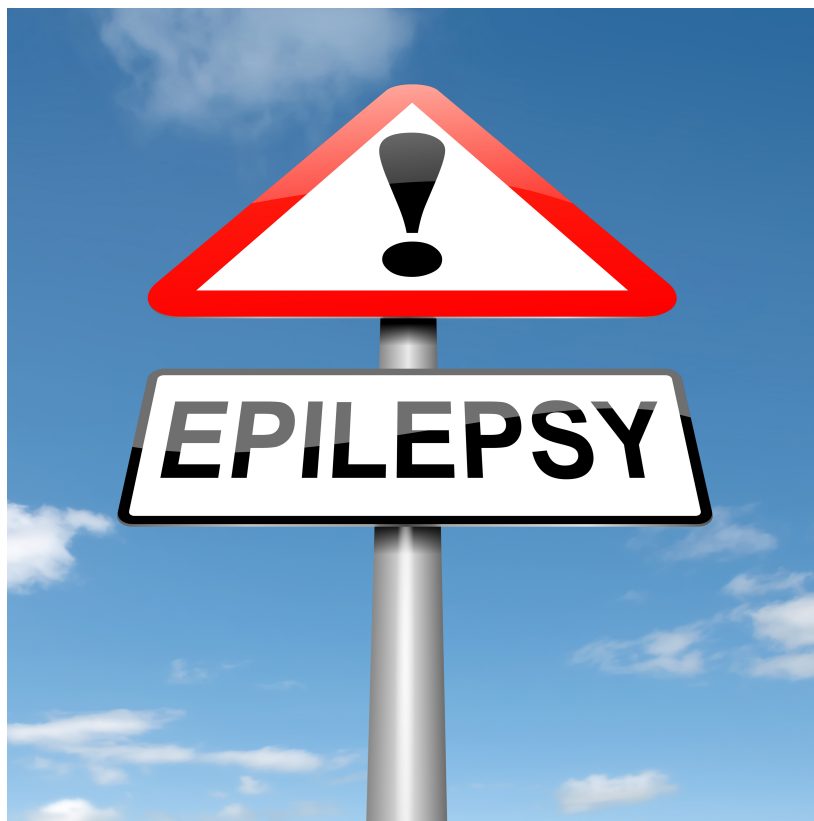


Epilepsy and Buccal Midazolam



This hand out is for information only. You must have in-house supervised training before administering any medications.

Epilepsy can be defined as:

A neurological condition causing the tendency for repeated seizures of primary cerebral origin

Epilepsy is currently defined as a tendency to have recurrent seizures (sometimes called fits).

A seizure is caused by a sudden burst of excess electrical activity in the brain, causing a temporary disruption in the normal message passing between brain cells.

This disruption results in the brain's messages becoming halted or mixed up.

Scientific Background

When the brain functions normally, millions of fluctuating, simultaneous, tiny electrical charges go from the nerve cells to all parts of the body.

If these signals are disrupted, or too many signals are sent at once, this causes a seizure (sometimes called a 'fit' or 'attack').

Symptomatic Epilepsy - may be caused by damage to the brain or disruption to normal brain activity

Cryptogenic Epilepsy - If no physical evidence of damage to the brain can be observed, but other evidence, a learning disability for example, suggests that there is damage to the brain

Idiopathic Epilepsy – If there is no obvious cause for the epilepsy.

Damage to the brain can be caused by:

- Severe head injury
- Strokes
- Brain tumours
- Abuse of drugs and alcohol
- Damage caused by a brain infection such as meningitis
- Dementia

How is Epilepsy Diagnosed?

- **Clinical Assessment**
 - Patient history
 - Tests (blood, EEG, CT, MRI scans)
 - Neurologic exam
- **ID of seizure type**
- **Clinical evaluation to look for causes**

A seizure is defined by release of excessive and uncontrolled electrical activity in the brain.

Seizures themselves are not a disease, they are an *event*.

Epilepsy (seizure *disorder*) is a neurological condition, which at different times produces brief disturbances in the electrical functions of the brain.

Seizures are a symptom of epilepsy.

Seizures can cause different symptoms based on the location of the source of and where the abnormal electrical activity spreads.

Seizures can range from tingling in a finger to grand mal (generalized) seizures, during which people lose consciousness, become stiff, and jerk.

