





### **DEFINITIONS**

- Neurology: the study of the nervous system
- Nervous System: network of nerve cells and fibers that transmit nerve impulses between parts of the body via brain and spinal cord
- Brain: the 'motherboard' of the body





### **NEUROLOGICAL DIAGNOSES**

- Headaches / Migraines
- Seizures
- ADD / ADHD
- Sleep Disorders
- Autism
- Tic Disorders / Tourette's Syndrome








- Function is truly the chief complaint once all the scary stuff has been ruled out.
- 98% of the time, there's no reason for the headache other than that the head is really good at making headaches
- Remember—the brain feels no pain. It's the autonomic nervous system that is on the fritz
- A lot more is typically going on in the mechanism of cephalgia:
  - GI symptoms
  - Cognitive changes
  - Postural lightheadedness
  - · Altered mood







- Migraines
  - Often associated with insomnia
  - Prone to motion sickness
  - Fainting when standing too quickly
  - Sleep walking and/or talking
  - Pain can be pulsatile but not necessarily
  - Hard to treat migraines because they're complicated/multi-symptomatic

### Tension Headaches

- Involve muscles
- Not necessarily improved with rest and not necessarily worsened with activity





- Medications are part of the treatment plan
- Treatment plan is not a cure
- The child will still have a body that is really good at making headaches

LIFESTYLE: 21st century stress

- · Learn your triggers
- Exercise to stress the body out and THEN meditate/rest to relax your body to generate new levels of stress hormones
- Empower students to have ownership of their diagnosis and learn to advocate for their health and give themselves permission to have boundaries (having an earlier bedtime for themselves, avoiding dietary triggers, etc..)



**SMART** headache management: acronym to remember behavioral changes

**S**: sleep- same schedule, 8-10hrs at night

SCREENTIME: limit to 2 hours/day and OFF 1 hr before bed

M: meals- don't skip meals

Limit caffeine (max 12oz/day, goal is 0)

Drink water (40-60oz/day)

A: activity-regular exercise (3x/wk)

R: relaxation

T: trigger avoidance

Food: cheeses, chocolate, lunchmeats, citrus, food additives etc

Stres

Limit medications (no more than 2x/wk- can cause rebound headache)




Medication: preventative (daily) and abortive (PRN)

### Preventative:

- B-blockers
- Clonidine
- Antidepressants
- Anticonvulsants
- Others: riboflavin, magnesium, cyproheptadine

#### Abortive:



- Ibuprofen
- Tylenol
- Naproxen
- Triptans
- Antiemetics

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Priorities in the school setting:

- Follow the student's emergency action plan
- Follow the student's 504-accomodations for school
- Documentation!
- Help students determine their triggers

11

REST—as important as taking the medication

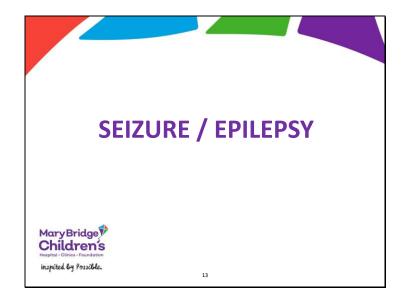




# Role of School Nurse in Caring for Student with Migraines

- Emergency Action Plan and med orders
- 3-day supply and rescue med
- Communicate with teachers and staff RE: health needs
- Current health info in substitute teacher notebook
- Academic Assessment. ADVOCATE for 504 accommodations if indicated
- · Educate staff and students
- Consider Headache/Migraine(s) and SELF-CARE/SMART as topics for Health class (very prevalent, though no one talks about it!)



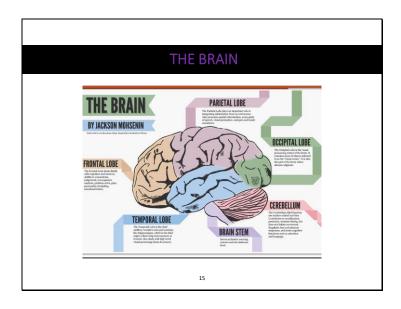





### WHAT IS A SEIZURE?

- A seizure is an abnormal electrical discharge of a group of brain cells.
- About 10% of all people will experience a single seizure during his/her lifetime.
- A seizure can produce a variety of symptoms, depending on the location of the seizure focus and the spread of the electrical activity through the brain.








# What is Epilepsy?

• A person has epilepsy when he/she has had more than 1 one epileptic seizure

### Who has Epilepsy?

- About 3% of Americans will have epilepsy in their lifetime.
- About 1% of children have epilepsy.




