Seizure Management

Guideline: People with epilepsy and other seizure disorders should receive comprehensive care that includes accurate diagnosis, a plan of care, and prompt treatment.

DEFINITIONS:

Seizure: An epileptic seizure is an event or transient occurrence of signs and/or symptoms due to abnormal excessive or synchronous neuronal activity in the brain.[1]

Epilepsy: Epilepsy is a disease characterized by an enduring predisposition to generate epileptic seizures and by the neurobiological, cognitive, psychological, and social consequences of this condition. It involves recurrent unprovoked seizures.

A person is considered to have epilepsy if they meet any of the following conditions:

1. At least two unprovoked (or reflex) seizures occurring greater than 24 hours apart.
2. One unprovoked (or reflex) seizure and a probability of further seizures similar to the general reoccurrence risk (at least 60%) after two unprovoked seizures, occurring over the next 10 years.
3. Diagnosis of an epilepsy syndrome. Epilepsy is considered to be resolved for individuals who had an age-dependent epilepsy syndrome but are past the applicable age or those who have remained seizure-free for the last 10 years, with no seizure medicines for the last 5 years.[1]

Status Epilepticus: Any seizure lasting greater than 5 minutes. Status epilepticus is said to occur when a seizure lasts too long or when seizures occur close together and the person doesn't recover between seizures. Just like there are different types of seizures, there are also different types of status epilepticus.[2]

Vagus Nerve Stimulation (VNS): Vagus nerve stimulation is designed to prevent seizures by sending regular, mild pulses of electrical energy to the brain via the vagus nerve. These pulses are supplied by a device something like a pacemaker. During episodes of increased seizure activity additional impulses can be sent placing a specialized magnet near the site of the VNS device which may help stop seizure activity. [3, 4]

Individual's record: A permanent legal document that provides comprehensive information about the individual's health care status.

Medical progress notes: The section of the individual's record where primary care providers document their findings and provide rationale for treatment plans.

Nursing notes: The section of the individual's record where nurses document their findings and report progress toward health-related goals.

Primary care providers: Physicians, nurse practitioners, and physician assistants who provide primary care services and are authorized to prescribe medications and treatment for people on their assigned caseloads.

RATIONALE:

1. The goal of treatment is to minimize the impact that seizures and antiepileptic drugs (AEDs) have on the individual. This will be accomplished through:
   a. early identification, evaluation, and classification of the seizures and type of epilepsy
   b. determining the etiology
   c. developing a plan of care and implementing appropriate treatment

RATIONALE cont'd

   d. adjusting treatment regimens as necessary to achieve optimal seizure control and cognitive performance, and
   e. providing follow-up care to monitor potential adverse effects of uncontrolled seizures or medications
3. The cooperation of all team members, including the individual, is required to establish optimal levels of seizure control.
4. The primary care provider or medical consultant is the only team member who can diagnose a seizure, classify the seizure type.
5. The primary care provider is the only member of the team who can order treatment.
6. The primary care provider must rely on the description of seizures by observers as well as diagnostic tests to make a reliable diagnosis.
7. Accurate descriptions of seizure activity and a system for recording and reporting the activity is essential to seizure management.
8. Because seizures frequently occur during the absence of professional staff, all staff involved with individuals who may have seizures should be trained in observing and recording seizure activity, and managing and protecting the individual during and after a seizure.

EXPECTED OUTCOMES:

Comprehensive documentation by health care professionals

1. Nursing and medical documentation should include observations, reports, plans, interventions, responses to and outcomes of care. Requests for medical consultation and responses should be documented.
2. All documentation should be dated and signed by the writer at the time it is completed.
3. The review of diagnostic reports should be initialed and dated at time of review.

Medical Assessment

Medical assessment will be completed and documented in the individual's record.

