

# Specials Guidance

## March 2022

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NHS Somerset ICB Medicines Management Team

**Entries in green are those that have been added or amended since the last full version review completed in March 2022**

**Disclaimer:** This document is intended as a guide only - it is subject to clinical interpretation and judgement on an individual basis and the specific needs and best interests of the individual patient should be considered. It contains a list of commonly prescribed medicines and alternative methods of administration for patients with swallowing difficulties, feeding tubes or for patients prescribed unlicensed 'specials' medication. It considers alternative medicines, formulations, cost, and licensing. The list of medicines is not exhaustive. Prices of medicines may fluctuate.

It is advised that while every effort will be made to keep the information in this document current and correct, errors may have occurred and data for individual drugs may have changed. Where there is any doubt or if further information is needed – prescribers should check the manufacturers' recommendations, published literature or other specialist sources e.g. NEWT Guidelines, Handbook of Drug Administration via Enteral Feeding Tubes.

Acknowledgement to North Lancs PCT

## SPECIALS GUIDANCE

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## Background

Medicines are not always available in formulations that are suitable for patients with swallowing difficulties or for patients with enteral feeding tubes. The alteration of medication formulations may therefore be necessary, such as crushing tablets or prescribing a 'special' liquid formulation.

This document provides guidance on available licensed formulations, suggests options for treatment within a drug class, or advises where tablets may be crushed, or capsules opened.

**Whilst there is some information with regard to administration via feeding tubes, prescribers are advised to contact the NHS Somerset ICB Medicines Management team for full details if administration via a feeding tube is necessary.**

## Licensed or Unlicensed?

Any alteration in the formulation of a medicine means that the medicine is used outside its product licence. The manufacturer of the product is no longer responsible for any adverse event or treatment failure. Instead, professionals responsible for prescribing, supplying and administering the drugs, become liable for any adverse event that the patient may experience.

**Medications should only be given in an unlicensed manner when a licensed alternative is not available. Licensed routes of administration should be sought first.**

When prescribing alternatives (licensed/ unlicensed) it is important to consider:

- Dose adjustments that need to be made with alternative liquid/ injection preparations.
- Full dose directions need to be included on the prescription (if applicable) e.g. *'take one tablet, disperse in water and take once in the morning'*.

**This document** provides an A-Z list of drugs:

- Where alternative licensed preparations exist.
- Drugs that can be crushed or dispersed in water (unlicensed route of administration)
- Injections that can be given orally/enterally (unlicensed route of administration).

If a drug does not appear in the A-Z table, there may be no alternative but to prescribe the 'special' product. In this case try to select a 'special' listed in Part VIIIB of the Drug Tariff as these are price controlled.

If a special is prescribed, the prescriber should consider the following:

- They are prescribing an unlicensed medicine.
- That the product, even though prepared in a manufacturing unit, has not been assessed by the Licensing Authority for safety, quality and efficacy (therefore still unlicensed).
- That they are directly responsible for the prescribing of these products and that they may be liable for adverse effects or harm resulting from the use of that product.
- It is the prescriber's responsibility to decide whether the patient has 'special needs' which a licensed product cannot meet.
- Requests to prescribe unlicensed specials by a third party, e.g. secondary care, do not diminish the responsibility of the prescriber.

*Please note: Every effort has been made to ensure the information in this document is current and correct, however errors may have occurred and data for individual drugs may have changed. Where there is any doubt, information should be checked against manufacturers' recommendations, published literature or other specialist sources.*

## Specialist Pharmacy Service useful links

- Medicines suitable for adults with swallowing difficulties  
<https://www.sps.nhs.uk/articles/medicines-suitable-for-adults-with-swallowing-difficulties/>
- Swallowing difficulties  
<https://www.sps.nhs.uk/home/guidance/swallowing-difficulties/>
- Choosing formulations of medicines for adults with swallowing difficulties  
<https://www.sps.nhs.uk/articles/choosing-formulations-of-medicines-for-adults-with-swallowing-difficulties/>
- Switching between liquid and tablet/capsule formulations – Which medicines require extra care?  
<https://www.sps.nhs.uk/articles/switching-between-liquid-and-tablet-capsule-formulations-which-medicines-require-extra-care/>
- Crushing tablets or opening capsules in a care home setting  
<https://www.sps.nhs.uk/articles/crushing-tablets-or-opening-capsules-in-a-care-home-setting/>
- How enteral feeding tubes affect medicines  
<https://www.sps.nhs.uk/articles/how-enteral-feeding-tubes-affect-medicines/>
- Parkinson's disease medicines formulations for adults with swallowing difficulties  
<https://www.sps.nhs.uk/articles/parkinsons-disease-medicines-formulations-for-adults-with-swallowing-difficulties/>
- Giving medicines safely with food or thickened fluid  
<https://www.sps.nhs.uk/articles/giving-medicines-safely-with-food-or-thickened-fluid/>
- Preparing medicines for administration to adults with swallowing difficulties  
<https://www.sps.nhs.uk/articles/preparing-medicines-for-administration-to-adults-with-swallowing-difficulties/>
- Understanding unlicensed medicines  
<https://www.sps.nhs.uk/articles/understanding-unlicensed-medicines/>

## Specials Recommended by the British Association of Dermatologists (BAD) for Skin Disease

A list of the latest preferred dermatological preparations (Specials) recommended by BAD can be downloaded here:

<https://cdn.bad.org.uk/uploads/2021/12/29200146/BAD-Specials-Booklet-2018-FINAL.pdf>

Drug	Formulation Alternative / Administration Advice
<b>A</b>	
<i>Acarbose</i>	<p>No licensed liquid formulation available.</p> <p>Tablets can be chewed with the first mouthful of food or swallowed whole with a little liquid immediately before food.<sup>1</sup></p>
<i>Acebutolol</i>	<p>No licensed liquid formulation available.</p> <p>Consider alternative licensed beta-blocker preparation: see <a href="#">Atenolol</a> / <a href="#">Propranolol</a>.</p> <p>or</p> <p>Prescribe licensed <a href="#">Acebutolol capsules</a> which can be opened, and the contents dispersed in water before taking.<sup>1</sup></p>
<i>Acenocoumarol</i>	<p>No licensed liquid formulation available.</p> <p>Tablets will disperse in water. Prescribe <a href="#">Acenocoumarol tablets</a> and label “disperse tablet in water immediately before taking”<sup>1</sup></p>
<i>Acetazolamide</i>	<p>No licensed liquid formulation available.</p> <p>Prescribe <a href="#">Acetazolamide tablets (non-MR)</a> and label 'disperse tablet in water and take...' (Tablets are scored so can be halved or quartered).</p> <p>Modified Release capsules contain slow-release pellets – do not crush.<sup>1</sup></p> <p>or</p> <p>Last resort – use an unlicensed special listed in the Drug Tariff. Prescribe <a href="#">Acetazolamide 250mg/5ml oral suspension</a> (unlicensed but price controlled.)</p>
<i>Acetylcysteine</i>	<p>Licensed products:</p> <p><a href="#">Acetylcysteine 200mg oral powder sugar-free sachets</a></p> <p><a href="#">NACSYS® 600mg effervescent tablets</a> Available in packs of 3x10 tablets. Licensed for use as a mucolytic in respiratory disorders for adults only.</p>
<i>Acetylcysteine 5% Eye drops</i>	Available as licensed <a href="#">Ilube® Eye drops</a>

Drug	Formulation Alternative / Administration Advice
<i>Aciclovir</i>	<p>Prescribe licensed <a href="#">Aciclovir dispersible tablets</a>.</p> <p>or</p> <p>Licensed liquid formulation is <a href="#">Aciclovir oral suspension sugar free 200mg/5ml or 400mg/5ml</a>.</p>
<i>Alendronic Acid</i>	<p>If liquid preparation required, consider either:</p> <p>Licensed <a href="#">Alendronic acid oral solution sugar-free 70mg/100ml</a></p> <p>or</p> <p><a href="#">Alendronic acid 70mg effervescent tablet (Binosto®)</a> dissolved in at least 120ml water</p> <p>or</p> <p><a href="#">Denosumab (Prolia®) 60mg/1ml solution for injection pre-filled syringe</a></p>
<i>Alfacalcidol</i>	<p>Licensed liquid formulation is <a href="#">Alfacalcidol (One-Alpha®) 2micrograms/ml oral drops sugar free</a></p> <p>N.B. Using the integral dropper, ONE drop ~ 100 nanograms (= 0.1 micrograms)</p>
<i>Alimemazine</i>	<p>Consider an alternative licensed antihistamine preparation.</p> <p>or</p> <p>Prescribe licensed liquid formulation <a href="#">Alimemazine oral solution sugar free (Zentiva) 7.5mg/5ml or 30mg/5ml</a></p>
<i>Allopurinol</i>	<p>No licensed liquid formulation available.</p> <p>Prescribe <a href="#">Allopurinol tablets</a> and label 'crush tablet, mix with water and take...'</p> <p>Tablets may take 10 minutes to disperse. Stir the dispersion and use immediately as the dispersion settles quickly.<sup>2</sup></p> <p>or</p> <p>Last resort - use an unlicensed special listed in the Drug Tariff. Prescribe <a href="#">Allopurinol 100mg/5ml or 300mg/5ml oral suspension</a> (unlicensed but price controlled.)</p>
<i>Almotriptan</i>	<p>No licensed liquid formulation available.</p> <p>Consider orodispersible <a href="#">zolmitriptan</a> or <a href="#">rizatriptan</a></p>

Drug	Formulation Alternative / Administration Advice
<i>Alpha-tocopherol</i>	See 'Vitamin E'
<i>Amiloride</i>	Licensed liquid formulation is <a href="#">Amiloride 5mg/5ml oral solution sugar free</a>
<i>Amiodarone</i>	<p>No licensed liquid formulation.</p> <p>Prescribe <a href="#">Amiodarone tablets</a> and label 'disperse tablet in water and take...'</p> <p>N.B. The tablets have a bitter taste and can be mixed with fruit juice if desired (if not administered via enteral feeding tube).<sup>28</sup></p> <p>or</p> <p>Last resort - use an unlicensed special listed in the Drug Tariff. Prescribe <a href="#">Amiodarone 50mg/5ml or 100mg/5ml oral suspension</a> (unlicensed but price controlled.)</p>
<i>Amisulpride</i>	Licensed liquid formulation is <a href="#">Amisulpride 100mg/ml oral solution sugar free</a> (Solian® brand has been discontinued)
<i>Amitriptyline</i>	<p>Licensed liquid formulation is <a href="#">Amitriptyline oral solution sugar free 25mg/5ml or 50mg/5ml</a></p> <p>(Adjust dose directions as necessary. Note: The 10mg/5ml strength is very expensive)</p>
<i>Amlodipine</i>	<p>Licensed liquid formulation is <a href="#">Amlodipine oral solution sugar free 5mg/5ml or 10mg/5ml</a></p> <p>or</p> <p>Prescribe <a href="#">Amlodipine tablets</a> and label 'disperse tablet in water and take immediately...' (solution is light sensitive hence immediate administration).</p> <p>(Crushed tablets can also be mixed in a small amount of food such as yogurt, honey, or mashed potato.<sup>23</sup>)</p> <p>or</p> <p>Consider alternative licensed calcium channel blocker: see <a href="#">Verapamil</a>.</p>