### **SEIZURES vs. EPILEPSY**

A seizure is a symptom of a disturbance in the electrical activity of the brain

Epilepsy is recurring seizures (2 or more) without any provoking factors



**Epilepsy = Seizure Disorder** 





### **SEIZURE/EPILPESY REVIEW**

Epilepsy is a common problem—4th most common neurological diagnosis (migraine, stroke, Alzheimers)

- 2.2 million Americans have epilepsy
- >65 million people worldwide
- Effects more than 315,000 students in U.S. alone
- 1 % incidence of epilepsy per school
- 150,000 new diagnoses each year

### Causes of Epilepsy

- 70%: unknown or presumed to be genetic
- 30%: caused by lesions or trauma (birth or TBI)





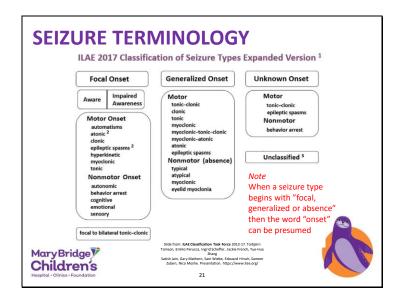
# **SEIZURE/EPILEPSY REVIEW**

Seizure management—effective management begins with recognizing, observing, documenting and communicating information about the student's seizures. Seizure(s) can be difficult to recognize because symptoms are often:

- Subtle
- Difficult to detect
- Lack warning signs
- Confused with other behavioral or psychological issues



# IS EPILEPSY CONTAGIOUS? NO! Mary Bridge Children's Hospital - Clinica - Foundation


### **SEIZURE TERMINOLOGY**

### **TERMS NO LONGER IN USE:**

- Complex partial
- Simple partial
- Partial
- Psychic
- Dyscognitive
- Secondarily generalized tonic-clonic






### **Focal Seizures**

- Originate from a focus in the brain
- <u>Sensory</u>, motor or visual disturbances
- May remain conscious throughout (Focal Aware)

- Can also lead to loss of consciousness (Focal Impaired)
- May start as a focal seizure but then spread resulting in a generalized seizure.





### **Generalized Seizures**

- Generalized Tonic-Clonic generalized stiffening and jerking convulsive activity
- **Tonic seizures** include a sudden stiffening of the body.
- Clonic seizures include repetitive jerking movements.
- Myoclonic seizures include a sudden jerk of the body.
- Atonic seizures include a sudden loss of body tone and may result in falling
- Absence seizures (Petit Mal) includes staring spells.





### **Absence Seizures**

- Pause in activity with blank stare (may be confused by intense thinking or getting lost in thought)
- Brief lapse of awareness
  - Typically <30 seconds, average 10-15 seconds
- Possible chewing or blinking (automatisms)
- Can be easily missed in a busy classroom
- May be confused with:
  - Daydreaming
  - Inattentiveness / behavioral concerns
  - ADD
  - Undiagnosed narcolepsy
  - Microsleep episode
  - Sensory processing disorder



### **PHASES OF A SEIZURE**

- **Prodromal**—seen hours or days before a seizure (emotional or behavioral patterns)
- Aura—first symptom of a seizure often called a "warning" and most commonly associated with focal seizures (smell, hear, see, felt—fear or clingy)
- Ictus—what is seen/felt during a seizure
- Post-ictal—what is seen/felt after the seizure until child returns to baseline



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### **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



TREATMENT OPTIONS				
	1 <sup>st</sup> Line: Anti-seizure Medications			
	Surgery			
	Vagus Nerve Stimulator (VNS	)		
4	Diet Therapy			
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### **ANTI-EPILEPTIC MEDICATIONS**

Some patients with epilepsy may not require daily medications.

If treatment is warranted then medications are typically use for initial therapy.

There are many types of anti-seizure medications available.

The neurologist will discuss with patient and family the type of medication that is best for the type of epilepsy.




### SIDE EFFECTS OF MEDICATION

Common side effects include:

- Sleepiness
- Mood changes
- Dizziness
- Tiredness
- Memory difficulty

Less common side effects include:

- Hand tremor
- Hair loss
- Blurring of vision
- Weight gain or loss

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### **SURGICAL TREATMENT**

Patients with focal seizures not responding to multiple anti-epileptic medications might be suitable candidates for surgery depending on where their seizures originate.



### **VAGUS NERVE STIMULATOR (VNS)**

Implanted device

Runs 24/7

Has seizure detection capability

Magnet capability to abort seizure

Can prevent a seizure

Can stop a seizure

Can decrease seizure frequency, intensity and duration




### **DIET THERAPY**

Special diets can help some patients with epilepsy.

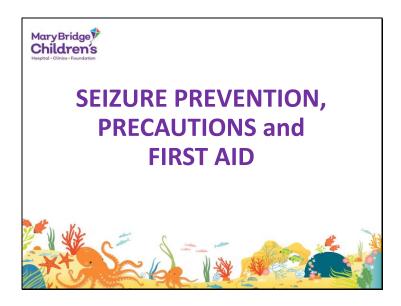
- The Ketogenic Diet (a diet very high in fat and low on carbohydrates)
- Modified Atkins diet (high in protein and low on carbohydrates)

33

• Low Glycemic Diet has shown to be effective (Boston Children's Hospital)








### **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)





### **SEIZURE PRECAUTIONS**

### **SAFETY CONCERNS:**

- Water
- Speed
- Heights / Falling
- Fire

**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?

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Medic alert bracelets/necklaces are recommended

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# **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 bathing in a bathtub an adult needs to be present at all times to help if a seizure occurs. Water temp <120.



