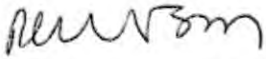



**Guidelines For The Administration Of Medicines To Adults Via Enteral Tubes Within NHS Grampian**

<b>Co-ordinators:</b> Lead Pharmacist, Grampian Medicines Information Centre	<b>Consultation Group:</b> See Page 2	<b>Approver:</b> Medicine Guidelines and Policies Group
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<b>Signature:</b> 		<b>Signature:</b> 
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**Version 3**

**Executive Sign-Off**

**This document has been endorsed by the Director of Pharmacy and Medicines Management**

**Signature:**  \_\_\_\_\_

**Title:** Guidelines For The Administration Of Medicines To Adults Via Enteral Tubes Within NHS Grampian

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Across NHS Boards	Organisation Wide	Directorate	Clinical Service	Sub Department Area

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**Lead Author/Co-ordinator:** Lead Pharmacist, Grampian Medicines Information Centre

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**Departmental:** Heads of Service/Clinical Leads  
**Area:** Line Managers  
**Hospital/Interface services:** Portfolio Leads and Group Clinical Directors  
**Operational Management Unit:** Unit Operational Managers

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**Responsibilities for review of this document:** Lead Pharmacist, Grampian Medicines Information Centre

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<b>Revision Date</b>	<b>Summary of Changes (Descriptive summary of the changes made)</b>	<b>Changes Marked* (Identify page numbers and section heading )</b>
March 2023	<p><b>Added the following monographs/presentations:</b>            Calvive® effervescent tablets            Carbocisteine</p>	<p>8 10</p>
	<p>Dexamethasone            Donepezil oral solution            Fosfomycin            Hyoscine butylbromide            Loperamide tablets            Omeprazole oral suspension            Prednisolone oral solution            Risperidone orodispersible tablets            Rosuvastatin            Vancomycin            Venlafaxine oral solution            Zomorph® capsules</p> <p><b>Removed the following monograph:</b>            Ranitidine</p>	<p>16 18 23 25 29 38 44 46 48 52 53 35</p>
March 2023	<p><b>Significant changes to the following monographs:</b>            Calcium            Dihydrocodeine            Loperamide            Metronidazole            Morphine</p>	<p>8 17 29 33 35</p>

\* Changes marked should detail the section(s) of the document that have been amended, i.e. page number and section heading.

## **Guidelines For The Administration Of Medicines To Adults Via Enteral Tubes Within NHS Grampian**

When the oral route is not available, patients may need to be fed and have medicines administered through an enteral tube. Tubes may terminate in the stomach or the jejunum, and they may enter via the nose or through the abdominal wall. It is usually possible to give medicines via these enteral tubes, but it can be difficult to find guidance on the best approach. Important considerations include the diameter of the tube (and therefore risk of blockage), the suitability of the formulation used, whether the stability of the medication might be affected by the acid environment of the stomach, or whether absorption might be affected by bypassing the stomach in the case of jejunal tubes.

This document has been produced based on the most up-to-date information available. Please note that this is not an exhaustive list of all medicines which can be administered via enteral feeding tubes. Specific factors relating to an individual patient may dictate a different approach. This document is not a substitute for professional clinical judgement. Where there are any concerns or individual patient advice is required please contact the Grampian Medicines Information Centre on 01224 552316 or email [gram.medinfo@nhs.scot](mailto:gram.medinfo@nhs.scot). Please be aware the administration of medication to patients with enteral feeding tubes can be problematic and information can at times be lacking. In the first instance, the ongoing need for the medication should be reviewed by the prescriber.

The crushing and/or dispersing of tablets or the opening of capsules is rarely covered by the medicine licence and licensed routes of administration should be explored in the first instance. However, there may be no other option for some patients, and these cases should be discussed with the pharmacy team. Only prescribers can authorise the unlicensed use of medicines. Authorisation by the prescriber (ideally in writing) should be obtained prior to any adjustment in how an oral dosage is administered.

### **General recommendations for drug administration via enteral tubes:**

- Use enteral syringes at all times, not injection syringes.
- For tubes terminating in the stomach, tap water is acceptable. For tubes terminating in the jejunum, sterile water should be used.
- Stop feed and/or flush enteral tube with 15-30mL of water prior to drug administration. Check if a prolonged break in feeding is advised prior to administration of specific drugs.
- If able, ensure the patient is sitting up at an angle of at least 30 degrees to avoid reflux of medication or water. Note that this may not be possible for some patients such as those with spinal injuries.
- Give medication via enteral tube as directed by the guidance within the table below.
- If more than one medicine is being administered, flush with at least 10mL of water between each medication.

- After administration of the last medication, flush tube well with 15-30mL of water after the dose.
- Restart feed if a prolonged break in feed is not advised.

### **Practical advice for patient/carer/healthcare professional administering medicines:**

- Do not crush modified release preparations. These might be indicated by ‘MR’, ‘SR’ or ‘XL’ in the name. If you are not certain, confirm with pharmacy.
- When tablets are crushed, a powder is formed and this can be unintentionally inhaled by staff members when breathing. Ensure protective equipment such as gloves and masks are worn when crushing tablets to reduce exposure of staff members to this powder.
- Particular care must be taken to avoid exposure to antimicrobial, cytotoxic, steroid or hormonal preparations in the crushed/powder form. If you are unsure of the nature of a medicine, check with pharmacy.
- If a tablet can be dispersed, this would ideally be carried out in a closed system, such as the barrel of an enteral syringe. To do this, remove the plunger and place the tablet in the barrel of a 50mL enteral syringe. Replace the plunger and draw up 10-15mL of water. Cap the syringe and allow the tablet to disperse, agitating if necessary. Shake well, remove the cap and administer the required dose via the feeding tube. Flush with water as usual, and dispose of the syringe in the appropriate waste stream.

### **MHRA Advice - Epilepsy**

Switching between different brands of an Anti-Epileptic Drug (AED) may risk exposing the patient to adverse effects or loss of seizure control. This risk is different for different AEDs. AEDs have been classified by the Commission of Human Medicines (CHM) into three categories to help minimise the risks around medication changes. **This advice is only relevant when the medicine is prescribed for epilepsy and not for other conditions such as mood stabilisation or neuropathic pain.** Information on each category can be found via the link below:

<https://www.gov.uk/drug-safety-update/antiepileptic-drugs-updated-advice-on-switching-between-different-manufacturers-products>

When managing patients with enteral tubes it may not be possible to maintain the patient on their previous preparation due to the need to change to an appropriate formulation. However, all product switches should be carried out with care and close monitoring, with the patient and prescriber fully informed. Where possible, patients should be maintained from then onwards on a single manufacturer’s product.

### **Consultation Group for Version 3**

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## Drug Administration via Enteral Feeding Tubes

Table 1: Advice on administration of commonly used medicines via enteral feeding tubes

Drug Name	Form	Instructions	Feed Directions	Additional Information
<b>A</b>				
<b>Aciclovir</b>	Dispersible tablets (preferred)	Disperse tablet in at least 50mL of water.	A prolonged break in feeding is not required before/after administration.	Flush well before and after administration  If administered via a jejunal tube, there may be reduced absorption. Use a dose at the high end of the range and monitor for lack of effect. The liquid is viscous and may contain sorbitol or mannitol depending on the brand used. Dispersible tablets may be preferred, especially for intrajejunal administration.
	Suspension	Suspension can be given undiluted.		
<b>Allopurinol</b>	Tablets	Disperse in water and administer immediately. The 300mg tablets may take longer to disperse, so these should be crushed prior to dispersing.	Give immediately after feed has stopped or paused; it is better tolerated after food.	If administered via jejunal tube, monitor for loss of efficacy or increased side effects.

## Drug Administration via Enteral Feeding Tubes

**Table 1: Advice on administration of commonly used medicines via enteral feeding tubes**

Drug Name	Form	Instructions	Feed Directions	Additional Information
<b>Amiodarone</b>	Tablets	Crush and disperse in 15-30mL of water. Tablets may disperse in 5 minutes without crushing. Give immediately following preparation.	A prolonged break in feeding is not required before/after administration.	Monitor the patient closely for re-emerging signs and symptoms or arrhythmias as enteral administration may reduce serum amiodarone levels. Note that reduced absorption may take many weeks to impact on response. Can also be administered via jejunal tube.
<b>Amitriptyline</b>	Oral Solution	Solution can be administered undiluted.	A prolonged break in feeding is not required before/after administration.	Absorption may be decreased by high fibre feeds. If administered via jejunal tube, monitor for loss of efficacy or increased side effects.
	Tablets	Crush and disperse in water. Crush well to ensure film coating is broken up sufficiently.		