Drug	Formulation Alternative / Administration Advice
<i>Anastrozole</i>	<p>No licensed liquid formulation. Prescribe <a href="#">Anastrozole tablets</a> and label 'disperse tablet in water and take...'</p> <p>Tablets are slow to disperse and may take in excess of 5 minutes. <sup>1</sup></p> <p><b>Caution - risk to pregnancy.</b> Women who are pregnant / may become pregnant should not handle crushed or broken tablets. It may be advisable to use a closed system to administer anastrozole<sup>28</sup>.</p>
<i>Apixaban</i>	<p><a href="#">Apixaban tablets</a> are film-coated but are licensed to be crushed and dispersed in water, glucose 5% (G5W), apple juice or apple puree<sup>49</sup>.</p> <p><a href="#">See: Anticoagulant suggestions for adults with swallowing difficulties – SPS - Specialist Pharmacy Service – The first stop for professional medicines advice</a></p> <p><u>Feeding tubes:</u></p> <p><a href="#">Apixaban</a> tablets may be crushed and suspended in 60 mL of water or G5W and immediately delivered through a nasogastric tube. Tablets are licensed to be administered in this way – <a href="#">see SmPC for further details</a>.</p> <p>Crushed tablets are stable in water, G5W, apple juice, and apple puree for up to 4 hours.<sup>13</sup></p> <p>Data suggests that crushed tablets given via an enteral tube have a similar pharmacokinetic profile to whole tablets in terms of absorption.<sup>11,13</sup></p>
<i>Aripiprazole</i>	Licensed orodispersible tablets and liquid available.
<i>Atenolol</i>	Licensed liquid formulation is <a href="#">Atenolol 25mg/5ml oral solution sugar free</a>
<i>Atomoxetine</i>	Licensed liquid formulation is <a href="#">Atomoxetine 4mg/ml oral solution (Strattera®)</a>



Drug	Formulation Alternative / Administration Advice
<p><i>Atorvastatin</i></p>	<p><b>Consider age of patient and if still clinically appropriate.</b></p> <p>Consider licensed <a href="#">Atorvastatin chewable tablets sugar free (Lipitor®)</a> available as 10mg and 20mg chewable tablets.</p> <p>Or</p> <p><a href="#">Atorvastatin 20mg/5ml oral suspension sugar free (Rosemont)</a> – high cost option <a href="#">Expiry of 60 days once opened and does not require fridge storage</a></p> <p>Or</p> <p><a href="#">Atorvastatin tablets</a> can be crushed and/or dispersed in water or crushed and given with soft food. The tablets are film-coated and contents may taste bitter or unpleasant ('off-label' use).</p> <p>Or</p> <p>See Rosuvastatin monograph – Rosuvastatin hard capsule can be opened and the granules inside are also licensed to be administered via nasogastric tubing (see SPC for instructions)<sup>39</sup>.</p> <p><a href="#">See: Statin suggestions for adults with swallowing difficulties – SPS - Specialist Pharmacy Service – The first stop for professional medicines advice</a></p>
<p><i>Atropine Eye drops</i> <i>(preservative-free)</i></p>	<p><a href="#">Minims® Atropine Sulphate 1% w/v</a> may be suitable alternative. No potentially sensitising excipients. <sup>10</sup></p>
<p><i>Azathioprine</i></p>	<p><b>Cytotoxic Drug:</b> should not be crushed/dissolved in primary care.</p> <p>Licensed product is:</p> <p><a href="#">Azathioprine 10mg/ml oral suspension sugar free (Jayempi®)</a> - high cost</p> <p>(All unlicensed but price-controlled Drug Tariff Specials have been removed from the Drug Tariff)</p>
<p><b>B</b></p>	
<p><i>Baclofen</i></p>	<p>Licensed liquid formulations are <a href="#">Baclofen 5mg/5ml oral solution sugar free (more cost effective)</a> and <a href="#">Baclofen 10mg/5ml oral solution sugar free</a></p> <p>N.B. Sugar-free liquids contain sorbitol, therefore if diarrhoea develops or for higher doses consider prescribing <a href="#">Baclofen tablets</a> and label 'disperse tablet in water and take...'<sup>1</sup></p>

Drug	Formulation Alternative / Administration Advice
<i>Bendroflumethiazide</i>	<p>No licensed liquid formulation available</p> <p>Prescribe <a href="#">Bendroflumethiazide Tablets</a> and label 'disperse tablets in water and take...'<sup>1</sup></p> <p>or</p> <p>Last resort - use an unlicensed special listed in the Drug Tariff. Prescribe <a href="#">Bendroflumethiazide 2.5mg/5ml oral suspension</a> (unlicensed but price controlled.)</p>
<i>Betahistine</i>	<p>Prescribe <a href="#">Betahistine Tablets</a> and label 'crush or disperse tablet in water and take...'<sup>1,2</sup></p> <p>or</p> <p>Last resort - use an unlicensed special listed in the Drug Tariff. Prescribe <a href="#">Betahistine 8mg/5ml oral suspension</a> (unlicensed but price controlled.)</p>
<i>Betaine</i>	RED drug – refer to secondary care
<i>Bezafibrate</i>	Prescribe <a href="#">Bezafibrate Tablets (non-MR)</a> and label 'crush or disperse tablet, dissolve slowly in water and take...' <sup>1</sup>
<i>Bisoprolol</i>	<p>Consider alternative licensed beta-blocker preparation: see <a href="#">Atenolol</a> / <a href="#">Propranolol</a>.</p> <p>or</p> <p>Prescribe <a href="#">Bisoprolol Tablets</a> and label 'crush tablet finely then mix with water and take...'<sup>1</sup></p> <p>or</p> <p>Last resort - use an unlicensed special listed in the Drug Tariff. Prescribe <a href="#">Bisoprolol 1.25mg/5ml, 2.5mg/5ml or 5mg/5ml oral solution</a>. (Unlicensed but price controlled. Drug tariff prices vary between strengths/ formulations. Please check the latest drug tariff to identify the most cost effective special formulation before prescribing.)</p>
<i>Bumetanide</i>	Licensed liquid formulation is <a href="#">Bumetanide 1mg/5ml oral solution sugar free</a>
<i>Buspirone</i>	Consider another anxiolytic with licensed liquid formulation: see <a href="#">Diazepam</a>
<b>C</b>	

Drug	Formulation Alternative / Administration Advice
<i>Cabergoline</i>	<p>No licensed liquid formulation available.</p> <p>Cabergoline tablets can be crushed and mixed with water or soft food ('off-label' use).</p> <p>See: <a href="#">Parkinson's disease medicines in swallowing difficulties – SPS - Specialist Pharmacy Service – The first stop for professional medicines advice</a></p>
<i>Calcium Salts</i>	<p>See Calcium and Vitamin D preps for osteoporosis prevention.</p> <p>Calcium only preps:</p> <p>Calcium Gluconate 1g effervescent tablets</p> <p>Calcium Carbonate 1.25g effervescent tablets sugar free</p> <p>Calvive-1000® effervescent tablets (formerly Sandocal-1000®)</p> <p>See BNF for further details on salts.</p>
<i>Calcium with Vitamin D</i>	<p>TheiCal-D3 1000mg/880 IU chewable tablets</p> <p>Adcal D3® Dissolve effervescent tablets</p> <p>Calfovit D3® powder</p> <p>Calci-D® chewable tablets</p> <p>See BNF for further details on ingredients and salts.</p>
<i>Candesartan</i>	<p>Depending on indication, consider changing to</p> <p>Licensed Lisinopril 5mg/5ml oral solution sugar free</p> <p>or</p> <p>Licensed Ramipril 2.5mg/5ml oral solution sugar free</p> <p>or</p> <p>Candesartan tablets can be crushed and mixed with water or given with soft food ('off-label' use)</p> <p>See: <a href="#">ARB suggestions for adults with swallowing difficulties – SPS - Specialist Pharmacy Service – The first stop for professional medicines advice</a></p>

Drug	Formulation Alternative / Administration Advice
<p><i>Captopril</i></p>	<p>Licensed liquid formulations are <a href="#">Captopril 5mg/5ml oral solution sugar free</a> and <a href="#">Captopril 25mg/5ml oral solution sugar free</a></p> <p>or</p> <p><a href="#">Captopril tablets can be crushed and/or dispersed in water or crushed and given with soft food.</a></p> <p><a href="#">Note: Captopril is not usually suitable for once daily administration</a></p> <p><a href="#">See: ACEI suggestions for adults with swallowing difficulties – SPS - Specialist Pharmacy Service – The first stop for professional medicines advice</a></p>
<p><i>Carbamazepine</i></p>	<p>Licensed liquid formulation is <a href="#">Carbamazepine 100mg/5mL SF Liquid (Tegretol®)</a></p> <p>or</p> <p>Prescribe licensed <a href="#">Carbamazepine 125mg or 250mg Suppositories (Tegretol®)</a></p> <p>N.B. Different preparations may vary in bioavailability, avoid unnecessary changes in formulation. Note <a href="#">MHRA guidance</a> on changing formulation/manufacturers for epileptic patients. Suppositories are licensed for a maximum of 7 days and maximum licensed dose of 1g/day. 125mg suppositories may be considered to be approximately equivalent in therapeutic effect to tablets of 100mg but final adjustment should always depend on clinical response (plasma concentration monitoring recommended).<sup>3</sup></p> <p>See BNF or SPC for further information.</p> <p><u>Enteral tubes:</u></p> <ul style="list-style-type: none"> <li>- dilute liquid with an equal volume of water before administration to prevent adsorption to the feeding tube<sup>1,28</sup>.</li> <li>- A prolonged break in feeding is not necessary<sup>1</sup> but care must be taken to administer carbamazepine at the same time and in the same manner each day so that variations in the extent of drug absorption are minimised. The possibility of enteral feed interactions should be considered in any patient who fails to achieve satisfactory carbamazepine levels. An alteration in carbamazepine handling should be considered in any patient who commences or discontinues enteral feeds, and drug level monitoring should be carried out if appropriate.<sup>28</sup></li> </ul> <p><b>Take care when switching from tablet to liquid formulations. See separate document for more details.</b><sup>27</sup></p>

