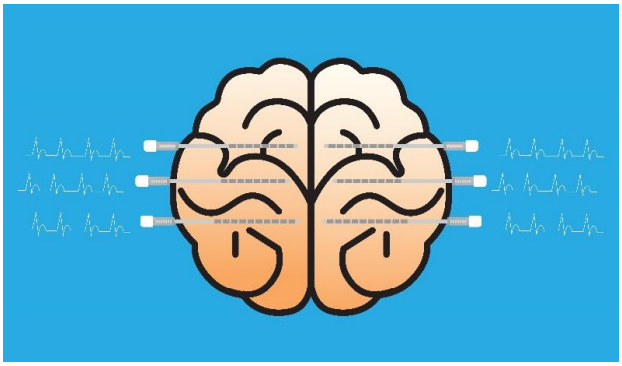
Stereo Electroencephalography (sEEG)

sEEG stands for “stereo electroencephalography,” or “stereo-EEG.” It is also called invasive EEG. It is like the regular EEG you get in the Epilepsy Monitoring Unit (EMU). But with sEEG, doctors use surgery to place electrodes in your brain.



This picture is a brain with stereo electroencephalography (sEEG) electrodes inserted into it.

What is sEEG for?

If medicine can’t stop seizures, surgery may help. To do this, our epilepsy team needs to know exactly where the seizures are coming from in the brain.

First, you will have some non-invasive tests. These are tests that do not insert anything inside the body. You will get an MRI, scalp EEG, PET scans, and others if needed. The tests will try to find where the seizures start. If these tests are not clear, then an sEEG can help find them.

Non-invasive imaging shows us where it might be around. sEEGs shows us where it is. For example, non-invasive imaging can show which city the hospital is in. But the sEEG can tell you which city, street address, floor of the hospital, and room number. The sEEG is a diagnostic study. It tells us where the seizures come from. We need this to figure out how to treat them.

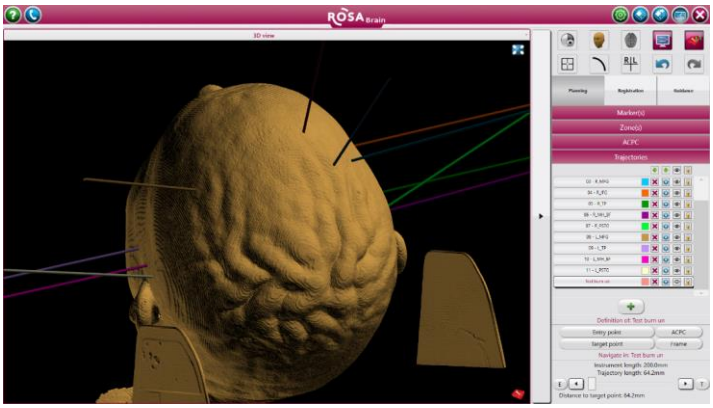
How is sEEG performed?

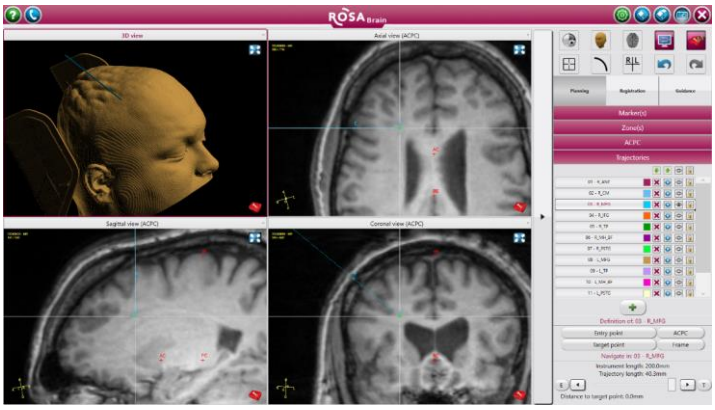
The epilepsy team will meet to review all the images and EEGs. They want to find where the seizures might be starting. They will use advanced software to plan where to place the electrodes. It helps to make sure the electrodes are not near vital areas, like blood vessels.

On the day of surgery, you will go to sleep with anesthesia. So, you will not feel anything. We will not cut or shave your hair. Each electrode has a 2-millimeter cut (or the size of a pen) made for it. Then, a high-tech robot places them. This robot is very accurate. It will place the electrodes within 2 millimeters of the team’s plan.

What should we expect during the sEEG?

Before surgery, you will have a high-resolution MRI and CT scans. The surgery will take 4 to 6 hours. You will then go to the EMU where they will connect the EEG. This will record all your brain's activity before, during, and after a seizure. Below are samples of what information our team will see and get from the sEEG. This will help us make your child's specific care plan.





The epilepsy team will review this data to find the source of the seizures. It usually takes 7 to 14 days of monitoring to get enough data. During this time, the CHLA EMU will have different things you can enjoy. We have video games, television, DVDs, board games, service dogs, and more.

After the monitoring, we will take out your electrodes while you sleep. This will take about one hour. You will not feel anything. Each electrode cut will have a small stitch that will go away on its own in two to four weeks. You can go home the next day.

What happens next?

Once the team collects the data, they will review it. The team will find where the seizures come from and plan the best treatment. This usually takes 1 to 2 weeks. Someone from the team will call you to explain the findings and talk about the next steps.

What are the risks?

Like any surgery, sEEG has some risks. But it is a very safe procedure. The chance of serious problems, like bleeding or infection, is very low (less than 1%).

Contact Us

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