## Drug Administration via Enteral Feeding Tubes

**Table 1: Advice on administration of commonly used medicines via enteral feeding tubes**

Drug Name	Form	Instructions	Feed Directions	Additional Information
<b>Amlodipine</b>	Oral Solution	Solution can be administered undiluted.	A prolonged break in feeding is not required before/after administration.	The oral solution manufactured by Rosemont Pharmaceuticals is licensed for NG or PEG administration and should be used if available. Give immediately as amlodipine is light sensitive. Tablet dispersion should be used for intrajejunal administration, and monitor for loss of efficacy or increased side effects.
	Tablets	Many brands will disperse easily in water without crushing but if necessary, the tablets can be crushed.		
<b>Amoxicillin</b>	Oral Suspension	Dilute with an equal volume of water prior to administration.	A prolonged break in feeding is not required before/after administration.	Flush well. Can also be administered via jejunal tube.
<b>Apixaban</b>	Tablets	Crush and disperse in water. Manufacturer recommends dispersing in 60mL of water so a 60mL or 100mL enteral syringe will be required.	A prolonged break in feeding is not required before/after administration.	Flush well. Tablets are licensed for administration via a nasogastric tube. There is no data for intrajejunal administration, although no theoretical concerns. Monitor response.
<b>Aspirin</b>	Dispersible Tablets	Disperse in water.	A prolonged break in feeding is not required before/after administration.	Can also be administered via jejunal tube.



## Drug Administration via Enteral Feeding Tubes

**Table 1: Advice on administration of commonly used medicines via enteral feeding tubes**

Drug Name	Form	Instructions	Feed Directions	Additional Information
<b>Atenolol</b>	Oral Syrup	The syrup can be administered undiluted. Give immediately as syrup is light sensitive.	A prolonged break in feeding is not required before/after administration.	Ensure tablets are crushed well as they are film coated. Atenolol can also be administered via jejunal tube using either the syrup or tablets.
	Tablets	Crush and disperse in 10-15mL of water. Ensure tablets are crushed well as they are film coated.		
<b>Atorvastatin</b>	Tablets	Crush and disperse in water. Give immediately as tablets are light sensitive.	A prolonged break in feeding is not required before/after administration.	Flush well. If administered via jejunal tube, monitor for loss of efficacy or increased side effects.

## Drug Administration via Enteral Feeding Tubes

Table 1: Advice on administration of commonly used medicines via enteral feeding tubes

Drug Name	Form	Instructions	Feed Directions	Additional Information
<b>B</b>				
<b>Baclofen</b>	Liquid	The liquid can be diluted with water to aid administration.	A prolonged break in feeding is not required before/after administration.	The liquid contains sorbitol, which may cause diarrhoea at high doses. Use tablets for intrajejunal administration.
	Tablets	Disperse in water.		
<b>Bendroflumethiazide</b>	Tablets	Disperse in water.	A prolonged break in feeding is not required before/after administration.	Can also be administered via jejunal tube.
<b>Bisoprolol</b>	Not available in a liquid formulation. Consider switching to atenolol syrup.		A prolonged break in feeding is not required before/after administration.	If administered via jejunal tube, monitor for loss of efficacy or increased side effects.
	Tablets	Crush finely and disperse with 15-30mL of water.		
<b>Bumetanide</b>	Liquid	Solution can be administered undiluted.	A prolonged break in feeding is not required before/after administration.	For intrajejunal use, consider dilution of the liquid formulation immediately prior to administration to reduce osmolarity. Monitor for loss of efficacy or increased side effects.
	Tablets	Crush and disperse with water.		

## Drug Administration via Enteral Feeding Tubes

**Table 1: Advice on administration of commonly used medicines via enteral feeding tubes**

Drug Name	Form	Instructions	Feed Directions	Additional Information
<b>C</b>				
<b>Calcium</b>				
	Calvive®	Effervescent tablets	Effervesces in 30-50mL of water.	A prolonged break in feeding is not required before/after administration. Flush well as calcium may bind to phosphate in feeds. Can also be administered via jejunal tube.
	Calcichew®	Chewable tablets	Disperse in water.	
<b>Calcium and Vitamin D</b>				
	Cacit D3® (500mg calcium + 440iu colecalciferol)	Effervescent granules	Disperse in water.	A prolonged break in feeding is not required before/after administration. Flush well as calcium may bind to phosphate in feeds. Can also be administered via jejunal tube.
	Calcichew D3® (500mg calcium + 200iu colecalciferol)	Chewable tablets	Disperse in 10mL of water.	
	Calcichew D3 Forte® (500mg calcium + 400iu colecalciferol)	Chewable tablets		

## Drug Administration via Enteral Feeding Tubes

**Table 1: Advice on administration of commonly used medicines via enteral feeding tubes**

Drug Name	Form	Instructions	Feed Directions	Additional Information
<b>Candesartan</b>	Tablets	Crush and disperse with water.	A prolonged break in feeding is not required before/after administration.	There is no information available on intrajejunal administration. If administered via jejunal tube, monitor for loss of efficacy or increased side effects.
<b>Carbamazepine</b>	Liquid	Dilute with an equal volume of water.	A prolonged break in feeding is not required before/after administration, but give in a consistent manner. An alteration in carbamazepine absorption should be considered in any patient who commences or discontinues enteral feeds. Drug level monitoring should be carried out as necessary.	<p>400mg modified release (MR) twice daily is equivalent to 200mg liquid four times daily. If administered via jejunal tube, monitor for loss of efficacy or increased side effects. Please note MHRA guidance on changing formulation/manufacturers for epileptic patients.</p> <p>Suppositories may be considered as a licensed alternative but note that they are only licensed for 7 days' use at up to 1g/day, and a dose conversion is required.</p> <p>See also <a href="#">NHS Grampian Guidance For Switching Oral Anti-Seizure Medication to Other Routes of Administration</a></p>

## Drug Administration via Enteral Feeding Tubes

**Table 1: Advice on administration of commonly used medicines via enteral feeding tubes**

Drug Name	Form	Instructions	Feed Directions	Additional Information
<b>Carbocisteine</b>	Syrup/Oral Solution	Can be given undiluted.	A prolonged break in feeding is not required before/after administration.	There is no information available on intrajejunal administration. If administered via jejunal tube, monitor for loss of efficacy or increased side effects.
<b>Cetirizine</b>	Oral Solution	Solution can be administered undiluted.	A prolonged break in feeding is not required before/after administration.	Tablets may be more appropriate for intrajejunal administration due to sorbitol content of liquid. Monitor for loss of efficacy or increased side effects.
	Tablets	Crush finely and disperse with water.		
<b>Chlorphenamine</b>	Oral Solution	Solution can be administered undiluted.	A prolonged break in feeding is not required before/after administration.	Consider dilution of liquid formulation immediately prior to intrajejunal administration to reduce osmolarity. Monitor for loss of efficacy or increased side effects.
	Syrup	Dilute with an equal volume of water.		
	Tablets	Crush and disperse with water.		

## Drug Administration via Enteral Feeding Tubes

Table 1: Advice on administration of commonly used medicines via enteral feeding tubes

Drug Name	Form	Instructions	Feed Directions	Additional Information
Citalopram	Oral Drops	Mix drops with water prior to administration. Invert the bottle and let the drops flow; do not shake.	A prolonged break in feeding is not required before/after administration.	8mg (4 drops) of the oral drops is equivalent to a 10mg tablet. Flush well following administration. If administered via jejunal tube, monitor for loss of efficacy or increased side effects.
	Tablets	Crush and disperse in water.		
Ciprofloxacin	Tablets	Disperse in deionised water such as Water for Injections. Ciprofloxacin can form insoluble complexes in contact with ions such as those found in tap water.  Do <b>not</b> crush the tablets, to avoid inhalation of the powder formed.	Withhold feed for 2 hours before dosing and for 2 hours after dosing.	Do <b>not</b> use the oral suspension as it is very thick and may block the enteral tube.  Flush tube after each dose with 65mL of deionised water such as Water for Injections. Can also be administered via jejunal tube.  A dose at the upper end of the dose range should be used, especially for administration via jejunal tube.

