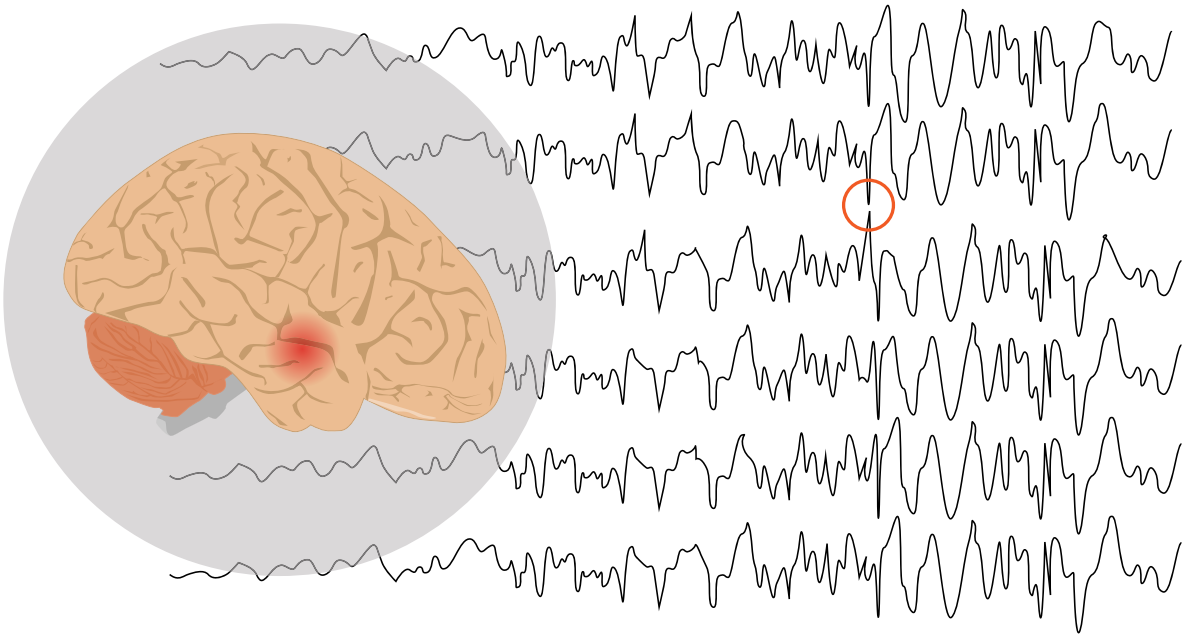
Care CEUs

Continuing Education for Nursing Home Administrators

Identifying and Managing Epilepsy and Seizures



Introduction 3

Section 1: Epilepsy and Seizures 3

What is epilepsy? 3

What is a seizure? 3

Are there different types of seizures? 3

What are the triggers associated with seizures? 5

What is the prevalence of epilepsy worldwide and in the United States? 6

What causes epilepsy? 6

What are the signs/symptoms of epilepsy? 6

How may individuals suffering from epilepsy present? 7

How is epilepsy diagnosed? 8

What professional skills and tools should health care professionals employ while engaging with individuals potentially suffering from epilepsy? 8

What are the complications typically associated with epilepsy? 11

Section 1: Summary 15

Section 1: Key Concepts 16

Section 1: Key Terms 16

Section 1: Personal Reflection Question 18

Section 2: Epilepsy Treatment/Management 19

Non-Pharmacological Treatment Options for Epilepsy 19

Pharmacological Treatment Options for Epilepsy 21

Section 2: Summary 24

Section 2: Key Concepts 25
Section 2: Key Terms.....25
Section 2: Personal Reflection Question.....25
Section 3: Epilepsy Patient Care Recommendations.....25
Epilepsy Patient Care Recommendations 26
Section 3: Summary.....35
Section 3: Key Concepts 35
Section 3: Key Terms.....35
Section 3: Personal Reflection Question.....36
Case Study: Epilepsy 36
Case Study 37
Case Study Review.....37
Conclusion 40
References 41

Introduction

Epilepsy is a disorder that can lead to seizures, debilitating complications, and even death. Therefore, patients suffering from epilepsy must receive effective care. The question is, how can health care professionals effectively care for patients suffering from epilepsy? This course will answer that very question, while providing health care professionals with recommendations on how to optimize patient care.

Section 1: Epilepsy and Seizures

Patients suffering from epilepsy may present complex challenges to health care professionals that can impact their abilities to effectively care for such patients. The question that remains is, how can health care professionals effectively care for patients suffering from epilepsy? The straightforward answer to the aforementioned question is to incorporate the three essential elements of epilepsy patient care into daily practice. With that in mind, this section of the course will review the first essential element of epilepsy patient care, which is to possess insight into epilepsy and how it may affect potential patients. The information found within this section was derived from materials provided by the Centers for Disease Control and Prevention (CDC) unless, otherwise, specified (Centers for Disease Control and Prevention [CDC], 2020).

What is epilepsy?

Epilepsy may refer to a neurological disorder marked by sudden recurrent seizures.

What is a seizure?

A seizure may refer to a short change in normal brain activity; a sudden, uncontrolled electrical disturbance in the brain. Health care professionals should note that a seizure may disrupt or change an individual's behavior, movements, feelings, and levels of consciousness. Health care professionals should also note that seizures may last from a few seconds to a few minutes.

Are there different types of seizures?

- There are different types of seizures. Seizures are typically classified into one of the following two major seizure categories: generalized seizures and focal seizures.

- A generalized seizure may refer to a type of seizure that affects both sides of the brain. Individuals experiencing a generalized seizure may exhibit the following signs/symptoms: confusion, loss of consciousness, muscle stiffness, periods of shaking, and short jerking movements in different parts of the body (e.g., arms; legs). The two major types of generalized seizures include absence seizures and tonic-clonic seizures. Specific information on the aforementioned types of seizures may be found below.

    - **Absence seizures** - an absence seizure, otherwise known as a petit mal seizure, may refer to a seizure characterized by brief, sudden lapses of consciousness. Signs/symptoms of an absence seizure may include the following: staring spells (i.e., appearing to stare into space for a few seconds), mental confusion, lip smacking, eyelid fluttering, and chewing motions. Health care professionals should note that absence seizures are more common in children than in adult patient populations.

    - **Tonic-clonic seizures** - a tonic-clonic seizure may be the first type of seizure that comes to mind when considering seizures or epilepsy. A tonic-clonic seizure, otherwise known as a grand mal seizure, may refer to a seizure characterized by a loss of consciousness and violent muscle contractions. Signs/symptoms of a tonic-clonic seizure may include the following: confusion, loss of consciousness, falling to the ground, drooling, lip and/or tongue biting, blue skin from poor circulation, and violent muscle contractions. Typically, tonic-clonic seizures occur in two stages. During the first stage of a tonic-clonic seizure, an individual will lose consciousness and, most likely, fall to the ground if standing or slouched over/doubled over if sitting. The first stage of a tonic-clonic seizure lasts about 10 to 20 seconds. During the second stage of a tonic-clonic seizure, an individual will experience muscle convulsions that usually last for less than two minutes. Health care professionals should note that an individual may feel tired after a tonic-clonic seizure.

- A focal seizure may refer to a type of seizure that affects one area of the brain. Individuals experiencing a focal seizure may exhibit the following signs/ symptoms: muscle contractions, followed by relaxation, contractions on just one side of the body, unusual head or eye movements, numbness, tingling, a sensation that something is crawling on the skin, abdominal pain, and rapid heart rate or pulse. The three major types of focal seizure include: simple focal seizures,

complex focal seizures, and secondary generalized seizures. Specific information on the aforementioned types of seizures may be found below.

- **Simple focal seizures** - a simple focal seizure may refer to a seizure characterized by unusual electrical activity in one, small area of the brain. Signs/symptoms of a simple focal seizure may include the following: twitching, stiffness, a sensation of a "wave" going through the head, a strange taste in the mouth, and the sensation of a strange smell. Health care professionals should note the following: typically an individual does not lose consciousness during a simple focal seizure.

- **Complex focal seizures** - a complex focal seizures may refer to a seizure characterized by unusual activity in one hemisphere of the brain. Signs/ symptoms of a complex focal seizure may include the following: decreased awareness, confusion, and a sensation of being "dazed." Health care professionals should note that an individual may not be able to respond to questions, directions, or external stimuli for, up to, a few minutes after experiencing a complex focal seizure.

- **Secondary generalized seizures** - a secondary generalized seizure may refer to a seizure that starts in one part of the brain, and then spreads to both sides of the brain. Signs/symptoms of a secondary generalized seizure may include: confusion, muscle stiffness, and periods of shaking. Health care professionals should note the following: essentially, when an individual experiences a secondary generalized seizure, he or she first has a focal seizure, followed by a generalized seizure.

What are the triggers associated with seizures?