1. Documentation of initial medical history and physical should include the date of seizure onset, type and frequency of seizures, description of typical seizures, previous antiepileptic drugs (AEDs) used, and the date of the last seizure.
2. Seizure status and tolerance to medication should be documented in the medical progress notes at least annually for those people whose seizure control is satisfactory and more frequently for those who have active seizure disorders.
3. The seizure frequency, neurological status, and need for neurological consultation should be assessed on a regular basis. The assessment may take place at the time of the annual physical examination and more frequently as needed. Documentation of such assessment should be documented in the progress notes section of the individual's medical record.
4. Every patient who has had a seizure does not need to be followed by a neurologist, but referral should be considered under certain circumstances:
   a. for people with new onset of seizures
   b. to confirm the diagnosis of epilepsy
   c. to clarify seizure type
   d. to differentiate seizures from non-epileptic movement disorders or behavior
   e. to obtain recommendations for further evaluation
   f. to evaluate unexplained abnormalities on the neurological examination

Medical Assessment cont'd

g. when there is uncertainty about the etiology of seizures
h. when there is failure to achieve optimum control of seizures within 3 months
i. when breakthrough occurs after there has been good seizure control with adequate AED levels
j. when there is a change in the type of seizure
k. when unacceptable side effects indicate the need for alternate therapy choices
l. when initial monotherapy trial produces an allergic reaction
m. before embarking on combination therapy (polypharmacy)
n. when a MRI or CT Brain Scan shows any abnormality
o. when further advice is needed regarding driving, employment restrictions, or other safety restrictions
p. when considering withdrawal of anticonvulsants
q. when the onset or reoccurrence of seizures is associated with declining school performance behavior disturbances, or developmental regression
r. for people who have been seizure-free for 2 to 4 years and still receive anticonvulsant medication
s. when the physician and various team members agree that seizure activity is infrequent and of a brief, mild nature that the individual could be at greater risk from side effects of the medication than effects of seizure activity.

Initial intervention at time of seizure activity

Proper interventions should take place at the time of seizure activity.

1. Staff observing the seizure activity should notify the nurse and provide an accurate description of the clinical presentation.
2. **Staff should notify the nurse immediately if the individual continues to seize for more than two (2) consecutive minutes or the individual experiences two (2) or more generalized seizures without full recovery of consciousness between seizures.**
   a. The nurse should assess the condition of the individual immediately after receiving the call for assistance. The assessment should include the individual's level of cardio-pulmonary risk. Any action taken, including a request for medical consultation, should be documented in the nursing notes.
   b. The nurse should continue to follow the procedures outlined in Appendix 2: Status Epilepticus (page 8) documenting reported observations, personal observations, actions taken, and the individual's response to treatment in the nursing notes.

Nursing Assessment

Nursing assessment of seizure activity should occur and be documented in the nursing notes. (See Appendix 1: General Guidelines, page7)

1. Appropriate information about what occurred during the ictal (active seizure) phase should be documented. If the nurse does not actually witness the seizure, persons present should be consulted to obtain the information.
2. The individual should be monitored during the postictal phase (after the seizure). The individual's postictal condition and activity should be documented.

Diagnostic Reasoning

Significant or unusual findings should be reported immediately to the primary care prescriber.

The decision of what to report is based on review of the seizure characteristics as well as the seizure history which includes:

1. current seizure medications and past history
2. current frequency of seizures, date of last seizure, and type and characteristics of seizures
3. any complications or injuries related to the seizures
4. neurological consultation reports including results of specified follow-up, EEG reports, and results, and recent serum anticonvulsant levels.

Planning

Planning strategies related to seizure management should be clear, documented, and available to members of the interdisciplinary team.

1. The following information should be included in the nursing health assessment report and in the Interdisciplinary Program Plan (IPP) as needed:
   a. The individual's risk factors and actual or potential health problems
   b. Information regarding the type, frequency, and pattern of seizure activity; precipitating and associated factors
   c. Trends in seizure activity
   d. Information about the potential and actual side effects of the currently prescribed and historical anticonvulsant medications.
2. Drug-drug interactions and justification for polypharmacy should be documented in medical progress notes and IPP.
3. If the individual receives psychotropic medication, information about the individual's seizure status and anticonvulsant medications should be discussed and documented as part of the individual's Psychotropic Drug Review Plan.
4. Training sessions for direct care staff as well as other team members should occur. These sessions should include specific issues related to the individual's seizures as well as overall observation, management, documentation, and safety issues related to seizure activity. All staff should be trained in the use of the VNS magnet. Refresher training should occur on a regular basis.
5. Specific activities developed to eliminate and reduce seizures should be included in the Single Plan, as needed. This may include activities related to prevention of injuries and secondary complications.

