Seizures in School

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Epilepsy Monitoring Unit, Children's of AL

- 8 bed unit on 10Harbert at Children's of Alabama
- Scheduled admissions for overnight video EEG monitoring
- Patients stay anywhere from 1-6 nights, longer for invasive evaluations
- Our main goal is to capture and characterize events or seizures
- Reasons for patients to come to the EMU:
  - 1) to figure out if a spell/event is a seizure
  - 2) to adjust seizure meds, start new meds while inpatient, or see how meds are working (some seizures are only during the night or electrographic)
  - 3) to consider other treatment or surgical options, for patients whose seizures are not controlled with medications alone
  - 4) invasive evaluation

EMU Fast Facts

- Our EMU is the only accredited pediatric EMU in the state and was the 1st accredited pediatric EMU in the US
- We have registered EEG techs that monitor the EEGs the entire time patients are hooked up
- We admit approximately 50-70 patients per month
- 68 epilepsy surgeries were performed at COA in 2025 (resections, ablations, or VNS/RNS/DBS implantations)
- Our patients come from throughout Alabama and surrounding states
- Resources: Child Life, Social Work, Psychology, Psychiatry, Dietician, Sunshine School, PT/OT/ST


Children's
of Alabama


I have a "friend".
This "friend" invisible and follows me everywhere, and refuses to leave even when i am in my home. This friend is epilepsy. I don't care much for this "friend" though I have known her all my life. She is not kind. She attacks with violence or silence, however her mood strikes her. but always without warning. She injures my body, and tears through my mind. steals my memories, and leaves me broken and bruised. She separates me from the world. Where no one can see her. Epilepsy is invisible. But she is always with me.
~ Unknown
www.facebook.com/kickinitpurple

WHAT IS A SEIZURE?

- A sudden surge of electrical activity in the brain
- Seizures result from disturbances in electrical activity in the brain (abnormal firing of neurons / excessive electrical activity)
- These abnormalities can cause changes in awareness, behavior, and/or abnormal movements
- From the outside, seizures look different in different people based on where the seizure starts in the brain
- There are many different types of seizures

Febrile Seizures

- Age range 3 months to 5-6 years
- Often with high fevers
- Slight tendency to run in families
- Most of the time workup (EEG and MRI) is not needed
- Normally do not require daily treatment with anti-seizure medications
- If there are no additional risk factors, the chances of developing epilepsy later in life are the same as any other child
- If there are risk factors including developmental concerns, complex febrile seizure, or family hx of seizures, then the chance of future epilepsy increases

