

External Ventricular Drain (EVD)

Information for Children, Parents and Carers



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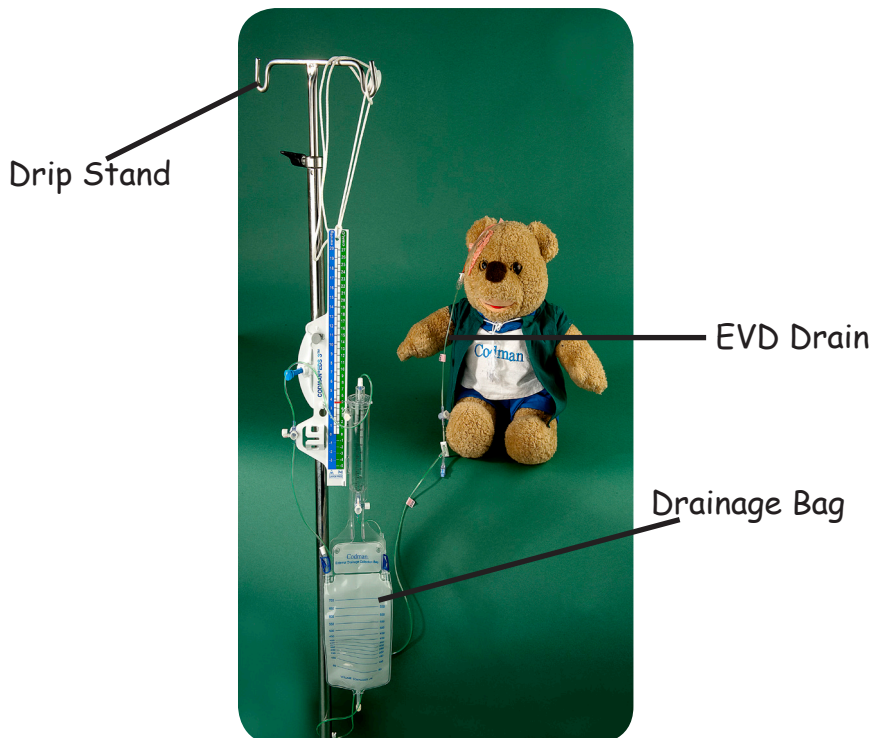
Children's Health Ireland
at Temple Street

What is an external ventricular drain (EVD)?

An EVD is a piece of thin plastic tubing that is placed into an area in the brain called a ventricle. Ventricles produce fluid called **Cerebrospinal Fluid**. Cerebrospinal Fluid (CSF) is a clear, colourless fluid which surrounds your child's brain and spinal cord and acts as protection.

The EVD tubing is connected to a bag on the outside of the body. The bag will hang on a stand which allows the CSF drain away. The drainage system works by gravity, the amount of fluid draining will depend on the position of the drain.

External Ventricular Drainage System

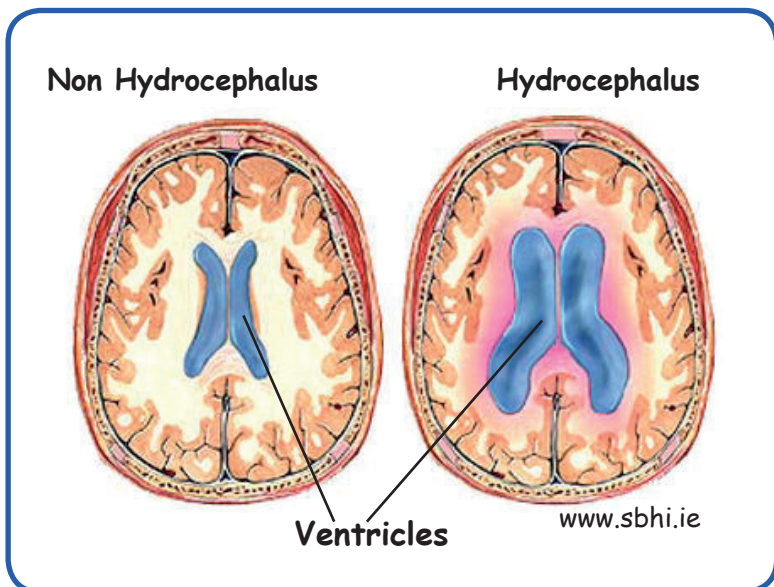


Why does my child need a EVD ?

