Professor Jason John Labuschagne
PAEDIATRIC AND ADULT NEUROSURGEON

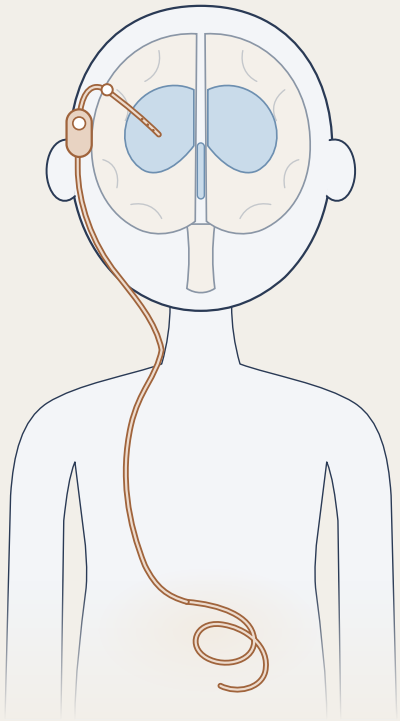
PAEDIATRIC NEUROSURGERY

Ventriculoperitoneal Shunt Insertion

Information and consent for parents and guardians

This booklet explains hydrocephalus, the operation to insert a shunt, and what the weeks after surgery usually look like. Please read it at home, in your own time, and write down anything you would like to ask. You will only be asked to sign the consent section once all of your questions have been answered and you feel ready.

1	General information	2
2	Alternatives to surgery	4
3	What to expect during and following surgery	4
4	Risks and complications	5
5	After the operation: what is normal	6
6	Recovery	6
7	When to contact the rooms	8
8	Consent	9



PATIENT DETAILS OR HOSPITAL LABEL

Child's name

Date of birth

Parent / guardian

Hospital / file no.

Version 1.0 · October 2026

Netcare Unitas Hospital
Room 403, Centurion

Nelson Mandela Children's Hospital
Private Suites, First Floor, 6 Jubilee Road, Parktown North

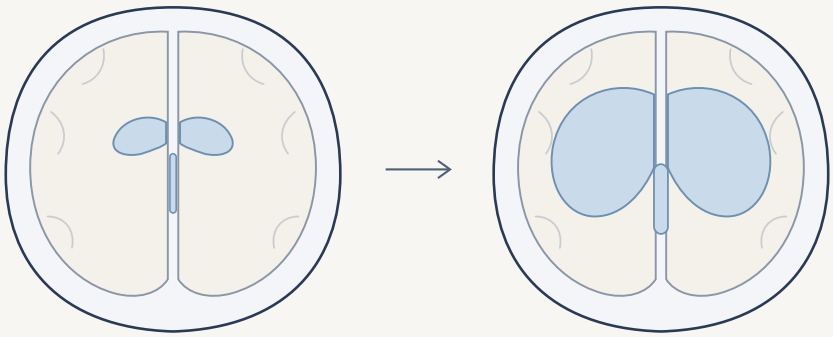
012 664 6026
HPCSA MP 0530077

01 General information

What is hydrocephalus?

The brain and spinal cord are cushioned by a clear, watery fluid called cerebrospinal fluid, or CSF. It is made continuously inside four connected spaces deep in the brain, known as the ventricles. Normally the fluid flows out of the ventricles, around the surface of the brain and spinal cord, and is then absorbed back into the bloodstream, so that the amount stays roughly the same.

Hydrocephalus means that CSF has built up because its flow is blocked or because it is not being absorbed properly. The ventricles enlarge and the pressure inside the head rises. In babies, whose skull bones have not yet joined, the head may grow faster than expected and the soft spot (fontanelle) may feel full or tense. Older children more often have headaches, vomiting, drowsiness, problems with vision or a change in behaviour or school performance.