- A trigger, as it relates to seizures, may refer to a factor that comes before a seizure; a factor that may lead to a seizure.

- Specific triggers associated with seizures include the following: illness, fever, bright lights, flashing lights, alcohol use, illicit drug use, low blood sugar, prescribed medications, insufficient sleep (i.e., not getting enough sleep), and stress (note: stress may refer to a factor that causes emotional, physical, or psychological tension) (Epilepsy Foundation, 2020).

- Some epileptic individuals may suffer from what is referred to as reflex epilepsies. Reflex epilepsies may refer to epileptic seizures that occur consistently in relation to a specific trigger (e.g., flashing lights) (Epilepsy Foundation, 2020).

What is the prevalence of epilepsy worldwide and in the United States?

- Research presented by the World Health Organization (WHO) indicates that approximately 50 million people worldwide suffer from epilepsy (note: nearly 80% of people suffering from epilepsy live in low- and middle-income countries; the risk of premature death in people with epilepsy is up to three times higher than for the general population) (World Health Organization [WHO], 2019).
- Research presented by the CDC indicates that approximately 3.4 million individuals, nationwide, suffer from epilepsy.
- Research presented by the CDC indicates that about 0.6% of children aged 0 - 17 years have active epilepsy.

What causes epilepsy?

• Epilepsy may be caused by a variety of different factors and conditions such as the following: stroke, brain tumor, genetic disorders (e.g., Down syndrome), neurologic diseases (e.g., Alzheimer's disease), brain infection from parasites (e.g., malaria, neurocysticercosis), infections caused by viruses (e.g., influenza, dengue, Zika), bacteria, loss of oxygen to the brain, head injury, and a traumatic brain injury (note: the term traumatic brain injury may refer to any brain dysfunction caused by an outside force [e.g., a violent blow to the head; a severe bump to the head]).

What are the signs/symptoms of epilepsy?

- The signs/symptoms associated with epilepsy include the ones found below.
    - Seizures (note: individual suffering from epilepsy experience few symptoms between seizures)
    - Temporary paralysis after a seizure
    - Abnormal behavior (e.g., tense for no apparent reason)
    - Fear centered around seizures
    - Fatigue

How may individuals suffering from epilepsy present?

- Individuals suffering from epilepsy may present with no discernible signs or symptoms. They may appear to be similar to nonspecific patient populations or may appear to be completely healthy. However, some patients suffering from epilepsy may exhibit behaviors that may seem odd or inconsistent with other patient populations (e.g., tense for no apparent reason, fearful, confused, and or "dazed"). Additionally, some patients suffering from epilepsy may present immediately after a seizure, and therefore, may be incapacitated in some way. Health care professionals should note that patients suffering from epilepsy may experience a seizure while presenting to a health care facility; in the event of a patient seizure, health care professionals should follow their health care organizations' policies and procedures regarding such an event.
- In addition to their appearance, individuals suffering from epilepsy may use certain types of wording to describe or articulate their state. Examples of wording that may be used by individuals potentially suffering from epilepsy to describe or articulate their state may include the following:
    - I experienced a seizure.
    - I recently experienced two seizures.
    - I experienced two seizures in the past 24 hours.
    - Individuals tell me I often stare into space.
    - Individuals tell me I often appear to be having staring spells.
    - I feel confused after experiencing staring spells.
    - I recently lost consciousness, fell to the ground, and had violent muscle contractions.
    - I recently lost consciousness, fell, and "flopped" on the ground.
    - I recently had the sensation of a "wave" going through my head.
    - I felt confused, and then had an odd taste in my mouth.
    - I felt confused, and then noticed an odd smell.
    - I recently experienced confusion.

    - I recently felt "dazed."
    - I am tense.
    - I am nervous about seizures.
    - I fear seizures.
    - I recently experienced a head injury, and I am nervous about seizures.
    - I am afraid of having a seizure.
    - I am afraid of having a seizure because I recently had a bump to the head.
- When attempting to distinguish specific wording regarding epilepsy, health care professionals should keep in mind that they may hear or encounter many different versions or variations of the previously highlighted language. Additionally, health care professionals should focus their attention on any patient's verbiage that may indicate symptoms of a seizure and/or epilepsy.

How is epilepsy diagnosed?

The diagnostic process for epilepsy may be conducted by a health care professional (e.g., neurologist), and may include the use of an electroencephalogram (EEG) and a magnetic resonance imaging (MRI) scan. Health care professionals should note the following: an EEG may refer to a test or procedure that detects abnormalities in the electrical activity of the brain; a MRI scan may refer to a technique that uses powerful magnets to create pictures of the anatomy and the physiological processes of the human body. Health care professionals should also note the following: individuals are typically diagnosed with epilepsy after experiencing two or more seizures.

What professional skills and tools should health care professionals employ while engaging with individuals potentially suffering from epilepsy?

- **Observation/patient monitoring** - as previously alluded to, patient observation can be essential to identifying individuals suffering from epilepsy. Health care professionals should observe patients' signs and symptoms as well as patients' body language and overall appearance to help effectively identify an individual suffering from epilepsy.
- **Health care documentation** - health care documentation may refer to a digital or an analog record detailing the administration of health care to patients. If

completed effectively, health care documentation can be used, in daily practice, by health care professionals to communicate vital patient information to other health care professionals in order to facilitate positive health care outcomes and to decrease the potential for negative health care outcomes, such as adverse events and patient mortalities. Effective health care documentation may be used as a method to review patient cases and to ensure all aspects of an individual patient's health care are noted and evaluated to maximize therapeutic outcomes.

In order for health care documentation to be considered effective, it must function as a viable form of communication, as well as a means to establish a detailed record of health care administration. There are many different forms of health care documentation - however, if health care professionals include specific characteristics in their documentation, they can ensure their documentation will be effective.

The first characteristics of effective documentation are objectivity and accuracy. Health care documentation should include objective information free of subjective judgment, bias, or opinion. Health care documentation should also be accurate - meaning it should include information which can be measured or verified by another individual.

Additional characteristics of effective health care documentation include clarity and completeness. Clarity, as it relates to health care documentation, may refer to a quality which enables multiple health care professionals to obtain meaning from recorded data and/or information relating to health care. Completeness, as it relates to health care documentation, may refer to a state where all of the necessary components and/or parts are present. Only when clarity and completeness are achieved can health care documentation be considered effective.

Finally, the information found within health care documentation should be readily accessible and available to all those who require it. Thus, health care professionals must include accurate times and dates of health care administration when completing their health care documentation to further its effectiveness. Health care professionals should note that completing effective health care documentation can help health care professionals foster effective communication and ensure patients receive the care they require.

- **Seizure first aid** - due to the nature of epilepsy, a health care professional may encounter an individual having a seizure. In those cases health care professionals should apply seizure first aid. In addition, health care professionals should consider providing seizure first aid education to epileptic patients and their family members, when applicable. Specific information regarding seizure first aid may be found below.
    - In the event of a seizure, an individual should stay with the person having the seizure until the seizure ends.
    - Remain calm at all times.
    - Help the person having a seizure to the ground, if applicable.
    - Turn the person having a seizure gently onto one side to help the person breathe.
    - Loosen clothing around the neck to help the person breathe.
    - Clear the area around the individual having a seizure of anything hard or sharp to prevent an injury from occurring.
    - Remove eyeglasses, if applicable.
    - Put something soft and flat under the individual having a seizure's head (e.g., pillow; a folded piece of clothing).
    - After a seizure ends, individuals should help the person that had a seizure stabilize themselves (e.g., help the person that had a seizure sit up; guide the person that had a seizure to a quiet place to rest).
    - Do not hold the person having a seizure down or try to stop his or her movements in any way.
    - Do not put anything in the individual's mouth during a seizure because it may cause injury to the teeth and/or the jaw. Health care professionals should note the following: typically, a person having a seizure cannot swallow his or her tongue.
    - Do not try to give mouth-to-mouth breaths (e.g., CPR) to individuals having a seizure; individuals usually start breathing again on their own after the seizure ends.

- Do not offer the person that had a seizure food or water until he or she is fully alert.
- Instruct individuals to call 911 if the individual having a seizure meets one or more of the following criteria: the individual has never had a seizure before; the individual has difficulty breathing or waking after the seizure ends; the seizure lasts longer than five minutes; the individual has another seizure soon after the first one ends; the individual is injured during the seizure; the seizure occurs when the person is in water; and/or the individual having the seizure has a health condition (e.g., heart disease; diabetes).

What are the complications typically associated with epilepsy?

Epilepsy is often associated with a variety of complications. Specific information regarding the most common complications typically associated with epilepsy may be found below.

