

Comprehensive Epilepsy Presurgical Evaluation (CEPE)

Surgery may be the best option for seizure control if your child with epilepsy is still having seizures after trying two separate medicines.

Your child will need to complete a series of tests to see if surgery is right for them. UW Health's Comprehensive Epilepsy Presurgical Evaluation (CEPE) approach lets your child complete these tests during one 5 to 11-day visit.

These tests are to find where in the brain the seizures are coming from. This area is known as the **seizure focus**. If these tests all point to the same part of the brain as being the seizure focus, and if this focus is safe to be removed, then surgery may be right for your child.

Tests

- **Phase 1 video-EEG** study includes a stay in the Epilepsy Monitoring Unit. Here, we will try to capture seizures on video-EEG. We then look at the data to find the seizure focus.
- **In-depth neuropsychological evaluation** includes an IQ test. This test can give us clues to help us locate the seizure focus. It also gives us baseline results before surgery.
- **PET scan** measures activity in the brain. A seizure focus is often less active when not seizing. This study is performed when your child is not seizing, and the seizure focus will appear as a "cold" spot.
- **SPECT scan** measures blood flow in the brain. A seizure focus often has increased flow during a seizure and appears as a "hot" spot. Your child will have this test both while seizing and not seizing. Results of the two

scans are then used to find the seizure focus.

- **High resolution MRI** is a detailed brain scan used to find subtle differences in the brain. This could give clues to locate the seizure focus.
- **Diffusion tensor MRI** is a scan that maps our white matter tracts. Sometimes differences in these white matter tracts can also give clues to locate the seizure focus.
- **Functional MRI** is a scan that finds the functional (speech and motor) parts of the brain we should avoid during surgery.

CEPE Process

First, your child will need a referral from their healthcare provider. An epilepsy doctor will then review their records, see your child and decide on further test. We may choose to go forward with the CEPE in whole or in part. If moving forward with the CEPE process, clinic staff will work with you to schedule CEPE and review your housing options.

The first day will be a Wednesday. The first two nights you will need a place to stay. Our staff can help you find housing either at Ronald McDonald House or at a nearby hotel. Starting that first Friday, your child will be admitted to the American Family Children's Hospital. Two adults may stay in the hospital with your child for the rest of the stay.

CEPE Schedule

Days 1 and 2 (Wednesday and Thursday):

Your child will have outpatient tests for the first two days. These tests may include:

- Neuropsychological evaluation
- PET scan
- Anatomic and functional MRIs
- SPECT scan

Day 3 (Friday): We will admit your child to the Epilepsy Monitoring Unit (EMU). Here, your child will be hooked up to video-EEG. Two adult caregivers may stay with your child.

Days 3-5 (Friday through Sunday): Your child's medicines will be carefully decreased so that we can capture seizures on video-EEG (Phase I study). Our trained staff will keep your child safe during seizures.

Days 6 through 10 (Monday through Friday): We will make up to four to five attempts (one attempt per day) to capture a seizure. A nuclear medicine tech will sit at the bedside and inject your child with a small amount of radioactive solution within seconds of the seizure onset. This solution will help us view the blood flow in the brain during the scan. These seizure SPECT windows will be between 8 am and 12 pm each day. The actual scan will take place between 1 pm and 3 pm that same day. Your child will also need a separate SPECT scan when your child is **not** seizing. This scan may take place before or after the seizure SPECT scan. We then compare the scans to help us find the seizure focus.

After the Procedure

Once your child has finished the tests, they will restart their medicines and be discharged home. We will review the test results and decide if surgery is right for your child, or if your child needs further tests. We will also send the results to the provider who referred your child.

Housing

Please contact American Family Children's Hospital Guest Services at **(608) 890-8000** or **(800) 323-8942** to arrange housing.

When to Call

Call if you have any questions.

Who to Call

Pediatric Neurology
(608) 890-6500

Your health care team may have given you this information as part of your care. If so, please use it and call if you have any questions. If this information was not given to you as part of your care, please check with your doctor. This is not medical advice. This is not to be used for diagnosis or treatment of any medical condition. Because each person's health needs are different, you should talk with your doctor or others on your health care team when using this information. If you have an emergency, please call 911. Copyright © 6/2024 University of Wisconsin Hospitals and Clinics Authority. All rights reserved. Produced by the Department of Nursing HF#8199.