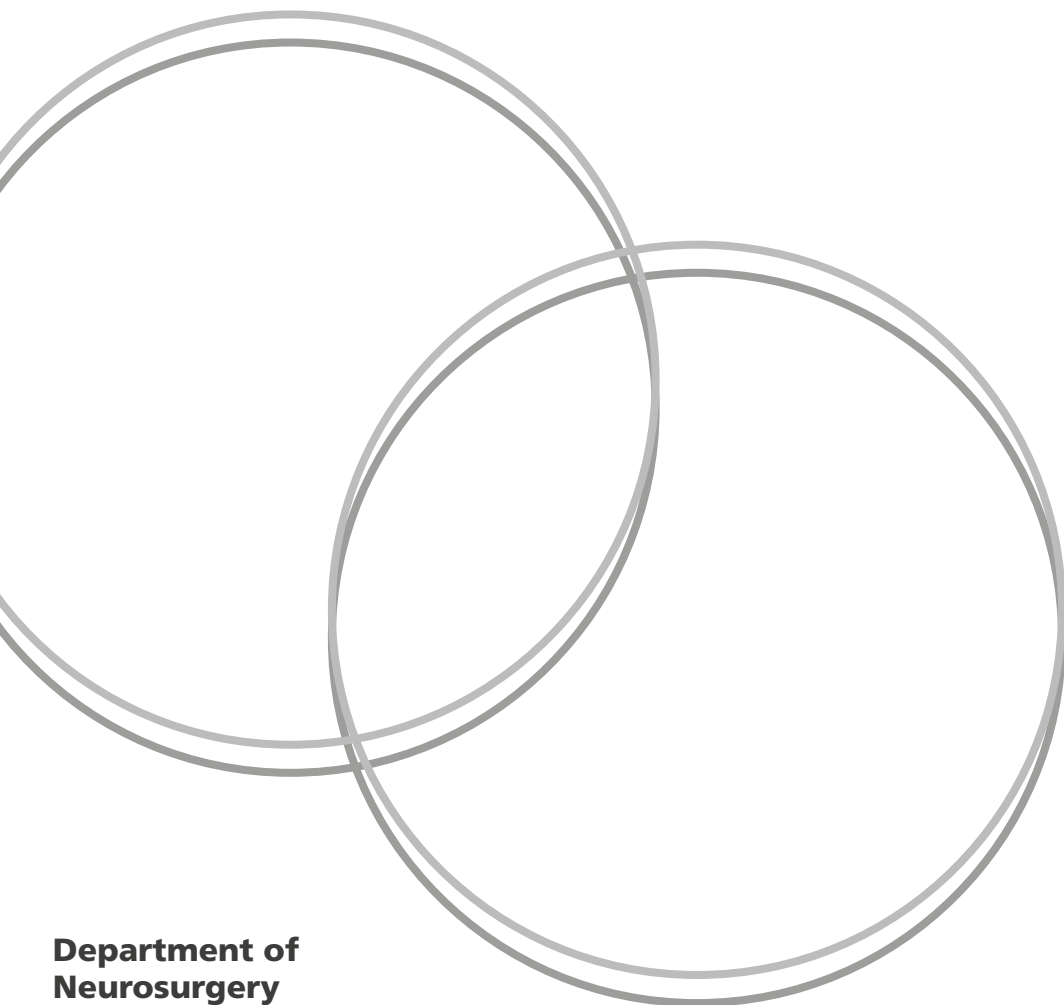


# Insertion of a ventriculo-peritoneal or ventriculo-atrial shunt

Information for patients



Department of  
Neurosurgery

# Shunt surgery

This leaflet explains what to expect when you are in hospital and during the recovery period after your surgery.

The name of your operation is: .....

## **Insertion of a ventriculo-peritoneal or ventriculo-atrial shunt**

You have been recommended to have an operation to insert a flexible silicon tube into the fluid space in your brain (ventricle). This will be connected to a valve which will sit under your scalp. The valve is then connected to a tube which drains into your tummy (peritoneum) or your heart (atrium). These are both places where the brain fluid can be easily absorbed.

This whole system is called a 'shunt'. If your tube drains into your tummy this is called a ventriculo-peritoneal (VP) shunt. If it drains into your heart it is called a ventriculo-atrial (VA) shunt.

### **Types of valve**

Your neurosurgeon may use either a fixed pressure valve or a programmable valve.

Fixed pressure valves are pre-set to open when the level of fluid in your ventricle reaches a certain pressure, such as low, medium, or high. Sometimes a fixed pressure valve needs to be changed if the pre-set pressure is too low or high for you. This means you will need another operation.