- **Physical injury** - one of the first complications that may come to mind when considering epilepsy is a physical injury. Some types of seizures may lead to a fall or another type of incident involving physical injury. The types of physical injuries associated with seizures include the following: broken bones, fractures, bruising, sprains, lip punctures or tears from biting, and tongue punctures or tears from biting. Health care professionals should note that some epileptic patients presenting to a health care facility may require treatment for physical injuries sustained during a seizure.
- **Impaired function** - another complication that may initially come to mind when considering epilepsy is impaired function. Essentially, epilepsy can impede an individual's ability to carry out daily tasks, work, and attend school. Additionally, epilepsy can impact an individual's ability to maintain personal relationships and engage in desired activities. Moreover, epilepsy can impact an individual's ability to drive and operate a motor vehicle. Health care professionals should note the following: individuals suffering from epilepsy may be able to drive and operate a motor vehicle if their seizures are controlled with medication or other forms of treatment and they meet the licensing requirements in their state of residence; typically, in order to drive and operate a motor vehicle, individuals suffering from epilepsy must be free of seizures that affect consciousness for a certain period of

time (e.g., three months; one year); an individual should be familiar with his or her state of residency's laws regarding epilepsy and driving a motor vehicle.

- **Cognitive impairment** - additionally, cognitive impairment may come to mind when considering the complications associated with epilepsy. Epilepsy and seizures are associated with cognitive decline and cognitive impairment. Health care professionals should note the following information regarding cognitive impairment: cognitive impairment can range from mild to severe; mild impairment may affect individuals' cognitive functions - however, they are still able to carry out daily activities; severe levels of cognitive impairment can lead to losing the ability to understand the meaning or importance of something and the ability to talk or write, resulting in the inability to carry out daily activities and live independently. Health care professionals should also note the following signs/ symptoms of cognitive impairment: memory loss, frequently asking the same question, repeating the same story over and over, unable to recognize familiar people and places, trouble exercising judgment (e.g., not knowing what to do in an emergency), mood changes, vision problems, and difficulty planning and carrying out tasks (e.g., following a recipe or keeping track of monthly bills).

- **Depression** - often, depression is associated with epilepsy. A depressive disorder may refer to a mood disorder characterized by a persistent depressed mood and/ or anhedonia, which ultimately causes significant interference in daily life (note: anhedonia may refer to a loss of interest in previously enjoyable activities). Sign/ symptoms of a depression disorder may include the following: depressed mood, anhedonia, appetite changes, weight changes, sleep difficulties, psychomotor agitation or retardation, fatigue or loss of energy, diminished ability to think or concentrate, feelings of worthlessness or excessive guilt, and suicidality. Health care professionals should note the following: one of the most common forms or types of depressive disorders is major depressive disorder; major depressive disorder may refer to a form of depression that occurs most days of the week for a period of two weeks or longer leading to clinically significant distress or impairment in social, occupational, or other important areas of functioning.

- **Anxiety** - along with depression, anxiety is also associated with epilepsy. An anxiety disorder may refer to a mental health disorder characterized by prolonged periods of persistent, excessive worry about a number of events or activities, which cause clinically significant distress or impairment in social, occupational, or other important areas of functioning. In regards to an anxiety disorder, excessive

worry may refer to worrying when there is no specific reason/threat present or in a manner that is disproportionate to the actual risk of an event, activity, and/or situation. Sign/symptoms of an anxiety disorder may include the following: excessive anxiety, excessive worry, restlessness, persistent feelings of being keyed up or on edge, easily fatigued, difficulty concentrating, mind feeling blank at times (i.e., mind going blank), irritability, and muscle tension. Health care professionals should note the following: one of the most common forms or types of anxiety disorders is generalized anxiety disorder; a generalized anxiety disorder may refer to a mental health disorder characterized by excessive anxiety and worry occurring more days than not for at least six months, about a number of events or activities (e.g., work or school performance), which is difficult to control and leads to clinically significant distress or impairment in social, occupational, or other important areas of functioning.

- **Sleep deprivation** - sleep deprivation is associated with epilepsy. Sleep deprivation may refer to a lack of sufficient sleep (i.e., an individual does not get enough sleep). Health care professionals should note the following potential signs/symptoms of sleep deprivation: drowsiness, feeling tired or "sleepy" during the day (especially while performing quiet activities, like reading), mood changes (e.g., depressed mood), irritability, an inability to concentrate, difficulty learning new concepts, impaired memory, forgetfulness, reduced physical strength, diminished ability to fight off infections, and weight gain.

- **Substance abuse** - epilepsy and seizures may be associated with substance abuse (note: substance abuse may lead to seizures). Substance abuse may refer to the harmful or hazardous use of a psychoactive substance such as alcohol or illicit drugs. Health care professionals should note the following signs of alcohol and/or illicit drug use: slurred speech, an active tremor, shakiness, poor coordination, sweating, nausea, vomiting, aggression, agitation, compulsive behavior, craving, red eyes, dry mouth, drowsiness, involuntary eye movements, dilated pupils, nasal congestion, mouth sores, reduced consciousness, lack of pain sensation, intolerance to loud noise, dizziness, confusion, lack of awareness to surroundings, and needle marks.

- **Suicidal ideation** - due to epilepsy-related depression, anxiety, sleep deprivation, and substance abuse, individuals suffering from epilepsy may experience suicidal ideation. Suicidal ideation may refer to thoughts of suicide and/or thoughts of planning suicide. Health care professionals should make every effort to identify

the potential for suicide and prevent patient suicide, when applicable. The suicide of a patient while in a staffed, round-the-clock care setting is a frequently reported type of sentinel event. Health care professionals should note the following: health care professionals can work to reduce the risk for patient suicide by following the related elements of care found below. The information found below was derived from materials provided by the Joint Commission (Joint Commission, 2021).

- Health care organizations and health care professionals should conduct an environmental risk assessment that identifies features in the physical environment that could be used to attempt suicide, when applicable.
- Health care organizations and health care professionals should take necessary action to minimize the risk(s) of features in the physical environment that could be used to attempt suicide (e.g., hooks that can be used for hanging); health care organizations should have procedures in place to mitigate the risk of suicide for patients at high risk for suicide (e.g., one-to-one monitoring; removing objects that pose a risk for self-harm if they can be removed without adversely affecting the patient's medical care; assessing objects brought into a room by visitors; using safe transportation procedures when moving patients).
- Screen all patients for suicidal ideation who are being evaluated or treated for behavioral health conditions as their primary reason for care using a validated screening tool.
- Use an evidence-based process to conduct a suicide assessment of patients who have screened positive for suicidal ideation (note: the assessment directly asks about suicidal ideation, plan, intent, suicidal or self-harm behaviors, risk factors, and protective factors).
- Document patients' overall level of risk for suicide and the plan to mitigate the risk for suicide.
- Follow written policies and procedures addressing the care of patients identified as at risk for suicide (note: related policies and procedures should include the following: training and competence assessment of staff who care for patients at risk for suicide; guidelines for reassessment; monitoring patients who are at high risk for suicide).

    - Follow written policies and procedures for counseling and follow-up care at discharge for patients identified as at risk for suicide.
    - Monitor implementation and effectiveness of policies and procedures for screening, assessment, and management of patients at risk for suicide and take action as needed to improve compliance.

- **Sudden Unexpected Death in Epilepsy (SUDEP)** - finally, individuals suffering from epilepsy may experience SUDEP. SUDEP may refer to deaths in individuals with epilepsy that are not caused by injury or other known causes. SUDEP may result from seizure-related apnea, suffocation, heart rhythms, and/or cardiac arrest. Risk factors for SUDEP include: age, uncontrolled seizures, frequent seizures, tonic-clonic seizures, lapses in epilepsy treatment (e.g., poor medication adherence), alcohol use, and illicit drug use. Individuals can prevent SUDEP by adhering to epilepsy treatment regimens, getting "enough sleep," avoiding, preventing, and limiting stress, and by avoiding substance abuse. Health care professionals should note the following: children with uncontrolled epilepsy or frequent seizures are at the highest risk for SUDEP.

Section 1: Summary

Epilepsy may refer to a neurological disorder marked by sudden recurrent seizures. Epilepsy may be caused by a variety of different factors and conditions such as the following: stroke, brain tumor, genetic disorders (e.g., Down syndrome), neurologic diseases (e.g., Alzheimer's disease), brain infection from parasites (e.g., malaria, neurocysticercosis), infections caused by viruses (e.g., influenza, dengue, Zika), bacteria, loss of oxygen to the brain, head injury, and a traumatic brain injury. The signs/ symptoms associated with epilepsy include the following: seizures (note: an individual suffering from epilepsy may experience few symptoms between seizures), temporary paralysis after a seizure, abnormal behavior (e.g., tense for no apparent reason), fear centered around seizures, and fatigue. The complications typically associated with epilepsy include the following: physical injury, impaired function, cognitive impairment, depression, anxiety, sleep deprivation, substance abuse, suicidal ideation, and SUDEP. Lastly, health care professionals should work to identify patients potentially suffering from epilepsy to ensure they receive the care they need.