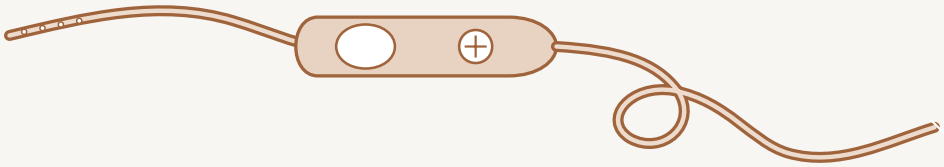


Left: ventricles of a normal size. Right: enlarged ventricles in hydrocephalus.

There are many causes in children, including bleeding in the brain related to prematurity, spina bifida, a narrowing of the channel between the ventricles (aqueduct stenosis), previous infection such as meningitis, cysts and tumours. Professor Labuschagne will explain what has caused hydrocephalus in your child.

What is a ventriculoperitoneal (VP) shunt?

A shunt is a thin, soft tube system that drains the extra fluid away from the brain to another part of the body where it can be absorbed naturally. In a VP shunt the fluid is drained into the abdomen (the peritoneal cavity), whose lining is very good at absorbing fluid. The whole system lies beneath the skin; nothing is left on the outside of the body.



The three parts of a shunt: the ventricular catheter, the valve and the abdominal (peritoneal) catheter.

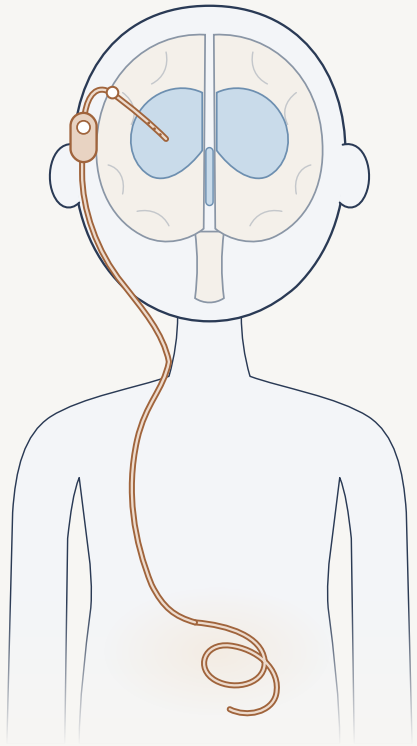
- **The ventricular catheter** is a fine tube placed into one of the ventricles through a small opening in the skull.
- **The valve** sits on the skull beneath the scalp, usually behind the ear. It controls how much fluid drains so that the pressure stays in a safe range. Some valves are programmable and can be adjusted from the outside with a special magnet.
- **The peritoneal catheter** runs under the skin of the neck and chest into the abdomen. Extra length is left in the abdomen so that the tube can accommodate your child's growth.

How is the operation done?

Your child will be fully asleep under a general anaesthetic, given by a specialist paediatric anaesthetist. A small area of hair is clipped and the skin is cleaned with antiseptic. Antibiotics are given at the start of the operation to reduce the risk of infection.

A small incision is made on the head and a second small incision on the abdomen. Sometimes a third small cut is needed in the neck or chest to help guide the tube. A small hole is made in the skull and the ventricular catheter is passed gently into the ventricle, sometimes with the help of image guidance or ultrasound. The tube is then tunnelled under the skin to the abdomen, the valve is connected, and the lower end is placed inside the abdominal cavity. The wounds are closed with stitches, most often dissolvable ones, and covered with dressings.

The operation usually takes about an hour, although you will be apart from your child for longer because of the time needed for the anaesthetic and recovery.



The completed shunt: the tube runs from the ventricle, through the valve behind the ear, and under the skin to the abdomen.

02 Alternatives to surgery

Not every child with enlarged ventricles needs a shunt, and a shunt is not the only way of treating hydrocephalus. Depending on the cause, your child's age and the scans, the following options may be considered. Professor Labuschagne will explain which of these are suitable for your child and why a shunt is being recommended.