A programmable valve can be adjusted to a different pressure setting using a strong magnet that is held over your skin. These valves can be reset by strong magnets, such as those used during an MRI scan (fixed pressure valves are not 'reset' by an MRI scan).

The pressure setting of both of these valves controls how much fluid drains out through the tube in your brain and down to your tummy/heart. This helps to avoid certain complications, such as subdural haematomas (bleeding on the brain) or slit ventricles (very small fluid spaces), which are caused by too much fluid being drained away. By using this system we can help you to recover more quickly and to get back your quality of life.

## **Coming into hospital**

You will be contacted by the waiting list officer with details of when you are due to come in to hospital. They will also send you a letter to confirm the time and date. Instructions about when you should stop eating and drinking will be included in your admission letter. If you have any questions before you come in to hospital, you can call the Preoperative Assessment Nurse Practitioners who will be happy to give you advice.

Telephone: 01865 234 975

(Monday to Thursday, 9.00am to 5.00pm)

If you are taking medication for diabetes we will give you instructions and a separate information leaflet about what to do with your medication.

We will always do our best to make sure you have your operation as planned. However, the surgical team also have to deal with emergency admissions. This can mean that a planned operation may have to be postponed. We will make sure we keep you informed if there is any delay.

## **The day of your operation**

Please make sure that you bring all your own medication into hospital with you in the original, labelled packaging. It is also helpful to bring in an up to date repeat prescription. Make sure that you have enough of any regular medication for your first week back at home.

The surgeon will come to see you to explain the operation and any risks involved. The anaesthetist will also see you to talk to you about the anaesthetic. They will also be able to answer any questions you may have. You will then be asked to sign the consent form for the operation to go ahead.

The nurse will tell you when to get ready for theatre. You will be asked to wear a theatre gown and special anti-embolism stockings. These help to reduce the risk of a blood clot (deep vein thrombosis) developing in your leg. Further information about blood clots is in the leaflet 'Preventing blood clots while in hospital' which you should also have received during your pre-assessment appointment. When it's time for your operation, the nurse will take you down to the anaesthetic room.

## **General anaesthesia**

During a general anaesthetic you are put into a state of unconsciousness and will be unaware of anything during the procedure. Your anaesthetist achieves this by giving you a combination of drugs. Usually the first step is to inject medicine intravenously (into a vein) through a small plastic tube called a cannula, which is usually put into your hand or arm in the anaesthetic room. Occasionally, rather than injecting these drugs, the anaesthetist may use gas which you breathe through a mask.

To keep you in this state of unconsciousness, you will breathe a mixture of anaesthetic gases or vapours with oxygen. If we need your muscles to be relaxed then we can also give you a muscle relaxant drug. A tube will be inserted into your throat and down your windpipe to help you breathe.

Your anaesthetist will remain with you at all times, monitoring your condition and controlling your anaesthetic. At the end of the procedure, your anaesthetist will stop the anaesthetic and you will begin to regain awareness and consciousness as you leave the operating theatre or in the recovery room.

## **What happens during the procedure?**

Once you are unconscious, you will be moved into the operating theatre. The surgeon will shave a small amount of your hair and will then make a small U-shaped cut (incision) in the side of your head, behind your ear. A small hole will then be drilled in your skull. A thin tube called a catheter will be passed through this hole into a ventricle of your brain. The surgeon may use computer images to guide the catheter. This allows them to place the top end of the shunt into the ventricles of your brain.

Another catheter will then be inserted through the hole under the skin behind your ear. It is moved under your skin on your neck down to your chest, and then usually into the stomach area (ventriculo-peritoneal shunt). It will be moved into the correct position through a small cut in the skin over your stomach.

Sometimes the shunt tube is inserted into the heart instead (ventriculo-atrial shunt) and moved into position through a further small cut on your chest.

A valve (fluid pump) will be placed underneath the skin behind your ear. The valve is connected to each of the catheter ends. When extra pressure builds up around the brain the valve opens and excess fluid drains through the catheter into the stomach or chest, where it can be reabsorbed. This helps lower the pressure. The operation usually lasts about an hour.

## **After the operation**

You will wake up in the recovery room. You may have a drip in the back of your hand, which is used to give you medicines and fluids. You may also have an oxygen mask over your mouth and nose. You will have a small dressing on the wound on your head behind your ear and also on either your stomach or chest.

