

SPEN | Scottish Paediatric Epilepsy Network

Buccal Midazolam Guideline*

*NOTE

This guideline is not intended to be construed or to serve as a standard of care. Standards of care are determined based on all clinical data available for an individual case and are subject to change as scientific knowledge and technology advance and patterns of care evolve. Adherence to guideline recommendations will not ensure a successful outcome in every case, nor should they be construed as including all proper methods of care or excluding other acceptable methods of care aimed at the same results. The ultimate judgement must be made by the appropriate healthcare professional(s) responsible for clinical decisions regarding a particular clinical procedure or treatment plan. This judgement should only be arrived at following discussion of the options with the patient, covering the diagnostic and treatment choices available. It is advised, however, that significant departures from the national guideline or any local guidelines derived from it should be fully documented in the patient's case notes at the time the relevant decision is taken.

Background

This Consensus Best Practice Guideline is intended to inform the development of local policy documents for individual health boards. SPEN recognises there may be slight regional variation in practice, but the core principles of practice should be adhered to.

The International League Against Epilepsy (ILAE) proposed a new definition of status epilepticus. Status epilepticus is a condition resulting either from the failure of the mechanisms responsible for seizure termination or from the initiation of mechanisms, which lead to abnormally prolonged seizures (after time point t_1). It is a condition which can have long-term consequences (after time point t_2), including neuronal death, neuronal injury, and alteration of neuronal networks, depending on the type and duration of seizures (Trinka et al 2015).

Convulsive Status Epilepticus can be fatal, but this is uncommon in children (Chin et al 2006). Morbidity and mortality are low in children who have unprovoked status epilepticus. Adverse consequences are more common in children and young people whose epilepsy has a genetic or structural cause (Bacon et al 2022).

It is recommended that children and young people who have had convulsive Status Epilepticus (tonic clonic seizures longer than 5 minutes, focal seizures longer than 10 minutes and absence status longer than 10-15 minutes) should be prescribed buccal midazolam or another appropriate emergency medication. They should also have an emergency care plan that gives guidance to parents, guardians, or carers in the treatment of Status Epilepticus (NICE 2022).

In the UK, there has been an emphasis on personalised epilepsy care in the community. Midazolam (Epistatus®) 10mg/1mL oromucosal solution has been a popular and successful intervention, evidenced from routine clinical delivery in the management of prolonged or clusters of epileptic seizures for children and young people since 2004. Due to various safety concerns regarding alternatives the consensus view across Scotland is to continue to use Midazolam (Epistatus®) 10mg/1mL oromucosal solution. The MHRA have granted a license for Epistatus® Midazolam Oromucosal Liquid 2.5mg, 5mg, 7.5mg and 10mg pre-filled syringes (single use) for children who are 3 months – 18 years of age. Midazolam (Epistatus®) 10mg/1mL oromucosal solution (5ml bottle) is an unlicensed product but may be prescribed on occasion due to the clinical circumstances.

This guideline is designed to ensure that Midazolam (Epistatus®) 10mg/1mL oromucosal solution is prescribed appropriately and administered only when:

- the parent / guardian / child has given informed consent.

- any young person (16 or older) who is incapacitated should be treated under the Adults with Incapacity Act.
- the child has an Emergency Medication Care Plan.
- the person undertaking Midazolam administration has completed appropriate training.

Information for General Practitioners & Community Pharmacists

Midazolam (Epistatus®) Oromucosal Liquid 10mg in 1 ml pre-filled single use syringes are licensed for use for children 3 months – 18 years of age. 2.5mg, 5mg, 7.5mg and 10mg syringes are available.

Midazolam (Epistatus®) Oromucosal Liquid 10mg in 1 ml (5ml bottle) can be found by ticking the specials box on GP prescribing systems (for further advice please contact your paediatric epilepsy specialist nurse).

Indications for prescribing

Midazolam (Epistatus®) Oromucosal Liquid 10mg in 1 ml should be prescribed in consultation with a Paediatrician with an expertise in epilepsy or Epilepsy Nurse Specialist. Midazolam (Epistatus®) Oromucosal Liquid 10mg in 1 ml should be considered if a child presents with a prolonged epileptic seizure, defined as a tonic-clonic / clonic seizure lasting over 5 minutes, most seizures resolve spontaneously within 5 minutes.

Midazolam (Epistatus®) Oromucosal Liquid 10mg in 1 ml should also be considered for prolonged focal seizures and on occasion clusters of seizures (to be defined on an individual basis).

If Midazolam (Epistatus®) Oromucosal Liquid 10mg in 1 ml is prescribed it is essential to notify your local paediatric epilepsy specialist nurse / relevant professional* so a care plan can be drafted and training given / organised. Midazolam should not be administered by an untrained person. The paediatric epilepsy specialist nurse / relevant professional* will also give training and information to the parent or guardian (*see appendix D)

The requirement to hold emergency medication should be reviewed on an annual basis. If Midazolam (Epistatus®) Oromucosal Liquid 10mg in 1 ml has not been used in 2 years, its prescription should be discontinued unless clinically inappropriate. Parents / guardians should be counselled regarding this practice at the time of initial prescription by either the prescribing doctor or paediatric epilepsy specialist nurse.

