

Pediatric Neurology:

Considerations for the School Nurse

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SEIZURE / EPILEPSY

WHAT IS A SEIZURE?

Sudden surge of abnormal electrical discharges in the brain can be symptom of many medical problems-provoked vs unprovoked

WHAT IS EPILEPSY?

Defined as:

2 or more unprovoked seizures less than 24 hours apart

1 seizure with risk of recurrent seizures
recurring unprovoked seizures, not caused by any known medical condition



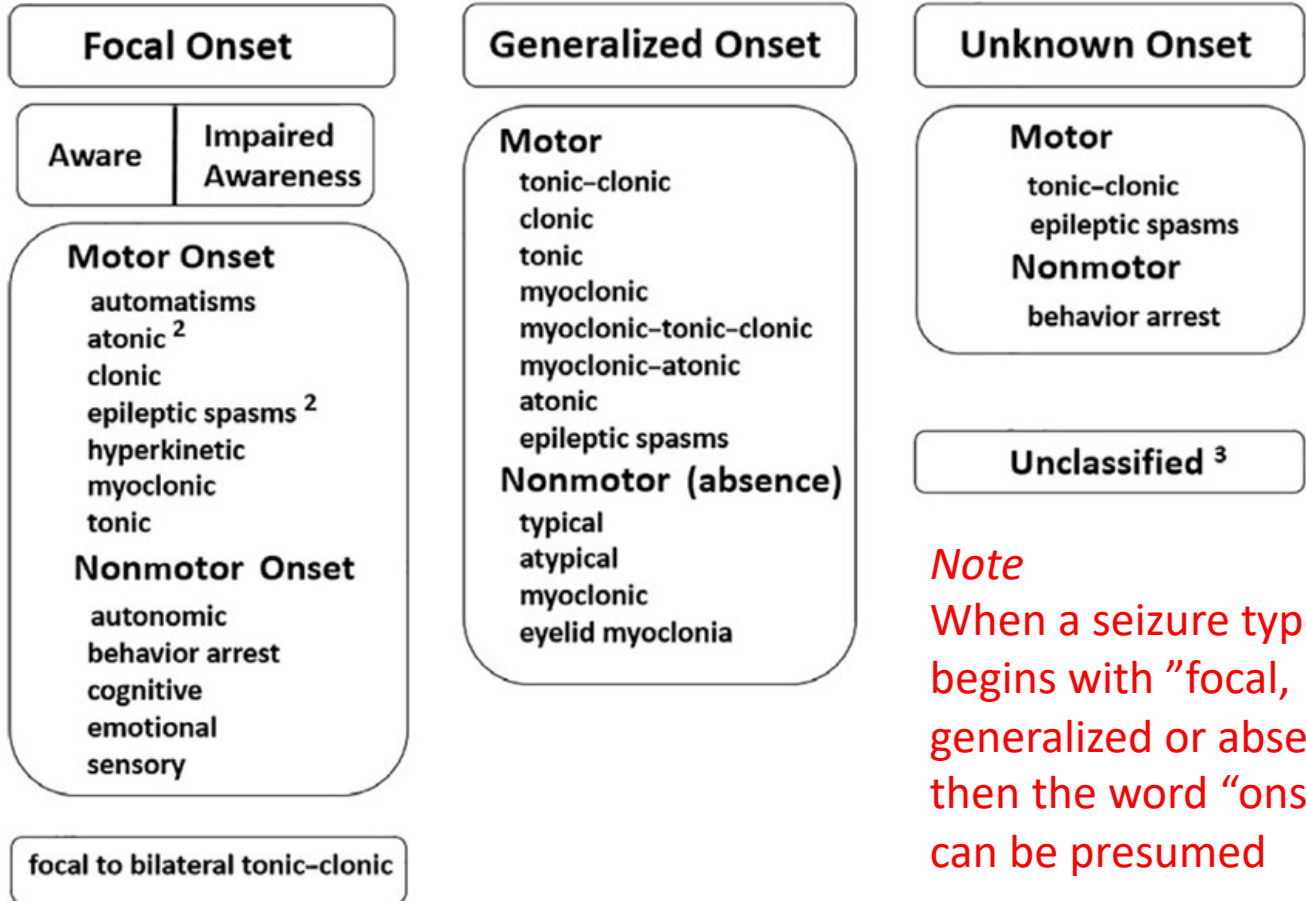
Who has Epilepsy?