## Drug Administration via Enteral Feeding Tubes

**Table 1: Advice on administration of commonly used medicines via enteral feeding tubes**

<b>Drug Name</b>	<b>Form</b>	<b>Instructions</b>	<b>Feed Directions</b>	<b>Additional Information</b>
<b>Clarithromycin</b>	Liquid	Dilute with an equal volume of water immediately prior to administration.	A prolonged break in feeding is not required before/after administration.	Viscous solution. May block tubes smaller than 9Fr. An alternative should be considered. If administered via jejunal tube, monitor for loss of efficacy or increased side effects.
<b>Clopidogrel</b>	Tablets	Crush and disperse in water.	A prolonged break in feeding is not required before/after administration.	Can also be administered via jejunal tube.
<b>Co-amoxiclav</b>	Oral Suspension	Dilute with an equal volume of water.	Absorption is optimised at the start of a meal so give immediately prior to feed if possible, or during a pause in a 24 hour feed. A prolonged break in feeding is not required before/after administration.	There is insufficient clavulanic acid in 5mL of the 250/62 suspension for adult patients. At least 10mL of the 250/62 should be used. Can be administered via jejunal tube. Monitor for loss of efficacy or increased side effects. .

## Drug Administration via Enteral Feeding Tubes

**Table 1: Advice on administration of commonly used medicines via enteral feeding tubes**

Drug Name	Form	Instructions	Feed Directions	Additional Information
<b>Co-beneldopa (Madopar)</b>	Dispersible Tablets	Disperse in 10mL of water.	Doses should be given at the same times each day in relation to feeding regimen, as absorption may be enhanced by enteral feed proteins. Patients should be monitored closely if enteral feed formulations are altered.	<p>If converting from controlled release (CR) preparations at doses up to 1 x 100/25 three times a day: Continue the same daily dose but increase the dosing frequency.</p> <p>If converting from CR preparations at doses greater than 1 x 100/25 three times a day: Reduce the total daily dose to 70% of the CR dose (i.e. reduce by 30%).</p> <p>'When required' doses may be needed for "on-off" effects.</p> <p>Levodopa is mainly absorbed in the jejunum so drug effect may be unpredictable if administered into the jejunum.</p> <p>See also <a href="#">NHSG Guideline for prescribing Parkinson's Disease Medication in Hospital</a></p>



## Drug Administration via Enteral Feeding Tubes

Table 1: Advice on administration of commonly used medicines via enteral feeding tubes

Drug Name	Form	Instructions	Feed Directions	Additional Information
<b>Co-careldopa (Sinemet)</b>	Tablets	Disperse standard-release tablets in 10mL of water, and give immediately as the drug will oxidise (degrade).	Doses should be given at the same times each day in relation to feeding regimen as absorption may be enhanced by enteral feed proteins. Patients should be monitored closely if enteral feed formulations are altered.	If converting from modified release (MR) preparations, continue with the same daily dose but increase the dosing frequency. 'When required' doses may be needed for "on-off" effects Levodopa is mainly absorbed in the jejunum so drug effect may be unpredictable if administered into the jejunum. See also <a href="#">NHSG Guideline for prescribing Parkinson's Disease Medication in Hospital</a>
	Alternatively switch to Co-beneldopa (Madopar) dispersible tablets. Discuss with pharmacy.			
<b>Co-Codamol</b>	Effervescent tablets	Disperse in 50mL of water.	A prolonged break in feeding is not required before/after administration.	Sodium content is approximately 13-17mmol per tablet. If patient is sodium or fluid restricted then the effervescent tablets may not be appropriate; consider giving paracetamol and codeine liquids separately instead. Can also be administered via jejunal tube.

## Drug Administration via Enteral Feeding Tubes

**Table 1: Advice on administration of commonly used medicines via enteral feeding tubes**

<b>Drug Name</b>	<b>Form</b>	<b>Instructions</b>	<b>Feed Directions</b>	<b>Additional Information</b>
<b>Codeine</b>	Oral Syrup/ Linctus	Dilute with an equal volume of water immediately prior to administration.	A prolonged break in feeding is not required before/after administration.	For intrajejunal administration, dilute the dose 3-4 times with water to reduce osmolarity. Linctus contains alcohol.
<b>Co-Dydramol</b>	Change to individual components (paracetamol and dihydrocodeine) or use co-codamol as above.			
<b>Co-trimoxazole</b>	Oral Suspension	Dilute with 2-3 times volume of water immediately prior to administration. Shake well.	A prolonged break in feeding is not required before/after administration.	For intrajejunal administration, dilute the dose at least 3 times with water to reduce osmolarity. Oral suspension contains 100mg/5mL alcohol.
<b>Cyclizine</b>	Tablets	Crush and disperse in water.	A prolonged break in feeding is not required before/after administration.	Can also be administered via jejunal tube. Give immediately as light sensitive.

## Drug Administration via Enteral Feeding Tubes

Table 1: Advice on administration of commonly used medicines via enteral feeding tubes

Drug Name	Form	Instructions	Feed Directions	Additional Information
<b>D</b>				
<b>Dabigatran</b>	Switch to an alternative anticoagulant. This may need to be discussed with the duty haematologist depending on the indication for treatment and suitability for alternatives.			
<b>Dexamethasone</b>	Oral solution	The solution can be administered undiluted.	A prolonged break in feeding is not required before/after administration.	The oral solution manufactured by Rosemont Pharmaceuticals is licensed for NG or PEG administration and should be used if available. The tablets should be crushed with care to avoid inhalation of dust by staff/relatives/carers.  It may be preferable to use soluble tablets or the crushed tablets rather than the liquid for intrajejunal administration.
	Soluble tablets	The soluble tablets can be dissolved in 50mL of water for administration.		
	Tablets	The tablets can be crushed and dispersed in water for administration.		
<b>Diazepam</b>	Liquid	Dilute with an equal volume of water immediately prior to administration.	A prolonged break in feeding is not required before/after administration.	Use the tablets for intrajejunal administration to reduce osmolarity.
	Tablets	Crush and disperse in water.		
<b>Diclofenac</b>	Consider changing to ibuprofen liquid.			

## Drug Administration via Enteral Feeding Tubes

Table 1: Advice on administration of commonly used medicines via enteral feeding tubes

Drug Name	Form	Instructions	Feed Directions	Additional Information
<b>Digoxin</b>	Elixir	Elixir should be given undiluted.	For fibre containing feeds: Withhold feed for 2 hours before dosing and for 1 hour after dosing	62.5microgram tablets are equivalent to 50micrograms of the liquid, but some prescribers may choose to keep a patient on the same dose rather than follow the conversion. An individual assessment should be made. Tablets should be used for intrajejunal administration. Monitor the effect and consider checking drug levels if necessary as absorption may be decreased.
	Tablets	Crush and disperse in water.	No interaction is expected with fibre-free feeds.	
<b>Dihydrocodeine</b>	Tablets	Crush and disperse in water.	A prolonged break in feeding is not required before/after administration.	Absorption may be increased when given via intrajejunal route. Monitor clinical effects and adverse effects. Do <b>not</b> crush the modified release MR ('Continus') tablets.
<b>Docosate</b>	Oral Solution	Solution can be given undiluted.	A prolonged break in feeding is not required before/after administration.	Can also be administered via jejunal tube.

## Drug Administration via Enteral Feeding Tubes

Table 1: Advice on administration of commonly used medicines via enteral feeding tubes

Drug Name	Form	Instructions	Feed Directions	Additional Information
<b>Domperidone</b>	Oral Suspension	Dilute with an equal volume of water.	A prolonged break in feeding is not required before/after administration.	For intrajejunal administration, ensure dilution with at least an equal volume of water.
<b>Donepezil</b>	Oral solution	Solution can be given undiluted.	A prolonged break in feeding is not required before/after administration.	Can also be administered via jejunal tube.
	Orodispersible Tablets	Disperse in 10-15mL of water.		
	Tablets	Crush and disperse with 10-15mL of water.		
<b>Doxazosin</b>	Tablets	Disperse the standard-release tablets in 10-15mL of water.	A prolonged break in feeding is not required before/after administration.	Flush well. Do <b>not</b> crush modified release tablets. Can also be administered via jejunal tube.