Drug	Formulation Alternative / Administration Advice
<i>Carbimazole</i>	<p>No licensed liquid formulation available.</p> <p>Licensed <a href="#">Carbimazole tablets</a> can be crushed and dispersed in water.<sup>28</sup></p> <p>Consider using an unlicensed special listed in the Drug Tariff - <a href="#">Carbimazole 10mg/5ml oral suspension</a> (unlicensed but price controlled).</p>
<i>Carbocisteine</i>	<p>Licensed liquid formulations:</p> <p><a href="#">Carbocisteine 250mg/5ml oral solution</a></p> <p>or</p> <p><a href="#">Carbocisteine 750mg/10ml sugar free oral solution 10ml in sachets</a></p>
<i>Carmellose Eye drops (Preservative-free)</i>	<p>There are a number of preservative-free carmellose eye drops including:</p> <p><a href="#">Evolve Carmellose® 0.5% preservative-free 1x10ml bottle</a></p> <p><a href="#">Celluvisc 0.5% or 1% (30 x 0.4ml preservative free single dose unit).</a></p> <p><a href="#">PF Drops® carmellose (0.5% and 1% available)</a></p> <p><a href="#">Xailin® Fresh 0.5% 0.4ml unit dose</a></p>
<i>Carvedilol</i>	<p>Consider alternative licensed beta-blocker preparation: see <a href="#">Atenolol / Metoprolol / Bisoprolol / Propranolol</a>.</p> <p>or</p> <p>Prescribe <a href="#">Carvedilol tablets</a> and label 'Disperse tablet in water and take...' (will form a suspension in water). Tablets disperse in 1-5 minutes. Use immediately.<sup>28</sup></p> <p>Crushed carvedilol tablets can also be mixed with a small amount of soft food such as yogurt, honey or mashed potato. Should be swallowed straight away, without chewing.<sup>23</sup></p> <p>or</p> <p>Last resort - use an unlicensed special listed in the Drug Tariff. Prescribe <a href="#">Carvedilol 5mg/5ml oral suspension</a> (unlicensed but price controlled.)</p>
<i>Celecoxib</i>	<p>No licensed liquid formulation available.</p> <p>Consider alternative licensed non-steroidal anti-inflammatory drug: see <a href="#">Ibuprofen / Meloxicam</a></p>

Drug	Formulation Alternative / Administration Advice
<i>Chloral hydrate</i>	<p>Licensed liquid formulation is <a href="#">Chloral hydrate 143.3mg/5ml oral solution</a> but it is <b>very expensive</b></p> <p>or</p> <p>Last resort - use the unlicensed Drug Tariff special <a href="#">Chloral hydrate 500mg/5ml oral solution</a> (The 1g/5ml and 200mg/5ml oral solution are much more expensive).</p> <p><b>Take care when switching from tablet to liquid formulations. See separate document for more details.</b><sup>27</sup></p>
<i>Chloramphenicol</i> <i>Preservative-free eye drops</i>	<p>Prescribe licensed <a href="#">Minims® Chloramphenicol 0.5ml single dose units</a> or licensed <a href="#">Eykappo® 5mg /ml preservative-free eye drops</a> (10ml bottle with shelf life of 28 days after opening.)</p>
<i>Chlordiazepoxide</i>	<p>Consider changing to licensed <a href="#">Diazepam 2mg/5ml oral solution</a></p>
<i>Chlorphenamine</i>	<p>Prescribe licensed <a href="#">Chlorphenamine 2mg/5ml oral solution sugar free</a></p>
<i>Chlorothiazide</i>	<p>No licensed liquid formulations available.</p> <p>Tablets (if available) will disperse in water.<sup>28</sup></p> <p>Or prescribe unlicensed Drug Tariff special <a href="#">Chlorothiazide 250mg/5ml oral suspension</a>. (The 200mg/5ml oral suspension is more expensive)</p>
<i>Chlorpromazine</i>	<p>Licensed liquid formulations are <a href="#">Chlorpromazine Oral Solution 25mg/5ml</a> or <a href="#">100mg/5ml</a></p>
<i>Ciclosporin Eye drops / Eye ointment</i>	<p>Prescribe as licensed <a href="#">Ikervis®</a> (unpreserved ciclosporin eye drops). See Somerset ICB Traffic Light Guidance (green drug) for further information</p>
<i>Ciclosporin (oral)</i>	<p>RED drug – refer to secondary care.</p>
<i>Cimetidine</i>	<p>Prescribe licensed <a href="#">Cimetidine 200mg/5ml oral solution</a> or <a href="#">Cimetidine 200mg/5ml oral solution sugar free</a></p> <p><u>Feeding tubes:</u></p> <ul style="list-style-type: none"> <li>- Oral solution can be diluted and administered via feeding tube.</li> <li>- Allow feeding gap of one hour before and one hour after each dose<sup>28,36</sup></li> </ul>
<i>Cinnarizine</i>	<p><a href="#">Stugeron® 15mg tablets</a> may be sucked or chewed.<sup>1</sup></p> <p>Cinnarizine tablets will disperse in water.<sup>14,28</sup></p>

Drug	Formulation Alternative / Administration Advice
<p><i>Ciprofloxacin</i></p>	<p>Prescribe licensed <a href="#">Ciprofloxacin 250mg/5ml oral suspension (Ciproxin®)</a> unless administering via enteral feeding tube. It is very thick and will block the tube.<sup>28</sup></p> <p><u>Feeding tubes:</u></p> <ul style="list-style-type: none"> <li>- do <b>not</b> use the suspension</li> <li>- <a href="#">Ciprofloxacin tablets</a> will disperse in de-ionised water e.g. water for injection or water for irrigation. (Crush higher strength 750mg tablets before dispersing). Flush the enteral tube after each dose with 65ml de-ionised water. Tap water is not suitable as minerals in the tap water may bind with ciprofloxacin and decrease the amount of drug absorbed<sup>28</sup></li> <li>- use doses at the higher end of the normal range in order to compensate for lower absorption, especially for administration via jejunal tube. It may be more appropriate to use an alternative route or alternative drug<sup>28</sup>.</li> <li>- allow feeding gap of two hours before and two hours after each dose<sup>28,36</sup>.</li> </ul>
<p><i>Ciprofloxacin eye drops (Preservative-free)</i></p>	<p>Preservative-free ciprofloxacin eye drops are <b>not suitable</b> for use in primary care – only 24 hour shelf life as cannot be refrigerated.<sup>10</sup></p> <p>Licensed <a href="#">levofloxacin preservative-free (Oftequix®)</a> single dose 0.3ml units are a preservative free alternative.</p>
<p><i>Citalopram</i></p>	<p>Licensed liquid formulation is <a href="#">Citalopram 40mg/ml oral drops sugar free</a> and label 'mix citalopram oral drops with water before taking...'. N.B. Four drops (8mg) is equivalent in therapeutic effect to 10mg citalopram tablets.</p> <p><b>Take care when switching from tablet to liquid formulations - see separate document<sup>27</sup> and BNF for further details.</b></p> <p><a href="#">See also: SSRI suggestions for adults with swallowing difficulties – SPS - Specialist Pharmacy Service – The first stop for professional medicines advice</a></p>
<p><i>Clindamycin</i></p>	<p>Where clinically appropriate change to an alternative antibiotic available as a liquid.</p> <p>Clindamycin capsules can be opened and powder dispersed in water.<sup>1</sup> Give immediately.</p> <p>Avoid inhalation of capsule contents.</p> <p>or</p> <p>Last resort - use an unlicensed special listed in the Drug Tariff. Prescribe <a href="#">Clindamycin 75mg/5ml oral suspension</a> (unlicensed but price controlled.)</p>

Drug	Formulation Alternative / Administration Advice
<i>Clobazam</i>	<p>Licensed liquid formulations are <a href="#">Clobazam 5mg/5ml</a> and <a href="#">Clobazam 10mg/5ml oral suspension sugar-free</a></p> <p><b>Take care when switching from tablet to liquid formulations - see separate document<sup>27</sup></b></p>
<i>Clomipramine</i>	<p>Consider alternative licensed tricyclic antidepressant: see <a href="#">Amitriptyline / Lofepramine</a></p> <p>or</p> <p>Clomipramine capsules can be opened and contents mixed with water. <sup>1</sup> (Modified release capsules have been discontinued but if available should not be crushed.)</p> <p>or</p> <p>Last resort - use an unlicensed special listed in the Drug Tariff. Prescribe <a href="#">Clomipramine 50mg/5ml oral suspension</a> (unlicensed but price controlled.)</p>
<i>Clonazepam</i>	<p>Licensed liquid formulations are <a href="#">Clonazepam 2mg/5ml oral solution sugar free</a> and <a href="#">Clonazepam 500micrograms/5ml oral solution sugar free</a></p> <p>or</p> <p>Prescribe <a href="#">Clonazepam tablets</a> and label as 'disperse tablet in water and take...'<sup>1</sup></p> <p><u>Feeding tubes:</u></p> <p>Dilute with 30-60mL water to reduce binding to the tube.<sup>2</sup></p> <p>or</p> <p>Last resort - use an unlicensed special listed in the Drug Tariff <a href="#">Clonazepam 2.5mg/1ml drops</a> (10ml minimum quantity) Unlicensed but price controlled.</p>
<i>Clonidine</i>	<p>Licensed <a href="#">Clonidine 50 micrograms/5ml oral solution sugar-free</a> now available.</p> <p>or</p> <p>Prescribe <a href="#">Clonidine Tablets (Catapres®)</a> and label 'crush tablet, mix with water and take...'<sup>1</sup></p>



