



## CLINICAL GUIDELINE

# Epilepsy - Nil by Mouth Guidance, Acute

A guideline is intended to assist healthcare professionals in the choice of disease-specific treatments.

Clinical judgement should be exercised on the applicability of any guideline, influenced by individual patient characteristics. Clinicians should be mindful of the potential for harmful polypharmacy and increased susceptibility to adverse drug reactions in patients with multiple morbidities or frailty.

If, after discussion with the patient or carer, there are good reasons for not following a guideline, it is good practice to record these and communicate them to others involved in the care of the patient.

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## CLINICAL GUIDELINE

# EPILEPSY – NIL BY MOUTH GUIDANCE FOR ADULT PATIENTS, ACUTE

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<b>Approved by:</b>	Medicines Utilisation Subcommittee of the ADTC

# Epilepsy - Nil by Mouth Guidance, Acute

This guideline outlines the general management of anti-epileptic drugs (AEDs) in nil by mouth (NBM) adult patients with a history of epilepsy/seizures. Patients who present with seizures should be discussed with the on-call neurologist. Please note that routine switching between different manufacturers of anti-epileptic drugs should be avoided,<sup>1</sup> however the following advice is preferable to missed doses. With all changes to AEDs, close monitoring of the patient is needed.

It is preferable to pass a nasogastric tube in NBM patients with a history of epilepsy/seizures to avoid missed doses of medication and thus minimise the risks of loss of seizure control. The alteration of medications for use via enteral feeding tubes generally results in the medication being unlicensed. The advice provided below applies to all types of enteral feeding tube unless otherwise stated. Use 30ml of distilled water to flush the tube before and after drug administration. If more than one medication is to be given, flush with 10ml distilled water between each one.<sup>2, 3</sup>

Table 1: Guidance for conversion of common oral anti-epileptic drugs<sup>2, 3</sup>

Drug name	Oral formulations	Alternative formulations	Dosage equivalence	Method of administration in NBM patients
<b>Carbamazepine</b>	Tablets MR tablets Liquid 20mg/ml	Suppositories (125mg and 250mg)	100mg oral = 125mg rectal <sup>4</sup>  (Max. licensed rectal dose = 250mg four times daily; consider referral to neurology if patient's dose exceeds this)	<ul style="list-style-type: none"> <li>Use liquid for patients with enteral tube. Dilute dose with equal volume of water.</li> <li>If total dose exceeds 400mg/day (of standard release or modified release tablets), divide the total dose into four equal doses when converting to liquid.</li> <li>Modified release tablets <b>cannot</b> be crushed.</li> <li>Use suppositories if no enteral tube (licensed for up to 7 days).</li> </ul>
<b>Lacosamide</b>	Tablets Syrup 10mg/ml	Injection (IV)	Equivalent dose <sup>4</sup> (all formulations)	<ul style="list-style-type: none"> <li>Syrup can be administered via enteral tube.</li> <li>Give intravenously if no enteral tube (only experience in up to 5 days use).</li> </ul>
<b>Lamotrigine</b>	Tablets Dispersible tabs	Nil	Equivalent dose	<ul style="list-style-type: none"> <li>Dispersible tablets can be administered via enteral tube.</li> <li>Contact neurology for advice if no enteral tube.</li> </ul>
<b>Levetiracetam</b>	Tablets, Granules Liquid 100mg/ml	Injection (IV)	Equivalent dose <sup>4</sup> (all formulations)	<ul style="list-style-type: none"> <li>Use liquid or granules (shake in 10ml of water for 2 minutes then flush with 10ml of water twice) if available or tablets can be crushed and dispersed in water for enteral tubes.</li> <li>Give intravenously if no enteral tube.</li> </ul>
<b>Phenytoin</b>	Capsules Chewable tabs Liquid 6mg/ml Tablets	Injection (IV)	100mg caps/tabs/injection = 90mg liquid/chewable tabs <sup>2,3</sup>	<ul style="list-style-type: none"> <li><b>Refer to Table 3: Additional information regarding administration</b></li> <li>Intravenous therapy is the preferred option for NBM patients, continuous cardiac monitoring required.</li> <li>Liquid can be administered via enteral tube but can be problematic. Dilute with equal volume of water. Must allow two hour break in enteral feeds before and after dose.</li> </ul>
<b>Sodium Valproate</b>	Tablets MR tablets/ capsules/granules Crushable tabs Liquid 40mg/ml	Injection (IV)	Equivalent dose <sup>4</sup> (all formulations)	<ul style="list-style-type: none"> <li>Liquid can be administered via enteral tube. Dilute dose with equal volume of water.</li> <li>The crushable tablets can be crushed and dispersed in a small amount of water for administration.</li> <li>Modified release formulations <b>cannot</b> be crushed.</li> </ul>

