Epilepsy

Definition:
Epilepsy is a neurological condition that from time-to-time produces disturbances in the normal electrical functions of the brain. These disturbances may affect a person's consciousness, bodily movements and sensations for a short time. These disturbances are called epileptic seizures. That is why epilepsy is sometimes called a seizure disorder. During a seizure, unusual bursts of energy may occur in just one area of the brain (partial seizures) or affect nerve cells throughout the brain (generalized seizures).

What is the difference between seizures and epilepsy?
Seizures are a symptom of epilepsy. Epilepsy is the underlying tendency of the brain to produce sudden bursts of electrical energy that disrupt other brain functions. Having a single seizure does not necessarily mean a person has epilepsy. High fever, severe head injury, lack of oxygen – a number of factors can affect the brain enough to cause a single seizure. Epilepsy, on the other hand, is an underlying condition (or permanent brain injury) that effects the delicate systems which govern how electrical energy behaves in the brain, making it susceptible to recurring seizures.

According to the Epilepsy Foundation, Epilepsy is one of the most common disorders of the nervous system. More than 2.5 million Americans of all ages are living with epilepsy. Every year, 181,000 Americans develop seizures and epilepsy for the first time. The condition can develop at any time of life, especially in early childhood and old age.

FACTS:

- Epilepsy is a disorder of the brain.
- Epilepsy can be a temporary rather than a permanent disorder.
- Epilepsy affects people of all ages, races and nationalities.
- Epilepsy can develop at any time in life.
- Approximately two-thirds of the 181,000 people diagnosed with epilepsy each year are adults.
- When epilepsy is controlled by medication, people may not experience seizures at all.
- People with epilepsy do marry, have children and work.

NOT FACTS:

- **NOT** a mental illness.
- **NOT** a sign of spiritual possession.
- **NOT** someone's fault.
- Epileptic seizures are **NOT** called "fits."
- People **DO NOT** swallow their tongues during a seizure.
- You **ARE NOT** to force something into someone's mouth while they are experiencing a seizure.
- **NOT** usually mentally retarded.
- **NOT** contagious.

CHARACTERISTICS:

There are two types of seizures:

1 **Generalized -** (a Grand Mal seizure), the whole brain is affected. The individual may experience a lapse of consciousness and may have convulsions. Motor function and bladder or bowel control may also be affected.

2 **Partial -** abnormal electrical activity occurs in only part of the brain. There is a loss of consciousness, although with a "simple partial" seizure, there is usually only a decrease in consciousness. However, specific effects depend on the part of the brain involved.

SYMPTOMS:

Although the symptoms listed below are not necessarily indicators of epilepsy, it is wise to consult your supervisor or a member of the customer's family if one or more of them occurs:

- "Blackouts" or periods of confused memory.
- Episodes of staring or unexplained periods of unresponsiveness.
- Involuntary movement of arms and legs.
- "Fainting spells" with incontinence or followed by excessive fatigue.
- Odd sounds, distorted perceptions or episodic feelings of fear that cannot be explained.

TYPES:

There are not different types of epilepsy, but there are different types of seizures, as previously mentioned. The different types of seizures refer to how much of the brain experiences the abnormal electrical activity. The form, intensity and duration of the seizures are related to the number and type of brain cells that are affected.

HOW DIAGNOSED:

Diagnostic examinations will vary according to the needs of each individual. Diagnosis usually involves a thorough physical and neurological examination, a detailed medical history, analysis of blood and other bodily fluids, an electroencephalogram (EEG) and a computerized tomography (CT) or magnetic resonance imaging (MRI) scan. The pattern of seizures must be measured, including types, frequency and duration.

CAUSES:

In the vast majority of cases (70%), there is no cause of epilepsy. Of the remaining cases (30%) of epilepsy, the cause can be traced to the following factors:

- **Head Injury:** People who sustain a head injury as a result of an automobile accident, sports injury, fall or act of violence may develop epilepsy. Epilepsy may begin immediately after an injury, or it may take many years to develop.

- **Birth Trauma:** Infants who suffer a lack of oxygen during birth may develop resulting damage to the brain's electrical system.

- **Poisoning:** Lead poisoning has been associated with the development of epilepsy. Likewise, more than 5,000 people each year are reported to develop seizures caused by alcoholism.