Section 1: Key Concepts

- The first essential element of epilepsy patient care is to possess insight into epilepsy and how it may affect potential patients.
- Seizures are typically classified into one of the following two major seizure categories: generalized seizures and focal seizures.
- Specific triggers associated with seizures include the following: illness, fever, bright lights, flashing lights, alcohol use, illicit drug use, low blood sugar, prescribed medications, insufficient sleep (i.e., not getting enough sleep), and stress (Epilepsy Foundation, 2020)
- Epilepsy may be caused by a variety of different factors and conditions such as the following: stroke, brain tumor, genetic disorders (e.g., Down syndrome), neurologic diseases (e.g., Alzheimer's disease), brain infection from parasites (e.g., malaria, neurocysticercosis), infections caused by viruses (e.g., influenza, dengue, Zika), bacteria, loss of oxygen to the brain, head injury, and a traumatic brain injury.
- The signs/symptoms associated with epilepsy include the following: seizures, temporary paralysis after a seizure, abnormal behavior, fear centered around seizures, and fatigue.
- The diagnostic process for epilepsy may be conducted by a health care professional (e.g., neurologist), and may include the use of an electroencephalogram (EEG) and a magnetic resonance imaging (MRI) scan.
- Health care professionals may be required to employ the following professional skills and tools while engaging with individuals potentially suffering from epilepsy: observation/patient monitoring, health care documentation, and seizure first aid.
- The complications typically associated with epilepsy include the following: physical injury, impaired function, cognitive impairment, depression, anxiety, sleep deprivation, substance abuse, suicidal ideation, and SUDEP.

Section 1: Key Terms

Epilepsy - a neurological disorder marked by sudden recurrent seizures

Seizure - a short change in normal brain activity; a sudden, uncontrolled electrical disturbance in the brain

Generalized seizure - a type of seizure that affects both sides of the brain

Absence seizure (otherwise known as a petit mal seizure) - a seizure characterized by a brief, sudden lapses of consciousness

Tonic-clonic seizure (otherwise known as a grand mal seizure) - a seizure characterized by a loss of consciousness and violent muscle contractions

Focal seizure - a type of seizure that affects one area of the brain

Simple focal seizure - a seizure characterized by unusual electrical activity in one, small area of the brain

Complex focal seizure - a seizure characterized by unusual activity in one hemisphere of the brain

Secondary generalized seizure - a seizure that starts in one part of the brain, and then spreads to both sides of the brain

Trigger (as it relates to seizures) - a factor that comes before a seizure; a factor that may lead to a seizure

Reflex epilepsies - epileptic seizures that occur consistently in relation to a specific trigger (Epilepsy Foundation, 2020)

Stress - a factor that causes emotional, physical, or psychological tension

Traumatic brain injury - any brain dysfunction caused by an outside force

Electroencephalogram (EEG) - a test or procedure that detects abnormalities in the electrical activity of the brain

Magnetic resonance imaging (MRI) scan - a technique that uses powerful magnets to create pictures of the anatomy and the physiological processes of the human body

Health care documentation - a digital or an analog record detailing the administration of health care to patients

Clarity (as it relates to health care documentation) - a quality which enables multiple health care professionals to obtain meaning from recorded data and/or information relating to health care

Completeness (as it relates to health care documentation) - a state where all of the necessary components and/or parts are present

Depressive disorder - a mood disorder characterized by a persistent depressed mood and/or anhedonia, which ultimately causes significant interference in daily life

Anhedonia - a loss of interest in previously enjoyable activities

Major depressive disorder - a form of depression that occurs most days of the week for a period of two weeks or longer leading to clinically significant distress or impairment in social, occupational, or other important areas of functioning

Anxiety disorder - a mental health disorder characterized by prolonged periods of persistent, excessive worry about a number of events or activities, which cause clinically significant distress or impairment in social, occupational, or other important areas of functioning

Excessive worry (in the context of an anxiety disorder) - worrying when there is no specific reason/threat present or in a manner that is disproportionate to the actual risk of an event, activity, and/or situation

Generalized anxiety disorder - a mental health disorder characterized by excessive anxiety and worry occurring more days than not for at least six months, about a number of events or activities (such as work or school performance), which is difficult to control and leads to clinically significant distress or impairment in social, occupational, or other important areas of functioning

Sleep deprivation - a lack of sufficient sleep

Substance abuse - the harmful or hazardous use of a psychoactive substance such as alcohol or illicit drugs

Suicidal ideation - thoughts of suicide and/or thoughts of planning suicide

Sudden Unexpected Death in Epilepsy (SUDEP) - deaths in individuals with epilepsy that are not caused by injury or other known causes

Section 1: Personal Reflection Question

How can health care professionals effectively identify individuals potentially suffering from epilepsy?

Section 2: Epilepsy Treatment/Management

The second essential element of epilepsy patient care is to select appropriate treatment options for patients in need. This section of the course will review specific treatment options for patients suffering from epilepsy. The information found within this section was derived from materials provided by the CDC unless, otherwise, specified (CDC, 2020).

Non-Pharmacological Treatment Options for Epilepsy

Often non-pharmacological treatment options are used to manage epilepsy. Health care professionals should note that non-pharmacological treatment options may be used alone or in combination with other therapeutic options. Specific information regarding the non-pharmacological treatment options that may be used to manage epilepsy may be found below.

Psychotherapy

- Psychotherapy may be a non-pharmacological treatment option for those suffering from epilepsy. Psychotherapy, also known as talk therapy, may refer to the use of psychological techniques and/or psychotherapeutic approaches to help individuals overcome problems and develop healthier habits.
- Health care professionals should note that many different forms of psychotherapy may be used to treat patients suffering from epilepsy.

Cognitive Behavioral Therapy

- Cognitive behavioral therapy may refer to a form of psychotherapy that focuses on helping individuals solve problems and create positive outcomes by changing unrealistically negative patterns of thought and behavior.
- When applied to epilepsy, cognitive behavioral therapy can be used to help individuals avoid negative patterns of thought and behavior related to seizures and/or the fear of seizures (e.g., consistently feeling tense).

Relaxation Therapy

- As previously mentioned, anxiety and stress may be associated with epilepsy and seizures. Thus, individuals suffering from epilepsy should work to prevent and limit anxiety and/or stress. Relaxation therapy may be a means for individuals

suffering from epilepsy to prevent and limit anxiety and/or stress. Relaxation therapy, in the context of epilepsy treatment, may refer to a form of therapy that focuses on reducing the physiologic, cognitive, and emotional arousal associated with anxiety and/or stress.

- Examples of techniques that may be utilized in relaxation therapy include the following: breathing exercises, meditation, and body scanning. Body scanning may refer to a technique that utilizes the acts of focusing and deep breathing to promote progressive muscle relaxation.

Support Groups

- Support groups may also be used as a therapeutic option for those suffering from epilepsy. Support groups can be used to help those suffering from epilepsy avoid isolation and make connections with other individuals to improve upon their quality of life. Health care professionals should note the following: various types of support groups exist; an individual may participate in one or more support group at a time to cope or manage his or her epilepsy.

Bedtime Routines

- As previously highlighted, sleep deprivation is associated with epilepsy. Therefore, individuals suffering from epilepsy should work to obtain sufficient sleep. Developing and maintaining relaxing bedtime routines (e.g., going to bed at the same time every night; listening to relaxing music before bed to help with falling asleep; taking a warm bath before bed to help with falling asleep) can also help individuals condition themselves to fall asleep and stay asleep so they may obtain sufficient sleep. Health care professionals should note that recommends regarding sufficient sleep vary by age. Specific information regarding age-related sleep recommendations may be found below.

    - Individuals 0 - 3 months old should sleep between 4 - 17 hours per 24 hours.

    - Individuals 4 - 12 months old should sleep between 12 - 16 hours (including naps) per 24 hours.

    - Individuals 1 - 2 years old should sleep between 11 - 14 hours (including naps) per 24 hours.

- Individuals 3 - 5 years old should sleep between 10 - 13 hours (including naps) per 24 hours.
- Individuals 6 - 12 years old should sleep between 9 - 12 hours per 24 hours.
- Individuals 13 - 18 years old should sleep between 8 - 10 hours per 24 hours.
- Individuals 18 - 60 years old should sleep 7 or more hours per night.
- Individuals 61 - 64 years old should sleep between 7 - 9 hours per 24 hours.
- Individuals 65 years and older should sleep between 7 - 8 hours per 24 hours.

Pharmacological Treatment Options for Epilepsy

Pharmacological treatment options are also used to manage epilepsy. Health care professionals should note that pharmacological treatment options may be used alone or in combination with other therapeutic options. Specific information regarding some of the most common mediations used to treat and manage epilepsy may be found below. The information found below was derived from materials provided by the United States Food and Drug Administration (FDA) (United States Food and Drug Administration [FDA], 2021).

