Seizures

895.10
THE NORTH DAKOTA
STATEWIDE
DEVELOPMENTAL
DISABILITIES STAFF
TRAINING PROGRAM

December, 2016

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UNIT 1: Introduction

Some of the people who receive support from this agency have epilepsy. To ensure that they receive the best possible care, staff must be able to:

- **Find information about an individual's seizure disorder**
- **Recognize seizure activity**
- **Accurately document seizure activity**
- **Assist during/after seizures**
- **Assist with medical visits**
- **Assist people in following medication schedules**
- **Observe for medication side effects**
- **Assist people adjusting to having seizures**
- **Assist people to recognize and modify those environmental factors that cause seizures**

SEIZURES TAKE MANY FORMS

The general public often thinks of a seizure as a violent, thrashing attack with loss of consciousness, foaming at the mouth and biting of the tongue. The terms, "convulsion", "spell", "fit", and "attack" are often used by the general public synonymously with the term seizure. However, there are over 20 forms of seizure activity. The majority DO NOT involve the events described above.

Because some seizures are difficult to tell from ordinary behavior, one must be able to recognize the various forms of seizure activity. It is important for staff to be familiar with each person's plan to provide individualized supports and report the event accurately. Uncontrolled seizure activity will interfere with the individual's health, safety, and ability to carry out a healthy lifestyle. Accurate information about events leading to, during, and after a seizure is vital to the physician's diagnosis and treatment of a person with seizures and to staff who assist the person to modify environmental factors that cause seizures. Some common terms need to be clarified:

Epilepsy: A tendency to have recurring seizures, usually resulting from a disorder of the central nervous system.

Seizure: Uncontrolled electrical discharge of brain cells, symptom of disturbed brain function.

Convulsion: Term used to describe the muscular contractions and jerking movements associated with tonic-clonic seizures.

CAUSES

Seizures are usually related to one of the following causes:

- Genetic (the genetic process, such as tuberous sclerosis). If one parent has epilepsy, the risk for children is about 6%: if both parents have epilepsy, the risk is about 12%.

- Gestational, perinatal or neonatal (a problem during fetal development, delivery or infancy, such as lack of oxygen).

- Infection (for example, relating to meningitis or encephalitis).

- Accidents (resulting from severe head injury such as in car and motorcycle accidents or contact sports).

- Tumor.

- Vascular (relating to stroke or other problems of the circulatory system).

- Poisoning (such as lead poisoning, alcoholism, drugs).

- Alterations in blood sugar, vitamin deficiencies, dehydration, or imbalance of minerals such as calcium, potassium, and/or magnesium.

- Degenerative disease such as Alzheimer's and Sturge-Weber syndrome (a rare, congenital, and progressive condition that affects the skin and the brain).

The cause of most epilepsy is unknown, and is referred to as idiopathic epilepsy.

Self-assessment

Check your understanding of this section's content by completing this self-assessment.

1. List at least six possible causes of seizure activity.

2. Match the following terms with the definitions below.
   _____ Seizure

   _____Epilepsy

   _____Convulsion

A. A tendency to have recurring seizures, usually resulting from a disorder of the central nervous system.
B. Term used to describe the muscular contractions and jerking movements associated with tonic-clonic seizures.
C. Uncontrolled electrical discharge of brain cells, symptom of disturbed brain function.

PREVALENCE

Given the right circumstance, anyone can have a seizure. Epilepsy is the fourth most common neurological disorder in the United States after migraine, stroke, and Alzheimer's disease. About 1 in 26 will develop epilepsy at some point in their lives. The number of Americans who have epilepsy is greater than the number who have multiple sclerosis, Parkinson's disease, and cerebral palsy combined.

Epilepsy is prevalent among people diagnosed with Autism, Cerebral Palsy, Down Syndrome, and Intellectual Disability.

Anyone can develop epilepsy at any time. Incidence is highest among the very young and the very old.

Reducing the risk of epilepsy focuses on avoiding head injuries and/or brain damage by:

a. wearing protective head gear when riding motorcycles, engaging in contact sports, etc.
b. using seat belts
c. limiting use of illicit drugs and alcohol
d. receiving good prenatal care
e. receiving prompt medical treatment for all head injuries
f. eating a balanced diet
g. childhood vaccinations and good medical care
h. receiving genetic counseling

In summary, epilepsy takes many forms and has many causes. It is the staff member's responsibility to recognize, observe, document and review an individual's personal plan to assist the individual during seizure activity and modify the environmental factors that cause seizures. To view "10 Truths About Epilepsy" please go to the following site: http://www.epilepsy.com/atom/1121

Self-assessment

Check your understanding of this section's content by completing this self-assessment.

3. List at least five ways to reduce the risk of epilepsy.
4. T F The cause of most epilepsy is unknown.
5. T F Given the right circumstance, anyone can have a seizure.
6. T F Most epilepsy diagnosis occur after the age of 18.

UNIT 2: Recognizing Seizures

After completing this unit, staff members will be able to:

- **Differentiate between facts and fiction about seizures**
- **Trace the "electrical" circuitry of the brain and tell what it does to induce seizures**
- **Differentiate between Partial and Generalized Seizures**
- **Define what the term "Aura" means and how the recognition of the "aura" will assist recognition of oncoming seizures**

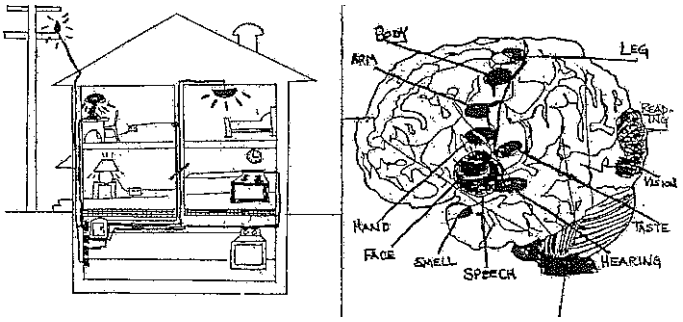
While it is not the staff member's responsibility to diagnose a seizure, his/her awareness of certain behaviors that indicate a seizure pattern will allow him/her to accurately document and report this information to the appropriate medical personnel. As you read about seizure types, keep in mind the following factors:

- There are many types of seizures. Some types are difficult to distinguish from ordinary and predictable behavior. What may appear to be a temper tantrum or sudden unexplained behavior (i.e., lip smacking, grimaces, pulling at clothing) could actually be a form of seizure activity.
- A person with multiple disabilities is more likely to have several types of seizure patterns.
- Seizure patterns can frequently change over time, particularly in children.
- There are times when seizure activity can require immediate hospital care. However, most of the time, a seizure is not considered a medical emergency.

BRAIN CIRCUITRY

If staff members think of the brain as a system of electrical circuitry such as found in a house, then it might be easier for them to understand how short circuiting in the brain (the seizure) can result in so many different kinds of observable behavior.

CIRCUITS



In many houses there is an electrical circuitry that allows the transmission of electricity to the washing machine, another to the dishwasher, and yet another to the furnace. They are centralized in one circuit box.

If the washing machine doesn't work, one checks the circuit box for the circuit breaker or the fuse that controls that part of the house. If all of the appliances and lights go out, one knows there is a

failure in the master control circuit. In the upper brain, various parts and functions of the body are controlled by different "circuits." The arm and leg on the left side of the body are directed by definite areas on the right side of the brain. The right side of the brain controls movements on the left. Deep inside the brain toward the base of the skull are the portions of nerve tissue that control consciousness, breathing, circulation and other basic functions of the body (the master circuit box).

AURA

"Aura" is used to describe the early sensations of some seizures. These sensations may last anywhere from a few seconds to days. A person with epilepsy experiences the same sensations each time an aura occurs. Some examples of auras are:

- A peculiar sensation in the abdomen
- A "funny feeling" all over the body
- The person reports feeling (or acts) differently, but can't describe the sensation
- Abdominal pain or distress
- Tingling, numbness or pain in various parts of the body
- Headache
- Sensations of movement in extremities not seen by anyone else
- Spots or various colors before the eyes
- Impaired vision
- Humming or buzzing sensation
- Sounds of musical patterns
- Dizziness or unsteadiness
- Peculiar or disagreeable tastes or odors
- Deja vu (an illusion of having already experienced something actually being experienced for the first time)

It is important to recognize and document auras, because they may help the physician to correctly decide where in the brain the seizure originates. This may help to identify the type of seizure activity and treatment. In addition, the aura can warn the individual or staff to prepare for the pending seizure activity.

Self-assessment

Check your understanding of this section's content by completing this self-assessment.

1. What is an aura?

2. List five examples of an aura.

3. List three reasons why it is important to recognize and document auras.

4. T F It is the staff member's responsibility to diagnose a seizure.

5. T F The left side of the brain controls the left side of the body.

TYPES OF SEIZURES

Seizures are categorized by the area of the brain where the seizure occurs as well as what outward signs are displayed by the person during the seizure. The most common types of seizures fall into two main categories, “partial” and "generalized".

