**Epilepsy & the School Bus Driver**

**Dispelling Common Myths**

- Most seizures are **NOT** medical emergencies
- Most seizures in epilepsy are **NOT** convulsive.
- Children can outgrow their epilepsy.
- Medication does not stop **all** seizures.
- People with epilepsy are not necessarily developmentally delayed nor mentally ill.

**Epilepsy is…**

- A condition of **recurrent** and **unprovoked** seizures
- “Seizure Disorder” = Epilepsy
- Greek word επιληψία: seized by forces from without

**What is a Seizure?**

- Excessive/disorderly discharge of nerve tissue
- Imbalance between **excitation** and **inhibition** of nerve cell activity
- Seizures can be many things – depending on where in the brain and how much of the brain is affected

**Eileen P.G. Vining, MD**

Johns Hopkins University:

“Anything your brain can do normally, it can do abnormally as a seizure.”

**Epilepsy is common!**

- 1 in 26 will develop epilepsy at some time during their life!
- Inst. of Medicine, March 2012: [http://www.iom.edu/Reports/2012/Epilepsy-Across-the-Spectrum.aspx](http://www.iom.edu/Reports/2012/Epilepsy-Across-the-Spectrum.aspx)

“[Jon Meacham in Newsweek, April 10, 2009](http://www.iom.edu/Reports/2012/Epilepsy-Across-the-Spectrum.aspx)
Incidence Rate for Seizures at School

• 1:50 people under the age of 18 (potentially 1 student in each standard size bus)
• 1:3 students with a developmental disability
  – (highly likely in special ed bus fleet)

Bus Driver Support for Children with Epilepsy

• Be a good driver! Pull over safely.
• *Stay calm* during a seizure!
• Be supportive & encourage positive peer interaction!
• Be familiar with child’s Seizure Action Plan and seizure patterns
• Know the child’s medications & side effects

Special Issues to Consider

• Is student in a wheelchair / mobile?
• Coordination with dispatch: When? & How?
• Keeping other students calm & safe
• “Rescue Medication”-Does student use one?
• Does student have an IEP or IHP?

Special Challenges

• Communicating with parents
  – Language barrier
  – Parents unwilling/unable to share information
  – Parents in denial
• Medically fragile students
• Finding a responsible adult at drop off.
• Bullying by other students

Signs of Seizures in Children

• Short attention blackouts
• Sudden falls for no reason / Unexplained clumsiness
• Brief periods of unresponsiveness
• Unusual sleepiness & grouchiness when awakened from sleep
• Frequent complaints that they see, smell, taste or hear “funny” or “strange” things (Strange sensory experiences)
• Confusion/sleepiness following sudden stomach pain
• Repeated unnatural movements that look strange

Previous Terminology

• Grand mal: convulsive seizure
  – Generalized Tonic-Clonic Seizures
• Petit mal: any non-convulsive seizure
  – Absence
  – Complex Partial
Current Terminology
Types of Seizures

Partial (or Focal) Seizures
- Simple Partial
- Complex Partial
  - Awareness impaired/lost
- Partial Seizures can secondarily generalize

Generalized Seizures
- Absence
  - Typical
  - Atypical
- Myoclonic
- Tonic-Clonic
- Atonic

Partial (Focal) Seizures

Complex Partial (Focal)
- Blank staring
- Unaware of surroundings - but able to move
- Unresponsive or inappropriately responsive
- Repetitive movements of mouth and/or hands
- Confused speech / repetitive phrases
- Usually lasts 2-4 minutes

Absence Seizures
(Petit mal)
- Most common seizure type in primary & elementary school students
- Blank staring, possible eye blinking/rolling
- Unresponsive to outside stimulus
- Automatic behaviors (lip smacking, picking at clothes)
- Lasts a matter of seconds

First Aid: Simple Partial & Absence
- Stay calm
- Protect from harm
- Reassure all students
- Time & Observe the seizure
- Document & Report

First Aid: Complex Partial
1. Pull over. Stop bus as safely as possible.
2. Protect from hazards. Contact Dispatch.
3. Time the seizure.
4. Speak softly & calmly.
5. Don’t grab or hold. Allow student to move as is safe.
6. Follow emergency protocol if seizure lasts >5 minutes or is unusual for that student.
7. Make sure student is dropped off with a responsible adult
**Tonic Clonic Seizures**
(grand mal)

- Shaking / convulsive activity
- Teeth grinding
- Shallow breathing
- Loss of consciousness / unaware of surroundings
- Fluids from mouth
- Usually lasts 2-4 minutes (occasionally longer)

**First Aid: Tonic-Clonic**
1. Pull over & stop. Contact Dispatch.
2. Cushion head. Protect from injury.
3. Turn on side and keep airway clear
4. NOTHING in the mouth
5. Time and Observe seizure.
6. Don't hold down.
7. Follow seizure action plan, if one exists.
8. Leave student with responsible adult.

**Seizure in a Wheelchair**

- Do not remove from chair unless absolutely necessary
- Secure wheelchair
- Fasten seatbelt loosely to prevent falling from chair.
- Support & Protect head
- Keep airway open and allow secretions to flow from mouth
- Pad wheelchair to prevent further injury
- Follow student's seizure first aid plan.

**Status Epilepticus:**
A Neurological Emergency

- 30 minutes or more of seizure activity
- 3 or more seizures within 1 hour
- Continuous / seizure after seizure without stopping
- Life threatening—Seek immediate emergency care

**What makes a seizure an EMERGENCY?**

- First time seizure
- Convulsive seizure lasting >5 minutes
- Repeated seizures without regaining awareness
- More seizures than usual, or change in type
- Student is injured, has diabetes or is pregnant
- Fluid has been inhaled into lungs
- Distance to medical help is unknown or excessive

**Incidence of Seizure Types**

Over ⅓ of all epilepsy seizures are partial seizures!

