Lumbar Puncture

What is a Lumbar Puncture (LP) and why are they required?

This procedure is also known as a ‘spinal tap’. It can be done to test for infections or to see if there are foreign cells in the fluid that surrounds the brain and spinal cord. This fluid is known as cerebro-spinal fluid (CSF).

Is my child sedated?

Most lumbar punctures are performed under sedation using drugs called midazolam and fentanyl. The aim of sedation is for your child to be relaxed, but not necessarily asleep. Most children usually do not remember the procedure happening.

How is a lumbar puncture performed?

Your child is asked to lie on one side and curl up into a ball. This allows the backbones to spread apart. To help perform this test it is important that your child keeps still, as this makes the lumbar puncture easier for your doctor to perform. The skin is cleaned with antiseptic and a lumbar puncture needle is then slipped in between two of the lower back vertebrae. When the tip of the needle is in the spinal canal, CSF is removed and collected for testing. Intrathecal chemotherapy can also be injected through the same needle before it is removed.
Your child will need to be held by a nurse to keep them in the right position for the lumbar puncture to be performed. Most children do not like being held and they often become upset and distressed by being held tight. Parents are often distressed seeing their child upset and some parents may wish to wait outside the room. Many parents have commented that this is the most stressful part of treatment. It is important to keep in mind that your child will have no memory of the lumbar puncture, so they will not remember whether you are there or not.

**Will my child require a general anaesthetic?**

Most children have some lumbar punctures done under a general anaesthetic when another procedure, such as a bone marrow biopsy, is done at the same time. General anaesthetics may also be needed if your child becomes very distressed while sedated, or for the rare child who cannot be placed in the right position while awake.

**Will my child need to fast?**

Your child will need to fast for 6 hours before the lumbar puncture. This is because vomiting while sedated, while very rare, can be dangerous if the vomit is inhaled into the lungs. Remember to not give your child anything to eat (including milk fluids) for 6 hours prior to the lumbar puncture. Clear fluids (water & cordial) can be consumed up to 2 hours beforehand.

If your child is having their lumbar puncture in McGuiness McDermott Children’s Clinic, the rules are no solid food or milk after 4 am, and no clear fluids after 8:30 am.
Does it hurt?

Lumbar punctures do hurt in adults and children who are awake; therefore, a drug called fentanyl is given to help stop any pain. Your child will be sedated with midazolam and have no memory of the lumbar puncture! Both midazolam and fentanyl work together to help sedate your child.

You will need to place a local anaesthetic cream prior to the lumbar puncture on your child’s back. This cream will help to numb the area where the needle is inserted. There are two types of creams that are used;

- **EMLA** (Lignocaine and Prilocaine)– must be on for an hour before it begins to work. May stay on your child’s skin for up to 4 hours.
- **ANGEL** (Amethocaine) – must be on for 30-60 minutes before it works. It needs to be removed 30 minutes after it is applied, as some children may get a rash if it stays on longer.

Please follow the diagram below for the correct placing of the local anaesthetic cream.

If you are not confident applying the cream on your child’s back before the lumbar puncture, ask the nursing staff for help when you arrive for your appointment. It is important to do this as soon as you arrive, as time needs to be allowed for the cream to work. The nursing staff will be happy to show you exactly when to put the cream.
Are there any side effects?

- **Headaches** - Some children get headaches when sitting, standing, and/or vomiting, but these should go away with rest. Headaches can be controlled with simple pain relief, such as paracetamol. It may help older children to lie flat for two hours after the LP to reduce the risk of a headache starting.

- **Pain** - Some children have soreness around the needle site or leg aches and pains, which usually resolve within a day. Paracetamol can be given to help reduce pain but if it is very severe or does not settle, your child should be seen at the hospital.

- **Vomiting** - Some children vomit after lumbar punctures, especially if more than one intrathecal drug is given. These effects can sometimes be a problem for 2-3 days. Medication can be given to help settle nausea and vomiting.

- **Medication side effects** - The midazolam given to sedate your child will make them very sleepy and therefore, unsteady on their feet. It may take about two hours for the drug wear off; therefore, they need to be observed closely to reduce the risk of hurting themselves. Midazolam can make younger children very grumpy and irritable as it wears off. The other drug given called Fentanyl can also make children cough. This form of sedation may often briefly causes double vision.

Are there any risks involved?

Lumbar puncture is generally a very safe procedure, however, it is important that you are made aware of any problems that may occur;

- **Sedation** - although rare, some children may vomit whilst sedated. They may also hold their breath for a few seconds and then return to breathing normally. This is known as an apnoea. Whilst the lumbar puncture is performed an oxygen probe will be placed on your child’s finger to check the oxygen in your child’s blood stream. It their oxygen is low they will simply need to be placed on some oxygen until their sedation wears off. If this occurs the amount of midazolam given may be reduced next time to prevent this from happening again.

- **Infection** - It is very rare for lumbar puncture sites to become infected, although, this can be a risk with any procedure, as there is an opening site for germs to invade the body. A bandaid will be placed over the opening site. To help reduce the risk of infection the bandaid needs to be removed after 24
hours. The risk for a lumbar puncture site to become infected compared to a bone marrow aspirate site is a great deal less.

- **Neurological problems** - There is a very slight risk that some children may have a seizure or feel tingling sensations in their legs due to nerve compression. This usually is not a permanent side effect and will more than likely return to normal.

- **Bruising** - There is a very slight risk that your child may develop some bruising. Your doctor will check your child’s platelet count (cells that clot the blood) before the lumbar puncture and make sure it is safe to go ahead.

**When do we get the results?**

After the CSF is obtained it is sent off to the laboratory and tested for the presence of abnormal cells. Your doctor will contact you if anything unusual is found, generally the same day. The CSF is always sent to laboratory for testing with each lumbar puncture performed. It is a routine test and there is no need to worry while waiting for the results.

**Will my child need to stay overnight?**

After the lumbar puncture you will not be required to stay overnight, unless your child is in hospital for other treatment. Your child can go home when they are stable, can walk unassisted and can tolerate food and drink.

**Important things to remember prior to the Lumbar Puncture**

1) You need to ensure that your child is fasted properly for their lumbar puncture.

2) Your child needs to wear loose fitting clothing, so their back is easy to get to.

3) You need to ensure that your child has local anaesthetic cream placed on their back before the lumbar puncture.

**Important things to remember after the Lumbar Puncture**

1) Remember to take the bandaid off your child’s back within 24 hours to reduce the risk of infection.

2) Observe the lumbar puncture site for signs and symptoms of infection. Contact the hospital straight away if;
• The site is red,
• Inflamed
• Warm to touch
• There is discharge oozing from the site
• Your child has a temperature

This is very important if your child is neutropenic (low white cells), as your child may not have a working immune system to fight any infection.

Give your child pain relief every four to six hours as needed.