There are a number of reasons why a child may need an EVD. These include:

- To reduce pressure inside the brain caused by a build up of CSF. This build up of fluid is called **hydrocephalus**.
- To remove infected fluid from the brain. If your child has infection in the fluid the doctors can also give antibiotics directly into the brain through the drain.
- To drain fluid or blood if your child has had brain surgery, or an injury.

The reason your child needs an EVD will be explained by their doctor.



How is the EVD inserted ?

The drain will be inserted in theatre under a general anaesthetic as your child sleeps. During the surgery a small opening will be made in their skull to place the tubing into the fluid chambers in their brain. The position of the EVD may be at the back or the front of your child's head. The tubing will be stitched in place to stop it falling out and will be connected to a drainage bag.



What to expect before and after surgery ?

Before surgery

Your child's doctors will meet with you to explain the surgery and to ask you to sign a consent form. You may also meet the anaesthetist who will explain how your child will be given medication to make sure they are asleep and pain free during the operation.

Before surgery your child may have to have a number of tests including blood tests, CT scan or MRI scan and Cranial Ultrasound.

During your child's stay in hospital nursing, staff will monitor them by carrying out a number of simple checks which include:

- Level of consciousness
- Blood pressure
- Temperature
- Heart rate
- Reaction of eyes to lights
- How they can move their arms and legs
- Monitor if there are any changes in behaviour

Your child will need to be monitored regularly, they may need to be woken from their sleep.

Small babies may also have measurements taken of the size of their head before and after surgery.

On the day of surgery your child will fast for a number of hours. This means they will not be allowed to eat or drink. The nurse looking after your child will tell you how long your child will need to fast.

After surgery

When your child first returns to the ward they may be a bit sleepy. The nurse looking after them will monitor their recovery by carrying out some of the tests mentioned above.

Your child will have a small wound on their head. Sometimes the doctor will need to shave a bit of your child's hair during surgery. This will grow back in a short period of time covering their scar.

When your child returns to the ward after their operation they may have some discomfort as the pain medication given during their operation wears off. The nurse caring for your child will give them pain medication.

Some children may vomit or have an upset stomach from the surgery. If this happens your child may be given medication to help relieve it.

When your child is feeling better after the operation they can eat / feed normally and should drink plenty of drinks.

Management of the EVD

Your child **will not** be able to move freely when the EVD is in place. During this time nursing staff will monitor them closely. This will involve:

- Making sure the drain is at the right height using a spirit level / laser.
- Measuring how much fluid drains away and recording it in your child's chart.
- Clamping/Closing the drain if your child needs to change position or move from their bed.

The drain will be checked by nursing staff

Hourly

or

When your child moves or changes position

or

After the drain has been clamped

Frequently asked questions ?

What are the risks of surgery ?

Your child will have a general anaesthetic. The risks of the anaesthetic will be discussed with you by the anaesthetist.

After surgery there is a risk of infection in the cerebrospinal fluid (CSF) and your child will be monitored for any sign of a CSF infection. A sample of fluid may occasionally be sent to the laboratory where it will be examined. This sample will be taken from the tubing and will not cause discomfort to your child. If your child does develop an infection in their CSF they will be given antibiotics.

There is also a risk that the fluid will be drained away too quickly. This can cause headaches or vomiting. Because of this a nurse will be observing and recording the amount of drainage every hour day and night. They will make sure the drain is at the right level requested by the doctor in order to prevent this happening.



The EVD may become blocked, if this happens and it cannot be unblocked it may have to be replaced.

As with all surgery, there may be some bleeding, but this is usually only a small amount which does not require any treatment. If there is some bleeding you may notice blood in the bag for a few days. This can often happen.

How long will my child need the EVD ?