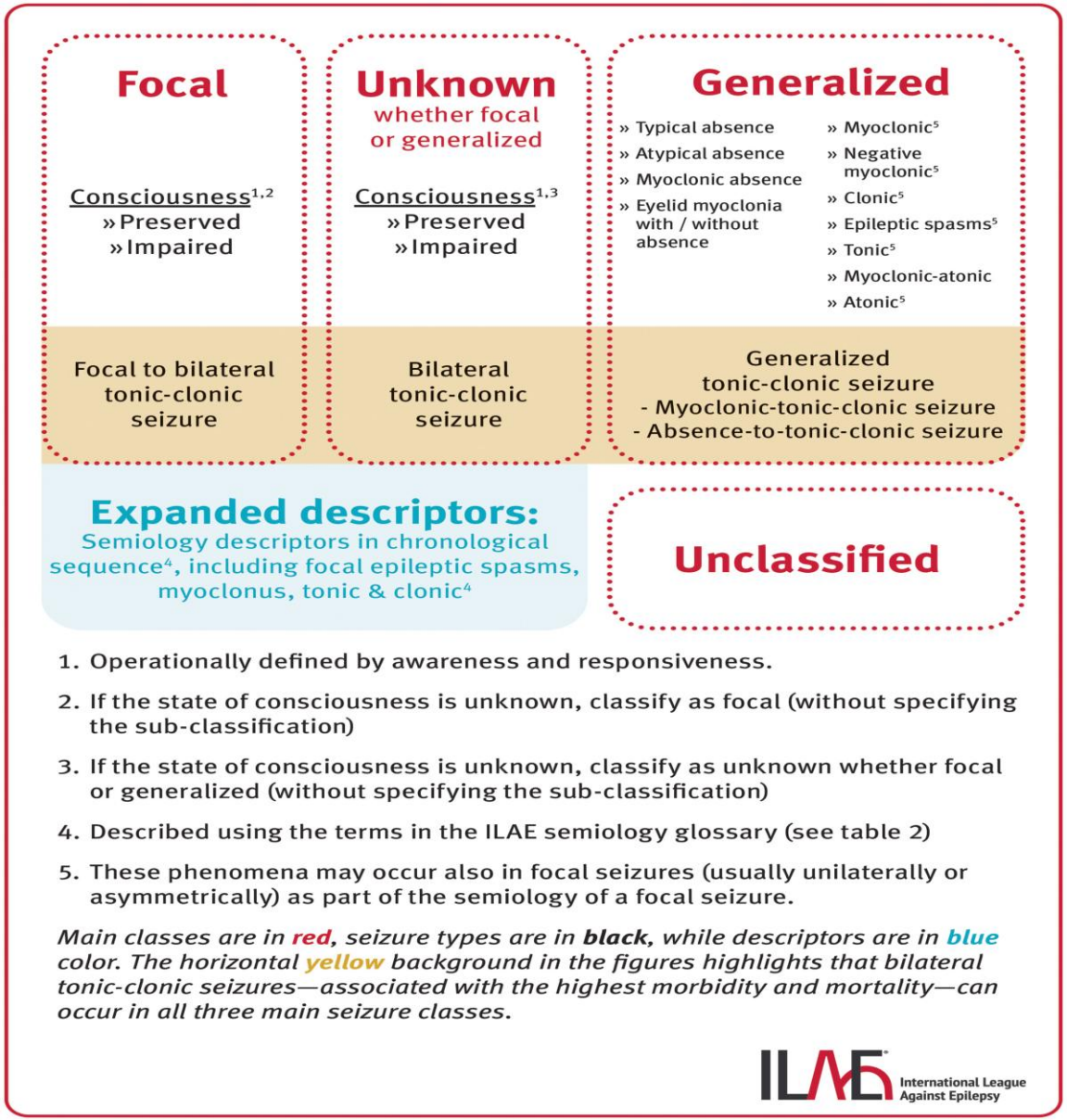
Are Seizures and Epilepsy the Same?

- Some seizures may be provoked by events such as head trauma, fever, stroke, lab abnormalities, drugs, fainting, and alcohol withdrawal
- The term epilepsy is used when a person has had 2 or more unprovoked seizures more than 24 hours apart. In general, these patients need to start anti-seizure medications, as they are at risk for having future seizures.
- Epilepsy is a chronic disorder characterized by recurrent, unprovoked seizures. Some people call this a seizure disorder.
- About 1 in 26 people will develop epilepsy in their lifetime
- Seizures can develop in any person and at any age
- Often the cause of seizures is not known – sometimes there is a structural cause, other times a genetic cause, but many times no reason is found

Epilepsy Outlook

- About 50% of people who have one seizure without a clear cause will have another one, usually within 6 months
- If a person has two seizures, there's about an 80% chance that they will have more
- More than 50% of kids have the possibility of outgrowing their seizures
- Anti-seizure meds:
  - About 50 to 60% of people will become seizure free with the first medication tried
  - A second seizure medication may help another 10-20% of people become seizure free
  - By the time a patient is trying their third medicine, the chances of it helping are very small
- Overall, about 1/3 of patients diagnosed with epilepsy become intractable (have uncontrolled seizures despite multiple medications)

Updated classification of epileptic seizures: Position paper of the International League Against Epilepsy



Epilepsia, Volume: 66, Issue: 6, Pages: 1804-1823, First published: 23 April 2025, DOI: (10.1111/epi.18338)

Focal Seizures

Focal aware (Simple partial): consciousness is not lost or impaired	• Behavioral arrest, may hear or smell something, +/- visual changes, facial twitching or rhythmic jerking of one part of body
Focal with impaired awareness (Complex partial): consciousness is lost or impaired	• Staring, change in awareness, automatisms, confusion, +/-rhythmic jerking of one part of body
Focal to bilateral tonic clonic (Focal with secondary generalization): a focal seizure that spreads to involve both cerebral hemispheres	• May start on only one side of the body but spreads to involving the whole body