Partial Seizures

Partial seizures, which include "simple partial" and "complex partial" are seizures that arise and occur in a specific place in the brain. What you observe will depend on where in the brain the seizure occurs.

Simple Partial Seizures begin with a specific symptom that reflects the particular part of the brain where the seizure originates, such as only a finger or hand shaking or uncontrollable jerking of the mouth. The person may speak nonsense, may be dizzy, or may experience unusual or unpleasant sights, sounds, odors, or tastes. People may also hear buzzes, see flashes of light, or have a feeling of anger or fear. Simple partial seizures have the following characteristics:

- They originate from a specific part of the brain.
- They may affect speech, the senses, or the muscles.

Other reportable seizures are motor and sensory seizures that cause one part of the brain to influence a particular set of muscles. Any motor behavior from repetitive movements of the arm to loss of bladder control may occur. These seizures are characterized by sensations that have no basis in reality. Flashes of light, rushing water and feelings of heaviness or lightness are some of the sensations commonly described.

There is no loss of consciousness in simple partial seizures unless it generalizes, in which case it is no longer a simple partial seizure. Partial seizures may develop rapidly into a generalized tonic-clonic seizure, in which case there will be loss of consciousness.

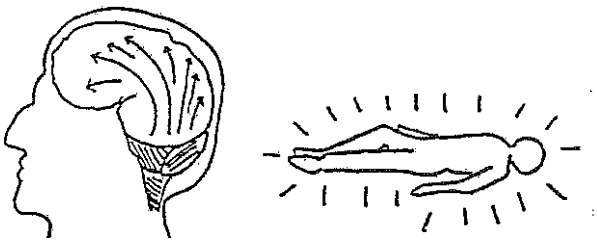
Complex Partial Seizures are perhaps the most complex of the seizure types and the most likely to be mistaken for behavioral problems or mental illness. Complex partial seizures originate in the temporal lobe of the brain (temple area) and can be difficult to control. This type of seizure is seen most in adults and occasionally in children. The seizures may involve only simple stereotyped movements accompanied by a blank stare, or it may

manifest itself as a series of bizarre behaviors not consistent with the person's ordinary behavior pattern. Complex partial seizures have the following features:

- They almost always include an "aura."
- They can involve a wide variety of behaviors, (e.g., fears, anxieties, sleepwalking, dreaming states, chewing, smacking movements of the mouth, wandering, staring expression, mental confusion, incoherent and irrelevant speech or mumbling, rubbing or fumbling of the hands, or running wildly). They are often mistaken for behavioral disorders such as mental illness or breakdown, drunkenness or being drugged, or other forms of epilepsy (such as absence seizures).
- The behavioral episode tends to repeat itself (each seizure tends to display the same "set" of behaviors).
- The "episode" usually lasts for only a few minutes. It can, however, go on for hours or days (in which case it would be complex partial status epilepticus).
- The person will usually have no memory of the event, as consciousness is impaired.

Generalized Seizures

Generalized seizures affect the entire brain. Two of the most common types of generalized seizures are the "tonic-clonic" and "absence" seizures.



Tonic-clonic seizures are one of the most well-known seizure types and account for about 10% of all seizures (making it one of the most common seizure disorders). In this type of seizure, the entire brain is affected. These seizures generally last 1 to 3 minutes. A tonic-clonic seizure that lasts longer than 5 minutes requires medical attention unless the person's plan states otherwise. The body and limbs contract and extend. This is usually then followed by tremors. Tonic-clonic seizures are the most dramatic of the seizure types and have the following characteristics:

- No aura (unless seizure activity originated as a partial seizure).
- All muscles stiffen, the individual loses consciousness and does not respond to others or the environment, and falls to the floor.
- May begin with a yell/cry as tightening chest muscles force air out of the lungs.
- During the tonic phase (10-30 seconds), the body becomes rigid, the legs begin to jerk

rapidly and rhythmically, bending and relaxing at the elbows, hips and knees.

- Breathing may become irregular and labored. The person may even stop breathing for a brief period of time. Because of the disruption in the person's breathing, his/her skin may look pale and lips and fingernail beds may have a bluish discoloration.

- There may be loss of bowel and bladder control, tongue biting, and excessive secretions in the mouth.

- Following the clonic (tremors) phase there is often a coma-like sleep and muscle limpness.

- When awakened, the person will probably be confused, and may have a headache or even have some speech difficulties for a short period following the seizure.

Absence seizures occur almost exclusively in children between the ages of four and thirteen. They typically involve a momentary lapse of consciousness during which the person is "psychologically absent." Absence seizures are often mistaken for daydreaming or are overlooked entirely. They generally disappear in adolescence, but can develop into a different seizure pattern. Absence seizures have the following features:

- There is no "aura."

- Seizures are brief (1-30 seconds) but frequent; a child may experience several hundred per day.

- Generally, absence seizures take one of the following two forms:

    - Simple absence is like a state of suspended animation.
    - Complex absence can include mild contractions of the upper extremities, eyes rolling or blinking, or fumbling with clothes.

- There is no confusion following the seizure. The person has no awareness of the event and will resume activities when the seizure ends.

- This type of seizure can change into a tonic-clonic seizure.

Self-assessment

Check your understanding of this section's content by completing this self-assessment.

6. List at least four features of complex partial seizures.

7. T F Some types of seizure activity are difficult to distinguish from ordinary and predictable behavior.

8. T F A person with multiple disabilities is more likely to have several types of seizure patterns.

9. T F Partial seizures are generated in isolated areas of the brain.

10. T F There is no loss of consciousness in simple partial seizures.

11. T F Partial seizures may develop rapidly into a generalized tonic-clonic seizure.

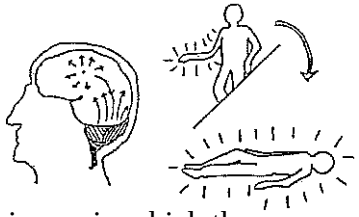
12. T F Complex partial seizures are most likely to be mistaken for behavior problems or mental illness.

13. T F Tonic-clonic seizures involve only part of the body.

14. List at least three situations involving seizure activity that may require emergency medical care.

15. T F Tonic-clonic seizures usually have no aura.

OTHER SEIZURE ACTIVITY



A partial seizure may spread and result in a generalized seizure.

Status epilepticus is defined as a prolonged seizure state or a series of seizures in which the seizure lasts longer than normal for the person or when seizures occur close together and the person doesn't recover to normal consciousness between seizures. This could happen with all types of seizures, however, status epilepticus occurring in connection with tonic-clonic seizures is a life threatening emergency. (Follow agency policies and procedures along with the person centered plan in case of life threatening emergencies such as status epilepticus.)

Febrile seizures (not considered epilepsy) are a frequent event in childhood triggered by fever. In the United States, approximately 40 percent of children who experience one febrile seizure will have a recurrence. The younger the child at the time of the first seizure, the greater the risk of repeat seizures. Children who experience febrile seizures are three to six times more likely to develop epilepsy than the general population. The risk for additional seizures is greatest during the two years following the febrile seizure. Factors such as neurological abnormality prior to the febrile seizure, prolonged febrile seizures, and family history of epilepsy increase the risk of epilepsy.

Infantile spasms (also not epilepsy) infantile spasms occur in children between three and eight months of age and are frequently associated with other developmental delays. The child exhibits flexion of the head and body.

Self-assessment

Check your understanding of this section's content by completing this self-assessment.

16. T F Children who experience febrile seizures are three to six times more likely to develop epilepsy than the general population.

17. T F Status epilepticus occurring in connection with tonic-clonic seizures is a life threatening emergency.

18. T F Absence seizures are most frequently outgrown during adolescence.

19. List one situation in which seizure activity is a life threatening emergency.

20. What is status epilepticus?

UNIT 3: Observing, Reporting, and Assisting

After completing this unit, staff members will be able to:

- **Understand the importance of observing and accurately reporting seizure activity**
- **Be able to accurately complete the agency's seizure report form**
- **Know the correct intervention for a tonic-clonic seizure**
- **Know the correct intervention for a psychomotor seizure**
- **Know the correct intervention when an individual is suspected to be in status epilepticus**
- **Know when medical attention should be obtained for a person experiencing seizure activity**
- **Know the general intervention procedures to follow when an individual experiences a seizure**

Staff have three important actions when an individual experiences a seizure: observing, reporting, and assisting.

OBSERVING AND REPORTING

Imagine that you provide residential supports for adolescents with intellectual disabilities.

