

Nerve blocks (regional anaesthesia) to manage pain in limb surgery

Nerve blocks can be used for pain relief during and after your child's surgery. You might hear a nerve block being called 'regional anaesthesia'. This information explains nerve blocks, what to expect if your child has one, and their advantages and disadvantages. If you have any questions, speak to a doctor or nurse caring for your child.

What is a nerve block?

Nerves carry sensory (for example, pain and temperature and position) messages from the skin, muscles, tendons and bone. They also carry movement messages to the muscles. A nerve block temporarily stops the nerves from carrying these messages. It makes the area supplied by the nerve feel numb, and the muscle supplied by the nerve feel weak. This stops pain while your child is having surgery, and helps decrease pain while they are recovering.

To have a nerve block, a numbing medicine is injected around a nerve (or group of nerves) that supply the area where the surgery is being done. Nerves to the shoulders, arms, hands, legs, knees or feet can all be blocked, depending on where your child is having surgery.

Most nerve blocks last 8 to 24 hours. To start with, both the nerves for pain as well as the movement nerves will be blocked. As the block stops movement messages to the muscles, the limb where your child has surgery will not be able to be moved properly until the block wears off. As it wears off, the movement will go back to normal. The nerves that carry pain messages are usually blocked for longer than the movement nerves. The limb will feel numb for up to 24 hours after surgery, even when the movement has come back to normal.

A thin plastic tube (catheter) can be placed next to the nerve, or group of nerves, to give extra numbing medicine. This is used if the nerve block is needed to control pain for longer.

Benefits of a nerve block

Nerve blocks give one of the best forms of pain control. Having a nerve block means your child is less likely to need strong painkillers (for example, morphine). This means they will not have the side effects of strong painkillers, such as feeling sleepy, seeing or hearing things that do not exist (hallucinations), feeling sick, finding it harder to poo (constipation) and breathing slower. Having less side effects often means your child will recover quicker after surgery, and might be able to go home earlier.

Strong painkillers (such as morphine) stop pain when the area is being kept still, but not when it is being moved. Nerve blocks stop pain when the area is still as well as when it is being moved. This can make physiotherapy after surgery easier.

Risks of a nerve block

There is a risk of bleeding, bruising or having an infection in the area your child has a nerve block. There are also some other less common risks.

Toxicity

There is a very small risk that the numbing medicine can be injected into a blood vessel (less than 3 in every 10,000 people). This can cause side effects on your child's heart, or cause them to have seizures. If this happens, the anaesthetist will usually be able to treat it. The risk of this is much less when the anaesthetist uses an ultrasound scan to guide the needle (see page 3).

Nerve damage

There is a very small risk of damage to the nerve. If this happens, either the numb feeling will not wear off, or movement in the area supplied by the nerve will not go back to normal. If there is nerve damage, most nerves recover within 6 months to a year.

The risk of permanent nerve damage is very small (about 1 in every 5,000 to 10,000 people). The anaesthetist will be able to tell you more about how this risk might affect your child. The risk of nerve damage from surgery is usually more than the risk from a nerve block.