Phenytoin

Medication notes - phenytoin is an antiepileptic drug (AED). Phenytoin is indicated for the control of generalized tonic-clonic (grand mal) and complex partial (psychomotor, temporal lobe) seizures and prevention and treatment of seizures occurring during or following neurosurgery. Phenytoin Dosages should be individualized to provide maximum benefit. In adults, if seizure control is established with divided doses of three 100 mg phenytoin capsules daily, once-a-day dosage with 300 mg of extended phenytoin sodium capsules may be considered. In some cases, serum blood level determinations may be necessary for optimal dosage adjustments. The clinically effective serum level is usually 10 - 20 mcg/mL. With recommended dosage, a period of seven to ten days may be required to achieve steady-state blood levels with phenytoin and changes in dosage (e.g., dose increases or decreases) should not be carried out at intervals shorter than seven to ten days. Common adverse reactions associated with phenytoin include the

following: nystagmus, ataxia, slurred speech, decreased coordination, mental confusion, dizziness, insomnia, transient nervousness, motor twitching, and headaches.

Safety notes - contraindications associated with phenytoin include the following: phenytoin is contraindicated in those patients who are hypersensitive to phenytoin or other hydantoins. Warnings and precautious associated with phenytoin include the following: abrupt withdrawal of phenytoin in epileptic patients may precipitate status epilepticus; AEDs may increase the risk of suicidal thoughts or behavior in patients taking these drugs for any indication; patients treated with any AED for any indication should be monitored for the emergence or worsening of depression, suicidal thoughts or behavior, and/or any unusual changes in mood or behavior; phenytoin should be discontinued if a skin rash appears; hyperglycemia, resulting from the drug's inhibitory effects on insulin release, has been reported; serum levels of phenytoin sustained above the optimal range may produce states of confusion referred to as "delirium," "psychosis," or "encephalopathy."

Considerations for special patient populations - phenytoin falls into Pregnancy Category D. Infant breast-feeding is not recommended for women taking phenytoin because phenytoin appears to be secreted in low concentrations in human milk.

Valproic acid

Medication notes - valproic acid is an antiepileptic drug indicated for the following: monotherapy and adjunctive therapy of complex partial seizures; sole and adjunctive therapy of simple and complex absence seizures; adjunctive therapy in patients with multiple seizure types that include absence seizures. Valproic acid is intended for oral administration. Dose recommendations start at 10 - 15 mg/kg/day, increasing at one week intervals by 5 - 10 mg/kg/week until seizure control or limiting side effects. Health care professionals should note that the safety of doses above 60 mg/kg/day is not established. Common adverse reactions associated with valproic acid include the following: abdominal pain, alopecia, amblyopia/blurred vision, amnesia, anorexia, asthenia, ataxia, bronchitis, constipation, diarrhea, depression, diplopia, and dizziness.

Safety notes - contraindications associated with valproic acid include: hepatic disease or significant hepatic dysfunction; known mitochondrial disorders caused by mutations in mitochondrial DNA polymerase-γ (POLG); suspected POLG-related disorder in children under two years of age; known hypersensitivity to the drug; urea cycle disorders. Warnings associated with valproic acid include the following: hepatotoxicity, including fatalities, usually during first six months of treatment; children under the age of two

years and patients with mitochondrial disorders are at higher risk; monitor patients closely, and perform serum liver testing prior to therapy and at frequent intervals thereafter; fetal risk, particularly neural tube defects, other major malformations, and decreased IQ; pancreatitis, including fatal hemorrhagic cases are possible. Additional warnings and precautions associated with valproic acid include: suicidal behavior or ideation; bleeding and other hematopoietic disorders are possible; monitor platelet counts and coagulation tests; somnolence in the elderly can occur.

Considerations for special patient populations - valproic acid can cause congenital malformations including neural tube defects and decreased IQ. Children under the age of two years are at considerably higher risk of fatal hepatotoxicity. When administered to older adults, health care professionals should consider the following: reduce starting dose; increase dosage more slowly; monitor fluid and nutritional intake; and somnolence.

Gabapentin

Medication notes - gabapentin is indicated for adjunctive therapy in the treatment of partial onset seizures, with and without secondary generalization, in adults and pediatric patients three years and older with epilepsy. The recommended starting dose for patients 12 years of age and older is 300 mg three times daily; dose may be titrated up to 600 mg three times daily. Common adverse reactions associated with gabapentin include the following: somnolence, dizziness, ataxia, fatigue, and nystagmus.

Safety notes - contraindications associated with gabapentin include a known hypersensitivity to gabapentin or its ingredients. Warnings and precautions associated with gabapentin include the following: suicidal behavior and ideation may occur; monitor patients for suicidal thoughts/behavior; anaphylaxis may occur; somnolence, sedation, and dizziness may occur; warn patients not to drive until they have gained sufficient experience to assess whether their ability to drive or operate heavy machinery will be impaired.

Considerations for special patient populations - gabapentin doses should be adjusted in patients with reduced renal function.

Lamotrigine (Lamictal)

Medication notes - Lamictal is indicated for epilepsy including adjunctive therapy in patients aged two years and older; partial -onset seizures; primary generalized tonic-clonic seizures; and generalized seizures of Lennox-Gastaut syndrome. Lamictal is also

indicated for monotherapy in patients aged 16 years and older; as well as conversion to monotherapy in patients with partial-onset seizures who are receiving treatment with carbamazepine, phenytoin, phenobarbital, primidone, or valproate as the single AED. Dosing of Lamictal is based on concomitant medications, indication, and patient age. Common adverse reactions associated with Lamictal include: nausea, insomnia, somnolence, back pain, fatigue, rash, rhinitis, abdominal pain, and xerostomia.

Safety notes - Lamictal is contraindicated in patients with a known hypersensitivity to the drug or its ingredients. Warnings associated with lithium include the following: cases of life-threatening serious rashes, including Stevens-Johnson syndrome and toxic epidermal necrolysis, and/or rash-related death have been caused by lamotrigine; the rate of serious rash is greater in pediatric patients than in adults; benign rashes are also caused by Lamictal - however, it is not possible to predict which rashes will prove to be serious or life threatening; Lamictal should be discontinued at the first sign of rash, unless the rash is clearly not drug related. Additional warnings and precautions associated with Lamictal include: Lamictal may lead to fatal or life-threatening hypersensitivity reactions; blood dyscrasias (e.g., neutropenia, thrombocytopenia, pancytopenia) may occur, either with or without an associated hypersensitivity syndrome; monitor for signs of anemia, unexpected infection, or bleeding; suicidal behavior and ideation is possible; monitor patients for suicidal thoughts or behaviors; clinical worsening, emergence of new symptoms, and suicidal ideation/behaviors may be associated with treatment of bipolar disorder, patients should be closely monitored, particularly early in treatment or during dosage changes; monitor patients for signs of meningitis.

Considerations for special patient populations - dosage adjustments of Lamictal are required in patients with moderate and severe liver impairment. Reduced maintenance doses may be effective for patients with significant renal impairment. Based on animal data, Lamictal may cause fetal harm.

Section 2: Summary

The second essential element of epilepsy patient care is to select appropriate treatment options for patients in need. Treatment options for patients suffering from epilepsy may include non-pharmacological and/or pharmacological options. The non-pharmacological treatment options that may be used to manage patients suffering from epilepsy include the following: psychotherapy, cognitive behavioral therapy, relaxation therapy, support groups, and developing and maintaining relaxing bedtime routines. The pharmacological treatment options that may be used to manage patients suffering from epilepsy include the following medications: phenytoin, valproic acid, gabapentin, and Lamictal. Health

care professionals should note that non-pharmacological and pharmacological treatment options may be used alone or in combination with each other therapeutic options.

Section 2: Key Concepts

- The second essential element of epilepsy patient care is to select appropriate treatment options for patients in need.
- Treatment options for patients suffering from epilepsy may include non-pharmacological and/or pharmacological options.

Section 2: Key Terms

Psychotherapy (also known as talk therapy) - the use of psychological techniques and/or psychotherapeutic approaches to help individuals overcome problems and develop healthier habits

Cognitive behavioral therapy - a form of psychotherapy that focuses on helping individuals solve problems and create positive outcomes by changing unrealistically negative patterns of thought and behavior

Relaxation therapy (within the context of epilepsy treatment) - a form of therapy that focuses on reducing the physiologic, cognitive, and emotional arousal associated with anxiety and/or stress

Body scanning - a technique that utilizes the acts of focusing and deep breathing to promote progressive muscle relaxation

Section 2: Personal Reflection Question

How can health care professionals select appropriate treatment options for patients suffering from epilepsy?

Section 3: Epilepsy Patient Care Recommendations

The third and final essential element of epilepsy patient care is to follow related recommendations. This section of the course will review epilepsy patient care recommendations. The information found within this section of the course was derived from materials provided by the CDC unless, otherwise, specified (CDC, 2020).