- **Infection:** Infections that can affect the brain like meningitis (inflammation/swelling of the membranes that enclose the brain and spinal cord), viral encephalitis (inflammation of the brain), mumps, measles and diphtheria (an infectious disease causing severe inflammation of mucous membranes, especially in the throat) can result in epilepsy.

- **Brain Tumors:** In some instances, a seizure may be the first sign that a brain tumor exists. For others who have a brain tumor removed, seizures may result after treatment.

- **Maternal Illness during Pregnancy:** Injury or illness to an expectant mother can affect the developing brain in the fetus during pregnancy.

- **Heredity:** Researchers are continually examining the role of heredity and genetics in the development of seizure disorders.

IMPACT:

- Home

People with epilepsy, both children and adults, may be significantly affected in most areas of their lives. Fear, misunderstanding and stigma may cause social isolation and effect all relationships in that person's life. In the family setting, parents may become understandably overprotective of the child with epilepsy.

The school year may be difficult for children and young adults with epilepsy, again due to the stigma and fear about seizure activity. Dating may also be very awkward for young adults with epilepsy, due to issues of low self-esteem, or a fear of having a seizure when out in public places. Independence in some areas may be hard to attain due to the difficulties associated with obtaining and keeping a driver's license and employment. (See Arkansas' requirements for driver's licensing in the Resources component contained within this section.)

- Work

Epilepsy can have devastating effects on employability, self-support and income. Typically, the severity of epilepsy influences the degree to which employment is affected. Among people whose seizures continue despite treatment, the probability of work is reduced by 47% in men and 41% in women. It is costly to society, and more importantly to the individual, in that one fifth to one quarter of people with controlled seizures are significantly less likely to work than people in the general population. (Epilepsy, USA News Magazine).

Getting and keeping a driver's license is another issue facing people with epilepsy. The laws vary from state to state pertaining to seizures and driving, so individuals must check their state's regulations. There is no doubt that being unable to drive one's self to work or to other activities is a major contributing factor to the high unemployment rates among people with epilepsy. Another factor that adversely affects the ability to find and keep a job is the fear of some employers that the worker with epilepsy may have a seizure while at work. Concerns of employer liability in case of injury often influence the decision on whether or not to "take a chance" on an employee with epilepsy.

- **Play**

Recreation, exercise and playtime are important to everyone, including people with epilepsy. But often, due to the fear and stigma factors mentioned earlier, children and adults alike are left out of activities at school and other opportunities for team sports.

Since recreational activities are important to forming friendships and relationships, the absence of this opportunity contributes to the social isolation many people with epilepsy continue to experience.

The Epilepsy Foundation encourages people with epilepsy to engage in sports and recreational activities as part of a positive approach to an active life. But precautions are necessary for some activities, and people with epilepsy should discuss the advisability of any sport or activity with their doctor.

INTERVENTIONS:

A person with epilepsy can help control their seizures by taking the prescribed medication regularly, maintaining regular sleep cycles, avoiding unusual stress, and working closely with their physician. Regular medical evaluations and follow up visits are also important. However, seizures may occur even when someone is doing everything they are supposed to.

Epilepsy may be treated with drugs, surgery or a special diet. Of the treatments, drug therapy is by far the most common and is usually the first to be tried. A number of medications are currently used in the treatment of epilepsy. These medications control different types of seizures. People who have more than one type of seizure may have to take more than one kind of drug, although doctors try to control seizures with one drug if possible. A seizure-preventing drug (also known as anti-epileptic or anticonvulsant drugs) won’t work properly until it reaches a certain level in the body, and that level has to be maintained. It is important to follow the doctor’s instruction very carefully as to when and how much medication should be taken. The goal is to keep the level high enough to prevent seizures, but not so high that it causes excessive sleepiness or other unpleasant side effects.

- Treatment through Diet

A child who has a lot of side effects from anti-seizure drugs, or whose seizures cannot be controlled by them, may be treated with a special restricted calorie diet that "tricks" the body into burning fat, instead of glucose, for energy.
The diet is very high in fats and low in protein and carbohydrates. It produces a change in the body’s chemistry called "ketosis," which has the effect of controlling seizures, or reducing their frequency in two out of three children placed on the diet. Although not all children benefit, parents report that children who do are more alert and active than they were previously.

Like other treatments, the ketogenic diet has some side effects, which the medical team monitors through blood and urine tests and follow-up visits. The diet is primarily used to treat children for a limited period of time, after which the diet may be slowly tapered and regular foods slowly re-introduced.

