell you how much you can give your child. If stronger pain medication is considered necessary, you will receive a prescription for this.

### **Pain relief for adults**

#### *Before the operation:*

In most cases it is best to take paracetamol in advance to benefit from the best pain relief. You will be given this when you are admitted to hospital. You don't need to take this at home. In some cases, it is also possible to give you something that will make you a little sleepy before you go into the operating theatre.

#### *After the operation:*

If you are having day surgery, you can take paracetamol after the operation, and if necessary, naproxen. These are available without a prescription at pharmacies and chemists. For more information about these medicines, please refer to the patient information leaflet.

If stronger painkillers are considered necessary, you will receive a prescription for this. If you need to stay at the Catharina Hospital for a few days after your operation, the specialist will determine which

painkillers you will need for when you get home. You will then be given a prescription.

### **Pain relief using a PCA pump**

If an operation is expected to cause a lot of post-operative pain, pain relief can be administered via a PCA pump. PCA stands for 'Patient Controlled Analgesia'. This means that you can manage your own pain relief. This pump is connected to your infusion after the operation and contains pain medication. If you are in pain, press the green button, to give yourself medication to relieve your pain. You can usually feel the effect within 5 to 10 minutes. If you are still in pain after 5 to 10 minutes, simply press the green button again. This process is repeated until the pain has subsided and is at an acceptable level for you. You are the only person allowed to operate the pump. The pump has been set by

the anaesthesiologist in such a way that you cannot give yourself too much pain medication.

Unless there are reasons to the contrary, PCA pain relief is always combined with paracetamol and naproxen, which you will receive on the ward. Depending on the operation and your pain, the PCA pump will remain connected for about 48 hours. After that, a different form of pain relief is usually used, for example, in the form of tablets.

### **Pain score**

In order to determine the effect of the pain medication, the nurse on the ward will often ask you about the pain. This means that you need to indicate the extent of your pain on a scale of 0 to 10. 0 is no pain and 10 is the worst possible pain. By taking these scores, we can see if the prescribed pain medication is working properly and if necessary, we can adjust the pain medication in time.



0

1

2

3

4

5

6

7

8

9

10



## **Changes to your health**

Your health may change between the pre-operative screening and the day scheduled for your operation. For example, you might experience heart problems or start using new or different medicines. It is very important that you tell the pre-operative screening team if such changes have occurred. You can reach them during office hours on telephone number: 040 - 239 85 01.

## **Any questions?**

If you have any questions after having local or general anaesthetic, or if you have any symptoms that you think are linked to this, please contact the anaesthesiologist. You can contact the pre-operative screening unit on Mondays to Fridays between 8.15 a.m. and 4.30 p.m.

## **Contact details**

Catharina Hospita

040 - 239 91 11

[www.catharinaziekenhuis.nl](http://www.catharinaziekenhuis.nl)

Anaesthesiology & Pain Medicine Department

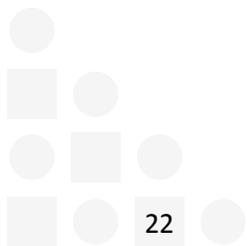
040 - 239 85 01

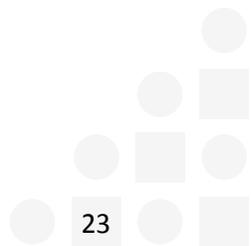
For directions and other information about the Anaesthesiology & Pain Medicine Department, please go to [www.catharinaziekenhuis.nl/anesthesiologie](http://www.catharinaziekenhuis.nl/anesthesiologie)

## Instructions for your medication before and after your operation

Certain medications should not be taken on the morning of the operation, or even a few days before the operation. The instructions that were discussed with you at the pre-operative screening are set out below.

- On the day of the operation, you will take all your medication at the usual times.
  
- On the day of the operation, you will NOT take the following medication:
  - .....
  - .....
  - .....
  - .....
  
- 5 days before the operation, you must stop using Acetylsalicylic Acid/ Persantin/Carbasalate Calcium/Clopidogrel (Plavix).
  
- 2 or 3 days before the operation, you must stop using Sintrom (Acenocoumarol). You must do this in consultation with the thrombosis clinic. You will receive a letter from us, which you will need to give to the thrombosis clinic.
  
- 5 days before the operation, you must stop using Marcoumar (Phenprocoumon). You must do this in consultation with the thrombosis clinic. You will receive a letter from us, which you will need to give to the thrombosis clinic.
  
- ..... days before the operation, you must stop using Dabigatran/ Rivaroxaban/Apixaban.







Altijd als eerste op de hoogte?

Meld u dan aan voor onze nieuwsbrief:

**[www.catharinaziekenhuis.nl/nieuwsbrief](http://www.catharinaziekenhuis.nl/nieuwsbrief)**

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