Epilepsy Patient Care Recommendations

- **Provide epilepsy patient counseling and education** - first and foremost, health care professionals should provide patients suffering from epilepsy with epilepsy patient counseling and education. Epilepsy patient counseling and education can help patients and their family members understand the complexities of epilepsy and epilepsy treatment. Health care professionals should note that epilepsy patient counseling and education should include the following key elements: information on epilepsy, information on seizures, information on how to identify potential seizure triggers, information on seizure first aid, and information on relevant epilepsy treatment.

- **Observe/monitor patients** - as previously alluded to, patient observation can be vital to epilepsy patient care. Health care professionals should observe patients' signs and symptoms, as well as monitor patients' therapy. Health care professionals should note the following: health care professionals should effectively document any relevant patient observations/information.

- **Work to prevent medical errors from occurring** - a medical error may refer to a preventable adverse effect of care that may or may not be evident or causes harm to a patient (Joint Commission, 2021). Medical errors can pose a significant risk to patients suffering from epilepsy, as well as jeopardize their overall health and well-being. Thus, health care professionals should work to prevent medical errors from occurring. Health care professionals can work to prevent medical errors from occurring by the following methods: use at least two patient identifiers when providing care, treatment, and services; verify all medication or solution labels both verbally and visually; label each medication or solution as soon as it is prepared; and by immediately discarding any medication or solution found unlabeled (Joint Commission, 2021). Health care professionals should note the following: medical errors can occur in virtually all stages of diagnosis and treatment.

- **Practice effective hand hygiene** - health care-associated infections are a patient safety issue affecting all types of health care organizations and patient populations. With that said, evidence suggests that seizures may arise from specific types of infections. Thus, health care professionals should work to prevent health care-associated infections when administering health care or engaging with patients suffering from epilepsy. One of the most important and effective ways to address health care-associated infections is by practicing

effective hand hygiene. Hand hygiene may refer to the process of cleaning hands in order to prevent contamination and/or infections (CDC, 2018). Hand hygiene is most effective when dirt, soil, microorganisms, and other contaminants are removed from the hands. Health care professionals should complete effective hand hygiene when evaluating, assessing, and engaging with patients suffering from epilepsy. Specific information regarding effective hand hygiene may be found below. The information found below was derived from materials provided by the CDC (CDC, 2018).

- Health care professionals may use a variety of different products to carry out effective hand hygiene. The following products are typically available to health care professionals and may be used to carry out effective hand hygiene: detergents, plain soap, antimicrobial (medicated) soap, antiseptic agents, and alcohol-based handrubs.
- The major indications for hand hygiene can be broken down into the following five key moments:
    1. Before patient contact
    2. Before an aseptic procedure or task
    3. After a body fluid exposure risk occurs
    4. After touching a patient
    5. After contact with a patient's surroundings
- Health care professionals should wash their hands with soap and water when they are visibly dirty or visibly soiled with blood or other body fluids or after using the toilet.
- Health care professionals should use an alcohol-based handrub when their hands are not visibly soiled to reduce bacterial counts.

- **Work to prevent the transmission of the virus that cause coronavirus disease 2019 (COVID-19)** - some patients may be especially vulnerable to COVID-19 - thus, health care professionals should work to prevent the transmission of the virus that causes COVID-19 while administering care to patients suffering from epilepsy (note: coronavirus disease 2019 (COVID-19) may refer to a respiratory illness that can spread from person to person). Health care professionals should

note the following: it is currently believed that the virus that causes COVID-19 is transmitted or spread through person to person contact (note: the term person-to-person contact may refer to the transmission of a communicable disease/ illness from a host to a healthy person by way of body fluids [e.g., respiratory droplets, blood]); COVID-19 may spread between people who are in close contact with one another (e.g., within about six feet); COVID-19 may spread through respiratory droplets produced when an infected individual coughs or sneezes. Health care professionals should also note that they may work to prevent the transmission of the virus that causes COVID-19 by the following means: practicing effective hand hygiene, donning personal protective equipment (PPE) (when appropriate), employing respiratory hygiene and cough etiquette measures, ensuring the safe handling of potentially contaminated equipment and surfaces in the patient environment, and by following safe injection practices. Additionally, health care professionals should note that they can work to prevent the transmission of the COVID-19 virus by following the infection prevention and control recommendations found below.

- Obtain COVID-19 vaccination.
- Health care professionals should wear personal protective equipment (PPE), when applicable (note: personal protective equipment (PPE) may refer to equipment designed to protect, shield, and minimize exposure to hazards that may cause serious injury, illness, and/or disease [e.g., facemask]).
- Health care professionals should wear a facemask, also referred to as a surgical mask or a procedure mask, at all times while they are in their health care facility of employment, including in break rooms or other spaces where they might encounter co-workers.
- Health care professionals should note the following: the potential for exposure to the COVID-19 virus is not limited to direct patient care interactions; transmission can occur through unprotected exposures to asymptomatic or pre-symptomatic co-workers in break rooms or co-workers or visitors in other common areas.
- Health care professionals should note the following: facemasks are preferred over cloth face masks for health care professionals as facemasks offer both source control and protection for the wearer against exposure

to splashes and sprays of infectious material from others (note: the term source control may refer to the use of well-fitting masks or facemasks to cover a person's mouth and nose to prevent the spread of respiratory secretions when talking, sneezing, or coughing).

- Health care professionals should note the following: cloth masks are not considered to be PPE and should not be worn for the care of patients with suspected or confirmed COVID-19 or other situations where the use of a respirator or a facemask is recommended.
- Cloth masks should not be worn instead of a respirator or facemask if more than source control is required.
- To reduce the number of times health care professionals touch their face and put themselves at potential risk for self-contamination, health care professionals should consider continuing to wear the same respirator or facemask throughout their entire work shift, instead of intermittently switching back to their cloth mask.
- Health care professionals should wear eye protection in addition to their facemasks to ensure the eyes, nose, and mouth are protected from exposure to respiratory secretions during patient care encounters, when applicable.
- Health care professionals should ensure that eye protection is compatible with a respirator, when applicable, so there is not interference with proper positioning of the eye protection or with the fit or seal of the respirator.
- Health care professionals should wear an N95 or equivalent or higher-level respirator, instead of a facemask, for aerosol generating procedures and/or surgical procedures that might pose higher risk for transmission if the patient has COVID-19 (note: a N95 respirator may refer to a particulate-filtering, face piece respirator that filters at least 95% of airborne particles; a N95 respirator should fit firmly against the face in a manner that does not leave any open gaps between the skin and the N95 respirator seal).
- Health care professionals who enter the room of a patient with suspected or confirmed COVID-19 should adhere to Standard Precautions and use a NIOSH-approved N95 or equivalent or higher-level respirator (or facemask

if a respirator is not available), gown, gloves, and eye protection, when applicable.

- Health care professionals should perform hand hygiene before and after all patient contact, contact with potentially infectious material, and before putting on and after removing PPE, including gloves (note: hand hygiene after removing PPE is particularly important to remove any pathogens that might have been transferred to bare hands during the PPE removal process).
- Health care professionals should remove their respirator or facemask, perform hand hygiene, and put on their cloth mask when leaving the health care facility at the end of their shift, when applicable.
- Health care professionals should use dedicated medical equipment when caring for patients with suspected or confirmed COVID-19.
- All non-dedicated, non-disposable medical equipment used for patient care should be cleaned and disinfected according to manufacturer's instructions and facility policies.
- Ensure that environmental cleaning and disinfection procedures are followed consistently and correctly.
- Health care professionals should advise patients to put on their own mask before entering the health care facility.
- If a patient does not have a face covering, the patient should be offered a facemask or mask (note: patients may remove their masks when in their rooms but should put it back on when around others [e.g., when visitors enter their room or the patient leaves his or her room]).
- Health care professionals should note the following: facemasks and cloth masks should not be placed on young children under age two, anyone who has trouble breathing, or anyone who is unconscious, incapacitated or otherwise unable to remove the mask without assistance.
- Screen and triage everyone entering a health care facility for signs and symptoms of COVID-19 (note: the signs/symptoms of COVID-19 may include: fever, chills, cough, shortness of breath, aches and pain, fatigue,

headaches, nasal congestion, runny nose, sore throat, nausea, vomiting, and diarrhea).

- Establish a process to ensure that everyone (e.g., patients, health care professionals, and visitors) entering a health care facility is assessed for COVID-19 signs/symptoms (note: fever can be either a measured temperature ≥ 100.0°F or a subjective fever [e.g., patient reported fever]; individuals might not notice symptoms of a fever at the lower temperature threshold that is used for those entering a health care facility; individuals should be encouraged to actively take their temperature at home or have their temperature taken upon arrival).
- Properly manage anyone with suspected or confirmed COVID-19 virus infection or who has had contact with someone with suspected or confirmed COVID-19 virus infection.