Classification of Seizures

Seizures are classified into *partial* and *generalized*

Partial seizures are divided into:

- **Simple partial** - Consciousness is not impaired
- **Complex partial** - Consciousness is impaired

About 2/3 of people with epilepsy have complex partial seizures

Simple Partial Seizures

The person remains conscious.

Symptoms include:

- Changes in the senses so that things look, taste, smell, sound or feel different from usual.
- A tingling sensation like pins and needles in the arms and legs.
- Stiff muscles in the arms, legs and face.
- A very strong feeling of déjà vu.
- A sudden feeling of very strong emotion, such as fear or joy.

Complex Partial Seizure

There is no sense of awareness of what is happening and there may be no memory of the seizure.

The symptoms of this type of seizure are usually unnatural and random types of behaviour. A person experiencing complex partial seizure might:

- Rub their hand
- Smack their lips
- Make strange noises
- Move their arms around
- Pick at their clothes
- Fiddle with objects

Generalised Seizures

A large area or all of the brain is affected by a generalised seizure and it will usually cause complete unconsciousness.

There are six main types of generalized seizure:

- Absence
- Myoclonic
- Clonic
- Atonic
- Tonic
- Tonic Clonic

Absence (petit mal seizure)

- Usually affects children.
- They can last from 5-20 seconds.
- The child will not be aware of their surroundings and will appear to be staring vacantly into space.
- Some will smack their lips or flutter their eyes.
- When they regain awareness, they will not know that they have had an absence.
- They may occur several times in a day and are not harmful, though regular absences may affect a child's school work.

Myoclonic Jerks

These cause the arms, legs or upper body to jerk or twitch and often last only a fraction of a second.

They are most likely to occur within a few hours of waking.

On their own, they do not cause a loss of consciousness, but they can happen at the same time as other form of generalised seizures.

Clonic Seizure

These cause the same type of bodily movements as myoclonic jerks, but last up to 2 minutes.

The person may become unconscious.

Atonic Seizure

These cause a sudden relaxation in all of the muscles in the body and the person may fall to the ground.

Facial injuries are common following this type of seizure.

Tonic Seizure

These cause a sudden stiffness in all the muscles so the person may lose their balance and fall.

Injuries to the back of the head are common following a seizure of this kind.

Tonic Clonic Seizure (Grand Mal)

This is the type of seizure that is usually meant by the term 'epileptic fit' and counts for 60% of seizures experienced by people with epilepsy.

This type of seizure has two stages.

First the body becomes stiff and then the arms and legs begin to twitch.

The person will lose consciousness.

Tonic Clonic seizures usually last for 1-3 minutes, but can last longer.

At the start of the seizure:

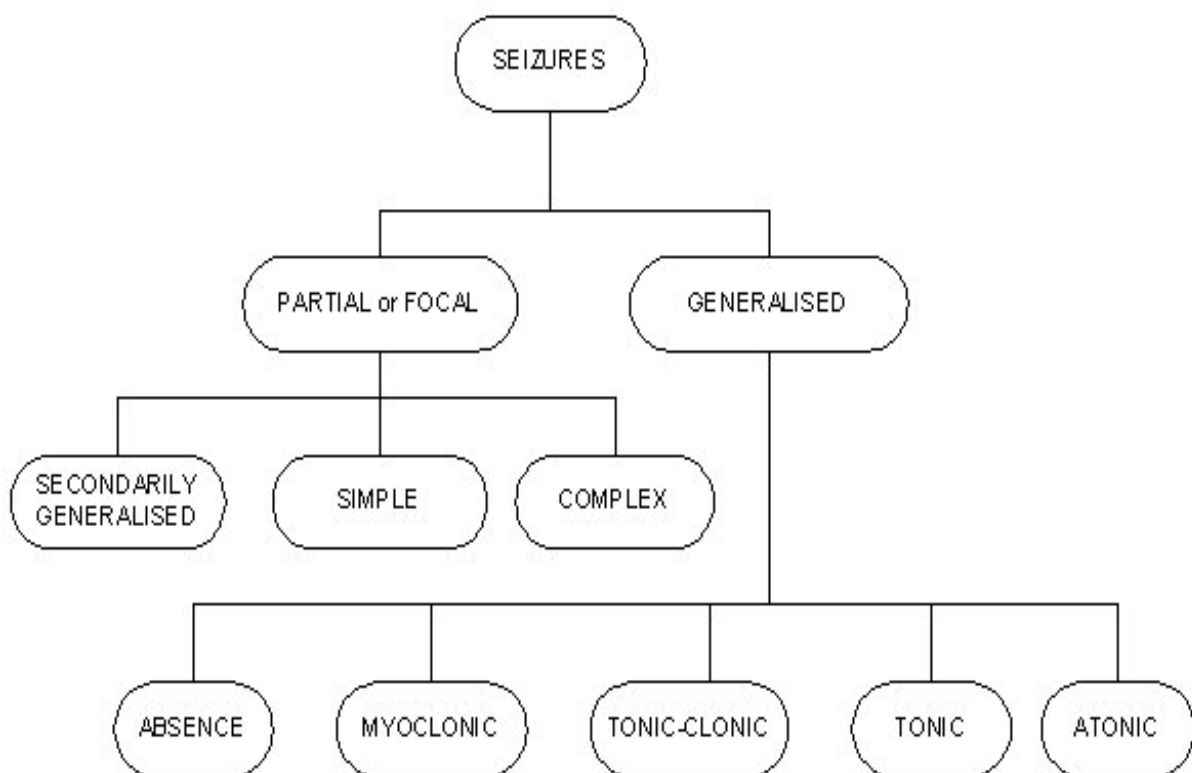
- The person becomes unconscious
- Their body goes stiff and if they are standing up they usually fall backwards
- They may cry out
- They may bite their tongue or cheek.