				<ul style="list-style-type: none"> <li>• If patient on MR formulation give a smaller dose more frequently when converting to liquid (e.g. if on 500mg MR tablets twice daily give 250mg liquid four times daily).</li> <li>• Give intravenously if no enteral tube</li> </ul>
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Table 2: Guidance for conversion of other oral anti-epileptic drugs<sup>2,3</sup>

Drug name	Oral formulation	Alternative formulations	Dosage equivalence	Method of administration in NBM patients
<b>Brivaracetam</b>	Tablets Liquid 10mg/ml	Injection (IV)	Equivalent dose <sup>4</sup> (all formulations)	<ul style="list-style-type: none"> <li>• Use liquid for patients with NG/PEG tubes (licensed).</li> <li>• Give intravenously if NJ/PEJ or no enteral feeding tube.</li> </ul>
<b>Cenobamate</b>	Tablets	Nil	N/A	<ul style="list-style-type: none"> <li>• Crush and disperse tablets in water for enteral tubes<sup>5</sup>, limited evidence, monitor closely.</li> <li>• Contact neurology for advice if no enteral tube.</li> </ul>
<b>Clobazam</b>	Tablets Liquid 1mg/ml Liquid 2mg/ml	Nil	Equivalent dose	<ul style="list-style-type: none"> <li>• Crush and disperse tablets in water for enteral tubes.</li> <li>• Contact neurology for advice if no enteral tube.</li> </ul>
<b>Clonazepam</b>	Tablets Liquid 0.4mg/ml Liquid 0.1mg/ml	Nil	Equivalent dose	<ul style="list-style-type: none"> <li>• Use liquid or disperse tablets in at least 30ml water for NG/PEG tubes.</li> <li>• Disperse tablets in at least 30ml water for NJ/PEJ tubes.</li> <li>• Contact neurology for advice if no enteral feeding tube, an unlicensed IV clonazepam is available but not always appropriate.</li> </ul>
<b>Eslicarbazepine</b>	Tablets Liquid 50mg/ml	Nil	N/A	<ul style="list-style-type: none"> <li>• Tablets can be crushed and administered in water<sup>6</sup> or use liquid if available, however no information is available regarding suitability of administration via enteral feeding tubes. Contact neurology for advice.</li> </ul>
<b>Ethosuximide</b>	Capsules Liquid 50mg/ml	Nil	Equivalent dose	<ul style="list-style-type: none"> <li>• Use syrup for patients with an enteral feeding tube. Dilute dose with an equal volume of water.</li> <li>• Contact neurology for advice if no enteral tube.</li> </ul>
<b>Gabapentin</b>	Tablets Capsule Liquid 50mg/ml	Nil	Equivalent dose	<ul style="list-style-type: none"> <li>• Open capsules and dissolve contents in water or use liquid* for patients with NG/PEG tubes.</li> <li>• Open the capsules and dissolve contents in water for patients with NJ/PEJ tubes.</li> <li>• Contact neurology for advice if no enteral tube.</li> </ul>
<b>Oxcarbazepine</b>	Tablets Liquid 60mg/ml	Nil	Equivalent dose	<ul style="list-style-type: none"> <li>• Use liquid for patients with an enteral feeding tube. Dilute dose with an equal volume of water.</li> <li>• Contact neurology for advice if no enteral tube.</li> </ul>
<b>Perampanel</b>	Tablets Liquid 500micrograms/ml	Nil	Equivalent dose	<ul style="list-style-type: none"> <li>• Tablets can be crushed and administered in water for administration via NG/PEG tube<sup>7</sup>.</li> <li>• Contact neurology for advice if NJ/PEJ or no enteral tube.</li> </ul>