Implementation

Treatment plans should be implemented and results documented.

1. The individual's seizure activity should be accurately documented in the individual's record. Periodic review to identify trends and changes should be conducted by nursing staff and primary care providers.
2. Serum anticonvulsant levels should be completed according to current accepted guidelines on the use of anticonvulsant medications.
3. Peak serum anticonvulsant levels should be obtained at any point that drug toxicity is suspected. Trough levels should be obtained if seizures persist or frequency increases.

Implementation cont'd

4. Medications should be adjusted based on the person's clinical and laboratory status. Doses of medication are generally not modified until there has been adequate time to establish responsiveness and for the medication to reach a steady state. Undesirable side effects may indicate the need for dosage reduction or a change in medication. Alterations are contingent on the primary care provider's assessment of the person's clinical status and serum anticonvulsant levels. Rationale for changes in medication should be documented in the medical progress notes.
5. Abrupt discontinuation of medication should be avoided. Rationale should be documented in the medical progress notes.
6. Seizure control, not serum anticonvulsant levels, should be used as the primary indicator for adjusting doses of medication. When effective seizure control is obtained with doses of anticonvulsants that produce serum anticonvulsant levels above or below the therapeutic range, the primary care provider should document the effectiveness and the decision to maintain the dosage as prescribed.
7. Gradual reduction with eventual discontinuation of anticonvulsant medications may be considered if the person has been seizure free for 2-4 years. Rationale for decisions made should be documented in the medical progress notes.[5]

Evaluation

The seizure management plan should be evaluated on a regular basis.

1. A summary of the treatment regimen should be included in the person's IPP.
2. A summary of the types, descriptions, frequency, and duration of the seizure activity should be documented as part of the annual medical history.
3. Side effects and untoward interactions of medications should be documented and reported immediately to the primary care provider.
4. Seizure records should be reviewed on a regular basis for trends. Changes in seizure activity (type and/or frequency) should be reported to the primary care provider.

Appendices:

Note: The International Classification of Seizures is under revision. When complete, it may be retrieved from the International League Against Epilepsy website: **http://www.ilae.org.**

Appendix 1: General Guidelines for Care During and After a Seizure

During a seizure: *(Ictal stage)*

1. Ensure adequate ventilation
   a. Loosen clothing, postural support devices and/or restraints.
   b. DO NOT try to force an airway or tongue blade through clenched teeth.
   c. Give oxygen by nasal cannula or mask.
   d. Suction as necessary.
   e. Turn the person into a side-lying position as soon as convulsing has stopped.
2. Protect the person from injury (e.g., help break fall, clear the area of furniture).
3. If the individual has a VNS, locate and use per manufacturer's instructions.
4. DO NOT restrain movement.
5. Remain with the person and give verbal reassurance.
6. Observe and document the following: (See Appendix 5 for electronic medical record)
   a. Date, time of onset, duration
   b. Activity at time of onset
   c. Presence of aura (if known)
   d. Movements *(site of onset of first movement is very important as well as pattern or order of progression or spreading involvement)*
      - Head/face (twitching/grimacing; up/down; extended/flexed; teeth and/or jaw clenched)
      - Extremities (rigid/jerking, symmetrical/rhythmic, extended/flexed)
      - Postural changes (stiff, relaxed, writhing, tremulous, arching back)
   e. Level of consciousness (confused, dazed, excited, unconscious)
   f. Respirations (impaired/absent, rhythm, and rate)
   g. Skin changes (color – pale/cyanotic; temperature – cool/warm; moist/dry/clammy)
   h. Deviation of eyes or head to particular side
   j. Eyes (pupillary size and reaction to light; open, rolling or closed; eyelids flickering
   k. Tongue or cheek bitten
   l. Frothing
   m. Speech difficulty
   n. Presence of other unusual and/or inappropriate behaviors
7. Provide as much privacy as possible for the individual during and after seizure activity.
8. Provide other supportive therapy as ordered by physician or according to facility protocol.