- **Endoscopic third ventriculostomy (ETV).** A small camera is used to make an opening in the floor of the third ventricle, allowing fluid to bypass a blockage. This avoids an implanted device, but it is only suitable for certain types of hydrocephalus and works less reliably in young babies. In some infants it may be combined with cauterisation of the fluid-producing tissue (choroid plexus).
- **Temporary measures.** In premature babies or during an infection, fluid may be removed for a period through a small reservoir under the scalp, an external drain or lumbar punctures, until a permanent decision can be made.
- **Other shunt destinations.** If the abdomen is not suitable, for example after previous abdominal surgery or infection, the lower end of the shunt can be placed into a vein leading to the heart (ventriculo-atrial shunt) or around the lung (ventriculo-pleural shunt).
- **Careful observation.** If the hydrocephalus is mild and stable and your child is well, regular measurement of head size, examinations and scans may be appropriate.
- **No treatment.** If significant hydrocephalus is left untreated, the rising pressure can damage vision and development and can become life-threatening.

03 What to expect during and following surgery

Before the operation

- Please tell us about any allergies, bleeding tendencies, medicines (including herbal remedies) and any recent cough, cold, fever or vomiting.
- The anaesthetist will see you before surgery and give you clear instructions about when your child must stop eating and drinking.
- Bring your child's favourite toy, blanket or dummy; familiar things help enormously.
- Where the hospital allows, one parent may accompany their child into the anaesthetic room until they are asleep.

In hospital after the operation

Your child wakes up in the recovery room and returns to the ward once settled. Small babies, or children who were very unwell before surgery, may spend the first night in a high-care or paediatric intensive care unit for closer monitoring. Nurses will regularly check your child's level of alertness, pupils, breathing, heart rate, temperature, the fontanelle in babies, and the wounds. They may wake your child during the night to do this; it is routine and not a cause for worry.

- **Pain relief** is given regularly. Most children are comfortable on simple medicines within a day or two; the tummy wound is often more tender than the head.
- **Feeding** usually restarts within hours. The bowel can be slow for a day or so after the tube is placed in the abdomen, so small, frequent feeds are best at first.
- **Moving.** Your child can usually be held, cuddled and sat up soon after surgery unless you are told otherwise.

- **Scans.** A scan or X-ray may be done before discharge to check the position of the shunt and the size of the ventricles.
- **Going home.** Most children go home after a few days, once they are feeding well, comfortable and the wounds look healthy.

04 Risks and complications

Every operation carries some risk. Shunt surgery is very commonly performed and most children recover well, but it is important that you understand what can go wrong so that you can make an informed decision and recognise problems early. The risks below are listed according to how often they occur. Professor Labuschagne will also discuss any risks that are particular to your child. The risks of the anaesthetic will be explained separately by the anaesthetist.

Common

●●●

- Pain or discomfort at the head and tummy wounds, and some nausea or vomiting in the first day or two.
- A soft swelling of fluid around the valve, which usually settles as the tissues heal.
- **Shunt blockage or malfunction.** Over a lifetime, shunts can block, break, disconnect or move as a child grows. This is the most frequent long-term problem and means that many children will need at least one further operation to repair or replace part of the shunt at some stage.

Less common

●●○

- **Infection of the shunt**, most often within the first weeks or months. This usually means removing the shunt, a course of antibiotics, a temporary drain and later a new shunt.
- **Over-drainage**, where too much fluid drains. This can cause headaches when upright, or a collection of fluid or blood over the surface of the brain, and may need a valve adjustment or further surgery.
- **Under-drainage**, where the shunt does not drain enough and symptoms persist.
- Leakage of fluid from a wound, or thinning of the skin over the tubing, particularly in small babies.
- Abdominal problems such as a fluid collection around the tip (pseudocyst), or fluid tracking into the groin, causing a hernia or a swollen scrotum in boys.
- Seizures (fits).

