Professor Jason John Labuschagne
PAEDIATRIC AND ADULT NEUROSURGEON

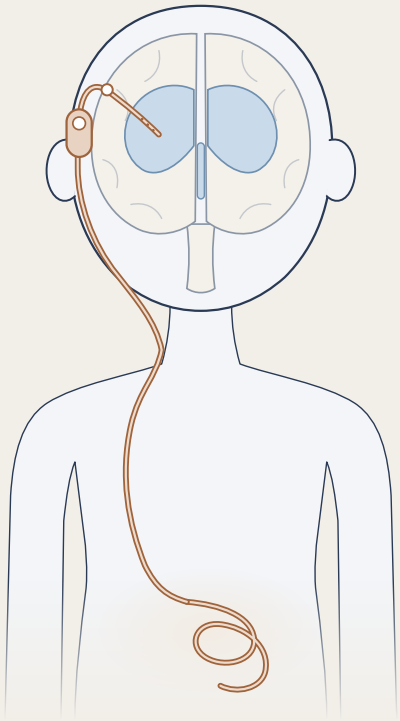
PAEDIATRIC NEUROSURGERY

Shunt Revision

Information and consent for parents and guardians

This booklet explains why a shunt sometimes stops working, what a shunt revision involves and what to expect afterwards. 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.

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PATIENT DETAILS OR HOSPITAL LABEL

Child's name

Date of birth

Parent / guardian

Hospital / file no.

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Netcare Unitas Hospital
Room 403, Centurion

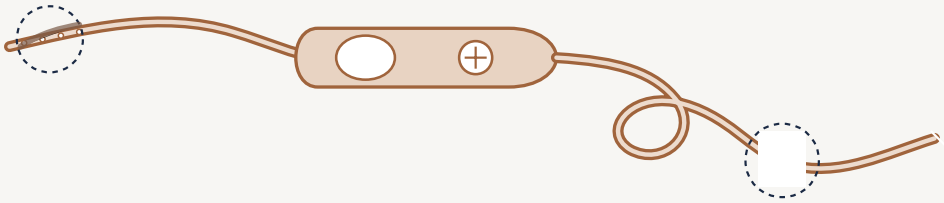
Nelson Mandela Children's Hospital
Private Suites, First Floor, 6 Jubilee Road, Parktown North

012 664 6026
HPCSA MP 0530077

01 General information

Why does a shunt need revision?

A shunt is a mechanical device made of fine tubing and a valve. Over time any part of it can block, break, disconnect, move out of position or become too short as a child grows. Infection can also make it necessary to change the shunt. When the shunt stops draining properly, fluid builds up again and the pressure inside the head rises, which is why the warning signs of shunt failure are so important.



Common sites of shunt failure: blockage of the ventricular catheter (left) and a break or disconnection in the abdominal tubing (right).

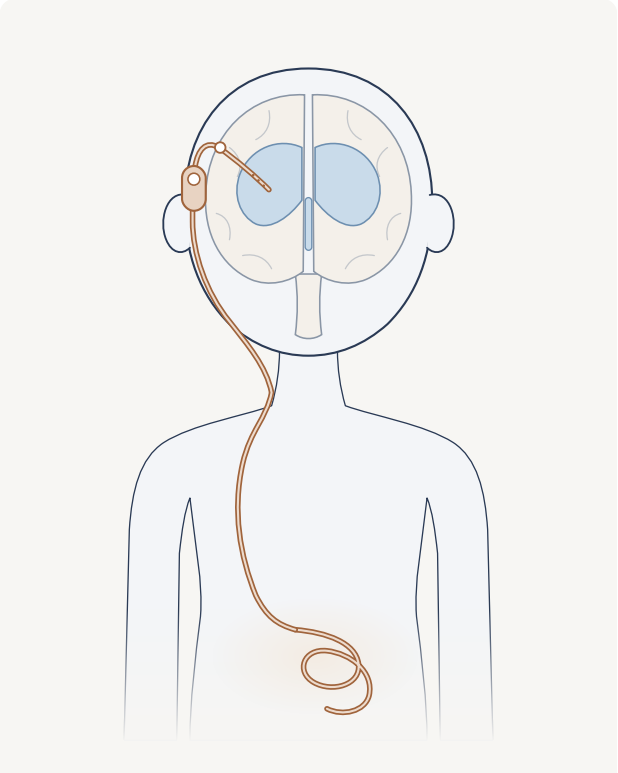
Shunt failure is usually confirmed with a scan of the brain (ultrasound in young babies, CT or MRI in older children) and X-rays of the whole length of the shunt. Sometimes the valve is tested, or a small needle is used to sample fluid from the reservoir.