Drug	Formulation Alternative / Administration Advice
<p><i>Clopidogrel</i></p>	<p>No licensed liquid formulation available.</p> <p>Clopidogrel tablets are film-coated but can be crushed and/or dispersed in water or crushed and given with soft food ('off-label' use).</p> <p>See: <a href="#">Antiplatelet suggestions for adults with swallowing difficulties – SPS - Specialist Pharmacy Service – The first stop for professional medicines advice</a></p> <p>or</p> <p>Last resort - use an unlicensed special listed in the Drug Tariff. Prescribe <a href="#">Clopidogrel 75mg in 5ml oral solution</a> – most cost-effective option (unlicensed but price controlled.)</p>
<p><i>Cholecalciferol</i></p>	<p>See <a href="#">Colecalciferol</a></p>
<p><i>Co-amilofruse</i></p>	<p>Consider licensed <a href="#">Furosemide oral solution 20mg/5ml, 40mg/5ml or 50mg/5ml</a> and add in separate licensed <a href="#">Amiloride 5mg/5ml oral solution sugar free</a> if necessary.</p> <p>or</p> <p>Prescribe <a href="#">Co-amilofruse tablets</a> and label 'crush tablet and disperse in water and take...'<sup>1</sup></p>
<p><i>Co-amilozide</i></p>	<p>Prescribe <a href="#">Co-amilozide tablets</a> and label 'crush tablet and disperse in water and take...'<sup>1</sup></p>
<p><i>Co-beneldopa</i></p>	<p>Prescribe licensed</p> <p><a href="#">Co-beneldopa 12.5mg/50mg dispersible tablets sugar free (Madopar®)</a></p> <p>Or</p> <p><a href="#">Co-beneldopa 25mg/100mg dispersible tablets sugar free (Madopar®)</a></p> <p>Or</p> <p><a href="#">Madopar®</a> immediate-release capsules can be opened and the contents mixed with water or soft food. The capsule contents are reported to taste bitter<sup>45</sup>. Once opened, capsule contents should be used immediately<sup>46</sup> (unlicensed use).</p> <p>Note: Co-beneldopa prolonged-release capsules are NOT suitable for opening. Patients can be switched to the same total daily dose of immediate-release capsules or dispersible tablets.</p> <p>See also: <a href="#">Parkinson's disease medicines in swallowing difficulties – SPS - Specialist Pharmacy Service – The first stop for professional medicines advice</a></p>

Drug	Formulation Alternative / Administration Advice
<p><i>Co-careldopa</i></p>	<p>Consider alternative licensed <a href="#">Co-beneldopa dispersible tablets (Madopar®)</a></p> <p>Or</p> <p><a href="#">Sinemet® (co-careldopa) immediate-release tablets</a> can be dispersed in water or mixed with soft food<sup>45</sup>.</p> <p>Note: Co-careldopa prolonged-release tablets are NOT suitable for crushing. Patients can be switched to the same total daily dose of immediate-release tablets, or to Madopar® dispersible tablets.</p> <p>Or</p> <p>Last resort - use an unlicensed special listed in the Drug Tariff.  Prescribe <a href="#">Co-careldopa 25mg/100mg/5ml oral suspension</a> (12.5mg/50mg/5ml strength also available but more expensive) (Unlicensed but price controlled)</p> <p><a href="#">See also: Parkinson's disease medicines in swallowing difficulties – SPS - Specialist Pharmacy Service – The first stop for professional medicines advice</a></p>
<p><i>Co-codamol</i></p>	<p>Prescribe licensed <a href="#">Co-codamol soluble tablets</a> (Please note: Soluble tablets have high sodium content)</p> <p>Note: The 8/500 strength of co-codamol is now non-formulary.</p>
<p><i>Codeine</i></p>	<p>Prescribe licensed <a href="#">Codeine linctus 15mg/5ml</a> also available as <a href="#">SF linctus</a>.</p> <p>Note: <a href="#">Higher strength Codeine 25mg in 5ml oral solution</a> also available</p> <p><u>Feeding tubes:</u></p> <p>Dilute viscous commercial syrup with water.<sup>1</sup></p>
<p><i>Co-dydramol</i></p>	<p>Consider alternative licensed <a href="#">Co-codamol soluble tablets</a> (Please note: Soluble tablets have high sodium content)</p> <p>(Note: Licensed Dihydrocodeine 10mg/5ml oral solution now discontinued)</p>
<p><i>Colchicine</i></p>	<p>Prescribe <a href="#">Colchicine tablets</a> and label 'crush tablet and disperse in water and take...'<sup>1</sup></p>

Drug	Formulation Alternative / Administration Advice
<i>Colecalciferol</i>	<p><b>Prophylactic Vitamin D supplements are considered to be self-care treatments and are not for FP10 prescribing</b></p> <p><u>Licensed liquid formulations:</u></p> <p><a href="#">Fultium D3® drops</a> 3 drops contains 200 IU Colecalciferol (vitamin D<sub>3</sub>)</p> <p>See the formulary for other formulations</p> <p><b>High dose formulations agreed as an option when recommended and initiated by a consultant.</b></p> <p><u>Licensed liquid formulations:</u></p> <p><a href="#">InVita D3® 2400units/ml oral drops</a></p> <p><a href="#">InVita D3® 25,000units/1ml oral solution 3x1 ml</a></p> <p><u>Licensed products containing colecalciferol also contain calcium - See <a href="#">Calcium with Vitamin D</a></u>. Please use Calcium and Vitamin D containing preparations unless there is a specific reason not to give calcium.</p>
<i>Colestyramine</i>	Prescribe <a href="#">Colestyramine powder</a>
<i>Co-phenotrope</i>	<p>No licensed liquid formulation available</p> <p>Consider changing to <a href="#">Loperamide</a></p> <p>Or</p> <p>Prescribe <a href="#">Co-phenotrope tablets</a> and label 'crush tablet, disperse in water and take...'</p>
<i>Cromoglycate eye drops</i>	See Sodium cromoglycate
<i>Cyanocobalamin</i>	<a href="#">Cyanocobalamin 1mg tablets</a> are available as a food supplement (e.g. Lamberts, Healthaid) or as a licensed product ( <a href="#">Orobalin® 1mg tablets</a> ).

Drug	Formulation Alternative / Administration Advice
Cyclizine	<p>No licensed liquid formulation available</p> <p><u>For nausea, vomiting, vertigo, motion sickness, labyrinthine disorders:</u> Consider licensed Promethazine HCL preparation: see <a href="#">Promethazine Hydrochloride</a></p> <p>or</p> <p>Prescribe <a href="#">Cyclizine tablets</a> and label 'crush tablet, disperse in water and take...' (crushed tablets have a bitter taste and may take 5 minutes to disperse)<sup>2</sup></p> <p>or</p> <p>Last resort - use an unlicensed special listed in the Drug Tariff. Prescribe <a href="#">Cyclizine 50mg/5ml oral suspension</a> (unlicensed but price controlled.)</p>
Cyproterone	Prescribe <a href="#">Cyproterone tablets</a> and label 'disperse tablet in water and take...' <sup>2</sup>
<b>D</b>	
Dabigatran	<p>Licensed product available: <b>Pradaxa® (dabigatran) coated granules (various strengths)</b></p> <p>Note: Licensed for treatment of venous thromboembolic events (VTE) and prevention of recurrent VTE in paediatric patients from birth to less than 18 years of age.</p> <p>The coated granules should be mixed with food prior to intake and only be used with apple juice or the soft foods mentioned in the instructions for use. After mixing with food or apple juice, the medicinal product has to be administered within 30 minutes. The coated granules are not compatible with milk or milk products.</p> <p>Not compatible with feeding tubes.</p> <p>Important – Dabigatran capsules <b>must not be opened</b> as bioavailability and therefore anticoagulant effect is increased when taken without the capsule shell.</p> <p>Consider <a href="#">Edoxaban</a>, <a href="#">Rivaroxaban</a> or <a href="#">Apixaban</a> – see separate entries</p> <p>See also: <a href="#">Anticoagulant suggestions for adults with swallowing difficulties – SPS - Specialist Pharmacy Service – The first stop for professional medicines advice</a></p>
Dantrolene	The capsules can be opened and the contents dispersed in water or acidic fruit juice (e.g. orange) for administration. <sup>28</sup>
Demeclocycline	Consider alternative licensed tetracycline preparation: see <a href="#">Doxycycline</a> .

Drug	Formulation Alternative / Administration Advice
<i>Desmopressin</i>	<p>Prescribe licensed <a href="#">Desmopressin oral lyophilisate sugar-free (sublingual tablets)</a></p> <p>or</p> <p>Prescribe licensed <a href="#">Desmopressin Acetate Nasal Spray</a></p> <p>or</p> <p>Prescribe licensed <a href="#">Desmopressin Intranasal Solution</a>.</p> <p>See BNF for details on different strengths available and indications.</p>
<i>Dexamethasone</i>	<p>Prescribe licensed liquid formulations</p> <p><a href="#">Dexamethasone 2mg/5ml sugar-free oral solution</a></p> <p>or</p> <p><a href="#">Dexamethasone 2mg soluble tablets sugar-free</a></p> <p>Note – there are higher strength liquids - <a href="#">Dexamethasone sugar-free oral solution 10mg/5ml or 20mg/5ml</a> but we don't recommend these in primary care due to the potential for error</p>
<i>Dexamethasone eye drops (Preservative-free)</i>	<p>Consider <a href="#">Eythalm® dexamethasone 0.1% preservative-free eye drops</a> (Multidose 6ml container that can be used for 28 days once opened).</p> <p>Other options:</p> <p><a href="#">Dropodex® single-dose, preservative-free 0.4ml eye drops</a>, <a href="#">Dexafree® 30 x 0.4ml single dose units</a> or <a href="#">Minims® Dexamethasone 20 x 0.5ml single dose units</a>. These contain 0.1% w/v dexamethasone but may work out as more expensive depending on dose instructions.</p>
<i>Dexamfetamine</i>	<p>If liquid preparation required consider licensed <a href="#">Dexamfetamine 5mg/5ml oral solution sugar free</a></p> <p>or</p> <p>Consider <a href="#">Lisdexamfetamine</a> - see entry for <a href="#">Lisdexamfetamine</a>.</p>

Drug	Formulation Alternative / Administration Advice
<i>Diazepam</i>	<p>Prescribe licensed <a href="#">Diazepam 2mg/5ml oral suspension</a> or <a href="#">Diazepam 2mg/5ml oral solution sugar free</a></p> <p><u>Feeding tubes:</u></p> <p>Dilute oral solution with an equal volume of water to reduce binding to the tube. If diazepam is administered through long PVC tubes, drug loss may occur as diazepam is significantly adsorbed onto PVC. Diazepam may also contribute towards blockage of tubes<sup>28</sup>.</p>
<i>Diclofenac</i>	<p>No licensed liquid formulation available. (Diclofenac Dispersible Tablets (Voltarol<sup>®</sup>) now discontinued)</p> <p>Consider either licensed <a href="#">Diclofenac Suppositories (Voltarol<sup>®</sup>)</a></p> <p>or</p> <p>Consider alternative licensed non-steroidal anti-inflammatory drug: see <a href="#">Ibuprofen</a> / <a href="#">Meloxicam</a>.</p>
<i>Digoxin</i>	<p>Prescribe licensed <a href="#">Digoxin 50micrograms/ml oral solution</a></p> <p>(Lanoxin PG 50micrograms/ml elixir has been discontinued)</p> <p><b>Bioavailability is different between tablets and liquids.<sup>1,7,28</sup> Take care when switching from tablet to liquid formulations. See separate document for more details.<sup>27</sup></b></p> <p>Also see SPC for further details (section 5.2).</p> <p><u>Feeding tubes:</u></p> <ul style="list-style-type: none"> <li>- Digoxin elixir has been reported to physically interact with enteral feeds. Ensure tube is flushed well before and after each dose to prevent this<sup>28</sup>.</li> <li>- Allow a gap of two hours before and one hour after administration of enteral digoxin before administering high-fibre enteral feeds such as <a href="#">Jevity<sup>®</sup></a><sup>28,36</sup></li> </ul>
<i>Dihydrocodeine</i>	<p>(Note: Licensed Dihydrocodeine 10mg/5ml oral solution now discontinued)</p> <p>Consider switch to licensed alternative – see <a href="#">Codeine</a></p>