Generalized Seizures

- Absence: momentary interruption of consciousness lasting a few seconds
  - Stops what they are doing and stares, eye rolling, eyelid fluttering, drooping of head, dropping objects
- Myoclonic: sudden shock-like muscle contractions confined to one or more limbs
  - Often occurs when falling asleep or waking up, sudden unexpected bilateral jerking of the limbs, multiple repetitive jerking of the limbs
- Atonic: "drop attack" sudden loss of muscle tone with possible brief loss of consciousness
  - Head may nod, eyelids may droop, person may drop things, person often falls to the floor
- Generalized tonic-clonic ("grand mal"): consciousness is lost or impaired, lasting only a few minutes
  - Person becomes rigid and falls to the floor, may have a cry/grunt, breathing becomes shallow, loss of bladder function may occur, convulsions occur, tongue biting may occur

Basic First Aid During a Seizure

Care	Provide general care and comfort and keep the person safe
Safety	Make sure they are in a safe place (not hitting their head on something or in any other way hurting themselves)
Roll	Roll the person to one side if they are lying down
Do not restrain	Again, do not restrain them or put anything in their mouth
Protect	Protect dignity (keep others away, provide privacy as much as possible)
Stay	Stay with the person until the seizure has stopped
Calm	Stay calm – most seizures will stop by themselves within a few minutes
Time	Time the seizure from start to finish
Help	Give rescue meds only as needed – 911 only with prolonged seizures or respiratory problems

Rescue Medications

- Most seizures last less than 3 minutes and stop without intervention
- If a seizure lasts longer than 3-5 minutes, or if there are seizures back-to-back in a cluster, that is when rescue meds are needed
- Follow rescue plan established by neurologist – each child's plan is different

Diastat

- Put child on their side where they can't fall.
- Get syringe. *Note: Seal Pin is attached to the cap.*
- Push up with thumb and pull to remove cap from syringe. **Be sure Seal Pin is removed with the cap.**
- Bend upper leg forward to expose rectum.
- Turn child on side facing you.
- Remove clothing (provide dignity), separate buttocks to expose rectum.
- Lubricate rectal tip with lubricating jelly.
- Gently insert syringe tip into rectum. *Note: Rim should be snug against rectal opening.*
- Slowly count to 3 while gently pushing plunger in until it stops.
- Slowly count to 3 before removing syringe from rectum.
- Slowly count to 3 while holding buttocks together to prevent leakage.
- Keep person on side facing you, note time given and continue to observe.

Valtoco

Step 1

Open the blister pack by peeling back the corner tab with the arrow. Remove the nasal spray device from the blister pack.

Step 2

Hold the nasal spray device with your thumb on the bottom of the plunger and your first and middle fingers on either side of the nozzle.

Do not press the plunger yet. If you press the plunger now, you will lose the medicine.

Step 3

Insert the tip of the nozzle into 1 nostril until your fingers, on either side of the nozzle, are against the bottom of the nose.

Step 4

Press the bottom of the plunger firmly with your thumb to give VALTOCO.

The person does not need to breathe deeply when VALTOCO is given. Remove the nasal spray device from the nose after giving VALTOCO.

Nayzilam

- **First Dose:** Use one 5 mg nasal spray in one nostril.
- **Second Dose (if needed):** If the seizure cluster is continuing 10 minutes after the first dose, a second dose may be used if you have been told to do so by your healthcare provider. If a second dose is used, give the second dose in the other nostril.
- **Do not give more than 2 doses to treat a seizure cluster**
- **Each box contains two single-use nasal spray devices. There is no priming of the nasal spray needed.**
- **Store at room temperature**

Klonopin

Klonopin (Clonazepam) comes in an Orally Disintegrating Tablet, and sometimes the neurologist will prescribe this as a rescue med. It does not work as fast as the other rescue meds.

Often for seizure clusters (seizures back-to-back) or for seizures with retained awareness

Patient does not have to swallow tablet; you can place it inside cheek and let it dissolve

Non-medication Treatments

Ketogenic Diet

- The ketogenic diet is a special high-fat, low-carbohydrate diet that helps to control seizures. This is a rigid, mathematically calculated, doctor-supervised diet.
- The ketogenic diet has been shown in many studies to be particularly helpful for some epilepsy conditions. These include infantile spasms, Rett syndrome, tuberous sclerosis complex, Dravet syndrome, Doose syndrome, and GLUT-1 deficiency. Using a formula-only ketogenic diet for infants and gastrostomy-tube fed children may lead to better compliance and possibly even improved efficacy.
- This diet is initiated in the hospital over several days, with a scheduled admission, and monitored closely by the dietician as the patient gets into ketosis, paying attention to side effects such as intolerance or vomiting.
- Requires food measuring using a gram scale.
- Medications must be switched to tablet formulations, as liquid formulations often contain a high number of carbohydrates. Inpatient pharmacist is consulted to help calculate the total carb count of the medications.