## Drug Administration via Enteral Feeding Tubes

Table 1: Advice on administration of commonly used medicines via enteral feeding tubes

Drug Name	Form	Instructions	Feed Directions	Additional Information
<b>Doxycycline</b>	Dispersible Tablets	Disperse in 10mL of water immediately prior to administration. This is best done in the barrel of an enteral syringe.	Withhold feed for 2 hours before dosing and for 1 hour after dosing.	Consider an alternative antibiotic. Do <b>not</b> open capsules as contents are irritant. Prescribe at higher end of dosing range. Absorption may be reduced when administered intrajejunally.
<b>Duloxetine</b>	Capsules	The capsule contents are <b>not</b> suitable for tube administration.		An alternative agent should be prescribed.
<b>E</b>				
<b>Edoxaban</b>	Tablets	Crush and disperse in water.	A prolonged break in feeding is not required before/after administration.	Tablets are licensed for administration through a gastric tube. There is no information on intrajejunal administration, although there are no theoretical concerns.
<b>Enalapril</b>	Tablets	Crush and disperse in water.	A prolonged break in feeding is not required before/after administration.	If administered via jejunal tube, monitor for loss of efficacy or increased side effects.

## Drug Administration via Enteral Feeding Tubes

**Table 1: Advice on administration of commonly used medicines via enteral feeding tubes**

Drug Name	Form	Instructions	Feed Directions	Additional Information
<b>Erythromycin</b>	Oral Suspension	Solution can be given undiluted.	A prolonged break in feeding is not required before/after administration.	Absorption may be reduced when administered intrajejunally. Consider an alternative antibiotic.
<b>F</b>				
<b>Felodipine</b>	Modified release (MR) tablets which cannot be crushed – consider changing to amlodipine, with blood pressure monitoring.			
<b>Ferrous Fumarate</b>	Oral Syrup	Dilute with an equal volume of water.	A prolonged break in feeding is not required before/after administration. Administration after feeds can reduce GI adverse effects.	Flush well as some iron preparations are incompatible with enteral feeds. If giving intrajejunally, absorption may be decreased.
<b>Ferrous Sulphate</b>	Convert to ferrous fumarate or sodium ferredetate and administer as described in the relevant sections of the table. Ferrous sulphate 200mg three times daily = ferrous fumarate 140mg/5mL, 10mL twice daily. Ferrous sulphate 200mg three times daily = sodium ferredetate 190mg/5mL, 10mL three times a day.			

## Drug Administration via Enteral Feeding Tubes

**Table 1: Advice on administration of commonly used medicines via enteral feeding tubes**

Drug Name	Form	Instructions	Feed Directions	Additional Information
<b>Finasteride</b>	Tablets	Place tablets in the barrel of an enteral or bladder tipped syringe. Draw up 10-15mL of water into the syringe and allow the tablet to disperse. Shake well and administer down the feeding tube.  Do not crush the tablets.	A prolonged break in feeding is not required before/after administration.	Flush well. Women who are or who may become pregnant should not handle crushed, broken or dissolved tablets. A closed system should be used, such as the barrel of a syringe. Can also be administered via jejunal tube.
<b>Flucloxacillin</b>	Oral Solution/ Suspension	Solution can be given undiluted.	Withhold feed for 1-2 hours before dosing and for 1 hour after dosing.	Due to four times daily dosing and feed interaction, an alternative antibiotic should be considered. If administered via jejunal tube, dilute with an equal volume of water.
<b>Fluconazole</b>	Oral Suspension	Suspension can be given undiluted.	If the patient is on a fibre containing feed, either withhold the feed for one hour before and one hour after each dose or give enteral fluconazole during a feeding break. Fibre-free feeds would not be expected to interact.	If administered via jejunal tube, doses at the high end of the range should be given to ensure adequate absorption.  Avoid inhalation of the capsule contents.
	Capsules	Open capsule and disperse the contents with water.		



## Drug Administration via Enteral Feeding Tubes

Table 1: Advice on administration of commonly used medicines via enteral feeding tubes

Drug Name	Form	Instructions	Feed Directions	Additional Information
<b>Fludrocortisone</b>	Tablets	Disperse in water. This should be done in the barrel of an enteral syringe to avoid operator exposure. Do <b>not</b> crush the tablets.	A prolonged break in feeding is not required before/after administration.	Flush well. If administered via jejunal tube, monitor for loss of efficacy or increased side effects.
<b>Fluoxetine</b>	Liquid	Dilute with an equal volume of water immediately prior to administration.	A prolonged break in feeding is not required before/after administration.	Flush well. If administered via jejunal tube, monitor for loss of efficacy or increased side effects.
	Capsules	Can be opened and the contents dispersed with water immediately prior to administration.		
<b>Folic Acid</b>	Oral Syrup/Solution	Solution can be given undiluted.	A prolonged break in feeding is not required before/after administration.	If administered via jejunal tube, dilute with an equal volume of water.
	Tablets	Crush and disperse with water.		

## Drug Administration via Enteral Feeding Tubes

**Table 1: Advice on administration of commonly used medicines via enteral feeding tubes**

Drug Name	Form	Instructions	Feed Directions	Additional Information
<b>Forceval</b>	Soluble Tablets	Disperse in 50mL of water immediately prior to administration.	A prolonged break in feeding is not required before/after administration.	Flush well. Can also be administered via jejunal tube.
<b>Fosfomycin</b>	Granules	Disperse in 90mL of water for administration.	Withhold enteral feeds for 2 hours before and 1 hour after each dose.	There is no information on intrajejunal administration.
<b>Furosemide</b>	Oral Solution	Solution can be given undiluted.	A prolonged break in feeding is not required before/after administration.	The liquid manufactured by Rosemont Pharmaceuticals is licensed for NG or PEG administration and should be used if available. If administered via jejunal tube, dilute with an equal volume of water.
	Tablets	Crush and disperse in water.		

## Drug Administration via Enteral Feeding Tubes

Table 1: Advice on administration of commonly used medicines via enteral feeding tubes

Drug Name	Form	Instructions	Feed Directions	Additional Information
<b>G</b>				
<b>Gabapentin</b>	Oral solution	Give undiluted.	A prolonged break in feeding is not required before/after administration.	The liquids manufactured by Rosemont, Brown & Burk, Colonis and Glenmark are licensed for NG or PEG administration and should be used if available. If administered via jejunal tube, use the capsules and monitor for loss of efficacy or increased side effects.  See also <a href="#">NHS Grampian Guidance For Switching Oral Anti-Seizure Medication to Other Routes of Administration</a>
	Capsules	Dissolve contents in water and give immediately.		
<b>Gliclazide</b>	Tablets	Disperse in 10mL of water and give immediately.	A prolonged break in feeding is not required before/after administration. Give immediately prior to feeding if possible.	Monitor blood glucose levels closely for a change in efficacy. If administered via jejunal tube, monitor for loss of efficacy or increased side effects. Do <b>not</b> crush the modified release (MR) tablets. A 30mg MR tablet is equivalent to an 80mg standard tablet.

## Drug Administration via Enteral Feeding Tubes

Table 1: Advice on administration of commonly used medicines via enteral feeding tubes

Drug Name	Form	Instructions	Feed Directions	Additional Information
<b>Glimepiride</b>	Tablets	Disperse in water and give immediately.	A prolonged break in feeding is not required before/after administration. Give immediately prior to feeding if possible.	Monitor blood glucose levels closely for a change in efficacy. If administered via jejunal tube, monitor for loss of efficacy or increased side effects.
<b>H</b>				
<b>Hyoscine butylbromide</b>	Injection	The injection can be administered enterally.	A prolonged break in feeding is not required before/after administration.	Absorption may be reduced when administered enterally. Monitor patient for clinical response. If administered via jejunal tube, monitor for loss of efficacy.
	Tablets	Do not crush the tablets. Not suitable for enteral tube administration.		
<b>I</b>				
<b>Ibuprofen</b>	Syrup / Oral suspension	Dilute with an equal volume of water.	A prolonged break in feeding is not required before/after administration.	Can also be administered intrajejunally.
<b>Indapamide</b>	Tablets	Disperse the standard-release tablets in water.	A prolonged break in feeding is not required before/after administration.	Absorption is reduced when administered intrajejunally. Consider an alternative preparation. Do <b>not</b> crush modified release (MR) preparations. Dosing for the immediate release tablets is 2.5mg once daily.