What does the operation involve?

Your child will be under a general anaesthetic and antibiotics will be given. The old wounds are usually reopened. Each part of the shunt is tested, and only the part that is not working is replaced: this may be the ventricular catheter, the valve, the abdominal tubing, or the whole system. Occasionally the shunt is moved to a new position, or the lower end is placed into a vein near the heart or around the lung if the abdomen is no longer suitable.

If the shunt is infected, it is usually removed completely. A temporary external drain is placed and antibiotics are given for a period, typically one to two weeks or more, before a new shunt is inserted at a second operation.

In selected children whose type of hydrocephalus allows it, an endoscopic third ventriculostomy (ETV) may be offered at the time of revision as a way of removing the need for a shunt.



The shunt runs from the ventricle, through the valve behind the ear, and under the skin to the abdomen. Only the faulty part is usually replaced.

02 Alternatives to surgery

- **Endoscopic third ventriculostomy (ETV)**, where suitable, to bypass the shunt altogether.
- **Temporary external drainage**, when infection is present or the cause of failure is unclear.
- **Observation**, only if the scans and your child's condition show that the shunt is still working adequately.
- **No treatment.** A blocked shunt is potentially life-threatening, and revision is usually urgent.

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 clear instructions about when your child must stop eating and drinking.
- Bring a 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. Some children spend the first night in a high-care or paediatric intensive care unit (PICU) for closer monitoring. Nurses will regularly check your child's level of alertness, pupils, breathing, heart rate, temperature and the wound, and may wake your child during the night to do this. This is routine and not a cause for worry.

- **Pain relief** is given regularly, first through the drip and then by mouth.
- **Eating and drinking** usually restart within hours, starting with small amounts.
- **Scans** are usually repeated after the operation to confirm that the ventricles are reducing in size or the shunt is working.
- If an external drain is used, your child will need to stay in hospital until a new shunt can be placed.
- **Going home.** Most children go home within a few days after a straightforward revision. A revision for infection means a longer stay.

04 Risks and complications

Every operation carries some risk. 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 are listed according to how often they occur; Professor Labuschagne will also discuss any risks particular to your child. The risks of the anaesthetic will be explained separately by the paediatric anaesthetist.

Common

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- Pain at the wounds and some nausea or vomiting in the first day or two.
- A soft swelling of fluid around the valve or along the tubing, which usually settles.
- **Further shunt failure.** A revised shunt can fail again, and some children need several revisions over a lifetime.

Less common

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- **Shunt infection**, needing removal of the shunt, antibiotics and a later new shunt.
- **Over- or under-drainage**, which may need a valve adjustment or further surgery.
- Difficulty removing an old catheter that has become stuck; it may be safer to leave it in place.
- Leakage of fluid from a wound, or skin thinning over the tubing.
- Abdominal problems such as a fluid collection (pseudocyst) or hernia.
- Seizures (fits).

Rare but serious

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- Bleeding in or around the brain or ventricles, particularly when an old catheter is removed.
- Injury to the brain, bowel or other organs.
- Severe infection of the brain or its fluid (ventriculitis).
- Serious complications of anaesthesia, or death. These are very rare.

05 After the operation: what is normal

- The valve and tubing may be felt under the skin, as before.
- Tiredness, irritability and a 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.

06 Recovery

- **Wounds.** Keep dressings clean and dry until they are checked in the rooms.

- **Stitches.** Dissolvable stitches need no removal; other stitches are usually removed after about 7 to 10 days.
- **Activity.** Most children return to normal activities within one to two weeks.
- **Programmable valves** must be checked after any MRI scan.
- **Follow-up.** A wound check and a review at about six weeks, then regular long-term follow-up.

07 When to contact the rooms

A revised shunt can block or become infected in the same way as the original. Please contact the rooms the same day, or go directly to the nearest emergency department, if you notice:

- 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 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 Shunt revision 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