Studies are underway to see if the ketogenic diet would work for some adults as well; early results suggest that it may. But the long-term effects of such a high fat diet are unknown.

- Treatment through Vagus Nerve Stimulation

Vagus nerve stimulation (VNS) is another form of treatment that may be tried when medications fail to stop seizures. It is currently approved for use in adults and children over the age of 12 who have partial seizures that resist control by other methods. The therapy is designed to prevent seizures by sending regular small pulses of electrical energy to the brain via the vagus nerve, a large nerve in the neck.

The energy is delivered by a flat, round battery, about the size of a silver dollar, which is surgically implanted in the chest wall. Thin wires (electrodes) are threaded under the skin and wound around the vagus nerve in the neck.

The battery is programmed by the health team to send a few seconds of electrical energy to the vagus nerve every few minutes. If the person with the system feels a seizure coming on, he/she can activate the discharge by passing a small magnet over the battery. In some people, this has the effect of stopping the seizure. It is also possible to turn the device off by holding the magnet over it.

Side effects of VNS treatment are mostly hoarseness, and sometimes, discomfort in the throat. There may be a change in voice quality during the actual stimulation. Although complete seizure control is seldom achieved, the majority of people who have the VNS implant experience fewer seizures. In some, its effectiveness increases with time, and patients report an improved quality of life.

NOTE: For examples of possible surgical interventions, and for further reading about the aforementioned interventions, please refer to the Resources component contained within this section of the manual.

WHAT TO DO DURING A SEIZURE:

When working with an individual who has epilepsy, the DSPs most important role may be seizure care.

Before a seizure starts some people experience a sensation or warning feeling that is commonly called an aura. For some people, an aura is felt as a change in body temperature, or a person may hear a musical sound, experience a strange taste, or even be aware of a particular smell.

- If the individual expresses an aura, assist them to a sitting or lying position on the floor in a place that is away from others.

- Stay calm! You cannot stop a seizure once it has started; just let it run it’s course.

- Protect the person from harm. If a person is standing, they are almost sure to fall. Try to break their fall and move sharp, hard or hot objects away if possible; if not, keep the person from hitting these objects.

- Loosen ties or anything around the neck that may make breathing difficult and remove glasses.

- Create a safe, calm and reassuring environment as possible. Assure others that everything is fine and encourage them to return to what they were doing. Speak softly and calmly to the person and assure them that they are fine. Lower the lights if possible.

- Turn the person to one side to keep their airway clear. Do not try to force the mouth open or put anything in their mouth during a seizure.

- Do not leave a person during a seizure. Do not try to hold them down or stop movements during a seizure.

- Put something soft under the persons head and cover them with a blanket. The blanket will help those that become cold during a seizure as well as providing privacy and respect. During a seizure, the individual may lose control of their bladder and/or bowel. The blanket will hide this from others and give the individual some privacy.

- Allow the person to rest or sleep after the seizure. An individual may be disoriented/confused even a day or two after a seizure.

WHEN TO CALL 911:

Many agencies have their own policy for when to call 911 in the event of a seizure. DSPs need to know their agency policy and follow that first. The following is when the Epilepsy Foundation suggests calling 911.

- If the seizure lasts more than 5 minutes.
- If there is no “epilepsy/seizure disorder” ID present.
- If there is slow recovery, a second seizure, or difficult breathing afterwards.
- If the individual is pregnant or has other medical problems.
- If there is any sign of injury.

ACCESS CODE for test: **Path2019**

Included Resource Material

- Arkansas Driver Licensing Laws - Epilepsy Foundation (2 Pages)
- Introduction to the Epilspsy Foundation - Epilepsy Foundation (1 Page)
- Guide to Epilepsy Resources - (2 Pages)
- Surgical Treatment of Epilepsy - John P. Laurent, M.D., Texas Children's Hospital, Baylor College of Medicine (2 Pages)
- All About Seizure Dogs - Epilepsy Foundation (3 Pages)
- Treatment with Medicine - Epilepsy Foundation (4 Pages)
- Study Gives Thumbs Up to Home Therapy for Seizure Clusters - Epilepsy Foundation (2 Pages)
- Treatment Through Diet - Epilepsy Foundation (1 Page)
- Treatment Through Vagus Nerve Stimulation - Epilepsy Foundation (1 Page)