## Drug Administration via Enteral Feeding Tubes

Table 1: Advice on administration of commonly used medicines via enteral feeding tubes

Drug Name	Form	Instructions	Feed Directions	Additional Information
<b>Irbesartan</b>	Tablets	Crush and disperse in water.	A prolonged break in feeding is not required before/after administration.	Flush well. If administered via jejunal tube, monitor for loss of efficacy or increased side effects.
<b>Iron</b>	See ferrous sulphate, ferrous fumarate and sodium ferredetate.			
<b>Isosorbide Mononitrate</b>	Tablets	Crush and disperse the standard-release tablets in water.	A prolonged break in feeding is not required before/after administration.	Crushing tablets may increase the rate of absorption and side effects. Do <b>not</b> crush modified release tablets. Immediate release isosorbide mononitrate tablets should be taken two to three times a day with a nitrate free period. No information on whether isosorbide mononitrate can be administered intrajejunally.
<b>Ispaghula Husk</b>	Not recommended for enteral tube administration. Consider an alternative laxative.			
<b>L</b>				
<b>Lactulose</b>	Oral Solution	Dilute 1 in 3 or 1 in 4 with water, e.g. dilute 5mL of lactulose to a volume of 20mL.	A prolonged break in feeding is not required before/after administration.	Can also be administered intrajejunally once diluted.

## Drug Administration via Enteral Feeding Tubes

**Table 1: Advice on administration of commonly used medicines via enteral feeding tubes**

Drug Name	Form	Instructions	Feed Directions	Additional Information
<b>Lamotrigine</b>	Dispersible Tablets	Disperse in 10-15mL of water immediately prior to administration.	A prolonged break in feeding is not required before/after administration.	Monitor closely for changes in efficacy or increased side effects. If administered intrajejunally, monitor for loss of efficacy or increased side effects. Please note MHRA guidance on changing formulation/manufacturers in epileptic patients.  See also <a href="#">NHS Grampian Guidance For Switching Oral Anti-Seizure Medication to Other Routes of Administration</a>
<b>Lansoprazole</b>	Orodispersible Tablets	FasTabs and orodispersible tablets are licensed for administration via a nasogastric tube. Disperse in 10mL of water. Ensure all microgranules are administered by drawing up additional 10mLs of water and shaking.	Withhold feed for 30 minutes before and 30 minutes after each dose.	Zoton FasTabs contain microgranules with a small diameter and are probably the least likely to block enteral feeding tubes.  Can also be administered intrajejunally.

## Drug Administration via Enteral Feeding Tubes

**Table 1: Advice on administration of commonly used medicines via enteral feeding tubes**

Drug Name	Form	Instructions	Feed Directions	Additional Information
<b>Levetiracetam</b>	Granules	Suspend the granules by shaking in at least 10mL of water for at least 2 minutes. After the dose, flush twice with 10mL of water each time.	A prolonged break in feeding is not required before/after administration.	The granules (Desitrend®) are licensed for tube administration and should be used if available. Monitor closely for changes in efficacy or increased side effects. Can also be administered intrajejunally. Please note MHRA guidance on changing formulation/manufacturers in epileptic patients.  See also <a href="#">NHS Grampian Guidance For Switching Oral Anti-Seizure Medication to Other Routes of Administration</a>
	Oral Solution	Solution can be given undiluted.		
	Tablets	Crush and disperse with water.		
<b>Levothyroxine</b>	Oral solution	The Zentiva brand is licensed for tube administration. Can be given undiluted. Flush twice after administration, with 10mL of water each time.	Food can affect the absorption of levothyroxine so dosing should be consistent in relation to intake of food. Consider withholding feed for 1 hour before and after each dose if this is practical.	Inhalation of crushed tablets should be avoided. Monitor patients' thyroid function closely. Can also be administered intrajejunally, but monitor for possible reduced effect.

## Drug Administration via Enteral Feeding Tubes

Table 1: Advice on administration of commonly used medicines via enteral feeding tubes

Drug Name	Form	Instructions	Feed Directions	Additional Information
	Tablets	Disperse. Some brands of tablets used to be licensed to be dispersed in 15-30mL of water. This should be done in the barrel of an enteral syringe to avoid operator exposure. Do <b>not</b> crush the tablets.		
<b>Lisinopril</b>	Tablets	Disperse in water.	A prolonged break in feeding is not required before/after administration.	Can also be administered intrajejunally.
<b>Loperamide</b>	Tablets	Crush and disperse in water.	A prolonged break in feeding is not required before/after administration.	Efficacy of the tablets is unknown when administered in this way. Can also be administered intrajejunally.
	Capsules	Not suitable for tube administration due to risk of tube blockage.		
<b>Loratadine</b>	Syrup	Dilute with an equal volume of water.	A prolonged break in feeding is not required before/after administration.	If administered via jejunal tube, dilute further with water and monitor for loss of efficacy or increased side effects.



## Drug Administration via Enteral Feeding Tubes

**Table 1: Advice on administration of commonly used medicines via enteral feeding tubes**

Drug Name	Form	Instructions	Feed Directions	Additional Information
<b>Lorazepam</b>	Tablets can be given sublingually.			
	Tablets	Crush and disperse in 15-30mL of water, give immediately.	A prolonged break in feeding is not required before/after administration.	If administered intrajejunally, monitor for loss of efficacy or increased side effects.
<b>Losartan</b>	Tablets	Crush and disperse in 10mL of water.	A prolonged break in feeding is not required before/after administration.	If administered intrajejunally, monitor for loss of efficacy or increased side effects.

## Drug Administration via Enteral Feeding Tubes

Table 1: Advice on administration of commonly used medicines via enteral feeding tubes

Drug Name	Form	Instructions	Feed Directions	Additional Information
<b>M</b>				
<b>Macrogols</b>				
• Laxido	Sachet	Dissolve in 125mL of water.	A prolonged break in feeding is not required before/after administration.	Flush well. Can also be administered via jejunal tube.
• Movicol	Sachet	Use of Laxido or an alternative laxative is preferred. Dissolve in 125mL of water.		
<b>Madopar</b>	See co-beneldopa			
<b>Magnesium</b>				
• Co-magaldrox	Liquid	Not recommended for enteral tube administration. Use Magnaspartate as below.		
• Magnaspartate	Powder for Oral Solution	Disperse in 200mL of water and give immediately. Licensed for administration via nasal, gastric and duodenal tubes.	A prolonged break in feeding is not required before/after administration.	Absorption is reduced when administered intrajejunally. Dose titration may be required.

## Drug Administration via Enteral Feeding Tubes

**Table 1: Advice on administration of commonly used medicines via enteral feeding tubes**

Drug Name	Form	Instructions	Feed Directions	Additional Information
<b>Metformin</b>	Oral Solution	Oral solution is the preferred option. Oral solution can be used undiluted. Flush the feeding tube twice with 10mL of water after each dose.	A prolonged break in feeding is not required before/after administration.	Do <b>not</b> crush modified release preparations. The Colonis brand of oral solution is licensed for tube administration and should be used if available.  Monitor blood glucose levels. If administered via jejunal tube, monitor for loss of efficacy or increased side effects.
	Tablets	Crush and disperse the standard-release tablet in water.  Tablets are hard to crush, so do not crush at patient's bedside. Protective eyewear should be considered.		
<b>Metoclopramide</b>	Oral Solution/ Syrup	The oral solution can be given undiluted.	A prolonged break in feeding is not required before/after administration.	Rosemont Pharmaceuticals 5mg/5mL oral solution is licensed for enteral tube administration and should be used when available. Flush well. The liquid contains sorbitol which can cause GI side effects. Tablets should be used for intrajejunal administration. Monitor for loss of efficacy or increased side effects.
	Tablets	Crush and disperse in 15-30mL of water.		

## Drug Administration via Enteral Feeding Tubes

Table 1: Advice on administration of commonly used medicines via enteral feeding tubes

Drug Name	Form	Instructions	Feed Directions	Additional Information
<b>Metoprolol</b>	Tablets	Crush and disperse the standard-release tablets in water.	A prolonged break in feeding is not required before/after administration.	Do <b>not</b> crush modified release tablets. Can also be administered via jejunal tube.
<b>Metronidazole</b>	Oral Suspension	Solution should be given undiluted.	Withhold feeds for 2 hours before and 1 hour after each dose. This is because the suspension is the benzoate salt, which needs to be broken down to metronidazole by gastric enzymes in the stomach. If the suspension must be used but a three hour break in feed cannot be facilitated, aim to allow a 1 hour break before dose administration. Monitor for loss of efficacy.	Flush well. Tablets should be used for intrajejunal administration, <b>never</b> the liquid.  Avoid inhalation of the powder formed when the tablet is crushed.
	Tablets	Crush and disperse in water.  Tablets can be flaky and form large clumps therefore crush the tablets well to avoid blocking the tube.	A prolonged break in feeding is not required before/after administration.	