- 4th most common neurological disorder
- 65 million people worldwide have epilepsy
- 3.4 million people in the US
- 470,00 youth, age 0-17, in the US have epilepsy
- 1 in 26 people will develop epilepsy in their lifetime



SEIZURE TERMINOLOGY

ILAE 2017 Classification of Seizure Types Expanded Version ¹



Note
 When a seizure type begins with "focal, generalized or absence" then the word "onset" can be presumed



Behaviors in a seizure



- Episodic
- Often sudden and unexpected
- Stereotypic
- Variable intensity
- May or may not be modifiable
- **Important to talk with family about what a typical episode presents like for each child**

TRIGGERS OF SEIZURES

The following conditions can trigger a seizure:

- Sleep deprivation
- Missed or late medication
- New meds / med interactions
- Emotional stress
- Overheating /dehydration
- Hormonal changes /menstruation
- ETOH, Drugs
- Specific stimuli: reading, hot water, increased screen time, flashing lights



SEIZURE PREVENTION, PRECAUTIONS and FIRST AID



PREVENTION OF SEIZURES

- Promoting a lifestyle of wellness
- Remembering to take anti-epileptic medications
- Having sufficient sleep
- Avoiding excessive heat / keep fevers down
- Managing stress
- Avoiding alcohol / high-risk behaviors
- Avoiding flashing lights for those patients with Photosensitive Epilepsy (confirmed by EEG)



What to look for during a seizure?

- What did you see or hear first?
- Was person able to tell you if they didn't feel well?
- What happened next?
- Was person awake, confused, not conscious?
- What part of face and body involved?
- Did you notice changes in speech or behavior?
- How long did it last?
- Did person quickly return to usual?
- Was person tire, confused? Described any other symptoms



WHAT TO DO WHEN SOMEONE IS HAVING A SEIZURE

- Time event
 - If student found seizing, estimate time
 - Remain calm – can reassure if child is aware of event
 - Protect the person from harm / falling
 - Turn the person to their side
 - Place something soft under their head
 - Loosen tight clothing around neck
 - Observe the type and duration of seizure
- *Not all seizures need to be recorded depending on length and baseline for child, always good to let parent know



WHAT NOT TO DO WHEN SOMEONE IS HAVING A SEIZURE

DO NOT:

- Restrain the person unless there is danger
 - If child is wondering, restraining could cause combativeness. Safety is most important
- Put anything in their mouth
- Crowd around the person
- Shout or expect for verbal instructions to be followed



What to Expect After a Seizure

The recovery (postictal period)

- Refers to time immediately after a seizure, before a student returns to their usual state of awareness and function
- How a person feels and functions will vary depending on the type of seizure experienced

How to help?

- Help child to a safe place to rest
- Check if they are alert and aware
- Stay with them until another adult arrives
- Encourage return to class once stabilized



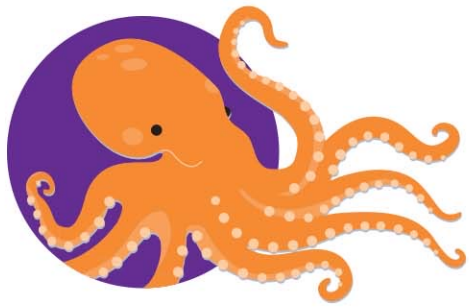
WATER SAFETY IS #1



Caution with swimming: patients in swimming pools need continuous observation by someone that can help if they have a seizure.