Dosage

Preference should be given to prescribing Midazolam (Epistatus®) Oromucosal pre-filled single use syringes (Midazolam (Epistatus®) multidose bottles may be used in the hospital setting or when clinically indicated).

When prescribing Midazolam (Epistatus®) Oromucosal pre-filled single use syringes it is good prescribing practice to use the child's weight and use the nearest whole pre-filled syringe according to their weight (i.e., 2.5mg, 5mg, 7.5mg or 10mg syringe). The dosage currently used across Scotland is 0.3mg (300 micrograms) per kg of body weight, maximum dose 10mg (1ml).

(The manufacturers and BNFC use age banding, however some children may be overweight or underweight for their age).

Time to onset of action

Initial effects become apparent after approximately 5 minutes. Midazolam (Epistatus®) Oromucosal Liquid 10mg in 1 ml terminates about 80% of seizures within 10 minutes. The child may be protected from recurring seizures for up to four hours.

A **second dose** will be considered on an individual basis in consultation with the consultant in charge of the child's care and documented in the child's individual care plan.

A child may remain drowsy or significantly sedated for several hours after administration of Midazolam (Epistatus®) Oromucosal Liquid 10mg in 1 ml.

Side effects and adverse effects of Midazolam

Midazolam can cause drowsiness, shallow breathing, and unsteadiness.

As with other benzodiazepines, Midazolam can cause paradoxical effects such as agitation, restlessness, confusion, hallucinations, euphoria and excitement, rashes, and hypotension (low blood pressure).

Emergency Medication Care Plan and Training

Every child who has been prescribed Midazolam (Epistatus®) Oromucosal Liquid 10mg in 1 ml should have their own individual Emergency Medication Care Plan. The care plan should be signed by the prescribing doctor / consultant in charge of the child's care and the child's parent / guardian (for example see appendix A).

Parents / guardians should receive child specific training in epilepsy awareness and the administration of Midazolam (Epistatus®) Oromucosal Liquid 10mg in 1 ml (for example see appendix B).

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Health, education, and social staff provide support for children and young people with epilepsy. They may be uncertain about how and when to administer Midazolam (Epistatus®) Oromucosal Liquid 10mg in 1 ml or know about the adverse effects and legal liability. They should therefore not administer emergency medication without completing an accredited Epilepsy Awareness and Emergency Medication Administration course (see appendix C) and successfully completing child specific training if required.

For Health, education and social staff employed by organisations it is the employer's responsibility to ensure competence and that training is adequate and up to date (biennial training is recommended). They should also have appropriate insurance in place for staff.

References:

Bacon RM, Appleton R, Bangalore H, Brand C, Browning J, Chin RF, Mahal S, Saranga Estevan S, McHale K, McLellan A, Milne N, Pujar S, Rao T, Short S, Warriner S, Yoong M. Review of the new APLS guideline (2022): Management of the convulsing child. Arch Dis Child Educ Pract Ed. 2023 Feb;108(1):43-48. doi: 10.1136/archdischild-2021-323351. Epub 2022 Jun 22. PMID: 35732467 Accessed [14/02/2023]

Chin RFM, Neville BGR, Peckham C, et al. Incidence, cause, and short-term outcome of convulsive status epilepticus in childhood: prospective population-based study. Lancet 2006;368:222–9. doi:10.1016/S01406736(06)690430 pmid:http://www.ncbi.nlm.nih.gov/pubmed/16844492 Accessed [15/02/2023]

Medicines and Healthcare products Regulatory Agency (MHRA) (2022). Public Assessment Report
<https://products.mhra.gov.uk/product/?product=EPISTATUS®> Accessed [14/02/2023]

National Institute for Health and Care Excellence (NICE) (2022). Diagnosis and management of epilepsy in adults - NICE Clinical Guideline 217.
<https://www.nice.org.uk/guidance/ng217> . Accessed [14/02/2023]

Trinka E, Cock H, Hesdorffer D, Rossetti AO, Scheffer IE, Shinnar S, Shorvon S, Lowenstein DH. A definition and classification of status epilepticus--Report of the ILAE Task Force on Classification of Status Epilepticus. Epilepsia. 2015 Oct;56(10):1515-23. doi: 10.1111/epi.13121. Epub 2015 Sep 4. PMID: 26336950. Accessed [14/02/2023]

Appendix A

EXAMPLE:

Emergency Medication Guideline for:

CHI:

Name:

WT:

Description of seizure(s) requiring emergency medication:

If..... has a seizure as described above which lasts longer than 5 minutes



Givemgs of Midazolam (buccally)



Wait 5 minutes



CALL 999 if:

The seizure does not stop 5 minutes after the administration of Midazolam

Maximum of 2 doses of Midazolam can be given in a 6-hour period in the community setting.

NB THIS CARE PLAN IS BASED ON THE USE OF MIDAZOLAM BUCCAL LIQUID 10MGS/1ML

When the seizure has stopped or you call 999, call Parent/Carer to advise them that you have given Midazolam.