## Drug Administration via Enteral Feeding Tubes

Table 1: Advice on administration of commonly used medicines via enteral feeding tubes

Drug Name	Form	Instructions	Feed Directions	Additional Information
<b>Mirabegron</b>	Crushing mirabegron tablets is <b>not</b> recommended. Consider switching to oxybutynin.			
<b>Mirtazapine</b>	Oral Solution	Solution can be given undiluted.	A prolonged break in feeding is not required before/after administration.	Flush well. If administered via jejunal tube, monitor for loss of efficacy or increased side effects.
	Orodispersible Tablets	Disperse in 10-15mL of water. Microgranules settle quickly and must be redispersed prior to administration.		
	Tablets	Crush and disperse in water.		
<b>Montelukast</b>	Chewable Tablets	Disperse in water.	Withhold feeds for 2 hours before and 1 hour after each dose.	If administered intrajejunally, monitor for loss of efficacy or increased side effects.
	Tablets	Disperse in 10mL of water.	A prolonged break in feeding is not required before/after administration.	

## Drug Administration via Enteral Feeding Tubes

Table 1: Advice on administration of commonly used medicines via enteral feeding tubes

Drug Name	Form	Instructions	Feed Directions	Additional Information
Morphine	Oral Solution	Solution can be given undiluted.	There is some evidence to suggest an incompatibility with some feeds. The nature of this interaction is not fully understood and it is unlikely to be clinically relevant.	Flush well. Dilute the liquid formulation immediately prior to intrajejunal administration and monitor for loss of efficacy or increased side effects. Prolonged release morphine products are not generally considered suitable for tube administration.
	Zomorph Controlled Release Capsules	<b>Care:</b> Only consider this if the use of the oral solution is not possible. The capsules can be opened and the contents flushed down enteral feeding tubes with a diameter of larger than 16Fr. <b>Flush well</b> with 30-50mL of water. A poorly flushed tube might result in an unintended bolus when the tube is next used.	If there are concerns about an altered response to morphine then contact Medicines Information for advice.	The Zomorph brand of capsules is licensed for administration via gastric or gastrostomy tubes of more than 16Fr. There is off-label information to suggest that the contents can be administered via an 8Fr tube without blockage, however, the granules settle quickly in the syringe and care must be taken to deliver the complete dose.

## Drug Administration via Enteral Feeding Tubes

Table 1: Advice on administration of commonly used medicines via enteral feeding tubes

Drug Name	Form	Instructions	Feed Directions	Additional Information
<b>Movicol</b>	See 'Macrogols'.			
<b>Mycophenolate Mofetil</b>	Suspension	Suspension should be given undiluted.	A prolonged break in feeding is not required before/after administration.	The CellCept brand of oral suspension is licensed for nasogastric use. Can be administered via jejunal tube. Do <b>not</b> crush tablets or open capsules.
<b>N</b>				
<b>Naproxen</b>	Consider changing to ibuprofen liquid			
	Tablet	Crush and disperse in 15-30mL of water.	A prolonged break in feeding is not required before/after administration.	Can also be administered via jejunal tube. Do <b>not</b> crush enteric coated tablets.
<b>Nicorandil</b>	Tablet	Crush and disperse in water immediately prior to administration.	A prolonged break in feeding is not required before/after administration.	Can also be administered via jejunal tube.
<b>Nifedipine</b>	Consider changing to amlodipine.			

## Drug Administration via Enteral Feeding Tubes

**Table 1: Advice on administration of commonly used medicines via enteral feeding tubes**

Drug Name	Form	Instructions	Feed Directions	Additional Information
<b>Nitrofurantoin</b>	Oral Suspension	Dilute with an equal volume of water.	A prolonged break in feeding is not required before/after administration.	<b>Irritant.</b> Do <b>not</b> crush the tablets. Avoid inhalation of the capsule contents. If administered via jejunal tube, monitor for loss of efficacy or increased side effects.
	Prolonged release capsules (Macrobid® brand)	Not suitable for tube administration.		
	Capsules (Macrochantin® brand)	Open and mix with water.		



## Drug Administration via Enteral Feeding Tubes

Table 1: Advice on administration of commonly used medicines via enteral feeding tubes

Drug Name	Form	Instructions	Feed Directions	Additional Information
<b>O</b>				
<b>Omeprazole</b>	Dispersible Tablets	Place in an enteral syringe with 25mL of water and 5mL of air and shake to disperse. After administration, ensure that all the beads are administered by drawing up an additional 25mL of water and 5mL of air and shaking before administration.	A prolonged break in feeding is not required before/after administration.	Flush well.  The Mezzopram® brand of dispersible tablets is licensed for administration via gastric tubes and should be used if available.  The granules formed when the tablets are dispersed may block fine bore feeding tubes (<8Fr). For fine bore tubes or jejunal administration, change to lansoprazole FasTabs or contact Medicines Information. Please note that this advice is specific to adults and local guidance for children may differ.
	Oral suspension	Licensed for administration via NG and PEG tubes. Oral suspension can be given undiluted.	Withhold feed for 30 minutes before and 30 minutes after administration.	
<b>Ondansetron</b>	Oral Liquid/Syrup	Oral liquid/syrup can be given undiluted.	A prolonged break in feeding is not required before/after administration.	Some of the oral liquids/syrups contain sorbitol, so monitor for GI adverse effects. Flush well after administration of the injection. If administered via jejunal tube, monitor for loss of efficacy or increased side effects.
	Injection	Injection can be given undiluted via feeding tubes.		

## Drug Administration via Enteral Feeding Tubes

Table 1: Advice on administration of commonly used medicines via enteral feeding tubes

Drug Name	Form	Instructions	Feed Directions	Additional Information
Oxybutynin	Use patches if appropriate.			
	Oral Elixir	Elixir can be given undiluted.	A prolonged break in feeding is not required before/after administration.	If administered via jejunal tube, monitor for loss of efficacy or increased side effects. Do <b>not</b> crush modified release tablets.
	Tablets	Crush and disperse the standard-release tablets in 10mL of water.		
Oxycodone	Oral Liquid	Oral liquid can be given undiluted.	A prolonged break in feeding is not required before/after administration.	When converting from modified release preparations, divide the total daily dose by 6 and give every four hours. If administered intrajejunally, monitor for loss of efficacy or increased side effects.

## Drug Administration via Enteral Feeding Tubes

Table 1: Advice on administration of commonly used medicines via enteral feeding tubes

Drug Name	Form	Instructions	Feed Directions	Additional Information
<b>P</b>				
<b>Pancreatin</b>	Pancrex V Powder	<p>Pancrex V powder is licensed for administration via a nasogastric tube or a gastrostomy tube.</p> <p>Mix the dose of powder with 10-20mL of water immediately prior to administration.</p> <p>Switch Pancrex V powder to Creon capsules if the patient is able to take oral medicines.</p>	<p>Contact dietetics. If dietetics are unavailable, divide the total daily dose required into doses to be given every 2-3 hours during feeding until dietetic review.</p>	<p>1g of Pancrex V powder contains 1400 BP units of free protease, 25000 BP units of lipase, and 30000 BP units of amylase. Half a level 2.5mL medicine spoon of Pancrex V powder is approximately 1g. <b>Note:</b> This is a significant change to manufacturer's previous advice. If a patient's dose is prescribed in terms of grams of powder, confirm how they usually measure it.</p>
	Creon Capsules	<p>If the tube is &gt;10Fr then capsules can be opened and the contents dispersed in water. Rinse the container and administer the rinsing down the tube. The granules contained within the capsule must not be crushed. This method is not suitable for jejunal administration.</p>		

## Drug Administration via Enteral Feeding Tubes

Table 1: Advice on administration of commonly used medicines via enteral feeding tubes

Drug Name	Form	Instructions	Feed Directions	Additional Information
<b>Paracetamol</b>	Soluble Tablets	Dissolve in 50mL of water.	A prolonged break in feeding is not required before/after administration.	If patient is sodium or fluid restricted then the soluble tablets may not be appropriate as the sodium content is approximately 17-20mmol per tablet. Can also be administered intrajejunally.
	Oral Solution/ Suspension	Dilute with an equal volume of water immediately prior to administration.		
<b>Penicillin V (Phenoxymethylpenicillin)</b>	Oral Solution	Solution can be given undiluted.	Withhold feeds for 2 hours before and 1 hour after each dose.	Can also be administered intrajejunally.
<b>Phenytoin</b>	<b>Enteral administration is difficult due to unpredictable absorption and interaction with feeds. Please consider other administration routes.</b>			
	Oral Suspension (Phenytoin base)	Shake well and mix with an equal volume of water.	Withhold feeds for 2 hours before and 2 hours after each dose.	Flush with 30-60mL of water before and after administration. Patient response and levels should be monitored carefully, especially after any changes in the feeding regimen, as the dosage may require adjustment.