Rare but serious

- Bleeding in or around the brain or ventricles.
- Injury to the brain along the path of the catheter, which could affect movement, speech, vision or development.
- Injury to the bowel or another abdominal organ, or the tube working its way into the bowel or through the skin.
- A catheter placed in an unsatisfactory position, needing a second operation to reposition it.
- Severe infection of the brain or its fluid (meningitis or ventriculitis).
- Serious complications of anaesthesia, or death. These are very rare.

Why problems can happen years later

A shunt is a mechanical device that your child will usually need for life. Blockage can occur at any time, even many years after a trouble-free period. Knowing the warning signs in section 7 is the single most important thing you can do to keep your child safe.

05 After the operation: what is normal

The following are expected after shunt surgery and are not usually a sign that anything is wrong:

- A small, firm bump on the head where the valve sits. Over time hair grows over it and it becomes less noticeable.
- The tubing may be felt as a thin cord under the skin of the neck and chest, particularly in slim children.
- Some puffiness of the scalp around the valve and bruising around the wounds for the first week or two.
- Tiredness, irritability, a disturbed sleep pattern or reduced appetite for a few days.
- Mild headache or tummy discomfort that responds to simple pain relief.
- Please do not press or ‘pump’ the valve. It does not need any handling at home.

06 Recovery at home

- **Wounds.** Keep dressings clean and dry until they are checked in the rooms. Your child may bath or shower once the wounds have healed; avoid soaking the head and tummy until then.
- **Stitches.** Dissolvable stitches do not need removal. If non-dissolvable stitches or clips are used, they are usually removed in the rooms after about 7 to 10 days.
- **Activity.** Babies can be handled, fed and carried normally. Older children may return to school once they feel well, usually within one to two weeks, and should avoid rough play and contact sport until reviewed.
- **Long-term.** Most children with a shunt lead full and active lives. Helmets are advised for cycling and similar activities. Please ask before contact sports such as rugby.

- **Programmable valves.** Strong magnets can change the setting of some valves. After any MRI scan the valve setting must be checked. Keep strong magnets (for example some toys, speakers and tablet covers) away from the valve.
- **Shunt information card.** Keep a record of the valve type and setting with you, and let your child's school, family doctor and other carers know that your child has a shunt.
- **Follow-up.** Your child will be seen in the rooms for a wound check and again at about six weeks, and then regularly over the years to monitor growth, development, vision and the shunt.

07 When to contact the rooms

Shunt blockage and infection are treatable, but they must be recognised early. Please contact the rooms the same day, or go directly to the nearest emergency department, if you notice any of the following:

- Headache that is severe, persistent or worse in the morning
- Repeated vomiting, or vomiting with headache
- Unusual sleepiness, difficulty waking, marked irritability or poor feeding
- A tense, bulging fontanelle or a rapidly enlarging head
- Squint, double vision, eyes turned downwards or blurred vision
- A seizure (fit), new or more frequent than usual
- Fever, especially with any of the other signs
- Redness, swelling, tenderness or fluid along the shunt or wounds
- Tummy pain, swelling or a firm lump near the tube
- Loss of skills, a change in behaviour or a fall in school work

IN AN EMERGENCY

If your child is very drowsy, cannot be woken, is having a seizure that does not stop, or you are seriously worried, call an ambulance or go to the nearest emergency department immediately. Tell the staff that your child has a VP shunt and ask them to contact Professor Labuschagne. You know your child best: if something does not feel right, please call.

