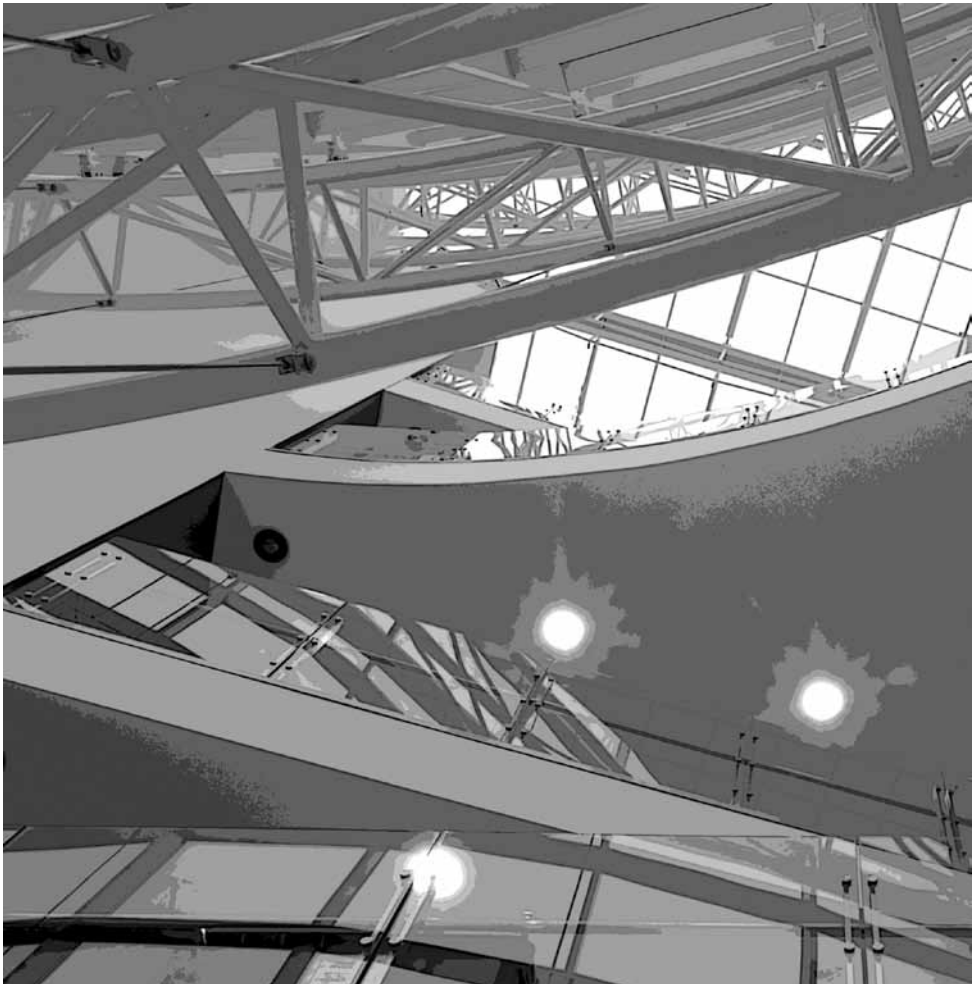


Department of Neurosciences

# Deep Brain Stimulation for Chronic Pain

Pre-operative information for patients



We have seen you in clinic as you have long-term pain. We call your pain chronic neuropathic (nerve) pain. We have been able to help many patients with neuropathic pain using Deep Brain Stimulation (DBS) treatment. This information sheet gives you more information about this procedure and answers some of the questions commonly asked by patients. If there is anything else you would like to know, please call us on the numbers given at the end of the leaflet. You can also contact us via email or fax.

## Deep Brain Stimulation (DBS)

You may have already tried many different treatments for your pain which have not helped you.

This surgical procedure works by targeting one or maybe two areas of the brain that are part of the pain pathway. We introduce a small amount of electrical current to these areas, which helps to block pain signals and hopefully reduce the level of your pain.

The procedure is carried out by a neurosurgeon.

## The role of the Nurse Specialist

You will be assigned to a nurse specialist who will follow you from referral to the service, through to assessment and surgery, and then coordinate your long term follow up.

The nurse specialist will support you by telephone or e-mail before your operation, be with you for your surgery where possible, and coordinate your care after surgery.

## Before your admission to hospital

We will ask you to fill out questionnaires and charts so that we can assess all aspects of your pain and general health. We also need this information to complete our application for funding from your local Primary Care Trust (PCT).

### **Funding**

We will apply to your local PCT for funding for your operation. This can take a few months but it may take much longer. DBS for Pain is not routinely funded and therefore the application may be declined. We will support you through this process and there may be an appeals process to follow.

Once funding for your operation has been approved we will try to arrange a date for admission that will be convenient to you. You may have to wait up to three to six months.

## Your admission to hospital

Your treatment will involve two visits to hospital. You will be reviewed as an out-patient first to have a neuropsychological assessment. This includes assessment of your suitability for this operation as well as discussion about your history and expectations of the surgery.

An MRI scan is also needed before surgery. Where possible this will be done when you are admitted. If there are no appointments available it will be done as an out-patient before admission.

