

What is Intracranial Monitoring?

This is a test to record your seizures and determine the specific areas of brain involved, and to determine if surgery may be helpful to you. This is a more precise test than your previous EEG monitoring that recorded your seizures using EEG on the surface of your head.

What will happen during the study?

- You will be admitted to hospital for the entire test.
- During the first operation, the neurosurgeon will place electrodes directly on the brain to record electrical activity. This will be performed under general anesthesia.
- You will then be monitored to record your typical seizures. During this interval, your medicines for seizures may be reduced or stopped. This may cause you to have more frequent seizures, or more intense seizures than usual.
- A second operation will then be done to remove the electrodes. If the brain region responsible for the seizures is successfully identified during your hospital stay, this region will be treated or removed during the second operation.

What happens during the testing before surgery?

Several weeks before your surgery, you will have an appointment to meet the anesthesiologist, to review your medical history and exam. You may also have a special MRI scan (termed "stealth MRI") that will be used by the neurosurgeon during the operation to determine the correct placement of the electrodes.

What happens during the implantation procedure and monitoring?

- An incision will be made, and a portion of your skull opened.
- Electrodes will be placed directly on the surface of the brain, or long thin probes will be used to place electrodes into areas of the brain that cannot be directly seen. This is done by the neurosurgeon using MRI imaging guidance in the operating room.
- Your neurologist will be present in the OR, to review this implantation with the neurosurgeon.
- When the operation is finished, your head will be covered in a bandage. This will remain on your head for the duration of your testing.
- You will go to the Anesthesia Recovery for several hours, and then to the Neurosurgical ICU to be watched closely overnight. The next morning, you will go to your room, and EEG monitoring will start.
- The length of the monitoring is variable, from 1 to 2 weeks, and will depend on your seizure frequency.
- A headache is common. This improves over the first 2 days.
- EEG monitoring will be identical to your previous EEG monitoring, using a video camera and EEG. **Unlike your previous EEG monitoring, you will be in bed or in a chair at all times, unless accompanied by your nurse.**
- You will need an IV in your arm during monitoring, so that medicines may be given to you quickly.
- You may wear your own clothes, but these must open in the front or back and not disturb your head dressing.
- You cannot shower.
- There will be no opportunity to smoke during this monitoring.
- You may use your computer and cellphone, except if these are interfering with the quality of the EEG recording.
- You will need to have friends and family be with you at all times during the monitoring.

What is mapping?

Early in your monitoring, your neurologist and a speech pathologist may map the location of important functions on the surface of your brain. This is done by sending a brief current pulse to individual electrodes, to see if this interferes with your language or motor control. This testing usually requires several hours, and may be completed over several sessions on different days.

This information is important to determine whether surgery may be performed safely, without causing injury to your language and motor control.

What happens with the results?

Your neurologist and neurosurgeon will explain the results of the monitoring to you, and your family or friends. If these results indicate you are a candidate for surgery, they will discuss surgical options with you.

What are the instructions for after surgery?

You will probably remain in hospital for a short time after the electrodes are removed. Your neurosurgeon will give you instructions for caring for your incision, and will see you in clinic about one week after the surgery.

What about my hair?

Some hair will need to be removed from the area of the incision. The amount of

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hair that needs to be removed is will be determined by the neurosurgeon depending on your specific situation. Your neurosurgeon will discuss this issue with you during your evaluation.