

## Epilepsy

**Epilepsy is a central nervous system (neurological) disorder in which brain activity becomes abnormal, causing convulsions or seizures or periods of unusual behaviour, sensations, and at times loss of awareness. It is important to remember that having a convulsion or seizure does not mean that you have epilepsy.**

Various types of Epilepsy have been identified. The main types include generalised absence (also named Petit mal), generalised tonic-clonic (also named Grand mal), and complex partial (affecting a specific area of the brain). Epilepsy can affect anybody and is not limited to a specific age group or gender.

### What causes Epilepsy?

Epilepsy has no identifiable cause in approximately 50% of people with the condition. The condition may be traced to various factors in the other 50% of cases.

These factors include:

- Genetic influence
- Head trauma.
- Brain conditions
- Prenatal injury (before birth)
- Developmental disorders

### Risk factors

Certain factors may increase your risk of epilepsy:

- Age: The onset of epilepsy is most common in children and older adults, but the condition can occur at any age.
- Family history: If there is a family history of epilepsy, a person may be at an increased risk of developing a seizure disorder.
- Head injuries: Head injuries are responsible for some cases of epilepsy. A person can reduce this risk by e.g. wearing a seat belt while riding in a car, wearing a helmet while bicycling or riding a motorcycle, or engaging in other activities with a high risk of head injury.
- Stroke and other vascular diseases: Stroke and other blood vessel (vascular) diseases can lead to brain damage that may trigger epilepsy.

- Dementia: Dementia may increase the risk of epilepsy in older adults.
- Brain infections: Infections such as meningitis, which causes inflammation of the brain or spinal cord, can increase the risk for epilepsy.
- Seizures in childhood: High fevers in childhood can sometimes be associated with seizures. Children who have seizures due to high fevers generally will not develop epilepsy. The risk of epilepsy increases if a child has a long seizure, another nervous system condition or a family history of epilepsy.

### Symptoms of Epilepsy

Seizures can affect any process your brain coordinates because epilepsy is caused by abnormal activity in the brain. Seizure signs and symptoms may include:

- Temporary confusion
- A staring spell
- Uncontrollable jerking movements of the arms and legs
- Loss of consciousness or awareness
- Psychic symptoms such as fear, anxiety or déjà vu

Symptoms vary depending on the type of seizure that occurs. In most cases, a person with epilepsy will be likely to have the same type of seizure each time, therefore the symptoms will be similar from episode to episode.

Doctors generally classify seizures as either focal or generalized, based on how the abnormal brain activity begins.

### Focal seizures

Seizures may result from abnormal activity in just one area of the brain, they are called focal (partial) seizures.

These seizures fall into two categories:

- Focal seizures without loss of consciousness: Also called simple partial seizures, these seizures do not cause a loss of consciousness. It may further change emotions or the way things look, smell, feel, taste or sound. It may also cause involuntary jerking of a body part, such as an arm or leg, and spontaneous sensory symptoms such as tingling, dizziness and flashing lights.
- Focal seizures with impaired awareness: Also called complex partial seizures, these seizures involve a change or loss of consciousness or awareness. During a complex partial seizure, a person may stare into space and not respond normally to their environment. They may also perform repetitive movements, such as hand rubbing, chewing, swallowing or walking in circles.

Symptoms of focal seizures may be confused with other neurological disorders, such as migraine, narcolepsy or mental illness. A thorough examination and testing are needed to distinguish epilepsy from other disorders.

### Generalized seizures

These seizures appear to involve all areas of the brain. Six types of generalized seizures exist.

- Absence seizures, also known as petit mal seizures, often occur in children. It is characterized by staring into space or subtle body movements e.g. eye blinking or lip smacking. These seizures may occur in clusters and cause a brief loss of awareness.
- Tonic seizures cause stiffening of the muscles. These seizures usually affect muscles in your back, arms and legs and may cause a person to fall to the ground.
- Atonic seizures, also known as drop seizures, cause loss of muscle control, which may cause a person to suddenly collapse or fall down.
- Clonic seizures are associated with repeated or rhythmic, jerking muscle movements. These seizures usually affect the face, neck and arms.
- Myoclonic seizures usually appear as sudden brief jerks or twitches of the arms and legs.
- Tonic-clonic seizures, also known as *grand mal* seizures, are the most intense type of seizure and may cause an abrupt loss of consciousness, body stiffening and shaking, and sometimes loss of bladder control or biting the tongue.