This varies from child to child. It will depend on the reason why the EVD was needed. However, it is only a temporary measure of drainage and is not usually needed for longer than 2 weeks. If the drain is needed because of infection it may be in place for longer.

How can I help?

Do not leave your child unsupervised without telling their nurse.

The position of the drain in relation to your child's head is very important for your child's safety. It is very important to inform nursing staff if:

- Your child moves/changes position unexpectedly
- Your child wants to get out of bed
- You wish to lift your baby out to feed
- Your child needs to go to the toilet

If your child changes position unexpectedly return your child back to the position until you have a nurse to reposition the drain.

If the drain becomes disconnected or falls out you must call for a nurse immediately.

Do not leave the ward with your child.

Tell the nurse caring for your child if they become drowsy, vomit or if they complain of a headache.



If you notice any fluid leaking from the wound inform the nurse.

If your child is crying a lot you must call a nurse as the drain may need to be clamped / closed to stop too much fluid draining.

How is the EVD removed ?

The drain can be removed on the ward or in theatre. If your child needs more surgery it will be removed in theatre. The drain may need to be clamped for a day or two before the drain is removed to see if your child will manage without it.

Will my child need more surgery ?

Again this depends on the reason for the drain. Some children will need a permanent system to drain the fluid, a Ventriculoperitoneal (VP) Shunt, Ventriculoatrial Shunt (VA) or Endoscopic Ventriculostomy (ETV). If this is needed the neurosurgeons will explain this in greater detail.



What do I need to watch out for when I take my child home ?

If your child shows any of the signs below and you are worried it is important to contact someone. If the symptoms are not acute please contact the neurosurgical nurse specialist or neurosurgery advanced nurse practitioner for advice. If you are unable to get in touch with these nurses, please go to your GP. If the symptoms are acute and worrying, please bring your child to your nearest local paediatric hospital.

Baby

- Enlargement of the baby's head (getting bigger)
- The fontanelle (soft spot on top of head) may become full and hard
- Fever (high temperature)
- Vomiting or refusing feeds
- Any leaking from the wound such as clear fluid or yellow/green ooze
- Any swelling at wound site
- Sleepiness
- Irritability-more difficult to settle/comfort
- Downward looking eyes (cannot look upwards)
- High pitched crying
- Seizures /fits

Toddlers/Older Children

- Head enlargement /getting bigger
- Headache or Vomiting
- Dizziness
- Any leaking from the wound such as clear fluid or yellow/green ooze
- Any swelling at wound site
- Visual (eye) problems/sensitivity to light
- Drowsiness/sleeping a lot

- Irritability/change in personality
- Loss of previous ability- for example weakness in legs or arms
- Swelling in the neck or abdomen (tummy area)
- Seizures / fits

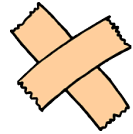
Discharge advice

Pain

Your child may continue to have a small amount of pain around their wound site. You may give over the counter pain medication such as Paracetamol or Paediatric Ibuprofen. Follow the instructions on the bottle for recommended amount for your child's age or weight.

Wound Care

If the stitches are not dissolvable, arrangements will be made for you to bring your child to the hospital and have them removed. Every effort will be made to remove the stitches without sedation, however there are occasions when sedation must be used.



Alternatively, if sedation does not work, your child may need to have a general anaesthetic and go to theatre to have the stitches removed.

At home, if you notice any redness, swelling, or oozing from your child's wounds please contact the Neurosurgical Nurse Specialist Monday - Friday or the ward where your child stayed.

School

Returning to school will depend on why your child had a drain. You can discuss this with the nurse or doctor about what is best for your child.

If you have any further questions contact details are on the front of this booklet

These numbers are not an emergency service. If you have urgent concerns please contact your local paediatric (children's) hospital or contact emergency service on 999 or 112.

For More Information

Spina Bifida and Hydrocephalus Association www.sbhi.ie

Brainwave Irish Epilepsy Association www.epilepsy.ie

Head Injury Support www.headwayireland.ie

Meningitis Support and Counselling
www.meningitis-trust.ie/

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The information contained in this booklet is correct at time of print