



Comprehensive Epilepsy Center Treatment Roadmap

You are being seen at a Comprehensive Epilepsy Center, which means you have access to a team of experts who can provide a complete evaluation for epilepsy patients, along with extensive medical, interventional, and surgical treatment options. This sheet will help you understand some of the options that may be available to you, and help you trace what your treatment roadmap might look like.

TREATMENT OPTIONS FOR DRUG-RESISTANT EPILEPSY

Medications



Medications are the first-line treatment for epilepsy. After 2 medications have failed, the chance that a 3rd medication will control seizures is <5%.

People who do not respond to medications should undergo a comprehensive evaluation to see if they are a candidate for neuromodulation or epilepsy surgery.

Neuromodulation Devices



Neuromodulation devices treat seizures by applying small amounts of stimulation. Three different devices are used to treat epilepsy:

- RNS System
- DBS Therapy
- VNS Therapy

Epilepsy Surgery



Epilepsy surgery is a procedure that removes or alters an area of your brain where seizures originate. It is most effective when seizures start in a single location in the brain. Surgical options may include:

- Surgical resection
- Laser ablation

TEST CHECKLIST

Notes:

- MRI
- PET/SPECT/MEG
- Video EEG
- Neuropsychological Testing
- Wada
- Intracranial Monitoring/SEEG

Surgical Consult with:

Name: _____

Address: _____

Phone: _____

Questions? For scheduling please contact Name: _____ at Phone: _____

TESTING DEFINITIONS

Phase 1: Pre-Surgical Evaluation

Your epilepsy care team will decide which tests you will need.

MRI (Magnetic Resonance Imaging):

MRI provides pictures of the brain showing three-dimensional detail in different planes that help identify abnormalities in the brain.

PET/SPECT/MEG (Positron Emission Tomography/Single Photon Emission Computed Tomography/Magnetoencephalography):

These tests are particularly useful in people whose MRIs are normal. Information from these tests can help find the area of the brain where seizures begin. PET scans look at the metabolism of the brain. SPECT is a functional imaging study that shows areas of the brain with abnormal perfusion (blood flow). MEG generates an accurate representation of the magnetic fields produced by neurons in the brain.

fMRI (functional MRI):

The purpose of this test is to locate the portions of the brain that affect language, motor and sensory functioning to evaluate whether deficits in these areas will be likely after resective surgery.

Video EEG (Electroencephalography):

Video cameras are used to record a person having seizures as they occur. At the same time, EEG electrodes on the person's scalp record the electrical activity of the brain. This can help identify a seizure focus (the part of the brain where the seizure starts). The person's behavior during a seizure is matched to the timing and location of abnormal brain waves showing seizure activity on the EEG.

Neuropsychological Testing:

This involves extensive IQ and memory tests performed by a neuropsychologist to help localize areas of impaired functioning in the brain. It also provides a baseline for cognitive functioning and can help to determine related risks from surgery.

Wada:

This test is done to determine which hemisphere (side) of the brain is most responsible for functions such as speech and memory. During the test, each side of the brain is injected with a medication to cause brain activity in that hemisphere to decrease ("fall asleep"). While one side of the brain is asleep, the awake side of the brain is tested for memory, speech, and ability to understand speech. This allows doctors to know which side of a person's brain controls those important functions.

Phase 2: Intracranial Monitoring / SEEG

After careful review of Phase 1 testing, the epileptologist and team will talk with you and your family about findings and possible next steps. For some people, more testing may be needed. This next step is called Phase 2 testing.

Phase 2 testing:

Uses surgically placed electrodes to find out exactly where seizures begin in the brain. You and your epilepsy care team will talk about what to expect during Phase 2 testing.