> *One morning, Susan begins to act completely out of character. She hasn't been feeling well for the past few days. You've been working with her for about two years. Susan communicates using gestures. She is usually cheerful and friendly. Susan has been quiet and withdrawn lately. On June 20th, at 9:30 a.m. while helping do the dishes she tugged at your arm and pointed to her abdomen with a look of pain. Thirty minutes later she ran out the back door and began to run through heavy traffic. When you caught up to her, she yelled and hit you. After thirty minutes, she calmed down and seemed to be herself again.*

What would you do in this situation? (select all that apply)

a) Chalk the incident off to "adolescence" and hope it passes.
b) Document a descriptive report of the incident.
c) Report the incident immediately per your agency policy.
d) Not mention it to anyone because you're afraid that you will lose your job since you obviously couldn't control Susan.

If you indicated that you would report and document the incident immediately, that's correct.

The information that you document will be helpful for the physician in identifying the type of seizure and in managing the person's seizure disorder. Any documentation of seizure activity should include, but not be limited to, the following observations:

a. The activity that occurred just prior to the seizure. This is to determine if there are any precipitating factors like emotional distress causing the seizure.

b. Was there an aura or warning prior to the seizure?

c. What happened during the seizure?
   - What was the pattern of progression of the seizure? How did the seizure begin?
   - Movement of any part of the body.
   - Position of eyes, head, and body.
   - Responsiveness of person during the seizure.
   - Did the person lose bowel or bladder control?
   - How long did the seizure last?
   - Were there any injuries?

d. What was the person's mental status **following** the seizure? Was there confusion, sleepiness, headache, or an inability to speak or move after the seizure? Can the person remember the seizure?

In addition, the individual's overall medical record should include answers to the following questions:

- How often do seizures occur?
- How long do seizures last?
- What time of day do seizures occur?
- Is there any pattern (week, month, year)?
- Is the person on seizure medications?
- What is the response to the medication?

Self-assessment

Check your understanding of this section's content by completing this self-assessment.

1. List the three actions of staff members when an individual experiences a seizure.

2. What information should the individual's overall medical record include? List at least 4 questions.

ASSISTING

Since seizure disorders are so different in their effects, they require different kinds of action from staff. Some require no action at all, other than observing and reporting. However, **generalized tonic-clonic, complex partial, and status epilepticus** requires direct intervention by the staff at the time of the seizure.

Generalized Tonic-Clonic
The greatest concern during a generalized tonic-clonic seizure is injury to the head or extremities. Some things staff should do to help an individual during a generalized tonic-clonic seizure are as follows:

- Stay calm and observe the sequence of events during the seizure. Remember that once the seizure has started, there is typically nothing you can do to stop it. The seizure activity almost always ends spontaneously. If you know what to expect and what to do, it will help you to remain calm.
- Begin timing the seizure if you have a watch or if there is a clock handy. This will give you an accurate length of the seizure activity. When witnessing a seizure, seconds can seem like minutes.
- If the person is in a chair or sitting position, assist the person to the floor away from walls or furniture. Place something soft under the person's head, like a pillow or blanket. Caution: In some circumstances (i.e., when the person is in a wheelchair), it may be best to leave the person in a sitting position in their chair.
- If the person is in bed, remove the pillows and protect the individual from falling on the floor.
- Loosen any tight clothing around the person's neck and remove eyeglasses.
- Turn the person on their side as soon as you can. (This allows the secretions to drain from their mouth, preventing aspiration and also helps to maintain an open airway).
- Place protective padding between the individual and any structure (walls, floor, etc.) that may cause injury during convulsions.
- Do CPR **only** if breathing is absent and jerking movements have stopped.
- Document the seizure activity according to your program guidelines.

Be aware that the person may experience embarrassment, especially if the seizure happens in a public place. Explain the event calmly and reorient the individual to the surroundings during the period of confusion that may occur upon awakening. Staff member's casualness about the episode will reduce the individual's anxiety. Assist the person discretely in a way that preserves their dignity and provides the person with emotional support as needed.

DO

- Provide a change of clothing if the individual loses bowel or bladder control during the seizure.
- Provide a place for the individual to sleep during the period of deep sleep that usually follows the seizure. Keep the person in the side-lying position.
- Check the person for any possible injuries that may have occurred as a result of the seizure activity and provide first aid as necessary.
- Per agency policy, contact appropriate personnel if injury occurs, if the seizure occurs in water, or if the person may have aspirated food or vomit.

DON'T

- Put anything in the individual's mouth.
- Try to restrain the individual.
- Give the person anything to eat or drink until they are fully alert.
- Panic.

One's first few experiences with a person having a generalized tonic-clonic seizure can be disturbing. Stay calm. It will pass.

Self-assessment

Check your understanding of this section's content by completing this self-assessment.

3. List 5 things staff should do to assist a person having a generalized tonic-clonic seizure.

4. List at least 6 observations that the documentation of seizure activity should include.

Complex Partial

Because complex partial seizures present a wide variety of behaviors, intervention must be tailored to the needs of the person. If the person's behavior is restricted to activities that will not cause harm to him/herself or others, little active intervention is needed. If the person endangers him/herself or others, you must take measures to protect the person. Some general guidelines are to:

- Speak calmly
- Reassure the person
- Guide gently away from hazards
- Stay with the individual until he/she is completely alert

Remember: There is nothing staff members can do to bring the person back from his/her altered state of consciousness, however, they are obligated to protect the individual from harm.

RESPONDING TO EMERGENCIES

An uncomplicated convulsive seizure in someone who has epilepsy is not a medical emergency,

even though it may look like one. It will stop naturally after a few minutes without ill effects. The following are some suggestions to help decide whether or not to call an ambulance when someone has a seizure.

Status Epilepticus

Status epilepticus involving a tonic-clonic seizure is a life-threatening situation. Because of the possible harm resulting from prolonged seizures or status epilepticus, medical attention should be obtained immediately for seizures in which the individual does not regain consciousness, or if the seizure seems to last longer than is typical for that person. Follow your agency's procedures for a medical emergency.

There is **no need to call an ambulance** if:

- It is known that the person has epilepsy or a medical ID, jewelry, or card that says "epilepsy"
- If the seizure ends in under five minutes
- If consciousness returns without further incident
- If there are no signs of injury, physical distress, or pregnancy

An ambulance should be called (Unless the Person Centered Plan indicates otherwise):

- When the seizure has happened in water
- There is no medical ID and no way of knowing the seizure is caused by epilepsy
- The seizure is longer than normal (or 5 minutes if normal length is not known)
- If a second seizure starts immediately after the first has ended
- The individual severely injures him/herself as a result of the seizure
- If the person experiences respiratory and/or cardiac distress
- If consciousness does not return after the seizure has ended
- If the individual is pregnant or has diabetes

Self-assessment

Check your understanding of this section's content by completing this self-assessment.

5. List at least 3 general guidelines to follow when assisting a person experiencing a complex partial seizure.

6. What are your agency procedures in dealing with medical emergencies, such as status epilepticus?

7. List at least three situations involving seizure activity that may require emergency medical care.

UNIT 3: Exercise

Fill out the documentation required by your agency for each of the following situations:

1. John Jones is 21. He has an intellectual disability and a moderately controlled tonic-clonic seizure disorder. He lives at 2015 Maple Street. On Saturday, January 24th John is preparing his evening meal with the help of his staff, Jim Butler. John is grilling hamburgers. Jim is on the opposite side of the kitchen preparing a salad. Jim has his back toward John.

   Jim hears John cry out and turns to see John start to arch his back and pitch towards the floor. Jim leaps across the room and catches John in time to ease him toward the floor and turn him on his side. Jim counts silently to himself and notes the time, 6:05 p.m. on the oven clock. Jim unbuttons John's shirt and loosens his belt and trousers. Still counting, he notes that John's arms and legs are straight and stiff, his back is arched, his eyes rolled back in his head and his jaw is tightly clenched.

   At the count of 18, John begins to flex his arms and his head is jerking to the left side. Jim begins a new count. Jim grabs a towel and places it under John's head. Saliva is running out of John's mouth, and he is turning blue. Jim continues the new count and at 30 he notices that the muscular contractions are subsiding. By 45 they have stopped.

   John falls into a deep sleep. Jim moves John, still on his side, over to the kitchen wall. He notices that John has urinated during the seizure. John's arms and legs are very limp. He stays in the deep sleep for about eight minutes and then starts to awaken. John is not sure where he is or how he got to the floor. He complains of muscle and jaw aches. Jim casually explains that he has just had a seizure.

   Jim helps John to his room. After changing, John returns to the kitchen and finishes fixing supper with Jim. John is still a bit confused. Later, Jim writes a description of the occurrence on an "Incident Report" form.

2. Mary is a 24-year-old woman who works at Marvel Industries. Her supervisor is Sally and she is showing Mary a new assembly process. It is 10:30 a.m. on Friday. Mary is concentrating intently when she suddenly stops and stares into space for about three seconds. Sally calls Mary's name but she does not respond. Then Mary pushes her stool away from the table, stands, turns and walks out the front door. Sally repeatedly calls Mary's name, but still no response.