Drug	Formulation Alternative / Administration Advice
<p><i>Diltiazem (oral)</i></p>	<p>No licensed liquid available.</p> <p>Consider prescribing as <a href="#">Tildiem 60mg tablets</a> (three times daily formulation only) and label 'crush tablet and disperse in water and take...' <sup>1</sup></p> <p>As bioavailability varies between agents it would be prudent if changing from a modified release formulation to 60mg tablets to start with 60mg three times a day. <sup>1</sup></p> <p><b>(N.B. once and twice daily MR preparations should not be crushed or chewed)</b></p> <p>Adizem XL, Adizem SR, Dilzem SR, Dilzem XL, Slozem, Tildiem LA – capsules can be opened and contents sprinkled in water or soft food before taking. <b>DO NOT CRUSH.</b><sup>1</sup></p> <p>or</p> <p>Consider alternative licensed calcium channel blocker - see <a href="#">Verapamil</a>.</p> <p>or</p> <p>Last resort - use an unlicensed special listed in the Drug Tariff. Prescribe <a href="#">Diltiazem 60mg/5ml oral suspension</a> (unlicensed but price controlled.)</p>
<p><i>Diltiazem (topical)</i></p>	<p><u>For anal fissures:</u></p> <p>Prescribe licensed <a href="#">Glyceryl Trinitrate 0.4% rectal ointment (Rectogesic®)</a></p> <p>All external preparations of diltiazem are unlicensed specials and are non-formulary. Acute trust commissioned to provide full treatment course where patient deemed contraindicated to Rectogesic®.</p>

Drug	Formulation Alternative / Administration Advice
<i>Dipyridamole</i>	<p><b>Clopidogrel is now preferred over dipyridamole as more clinically and cost-effective.</b></p> <p><b>Current evidence only supports <u>modified release dipyridamole</u> preparations for prevention of vascular events. If m/r capsules prescribed for the prevention of stroke or TIA cannot be taken, treatment with dipyridamole should be stopped.</b></p> <p>Persantin® M/R Capsules now discontinued.</p> <p>Dipyridamole/aspirin capsules (Asasantin®) - capsules are modified-release and should not be opened. Patients should be converted onto the two component drugs (NB aspirin is not available in the UK in a 25mg dosage - 75mg daily would be the usual choice)<sup>28</sup></p> <p>Dipyridamole 50mg in 5ml or 200mg in 5ml suspensions available as licensed products – but only for prevention of thrombosis associated with prosthetic heart valves.</p> <p>Dipyridamole 25mg or 100mg tablets tablets may be crushed<sup>1</sup>– but only for prevention of thrombosis associated with prosthetic heart valves.</p> <p><a href="#">See also: Antiplatelet suggestions for adults with swallowing difficulties – SPS - Specialist Pharmacy Service – The first stop for professional medicines advice</a></p>
<i>Docusate</i>	<p>Licensed liquid formulations are <a href="#">Docusate Sodium oral solution sugar free 50mg/5ml and 12.5mg/5ml.</a></p>
<i>Domperidone</i>	<p>Review prescription to ensure prescribing in line with <a href="#">MHRA guidance</a>.</p> <p>Prescribe licensed <a href="#">Domperidone 1mg/ml oral suspension sugar free</a></p>
<i>Donepezil</i>	<p>Prescribe licensed <a href="#">Donepezil orodispersible tablets sugar free (5mg or 10mg)</a></p> <p>or</p> <p>Prescribe <a href="#">Donepezil 1mg/ml oral solution sugar-free</a> (much more expensive than orodispersible tablets)</p>
<i>Dosulepin</i>	<p><u>For depressive illness:</u> NICE no longer recommend dosulepin - consider another antidepressant.</p> <p>Consider alternative licensed liquid tricyclic antidepressant: see <a href="#">Amitriptyline / Lofepamine</a>.</p>



Drug	Formulation Alternative / Administration Advice
<i>Doxazosin</i>	<p>No licensed liquid available.</p> <p>Consider prescribing <a href="#">Doxazosin tablets (non-MR)</a> and label 'disperse tablet in water and take...' <sup>2</sup> N.B. tablets should be dispersed in de-ionised (not tap) water. Tap water contains excessive chloride ions leading to precipitation. <sup>1</sup></p> <p>Modified release tablets should not be crushed. <sup>1</sup> When converting MR to plain, halve the dose and titrate upwards according to response. <sup>2</sup></p> <p>or</p> <p>Unlicensed specials are listed in the drug tariff. Most cost-effective formulation of a special is <a href="#">Doxazosin 4mg/5ml oral solution</a></p>
<i>Doxepin</i>	<p>For depressive illness:</p> <p>Consider alternative licensed liquid tricyclic antidepressant: see <a href="#">Amitriptyline / Lofepramine</a>.</p>
<i>Doxycycline</i>	<p>Prescribe licensed <a href="#">Doxycycline Dispersible Tablets 100mg (Vibramycin-D<sup>®</sup>)</a></p> <p><u>Feeding tube:</u></p> <p>Absorption and serum levels of doxycycline have been shown to decrease if taken with milk. Withhold enteral feeds for two hours before and one hour after each dose<sup>28</sup>.</p>
<b>E</b>	
<i>Edoxaban</i>	<p><a href="#">Edoxaban (Lixiana<sup>®</sup>) tablets</a> may be crushed and mixed with water or apple puree and immediately administered orally. Lixiana<sup>®</sup> tablets are licensed to be administered in this way.<sup>43</sup></p> <p><u>Feeding tubes:</u></p> <p><a href="#">Lixiana<sup>®</sup> tablets</a> may be crushed and suspended in a small amount of water and immediately delivered through a gastric tube after which it should be flushed with water. Lixiana<sup>®</sup> tablets are licensed to be administered in this way.<sup>43</sup> <a href="#">See SmPC for further details.</a></p> <p>Crushed Lixiana tablets are stable in water and apple puree for up to 4 hours. <sup>43</sup></p> <p><a href="#">See also: Anticoagulant suggestions for adults with swallowing difficulties – SPS - Specialist Pharmacy Service – The first stop for professional medicines advice</a></p>

Drug	Formulation Alternative / Administration Advice
<p><i>Enalapril</i></p>	<p>Licensed liquid formulation: Enalapril 5mg/5ml oral solution sugar free (very expensive). It has a 30-day expiry once opened and requires fridge storage.</p> <p>Enalapril tablets can be crushed and/or dispersed in water or crushed and given with soft food ('off-label' use).</p> <p>See: <a href="#">ACEI suggestions for adults with swallowing difficulties – SPS - Specialist Pharmacy Service – The first stop for professional medicines advice</a></p>
<p><i>Entacapone</i></p>	<p>No licensed liquid formulation available.</p> <p>Prescribe <a href="#">Entacapone tablets</a> and label 'disperse tablet in water and take...'</p> <p>N.B. will partially disperse in water and can be added to jam, honey or orange juice.</p> <p>May stain orange.</p> <p>Should be administered at the same time as levodopa/decarboxylase dose.<sup>1</sup></p> <p>See also: <a href="#">Parkinson's disease medicines in swallowing difficulties – SPS - Specialist Pharmacy Service – The first stop for professional medicines advice</a></p>
<p><i>Entacapone/levodopa/carbidopa (Sastravi®/Stalevo®)</i></p>	<p>Consider switching to separate components</p> <p>or</p> <p>The tablets can be crushed and mixed with water for administration.</p> <p>The tablets can be crushed and mixed with honey, jam, or orange juice for administration. They have a bitter taste<sup>28</sup>.</p> <p>Will stain skin, teeth, tongue or tube.</p> <p>See also: <a href="#">Parkinson's disease medicines in swallowing difficulties – SPS - Specialist Pharmacy Service – The first stop for professional medicines advice</a></p>
<p><i>Ephedrine Drops (nasal congestion)</i></p>	<p>Prescribe licensed <a href="#">Ephedrine Nasal Drops: 0.5% / 1%</a></p>

Drug	Formulation Alternative / Administration Advice
<i>Eprosartan</i>	<p>No licensed liquid formulation available. Consider changing to licensed:</p> <p>Lisinopril 5mg/5ml oral solution sugar free</p> <p>or</p> <p>Ramipril 2.5mg/5ml oral solution sugar free</p> <p>or</p> <p>Eprosartan tablets can be crushed and mixed with water or given with soft food ('off-label' use). Tablets are film-coated and may taste bitter once crushed.</p> <p>See: <a href="#">ARB suggestions for adults with swallowing difficulties – SPS - Specialist Pharmacy Service – The first stop for professional medicines advice</a></p>
<i>Ergocalciferol</i>	See 'Colecalciferol'
<i>Ertugliflozin</i>	<p>No liquid formulation available</p> <p>Steglatro® SPC states: should be taken orally once daily in the morning, with or without food. In case of swallowing difficulties, the tablet could be broken or crushed as it is an immediate-release dosage form.</p>
<i>Escitalopram</i>	<p>Prescribe as licensed Escitalopram 20mg/ml drops (CipraleX®)</p> <p>Each drop contains 1mg escitalopram. Can be mixed with water or apple juice or orange juice.</p> <p>Consider alternative licensed selective serotonin re-uptake inhibitors: see Citalopram / Fluoxetine / Paroxetine.</p> <p>See also: <a href="#">SSRI suggestions for adults with swallowing difficulties – SPS - Specialist Pharmacy Service – The first stop for professional medicines advice</a></p>