### **Both assessments together enable us to make a final decision regarding your suitability for this procedure.**

It is important that you stop taking certain drugs before surgery, especially ones that thin your blood. If you are taking aspirin, warfarin, clopidogrel or any non-steroidal anti-inflammatories (e.g. ibuprofen, Voltarol) you will need to stop taking these

before surgery. Please contact us to find out when you need to stop taking these drugs. If you are taking warfarin we may need to admit you earlier, but each case is different so it is important that you phone and we can discuss the plan for you.

## The Operation

This is usually done in two separate stages. You will stay in hospital throughout – usually about 12 – 14 days in total.

### **Stage one**

We target one or two areas in the brain, which we know can help your pain. These are called the peri-ventricular gray (PVG) and the sensory thalamus (VPL). They are on the opposite side of the brain to your pain. In some cases we target an area of the brain known as the anterior cingulate. You will have been informed of the target area(s) before surgery and it depends on the type of pain you have.

In order to target these small areas of the brain accurately we have to use a type of surgery called ‘stereotactic surgery’. On the day of your surgery you will be given a sedative first and then areas of your skull will be numbed with local anaesthetic. With your skull numb a metal frame will be securely attached.

You will then have a CT scan that will help us to target the areas in relation to the metal frame. The frame must stay on for the surgery, but will be removed as soon as it is over. You will be awake for the surgery so that you can tell us if the area we are targeting is the correct area for your pain.

In the operating theatre the doctor or anaesthetist will inject a small area of your head with local anaesthetic. (This numbs the scalp where the operation will be.) You should not feel any pain in your head. If you do, you must let the nurse or doctor know and we can inject more local anaesthetic if required. The doctor will drill a small hole into your skull (3mm) which allows

the electrode (wire) to be put into your brain. Once the wire has been passed the doctor will ask you if your pain has reduced. Once we are happy we have the correct target the doctor will implant the electrode. You will have stitches on the top of your head which will stay in for 2 weeks. The procedure will take approximately 2 hours but does vary from patient to patient.

### **After stage one**

One or two electrode/s (depending which areas of the brain have been targeted at operation) will be coming through the skin in your head. We will attach these wires to a small external stimulator and test the stimulation for a week. This gives us time to find the best settings for you. You will need another scan after surgery for us to see the exact position of the electrodes for future reference. We may also ask you to allow us to record your brain waves with stimulation on and off, so that we can see the effect of it on your brain.

Throughout your admission you will frequently be asked to score and describe your pain. This will allow us to see if the treatment is working or not. It also gives time for you to decide whether or not you are happy with the amount of pain relief you are getting.

### **Stage 2**

If you are happy with the amount of pain relief, we will carry out the full implant the following week. This is performed under general anaesthetic (you will be asleep.) The external wires are removed and the electrodes connected to a battery that is normally implanted under the skin just below the collarbone or in the tummy. You will have stitches at your battery site which also stay in for 2 weeks. Your battery will be programmed through the skin with a programmer using telemetry, like a remote control. In most cases we provide a patient controller so that the stimulator can be turned on and off, up and down.

## Discharge

You should be ready for discharge from hospital about 1-2 days after the second stage of your operation. We will advise you when to have your stitches removed at your GP's surgery.

There are some restrictions on the types of scans you can have once the stimulator has been inserted but we will discuss all of these with you before your discharge.

If you hold a driving licence you will have to inform the DVLA of your brain operation. There are guidelines available from the DVLA about driving after surgery. At present there are no restrictions placed on you after this surgery, except that you wait until you have fully recovered from your operation. If there has been any complications following surgery then we will discuss driving with you.

You will be given a separate discharge advice information leaflet when you go home after your surgery.

## Success rates

Our success rates should give you an idea to what extent we may be able to reduce your pain.

Deep brain stimulation helps about 60% of the patients we have treated to some degree. The rate of reduction in pain varies from patient to patient. On average we have reduced pain scores by 50% or more. For example, if a patient had a pain score of 10/10 we would be able to reduce it to 5/10. We have been successful in reducing the burning sensation aspect of the pain in the majority of patients. This burning sensation is replaced by a feeling of warmth or tingling, or both.

## Complications

As with all types of surgery, there is a small chance of complications:

- It is reported that there is a 1-3% chance of stroke from this procedure.
- There is a risk of infection in the wounds – approximately 7%.
- It is possible that the electrode could move. If this happens it may need to be replaced. This would mean repeating stage one of the procedure.
- Failure of the stimulator, i.e. it does not work to relieve your pain.
- Mechanical failure of equipment – is rare but not unheard of.

## Follow-up

We will keep in close contact with you after your discharge from hospital and will alter your stimulation if necessary to maintain pain relief. The battery life will vary depending on your stimulation settings. (On average the battery will last between 3-5 years.) We will need to see you at least once a year to check the battery and make sure you have continued pain relief.

Rechargeable batteries are available in some cases.

If you would like to speak to someone who has had this treatment, we will be pleased to put you in contact. Please let us know.

If you have any questions that you would like to ask, please do not hesitate to contact us on the numbers below.

## Contact Numbers

**Liz Moir, *Clinical Nurse Specialist in Neuromodulation & Pain Management***

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*Continued next page*

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If you need an interpreter or need a document in another language, large print, Braille or audio version, please call

**01865 221473** or email **PALSJR@orh.nhs.uk**

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