During the seizure:

- They jerk and shake (convulse) as their muscles relax and tighten rhythmically
- Their breathing might be affected and become difficult or sound noisy
- Their skin may change colour and become very pale or bluish
- They may have incontinence or bowel opening.

After the seizure (once the jerking stops):

- Their breathing and colour return to normal
- They may feel tired, confused, have a headache or want to sleep.



Auras

People with epilepsy often know they are about to have a seizure because they experience an 'aura'.

People experience auras differently but they might experience any of the following:

- Feeling anxious or tearful
- The world does not seem real or the person feels as if they are in a dream.
- A feeling of déjà vu
- A strange sensation in the body

Status Epilepticus

A state of recurring seizures, when consciousness does not return between seizure events.

Status Epilepticus is rare. It is important that people with epilepsy are aware of it because it can cause brain damage or even death.

People with epilepsy usually have seizures that last for around the same amount of time. For some people this may be only 30 seconds, for others it may be as long as five minutes.

When the seizure is over there will be a recovery period which will last 30 minutes or longer.

Very occasionally, a seizure will continue longer than normal or there will be a number of seizures one after the other without a recovery period in between.

When a seizure or series of seizures has lasted for half an hour or more, then the person is said to be 'in status'.

It is vital that the period in 'status' receives emergency medical help and that EMS are called.

This will be before the 30 minutes are up. It should be obvious within 10 minutes if seizures are showing no signs of stopping.

Status is more likely to occur in people who have tonic-clonic seizures, but may affect people with any type of seizure.

People who often go into status may be prescribed emergency medication.

Anyone who administers these drugs will need special training.

Possible Triggers for Epileptic Seizure

- Missed medication
- Lack of sleep
- Stress / boredom
- Irregular eating
- Over indulgence of alcohol
- Hormonal Changes
- Illness
- Other medications
- Visual triggers

Emergency Rescue Medication



The administration of Rectal Diazepam or Buccal Midazolam for the control of prolonged seizures is recognised as being potentially life saving.

Buccal Midazolam

Buccal midazolam provides an alternative treatment to rectal diazepam.

Midazolam is unlicensed for use this way but there is evidence that it is effective and well tolerated in the acute treatment of seizures.

Its mechanism is to work on the Central Nervous System as a relaxant and to control seizure activity.

It is very effective in controlling recurrent or prolonged seizures and works as effectively and reliably as rectal diazepam.

Midazolam is a benzodiazepine similar to Diazepam, which has been used for decades as a premedication before operations, dental treatment and other procedures.

It is short-acting, and it will cause sedation, relaxation, and amnesia.

During the last five years it has also been used orally for the emergency treatment of prolonged tonic-clonic seizures, as an alternative to rectal diazepam.

This, as yet, an unlicensed use, but there is good evidence to support its use, and “Epistatus” is an oral preparation which is manufactured specifically for this purpose.

Side effects include:

- 1) Drowsiness/dizziness
- 2) Respiratory depression (extremely rare with buccal use)
- 3) Hiccoughs
- 4) Agitation/restlessness
- 5) Dependence but only when given regularly

Why use Midazolam?