Drug	Formulation Alternative / Administration Advice
<p><i>Esomeprazole</i></p>	<p>Consider licensed <a href="#">Lansoprazole orodispersible tablets</a> or <a href="#">Omeprazole dispersible tablets (Mezzopram®)</a>.</p> <p>or</p> <p>Prescribe licensed <a href="#">Nexium® Esomeprazole 10mg gastro-resistant granules sachets</a>.</p> <p>For a 10 mg dose empty the contents of a 10 mg sachet into a glass containing 15 ml water. For a 20 mg dose empty the contents of two 10 mg sachets into a glass containing 30 ml water. Do not use carbonated water. Stir the contents until the granulate has been dispersed and leave for a few minutes to thicken. Stir again and drink within 30 minutes. The granules must not be chewed or crushed. Rinse with 15 ml water to obtain all granules.</p> <p>Licensed for NG tube or gastric tube administration – see SPC for details.</p> <p>NB Not licensed for use in children &lt;1 year old</p> <p>or</p> <p>Prescribe <a href="#">Emozul® capsules</a> (available as 20mg and 40mg esomeprazole capsules.) The capsules should not be chewed or crushed. However, the capsules can be opened and the pellets mixed with half a glass of non-carbonated water and the liquid swallowed within 30 minutes. Alternatively, the contents of the capsules can be mixed with water and administered via an appropriate tube.<sup>15,16</sup></p> <p><a href="#">See also: PPI suggestions for adults with swallowing difficulties – SPS - Specialist Pharmacy Service – The first stop for professional medicines advice</a></p>
<p><i>Ethambutol</i></p>	<p>No licensed liquid formulation available</p> <p>Prescribe <a href="#">Ethambutol tablets</a> and label 'crush tablet, mix with water and take...'<sup>1</sup></p>
<p><i>Ethosuximide</i></p>	<p>Licensed liquid formulation available – prescribe as <a href="#">Emeside® (Ethosuximide) 250mg/5ml syrup</a> (most cost-effective option).</p>
<p><i>Etodolac</i></p>	<p>No licensed liquid formulation available</p> <p>Do not crush modified release formulations of etodolac.<sup>1</sup> No data available about etodolac capsules.</p> <p>Consider alternative licensed non-steroidal anti-inflammatory drug: see <a href="#">Ibuprofen</a> / <a href="#">Meloxicam</a>.</p>
<p><i>Etoricoxib</i></p>	<p>Consider alternative licensed non-steroidal anti-inflammatory drug: see <a href="#">Ibuprofen</a> / <a href="#">Meloxicam</a>.</p>

Drug	Formulation Alternative / Administration Advice
<i>Ezetimibe</i>	<p>No licensed liquid formulation available</p> <p><b>Consider age of patient and if still clinically appropriate</b></p> <p>Prescribe <a href="#">Ezetimibe tablets</a> and label 'crush tablet, mix with water and take...'<sup>1</sup> (May take 5 minutes for the tablet to disperse in water)</p> <p>Please note: Not suitable for administration via enteral feeding tubes as excipients do not mix well with water.<sup>28</sup></p>
<b>F</b>	
<i>Famciclovir</i>	<p>Consider a switch to aciclovir as licensed <a href="#">Aciclovir dispersible tablets</a>.</p> <p>or</p> <p>Licensed <a href="#">Aciclovir suspension sugar free 200mg/5ml or 400mg/5ml</a></p>
<i>Felodipine</i>	<p>MR tablets should not be crushed:<sup>1</sup></p> <p>Consider alternative licensed calcium channel blocker: see <a href="#">Verapamil</a> or <a href="#">Amlodipine</a></p> <p>or</p> <p>Consider unlicensed alternatives see <a href="#">Diltiazem</a></p>
<i>Ferrous Fumarate</i>	<p>Prescribe licensed <a href="#">Ferrous Fumarate 140mg (45mg iron) /5ml oral solution</a></p> <p>or</p> <p>Prescribe licensed <a href="#">Ferrous Fumarate 140mg (45mg iron) /5ml syrup (Galfer®)</a></p> <p>N.B. Ferrous sulphate 200mg = ferrous fumarate 7ml (140mg/5ml) syrup</p>
<i>Ferrous Sulphate</i>	Convert to licensed ferrous fumarate preparation
<i>Fidaxomicin</i>	<p>Please refer to Specialist Pharmacy Service guidance:</p> <p><a href="#">Choosing between oral fidaxomicin options – SPS - Specialist Pharmacy Service – The first stop for professional medicines advice</a></p>

Drug	Formulation Alternative / Administration Advice
<i>Finasteride</i>	<p><b>DO NOT</b> crush</p> <p>Place the tablet in the barrel of an oral or enteral syringe. Draw 10 – 15ml water up into the syringe and allow the tablet to disperse (in order to minimise carer contact with the medication).</p> <p>If giving via enteral feeding tube, flush well after each dose as the drug is insoluble.</p> <p>NB. Women who are or who may become pregnant should not handle crushed, broken, or dissolved tablets. Protective gloves should be worn when handling. A closed system should be used, such as the barrel of a syringe<sup>28</sup>.</p>
<i>Flecainide</i>	<p>No licensed liquid formulation available</p> <p><a href="#">Flecainide tablets</a> can be crushed and dispersed in de-ionised water for administration e.g. water for injection, water for irrigation. Do not use tap water.<sup>28</sup></p> <p>or</p> <p>Unlicensed specials are listed in the Drug Tariff. Most cost-effective formulation of a special is <a href="#">Flecainide 25mg/5ml oral suspension</a>.</p>
<i>Fluconazole</i>	<p>Licensed liquid formulation is <a href="#">Fluconazole oral suspension 50mg/5ml or 200mg/5ml</a></p>
<i>Fludrocortisone</i>	<p>Licensed liquid formulation is: <a href="#">Fludrocortisone 100micrograms/ml oral solution sugar free</a> Aristo Pharma Ltd (expensive)</p> <p>NB. Licensed for administration via certain enteral feeding tubes – see SPC for details.</p> <p>or</p> <p>Prescribe <a href="#">Fludrocortisone tablets</a> and label ‘dissolve tablet in water and take...’</p> <p>Crushed tablets can also be mixed in a small amount of soft food such as yogurt, jam or mashed potato.<sup>23</sup></p>
<i>Fluoxetine</i>	<p>Prescribe licensed <a href="#">Fluoxetine 20mg/5ml oral solution</a> or licensed <a href="#">Olena® 20mg dispersible tablet</a> (Fluoxetine Hydrochloride).</p> <p>If a 10mg fluoxetine dose is required it is more cost effective to prescribe <a href="#">Olena® 20mg dispersible tablets</a>. These are scored and can be halved to give a 10mg dose. Fluoxetine 10mg capsules are very expensive.</p> <p><a href="#">See also: SSRI suggestions for adults with swallowing difficulties – SPS - Specialist Pharmacy Service – The first stop for professional medicines advice</a></p>

Drug	Formulation Alternative / Administration Advice
<i>Fluvoxamine</i>	<p>Consider alternative licensed selective serotonin re-uptake inhibitors: see <a href="#">Citalopram / Fluoxetine / Paroxetine</a></p> <p>See also: <a href="#">SSRI suggestions for adults with swallowing difficulties – SPS - Specialist Pharmacy Service – The first stop for professional medicines advice</a></p>
<i>Folic Acid</i>	<p>Licensed liquid formulations are <a href="#">Folic acid 2.5mg/5ml oral solution sugar free</a> and <a href="#">Folic acid 5mg/5ml oral solution sugar free</a></p>
<i>Fosinopril</i>	<p>Consider changing to licensed alternative:</p> <p><a href="#">Lisinopril 5mg/5ml oral solution sugar free</a></p> <p>or</p> <p><a href="#">Ramipril 2.5mg/5ml oral solution</a></p> <p>See also: <a href="#">ACEI suggestions for adults with swallowing difficulties – SPS - Specialist Pharmacy Service – The first stop for professional medicines advice</a></p>
<i>Furosemide</i>	<p>Licensed liquid formulation is <a href="#">Furosemide oral solution sugar free 20mg/5ml</a> or <a href="#">40mg/5ml</a> or <a href="#">50mg/5ml</a>. Frusol® brand (Rosemont) costs slightly less than the Drug Tariff price.</p>
<b>G</b>	
<i>Gabapentin</i>	<p>Licensed liquid formulation is <a href="#">Gabapentin 50mg/ml oral solution sugar free</a>.</p> <p>Some oral solutions are licensed for administration via NG or PEG tube.</p> <p><b>Warning:</b> excipients of the Rosemont formulation include propylene glycol, acesulfane and saccharin sodium and may exceed WHO limits when large doses of the liquid are required. <sup>1</sup> Also contains parahydroxybenzoates (may cause allergic reactions (possibly delayed), potassium - 3.8mg per 1ml dose (this should be taken into consideration for patients with reduced kidney function or patients on controlled potassium diets) and sodium - 0.72mg per 1ml dose.</p> <p>or</p> <p>Prescribe <a href="#">Gabapentin capsules</a> and label 'open capsule and dissolve the contents in water and take immediately...'<sup>1</sup> (N.B. caution advised on this unlicensed route in patients with epilepsy.)</p>

Drug	Formulation Alternative / Administration Advice
<i>Galantamine</i>	<p>Licensed liquid formulation is <a href="#">Galantamine 20mg/5ml oral solution sugar free</a> but this is very expensive. Prescribe as <a href="#">Galzemic®</a> brand (more cost-effective than generic).</p> <p>Consider changing to <a href="#">Donepezil orodispersible tablets sugar free</a></p> <p>or</p> <p><a href="#">Alzest® Rivastigmine patches</a></p>
<i>Glibenclamide</i>	<p>No licensed liquid formulation available</p> <p>Consider a switch to shorter acting <a href="#">Gliclazide (non-MR) tablets</a></p> <p>or</p> <p>Prescribe <a href="#">Glibenclamide tablets</a> and label 'disperse tablet in water and take immediately...'<sup>28</sup></p>
<i>Gliclazide</i>	<p>Prescribe <a href="#">Gliclazide tablets (non-MR)</a> and label as 'Crush tablet well and disperse in water or orange juice<sup>28</sup> and take immediately...'<sup>1</sup></p> <p>(Gliclazide is practically insoluble so must be crushed well<sup>28</sup>)</p> <div style="border: 1px solid black; padding: 5px; margin: 5px 0;"> <p>30mg modified release gliclazide equivalent to 80mg standard gliclazide tablet.</p> <p>Switching from modified release to standard gliclazide should be done with careful drug monitoring.<sup>28</sup></p> </div> <p>It may be advisable to monitor blood glucose in any patient when altering the formulation / crushing the tablets.</p> <p>Unlicensed specials listed in the Drug Tariff are <a href="#">Gliclazide 40mg/5ml oral suspension</a> and <a href="#">Gliclazide 80mg/5ml oral suspension</a>.</p>
<i>Glimepiride</i>	<p>Consider a switch to <a href="#">Gliclazide (non-MR) tablets</a></p> <p>Do not crush the tablets as this may affect their bioavailability</p>
<i>Glipizide</i>	<p>Consider a switch to <a href="#">Gliclazide (non-MR) tablets</a></p> <p>or</p> <p>Prescribe <a href="#">Glipizide tablets</a> and label 'crush tablet, mix with water and take...'</p>
<i>Glyceryl Trinitrate (topical)</i>	<p>For anal fissures:</p> <p>Prescribe licensed <a href="#">Glyceryl Trinitrate 0.4% rectal ointment (Rectogesic®)</a></p>