   At 10:35 Mary stops as she is about to cross the street. There is a lot of traffic on the street and Sally grabs Mary's elbow just as she is about to walk through the middle of it. Mary seems to come to and turns to Sally and asks, "Where am I?" Sally explains, nonchalantly, that she is okay. They return to Marvel Industries and resume their tasks. At noontime, Sally writes a description of the incident.

SAMPLE SEIZURE REPORT

(Trainers may replace the report below with the one used by their agency)

1. Name:_____ 2. Date: _____

3. Location: _____

4. Start Time:_____ 5. Length:_____Witness: _____

PRE-SEIZURE:

6. Precipitating Factors: Fever_____ Hunger_____ Exertion_____ Missed Medication_____
Other _____ Unknown _____

7. Seizure Warning Aura: Headache _____ Drowsiness _____ Other _____ Disorientation_____

CHECK AS MANY AS APPLY:

8. Characteristics: Head Dropped___ Fell Down ___ Body Rigid ___
Stared Blankly ___ Body Jerked/Convulsed ___
Frothing/Drooling ___ Eyes Rolled Back ___ Incontinent Urine ___
Incontinent Feces ___ Unconscious ___ Repeated Movement ___
Action or phase-what? _____

9. Body Parts Involved: Head __ Torso __ Left Arm __ Right Arm __ Left Leg __
Right Leg __ Entire Body __

10. Eyes: Closed __ Open __ Rolling __ Fluttering __

11. Skin: Pale __ Grey __ Normal Color __ Cool __ Warm __
Other __ Characteristics _____

12. Muscle Contractions: None __ Slow __ Rapid __ Shallow __ Labored __

13. Breathing: None __ Slow __ Rapid __ Shallow __ Labored __

POST-SEIZURE:

14. Characteristics: Not always aware of interruption of activities___ Resumed activities quickly ___
Slept after seizure ___ How long? ___ Appeared drowsy ___ Disorientation ___
Complained of Pain ___ Had another seizure or cluster of seizures shortly
after _____ Other _____

15. Was injured during seizure? No ___ Yes ___
Describe_____
_____

16. Additional comments/observations:
_____
_____
_____

Documented by: Name_____

Title_____

UNIT 4: DIAGNOSIS & TREATMENT

After completing this unit, staff members will be able to:

- **Know the six basic principles of effective seizure treatment**
- **Know some of the common medications used to control seizures**
- **Know the most common side effects of common seizure medication**
- **Understand how seizure medications work**
- **Understand significance of therapeutic blood level and steady state**
- **Know factors that increase risk of seizure activity**
- **Know how to decrease the risk of seizure activity**
- **Understand the social impact of epilepsy**
- **Have some ideas of how to help individuals cope with their seizures on a day-to-day basis**

PURPOSE OF TREATMENT

The primary objective of the physician caring for the person with a seizure disorder is to control the seizure activity, reduce seizure activity, or reduce seizure frequency to the point where it does not interfere with the person's life.

Throughout history there have been many incorrect views of epilepsy. It has been viewed as:

Sacred Disease: the person had divine powers and/or was not mortal.
Demonic Possession: the person was possessed by the devil.
Insane: the person was mentally ill.
Criminal Personality: the person will be violent.

Before 1853 when bromide was first used to control seizures, the treatment of epilepsy consisted of superstitious behavior (purges, enemas), institutionalization, and burning at the stake. The next advancement in treatment of seizures occurred in 1912 with the introduction of phenobarbital as an anti-epileptic medication. These two drugs were the only medications available for seizure control until 1938, when phenytoin (Dilantin) was added to the list of anti-epileptic medication.

IDENTIFYING SEIZURE DISORDERS

The physician will rely on current observations, a comprehensive medical history and diagnostic tests to make a diagnosis.

Current Observations. The physician must rely upon information from others in reaching a diagnosis. The family or staff who spend the most time with the person may be the only ones in a position to observe and report the sequence of behaviors during the episode.

Because seizure disorders are so complex, there is no one medication that is effective in controlling all types. Establishing an accurate diagnosis of the type (or classification) of seizure is essential to proper treatment. Complex partial seizures, for example, can mimic absence seizure episodes, particularly when reported by an untrained observer. However, these two types of seizures are

controlled by different medications.

The physician is particularly concerned with the site of origin of the seizures within the brain. Different events leading up to the seizure activity may give crucial clues. For instance, a funny taste in the mouth originates in one part of the brain, while a visual aura comes from an entirely different location. The physician will also ask questions about the pattern of the seizure itself. A tonic-clinic seizure, for instance, can be secondary event of a more complex attack such as a complex partial seizure, or it can be just a tonic-clinic seizure. As indicated in Unit 3, the physician will need information concerning the pattern of the seizure(s), the time of the day/week/month/year of the seizures, and the response to medications.

History: The physician will also take a medical history of the individual. This may include information about:

- the mother's pregnancy
- the individual's birth and early development
- accidents, illnesses or hospitalizations
- behavioral or emotional disturbances and
- family history.

Diagnostic Tests are used by doctors to decide on a diagnosis. Some of the more common tests are:

Physical examination – an examination of head size/shape (to detect signs of injury or pressure within the skull) of skeletal system for size and symmetry (asymmetry may indicate early injury to one side of the brain) of posture, heart, lungs (to determine general health).

Your doctor may also suggest tests to detect brain abnormalities, such as:

EEG – This is the most common test used to diagnose epilepsy. In this test, doctors attach electrodes to your scalp with a paste-like substance. The electrodes record the electrical activity of your brain.

If you have epilepsy, it's common to have changes in your normal pattern of brain waves, even when you're not having a seizure. Your doctor may monitor you on video while conducting an EEG while you're awake or asleep, to record any seizures you may experience. Recording the seizures may help the doctor determine what kind of seizures you're having or rule out other conditions.

Your doctor may give you instructions to do something that will cause seizures, such as getting little sleep prior to the test.

Brain Scans

CT scan – A CT scan uses X-rays to obtain cross-sectional images of your brain. CT scans can reveal abnormalities in your brain that might be causing your seizures, such as tumors, bleeding and cysts.

MRI – an MRI uses powerful magnets and radio waves to create a detailed view of your brain. Your doctor may be able to detect lesions or abnormalities in your brain that could be causing your seizures.

fMRI – A functional MRI measures the changes in blood flow that occur when specific parts of your brain are working. Doctors may use an fMRI before surgery to identify the exact locations of critical functions, such as speech and movement, so that surgeons can avoid injuring those places while operating.

Self-assessment

Check your understanding of this section's content by completing this self-assessment.

1. What is the primary objective of the physician caring for the person with a seizure disorder?

2. Where does the physician get the information about the individual's seizure patterns?

3. List three diagnostic tests a doctor might use to decide on a diagnosis.

TREATING EPILEPSY WITH MEDICATION

After the physician determines the type of seizure disorder, he/she will prescribe seizure control medications. About 80% of persons with epilepsy can be nearly or completely seizure free using one or more medications effective in the control of abnormal brain discharges. The goal of treatment is to utilize the least number of medications while maintaining the maximum level of alertness with the fewest number of seizures. Ideally, the person should be fully alert and functional with no seizures and taking only one medication. Some persons will respond to a single medication in a relatively short period. Others may require a combination of several medications before seizure activity is controlled.

Principles of Treatment
The physician's treatment of seizures is guided by the following basic principles:

- Identifying (diagnosing) the correct classification of seizure activity.
- Selecting the most appropriate medication.
- Monitoring the individual for signs of medication side effects.
- Teaching the individual (and significant others) the nature of epilepsy and the proper use of medication.
- Assisting the individual (and significant others) to adjust their life to the realities imposed by the disorder.

What Medication to Give
Choosing the best medication is based upon many factors including information from the EEG, knowledge of drug toxicities, age of the person, and seizure type. The more drugs used, the greater the risk of side effects and/or interactions. Whenever possible, doctors try to control seizures with one drug. If the seizures aren't controlled, the doctor will increase the dose of that drug or replace it with a different drug before adding more medications. Individuals with developmental disabilities, however, may have more than one neurological problem, making seizure management more complex. The physician may have to utilize multiple medications to achieve a balance between the frequency of seizure activity and alertness.

How Medications Work

Seizure medications prevent seizures through different mechanisms in the brain. Although medication will not cure epilepsy, it can control (reduce) the frequency of seizure. It does this in one of three ways:

A. Medications **INCREASE THE SEIZURE THRESHOLD** by decreasing the excitability of the brain cells.

B. Medications **LIMIT THE SPREAD** of seizure discharge in the brain by slowing the electrical transmissions between nerve cells in the brain.

C. Some medications prevent seizures by **KEEPING THE NERVE CELLS FROM FIRING TOO FAST** and preventing them from overloading the system.

