

# Epilepsy Diagnosis & Treatment

## Epilepsy Diagnosis and Tests

If your child is having seizures, they might undergo a variety of evaluations in order to identify which type(s) of seizures they're experiencing and to learn what's causing them.

At Gillette Children's Specialty Healthcare, we use many methods to evaluate kids who have seizures. Once we have those answers, we can develop the right treatment plan for epilepsy.

## Five-Axis Approach to Diagnosing Seizures and Epilepsy

When we diagnose seizures and epilepsy, we use a system developed by the International League Against Epilepsy (ILAE). Used worldwide, the system classifies seizures and epilepsy according to defined terms. The ILAE calls each classification category an "axis."

### **Axis 1 (Seizure Event)**

We describe a child's seizures in detail, using findings from tests, along with observations from the child and family.

### **Axis 2 (Seizure Type)**

Based on the description, we try to identify the particular type of seizure a child experienced.

### **Axis 3 (Epilepsy Syndrome)**

We try to figure out whether a child has an epilepsy syndrome. A syndrome is a particular combination of signs and symptoms that can include:

- Seizure type.
- The age when seizures started.
- Various clinical findings.

### **Axis 4 (Seizure Causes)**

We try to identify the causes of the seizures, such as:

- Brain injury.
- Genetic disorders.
- Brain malformations.
- Conditions associated with premature birth.

## **Axis 5 (Impairments)**

We identify ways the seizures affect (impair) a child's quality of life. We categorize impairments based on the International Classification of Functioning, Disability and Health—developed by the World Health Organization.

## **Medical Examinations**

To support our five-axis approach to diagnosis, we collect information and run tests, including:

- **History:** Our clinicians gather a history of the seizure event and your child's medical and neurologic story. Observations from your family and primary care providers help us identify the seizure type and possible causes.
- **Neurological Examinations:** A pediatric neurologist runs a very thorough examination.
- **Neuropsychology Evaluations:** A neuropsychologist might run tests on a child who has epilepsy to learn whether the seizures or related conditions affect learning and behavior. An early neuropsychology test lets us track skills and abilities as they change over time.
- **Psychology Evaluation:** Psychologists can test your child's intellectual development. They can also help plan for adjustments at school, if needed.

## **Tests and Tools**

Our specialists might order a number of tests, including:

- **Electroencephalogram (EEG) and video EEG (VEEG):** An EEG measures electrical activity in the brain through small electrodes placed on the head. An EEG can help identify seizure type. With VEEG, we add a video camera to record images to show how body movements link to brain activity.
- **MRI:** When an EEG shows that atypical electrical activity in a particular area of the brain is triggering seizures, we might recommend an MRI. The MRI uses magnetic fields to take detailed pictures of the brain.
- **Sleep Study (Polysomnography):** During an overnight sleep study, we watch and record electrical activity in the brain during sleep. We also track oxygen levels, breathing difficulty and muscle movement.
- **Lab Tests:** We might order blood tests to measure levels of electrolytes, glucose, calcium and magnesium. We might also test these samples for toxic substances.
- **Genetic Testing:** We might order genetic tests to learn whether genetic factors increase your child's likelihood of having seizures.

## **Epilepsy Treatments**

If your child has epilepsy, Gillette can help by offering a variety of seizure treatment options. We'll work with you to figure out which one makes the most sense based on your child's medical history and particular type of seizures.

## **Medical Treatments**

Medical treatments can include antiepileptic medication. At Gillette, full diagnostic exams help us decide which

medicines are best for treating your child's seizures. In some cases, trying different medicines and doses helps us find the best possible results.

## Dietary Treatments

For some children who have severe epilepsy, a strictly controlled diet can make seizures less frequent—or stop them altogether. Gillette specializes in providing the following highly controlled dietary treatments for epilepsy:

- [Ketogenic diet.](#)
- [Low glycemic index treatment.](#)

## [Vagus Nerve Stimulation \(VNS\)](#)

Some kids who have epilepsy respond well to a surgically placed vagus nerve stimulator device to control their seizures. Our neurologists and neurosurgeons specialize in VNS, having implanted VNS devices since receiving FDA approval. We also offer consultations, support and referrals for children who might respond well to other neurosurgical procedures.

## Epilepsy Life Stages Visits

Our neurology team—including neurologists, neurology nurse practitioners and nurses—meets with you and your family at various points throughout your child's life. We can help you navigate conversations about school, sports and social situations. We can also help kids understand how to stay safe, talk to others about epilepsy, and handle common challenges.

During these visits we answer questions, offer guidance, and help you respond to changing needs, and prepare for what's next. We also talk about health care issues, such as medicines and routines. We want to make sure your child gets all the care they need to live well with epilepsy.

Curious about how Life Stages® for Epilepsy visits work? Check out more information:

- [Life Stages® for Infants and Toddlers With Epilepsy \(PDF\).](#)
- [Life Stages® for School-Age Children With Epilepsy \(PDF\).](#)
- [Life Stages® for Preteens and Early Teens With Epilepsy \(PDF\).](#)
- [Life Stages® for Adults With Epilepsy \(PDF\).](#)

## Integrated Care

If your child experiences seizures or has epilepsy, we offer complete diagnostic services and a team of experts to provide comprehensive care, beginning with a first seizure evaluation by experts in nursing and neurology (pediatric neurologists, epileptologists, and neurology nurse practitioners).

As your child grows into their teen years and adulthood, we'll continue to work closely with your family to provide the most effective management and best care for epilepsy and seizures. Over the course of treatment, your child might

receive care from providers in the following specialties and services:

- [Chaplaincy.](#)
- [Child life.](#)
- [Endocrinology.](#)
- [Medical genetics and genetic counseling.](#)
- [Neurodevelopmental pediatrics.](#)
- [Neurodiagnostics for tests such as EEGs, VEEGs and overnight sleep studies.](#)
- [Neuropsychology.](#)
- [Neurosurgery.](#)
- [Nutrition and feeding.](#)
- [Pediatrics and general medicine.](#)
- [Psychology.](#)
- [Radiology and imaging.](#)
- [Rehabilitation medicine.](#)
- [Rehabilitation therapies](#), including occupational, physical, and speech and language therapy.
- [Sleep medicine.](#)
- [Social work.](#)
- [Therapeutic recreation.](#)

You can trust your child's care to our expertise in treatment of epilepsy and seizures. As a regional leader in pediatric neurology and neurosurgery, we understand that many kids who have epilepsy also have complex associated conditions, such as cerebral palsy, developmental delays or traumatic brain injuries. That's why we offer a large team of specialists and extensive support services.

For more information, learn about epilepsy and find resources from advocacy and support organizations like the [Epilepsy Foundation](#).

[Make An Appointment](#) [651-290-8707](#) [Refer a Patient](#) [651-325-2200](#)

This information is for educational purposes only. It is not intended to replace the advice of your health care providers. If you have any questions, talk with your doctor or others on your health care team.

If you are a Gillette patient with urgent questions or concerns, please contact Telehealth Nursing at [651-229-3890](#).