

# Brachial Plexus Nerve Block for Upper Limb Surgery

Anaesthetic Department



Patient information leaflet

This leaflet explains what a brachial plexus nerve block is, what it involves and why it is used. It also outlines the risks and what to expect following the procedure.

## What is the Brachial Plexus?

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The Brachial Plexus is the name given to a collection of nerves passing through the neck and shoulder. These nerves supply the shoulder, elbow, forearm and hand with sensation, movement and power. The part supplying the shoulder sits in a “groove” in the neck called the interscalene groove, before passing through the neck, running under the collar bone (clavicle), and through the armpit.

## What is a nerve block?

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A nerve block is a safe and effective form of anaesthesia involving an injection of local anaesthetic around the nerves that supply a specific region of the body. This causes numbness in the area, allowing an operation to be performed pain free with you awake or sedated. Whilst you may be aware of movement, there is no pain. Some operations can only be done under general anaesthesia and a nerve block is often used in combination with the general anaesthetic in order to provide you with good pain relief after the operation.

- For shoulders the nerves can be easily blocked in the interscalene groove which is found at the side of the neck at about the level of the Adam’s apple.
- For elbows and hands the nerves can be easily blocked above or below the collar bone, or in the armpit.

## Why have a Brachial Plexus nerve block?

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Surgery on the shoulder or arm can cause considerable pain in the first 24 hours after the operation. One of the most effective ways of relieving this pain is to perform a Brachial Plexus Nerve Block. We will often refer to this procedure simply as a ‘block’. As the area will then be numb, your operation can be done under a block alone, or in combination with sedation or with a general anaesthetic. The advantages of this are:

- You have excellent pain relief during and after the operation for between 4 to 24 hours depending on the local anaesthetic used. This means a shorter recovery period and fewer pain killing tablets. Occasionally a thin plastic tube (a catheter) may be inserted and left in place so you can continue to have pain relief for a few days after your operation.
- You avoid the common side effects (such as nausea and vomiting) associated with anaesthetic drugs and strong painkillers and your recovery may be quicker.
- It may be safer if you have other medical conditions which make a general anaesthetic more hazardous.
- If you are staying awake then you can eat or drink straight away after the operation.
- You can potentially go home sooner if you have not had a general anaesthetic.

## **What do I have to do before the operation?**

As for a general anaesthetic, you will be asked to have no food or drink for six hours prior to your operation except for water which you can drink up to two hours beforehand. This is important if you are having a general anaesthetic as well, or if one is unexpectedly needed. You will have a consultation with your anaesthetist prior to the operation where you will be assessed for the procedure and will have an opportunity to ask any questions. The anaesthetist will discuss your general health, the medications that you are taking and any allergies that you may have. He or she will discuss the different types of anaesthesia related to you and your operation.

## **What is the preparation for the procedure?**

When you arrive in the anaesthetic room you will be connected to routine monitoring equipment including a blood pressure cuff, a probe on your finger (to monitor oxygen levels in the blood) and stickers on your chest to monitor your heart rate (an 'ECG'). It is also routine for your anaesthetist to use a needle to place a cannula (a thin plastic tube) in a vein in the back of your hand or in your arm. Your arm will

then be exposed and put in the best position to perform the block – this will either be down by your side, or away from the body to allow access to the armpit. A very cold sterile solution is used to clean the area. Your anaesthetist will then perform the brachial plexus block, which may take between five to ten minutes.

## **If I am having a general anaesthetic why might the block be carried out whilst I am awake?**

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If you are having a nerve block and a general anaesthetic, your anaesthetist may still wish to do the nerve block while you are awake, before giving the general anaesthetic. This may help detect potential direct injury to a nerve. Contact with the nerve may cause ‘pins and needles’ or a brief shooting pain. This does not mean the nerve is damaged but if the needle is not repositioned damage may potentially occur. Being awake allows you to report any tingling or shooting pains that you feel. If you notice these, you should tell the anaesthetist immediately, allowing the anaesthetist to reposition the needle. The feelings should then disappear.

## **What does the Brachial Plexus Block involve?**

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- For shoulders the skin will be numbed at the side of the neck at the level of the Adam’s apple.
- For elbows and hands the skin will be numbed above or below the clavicle or in the armpit. The choice of site will depend on various factors, such as the operation proposed, the ease with which you can move your arm into the required position and the site that offers the best view of the nerves.

After the skin is first numbed with an injection of local anaesthetic, there may be stinging for a few seconds before a nerve block needle is then introduced through this numb area.

The anaesthetist will either use an ultrasound machine or a nerve stimulator machine (or both) to accurately position the needle. When the needle is in the right place, local anaesthetic is injected around the nerves. There may be a feeling of pressure. After a few minutes your

arm will feel warm and tingly, but within 30 minutes, it will become numb and heavy. As the needle is advanced, you may be aware of some movement or twitching in the area and you may get pins and needles, or discomfort in the arm as the needle approaches the nerves. Your anaesthetist will ask you to report any of these sensations.

If you are staying awake during the operation, the anaesthetist will check that the block is fully working before any surgery is started. It is normal to feel some movement but if there is any pain, more local anaesthetic can be offered. There will be a screen in theatre to keep the operation site sterile. If you are having sedation then an oxygen mask will be placed over your face. The anaesthetist will be close by and available at all times.