Drug	Formulation Alternative / Administration Advice
<p><i>Glycopyrronium</i></p>	<p>Licensed Glycopyrronium 1mg tablets and 2mg tablets are available but are very expensive.</p> <p><u>Licensed liquid formulations:</u></p> <p>Glycopyrronium bromide 400micrograms/ml oral solution sugar free (contains 320micrograms/ml of glycopyrronium)</p> <p>Glycopyrronium bromide 1mg/5ml oral solution sugar free</p> <p>Both are licensed for <b>symptomatic treatment of severe sialorrhoea (chronic pathological drooling)</b> in children and adolescents aged 3 years and older with chronic neurological disorders.</p> <p>Drug Tariff Part VIII B lists unlicensed liquid formulations with NHS prices that may be more cost effective, particularly when higher doses are required.</p> <p><u>Unlicensed liquid formulations listed in Drug Tariff:</u></p> <p>Glycopyrronium bromide oral suspension 200micrograms/5ml, 500micrograms/5ml, 2.5mg/5ml, 5mg/5ml</p> <p>Glycopyrronium bromide oral solution 200micrograms/5ml, 500micrograms/5ml, 2.5mg/5ml, 5mg/5ml</p> <p>Compare costs if prescribing. Liquid formulation prices vary depending on strength and quantity. Note the drug tariff payment is for a minimum quantity with additional costs above this minimum)</p> <p>Consider <a href="#">Hyoscine Hydrobromide</a> as an alternative.</p>
<p><i>Griseofulvin</i></p>	<p>For fungal infections trial licensed topical preparation first - see formulary for current recommendations. No licensed liquid oral formulation of griseofulvin available.</p>
<p><b>H</b></p>	
<p><i>Haloperidol</i></p>	<p>Prescribe licensed</p> <p><a href="#">Haloperidol 10mg/5ml oral solution sugar free</a></p> <p>or</p> <p><a href="#">Haloperidol 5mg/5ml oral solution sugar free</a></p>
<p><i>Hydralazine</i></p>	<p>No licensed liquid formulation available, please consider a change in treatment</p>

Drug	Formulation Alternative / Administration Advice
<i>Hydrocortisone</i>	<p>Licensed products include:</p> <p><b>Hydrocortisone dispersible tablets sugar free 5mg, 10mg and 20mg strengths</b></p> <p>Or</p> <p><b>Hydrocortisone 10mg soluble tablets sugar free</b></p> <p>Or</p> <p><b>Colonis® Hydrocortisone 10mg/5ml oral solution sugar free and Hydrocortisone 5mg/5ml oral solution sugar free (very expensive)</b></p>
<i>Hydroxycarbamide (Hydroxyurea)</i>	<p><b>Cytotoxic Drug:</b> should not be crushed/ dissolved in primary care.</p> <p>Licensed liquid formulation available <b>Xromi® Hydroxycarbamide 100mg in 1ml oral suspension.</b></p>
<i>Hyoscine Butylbromide</i>	<p><u>Low systemic absorption – predominantly has local effects on the gut.</u></p> <p>No licensed liquid formulation available.</p> <p>Do not crush the tablets<sup>28</sup>.</p> <p>Unlicensed special listed in Drug Tariff <b>Hyoscine Butylbromide 10mg/5ml oral suspension</b> (oral solution also available but is more expensive).</p> <p><u>Feeding tube:</u></p> <p>If an enteral feeding tube is in place the contents of the injection can be given via enteral tube. Do not give crushed tablet as this could block the tube. No information available on administering the special suspension via enteral feeding tubes<sup>28</sup>.</p>
<i>Hyoscine Hydrobromide</i>	<p><u>Readily absorbed from GI tract or the skin</u></p> <p>Prescribe <b>Hyoscine patch (Scopoderm® TTS)</b> or <b>Kwells Kids 150 microgram chewable tablets</b></p>
<i>Hypromellose Eye Drops (Preservative-free)</i>	<p>Several licensed formulations now available in single use packs or in 10ml bottles. Formulary recommendation is <b>Evolve Hypromellose 0.3% preservative-free 1 x10ml</b>. No advantage prescribing strengths other than licensed 0.3%w/v<sup>10</sup></p>
/	

Drug	Formulation Alternative / Administration Advice
<i>Ibandronate</i>	<p>No licensed liquid formulation available</p> <p>If liquid formulation required consider either:</p> <p>Licensed <a href="#">Alendronic acid oral solution sugar free 70mg/100ml</a></p> <p>or</p> <p><a href="#">Alendronic acid 70mg effervescent tablet (Binosto®)</a> dissolved in at least 120ml water</p> <p>or</p> <p>Consider <a href="#">Denosumab (Prolia®) 60mg/1ml solution for injection pre-filled syringe</a></p>
<i>Ibuprofen</i>	<p>Licensed liquid formulations are:</p> <p><a href="#">Ibuprofen 100mg/5ml oral suspension sugar free</a></p> <p>or</p> <p><a href="#">Ibuprofen 100mg/5ml oral suspension</a></p> <p>or</p> <p><a href="#">Ibuprofen 600mg/sachet effervescent granules</a> – however contains 6.5mmol sodium per sachets.</p>
<i>Imipramine HCL</i>	<p>Prescribe licensed <a href="#">Imipramine 25mg/5ml oral solution sugar free</a></p>
<i>Indapamide</i>	<p>No licensed liquid formulation available</p> <p>Conventional release <a href="#">Indapamide tablets</a> (not M/R) can be dispersed in water immediately prior to administration <sup>1,28</sup></p>
<i>Indometacin</i>	<p>No licensed liquid formulation available</p> <p>Prescribe licensed <a href="#">Indometacin 100mg Suppositories</a></p> <p>or</p> <p>Consider alternative licensed non-steroidal anti-inflammatory drug - see <a href="#">Ibuprofen / Meloxicam</a>.</p> <p>or</p> <p>Unlicensed special listed in the Drug Tariff <a href="#">Indometacin 25mg/5ml oral suspension</a></p>

Drug	Formulation Alternative / Administration Advice
<i>Indoramin</i>	Indoramin tablets can be dispersed in water before taking. <sup>28</sup>
<i>Irbesartan</i>	<p>No licensed liquid formulation available.</p> <p>Consider licensed <a href="#">Lisinopril 5mg/5ml oral solution sugar free</a></p> <p>or</p> <p>Licensed <a href="#">Ramipril 2.5mg/5ml oral solution sugar free</a></p> <p>or</p> <p><a href="#">Irbesartan tablets can be crushed and/or dispersed in water or crushed and given with food ('off-label' use). Irbesartan tablets are film-coated and may taste bitter once crushed.</a></p> <p><a href="#">See: ARB suggestions for adults with swallowing difficulties – SPS - Specialist Pharmacy Service – The first stop for professional medicines advice</a></p>
<i>Iron preparations</i>	<p>Convert to licensed ferrous fumarate preparations:</p> <p>Prescribe licensed <a href="#">Ferrous Fumarate 140mg (45mg iron) /5ml oral solution</a></p> <p>or</p> <p>Prescribe licensed <a href="#">Ferrous Fumarate 140mg (45mg iron) /5ml syrup (Galfer®)</a></p> <p>N.B. Ferrous sulphate 200mg = ferrous fumarate 7ml (140mg/5ml) syrup</p>
<i>Isoniazid</i>	<p>No licensed liquid formulation available.</p> <p><a href="#">Isoniazid 50mg and 100mg tablets</a> can be crushed and dispersed in water.<sup>1,28</sup></p> <p>Unlicensed liquid formulation listed in the Drug Tariff is <a href="#">Isoniazid 50mg/5ml oral solution</a></p>
<i>Isosorbide Dinitrate</i>	<p>No licensed liquid formulation available.</p> <p>Consider using licensed <a href="#">Glyceryl trinitrate patches</a>.<sup>1</sup></p>

Drug	Formulation Alternative / Administration Advice
<i>Isosorbide Mononitrate</i>	<p>No licensed liquid formulation available.</p> <p>Do not crush modified release formulations.<sup>1</sup></p> <p>Consider using licensed <a href="#">Glyceryl trinitrate patches</a>.<sup>1</sup></p> <p>Last resort - use an unlicensed special listed in the Drug Tariff. Prescribe <a href="#">Isosorbide mononitrate 20mg/5ml oral suspension</a></p>
<b>L</b>	
<i>Labetalol</i>	<p>No licensed liquid formulation available.</p> <p>Consider alternative licensed beta-blocker preparation: see <a href="#">Atenolol</a> / <a href="#">Propranolol</a></p> <p>or</p> <p>Injection may be taken orally or enterally if necessary – it has a bitter taste which may be masked using fruit juice<sup>1</sup>:</p>
<i>Lacidipine</i>	Consider alternative licensed calcium channel blocker: see <a href="#">Amlodipine</a> .
<i>Lamotrigine</i>	Prescribe licensed <a href="#">Lamotrigine dispersible tablets</a> .