A proper life jacket should be worn at ALL times when around bodies of water (pool, river, lake, ocean, etc.).

If child is to seize while in the pool, attempt to support their head so that both the mouth and nose are above the water. Remove the child from the water as soon as it can be done safely and provide seizure first aid if seizure persists.



WHEELCHAIR FIRST AID

- Keep the child in their wheelchair if possible
- Secure the wheelchair-lock the wheels
- Protect and support their head
- Make sure breathing is not blocked and saliva can flow from their mouth

Seizure on the School Bus

- Guide person away from the street if waiting for the bus
- Do not leave the child alone
- If child has a loss of consciousness with their seizure: place on their side facing away from the seat back or aisle
- Remain with the student until they are awake and alert
- Call 911 if needed

PRECAUTIONS WITH ACTIVITIES

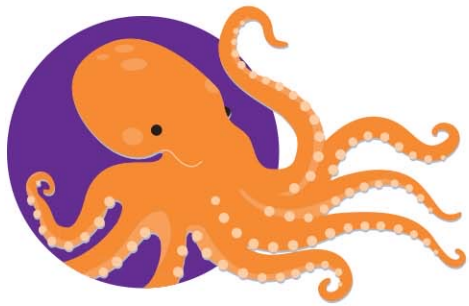
***Ask:** What if this child were to have a seizure while doing this activity?*

***Ask:** Given this child's situation (type of epilepsy and effective management), what would be reasonable accommodations to promote safety?*

WHEN DOES A SEIZURE BECOME AN EMERGENCY?

- 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

*Always let medics know if child has epilepsy diagnosis



WHAT IS STATUS EPILEPTICUS?

Status Epilepticus is a condition when a person has more than 30 minutes of:

- Continuous seizure activity
- OR**
- 2 or more seizures without full recovery of consciousness between events

Status Epilepticus is a medical emergency, call 911.

Treatment for Epilepsy



TREATMENT OPTIONS

1st Line: Anti-seizure Medications

Surgery

Vagus Nerve Stimulator (VNS)

Diet Therapy



ANTI-EPILEPTIC MEDICATIONS



How do they work?

- Suppress seizure activity by altering electrical activity in neurons or chemical transmission between neurons

What are they?

- Ex. Zarontin, keppra, trileptal, etc

Who takes them?

- Not every child will be on medication, some may not require, others may have daily medications. Some patients with epilepsy may not require daily medications.
- 2/3 of students have complete or almost complete seizure control when medication taken as prescribe
- ~30% do not achieve control with medication therapy

**Please note that new diagnosis children may have multiple medication changes as the neurologist attempts to find a medication that is most effective for the child in decreasing seizures

SIDE EFFECTS OF MEDICATION

Dose related/toxic	Drug-related
<ul style="list-style-type: none">• Diplopia, blurry vision• Dizziness, lightheadedness• Sedation• Slowed thinking• Feeling drunk• Coordination problems• Unsteady walking	<ul style="list-style-type: none">• Cognitive problems• Fatigue/sedation• Weight loss or gain• Cosmetic acne• Excessive hairiness or hair loss• Hyperactivity• Personality changes• Mood changes/depression

Vagus Nerve Stimulator (VNS)

VAGUS NERVE STIMULATOR (VNS)

Programmable pulse generated under the skin in the chest with an electrode attached to the left vagus nerve

Delivers automatic stimulation and magnet-triggered stimulation that is adjusted by the provider

Runs 24/7

Can prevent or stop a seizure

Can decrease seizure frequency , intensity and duration



VNS Considerations

- The magnet should be where the child is; not in the nurse room and the child is in the classroom.
- To stop or shorten a seizure: the student or an observer may swipe the magnet over the VNS generator when seizure symptoms are seen or felt to trigger a burst of stimulation
- Magnet may be used multiple times as needed, typically with at least a minute between swipes
- The magnet will trigger a burst of stimulation. The child will not feel anything.
- To turn off stimulation (i.e. to prevent side effects): tape or secure the magnet over the generator
- Typically worn on wrist or belt