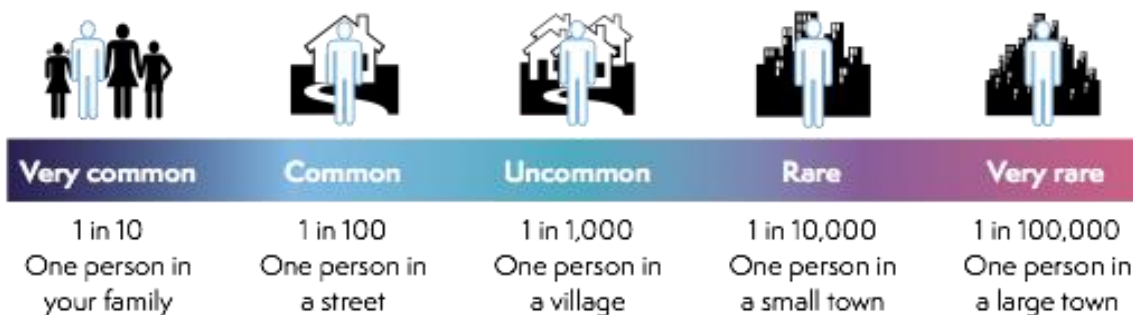
The nerve block does not work properly

It can take up to 30 minutes for a nerve block to work. The anaesthetist will check the area is numb before surgery, and that the block is working. Sometimes, the block might not work properly, and the area will not be completely numb. If this happens, there are other options.

- The anaesthetist can inject more numbing medicine in the same area, or in a different area along the nerve to fully block the nerve.
- Your child can have morphine or other strong painkillers.
- If the plan was to have surgery without a general anaesthetic, your child might need to have a general anaesthetic (see page 3).

Scale of risk

People understand risk differently. This images was designed by the Royal College of Anaesthetists. It might help you to understand how often the risks discussed happen.



Infographic taken from the Royal College of Anaesthetists' (RCoA) leaflet 'Nerve blocks for surgery on the shoulder, arm or hand', February 2020. The RCoA has not reviewed this information as a whole.

Other treatment options

If your child does not have a nerve block, they will have stronger painkillers (for example, morphine). The surgeon might also be able to inject some local anaesthetic into the skin and around the area of surgery to help with the pain.

Having a nerve block

Your child might have a nerve block on its own, or with a general anaesthetic. A general anaesthetic means that your child will be asleep during surgery. Having a general anaesthetic depends on your child's age, what they prefer, and how long the surgery will take. Some surgery can be done without a general anaesthetic, with having just a nerve block.

- **Young children** usually have a nerve block done when they are asleep after having a general anaesthetic. This means they will not know that the block is being done.
- **Older children and adults** can have a nerve block when they are asleep after a general anaesthetic, or they can have a nerve block on its own without general anaesthetic.

If your child does not have a general anaesthetic, they might have medicine called sedation. This helps them feel relaxed and calm while the nerve block is done, and during surgery. Sedation can be given by mouth, or by an injection into a vein. Your child will also be given a local anaesthetic to numb the skin before having a nerve block. The discomfort felt while having a nerve block is about the same as having a cannula put in.

Finding the nerve to block

The nerves being blocked are usually found using an ultrasound scan. The anaesthetist might also use a nerve stimulator. This is a machine which passes a tiny electric current through the needle that is used to do the nerve block. When the needle is close to the nerve the muscles that are supplied by the nerve will move. This is normal, and helps the anaesthetist find the right nerve to block. If your child is awake or has had sedation, they might feel a small tingle when the electrical current is close to the nerve, or they might have some discomfort as their muscle moves.

Once they anaesthetist has found the nerve to block, they can inject the numbing medicine to block the nerve. If your child feels a sharp pain while the nerve block is being put in, they should tell the anaesthetist.

Types of nerve blocks

Blocks for shoulder, arm and hand surgery

The nerves that supply the arm come from a single group of nerves (brachial plexus). They can be blocked anywhere from the neck, down the arm, to the wrist. This depends on what area needs to be blocked for surgery.

If your child has a nerve block **above their collar bone** (for shoulder or upper arm surgery), some of the numbing medicine can spread to nearby nerves. This can cause some specific side effects, but they will wear off after a few hours.

- Some children might feel that they need to breathe more deeply than usual.
- Your child might get a droopy eyelid on the side of the body that they had the nerve block. The pupil of the eye might also be smaller. This goes away after a few hours, and will not cause any long-term problems with their eyesight.
- Your child might have a hoarse voice and some difficulty swallowing.
- The lining of the lung can be torn with some nerve blocks above the collar bone, which can cause an air leak (pneumothorax). This is not common (less than 1 in 1,000 people), and it can be treated. If it happens, your child might feel short of breath, or have pain in their chest when they breathe. If they have these side effects, tell your anaesthetist. The air leak can be slow, and shortness of breath can happen up to 24 hours after surgery. If you are at home and your child develops shortness of breath or pain in their chest when they breathe, come back to our Emergency Department and tell them about the block.

