

# EEG telemetry with intracranial electrodes

**i** Information for patients  
Clinical Neurophysiology



**PROUD TO MAKE A DIFFERENCE**

SHEFFIELD TEACHING HOSPITALS NHS FOUNDATION TRUST



You have already been assessed as suitable to join the Epilepsy Surgery Programme. Prior to admission for intracranial electrodes or epilepsy surgery, an appointment will be made for you to see your neurosurgeon. You will be able to discuss the surgical procedures in detail and the neurosurgeon and anaesthetist will talk to you about the possible risks and complications and take consent.

## **What is EEG telemetry with intracranial electrodes?**

This is one of a range of tests which may be necessary before epilepsy surgery. Intracranial EEG electrodes are used when the scalp EEG recordings do not give us the information needed to localise the part of the brain responsible for your seizures. The intracranial electrodes are placed on the surface of the brain or deep within the brain (as described later in this leaflet).

The number, type and placement of electrodes, are decided at the team conference based on the appearance of your seizures from previous EEGs. The names of the different types of intracranial electrodes that we may use are subdural strips, subdural grids and depth electrodes.

## **What are subdural strips?**

They are strips of a very thin plastic, with four to eight contact points from which electrical activity on the surface of your brain is recorded.

## **What are subdural grids?**

A subdural grid is a very pliable mat with up to 64 contact points placed on the surface of the brain to record electrical activity.

## **What are depth electrodes?**

They are fine rigid wires with multiple contact points along the length.



## **Who puts them in?**

The neurosurgeon.

## **How do I prepare for the surgery?**

You cannot eat or drink anything for 6 hours before surgery. You should continue to take your regular medications with a small sip of water.

## **How are the electrodes put in?**

On the day the electrodes are put in, part of your hair will be shaved; this is done to reduce the risk of infection. Then, with the aid of an MRI scan, markers will be placed over the operation site. You will then be taken to the operating theatre and given a general anaesthetic.

The neurosurgeon will then make several incisions (depending on the number of electrodes). This will allow him to temporarily remove areas of skull through which he can place the electrodes. The electrodes are then stitched in place, the skull is replaced and your head will be bandaged for protection and padding.

## **How long does the surgery take?**

You will be away from the ward for approximately 4 to 6 hours. Some of this time is spent on a recovery ward.

## **How many electrodes will I have?**

Each patient is different but most patients have between 2 and 6 electrodes placed.

## **How will I feel after the electrodes are placed?**

You may have a headache for the first few days requiring pain relief, although this varies from person to person. You may also have difficulty opening your mouth wide for several weeks after surgery because of the effect of the surgery on muscles in the jaw; this will settle. You may have some facial swelling but this will resolve after 2 to 3 days.

## **What can I do after the surgery?**

Generally, after 24 to 48 hours, you will be able to get out of bed and sit in a chair or take a walk with a nurse.

## **When will the EEG recording begin?**

Recording usually begins 24 hours after the electrodes are inserted. Before it begins, you will have a skull X-ray and/or MRI scan to confirm the position of the electrodes.

## **Are there any risks?**

There is about a 5% risk of infection and around 2% risk of a brain haemorrhage or swelling that may result in weakness of the limbs on the opposite side: this is usually temporary. As with any surgery, there is a small risk of complications from the general anaesthetic.

We must obtain your consent for any procedure or treatment beforehand. Staff will explain all the risks, benefits and alternatives before they ask for your consent. If you are unsure about any aspect of the procedure proposed, please do not hesitate to ask for more information.

Further information is available in an information leaflet "You and your anaesthetic" on [www.sth.nhs.uk/patients](http://www.sth.nhs.uk/patients)

## **What if I do not have any seizures?**

Occasionally your doctors may ask for your consent to reduce or stop your drugs to increase the chance of capturing a seizure. If you have a history of frequent seizures or status epilepticus (where seizures are prolonged with little or no recovery in between) your doctor may decide not to alter your drugs. Any increase in the frequency or severity of your seizures will be managed by the medical staff on the ward.

Epilepsy is associated with a small risk of Sudden Death in Epilepsy (SUDEP); this risk is increased slightly with drug reduction. In adult telemetry units the risk is quoted as 1.2 every 10,000 telemetry monitoring sessions.

Seizures may also be induced by sleep deprivation. This may lead to an increase in the frequency / severity of your seizures which would be managed by the doctors looking after you on the ward. An exact figure for the increased risk of seizures with sleep deprivation is not available due to differing methods used. If you have any other known triggers for your seizures we may use these where possible during the telemetry recording. We must obtain your consent for any procedure or treatment beforehand. Staff will explain all the risks, benefits and alternatives before they ask for your consent. If you are unsure about any aspect of the procedure or treatment proposed, please do not hesitate to ask for more information.

Sometimes we need to gather extra information. This may sometimes involve 'mapping', where points on the implanted electrodes are stimulated. You will then be observed and your reactions will be monitored.

## **When will the electrodes be removed?**

The electrodes will be removed once you have had enough seizures to determine the area where the seizures begin. They will be removed in the operating theatre under an anaesthetic. Occasionally the surgery may have been planned to take place immediately after the electrodes have been removed.

## **How long will I be in hospital?**

That will depend on the number of seizures you have. The usual length of stay is two weeks but it could be longer.

## **When can I go home?**

All medication will be resumed as soon as the monitoring period is over. Once the electrodes are removed you will be observed on the ward for several days (generally 4 to 5 days) before being allowed home.

## **What can I do when I go home?**

If you have the electrodes removed and do not go on to have your surgery immediately, you can do any routine activity you wish. You can return to work or school after approximately two weeks. If you have your epilepsy surgery at the same time as the electrodes are removed, then you will be given a separate leaflet with advice called 'Epilepsy surgery: Frequently asked questions'.

## **What happens next?**

If your final stage epilepsy surgery was not performed during this admission, then a team conference will be held within 6 weeks of your discharge. The team will review all the findings at this meeting and decide whether you are suitable to continue to epilepsy surgery. The decision will be discussed with you at your 6 week follow up appointment.

## **What if I want any further information?**

If, after reading this leaflet, you would like more information, please contact the Department of Clinical Neurophysiology on:

- **0114 271 3237** Monday to Friday, 8.30am - 4.30pm

and ask to speak to the Epilepsy Surgery Coordinator,

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[www.neurocare.org.uk](http://www.neurocare.org.uk)

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