Non-medication Treatments

Implanted Devices

- Vagal Nerve Stimulator (VNS)
  - Vagus nerve stimulation (VNS) may prevent or lessen seizures by sending regular, mild pulses of electrical energy to the brain via the vagus nerve. This is a non-specific treatment, with a wire tunneled through the neck and around the vagus nerve, attached to a small device implanted under the chest wall.
  - If a person is aware when a seizure happens, they can swipe a magnet over the generator in the left chest area to send an extra burst of stimulation to the brain. Family or friends can also swipe the magnet for the patient. For some people this may help stop seizures.
  - The prescriber programs the device using a tablet and holding a wand over the device.

Non-medication Treatments

Implanted Devices Continued…

- Responsive Neurostimulation (RNS)
  - This system can give small pulses or bursts of stimulation to the brain when anything unusual is detected. This can stop seizure activity before the actual seizure begins or be helpful to prevent subsequent seizures. It also could stop seizure activity from spreading from a small focal seizure to a generalized seizure. After the RNS leads are implanted in targeted areas, the system learns a patient's seizure patterns over time so it becomes better at detecting seizures.
- Deep Brain Stimulator (DBS)
  - Deep brain stimulation (DBS) therapy is designed to change (modulate) how brain cells or networks work by giving electrical stimulation to brain areas involved in seizures. It involves an electrode inserted into the brain with a battery pack implanted under the skin near the collarbone. This is less specific than the RNS.
  - Can also be used to treat other neurologic conditions, including Parkinson's disease, essential tremor, dystonia, and obsessive-compulsive disorder.

Seizure Safe Schools

In mid-2021, Governor Ivey signed legislation to ensure that children who suffer from seizures can get emergency medication to stop the seizure while they are at school.

The bill allows voluntary assistants to administer the medication to students. This is necessary because every school does not have access to a nurse every time a student has a seizure.

Training is available at https://www.epilepsy.com/recognition/first-aid-resources - there are both online recorded classes and instructor-led webinars.

Documentation and Communication

- Document what you see and report it to the student's parents and if needed to the neurologist
- Videos are very helpful
- Pay attention to the treatment plan and know when to call for help and when not to
- When possible, keep kids in school and allow them to go back to class if they are feeling okay
- Educate teachers and other students to help make epilepsy less scary and to help the child feel as normal as possible

Documentation

Details of seizure to note:

- How the seizure began
- How long the seizure lasted
- Skin color (pale, blue around lips, sweating)
- Part of body affected (arm or leg, side of face, etc)
- Ability of child to speak and remember during and after seizure
- Eyes open or closed
- Weakness of any part of body
- Vision affected
- Drooling, tongue bite, urinary incontinence