Blocks for hip, leg and foot surgery

The hips, legs and feet have 2 groups of nerves supplying them (lumbar plexus and sacral plexus). This means that leg surgery will need both of these nerve groups to be blocked, and your child will need numbing medicine in 2 places.

Hip, leg and foot surgery can also be done using a spinal block, epidural or caudal block. These procedures numb the whole body from the belly button down. Ask your doctor or nurse for more information on spinal blocks, an epidural or a caudal block.

After surgery

Looking after the blocked limb

After your child has had a nerve block, the area will be numb until the nerve block wears off. Your child will not be able to feel the limb as normal, so you will need to help them protect it.

- If they have had a block for **shoulder, arm or hand** surgery, their arm might be floppy and feel heavy. Keep the arm in a sling to protect and support it.
- If they have had a block for **hip, leg or foot** surgery and they are not in a cast, they might need a boot to support their foot and help them walk. They will have less strength in their leg or foot until the block wears off, and should be careful when trying to stand or walk. Even if the strength is normal, their balance might not be the same, and they are at risk of falling. Please help them to stand and walk, and support them until they are sure that their balance and their strength are back to normal.

Check the limb often to make sure that it is not in an awkward position, and is not pressing against any hard objects that could injure it. Your child will not be able to feel hard objects pressing against them.

You will also need to protect your child's blocked limb from heat and cold. Make sure it is not next to a radiator, cooker or a hot water bottle. Your child will not be able to feel if their limb gets too hot, and they might burn themselves.

Pain as the nerve block wears off

When the nerve block wears off there might be some pain. Your child should have regular pain medicines. Your child can take ibuprofen and paracetamol straight away, even while the block is still working. Taking paracetamol and ibuprofen regularly before the block wears off means that these medicines are working by the time that the block starts wearing off. Your doctor or nurse can give you more information on painkillers.

Your child might have:

- paracetamol, which should be taken every 6 hours
- a non-steroidal anti-inflammatory medicine (for example, ibuprofen), which should be taken every 8 hours
- a stronger painkiller (for example, codeine, morphine or tramadol) which can be given if your child needs more pain relief

Making sure the block is wearing off

If your child's arm or leg is not back to normal or still feels numb **48 hours after surgery**, contact the hospital team on Savannah Ward (see page 5). The hospital team will contact the anaesthetist who will check your child.

Contact us

If you have any questions or concerns about nerve blocks, please contact Savannah Ward, **phone** 020 7188 5917 who will contact the on call anaesthetist to get in touch with you.

For more information on conditions, procedures, treatments and services offered at our hospitals, please visit **web** www.evelinalondon.nhs.uk/leaflets

Evelina London Medicines Helpline

If you have any questions or concerns about your child's medicines, please speak to the staff caring for them or contact our helpline, **phone** 020 7188 3003 Monday to Friday, 10am to 5pm, **email** letstalkmedicines@gstt.nhs.uk

Your comments and concerns

For advice, support or to raise a concern, contact our Patient Advice and Liaison Service (PALS), **phone** 020 7188 8801 **email** pals@gstt.nhs.uk. To make a complaint, contact the complaints department, **phone** 020 7188 3514 **email** complaints2@gstt.nhs.uk

Language and Accessible Support Services

If you need an interpreter or information about your care in a different language or format, please get in touch, **phone** 020 7188 8815 **email** languagesupport@gstt.nhs.uk

NHS 111

Offers medical help and advice from fully trained advisers supported by experienced nurses and paramedics. Available over the phone 24 hours a day, **phone** 111 **web** 111.nhs.uk

NHS website

Online information and guidance on all aspects of health and healthcare, to help you take control of your health and wellbeing, **web** www.nhs.uk



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