For a free video and more information visit vnstherapy.com



Vagus Nerve Stimulator (VNS) Resources

- VNS information and education:
 - Epilepsy Foundation
 - LivaNova:
 - Kathy Hudson, Nurse Care manager
 - Kathryn.hudson@livenova.com
 - 406-224-9367
 - Mason Bowman, VNS Territory Manager
 - Mason.bowman@livenova.com
 - 253-227-1430
- Mary Bridge Neurology/Neurosurgery



Diet Therapy

What are Diet Therapies for Epilepsy?

Special diets can help some patients with epilepsy.

- The Ketogenic Diet (a diet very high in fat and low on carbohydrates)
- Modified Atkins diet (high in protein and low on carbohydrates)
- Low Glycemic Diet

Things to consider:

- Allow parents or families to bring in special foods/fluids for parties or special occasions
- Inform families if child is not eating their food
- If mixing medications with food, ensure it is diet appropriate
- Checking PRN medications such as liquid ibuprofen/Tylenol before giving



Rescue Medications



What is rescue therapy?

As needed medications used only used in emergency care and not a replacement of daily medications

When are they used?

- To stop cluster seizures or acute repetitive seizures
- To stop seizures lasting longer than usual
- When seizures differ from usual type/pattern
- For breakthrough seizures during high-risk times
- To prevent emergencies

EMERGENCY (RESCUE) MEDICATIONS

The Neurologist may prescribe a rescue medication to give either by school nurse or parent designated adult (PDA)

- Diastat Rectal Gel
- Intranasal Midazolam (Versed)
- NEW MEDICATIONS:
 - Nayzilam (premeasured nasal spray)
 - Valtoco (premeasured nasal spray)



DIASTAT (diazepam) Rectal Gel

- The ordered dose is set and "locked in" by the pharmacist.
- Should include syringe and lubricant for administration
- Attempt to provide as much privacy to the child as possible
- Important to hold buttocks together after administering to ensure medication is fully absorbed
- Acknowledge time given



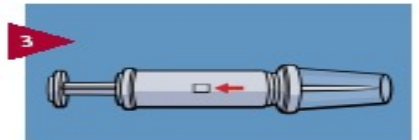
CHILD ADMINISTRATION INSTRUCTIONS



1 Put person on their side where they can't fall.



2 Get medicine.



3 Get syringe. Note: seal pin is attached to the cap.



4 Push up with thumb and pull to remove cap from syringe. Be sure seal pin is removed with the cap.



5 Lubricate rectal tip with lubricating jelly.



6 Turn person on side facing you.



7 Bend upper leg forward to expose rectum.



8 Separate buttocks to expose rectum.



9 Gently insert syringe tip into rectum. Note: rim should be snug against rectal opening.

SLOWLY...

COUNT OUT LOUD TO THREE... 1...2...3



10 Slowly count to 3 while gently pushing plunger in until it stops.



11 Slowly count to 3 before removing syringe from rectum.



12 Slowly count to 3 while holding buttocks together to prevent leakage.

ONCE DIASTAT® IS GIVEN



Keep person on the side facing you, note time given, and continue to observe.

DIASTAT® Indication

DIASTAT® AcuDial™ (diazepam rectal gel) is a gel formulation of diazepam intended for rectal administration in the management of selected, refractory patients with epilepsy, on stable regimens of AEDs, who require intermittent use of diazepam to control bouts of increased seizure activity, for patients 2 years and older.

Important Safety Information

In clinical trials with DIASTAT®, the most frequent adverse event was somnolence (23%). Less frequent adverse events reported were dizziness, headache, pain, vocalization, diarrhea, stable euphoria, incoordination, asthma, rash, abdominal pain, nervousness, and rhinitis (1%–5%).