- **Apply fall precautions** - due to the potential symptoms of epilepsy (e.g., loss of consciousness; confusion), patients suffering from epilepsy may be susceptible to falls. Thus, health care professionals should apply fall precautions to patients suffering from epilepsy. Health care professionals should note that fall precautions constitute the basics of patient safety and should be applied in all health care facilities to all patients. Specific fall precautions may be found below.

  Fall Precautions

  - Familiarize the patient with his or her environment
  - Have the patient demonstrate call light use
  - Maintain the call light within patient reach
  - Keep a patient's personal possessions within safe reach of the patient
  - Have sturdy handrails in patient bathrooms, rooms, and hallways
  - Place the patient's bed in a low position when a patient is resting in bed; raise the patient's bed to a comfortable height when the patient is transferring out of bed
  - Keep patient bed brakes locked
  - Keep wheelchair wheel locks in the locked position when stationary

    - Keep non slip, comfortable, well-fitting footwear on the patient
    - Use night lights or supplemental lighting
    - Keep floor surfaces clean and dry
    - Clean up all spills promptly
    - Keep patient care areas uncluttered
    - Follow safe patient handling practices
- **Conduct medication reconciliations** - when a patient suffering from epilepsy is admitted into a health care facility, health care professionals should conduct a medication reconciliation. A medication reconciliation may refer to a process of comparing the medications an individual is taking (or should be taking) with newly ordered medications (Joint Commission, 2021). Health care professionals should note the following information regarding medication reconciliations: medication reconciliations are intended to identify and resolve medication discrepancies; medication reconciliations should address medication duplications, omissions, and interactions, and the need to continue current medications; the type of information health care professionals should use to reconcile medications include (among others) medication name, dose, frequency, route, and purpose; health care professionals should identify the information that needs to be collected in order to reconcile current and newly ordered medications and to safely prescribe medications in the future (Joint Commission, 2021). Health care professionals should also note the following: when conducting medication reconciliations, health care professionals should identify any medications associated with seizures.
- **Encourage medication adherence** - health care professionals should encourage medication adherence among epileptic patient populations. Medication adherence may refer to the act or process of taking/administering medications as prescribed. Health care professionals should note that medication adherence to AEDs can help prevent seizures and epilepsy-related complications, while poor medication adherence may lead to seizures and epilepsy-related complications. Health care professionals should also note the following methods to encourage medication adherence among epileptic patient populations: patient education/ counseling, developing medication schedules, utilizing weekly medication organizers, and utilizing electronic medication alert systems.

- **Work to effectively treat/manage concurrent conditions** - some patients suffering from epilepsy may also suffer from concurrent conditions (e.g., diabetes). If left untreated or poorly managed, concurrent conditions may lead to seizures. Thus, health care professionals should work to effectively treat/manage concurrent conditions. Health care professionals should note the following means that may be used to help effectively treat/manage concurrent conditions: patient counseling/education, medications, medication monitoring, and disease state monitoring.
- **Promote weight loss, when applicable** - to build on the previous recommendation, health care professionals should promote patient weight loss, when applicable. Weight loss can help treat/manage concurrent conditions that may lead to seizures. When assisting patients with weight loss health care professionals should determine a patient's healthy weight. An individual's healthy weight may be determined by calculating his or her body mass index (BMI). BMI may refer to an anthropometric index of weight and height that is defined as body weight in kilograms divided by height in meters squared; a value derived from an individual's weight and height (note: the term anthropometric may refer to the science which deals with the measurement of the size, weight, and proportions of the human body). Specific information regarding BMI may be found below.
    - Health care professionals should note the following: BMI can be used to help determine if an individual is underweight, at a normal weight, overweight, or obese.
    - **Underweight** - an individual may be considered to be underweight if his or her BMI is less than 18.5 kg/m^2.
    - **Normal weight** - an individual may be considered to be at a normal weight if his or her BMI is between 18.5 - 24.9 kg/m^2.
    - **Overweight** - an individual may be considered to be overweight if his or her BMI is between 25.0 - 29.9 kg/m^2.
    - **Obese** - an individual may be considered to be obese if his or her BMI is greater than or equal to 30.0 kg/m^2.
- **Promote physical activity, when applicable** - physical activity may be another means to help effectively treat/manage concurrent conditions. Physical activity

may also be a means to help improve a patient's overall health and well-being. Physical activity may refer to any bodily movement produced by the contraction of skeletal muscle that increases energy expenditure above a basal level; generally refers to the subset of physical activity that enhances health. Health care professionals should note the following: for substantial health benefits, adults should do at least 150 minutes (2 hours and 30 minutes) a week of moderate-intensity, or 75 minutes (1 hour and 15 minutes) a week of vigorous-intensity aerobic physical activity, or an equivalent combination of moderate- and vigorous-intensity aerobic activity; aerobic activity should be performed in episodes of at least 10 minutes, and preferably, it should be spread throughout the week.

- **Promote adequate nutrition, when applicable** - in addition to physical activity, adequate nutrition may be another means to help effectively treat/manage concurrent conditions, as well as help improve a patient's overall health and well-being. Health care professionals should note the following: individuals should follow a healthy eating pattern across their lifespan; a healthy eating pattern may refer to a pattern or style of eating that includes the following elements: eating a variety of nutritious foods; obtaining sufficient calorie intake; and limiting foods that are high in saturated and trans fats, sodium, and added sugars.

- **Ensure that patients suffering from epilepsy are adequately hydrated** - health care professionals should ensure that patients suffering from epilepsy are adequately hydrated. Health care professionals should note the following signs of dehydration: very dry skin, rapid heartbeat, rapid breathing, confusion, and dark urine output.

- **Follow relevant health care organizations' policies and procedures/treatment protocols** - health care organizations may have specific policies and procedures/ treatment protocols regarding epilepsy and seizures. Health care professionals should be aware of and follow any health care organization policies and procedures/treatment protocols related to epilepsy and seizures. Health care professionals should note the following: if a health care organization does not have specific epilepsy/seizure policies and procedures/treatment protocols, health care professionals should consider developing such policies and procedures/treatment protocols.

- **Pursue opportunities to further health care education and remain up to date on relevant health care topics** - finally, health care information is always being

updated. Thus, health care professionals should pursue opportunities to further their education. Remaining up to date on relevant health care topics can help health care professionals in their daily practice and can further their understanding of how to provide safe and effective health care to patients suffering from epilepsy.

Section 3: Summary

The third and final essential element of epilepsy patient care is to follow related recommendations. Epilepsy patient care recommendations include the following: provide epilepsy patient counseling and education; observe/monitor patients; work to prevent medical errors from occurring; practice effective hand hygiene; work to prevent the transmission of the virus that cause COVID-19; apply fall precautions; conduct medication reconciliations; encourage medication adherence; work to effectively treat/ manage concurrent conditions; promote weight loss, when applicable; promote physical activity, when applicable; promote adequate nutrition, when applicable; ensure that patients suffering from epilepsy are adequately hydrated; follow relevant health care organizations' policies and procedures/treatment protocols; and pursue opportunities to further health care education and remain up to date on relevant health care topics.

Section 3: Key Concepts

- The third essential element of epilepsy patient care is to follow epilepsy patient care recommendations.

Section 3: Key Terms

Medical error - a preventable adverse effect of care that may or may not be evident or causes harm to a patient (Joint Commission, 2021)

Hand hygiene - the process of cleaning hands in order to prevent contamination and/or infections (CDC, 2018)

Coronavirus disease 2019 (COVID-19) - a respiratory illness that can spread from person to person

Person-to-person contact - the transmission of a communicable disease/illness from a host to a healthy person by way of body fluids

Personal protective equipment (PPE) - equipment designed to protect, shield, and minimize exposure to hazards that may cause serious injury, illness, and/or disease

Source control - the use of well-fitting masks or facemasks to cover a person's mouth and nose to prevent the spread of respiratory secretions when talking, sneezing, or coughing

N95 respirator - a particulate-filtering, face piece respirator that filters at least 95% of airborne particles

Medication reconciliation - a process of comparing the medications an individual is taking (or should be taking) with newly ordered medications (Joint Commission, 2021)

Medication adherence - the act or process of taking/administering medications as prescribed

Body mass index (BMI) - an anthropometric index of weight and height that is defined as body weight in kilograms divided by height in meters squared; a value derived from an individual's weight and height

Anthropometric - the science which deals with the measurement of the size, weight, and proportions of the human body

Physical activity - any bodily movement produced by the contraction of skeletal muscle that increases energy expenditure above a basal level; the subset of physical activity that enhances health

Healthy eating pattern - a pattern or style of eating that includes the following elements: eating a variety of nutritious foods; obtaining sufficient calorie intake; and limiting foods that are high in saturated and trans fats, sodium, and added sugars

Section 3: Personal Reflection Question

How can health care professionals use the above recommendations to effectively care for patients suffering from epilepsy?