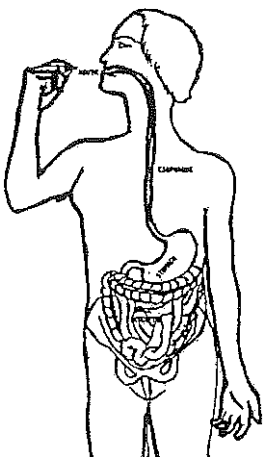
Dosage

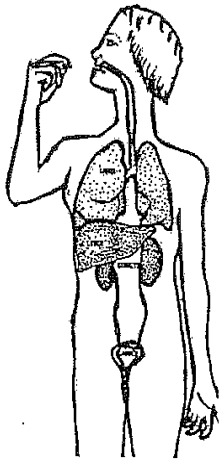
Every person is different and everyone requires their own individual medication dose and doctor orders to follow.

Some things that affect the prescribed dose:

- **The specific medicine and how it works** – Some medications need to be given in higher doses than others. Some work best at low doses.
- **A person's age and weight** – Older people often need lower doses than younger adults. Children's bodies break down medications differently too, depending on their age.
- **Length of time taking the medicine** – A person's body gets used to a medicine over time. Some medications build up quickly to a good level, others need more time.
- **Other medications taken** – Some medications may affect how a drug is absorbed or broken down in the body and the amount that gets to the brain.
- **Other side effects or health problems** – Some medications could make side effects or other problems worse, for example: blurry vision, coordination, or unsteady walking. Other medications may help some issues. For example, many seizure medications help mood and pain.

What Happens to the Medication?





The pathway medication takes from the time it enters the body until it produces its peak level can be 30 minutes to 4 or 6 hours after it is taken. The peak time varies for different drugs. It also depends on the form it was taken (liquid, tablets, capsule or slow-release). In general, liquids are absorbed quickly. Eating before a dose may also affect how long it takes to reach a peak level.

After medications are absorbed through the stomach lining or intestinal walls, it enters the blood stream. The blood stream is the transporting system for the whole body (for this reason, physicians will often order blood tests to find out how well organs are functioning and the effect the medication is having). Every medication has a certain amount of time that remains "active" before the body begins to metabolize the medication. The amount of time it lasts in the body before it is half gone is called the half-life.

Half-Life refers to the time it takes the individual's body to reduce the highest concentration by 50%. The half-life of each seizure medication depends on how quickly it is broken down and eliminated from the body. It also measures how often a medicine should be taken. Every person is an individual and each one has his/her own half-life for a particular medication.

Steady State – Seizure medicines work best when the amount in your system reaches a steady state or constant amount. When a medication is started, the blood levels will build up slowly. The point at which the levels stop building up (increasing) is called steady state. At steady state, the blood level will be approximately the same from day to day. Steady state is when the same amount of drug going into your body is coming out of your body.

Therapeutic Range – The therapeutic range of blood levels for seizure medications is the range of doses in the body where most patients have good seizure control and few or no side effects. The number of days/hours it takes to reach steady state is different for each medication. Some medications reach steady state quickly while others take up to several weeks.

The therapeutic range is different for each person. The therapeutic range for the individual may be lower or higher than the usual therapeutic concentration, depending on the individual's metabolism and what other medications the person may be taking.

When a new medication is started, blood level measurements would be taken after the medication has reached steady state. It is recommended that blood levels be taken at least annually thereafter, but may be ordered if the person is having seizures, having side effects, begins taking other medications, or is pregnant.

Drug level measurements should be taken at trough (low) levels, usually in the morning before the individual has taken morning doses. That way, the physician can monitor what is the "lowest" level the drug drops to, which is important for seizure control. If there is a problem with apparent toxic side effects or too high a blood level, the levels are taken at mid-day.

Administration

How often a medication is taken depends on:

half-life: a medication with a short half-life needs to be taken more frequently during the day, whereas a medication with a long half-life can be taken less frequently. For example- Phenobarbital, has a very long half-life and may take up to 25 days to be eliminated from your system.

- time of day of seizure activity.
- side effects.

Additional information regarding medication can be found on the epilepsy website: http://www.epilepsy.com/learn/treating-seizures-and-epilepsy/seizure-and-epilepsy-medicines/seizure-medication-list

Self-assessment

Check your understanding of this section's content by completing this self-assessment.

4. List the five basic principles that guide the physician's treatment.

5. Describe two of the three general ways medications prevent seizures.

6. Describe what happens to the medication in the body.

7. What is therapeutic range?

8. List at least five situations/occasions when the individual's blood level should be taken.

9. What is meant by the term "half-life"?

10. Half-life is important for the following two reasons:
    a.

    b.

Monitoring for Side Effects

Like other medications, drugs used to control seizures may have some unwanted effects. Physicians will choose the medication with less potential for adverse or toxic side effects. The unwanted effects of anti-epileptics tend to "cluster" in six major systems of the body:

- Stomach and intestines – nausea, vomiting, loss of appetite, heartburn, difficulty swallowing, loss of taste sensation, constipation, and diarrhea.

- Skin reactions – skin rashes with or without fever. (When this reaction occurs, the staff member must CALL THE PHYSICIAN/SUPERVISOR IMMEDIATELY, because it may be an allergic reaction.)

- Liver reactions – yellowing of skin and eyes, dark urine, light colored stools, loss of appetite, abdominal pain, and upset stomach.

- Blood reactions – anemia (symptoms: fatigue, sore throat, fever, infection, easy bruising); other bleeding disorders can also occur. Medication therapy will be discontinued if there is evidence of lowered blood cell production in the bone marrow.

- Kidney reactions – swelling of the legs and frequent and/or burning urination.

- Central nervous system (CNS) – depression, drowsiness, lethargy, stupor, respiratory depression, dilated pupils, and ataxia (impaired coordination). Behavioral disturbances also include hyperactivity, aggressiveness, hallucinations, excitement, and confusion.

Report any/all suspected side effects to the supervisor or medical contact immediately.

More information regarding side effects is available from:
http://www.efepa.org/pdf/AED-side-effects-and-drug-interactions.pdf

Self-assessment

Check your understanding of this section's content by completing this self-assessment.

11. What are some signs of the side effects in the following body systems?

stomach/intestines_____

skin _____

liver _____

blood _____

kidney _____

central nervous system _____

SURGICAL INTERVENTION

Surgery is an alternative for some people whose seizures cannot be controlled by medications. While surgery has been used for more than a century, its use dramatically increased in the 1980s and 90s, reflecting its effectiveness as an alternative to seizure medicines. The benefits of surgery should be weighed carefully against its risks, however, because there is no guarantee that it will be successful in controlling seizures.

Surgery considerations:

- People with partial epilepsy who are considered for surgery have difficult-to-control seizures that have not responded to aggressive treatment with medication. In the past, patients usually tried several medications with poor results for many years, even decades, before being considered for surgery.
- More recently, surgery is being considered sooner. Studies have shown that the earlier surgery is performed, the better the outcome.
- Surgery is now being performed on some people whose seizures have been uncontrolled for only 1 or 2 years. At least two single drugs and a combination of two or more drugs should be tried before surgery is considered.
- Epilepsy surgery can be especially helpful to people who have seizures from structural

brain problems (such as benign brain tumors, strokes, or malformations of blood vessels).

Epilepsy treatment must factor in a person's quality of life, not just the number of seizures. Both continued seizures and high doses of medication impose costs on all areas of the person's life – intellectual, psychological, social, educational, and employment.

State-of-the-art technology can now be applied to perform the safest and least-invasive procedure that will help each person to achieve the highest possible quality of life.

VAGUS NERVE STIMULATION

Some people continue to experience inadequate seizure control or unacceptable side effects after appropriate treatment with medications. Vagus nerve stimulation was approved by the FDA in 1997 as an additional or "adjunct" treatment for adults and adolescents who have partial seizures which are resistant to anti-epilepsy medications. A generator implanted in the person's chest delivers stimulation along a wire which runs under the skin to electrodes attached to the vagus nerve in the neck. This stimulation of the nerve produces an effect in the brain which can reduce seizures. In addition to the regular cycle of stimulation, an extra cycle of stimulation can be delivered when the person, or a caregiver, passes a hand-held magnet over the implanted generator during the initial stage of a seizure. This extra dose may prevent or lessen the severity of the seizure.

Data from clinical studies indicates that vagus nerve stimulation is a safe and effective method of treatment. In clinical trials, the majority of people in the studies (approximately two thirds) showed a decrease in the frequency and severity of seizures. The people who benefit the most from vagus nerve stimulation therapy are those for whom medication has failed and surgery would not, or has not, helped in controlling seizures. Success rates vary, so individuals should not expect a complete cure. Medication is still necessary for many individuals to achieve the best control.

KETOGENIC DIET

Physicians sometimes prescribe a special diet for individuals (usually young children) whose seizures cannot be controlled in any other way or who have a lot of side effects from the standard medications. The diet is very high in fats and very low in carbohydrates. The shift in the body's chemistry caused by this diet will reduce seizures in some people. Fat intake is increased through the addition of fatty foods or by adding a special oil to a regular diet. The diet must be worked out by a dietitian and monitored by a physician just as if it were a course of drug therapy.