D955-0308

CALL FOR HELP IF ANY OF THE FOLLOWING OCCUR

- Seizure(s) continues 15 minutes after giving DIASTAT® or per the doctor's instructions:

- Seizure behavior is different from other episodes
- You are alarmed by the frequency or severity of the seizure(s)
- You are alarmed by the color or breathing of the person
- The person is having unusual or serious problems

Local emergency number: _____ Doctor's number: _____
(Please be sure to note if your area has 911)

Information for emergency squad: Time DIASTAT® given: _____ Dose: _____

Diastat
(diazepam rectal gel)

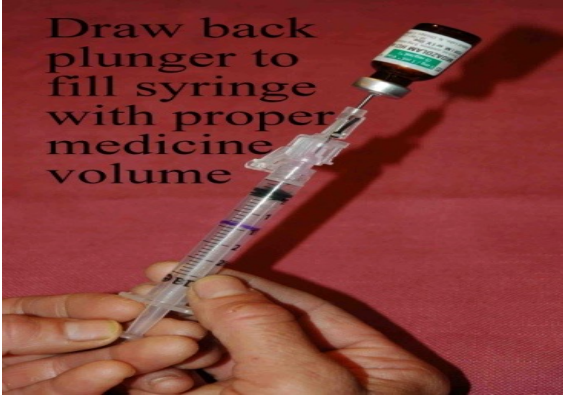
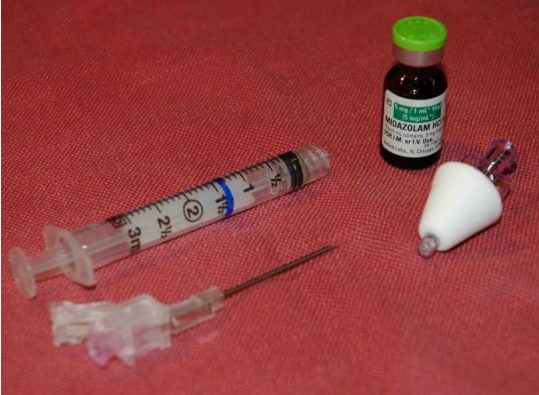
Diastat AcuDial™
(diazepam rectal gel)

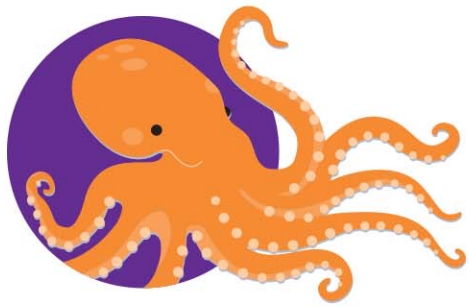
DISPOSAL INSTRUCTIONS ON REVERSE SIDE

INTRANASAL (midazolam) VERSED

- Kit should include medication vial, syringe, needle, mucosal atomizer device (MAD)
- Ensure total dose is drawn up in vial
- Use free hand to hold head steady while administering
- Push plunger rapidly as the atomized misting will not be achieved if not







When to give rescue medications?

- Refer to emergency action plan, guidelines are stated
 - ex: give if seizure longer than 3 minutes or cluster seizures
- When in doubt, give the rescue medication
 - If unsure how long child has been seizing, ok to give medication
 - Better to give than allow the child to seize for unknown prolonged period
- Always use your best nursing judgement!

Emergency Action Plans



What is an Emergency Action Plan?

Washington State public schools require students with life-threatening medical conditions to have an EAP which may include:

- Diagnosis information
- First Aid instructions
- Activity recommendations/precautions/restrictions
- Device instructions (i.e., Vagal Nerve Stimulator)
- Medication orders



EAP Example

PHYSICIAN'S ORDERS FOR MEDICATION AT SCHOOL

Medication is ordered to be given to a student at school only when necessary. The parent/guardian and physician are to design a schedule for giving medication outside of school hours, whenever possible. In an emergency situation the medication will be dispensed by the principal/principal-designee if the school nurse is not present. The school accepts no responsibility for untoward reactions when the medication is dispensed in accordance with the physician's directions.

