



Intracranial pressure (ICP) monitoring: information for families

Intracranial pressure (ICP) monitoring measures the pressure inside your child's head, using a pressure monitor inserted through the skull. This information sheet from Great Ormond Street Hospital (GOSH) explains about intracranial pressure monitoring, how and why it is done and what to expect while your child is being monitored.

There are various reasons why intracranial pressure (ICP) monitoring may be needed, for instance, after a head injury or surgery to the brain. The surgeons will explain why your child needs ICP monitoring and for how long it may be needed.

Monitoring usually lasts 24 hours but can occasionally be needed for several days. ICP monitoring tends to be carried out on Koala or Bumblebee Ward although it can also be done in the intensive care unit if that is where your child is being nursed.

What happens before the ICP monitor is inserted?

If this is a planned procedure for your child, you will have received information about how to prepare your child for the procedure. On the day, the surgeon will explain the procedure in more detail, discuss any worries you may have and ask you to give your permission for the procedure by signing a consent form. Another doctor will visit you to explain about the anaesthetic. If your child has any medical problems, particularly allergies, please tell the doctors about these. Please also bring in any medicines your child is currently taking.

What does ICP monitoring involve?

The ICP monitoring device (ICP bolt) is inserted in a short procedure while your child is under a general anaesthetic. Once your child has returned to the ward, the nurses will observe them closely. The ICP bolt may not be connected to the computer immediately, as it may take some time for the pressure inside the head to settle after the procedure. Once the ICP bolt is connected to the computer, regular readings will be taken to measure the pressure.

You may notice a change in the pressure reading if your child does anything that alters the pressure inside their head. These can include moving about, changing position in bed, coughing or sneezing, vomiting or crying. You will also notice that the pressure reading changes depending on whether your child is awake or asleep.

Your child's nurse will check your child's level of alertness regularly while ICP monitoring is happening. They will record the pressure readings as well as what your child was doing at the time to build up a complete picture.

During ICP monitoring on the ward (outside the intensive care unit), we encourage your child to

carry on with everyday activity as far as possible. This ensures that the ICP monitoring accurately reflects the pressure inside your child's head during normal life.

Your child's nurse will secure the ICP bolt to reduce the chance of it being knocked or pulled, but distracting your child with toys and games will also help.

Are there any risks?

ICP monitoring is considered to be a safe procedure that gives good information to understand your child's condition and plan any treatment. However, as with all procedures, there are a few potential problems. Bleeding and infection is always a risk with any procedure that breaks the skin. The nurses will check the site where the ICP bolt is inserted regularly.

There is also a small chance that a small amount of cerebrospinal fluid could leak from the insertion site. Again, this will be checked regularly, but if your child develops a headache, please tell the nurses. In most cases, this will be due to the procedure itself rather than any CSF leakage and can be treated with pain relief medicines. Occasionally, monitoring may need to last for a few days if enough information has not been recorded.

What happens afterwards?

When enough information about your child's intracranial pressure is available, ICP monitoring will be stopped. The ICP bolt will be removed on the ward, after your child has been given medicines to ease any discomfort or anxiety. There is a stitch around the ICP bolt, which will be pulled tight to close the wound, helping it heal better.

Before you go home, your child's nurse will explain about caring for the wound and when your child can go back to normal activities and school. The stitch will need to be removed by your family doctor (GP) after a week after which time you can wash your child's hair.

You should contact the ward:

- If your child becomes drowsy or confused
- If your child develops a temperature within a few days of discharge
- If the wound site looks red or inflamed and feels hotter than the surrounding skin.
- If there is any oozing from the wound.

When will we get the results?

The neurosurgeon will discuss the results with you once the readings have been analysed and plan any treatment needed.

If you have any questions, please telephone Koala Ward on 020 7829 8826 or the Neurosurgical Nurse Practitioner on 020 7405 9200 ext 1611.