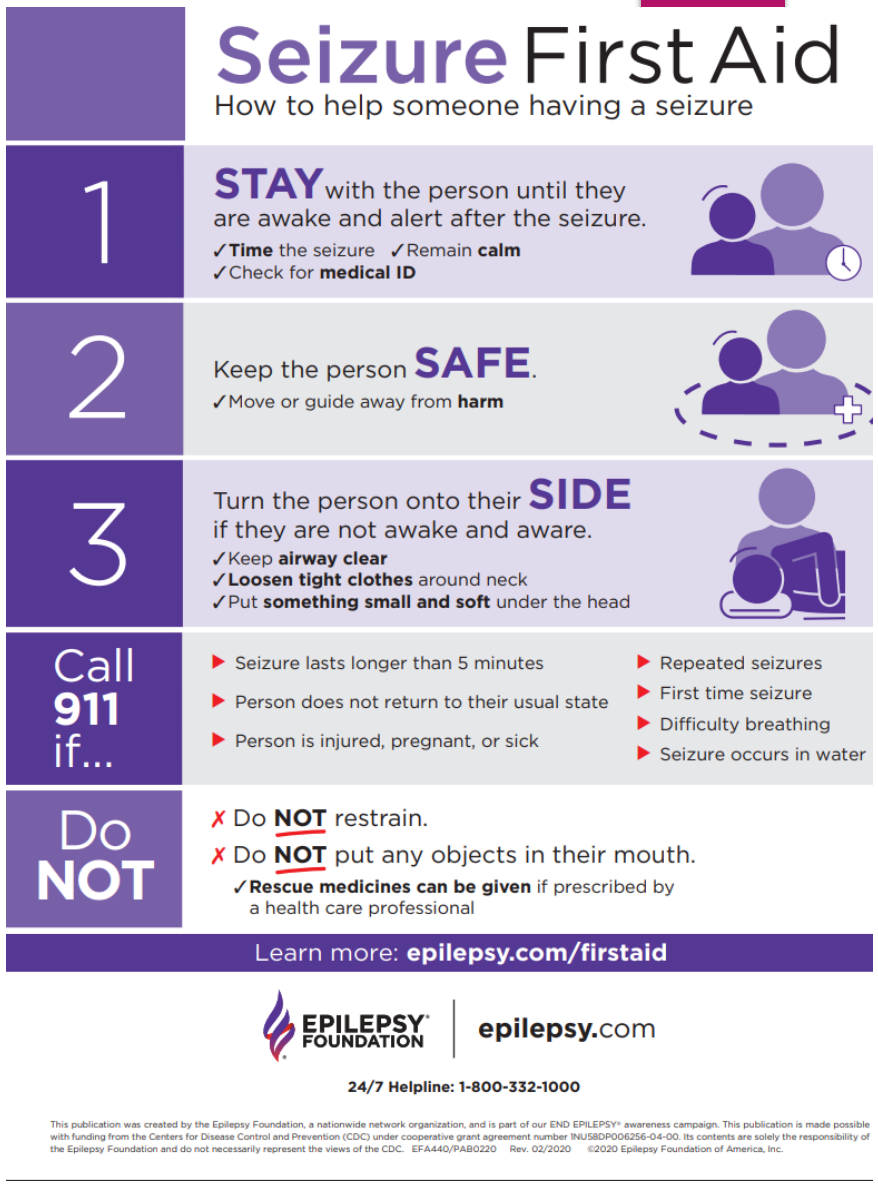
After seizure: tired, weakness of specific part of body, headache, vomiting, confusion

Other Issues

- Alabama law prevents driving for 6 months after a seizure or any alteration in awareness
- Most sports are okay for patients with epilepsy to continue playing, although some are riskier than others. This conversation needs to happen between the family and the provider. Wear a helmet!
- Basic precautions: no swimming alone, no heights, showers rather than baths, stay away from fires or open flames
- Seizure triggers: vary for each patient, but common triggers are stress, sleep deprivation, illness, drugs or alcohol

School Nurse Resources

- https://www.valtocohcp.com/themes/valtoco/pdfs/School_Nurse_Info_Sheet.pdf
- https://www.nayzilam.com/healthcare-professionals/school-nurses
- https://www.epilepsy.com/recognition/first-aid-resources
- https://www.epilepsy.com/programs/training-education/nurses
- https://www.epilepsy.com/sites/default/files/2024-03/EF_SFA_Teacher_Toolkit.pdf



Seizure First Aid

How to help someone having a seizure

1 **STAY** with the person until they are awake and alert after the seizure.
✓**Time** the seizure ✓Remain **calm**
✓Check for **medical ID**

2 Keep the person **SAFE**.
✓Move or guide away from **harm**

3 Turn the person onto their **SIDE** if they are not awake and aware.
✓Keep **airway clear**
✓**Loosen tight clothes** around neck
✓Put **something small and soft** under the head

Call 911 if...
- Seizure lasts longer than 5 minutes
- Person does not return to their usual state
- Person is injured, pregnant, or sick
- Repeated seizures
- First time seizure
- Difficulty breathing
- Seizure occurs in water

Do NOT
✗ Do **NOT** restrain.
✗ Do **NOT** put any objects in their mouth.
✓**Rescue medicines can be given** if prescribed by a health care professional

Learn more: **epilepsy.com/firstaid**

EPILEPSY FOUNDATION | epilepsy.com

24/7 Helpline: 1-800-332-1000

This publication was created by the Epilepsy Foundation, a nationwide network organization, and is part of our END EPILEPSY® awareness campaign. This publication is made possible with funding from the Centers for Disease Control and Prevention (CDC) under cooperative grant agreement number 1NU58DP006256-04-00. Its contents are solely the responsibility of the Epilepsy Foundation and do not necessarily represent the views of the CDC. EFA440/PAB0220 Rev. 02/2020

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