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# WHAT TO DO WHEN SOMEONE IS HAVING A SEIZURE

## DO:

- Remain calm
- Protect the person from harm / falling
- Turn the person to their side
- Place something soft under their head
- Observe the type and duration of seizure

## DO NOT:

- Restrain the person unless there is danger
- Put anything in their mouth
- Crowd around the person





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# **RESPONSE TO SEIZURE(S)**

## **FOCAL AWARE (no change in consciousness)**

- Stay Calm
- Time seizure
- Reassure student that he or she is safe
- Explain to others if necessary
- Protect student's privacy

## **FOCAL IMPAIRED AWARENESS (change in consciousness)**

- Speak softly and calmly
- Guide away from potentially harmful objects such as tables, chairs, and doors



- Mary Bridge Allow for wandering in a contained area DO NOT restrain or grab (may result in combativeness)
  - DO NOT shout or expect verbal instructions to be obeyed

inspired by Possible.






# WHEELCHAIR FIRST AID continued...

## **DURING a Seizure:**

- Protect the person by preventing them from falling if there is no seat belt
- Make sure the wheelchair or the stroller is secure/wheels are locked
- Protect the person by supporting their head. Something soft under their head will help if there is no molded head-rest
- Check whether you need to move any hard objects that might hurt arms and legs
- Sometimes the person may need to be taken out of the chair at the end of their seizure if their airway has become restricted/compromised and CPR is indicated

  Wheelchair First Aid handout, epilepsy ACT

  Wheelchair First Aid handout, epilepsy ACT

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# WHEN DOES A SEIZURE BECOME AN EMERGENCY?

When the seizure activity itself lasts more than 5 minutes.

When the person has lost consciousness more than 5 minutes.

If another seizure starts shortly after the first one ended (clusters).

If the person has obtained an injury or airway is compromised.

If you know or believe it to be the person's first seizure.

If you know the person a diabetes or is pregnant.






Status Epilepticus is a condition when a person has:

 $\bullet$  Continuous seizures for more than 30 minutes.

## OR

• Seizures on and off for over 30 minutes, but without regaining consciousness in between seizures.

Status Epilepticus is a medical emergency, call 911.




# **PLEASE REMEMBER**

 Refer to your student's Emergency Action Plan for their <u>individualized</u> history and plan / medication(s).





# **EMERGENCY (ABORTIVE) MEDICATIONS**

The Neurologist may prescribe an abortive medication to give, if a child is having a seizure that lasts > 3 minutes or is having clusters of seizures.

- Diastat Rectal Gel
- Intranasal Midazolam (Versed)



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# DIASTAT (diazepam) Rectal Gel MaryBridge Childrens Happat-Clinica-Foundation 46

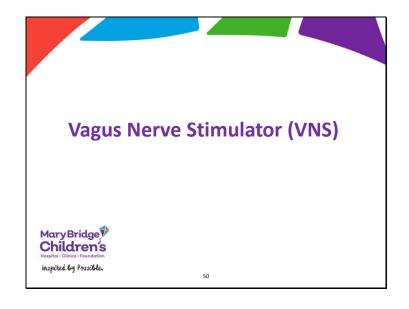




# INTRANASAL (midazolam) VERSED Mary Bridge Children's Haspited by Possible. 18

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# **Vagus Nerve Stimulator (VNS)**

- 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. The swipe is for about 3 seconds
- 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 vsntherapy.com\*



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# **Effect of Epilepsy on Memory and Learning**

Seizure disorder(s) may impact learning in a variety of ways.

Memory and attention can be impacted during and after seizure for several hours.

Medication side-effects can impact many areas of learning such as alertness, memory, processing, attention, and behavior.

Many students report memory problems and cognitive fatigue.

The brain condition that leads to the seizure disorder(s) may also be associated with other learning disorders.

Children may also miss school and fall behind in school work due to doctor's appointments, procedures and injuries sustained during seizurg




# **Suggested Accommodations for Student with Seizures**

- The ability to work and/or take tests in a quiet environment with limited distractions.
- A syllabus or homework packets to keep apprised of missed assignments
- A process for getting lecture notes from missed classes.
- Shorter or modified homework assignments.
- Provide alternative ways of receiving and demonstrating knowledge.
- Extra time to make up assignments that are late or missed due to seizure/injury or side-effects of medications.
- Extra time to make up missed exams without penalty.
- Excuse all absences due to missing school because of a seizure, doctor or procedure appointments or debilitating medication
   side-effects.



# Role of School Nurse in Caring for the Student with Epilepsy

Emergency Action Plan and med orders

3-day supply and rescue med

Communicate with teachers and staff RE: health needs

Current health info in substitute teacher notebook

Academic Assessment. ADVOCATE for 504 accommodations if applicable

## 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

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### 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 <u>not</u> 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

Mary Bridge 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.

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 We will instead call the family to notify them that the school is requesting information and will defer to their consent/wishes.

# **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 Mary Bridge Children's Neuro Nurses and RN Care Manager We are here to serve, educate and empower you!

inspired by Possible.


# **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





Thank you for caring for students with epilepsy!

They need your advocacy, compassion, patience, understanding and teamwork!!