After the Seizure: *(Postictal Stage)*

1. After the seizure activity has ceased, continue to observe, assess, and record responses and activity until the person returns to baseline.
2. Allow the individual to sleep; reorient upon awakening. *(The individual may experience amnesia; reorientation can help regain a sense of control and help reduce anxiety.)*
3. Conduct a post seizure evaluation
   a. What was the person doing prior to the seizure?
   b. Was this the first seizure?
   c. Were there factors that could have triggered the seizure activity? (See Appendix 3 – Possible Precipitating Factors of Seizures)
   d. Does the person have other illnesses?
   e. Is the medication regimen appropriate? (Review current medications including recent changes in medicine and/or dose.)

Appendix 2: Status Epilepticus

What is Status Epilepticus? Experts modified the definition of status epilepticus in 2014 to be a seizure lasting greater than 5 minutes. Status epilepticus is said to occur when a seizure lasts too long or when seizures occur close together and the person doesn't recover between seizures. Just like there are different types of seizures, there are also different types of status epilepticus.[2]

Goals of treatment:

1. All episodes of status epilepticus will be recognized and treated according to accepted standards of medical care.
2. When convulsive status epilepticus is identified, the individual should receive prompt and complete care.
3. Treatment should result in termination of seizure activity with minimal depression of consciousness and cardiopulmonary function.

Immediate response to seizure activity:

1. Staff should notify the nurse when a seizure continues for more than **two** consecutive minutes, or when the individual experiences two or more brief generalized seizures in less than an hour with or without full recovery of consciousness between seizures.
2. The nurse should assess the condition immediately after receiving the call for assistance.
    a. The assessment includes the level of cardiopulmonary risk.
    b. If appropriate, instructions should be given to staff to stabilize the patient:
        1. start oxygen by nasal cannula or mask
        2. position patient's head for optimal airway patency
        3. obtain and record vital signs including pulse oximetry, and/or
        4. suction periodically
        5. time the length of seizure activity
    c. Results of the observations made by staff, the nurse's assessment, and the action taken should be documented in the nursing notes.
3. A call to EMS should be placed by any employee who witnesses an individual in status epilepticus and/or for those who appear in cardiac or respiratory distress.
4. If the seizure activity continues, the nurse should implement medical protocols per primary care provider's orders and call EMS to transport the individual to an acute care facility, if onsite medical consultation is not immediately available.
5. An immediate plan of care should be determined through initial nursing assessment and medical consultation.
    a. Orders should be documented in the medical order section of the chart.
    b. The overall plan of care should be documented in the nursing notes.
6. If Diazepam rectal gel (Diastat) is part of the individual's ongoing medical plan of care for increased seizure activity, it should be given per primary care provider's orders and documented per policy.
7. If the individual has a Vagal Nerve Simulator, the magnet should be used per prescriber's orders. Use of the magnet and the individual's response should be documented.

Appendix 3: Possible Precipitating Factors for Seizures

CONDITIONS	FACTORS
Physical	• Overexertion • Fatigue • Sleep deprivation • Alteration in bowel elimination - constipation • Fever • Recent head trauma • Concurrent illness/infection • Overhydration • Hyperventilation • Excesses in caffeine, sugar, and other foods
Psychosocial/emotional	• Stress • Depression • Anxiety • Psychosis • Anger
Metabolic and Electrolyte Imbalance	• Low blood glucose • Low sodium • Low calcium • Low magnesium • Dehydration
Medication or chemical	• Reduction or inadequate treatment of AEDs • Withdrawal of alcohol or other sedative agents • Administration of drugs with pro-convulsant properties (e.g., central nervous system stimulants and anticholinergics including over the counter antihistamines) • Most dopamine blocking agents • Newer antipsychotics, particularly clozapine • Antidepressants, especially buproprion • Immune suppressants such as cyclosporine • Antibiotics such as quinolones or imipenem/cilastatin • Toxins
Hormonal Variations	• Menstruation • Ovulation • Pregnancy
Environmental	• Particular odors • Bright, flashing lights; poorly adjusted TV and computer screens • Noisy environment

Appendix 4: Monitoring Antiepileptic Drug Levels

WHEN SHOULD TROUGH SERUM AED LEVELS BE MEASURED?