### Complications

Having a seizure at certain times can lead to circumstances that are dangerous to yourself or others.

- Falling - During a seizure, a person can injure their head or break a bone.
- Drowning – It is 15 to 19 times more likely to drown while swimming or bathing because of the possibility of having a seizure while in the water.
- Car accidents and injuries - A seizure that causes either loss of awareness or control can be dangerous if a person is driving a car or operating other equipment. There may be driver's license restrictions related to a driver's ability to control seizures and impose a minimum amount of time that a driver be seizure-free, ranging from months to years, before being allowed to drive.
- Pregnancy complications - Seizures during pregnancy may be dangerous for both the mother and baby. Certain anti-epileptic medications also increase the risk of birth defects. Careful planning and discussion with the treating doctor is required if a person want to fall pregnant and suffers from epilepsy.
- Emotional health problems – A person with epilepsy are more likely to have psychological problems, especially depression, anxiety and suicidal thoughts and behaviours. Problems may be a result of difficulties dealing with the condition itself as well as medication side effects.

Life-threatening complications of epilepsy are uncommon, but may happen, such as:

- Status epilepticus - The condition occurs if a person is in a state of continuous seizure activity lasting more than five minutes or have frequent, recurrent seizures without regaining full consciousness between them. People with status epilepticus have an increased risk of permanent brain damage and death.
- Sudden unexpected death in epilepsy (SUDEP) - People with epilepsy also have a small risk of sudden unexpected death. The cause is unknown although some research shows it may occur due to heart or respiratory conditions.
- People with frequent tonic-clonic seizures or people whose seizures are not controlled by medications may be at higher risk of SUDEP. Overall, about 1 percent of people with epilepsy die of SUDEP.

### When should you consult a doctor?

If a person has been diagnosed with Epilepsy it is not necessary to see the doctor every time a seizure occurs. There are however specific instances when it is important to visit the doctor or emergency room. These include:

- If it is a first seizure and no diagnosis has been made yet
- If any change in seizure patterns or more frequent seizures occur

- If a seizure continues for more than 5 minutes
- If there is any breathing difficulty
- If the person has persistent confusion or unconsciousness
- If any injury is sustained during a seizure

**What is covered as PMB level of care?**

The PMB regulations include Epilepsy under the Diagnostic Treatment Pairs (DTP) and on the Chronic Diseases (CDL).

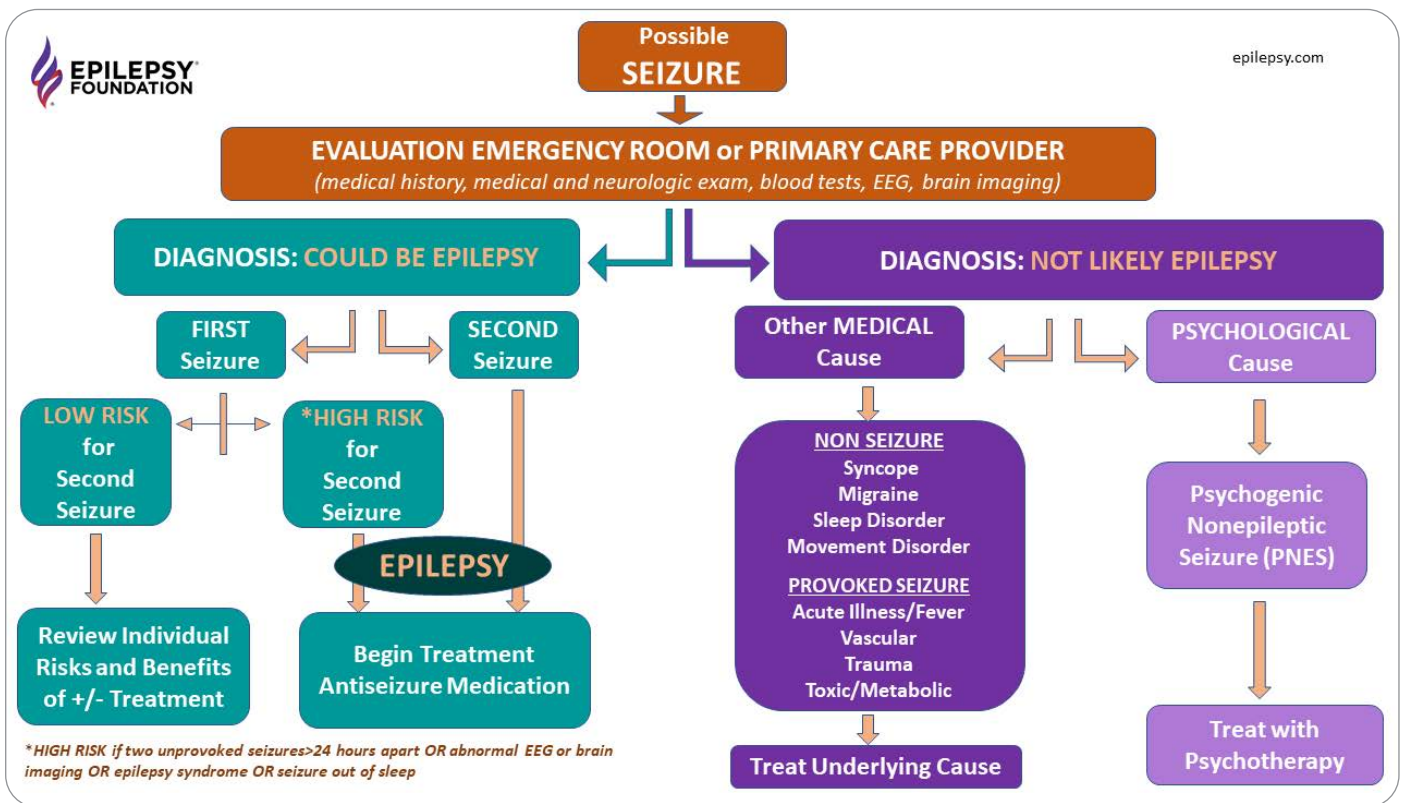
The regulations therefore cover the diagnosis, treatment and care of Epilepsy and provide a detailed medicine algorithm for the medicine management of the condition. The diagnostic tests and treatment discussed below must be funded by your medical scheme regardless of the scheme option you belong to and the healthcare setting in which the tests are done or the person is treated.