## **What is ultrasound?**

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Ultrasound is a method of scanning the body. It is used to scan pregnant ladies' unborn babies and is therefore considered very safe. An ultrasound machine is used to locate and visualise the nerves and their surrounding structures as the block is being performed. It is used to increase the safety of the procedure and minimise the risk of damage to surrounding structures.

## **What is a nerve stimulator?**

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Your anaesthetist may use a tiny electric current, (which runs through the needle) to help find the nerves accurately. This may cause gentle twitching in your arm or tingling. This is a strange feeling but should not be painful.

## **What problems can occur following a block?**

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As with any procedure in medicine, there are potential problems associated with a brachial plexus nerve block. These only last as long as the local anaesthetic lasts. Damage to adjacent structures such as arteries or veins is unusual. Serious reactions leading to heart problems or seizures are very rare but the anaesthetic team are trained to deal with these.

The most frequent (but still uncommon) nerve problem is persistent altered sensation in a part of the arm or hand. This is called Nerve damage. The risk of long-term nerve damage caused by a brachial plexus block is difficult to measure precisely. Studies show that it happens in between 1 in 700 and 1 in 5,000 blocks. If you have a block lower down the arm, the risk of nerve damage and its consequences may be less. About 1 in 10 patients notice a prolonged patch of numbness or tingling in their arm. These symptoms will resolve in 95% of these patients within four to six weeks, and in 99% within a year. There is a risk of nerve damage after any operation regardless of whether you have had a block. This can be due to the operation, the position you lie in or the use of a tourniquet (tight band on the upper arm which prevents bleeding during the operation). Swelling around the operation site or a pre-existing medical condition, such as diabetes, may also contribute to nerve damage.

With interscalene/shoulder blocks common side effects include: a very heavy arm although you may still be able to move your fingers, flushing of the face, a hoarse voice (4%), a droopy upper eye lid (5%), bruising at the site of injection. More rarely breathing may be more of an effort which may be more noticeable if you already have a breathing disorder. All these are temporary and should get better as the block wears off.

With blocks for the elbow or hand, common side effects include a very heavy arm and bruising at the site of injection. If the injection is placed around the collarbone, there is a small risk of damage to the lung (1 in 1000 patients). This can usually be managed to keep you safe and serious or permanent harm is very rare. Your anaesthetist can tell you more about this.

## **What happens if the block does not work?**

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Occasionally, the block may not work or may not be sufficient to conduct the operation. This may be due to the operation being more extensive than expected or due to technical difficulties with the injection of local anaesthetic. If this was the case, you would be offered more local anaesthetic, additional pain relief or a general anaesthetic.

## Recovery

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The effects of the local anaesthetic will last between 4 and 24 hours – on average about 10-12 hours. Your arm will be held in a sling until the strength has returned. Please ensure that the strength and feeling has fully returned to your arm before trying to use it normally. Please refer to the leaflet 'Looking after your arm after a Brachial Plexus Nerve Block' for more information. We also advise you bring loose clothes that will be easy to put on using only one hand (i.e. no buttons or zips). Slip on shoes are also easier to manage.

## What happens when the block wears off?

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As the block starts to wear off, you may feel pins and needles in your arm or hand. These will gradually disappear as the sensation comes back. It is important that you start taking your painkillers by mouth before the sensation comes back so that you will be comfortable once the block wears off.

## Will I get the opportunity to discuss this further?

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Your anaesthetist will assess you before your operation. You will be given the opportunity to fully discuss the procedure and any concerns or questions that you may have.

## Other sources of information

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1. "Nerve damage associated with peripheral nerve blockade"  
(see [www.rcoa.ac.uk](http://www.rcoa.ac.uk))
2. "Risks associated with your anaesthetic"(see [www.rcoa.ac.uk](http://www.rcoa.ac.uk))
3. ASRA Practice Advisory on Neurologic Complications in Regional Anaesthesia and Pain Medicine [http://www.asra.com/publications/Article\\_of\\_the\\_month-Sept\\_\\_2008.pdf](http://www.asra.com/publications/Article_of_the_month-Sept__2008.pdf)
4. RA-UK website, information video for patients  
[https://youtu.be/GEId1b2\\_KSw](https://youtu.be/GEId1b2_KSw)

## Contact details

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**Who to call for help – 01483 571122 via switchboard and ask for:**

### Inpatients

- Orthopaedic Pre-Assessment
- Clinical Fellow Regional Anaesthesia

### Outpatients

- Anaesthetic Department – 9am to 5pm
- **Out of hours** – Anaesthetist on call

### Anaesthetic Department

Royal Surrey County Hospital NHS Foundation Trust  
Egerton Road, Guildford GU2 7XX

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### PALS and Advocacy contact details

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Contact details of independent advocacy services can be provided by our Patient Advice and Liaison Service (PALS) who are located on the right hand side as you enter the main reception area. PALS are also your first point of contact for health related issues, questions or concerns surrounding RSCH patient services.

**Telephone:** 01483 402757

**Email:** [rsc-tr.pals@nhs.net](mailto:rsc-tr.pals@nhs.net)

**Opening hours:** 9.00am–3.00pm, Monday to Friday

If you would like information documents in large print, on tape or in another language or form please contact PALS.

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