MODIFYING FACTORS THAT PRECIPITATE SEIZURES

There are a number of situations which have been discovered to increase the risk of seizure activity in some persons. These factors vary considerably from one person to another. For instance, hyperventilation (abnormally prolonged, rapid and deep breathing) will produce absence episodes in children with this form of epilepsy. Physicians will often use hyperventilation to activate an absence episode during an EEG tracing to confirm the diagnosis.

Some types of seizures are activated by intermittent lights (flickering lights such as from a strobe light). Other persons will experience seizures only when they are sleeping, particularly

within the first hour or two after going to sleep or one or two hours before waking up.

Some factors which may increase seizure activity and management practices are:

Emotional Factors – One's emotional health can influence the frequency of seizure activity. The following steps are recommended to limit the effects:

- Assist the individual to lead a well-balanced healthy life with normal amounts of rest and exercise.
- Staff members should avoid being over-protective.
- The individual's feelings should be considered when program decisions are made.

Failure to Comply with the Medication Schedule – Abrupt withdrawal of seizure medications is one of the most frequent causes of status epilepticus. Some individuals who have been seizure free for a long period of time will stop taking medication without consulting their physicians. They do not understand that medication must be gradually withdrawn to prevent seizures from recurring. Doctors usually withdraw seizure medications over an extended period of time. The following guidelines are suggested for staff members:

- Teach the person, his/her family, and significant others the importance of adhering to the medication schedule. They should also be informed of the reasons why medication is gradually decreased when changing or discontinuing medication.
- Know the signs of toxicity and unwanted effects and how to notify the physician for medication adjustment, rather than stopping medication.
- Time must pass between adjustments of dosage to allow blood and brain levels to stabilize. Do not expect seizures or unwanted effects to disappear overnight after dosages are adjusted.
- Notify hospital personnel of seizure medication when admitted to a hospital for diagnostic purposes.
- Notify the physician or medical supervisor in cases where medication cannot be taken (i.e., nausea and vomiting).
- Keep all medical appointments and adhere to schedules for routine blood work and other laboratory checks of body response to medication.

Infection and/or Fever – Fevers from infection will sometimes increase seizure frequency in persons with seizures, particularly in children. Therefore, one should note the following:

- Look for signs of infections and seek prompt medical intervention when present.
- Fever, sore throat or mouth, malaise (vague feeling of bodily discomfort), easy bruising or bleeding, purplish red spots on the body, jaundice, or rash may indicate a toxic effect of a drug.

Menstruation/Fluid Retention – The monthly period in most women is preceded by several days of fluid retention and change in hormone balance. Some women with epilepsy only experience seizures close to their periods. In these cases, the physician may:

- Increase medication 3 or 4 days before the expected date of menstruation.
- Limit fluid intake.
- Restrict salt intake.

Fatigue – Lack of sleep and fatigue are a major cause of seizure activity. The following may help reduce fatigue related seizures:

- Get enough rest.
- Sleep should be at regular times.

Low Blood Sugar – The individual should:

- Eat high protein bedtime snacks.
- Eat regular well-balanced meals.

Outgrowing Medication Dosage – Seizure medication is prescribed for children by body weight. Pre-adolescent children should be carefully monitored by their physicians, particularly during period of rapid growth. The beginning of menstruation in girls and squeaky voices in boys is another time to be alert because of the new influence of sex hormones in the body. These can alter the body chemistry enough to change response to medication. The following should be noted:

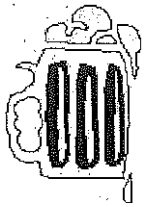
- Routine medical care is very important to regulate dosage in children.
- Adolescents should be carefully observed for the emergence of new types of seizure activity (e.g., absence converting to tonic-clonic).
- Adolescents are also prone to emotional stress, which may increase seizure frequency.

Hyperventilation – Absence seizures are frequently caused by abnormal periods of heavy rapid breathing. Ordinary activity creates no problems, but extraordinary periods of heavy exertion may increase the frequency of absence episodes.

Drugs and Chemical Interactions – Depending on the type of seizure medication or other chemicals taken by the person, it can affect the action of the anti-seizure drug in the body. This can result in serious unwanted effects or problems in maintaining control of seizures. Seizure medications mixed with other sedatives such as sleeping pills or over-the-counter cold medications could result in an overdose. Other examples include the following:

- Birth control pills have a tendency to induce fluid retention and may result in increased seizure frequency.
- Caffeine interferes with a naturally occurring anticonvulsant in the brain.
- Aspirin interacts with Dilantin to reduce its effectiveness.

The following measures are therefore particularly important:



- All physicians consulted for treatment or new conditions should be informed of the person's seizure control drugs and dosages.
- Over-the-counter drugs should be avoided, unless approved by the physician.
- People should consult their doctors about the advisability of drinking alcoholic beverages. Over-drinking should be avoided, as excessive drinking causes dehydration and vomiting. Hangovers can also cause seizures.

Pregnancy – Individuals should consult their physician before becoming pregnant. How medications will affect prenatal development and how pregnancy will affect the seizures must both be considered.

Caffeine – Avoid excessive use of caffeine.

Self-assessment

Check your understanding of this section's content by completing this self-assessment.

12. List at least one thing that can be done to help decrease the likelihood the following factors will increase seizure activities.

    a. Emotional factors

    b. Failure to comply with medical schedule

    c. Infection/fever

    d. Menstruation

    e. Fatigue

    f. Low blood sugar

    g. Blinking lights

    h. Outgrowing medication dosage

    i. Hyperventilation

    j. Caffeine

13. T F About 80% of persons with epilepsy can be nearly or completely seizure free by using one or more appropriate medications.

14. T F The more drugs used, the greater the risk of side effects and/or interactions.

15. T F Therapeutic range is the same for every individual.

16. T F At steady rate, the blood level will be approximately the same from day to day.

17. T F Steady state is when the amount of drug going into your body is twice as much as the amount drug coming out of your body.

18. T F Every person has his/her own half-life.

UNIT 5: Assisting Individual Adjustment

After completing this unit, staff members will be able to:

- **Understand the risks for women with seizures who become pregnant and the risks to the baby**
- **Know necessary actions to be taken by staff members and individuals with epilepsy to secure and keep jobs**
- **Understand the importance of medication compliance to personal adjustment and steps to be taken to help individuals cope with unfounded fears and anxiety**
- **Know strategies to assist the person to be successful with employment**

PREGNANCY

Although epilepsy does not affect a person's ability to have sexual relations, some people fear that sexual excitement might cause a seizure. There is no evidence to support this idea. However, if a male is impotent or has a low sex drive he should consult a doctor to see if his seizure medication could be the cause. Multiple medications are the most likely cause of low sex drive or impotence. Because seizure medication can decrease the effectiveness of birth control pills, a woman should tell her doctor so the right birth control pill can be prescribed. Both estrogen and progesterone can affect the seizure threshold.

The change in seizure activity during pregnancy varies greatly. Some women experience no changes, while others experience an increase or decrease in seizure frequency. The main factors influencing the frequency of seizures during pregnancy are sleep deprivation, medication non-compliance, and decreases in blood level of anti-epileptic drugs as the results of changes in how the body metabolizes (processes) the drugs. The greatest changes in drug metabolism seem to occur during the last three months of pregnancy. Hence it is important to carefully monitor blood levels throughout the entire pregnancy.

Although the vast majority of women on anticonvulsants have children without complication, there is still a risk of injury during seizure activity. Multiple drugs also increase the risk of birth defects. The most common problems include, but are not limited to: cleft palate, cleft lip, and heart defects, which occur at 2-3 times the rate of the normal population.

For more information on pregnancy please watch the attached video:
https://www.youtube.com/watch?v=oyH9BbqXR5Y#action=share

EMPLOYMENT

People with epilepsy are employed at many different kinds of jobs. Many have seizure control, but not all of them do. Discriminating against qualified persons with disabilities in job application procedures is prohibited by law. The employers may not ask any health related questions until *after* they have offered the job. If individuals do decide to talk about their epilepsy, or if they are required to do so because of a legal question from the employer (after the job has been offered), the more confident, well informed, and relaxed they can be, the more reassured the employer is likely to be.
The secret to getting and keeping a good job does not depend as much on seizure control as on being well qualified for the position. When looking for jobs, applicants should be encouraged to sell their skills, not their epilepsy. They should emphasize their abilities, their experiences, and their drive; they should emphasize what they can do for the employer.

To help employees with epilepsy **keep their** jobs, they should be encouraged to:

- Educate their employer and coworkers about epilepsy and seizure first aid.
- Be prepared for treatment setbacks.
- Adjust their life for medication side effects.
- Anticipate rejection by some coworkers.
- Take teasing in stride.
- Avoid trying to be the "perfect employee."
- Know their legal rights.

To learn more about employment and discrimination, view the following video.
http://www.efepa.org/living-with-epilepsy/adults/

Self-assessment

Check your understanding of this section's content by completing this self-assessment.