## Drug Administration via Enteral Feeding Tubes

**Table 1: Advice on administration of commonly used medicines via enteral feeding tubes**

Drug Name	Form	Instructions	Feed Directions	Additional Information
	Capsules (Phenytoin sodium)	Open and disperse powder in 10mL of water. Leave for 5mins and stir to form a fine dispersion.		<p>When converting between capsules and suspension, a dose conversion is required. 100mg phenytoin sodium (capsules) = 90mg phenytoin base (suspension).</p> <p>Absorption is poor intrajejunally. Monitor patient and plasma levels closely and dilute suspension to avoid GI adverse effects.</p> <p>There are two strengths of phenytoin suspension available and this has led to errors. Patients should be maintained on the same strength.</p> <p>See MHRA guidance on changing formulation/manufacturers in epileptic patients.</p> <p>See also <a href="#">NHS Grampian Guidance For Switching Oral Anti-Seizure Medication to Other Routes of Administration</a></p>

## Drug Administration via Enteral Feeding Tubes

Table 1: Advice on administration of commonly used medicines via enteral feeding tubes

Drug Name	Form	Instructions	Feed Directions	Additional Information
<b>Phosphate</b>	Sandoz Effervescent Tablets	Dissolve in 20mL of water.	A prolonged break in feeding is not required before/after administration.	Flush well as phosphate can bind to calcium in feeds. Can be administered via jejunal tube. Monitor for increased GI adverse effects.
<b>Potassium Chloride</b>	Effervescent tablets (Sando-K <sup>®</sup> )	Dissolve in 50-100mL of water.	A prolonged break in feeding is not required before/after administration.	Flush well as potassium may cause coagulation of the feed. Kay-Cee-L <sup>®</sup> contains sorbitol. If administered via jejunal tube, use the dispersible tablets where possible and monitor for increased GI adverse effects.
	Liquid (Kay-Cee-L <sup>®</sup> )	Dilute with 50-100mL of water.		
<b>Pramipexole</b>	Tablets	Crush and disperse the standard-release tablets in water.	A prolonged break in feeding is not required before/after administration.	Do <b>not</b> crush modified release (MR) tablets. No specific information available on intrajejunal administration. See also <a href="#">NHSG Guideline for prescribing Parkinson's Disease Medication in Hospital</a>

## Drug Administration via Enteral Feeding Tubes

Table 1: Advice on administration of commonly used medicines via enteral feeding tubes

Drug Name	Form	Instructions	Feed Directions	Additional Information
<b>Prednisolone</b>	Soluble Tablets	Dissolve in water. This is best done in the barrel of an enteral syringe.  For doses less than 5mg, dissolve one tablet in 5mL of water – this will give the strength of 1mg/mL, then give the appropriate volume.	A prolonged break in feeding is not required before/after administration.	The enteric coated tablets should <b>not</b> be crushed.  Can also be administered via jejunal tube.
	Oral Solution	Solution can be given undiluted.		
<b>Pregabalin</b>	Oral Suspension	Solution can be given undiluted.	A prolonged break in feeding is not required before/after administration.	Flush well. Can also be administered via jejunal tube. Monitor for loss of effect or increased GI adverse effects.  See also <a href="#">NHS Grampian Guidance For Switching Oral Anti-Seizure Medication to Other Routes of Administration</a>
	Capsules	Open and disperse contents in 15-30mL of water.		

## Drug Administration via Enteral Feeding Tubes

Table 1: Advice on administration of commonly used medicines via enteral feeding tubes

Drug Name	Form	Instructions	Feed Directions	Additional Information
<b>Prochlorperazine</b>	Use buccal 3mg tablets where appropriate.			
	Oral Syrup	Syrup can be mixed with an equal volume of water.	A prolonged break in feeding is not required before/after administration.	If administered via jejunal tube, use the tablets.
	Tablets	Crush and disperse in 10mL of water.		
<b>Propranolol</b>	Oral Solution	Dilute with an equal volume of water.	A prolonged break in feeding is not required before/after administration.	<b>Do not</b> crush or open the modified release (MR) capsules. If converting from MR capsules, give the total daily dose in 2-4 divided doses. If administered via jejunal tube, monitor for increased side effects.
<b>Q</b>				
<b>Quetiapine</b>	Tablets	Crush and disperse in water.	A prolonged break in feeding is not required before/after administration.	Flush well. No information available on intrajejunal administration.
<b>Quinine Sulphate</b>	Tablets	Crush and disperse in 200mL of water.	A prolonged break in feeding is not required before/after administration.	Flush well. There is no information available on intrajejunal administration.



## Drug Administration via Enteral Feeding Tubes

Table 1: Advice on administration of commonly used medicines via enteral feeding tubes

Drug Name	Form	Instructions	Feed Directions	Additional Information
<b>R</b>				
<b>Ramipril</b>	Oral Solution	Solution can be given undiluted.	A prolonged break in feeding is not required before/after administration.	The oral solution manufactured by Rosemont Pharmaceuticals is licensed for NG or PEG tube administration, and should be used if it is available. According to the Grampian Joint Formulary, capsules are preferred over tablets so these should be used 2 <sup>nd</sup> line, if the oral solution is unavailable. If administered via jejunal tube, monitor for loss of efficacy or increased side effects.
	Capsules	Open and disperse contents in water.		
	Tablets	Crush and disperse in water.		
<b>Rifampicin</b>	Syrup	Dilute with an equal volume of water immediately prior to administration.	Withhold feed for 2 hours before and 1 hour after each dose.	Absorption may be reduced when administered intrajejunally. Monitor response.
<b>Risperidone</b>	Oral Liquid	Liquid can be given undiluted.	A prolonged break in feeding is not required before/after administration.	If administered via jejunal tube, monitor for loss of efficacy or increased side effects.
	Orodispersible tablets	Disperse in 10-15mL of water.		

## Drug Administration via Enteral Feeding Tubes

**Table 1: Advice on administration of commonly used medicines via enteral feeding tubes**

Drug Name	Form	Instructions	Feed Directions	Additional Information
<b>Rivaroxaban</b>	Tablets	Crush and disperse in water.	A prolonged break in feeding is not recommended, and feed should recommence immediately after administration.	Tablets are licensed for enteral administration. Rivaroxaban is <b>not</b> suitable for intrajejunal administration. It is important that rivaroxaban is given with food, especially at doses of 15mg or more, otherwise absorption is poor.
<b>Rivastigmine</b>	Oral Solution	Solution can be given undiluted.	A prolonged break in feeding is not required before/after administration.	If administered via jejunal tube, monitor for loss of efficacy or increased side effects.  Patches may be considered a licensed alternative. See the patch prescribing information for detailed dose conversions.
	Capsules	Open and disperse contents in water.		

## Drug Administration via Enteral Feeding Tubes

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Drug Name	Form	Instructions	Feed Directions	Additional Information
<b>Ropinirole</b>	Tablets	Crush and disperse in water.	Where possible, administer dose after feed. A prolonged break in feeding is not required before/after administration.	If administered via jejunal tube, monitor for loss of efficacy or increased side effects.  See also <a href="#">NHSG Guideline for prescribing Parkinson's Disease Medication in Hospital</a>
	Prolonged release tablets	Not suitable for tube administration.		
<b>Rosuvastatin</b>	Capsules	The capsules should be opened and the contents emptied into the barrel of an enteral syringe. Water should then be drawn up into the syringe, and the contents shaken vigorously before administration.	A prolonged break in feeding is not required before/after administration.	Flush well.  The capsules manufactured by Ranbaxy are licensed for NG administration via tube size 8Fr or greater.  If administered via jejunal tube, monitor cholesterol levels for loss of efficacy.
	Tablets	The tablets can be crushed and mixed with water for administration.		