When the nurses feel that you have recovered well enough, you will be taken back to the ward. We will continue to monitor your pulse, blood pressure and wound regularly. We will also offer you regular pain relief. It is important that you tell a nurse if you are feeling sick or if you have pain, so we can help make you comfortable. We will encourage you to begin to slowly move around; the ward staff will help you get up safely. You can eat and drink when you feel ready.

Generally, most people who have had this operation will be able to leave hospital after two to three days. However, the actual time that you stay in hospital will depend on your general health, how quickly you recover from the procedure itself, and how well your doctor feels your body is reacting to the shunt.



## Going home

On the day you are due to go home, we will aim to discharge you by 12:00pm. This is line with the Trust's "Home for Lunch" project. If it is not possible for you to be collected by 12:00pm we will ask you to wait in the discharge lounge until you are collected. Please tell one of the nurses when you come in for your operation if you think you will not be able to be collected by 12:00pm.

You should not go home on public transport after this procedure. You will need to be taken home by car. This will be more comfortable for you and also quicker for you to return to the hospital if there are any complications on the journey home.

By the time you leave hospital we would expect you to be able to care for yourself, walk up and down stairs and sit in a car for the journey home, but it may be sensible to make arrangements for help with shopping, housework, gardening and caring for small children for the first few weeks.

## Getting back to normal

It is normal to feel tired for the first few weeks after surgery. You may find that it helps to break your day into periods of rest and periods of activity.

It is normal to have some headaches for the first few weeks, whilst the shunt and your body adjusts to the changing pressure. These should respond to normal painkillers, such as paracetamol. If you are concerned, please call the Nurse Practitioners.

As the tiredness passes you can look forward to becoming more active. There are no restrictions on pastimes, such as seeing friends, going for a walk or going out for a meal. If you normally take part in high contact sports (such as rugby or football), we would advise you not to do so until you have been followed up by the surgical team. This allows time for everything to heal.

We also advise you to wait 2 to 3 weeks before flying. By this time all your stitches will have been removed and you will be well on your way to recovery. You will need to inform your insurance company of your recent surgery before you travel.

How quickly you return to work depends on the nature of your job and your fitness before the operation. As a guide, you are likely to need about 6-8 weeks off work after surgery. We will give you a fitness certificate before you go home, to cover the time you need to take off work. If you do not feel ready to return to work after 6 to 8 weeks, please see your GP. They will normally be happy to provide you with a fitness certificate for longer. If you have any problems with this, please contact the Nurse Practitioners.

You should also contact the DVLA to find out when you can drive again. The DVLA will send your neurosurgeon a questionnaire to complete and send back to them. A medical officer at the DVLA will then consider your fitness to drive and when you can start driving again. They will contact you to let you know their decision.  
**You must not drive until you have heard from the DVLA.**

## Wound care

The stitches in your head, and stomach or chest, may be dissolvable. This will be stated in your operation note and discharge letter. If the stitches are not dissolvable, or staples have been used, they will need to be removed after 7 to 10 days.

Both sets of stitches can be removed by the Practice Nurse at your GP's surgery. Your nurse on the ward will give you a letter for the Practice Nurse; you will need to make an appointment with them when you return home from hospital.

As your wound will already be healing when you go home, you do not need to do anything special to it, apart from keep it clean and dry. However, if you notice any of the following symptoms, please contact your GP:

- Any leaking from your wounds. This may be clear, brownish or yellow in colour.
- A high temperature, rash or fever.
- Any redness or swelling around the wound.
- New pain around the wound site.
- A persistent headache that is not relieved by painkillers.

If you develop any type of infection (such as a chest, urine or ear infection) it is important that you see your GP promptly. This will need to be treated quickly, to prevent spread of infection to your shunt.

## Questions or concerns

If you have any questions that you would like to discuss before you come into hospital, please contact one of the Pre-operative Nurse Practitioners:

Telephone: 01865 234 975

(Monday to Thursday, 9.00am to 5.00pm)

If you have any concerns about symptoms that you have and would like some advice, please contact your team or responsible Advanced Nurse Practitioner. Their contact details will be included in the discharge letter you will receive on the day you leave the hospital. Out of hours, please contact 111 for advice.

## Further information

If you would like an interpreter, please speak to the department where you are being seen.

Please also tell them if you would like this information in another format, such as:

- Easy Read
- large print
- braille
- audio
- electronic
- another language.

We have tried to make the information in this leaflet meet your needs. If it does not meet your individual needs or situation, please speak to your healthcare team. They are happy to help.

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Oxford University Hospitals NHS Foundation Trust

[www.ouh.nhs.uk/information](http://www.ouh.nhs.uk/information)



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