1. After an AED has been started, usually 2-3 weeks after initiation of therapy or deletion of an AED during polypharmacy therapy.
2. When the individual has to take other medication that may affect the metabolism of the AED(s).
3. Any time an unexpected response occurs.
4. At the first sign of clinical or laboratory toxicity.
5. When medical problems develop, particularly problems involving hepatic, renal, or hematopoietic function.
6. When any unexplained change in clinical status occurs, e.g. “breakthrough” seizure, change in mental status.
7. If compliance with medication regimen is a possible issue.
8. If clinical toxicity occurs an AED level may not be necessary depending on the plan of care determined by the treating/consultation physician. For instance, if a plan of care to reduce the dose is made, a medication level is not necessary unless symptoms persist.

THERAPEUTIC LEVELS

Most of the antiepileptic drugs (AEDs) have a blood level range which is considered "therapeutic" based on averages. There are individuals who respond to levels either above or below the standard range. The tests measure the total drug concentration, which includes drugs are bound to albumin as well as unbound drugs. Since the activity of the drug is based on unbound drug, individuals who have reduced blood proteins, or have their bound anticonvulsant displaced by another drug, may vary in response. They may show toxicity at a level which is generally considered in the therapeutic range or may show therapeutic effect at a level below the range. Other individuals may require higher levels for control and be able to tolerate that level without toxicity. All of this must be considered before simply adjusting a drug dose based on a blood level.

CONCLUSION

For best results, as well as being able to compare changing levels with clinical findings, it is recommended that all blood to be tested for AED levels be drawn in the morning before any medication is given. The exception would be cases where toxicity is suspected and sampling is requested for the time when the peak level is expected to occur.

When interpreting the test results, individual variation and clinical observation should be taken into consideration. As long as toxicity is not a factor, taking one drug to higher levels before adding another is the preferred approach. This prevents the interactions that can occur with multiple AEDs and simplifies therapy. In trying to simplify existing regimens, withdrawing one drug at a time rather than several simultaneously is recommended. If seizures occur, it is easier to reassess the situation and possibly raise one of the other drugs as the withdrawal process continues.

Appendix 5: Documenting Seizure Activity in Therap © Electronic Health Record

Seizures (See Health Tab)

Form ID: THTZ-SALCTSC-DAV4RXUYTDE8G
Status: New
Entered By:

Section 1- General Information

Individual Name*		Individual
Program Name*	*Please Select*	The individuals program/residence
Time Zone	*Auto populated*	Completed by the computer
Entered By	*Auto populated*	Completed by the computer
Reported By*		If reported by someone else, click the caret and select their name from the drop down menu.
If Other		Use this if the staff or person reporting is not on the list under Reported By
Date*	08/01/2015	Date of the event
Notification Level	*Please Select*	See list below
	Low if no medical treatment is needed and no injury occurs, **Medium** if medical treatment is needed (ex., if Nurse gives Diastat) and/or injury occurs, **High** if hospitalization required.	

Section 2 –Seizure information

If not at Program site *Please Select* If on campus **do not** select

If Other

Begin Time ☐ : ☐ am pm

Seizure Duration ☐ Min ☐ Sec

Description (What was the individual's body and/or behaviors during the seizure event. Select "(**Add**)")

(Add)

Description of Seizure (WINDOW)

- ☐ Biting of tongue/lips
- ☐ Chewing/ Lip smacking
- ☐ Crying Out
- ☐ Dancing or Twirling
- ☐ Drooling
- ☐ Eyes downward
- ☐ Eyes upward
- ☐ Falling to the floor
- ☐ Fidgeting with objects
- ☐ Head and eyes turned to the left
- ☐ Head and eyes turned to the right
- ☐ Head Drop
- ☐ Jerking while conscious
- ☐ Jerky arm movements left side
- ☐ Jerky arm movements right side
- ☐ Limp body
- ☐ Loss of bladder control
- ☐ Loss of bowel control
- ☐ Nausea/Vomiting
- ☐ Picking at clothes/ taking off clothes
- ☐ Rapid blinking of eyes and/or small twitching movements
- ☐ Rigid body
- ☐ Running