1. What is the goal of seizure treatment during pregnancy?

2. T F Epilepsy affects a person's ability to have sexual relations.

3. T F The change in seizure activity during pregnancy varies greatly.

4. T F Employment discrimination based on having epilepsy is legal.

5. T F It is illegal to ask about seizures on a job application.

MEDICAL NONCOMPLIANCE

As noted elsewhere, failure to comply with medication regimen can cause seizure activity. The noncompliance may be an attempt to deny the existence of the problem, a failure to understand the importance of taking medication routinely, or problems

remembering when to take the medication. Information and on-going assistance to adjust to their situation will help with the first two issues. Some practical suggestions to help the individuals remember when to take their medication are:

- A divided pill box containing dose(s) for the day/week
- Alarm watch
- Pill box with alarm
- Put medication out where it will be seen
- Record on calendar

FEARS

Fears about the effects of seizures and having a seizure in public may interfere with an individual's adjustment. Many people fear they will die or suffer additional brain damage as the result of a seizure. One study on cause of death for people with epilepsy found that approximately 50,000 people die each year in the US from status epilepticus and other seizure related causes. Additionally, individuals died as result of drowning or having accidents because of a seizure. If people follow their medication schedules, use caution when selecting activities, and follow routine safety precautions, the chances of dying as a result of a seizure are low and there is little chance of additional brain damage as a result of a seizure.

The fear of having a seizure in public keeps many people isolated. The following suggestions may help people cope with their fears/anxieties:

- Be sure the person has the needed information. Answer their questions in simple concrete terms.
- Explain what is happening.
- Get the best treatment available; be sure they trust their doctor and service provider.
- Help them accept, or come to terms with, having epilepsy.
- Be sure significant others at work, home, and social groups, know seizure first aid.
- Teach relaxation techniques (ways to deal with threatening situations as they arise).
- Encourage the person to attend epilepsy support groups.
- Evaluate the side effects of medication. Some negative undesired emotional responses could be medication induced.
- Refer to professional counseling when appropriate.

COPING WITH EPILEPSY IN DAILY LIFE

The following are some basic strategies to assist people to cope with their epilepsy on a day-to-day basis:

Medical Strategies

- Teach the person to never discontinue medication without talking to their doctor. Discontinuing medication could cause nonstop seizures that would require hospitalization.
- Report any unusual changes in feelings and behavior to the agency nurse and/or doctor.
- Inform other doctors/dentists seen by the individual about the epilepsy conditions and the medication taken by the individual.
- Ask the person's doctor about any other medications (cold pills, etc.).
- Prepare to ask the appropriate questions prior to doctor appointments.
- Ask the doctor what to do if the person forgets to take his/her medication.

General Health Strategies

- **Get enough sleep –** Long periods of time without sleep may induce a seizure. People with epilepsy shouldn't need more sleep than other people, so there's no benefit from naps or an early bedtime. If they are sleepy or tired a lot, report this to the nurse/doctor.
- **Eat right –** Special foods cannot cause or prevent seizures, however, individuals should still eat a well-balanced diet.
- **Use alcohol with caution –** Check with the doctor about how alcohol will interact with the individual's medication.
- **Keep physically fit –** There are many activities such as jogging, golf, hiking, touch football, bowling, and skating individuals can enjoy. Swimming involves some risks, but that can be reduced by swimming with a buddy who is a good swimmer and knows about the person's seizures. There are some activities such as water skiing, scuba diving, and hang gliding that involve significant risks if the individual would experience a seizure.

Emotional Well-Being Strategies

- Don't be afraid the person will die during a seizure. The chances of this happening are remote.
- Don't let fear of having a seizure keep the person at home.
- Encourage the person to wear a medic alert identification and keep a first-aid card in his/her wallet so people will know what to do in case he/she has a seizure.
- Assist the person to remain busy and active.
- Help the person remember the things he/she can do.
- Allow the person to do as much for him/herself as possible.
- Help the person learn to ignore the reactions of other people.
- Help the person remember he/she has just as much to offer the world and just as much right to a happy life as anyone.

Self-assessment

Check your understanding of this section's content by completing the self-assessment.

6. What are three ways to help a person remember to take their seizure medications?

7. List at least five suggestions to help individuals deal with the fear they will have a seizure in public.

8. List at least four medical strategies you will use as a staff member to enable individuals to cope with their epilepsy on a day-to-day basis.

9. List at least five emotional well-being strategies you will use as a staff member to enable individuals to deal with their epilepsy on a day to day basis.

10. T F The chances of dying as a result of a seizure are very high.

Feedback Answers

Unit 1

1. List at least six possible causes of seizure
   genetic – gestational – infections – accidents – tumor – poisoning – vascular – alterations in blood sugar – degenerative disease

2. Match the following terms with the definitions below
   C Seizure

   A Epilepsy

   B Convulsion

   A. A tendency to have recurring seizures, usually resulting from a disorder of the central nervous system.
   B. Term used to describe a tonic-clonic seizure formerly known as grand mal seizure.
   C. Uncontrolled electrical discharge of brain cells, symptom of disturbed brain functions.

3. List at least five ways to prevent epilepsy
   - wearing protective headgear when riding motorcycles, engaged in contact sports, etc.
   - using seat belts
   - limiting use of illicit drugs and alcohol
   - receiving good prenatal care
   - receiving prompt medical treatment for all head injuries
   - giving child appropriate inoculations and good medical care
   - receiving genetic counseling

4. **T** F The cause of most epilepsy is unknown.

5. **T** F Given the right circumstance, anyone can have a seizure.

6. T **F** Most epilepsy diagnosis occur after the age of 18.

Unit 2

1. What is an aura?

   Aura is a Greek term meaning breeze and is used to describe the early sensations of some seizures.

2. List five examples of an aura
   - a peculiar sensation of the abdomen
   - a "funny feeling" all over the body
   - the individual reports feeling or acts differently, but can't describe the sensation
   - abdominal pain or distress
   - tingling, numbness, or pain in various parts of the body
   - headache
   - sensations of movement in extremities not seen by anyone else
   - spots or various colors before the eyes
   - impaired vision
   - humming or buzzing sensation
   - sounds of musical patterns
   - dizziness or unsteadiness
   - peculiar or disagreeable tastes or odors
   - déjà vu

3. List three reasons why it is important to recognize and document auras
   - they may help the physician to correctly decide where in the brain the seizure originates
   - they may help the physician identify the type of seizure activity and treatment
   - the aura can warn the individual or staff to prepare for the pending seizure activity

4. T **F** It is the staff member's responsibility to diagnose a seizure.

5. T **F** The left side of the brain controls the left side of the body.

6. List at least four features of complex partial seizures
   - there is frequently an aura
   - the episode usually lasts for only a few minutes. It can, however, go on for hours or days
   - the behavioral episode tends to repeat itself
   - they can involve a wide variety of behaviors (e.g., fears, anxieties, sleepwalking, dreaming, chewing, smacking, etc.)
   - they originate in the temporal lobe of the brain
   - they are often mistaken for behavioral disorders
   - they can be difficult to control

7. **T** F Some types of seizure activity are difficult to distinguish from ordinary and predictable behavior.

8. **T** F A person with multiple disabilities is more likely to have several types of seizure patterns.

9. **T** F Partial seizures are generated in isolated areas of the brain.

10. **T** F There is no loss of consciousness in simple partial seizures.

11. **T** F Partial seizures may develop rapidly into a generalized tonic-clonic seizure.

12. **T** F Complex partial seizures are most likely to be mistaken for behavior problems or mental illness.

13. T **F** Tonic-clonic seizures involve only part of the body.

14. List at least three situations involving seizure activity that may require emergency medical care
    - when the seizure has happened in water
    - there is no medical ID and no way of knowing the seizure is caused by epilepsy
    - the seizure is longer than normal
    - the individual severely injures his/herself as a result of the seizure
    - if the person experiences respiratory and /or cardiac distress

15. **T** F Tonic-clonic seizures usually have no aura.

16. **T** F Children who experience febrile seizures are three to six times more likely to develop epilepsy than the general population.

17. **T** F Status epilepticus occurring in connection with tonic-clonic seizures is a life threatening emergency.

18. **T** F Absence seizures are most frequently outgrown during adolescence.

19. List one situation in which seizure activity is a life threatening emergency.
    Status epilepticus occurring in connection with tonic-clonic seizures

20. What is status epilepticus?
    Status epilepticus is a prolonged seizure state or a series of frequent seizures. Status epilepticus occurring in connection with tonic-clonic seizures is a life-threatening emergency.

Unit 3

1. List the three actions of staff members when an individual experiences a seizure
    - observing
    - reporting
    - assisting

2. What information should the individual's overall medical record include? List at least four questions
    - How often do seizures occur?
    - How long do seizures last?
    - What time of day do seizures occur?

- Is there any pattern (week, month, year)?
- Is the person on seizure medication?
- What is the response to the medication?