Prescriber's Signature:

Print Name:

Date:

.....

.....

.....

Parent/ Guardian's Signature:

Print Name:

Date:

.....

.....

.....

(Agreement to the implementation of the guideline)

Please note: Midazolam should only be given by staff who have successfully completed the TURAS Paediatric Epilepsy Awareness and Emergency Medication training. Training should be renewed every two years. Please contact the Epilepsy Specialist Nursing Service should staff need any additional support or advice.

Review date:

Record of use of Emergency Medication

Date					
Recorded by					
Type of seizure					
Length and/or number of seizures					
Initial dosage					
Outcome					
Second dosage (if any)					
Outcome					
Parent/guardian informed					
GP informed if required					
Witness					

Contact details:

Parent/Carer:
Name:
Tel:

Prescribing doctor/GP:
Name:
Tel:

Relevant other:
Name
Tel:

Appendix B

GUIDELINES & RECORD FOR THE INSTRUCTION OF PARENTS / CARERS ON THE ADMINISTRATION OF BUCCAL / NASAL MIDAZOLAM IN THE FORM OF *EPISTATUS*®

NAME OF CHILD:.....l:.....

	GUIDELINES	CRITERIA	TICK
1.	<p>Confirm that the parents / carers understand when the Midazolam should be administered by the buccal or nasal route</p> <p>Confirm awareness of licensed medication and controlled drug</p>	<p>Type of Seizure(s)</p> <p>Length of time before administration</p> <p>Yes / No</p>	
2.	<p>Confirm parents / carers know how to obtain medication & that they have the appropriate contact numbers</p>	<p>Obtain Medication</p> <p>Have contact details</p>	
3.	<p>Confirm parents / carers know how to store medication & dispose of syringes & Midazolam</p>	<p>Safe Storage</p> <p>Disposal of Syringes</p>	
4.	<p>Confirm parents / carers can check the correct details from the medication</p>	<p>Correct Medication</p> <p>Expiry Date</p> <p>Dosage Check age and weight (0.3mgs/kg) Not Exceeding 10mgs</p>	
5.	<p>Demonstrate the pre-administration checks with a 'dummy' bottle or prefilled syringe.</p>	<p>Individual Care Plan</p> <p>Check dose prescribed</p> <p>Handling of Pre-filled Syringe or</p> <p>Technique for drawing up with a syringe out of the bottle</p>	
6.	<p>Discuss & demonstrate the process of administration both buccal & nasal</p>	<p>As per Care Plan (Go through Care Plan)</p>	
7.	<p>Observations</p>	<p>Observe child's airway, colour & breathing.</p> <p>Identify that child should respond in 5 – 10 minutes</p> <p>Note time of administration</p> <p>Note how long before seizure stops</p> <p>Confirm what action to take when seizure does not stop</p> <p>Confirm any side effects & who to report these to</p> <p>Confirm who to contact after administration</p>	

Carer or Legal Guardian Declaration	
<p>I have received training and have been instructed in the use of Buccal Midazolam I have also practically demonstrated how I would give it.</p> <p>I am confident to take responsibility for my actions when carrying out the administration of Buccal Midazolam in light of the training I received from a nurse acting for NHS xxxxx, as outlined overleaf. I understand and hereby acknowledge that the trainer or NHS xxxxx cannot be held responsible for my future actions.</p>	
Name	Signature
Designation	Date

NHS xxxxx/Trainers Declaration	
<p>I, the Trainer, confirm that the training and supervised practice has been completed as outlined above.</p>	
Name	Signature
Designation	Date

Appendix C

*The content of epilepsy training courses for health, education and social care staff should comply with the recommendations of the core components of epilepsy awareness and buccal midazolam training outlined by ESNA (Epilepsy Specialist Nurses Association). Employer competency check lists are also available on the ESNA Website <https://esna-online.org>. It is recommended that participants also complete a basic life support course.

Paediatric Epilepsy Awareness and Emergency Medication Training.

Suitable for health, education, and social care staff – if further child specific information / support is required please contact your local Children’s Epilepsy Specialist Nurse.

Register for TURAS as follows:

<https://learn.nes.nhs.scot>

Sector	<input type="text" value="International"/>
Organisation *	<input type="text" value="-- Please Select --"/>
Professional Group	<input type="text" value="-- Please Select --"/>
Professional Role	<input type="text" value="Education"/> <input type="text" value="Non-governmental organisation"/> <input type="text" value="Private healthcare"/> <input type="text" value="Private social care"/> <input type="text" value="Public healthcare"/> <input type="text" value="Public social care"/>

<https://learn.nes.nhs.scot/62826/women-children-young-people-and-families/paediatric-epilepsy-awareness-and-emergency-medication-training>

(Paediatric Epilepsy Awareness and Emergency Medication Training)

Appendix D

Note regarding relevant other professional: It may be necessary due to population size for some health boards to delegate responsibility for emergency medication care plans and training to another “relevant professional”. This should be agreed formally, and local clinicians / nursing staff should be aware of the correct pathway of referral to ensure no child is given emergency medication without a care plan or appropriate training for those involved in the child’s care.