- It can be given into the mouth –without swallowing
- It is easy to access especially if patient is a wheel chair user
- It is a very effective anti-convulsant
- It is 20% less likely than rectal diazepam to cause respiratory complications

Individual Seizure Management Plan

Buccal midazolam must be prescribed on a named service user basis only on the agreed prescription sheet by a doctor.

The service user's epilepsy must be reviewed by a learning disability consultant or epilepsy nurse specialist.

The doctor prescribing buccal midazolam will explain to the carers and service user that midazolam is not licensed for Buccal use.

The service user must have a personalised rescue management protocol including:

- Name of individual
- Seizure classification / description
- When buccal midazolam should be administered
- How much is to be given
- What is the usual effect
- Time interval for repeated dose
- Maximum amount of midazolam in 24 hour period
- When emergency services should be requested
- Other people who need to be contacted / informed
- Plan review date

Maximum dose in a 24-hour period

It is advised that no more than 20mg Epistatus buccal midazolam is given in a twenty-four hour period:

However, in exceptional circumstances it may be that identified adult individuals will require more than this.

Where is the Buccal Space?

- It is in the mouth, there are 2 buccal spaces
- It is the space between the lower set of teeth/jaw and the cheek
- It is a deep vascular space that facilitates the quick absorption of small amounts of drugs

Administration of Midazolam

Administration must be consistent with the individual epilepsy management plan.

Midazolam should not normally be administered until the seizure has lasted more than 5 minutes

Occasionally it will be administered at the first signs of a seizure.

You must always refer to your individual clients emergency rescue plan.

The usual dose for an adult is 10mgs, doses for younger people will be different and should be checked before prescribing.

Half of the prescribed dose is administered to each side of the buccal cavity between the gum and the lower cheeks.

If this is not possible then the entire dose is administered to the buccal cavity on one side of the mouth.

If there is no beneficial effect apparent after 10 minutes then another dose of 10mg should be administered if stated in the individual protocol.

If both doses have been administered and seizures continue an ambulance must be requested as a third dose can only be administered in hospital due to possibility of respiratory depression.

A third dose must not be administered sooner than 6 hours after the second dose.

Method of Administration

Check the dosage of buccal midazolam against the prescription sheet.

Hold the bottle upright

Remove the cap

Put on disposable gloves

Insert the tip of the oral dispenser into the plastic bottle adaptor.

Hold the bottle and the oral dispenser securely and turn the bottle up-side down.

Pull the plunger out slowly to the prescribed amount.

Turn the bottle upright and remove the dispenser.

Reapply the cap immediately.

Insert the dispenser gently into the buccal cavity of the mouth.

Administer half the prescribed dose and remove the dispenser.

Administer the other half into the buccal cavity on the other side of the mouth.

If this is not possible administer the whole dose to the buccal cavity on one side of the mouth.



If there is no change in the person's condition after approximately 10 minutes another dose may be administered but must always be in accordance with the plan and prescription.

If there is still no change in the person's condition emergency ambulance must be requested.

Administration Tips

- Do not massage gums as you are likely to move the solution out of the buccal space
- Keep patient wherever possible in that position for 5-10 minutes
- If medicine is lost or swallowed –do not repeat
- Always remember to time seizure
- Note any differences from normal
- Keep patient safe throughout
- All guidelines say not to put anything in patients mouth – this is the exception

After Administration

Maintain close observation after administration and monitor the persons breathing.

The service user may experience prolonged sedation and ataxia (poor co-ordination and unsteadiness).

Ideally the service user should remain supine for at least an hour after administration and appropriate levels of observation maintained (at least 20 minutes following end of the seizure).

What Next?

- Follow care plan
- If seizure stopped check time and lay in recovery position
- Stay with patient till someone else takes over

- If seizure does not stop
- Keep talking to patient and let them know what you are doing
- Follow care plan
- Call 999 if you have any concerns

All equipment must be disposed of safely.

Relatives/carers must be informed at the earliest, appropriate opportunity that buccal midazolam has been administered.

The nurse administering midazolam must complete all appropriate documentation.

The frequency of administration must be brought to the attention of the prescribing clinician and reviewed.

Specific Record Keeping

- Record start time and end time of seizures
- Record number of seizures i.e. several small or one long seizure
- What parts of the body involved
- Was patient conscious
- Was patient incontinent
- Was the seizure different from normal
- If so what was different
- Patients colour
- Patients breathing
- Did the patient vomit
- Was there any trauma and area of trauma