THE ROOMS · OFFICE HOURS

012 664 6026

Elective appointments and queries, office hours, for both Netcare Unitas Hospital and Nelson Mandela Children's Hospital

AFTER HOURS

After hours, call the hospital switchboard and ask for Professor Labuschagne: Netcare Unitas Hospital 012 677 8000 · Nelson Mandela Children's Hospital 010 133 0600

Emergency services: Netcare 911 · 082 911 | National ambulance · 10177

NETCARE UNITAS HOSPITAL

Room 403, Netcare Unitas Hospital
866 Clifton Avenue, Lyttelton, Centurion

NELSON MANDELA CHILDREN'S HOSPITAL

Private Suites, First Floor
6 Jubilee Road, Parktown North, Johannesburg

08 Consent

Informed consent is a conversation, not simply a signature. The National Health Act 61 of 2003 and the ethical guidelines of the Health Professions Council of South Africa (HPCSA) give every patient the right to be told, in a language they understand, about their condition, the treatment options available, the benefits, risks, costs and consequences of each, and the right to refuse treatment. You may withdraw your consent at any time before the operation.

For a child, consent is given by a parent or legal guardian. In terms of the Children's Act 38 of 2005 (section 129), a child aged 12 or older who is mature enough to understand the benefits, risks and implications of an operation may consent to it, provided that he or she is assisted by a parent or guardian. Younger children are encouraged to take part in the discussion and give their agreement where they can.

THE PROCEDURE

Procedure Ventriculoperitoneal Shunt Insertion Side / site _____

Condition, in the parent's own words _____

SPECIFIC PERMISSIONS

Blood transfusion, if needed during or after surgery	☐ I agree	☐ I do not agree
Tissue or fluid removed may be sent for laboratory examination	☐ I agree	☐ I do not agree
Anonymised images or results may be used for teaching and research (optional)	☐ Yes	☐ No

Questions I have discussed

Please write down any questions you asked and any particular concerns that were discussed.

My acknowledgement

Please tick each statement.

- ☐ I have read this document, or it has been read to me, and I understand it.
- ☐ Professor Labuschagne has explained my child's condition, the proposed procedure, its expected benefits, and the alternatives, including the option of no treatment.
- ☐ The risks and possible complications, including those particular to my child, have been explained in language I understand.
- ☐ I have had the opportunity to ask questions and raise concerns, and these have been answered to my satisfaction.
- ☐ I understand that no guarantee has been given about the outcome, and that the procedure may not improve, and could worsen, the condition.
- ☐ I understand that if an unexpected finding or a life-threatening event occurs during the procedure, the surgeon may carry out further treatment that is necessary to protect life or prevent serious harm.

- [ ] I understand that the anaesthetic will be explained by the anaesthetist, who will obtain consent for it separately.
- [ ] I understand that my medical scheme may not cover the full cost of treatment, that I am responsible for any shortfall, that separate accounts will be rendered by the hospital and the anaesthetist, and that a quotation is available on request.
- [ ] On the basis of the above, I request that my child undergo the procedure described.

PARENT OR LEGAL GUARDIAN

Full name _____ Relationship to child _____

Signature _____ Date and time _____

CHILD'S AGREEMENT (WHERE APPROPRIATE)

I have been told about my operation, I have been able to ask questions, and I agree to have it.

Child's name _____ Age _____

Signature _____ Date _____

SURGEON'S STATEMENT

I have explained the child's condition, the need for treatment, the proposed procedure and its expected benefits, the material risks including those specific to this child, the reasonable alternatives including no treatment, and the likely consequences if those risks occur. I have offered the opportunity to ask questions and have answered them as fully as possible.

Surgeon Professor Jason John Labuschagne HPCSA no. MP 0530077

Signature _____ Date and time _____

INTERPRETER (IF USED)

I have accurately interpreted the contents of this document and the discussion between the doctor and the parent or guardian.

Full name _____ Language _____

Signature _____ Date _____

WITNESS

Full name _____ Capacity _____

Signature _____ Date _____

A copy of this signed document will be kept in the medical record and a copy offered to the parent or guardian. Personal information is processed in accordance with the Protection of Personal Information Act 4 of 2013. · Professor Jason John Labuschagne · HPCSA MP 0530077 · Version 1.0 · October 2026