3. List five things staff should do to assist a person having a generalized tonic-clonic seizure
   - if the person is in bed, remove the pillows and protect the individual from falling to the floor
   - if the person is in a chair or sitting position, assist the person to the floor away from walls or furniture
   - loosen constrictive clothing and remove glasses
   - as soon as possible, place the person in a side-lying position to prevent saliva from being sucked into the lungs- do not put the person in the stomach-lying position since this position interferes with breathing
   - protect the person from hazards, place protective padding between the individual's head and any structure (wall, floor, etc.) that may cause injury in the thrashing movements
   - stay calm and observe the sequence of events during the seizure
   - provide a place for the individual to sleep during the period of deep sleep that usually follows the seizure; keep the person in the side-lying position
   - explain the event calmly and reorient the individual to the surroundings during the period of confusion that may occur upon awakening – staff member's casualness about the episode will reduce the individual's anxiety
   - provide a change of clothing if the individual loses bowel or bladder control during the seizure
   - notify medical contact/supervisor if injury occurs, if the seizure occurs in water, or if the person may have aspirated food or vomit
   - do artificial resuscitation (CPR) <u>only</u> if breathing is absent and jerking movements have stopped

4. List at least six observations that the documentation of seizure activity should include
   - movement of any part of the body
   - pattern of progression of seizure
   - position of eyes, head, body
   - responsiveness of person during seizure
   - was there any aura warning
   - how did seizure begin
   - can the person remember the seizure
   - what change took place in the individual's state of awareness
   - did the person lose bowel or bladder control
   - were there any injuries
   - was there confusion, sleepiness, headache, inability to speak

5. List at least three general guidelines to follow when assisting a person experiencing a complex partial seizure
   - speak clam
   - reassure the individual
   - guide the individual gently away from hazards
   - stay with the individual until s/he is completely alert

6. What are your agency procedures in dealing with medical emergencies, such as status epilepticus?

   Write your agency policy

7. List at least three situations involving seizure activity that may require emergency medical care
   - when the seizure has happened in water
   - there is no medical ID and no way of knowing the seizure is caused by epilepsy
   - the seizure is longer than normal (or 5 minutes if normal length is not known)
   - if a second seizure starts **immediately** after the first has ended
   - the individual severely injures his/herself as a result of the seizure
   - if the person experiences respiratory and /or cardiac distress
   - if consciousness does not start to return after the seizure has ended
   - if the individual is pregnant or has diabetes

Unit 4

1. What is the primary objective of the physician caring for the person with a seizure disorder?

   Control the seizure activity or reduce seizure frequency to the point where it does not interfere with the person's life.

2. Where does the physician get the information about the individual's seizure patterns?
   - identify the correct classification of seizure activity
   - selecting the most appropriate medication
   - monitoring the individual for signs of medication side effects
   - modify those factors in the individual's life that precipitate seizures
   - teaching the individual the nature of epilepsy and the proper use of medication
   - assisting the individual to adjust his/her life to the reality imposed by the disorder

3. List three diagnostic tests a doctor might use to decide on a diagnosis
   - current observations
   - medical history
   - diagnostic tests

4. List the five basic principles that guide the physician's treatment
   - physical examination
   - neurological examination
   - lab test
   - CT scan (computerized tomography)
   - EEG (electroencephalogram)
   - M R I (magnetic resonance imaging)
   - neuropsychological assessment

5. Describe two of the three general ways medications prevent seizures
   - medications increase the seizure threshold by decreasing the excitability of the brain cells
   - medications limit the spread of seizure discharge in the brain by showing the electrical transmissions between nerve cells in the brain
   - medications increase an inhibitory pathway

6. Describe what happens to the medication in the body.
   The medication dissolves in the stomach into the lining, or intestinal walls, entering the blood stream.

7. What is therapeutic range?
   The therapeutic range of blood levels for seizure medications is the range of drug in the body where most patients have good seizure control and few or no side effects.

8. List at least five situations/occasions when the individual's blood level should be taken
   - taking a new medication
   - having seizures
   - having side effects
   - taking other medication
   - during pregnancy
   - once a year
   - when the doctor asks

9. What is meant by the term "half-life"?
   The time it takes the individual's body to get rid of half the medication in the body.

10. Half-life is important for the following two reasons:
    a. How long it takes to reach steady state
    b. How long it takes for the medication to be eliminated from the individual's system

11. What are some signs of the side effects in the following body systems?

stomach/intestines:	nausea, vomiting, loss of appetite, heartburn, difficulty swallowing, loss of taste sensation, constipation, diarrhea
skin:	skin rash with or without fever
liver:	yellowing of skin and eyes, dark urine, light colored stools, loss of appetite, abdominal pain, stomach upset
blood:	anemia, bleeding
kidney:	swelling of legs, frequent and or burning urination
central nervous system:	depression, drowsiness, lethargy, stupor, respiratory, dilated pupils, ataxia

12. The following factors will increase seizure activity. List two ways to **reduce** the likelihood of seizure activity?

a. Emotional factors
   - Assist the individual to lead a well-balanced healthy life
   - Avoid being overprotective

b. Failure to comply with medical schedule
   - Teach the person, his family, and significant others the importance of adhering to the medication schedule
   - Know the signs of toxicity and unwanted effects

c. Infection/fever
   - Look for signs of infection
   - Look for toxic effects of drugs, such as a fever, sore throat, bleeding bruising, etc.

d. Menstruation
   - The physician may increase medication 3 or 4 days before the expected date of menstruation
   - Restrict salt intake
   - Diuretic may be prescribed

e. Fatigue
   - Get enough rest
   - Sleep at regular time

f. Low blood sugar
   - Eat high protein bedtime snacks
   - Eat regular well balanced meals

g. Blinking lights
   - Search for and eliminate sources of flickering or intense light
   - Wear sunglasses
   - Avoid night driving and riding in cars at night

h. Outgrowing medication dosage
   - Routine medical care to regulate dosage in children
   - Careful observation of adolescents for new types of seizure activity
   - Adolescents are also prone to emotional stress which may increase seizure frequency

i. Hyperventilation
   - Avoid breathing as hard and fast

j. Caffeine
   - Avoid excessive use of caffeine

13. **T** F About 80% of persons with epilepsy can be nearly or completely seizure free by using one or more appropriate medications.

14. **T** F The more drugs used, the greater the risk of side effects and/or interactions.

15. T **F** Therapeutic range is the same for every individual.

16. **T** F At steady rate, the blood level will be approximately the same from day to day.

17. T **F** Steady state is when the amount of drug going into your body is twice as much as the amount of drug coming out of your body.

18. **T** F Every person has his/her own half-life.

Unit 5

1. What is the goal of seizure treatment during pregnancy?
   The goal of treatment is to keep the woman seizure free while limiting the effect of the medication on the fetus.

2. T **F** Epilepsy affects a person's ability to have sexual relations.

3. **T** F The change in seizure activity during pregnancy varies greatly.

4. T **F** Employment discrimination based on having epilepsy is legal.

5. **T** F It is illegal to ask about seizures on a job application.

6. What are three ways to help a person remember to take their seizure medications?
   - a divided pill box containing dose
   - alarm watch
   - pill box with an alarm
   - put medication out where it will be seen
   - record on a calendar

7. List at least five suggestions to help individuals deal with the fear they will have a seizure in public
   - be sure they have the needed information
   - get the best treatment available
   - help them accept having epilepsy
   - be sure significant others in the environment know seizure first-aid
   - teach the individual relaxation techniques
   - have the individual attend support groups with other individuals with epilepsy
   - evaluate the side effects of medication
   - refer to professional counseling when appropriate

8. List at least four <u>medical</u> strategies you will use as a staff member to enable individuals to cope with their epilepsy on a day-to-day basis

   - individuals must be trained not to discontinue medication without talking to their doctor

- any unusual changes in feelings and behavior must be reported to the agency nurse and/or doctor
- other doctors/dentists seen by the individual must be informed about the epilepsy conditions and the medication taken by the individual
- the individual's doctor must be asked about any other medication the person with epilepsy should not take
- staff members/individuals with epilepsy must be prepared to ask the appropriate questions before they see the doctor
- ask the doctor what to do if the individual forgets to take his/her medication

9. List at least five <u>emotional</u> well-being strategies you will use as a staff member to enable individuals to deal with their epilepsy on a day to day basis

- don't be afraid the individual will die during a seizure. The chances of this happening are remote
- don't let concerns that the individual might have a seizure keep the person at home
- have the individual wear a medic alert identification and keep a first-aid card in his/her wallet so people will know what to do in case he/she has a seizure
- keep the individual busy and active
- help the individual remember the things he/she can do
- allow the individual to do as much for him/herself as possible
- help the individual learn to ignore the reaction of other people
- help the person remember he/she has just as much to offer the world and just as much right to a happy life as anyone

10. T **F** The chances of dying as a result of a seizure are very high.