\*levels of propylene glycol, acesulfame K and saccharin sodium may exceed the recommended limits if high doses of Rosemount gabapentin solution are given to those with low body weight (39-50kg)<sup>4</sup>

Table 2 continued: Guidance for conversion of other oral anti-epileptic drugs.<sup>2,3</sup>

Drug name	Oral formulation	Alternative formulations	Dosage equivalence	Method of administration in NBM patients
<b>Phenobarbital</b>	Tablets Elixir 3mg/ml Liquid 10mg/ml (unlicensed)	Injection (IV)	Equivalent dose <sup>4</sup> (all formulations)	<ul style="list-style-type: none"> <li>• Use elixir/liquid for enteral tubes. Note - 3mg/ml elixir contains 38% alcohol.</li> <li>• If liquid is not available crush tablets and mix with water.</li> <li>• Contact neurology for advice if no enteral tube as intravenous phenobarbital not always appropriate.</li> </ul>
<b>Pregabalin</b>	Tablets Capsules Liquid 20mg/ml	Nil	Equivalent doses	<ul style="list-style-type: none"> <li>• Open capsules and dissolve contents in water or use liquid for patients with enteral tubes.</li> <li>• Contact neurology for advice if no enteral tube.</li> </ul>
<b>Primidone</b>	Tablets	Nil	N/A	<ul style="list-style-type: none"> <li>• Crush and disperse tablets in water for enteral tubes.</li> <li>• Contact neurology for advice if no enteral tube.</li> </ul>
<b>Rufinamide</b>	Tablets Liquid 40mg/ml	Nil	Equivalent dose	<ul style="list-style-type: none"> <li>• Use liquid which is licensed for administration via enteral tubes.</li> <li>• Contact neurology for advice if no enteral tube.</li> </ul>
<b>Topiramate</b>	Tablets Sprinkle caps Liquid 10mg/ml and 20mg/ml	Nil	Equivalent dose	<ul style="list-style-type: none"> <li>• Crush and disperse tablets in water for enteral tubes.</li> <li>• Absorption may be reduced if given jejunally – monitor closely.</li> <li>• Contact neurology for advice if no enteral tube.</li> </ul>
<b>Tiagabine</b>	Tablets	Nil	N/A	<ul style="list-style-type: none"> <li>• Crush and disperse tablets in water for enteral tubes.</li> <li>• Contact neurology for advice if no enteral tube.</li> </ul>
<b>Vigabatrin</b>	Tablets Soluble tablets Sachets	Nil	Equivalent dose	<ul style="list-style-type: none"> <li>• Use soluble tablets if available.</li> <li>• Disperse sachets in at least 10ml of water for enteral tubes</li> <li>• Contact neurology for advice if no enteral tube.</li> </ul>
<b>Zonisamide</b>	Capsules Liquid 20mg/ml	Nil	Equivalent dose	<ul style="list-style-type: none"> <li>• Use liquid if available or open capsules and disperse contents in water or apple juice for enteral tubes.</li> <li>• Flush tube three times with 5ml of water after liquid administration</li> <li>• Contact neurology for advice if no enteral tube.</li> </ul>

Table 3: Additional information regarding phenytoin administration

<b>Additional Information Regarding Phenytoin Administration</b>
<p><b>Intravenous Phenytoin</b> Intravenous phenytoin therapy necessitates continuous monitoring of ECG, blood pressure and respiratory rate during administration (see IV drug monograph via <a href="#">Adult Intravenous Medicine Monographs (sharepoint.com)</a>).</p> <p><b>Administration of Phenytoin via Enteral Tubes</b> Absorption of phenytoin is highly variable when given via enteral tubes and interaction with enteral feeds (including bolus feeds e.g. Ensure®) can affect bioavailability. Intravenous phenytoin may be preferable in patients with current seizures or sub-therapeutic phenytoin levels and in those with NJ/PEJ tubes. Please inform a pharmacist if you have a patient being administered phenytoin via an enteral tube.</p> <p><b>Therapeutic Drug Monitoring</b> All patients receiving phenytoin intravenously or via an enteral tube must have phenytoin levels monitored. Advice on therapeutic drug monitoring of phenytoin can be found in section 4 of <a href="#">GGC Medicines - Guideline for Phenytoin Dose Calculations</a> in the Adult Therapeutic Handbook.</p>

## References

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