Less than ⅓ are convulsive!

What can seizures look like:

- Fainting
- Migraines
- Behavior disorders
  - ADHD
  - Oppositional Defiant Disorder
- Sleep disorders
- Tourette’s
- Panic Attacks
- Movement disorders
- Psychogenic Non-Epileptic Attack (PNEA)

Seizure? or Behavior?

SEIZURES ARE:
- Stereotypical
  - Same behaviors
  - In the same sequence
- Paroxysmal
  - Sudden
  - Unexpected
- Unchanged by behavior modification

BEHAVIORS ARE:
- Variable, situation dependent
- A response to specific situation or stimuli
- Altered by behavior modification techniques

LOOK FOR A PATTERN!

Seizure Observation

- Detailed seizure reporting helps the treating physician.
- Identifies:
  - seizure triggers
  - patterns
  - precautions

Seizure Triggers

- Missed or late medication (#1 reason)
- Stress/anxiety
- Lack of sleep / fatigue
- Poor diet / Missed meals
- Constipation / Full bladder
- Drug interactions (antibiotics!)
- Menstruation
- Flashing lights
- Hyperventilation
- Overheating/overexertion

Treatment of Epilepsy

- Lifestyle changes
- Medication
- Surgery
  - Brain surgery
  - VNS = Vagus Nerve Stimulator
- Diet Therapies

Seizure Observation Form available from:
www.epilepsyfoundation.org
Lifestyle Changes Can Help

- **Dietary:**
  - Caffeine – Avoid it!
  - Insulin spikes – Avoid them! (eat a low glycemic diet)
  - No alcohol
- **Regular Schedule & Sleep** (Get enough of it!)
- **Stress**
  - Avoid it
  - Use relaxation techniques
- **Avoid Seizure Triggers**
  - Flashing lights in only 1 to 3% of people with epilepsy

Medication: The Main Therapy

- **Monotherapy** control in 50-60%
- **Polytherapy:** additional 10-20% controlled
- **Treatment resistant:** 20-30%
- **Side effects!** All epilepsy drugs have potential side effects, some serious.

Side Effects Bus Drivers May See

- **Sleep:** Difficulty falling asleep / staying asleep / Sleeping all the time
- **Appetite:** \( \uparrow \) OR \( \downarrow \)
- **Behavior:** Hyperactivity and/or Aggression
- **Fatigue, Dizziness, Blurred Vision**
- **Slowed thinking:**
  - Forgetfulness
  - Short term memory problems
  - Word recall problems

Dangerous Side Effects

- **Liver** inflammation / failure
- **Blood**
  - Aplastic Anemia
  - Seriously low white blood cell counts
  - Seriously low platelet counts
- **RASH!** – Stevens-Johnson Syndrome
  - Any epilepsy patient with a rash should consult their treating physician immediately

RASH: Refer to physician

**Mild Stevens-Johnson Syndrome**

Danger: Refer to physician

More AED Side Effects

- **Some antibiotics** decrease effectiveness
- **Bone loss** – osteoporosis
- **Dental** – gum overgrowth & swelling
- **Leg cramps**
- **Skin** – Acne, rash, brown spots
- **Hair** – overgrowth OR breakage/loss
VNS: Vagus Nerve Stimulator

VNS: Difficulties

• Side Effects
  – Coughing
  – Hoarseness or voice changes
  – Shortness of breath
  – Throat pain
  – Sleep apnea

• Must be programmed and reprogrammed
• Battery runs out & must be changed surgically

First Aid: VNS Magnet

✓ One quick swipe of magnet over device (usually left chest just below collarbone).
✓ Wait 1 minute and swipe again if needed.

Rescue Medications

Rectal diazepam gel
Bucal lorazepam (Ativan)
Midazolam Nasal Spray

Seizure Preparedness at School

• Forms available from Epilepsy Foundation
  ✓ Seizure Action Plan
  ✓ Parent Questionnaire (Child has Epilepsy)
  ✓ Seizure Observation Record
• www.epilepsyfoundation.org/livingwithepilepsy/educators/societies/schoollnurseprogram/index.cfm

Seizure Action Plan

• Individualized
  – seizure/health information
  – seizure first aid & emergency response
• Prepared by: School Nurse & Parents
• Approved by: Treating physician
• Distributed to relevant school personnel
  – At diagnosis
  – At beginning of school year,
  – Change in health status occurs
Epilepsy Education for Students

• Elementary: “Thinking About Epilepsy”

• Middle/High School: “Take Charge of the Facts”

Seizure First Aid: Review

• Basic first aid depends on type of seizure:
  – No change in consciousness (Simple Partial Seizure)
  – Altered Awareness (Complex Partial Seizure and Absence)
  – Loss of Consciousness / Convulsions (Generalized Tonic-Clonic)

Seizure First Aid: Review

• Stay calm!
• Most seizures are not medical emergencies
• Always time a seizure!
• Nothing in the mouth
• Don’t hold down

Epilepsy Foundation Video

Share this video!

http://www.epilepsyfoundation.org/livingwithepilepsy/educators/index.cfm

(Scroll to bottom of page.)

People with epilepsy:

Supreme Court Justices

And Doctors

Resources

• Epilepsy Foundation: (800) 332-1000, Email: ContactUs@efa.org, www.epilepsyfoundation.org

• Your local affiliate: EFNCIL, (800) 221-2689 www.epilepsyheartland.org

• www.epilepsyclassroom.com

• www.epilepsy.com