**How is Epilepsy diagnosed?**

The doctor will take a history about the event. Eyewitness information is very helpful. It is also important to get a detailed family history, social history and past medical history. It is important to inform the doctor about all medications that are used whether prescribed or over-the-counter medicine. A neurological examination that includes tests for strength and reflexes will be carried out.

Specific blood tests may be requested by the doctor. The tests that are usually performed includes:

- serum tests for glucose, sodium, potassium, calcium, phosphorus, magnesium, blood urea nitrogen, and ammonia
- anticonvulsant levels if you are already on treatment because inadequate levels of anticonvulsant medication is the most common cause of recurrent seizures
- drug and toxic screens (including alcohol)
- complete blood count (which may be helpful in evaluating infection)



Epilepsy occurs when 2 or more epileptic seizures occur unprovoked by any immediately identifiable cause. The seizures must occur more than 24 hours apart. An episode of Status Epilepticus is a life-threatening condition defined as generalized convulsions that involves either tonic-clonic seizure activity lasting more than 5 to 10 min or 2 or more seizures between which the person do not fully regain consciousness.

The results from the blood tests may be normal even if the condition is present.

Special tests such as magnetic resonance imaging (MRI scan), computed tomography (CT) scans or an Electroencephalogram (EEG - brain wave patterns) may be performed. The results from the special tests may be normal even if the condition is present.

## Treatment of Epilepsy

The diagnostic treatment pair covers the medical management, ventilation and neurosurgery whilst the CDL algorithm covers the medicine management of the condition.

Depending on the seizure type, different treatments may be prescribed. This will often include anticonvulsant medication that prevents or stops seizures. The medicine algorithm follows a stepped approach based on the effectiveness and toleration of medicine.

Neurosurgery for Epilepsy is available in the public sector and therefore included in the PMB cover. There are specific reasons for considering surgical intervention that must be adhered to as not all persons with Epilepsy qualify for surgical treatment.

## References

1. Mayo Clinic. Available at: <https://www.mayoclinic.org/diseases-conditions/epilepsy>
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3. International League Against Epilepsy. Available at <https://www.epilepsydiagnosis.org/>
4. National Center for Chronic Disease Prevention and Health Promotion, Division of Population Health. Available at <https://www.cdc.gov/epilepsy/about/faq.htm>

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**Contact information:**

information@medicalschemes.co.za

Hotline: 0861 123 267

Fax: 012 430 7644

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