## Drug Administration via Enteral Feeding Tubes

Table 1: Advice on administration of commonly used medicines via enteral feeding tubes

Drug Name	Form	Instructions	Feed Directions	Additional Information
<b>S</b>				
<b>Senna</b>	Oral Syrup	Syrup can be given undiluted.	A prolonged break in feeding is not required before/after administration.	Flush well. Can also be administered via jejunal tube.
<b>Sertraline</b>	Tablets	Crush and disperse in water.	A prolonged break in feeding is not required before/after administration.	If administered via jejunal tube, monitor for loss of efficacy or increased side effects.
<b>Simvastatin</b>	Oral suspension	Give undiluted.	A prolonged break in feeding is not required before/after administration.	The liquid manufactured by Rosemont Pharmaceuticals is licensed for NG or PEG administration and should be used if available. If simvastatin is administered via jejunal tube, monitor cholesterol levels and titrate dose as appropriate.
	Tablets	Crush and disperse in 10mL of water immediately prior to administration.		
<b>Sinemet</b>	See co-careldopa			
<b>Sodium Feredetate</b>	Oral Solution	Dilute with an equal volume of water.	A prolonged break in feeding is not required before/after administration. Administration after feeds can reduce GI adverse effects.	Flush well as some iron preparations are incompatible with enteral feeds. If giving intrajejunally, absorption may be decreased.

## Drug Administration via Enteral Feeding Tubes

Table 1: Advice on administration of commonly used medicines via enteral feeding tubes

Drug Name	Form	Instructions	Feed Directions	Additional Information
<b>Sodium Valproate</b>	Oral Liquid	Dilute with an equal volume of water immediately prior to administration.	A prolonged break in feeding is not required before/after administration.	<p>Do <b>not</b> crush modified release products.</p> <p>If converting from modified release preparations, give the same total daily dose, but divided into more frequent doses.</p> <p>If administered via jejunal tube, use dispersed tablets or dilute the liquid 3-4 times with water.</p> <p>Monitor for loss of efficacy or increased side effects.</p> <p>Please note MHRA guidance on changing formulation/manufacturers in epileptic patients.</p> <p>See also <a href="#">NHS Grampian Guidance For Switching Oral Anti-Seizure Medication to Other Routes of Administration</a></p>
	Epilim® Crushable Tablets	Crush and disperse in 10mL of water.		
<b>Solifenacin</b>	Crushing solifenacin is <b>not</b> recommended.		Consider switching therapy to oxybutynin.	
<b>Spirolactone</b>	Tablets	Crush and disperse in 15-30mL of water immediately prior to administration.	A prolonged break in feeding is not required before/after administration.	Flush well. Can be administered via jejunal tube.

## Drug Administration via Enteral Feeding Tubes

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Drug Name	Form	Instructions	Feed Directions	Additional Information
<b>Sulfasalazine</b>	Oral Suspension	Suspension can be given undiluted.	A prolonged break in feeding is not required before/after administration.	Can be administered via jejunal tube.
<b>T</b>				
<b>Tamsulosin</b>	Not suitable for tube administration. Consider using doxazosin as an alternative. Seek advice from pharmacy.			
<b>Temazepam</b>	Oral Solution	Solution can be given undiluted.	A prolonged break in feeding is not required before/after administration.	If administered via jejunal tube, monitor for loss of efficacy or increased side effects.
<b>Tetracycline</b>	Consider switching to alternative antibiotic such as doxycycline.			
<b>Thiamine</b>	Tablets	Crush and disperse in water.	A prolonged break in feeding is not required before/after administration.	Can also be administered via jejunal tube.
<b>Ticagrelor</b>	Orodispersible tablets	Disperse in water. Flush well.	A prolonged break in feeding is not required before/after administration.	Flush tube well after use. Plain and orodispersible tablets are licensed for nasogastric administration of tube size 8 or greater. No information available on intrajejunal administration.
	Plain tablets	Crush and disperse in water. Flush well.		

## Drug Administration via Enteral Feeding Tubes

Table 1: Advice on administration of commonly used medicines via enteral feeding tubes

Drug Name	Form	Instructions	Feed Directions	Additional Information
<b>Tolterodine</b>	Tablets	Crush and disperse the standard-release tablets in 10mL of water immediately prior to administration.	A prolonged break in feeding is not required before/after administration	Flush well. Do <b>not</b> use modified release preparations. If administered via jejunal tube, monitor for loss of efficacy or increased side effects.
<b>Tramadol</b>	Soluble Tablets	Disperse in 10-15mL of water.	A prolonged break in feeding is not required before/after administration.	Flush well. Do <b>not</b> crush modified release preparations. If administered via jejunal tube, monitor for loss of efficacy or increased side effects.
	Orodispersible Tablets	Disperse in 10-15mL of water.		
<b>Trimethoprim</b>	Oral Suspension	Dilute with an equal volume of water.	Withhold feeds for 30 minutes before and 30 minutes after each dose.	Can also be administered via jejunal tube.
<b>V</b>				
<b>Vancomycin</b>	Injection	Dilute with 30mL of water for injection and give enterally.	A prolonged break in feeding is not required before/after administration.	Some brands of vancomycin injection are licensed for administration via nasogastric tube and should be used if available.  Can also be administered via jejunal tube.
	Vancomycin capsules are not suitable for tube administration.			

## Drug Administration via Enteral Feeding Tubes

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Drug Name	Form	Instructions	Feed Directions	Additional Information
<b>Venlafaxine</b>	Tablets	Crush and disperse the standard-release tablets in 10mL of water.	Where possible, administer dose after feed. A prolonged break in feeding is not required before/after administration.	The oral solution manufactured by Rosemont Pharmaceuticals is licensed for administration via NG or PEG tubes. Do <b>not</b> crush modified release preparations. If converting from modified release preparations, give the same total daily dose, but divided into more frequent doses. Can also be administered via jejunal tube.
	Oral solution	The oral solution can be given undiluted.		
<b>Verapamil</b>	Oral Solution	Solution can be given undiluted.	A prolonged break in feeding is not required before/after administration.	Do <b>not</b> crush modified release preparations. If converting from modified release preparations, give the total daily dose in 3 divided doses. If administered via jejunal tube, monitor for loss of efficacy or increased side effects.
	Tablets	Crush and disperse the standard-release tablets in water.		
<b>Vitamin B Co Strong</b>	If vitamins are essential consider IV Pabrinex.			



## Drug Administration via Enteral Feeding Tubes

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Drug Name	Form	Instructions	Feed Directions	Additional Information
<b>W</b>				
<b>Warfarin</b>	Oral Suspension	Solution can be given undiluted.	Withhold feeds for 1-2 hours before and 1-2 hours after each dose. Avoid feeds containing soya protein. If using any enteral feeds with significant vitamin K content such as Ensure, Isocal, Nutrilite, Osmolite and Ensure Plus, monitor INR closely and adjust dose of warfarin accordingly.	Flush well. Monitor patient's clotting (INR) closely. Use the same preparation consistently. If dietary or feed intake changes significantly, this may affect the patient's INR. Risk of reduced absorption when given intrajejunally.
	Tablets	Crush and disperse in water.		
<b>Z</b>				
<b>Zolpidem</b>	Tablets	Crush and disperse in water.	A prolonged break in feeding is not required before/after administration.	Can also be administered via jejunal tube.
<b>Zopiclone</b>	Tablets	Crushed zopiclone tablets thicken quickly and risk blocking the tube. Consider switching therapy to zolpidem. Zopiclone 3.75mg is approximately equivalent to zolpidem 5mg.		

### Main references used:

NEWT Guidelines online, Wrexham Maelor Hospital Pharmacy Department ([www.newtguidelines.com](http://www.newtguidelines.com))  
 Handbook of Drug Administration via Enteral Feeding Tubes, White R and Bradnam V, <https://about.medicinescomplete.com/>  
 Local practice and experience, Grampian Medicines Information Centre, Aberdeen Royal Infirmary.