Case Study: Epilepsy

A case study is presented below to review the concepts found in this course. A case study review will follow the case study. The case study review includes the types of questions health care professionals should ask themselves when considering patients suffering from epilepsy. Additionally, reflection questions will be posed, within the case study review, to encourage further internal debate and consideration regarding the presented case study and epilepsy. The information found within the case study and

case study review was derived from materials provided by the CDC unless, otherwise, specified (CDC, 2020).

Case Study

A 28-year-old male potential patient presents to a health care facility. The patient reports that he experienced two seizures in the past 24 hours. Upon questioning, the patient reports the following points of interest: the patient believes he "blacked-out" during both of the seizures; the patient believes he fell to the ground during both seizures; a witness to one of the potential seizures told the patient that he was "kind of flopping on the ground" during the seizure; a witness to one of the potential seizures told the patient that the potential seizure lasted about three to four minutes; and the patient reports that he injured his left arm during the second seizure. Upon further questioning, the patient reports that he has a history of substance abuse. The patient also reports that he "may have had a seizure a few years back" when he was "on drugs." Additionally, the patient reports that he has "not taken drugs in at least two years," but he recently started "drinking". A physical exam reveals bruising on the patient's left arm. Finally, the patient reveals that he is fearful that he will have another seizure, and is not sure what to do. Before the patient answers any more questions, he asks a health care professional if he is suffering from epilepsy.

Case Study Review

What patient details may be relevant to epilepsy?

The following patient details may be relevant to the potential presence of epilepsy: the patient reports that he experienced two seizures in the past 24 hours; the patient reports the following points of interest: the patient believes he "blacked-out" during both of the seizures; the patient believes he fell to the ground during both seizures; a witness to one of the potential seizures told the patient that he was "kind of flopping on the ground" during the seizure; a witness to one of the potential seizures told the patient that the potential seizure lasted about three to four minutes; the patient reports that he injured his left arm during the second seizure; the patient reports that he has a history of substance abuse; the patient reports that he "may of had a seizure a few years back" when he was "on drugs;" the patient reports that he has "not taken drugs in at least two years," but he recently started "drinking;" a physical exam reveals bruising on the patient's left arm; the patient reveals that he is fearful that he will have another seizure; and the patient asks a health care professional if he is suffering from epilepsy.

Are there any other patient details that may be relevant to the potential presence of epilepsy; if so, what are they?

How are each of the aforementioned patient details relevant to the potential presence of epilepsy?

Each of the previously highlighted patient details may be relevant to the potential presence of epilepsy. The potential relevance of each patient detail may be found below.

The patient reports that he experienced two seizures in the past 24 hours - the previous detail is potentially relevant because it provides context for the patient's presentation to the health care facility. The previous detail is also potentially relevant because it may prove to be a valuable point of interest for the diagnostic process. Health care professionals should note the following: individuals are typically diagnosed with epilepsy after experiencing two or more seizures. Health care professionals should also note the following: health care professionals should effectively document relevant patient information/valuable points of interest; in order for health care documentation to be considered effective, it must function as a viable form of communication, as well as a means to establish a detailed record of health care administration.

The patient reports the following points of interest: the patient believes he "blacked-out" during both of the seizures; the patient believes he fell to the ground during both seizures; a witness to one of the potential seizures told the patient that he was "kind of flopping on the ground" during the seizure; a witness to one of the potential seizures told the patient that the potential seizure lasted about three to four minutes - the previous details are relevant because they may represent signs/symptoms of a tonic-clonic seizure. Health care professionals should note the following signs/symptoms of a tonic-clonic seizure: confusion, loss of consciousness, falling to the ground, drooling, lip and/or tongue biting, blue skin from poor circulation, and violent muscle contractions. Health care professionals should also note the following: typically, tonic-clonic seizures occur in two stages; during the first stage of a tonic-clonic seizure an individual will lose consciousness and, most likely, fall to the ground if standing or slouched over/doubled over if sitting; the first stage of a tonic-clonic seizure lasts about 10 to 20 seconds; during the second stage of a tonic-clonic seizure, an individual will experience muscle convulsions that usually last for less than two minutes; an individual may feel tired after a tonic-clonic seizure.

The patient reports that he injured his left arm during the second seizure - the previous detail is relevant because it may represent a physical injury that resulted from a

potential seizure. Health care professionals should note the following: some types of seizures may lead to a fall or another type of incident involving physical injury; the types of physical injuries associated with seizures include the following: broken bones, fractures, bruising, sprains, lip punctures or tears from biting, and tongue punctures or tears from biting.

The patient reports that he has a history of substance abuse - the previous detail is relevant because epilepsy and seizures can be associated with substance abuse. Health care professionals should note that substance abuse may lead to seizures.

The patient reports that he "may have had a seizure a few years back" when he was "on drugs" - the previous detail is relevant because it may provide context for the patient's seizures and substance abuse. Health care professionals should note the following: when questioning and/or caring for patients suffering from seizures/epilepsy, health care professionals should ask questions regarding previous seizures to obtain a relevant and accurate patient history.

The patient reports that he has "not taken drugs in at least two years," but he recently started "drinking" - the previous detail is relevant because it may be evidence of potential substance abuse. Health care professionals should note the following signs of alcohol and/or illicit drug use: slurred speech, an active tremor, shakiness, poor coordination, sweating, nausea, vomiting, aggression, agitation, compulsive behavior, craving, red eyes, dry mouth, drowsiness, involuntary eye movements, dilated pupils, nasal congestion, mouth sores, reduced consciousness, lack of pain sensation, intolerance to loud noise, dizziness, confusion, lack of awareness to surroundings, and needle marks.

A physical exam reveals bruising on the patient's left arm - the previous detail is relevant because it may represent a physical injury that resulted from a potential seizure. Health care professionals should note the following: epileptic patients presenting to a health care facility may require treatment for physical injuries sustained during a seizure.

The patient reveals that he is fearful that he will have another seizure - the previous detail is relevant because it may represent a sign/symptom of epilepsy. Health care professionals should note the following signs/symptoms associated with epilepsy: seizures, temporary paralysis after a seizure, abnormal behavior (e.g., tense for no apparent reason), fear centered around seizures, and fatigue.

The patient asks a health care professional if he is suffering from epilepsy - the previous detail is relevant because it may indicate the patient is interested in epilepsy diagnosis,

treatment, and education. Health care professionals should note that often the first step to effective epilepsy treatment is patient interest and commitment.

What other ways, if any, are the previous patient details relevant to the potential presence of epilepsy?

Is the patient highlighted in the case study suffering from epilepsy?

Based on the information presented in the case study, it does appear possible that the patient is suffering from epilepsy. With that said, the patient will need to go through a diagnostic process. Health care professionals should note that the diagnostic process for epilepsy may be conducted by a health care professional (e.g., neurologist), and may include the use of an electroencephalogram (EEG) and magnetic resonance imaging (MRI) scan.

In addition to the methods highlighted above, how can health care professionals potentially gather additional information to help confirm the possible presence of epilepsy?

How can health care professionals effectively care for the patient if he receives an epilepsy diagnosis?

Health care professionals can effectively care for patients suffering from epilepsy by incorporating the following three essential elements of epilepsy patient care into their daily practice: possess insight into epilepsy and how it may affect potential patients; select appropriate treatment options for patients in need; follow epilepsy patient care recommendations.

How can insight into epilepsy, selecting appropriate treatment options, and epilepsy patient care recommendations optimize patient care?

Conclusion

Epilepsy is a disorder that can lead to seizures, debilitating complications, and even death. Therefore, patients suffering from epilepsy must receive effective care. Health care professionals can effectively care for patients suffering from epilepsy by incorporating the following three essential elements of epilepsy patient care in their daily practice: possess insight into epilepsy and how it may affect potential patients; select appropriate treatment options for patients in need; follow epilepsy patient care recommendations.

References

Centers for Disease Control and Prevention. (2020). About epilepsy. https://www.cdc.gov/epilepsy/about/index.htm

Centers for Disease Control and Prevention. (2020, December 14). Interim Infection Prevention and Control Recommendations for Healthcare Personnel During the Coronavirus Disease 2019 (COVID-19) Pandemic. https://www.cdc.gov/coronavirus/2019-ncov/hcp/infection-control-recommendations.html

Centers for Disease Control and Prevention. (2018, June 18). Standard precautions. https://www.cdc.gov/oralhealth/infectioncontrol/summary-infection-prevention-practices/standard-precautions.html

Epilepsy Foundation. (2020). Triggers of Seizures. https://www.epilepsy.com/learn/triggers-seizures

Joint Commission. (2021). Hospital: 2021 national patient safety goals. www.jointcommission.org/standards/national-patient-safety-goals/hospital-2020-national-patient-safety-goals/

United States Food and Drug Administration. (2021). Find information about a drug. https://www.fda.gov/drugs/drug-information-consumers/find-information-about-drug

World Health Organization. (2019, June 20). Epilepsy. https://www.who.int/news-room/fact-sheets/detail/epilepsy