Diagnosis: Seizure Disorder

Drugs and dosage form: clobazam (ONFI) 2.5 MG/ML suspension

Mode of administration: By mouth

Dose and hour(s) to be given: Give 5 mL by mouth in the morning, 4 mL in the afternoon, 5 mL in the evening. Please refer to family for specific times of administration.

Duration without subsequent order: For the above listed school year

Side effects of drug (if any) to be expected: May cause dizziness, drowsiness, trouble with thinking or less alertness than normal

Diagnosis: Seizure Disorder

Drugs and dosage form: midazolam, PF, (VERSED) 5 mg/mL Solution

Mode of administration: Per nares via nasal mucosal atomizer device

Dose and hour(s) to be given: Draw up 0.9 mL in syringe and administer half a dose (0.45 mL) into each nostril as needed for seizures greater than 3 minutes or for seizure clusters

Duration without subsequent order: For the above listed school year

Side effects of drug (if any) to be expected: Intranasal (IN) Versed/midazolam use is optional and should be left to the discretion of the parent/guardian. WA state law allows the school RN to delegate administration of IN Versed/midazolam to an adult they feel is capable and trained, or a parent may designate an adult volunteer (Parent Designated Adult/PDA) to administer the medication [RCW 28A.210.260]. The RN delegate or PDA may be a school district employee not licensed under RCW chapter 18.79. If the nurse, their trained delegate, or PDA are not available to give the medication, the school is to call 911 in the event of a prolonged seizure. State law requires 911 be called if the medication is administered by staff other than the school nurse.



Considerations for the School Nurse

Educate staff and students:

- Consider Epilepsy as a topic for Health class (very prevalent, though no one talks about it!)
- We can be part of empowering students and removing the "stigma" around Epilepsy
- Great videos for students on Epilepsy Foundation

Safeguard Privacy / Protected Healthcare Information

- In 2019, Mary Bridge Children's updated its policy re: care coordination and communication with School Districts (admin, teachers, school nurses, etc..)
 - A Release of Information (ROI) form that is current and signed by the parent **MUST** be documented in the patient's chart. If this ROI form is not on file, then our MB Neurology team is not permitted to return a phone call to a school nurse to **provide or exchange** information or to fax forms (i.e. Emergency Action Plan). This is the responsibility of the parent.
 - We will instead call the family to notify them that the school is requesting information and will defer to their consent/wishes.

Communicating with Mary Bridge Children's Neurology

Mary Bridge Children's Neurology

Phone: 253-792-6630, opt

2 | **Fax:** 253-272-2594

1112 6th Ave, Suite 100

Tacoma WA 98405

Riley Bjorkman, RN care manager

Phone: 253-403-9345

Email: rjbjorkman@multicare.org

- Release of Information (ROI) MUST be on file
- Call clinic for any questions or concerns
- Contact care manager: Phone or email
 - Assistance with training
 - General questions if no ROI, specific questions if ROI
 - Needing clarification on medication
 - Any questions/concerns



inspired by Possible.

RESOURCES

Epilepsy Foundation – Resources, Education, Support, Training

<http://www.epilepsy.com>

- Epilepsy Foundation has a **training module for School Nurses**
<http://learn.epilepsy.com/class/85211/MSWS2017>

HOPE Mentors - through Epilepsy Foundation

JUMO Health –Educational Resources

<https://www.jumohealth.com/conditions/epilepsy>

Charlie Foundation - for Ketogenic Diet information

PAVE has resources for parents and offers support groups



Mary Bridge Children's Neuro Nurses and RN Care Manager

We are here to serve, educate and empower you!

inspired by Possible.

*Thank you for caring for
students with medical needs!
They need your advocacy, compassion,
patience, understanding and teamwork!!*