Respiration

- ☐ Absent
- ☐ Deep
- ☐ Fast
- ☐ Normal
- ☐ Shallow
- ☐ Slow

Skin Color

- ☐ Ashen
- ☐ Cyanotic
- ☐ Flush
- ☐ Pale
- ☐ Pink
- ☐

- [ ] Staring spell
- [ ] Sudden dropping of objects
- [ ] Unconscious
- [ ] Unresponsive
- [ ] Violent shaking of entire body
- [ ] Head drop

Other

Behavior After Seizure (What was the individual like after the seizure event was over. Select (**Add)**

(**Add**)

Description of Behavior After Seizure (WINDOW)

- [ ] Complaints of headache
- [ ] Confused
- [ ] Deep Sleep
- [ ] Dizziness
- [ ] Drowsiness
- [ ] Fever
- [ ] Inability to walk or stand
- [ ] Irritability
- [ ] Problems with vision
- [ ] Return to activity engaged in prior to seizure

Other

Staff Actions (What did the staff do for the individual during the seizure event. Select (**Add**)

(**Add**)

Staff Action List (WINDOW)

- [ ] Used Vagus Nerve Stimulator
- [ ] Turned person to side
- [ ] Placed soft material under head
- [ ] Loosened clothing around neck
- [ ] Maintained safe environment
- [ ] Administered Diazepam Rectal Gel (Diastat AcuDial)
- [ ] Contacted Nurse
- [ ] Contacted Doctor
- [ ] Contacted Emergency Services

Other

Precipitation Factors

About 3000 characters left

Reporter or Nursing: If you know of any factors that brought the seizure on, enter that here

Resulting Injuries

About 3000 characters left

Nursing: If an injury occurred due to the seizure, enter in **Resulting Injuries**, and complete **GER** unless staff has already posted a GER.

Comments

About 3000 characters left

Not required for every event.
Users can enter any comments related to the seizure event, i.e. individuals actions, description, staff actions taken that were not recorded above

Reporter

1. When complete, click **Submit**.
2. Click **Save** only if you are not yet finished and has more information to document, but have to step away for a time.
3. Notify the nurse that a seizure event has occurred so that they can assess the individual.
4. To verify if an individual has a seizure disorder, please contact the nurse or see diagnosis information under the Individual Home Page tab.

Nursing, once the nurse has assessed the individual, they will enter the same report and add their documentation on the event.

Narrative Instructions

1. To document a seizure event,
2. Go to the **Health tab** to **Seizures**,
3. Click **New,** enter 3 letters of individual's last name then select name when selection window appears.
4. Select **program** (unit).
5. Your name automatically appears for **Reported By**. If reported by someone else, click the caret and select their name from the drop down menu.
6. Today's date automatically appears – change it only if entering data for a different date.
7. **Notification level** is **Low** if no medical treatment is needed and no injury occurs, **Medium** if medical treatment is needed (ex., if Nurse gives Diastat) and/or injury occurs, **High** if hospitalization required.
8. Add time and duration.
9. For **Description** of seizure, **Behavior after seizure**, and **Staff Action** click **Add**, then select appropriate menu item(s) by clicking the box in front of the desired item.
10. If you know of any factors that brought the seizure on, enter that in **Precipitating Factors**.
11. If an injury occurred due to the seizure, enter in **Resulting Injuries** and complete **GER**.
12. When complete, click **Submit**.
13. Click **Save** only if you are not yet finished and has more information to document, but have to step away for a time.
14. Notify the nurse that seizure event has occurred so that they can assess the individual.
15. To verify if an individual has a seizure disorder, please contact the nurse or see diagnosis information under the Individual Home Page tab.
16. Nurses: If Diastat is used, remember to initiate the Diastat Protocol.

Nursing: Once the nurse has assessed the individual, they will enter the same report and add their documentation on the event.

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