Drug	Formulation Alternative / Administration Advice
<p><i>Lansoprazole</i></p>	<p>Prescribe licensed <a href="#">Lansoprazole orodispersible tablets</a></p> <p>or</p> <p>Consider alternative licensed <a href="#">Omeprazole dispersible tablets (Mezzopram®)</a></p> <p>or</p> <p>Licensed <a href="#">Nexium® Esomeprazole 10mg gastro-resistant granules sachets</a>.</p> <p>For a 10 mg dose empty the contents of a 10 mg sachet into a glass containing 15 ml water. For a 20 mg dose empty the contents of two 10 mg sachets into a glass containing 30 ml water. Do not use carbonated water. Stir the contents until the granulate has been dispersed and leave for a few minutes to thicken. Stir again and drink within 30 minutes. The granules must not be chewed or crushed. Rinse with 15 ml water to obtain all granules.</p> <p>Licensed for NG tube or gastric tube administration – see SPC for details.</p> <p>NB Not licensed for use in children &lt;1 year old</p> <p>or</p> <p>Licensed <a href="#">Emozul® capsules</a> (available as 20mg and 40mg esomeprazole capsules.) The capsules should not be chewed or crushed. However, the capsules can be opened and the pellets mixed with half a glass of non-carbonated water and the liquid swallowed within 30 minutes. Alternatively, the contents of the capsules can be mixed with water and administered via an appropriate tube.<sup>15,16</sup></p> <p><a href="#">See also: PPI suggestions for adults with swallowing difficulties – SPS - Specialist Pharmacy Service – The first stop for professional medicines advice</a></p>
<p><i>Levetiracetam</i></p>	<p>Prescribe licensed <a href="#">Levetiracetam 100mg/ml oral solution sugar free</a></p> <p>Or</p> <p><a href="#">Desitrend® (levetiracetam) granules sachets</a> – available as 250mg, 500mg or 1000mg sachets</p> <p><u>Enteral feeding tube:</u></p> <p><a href="#">Desitrend®</a> is licensed to be given via feeding tube (see SPC for further details)</p>
<p><i>Levodopa</i></p>	<p>See under <a href="#">Co-beneldopa</a> or <a href="#">Entacapone/levodopa/carbidopa (Stalevo®)</a> or <a href="#">Co-careldopa</a></p>

Drug	Formulation Alternative / Administration Advice
<p><i>Levomepromazine</i></p>	<p>For palliative care doses: use the <a href="#">Nozinan® levomepromazine 25mg tablets</a> - they are quarter scored and can be split to give a 6.25mg dose</p> <p>Tablets can be dispersed in water for administration if necessary. They disperse immediately<sup>28</sup>.</p> <p>Or</p> <p>Use unlicensed special listed in Drug Tariff <a href="#">Levomepromazine 2.5mg/5ml oral suspension</a> (The 6mg/5ml oral suspension is very expensive).</p> <p>Or</p> <p><a href="#">Licensed Levorol® levomepromazine hydrochloride 25mg/5ml oral solution sugar free</a> (very expensive)</p> <p>Or</p> <p>Injection may be taken orally if necessary: Prescribe <a href="#">Levomepromazine HCL 25mg/ml injection</a> (1ml ampoule) and label according to dose calculated. <sup>1</sup></p>
<p><i>Levothyroxine</i></p>	<p>Licensed liquid formulation is <a href="#">Levothyroxine sodium oral solution sugar free</a> available in strengths <a href="#">25microgram/5ml</a>, <a href="#">50microgram/5ml</a>, <a href="#">100microgram/5ml</a> and <a href="#">125microgram/5ml</a>. (Please be aware that these are high cost).</p> <p>or</p> <p>Prescribe <a href="#">Levothyroxine tablets</a> and label 'crush tablet, mix with water and take...'<sup>1</sup></p> <p>Care should be taken to avoid third party contact. Avoid inhalation of crushed tablets.<sup>1</sup></p> <p><b>Take care when switching from tablet to liquid formulations. See separate document for more details.</b><sup>27</sup></p>
<p><i>Lidocaine</i></p>	<p>For surface anaesthesia.</p> <p>Formulary choices are:</p> <p><a href="#">Ametop® gel (tetracaine 4%)</a></p> <p>or</p> <p><a href="#">Lidocaine 5% ointment</a></p> <p>or</p> <p><a href="#">EMLA® cream</a> (lidocaine 2.5% / prilocaine 2.5%)</p>

Drug	Formulation Alternative / Administration Advice
<i>Lidocaine Patches</i>	<p>For pain relief</p> <p><a href="#">Ralvo® 700mg Lidocaine medicated plasters</a> is the CCG preferred brand.</p> <p>Limited to use in post herpetic neuralgia only.</p>
<i>Lisinopril</i>	<p>Licensed liquid formulation is <a href="#">Lisinopril 5mg/5ml oral solution sugar free</a>.</p> <p>Unlicensed special listed in the Drug Tariff is <a href="#">Lisinopril 20mg in 5ml oral solution</a> (suspension also available but costs more than solution).</p> <p><a href="#">See also: ACEI suggestions for adults with swallowing difficulties – SPS - Specialist Pharmacy Service – The first stop for professional medicines advice</a></p>
<i>Lisdexamfetamine</i>	<p>If liquid preparation required please discuss the option of using <a href="#">lisdexamfetamine dimesylate (Elvanse®)</a> with secondary care (AMBER in Traffic Light Scheme)</p> <p><a href="#">Elvanse®</a> capsules may be swallowed whole, or the capsule opened and the entire contents emptied and mixed with a soft food such as yogurt or in a glass of water or orange juice. If the contents include any compacted powder, a spoon may be used to break apart the powder in the soft food or liquid. The contents should be stirred until completely dispersed. The patient should consume the entire mixture of soft food or liquid immediately; it should not be stored. The active ingredient dissolves completely once dispersed; however, a film containing the inactive ingredients may remain in the glass or container once the mixture is consumed. The patient should not take anything less than one capsule per day and a single capsule should not be divided.<sup>6</sup></p> <p><a href="#">Elvanse®</a> is indicated as part of a comprehensive treatment programme for attention deficit/hyperactivity disorder (ADHD) in children aged 6 years of age and over, when response to previous methylphenidate treatment is considered clinically inadequate.<sup>6</sup></p>



Drug	Formulation Alternative / Administration Advice
<p><i>Lithium</i></p>	<p><b>Do not crush or dissolve tablets</b></p> <p>Licensed liquid formulations are:</p> <p>Li-Liquid® Lithium Citrate 509mg/5ml oral solution 509mg/5mL (Li<sup>+</sup> 5.4mmol/5mL)</p> <p>Li-Liquid® Lithium Citrate 1.018g/5mL oral solution (Li<sup>+</sup> 10.8mmol/5mL)</p> <p>or</p> <p>Priadel® Lithium Citrate 520mg/5mL liquid (Li<sup>+</sup> 5.4mmol/5mL)</p> <p>N.B. Preparations vary widely in bioavailability, changing the preparation requires the same precautions as initiation of treatment. Lithium citrate tetrahydrate 509mg is equivalent to lithium carbonate 200mg. <b>See separate document for more details.</b><sup>27</sup></p> <p><b>N.B. Prescribe by brand name.</b></p> <p><u>Feeding tubes:</u> Lithium absorption is decreased in the presence of enteral feeds. Feeds should be withheld for one hour before and two hours after each dose.<sup>28</sup></p>
<p><i>Lofepamine</i></p>	<p>Licensed liquid formulation is <a href="#">Lofepamine 70mg/5ml oral suspension sugar free</a></p>
<p><i>Loperamide</i></p>	<p><b>No licensed liquid formulation available (Imodium® 1mg/5ml oral solution now discontinued)</b></p> <p><b>Unlicensed Drug Tariff Specials are: <a href="#">Loperamide 25mg/5ml oral solution</a> or <a href="#">Loperamide 25mg/5ml oral suspension</a></b></p> <p><b>(Imodium Instant Melts® are orodispersible tablets but cost much more per dose than the liquid.)</b></p>
<p><i>Loprazolam</i></p>	<p>No licensed liquid formulation available</p> <p>For short term use only / if still appropriate: Loprazolam tablets will disperse in water. <sup>28</sup></p> <p>Consider alternative licensed hypnotic see: <a href="#">Temazepam</a> or consider licensed zolpidem tablets which can be crushed and dispersed in water (unlicensed administration). <sup>1</sup></p>

Drug	Formulation Alternative / Administration Advice
<i>Lorazepam</i>	<p>For short term use only / if still appropriate:</p> <p>Consider alternative licensed anxiolytic - see <a href="#">Diazepam</a></p> <p>or</p> <p>Prescribe <a href="#">Lorazepam tablets</a> and label 'crush tablet, mix with water and take...'</p> <p>Lorazepam tablets can also be used sublingually.<sup>1,28</sup></p>
<i>Lormetazepam</i>	<p>For short term use only / if still appropriate:</p> <p>Consider alternative licensed hypnotic see: <a href="#">Temazepam</a> or consider licensed zolpidem tablets which can be crushed and dispersed in water (unlicensed administration).<sup>1</sup></p>
<i>Losartan</i>	<p>(Cozaar® licensed liquid formulation is discontinued)</p> <p>Consider either:</p> <p><a href="#">Losartan tablets can be crushed and mixed with water or given with soft food ('off-label' use). Tablets are film-coated and may taste bitter once crushed.</a></p> <p><a href="#">See: ARB suggestions for adults with swallowing difficulties – SPS - Specialist Pharmacy Service – The first stop for professional medicines advice</a></p> <p>or</p> <p>Unlicensed specials listed in Drug Tariff: <a href="#">Losartan 50mg/5ml oral suspension</a> and <a href="#">Losartan 50mg/5ml oral solution</a></p>
<b>M</b>	

Drug	Formulation Alternative / Administration Advice
<p><i>Magnesium supplements</i></p>	<p>Many magnesium formulations are only available as expensive unlicensed specials.</p> <p>Licensed options for patients unable to swallow tablets or capsules include: <a href="#">Mucogel® Suspension</a> – at a dose of 10-20ml tds &amp; at bedtime. This will provide equivalent magnesium intake required for hypomagnesaemia as an alternative to magnesium glycerophosphate.</p> <p>or</p> <p><a href="#">Magnaspartate® 243mg (10mmol magnesium) oral powder sachets</a> <b>Licensed for the treatment and prevention of magnesium deficiency in adults and children aged 2 years and above. Most cost-effective formulation but specify brand name.</b></p> <p>or</p> <p>Licensed magnesium glycerophosphate preps available are:</p> <p><a href="#">Neomag® 97mg (4mmol) chewable sugar-free tablets</a>  <a href="#">MagnaPhos® 97.2mg (4mmol) chewable sugar-free tablets</a>  <a href="#">MagnaPhos® 97.2mg (4mmol) capsules or 48.6mg (2mmol) capsules</a>  <a href="#">MagnaPhos® 121.25mg/5ml (5mmol in 5ml) oral solution</a></p> <p>The <a href="#">MagnaPhate® chewable tablet</a> (previous recommendation) has a comparable NHS price but is licensed as a food supplement not a medicine.</p>
<p><i>Mebeverine</i></p>	<p>Licensed liquid formulation is <a href="#">Mebeverine 50mg/5ml oral suspension sugar free (very expensive)</a></p> <p><a href="#">Colofac® tablets</a> can be crushed and mixed with water before taking although unpleasant taste.<sup>1</sup> Do not crush the MR formulations.</p> <p>If a bulk-forming laxative is also needed, consider <a href="#">Fybogel Mebeverine® effervescent granules sachet</a>. One sachet contains 3.5mg ispaghula husk and 135mg mebeverine. (These are not suitable for administration via an enteral feeding tube.)</p> <p>Please note that licensed doses differ between formulations. Please consult the product literature.</p>
<p><i>Medroxyprogesterone</i></p>	<p>No licensed liquid formulation.</p> <p>Licensed <a href="#">Medroxyprogesterone tablets</a> can be crushed (preferably in water to reduce dust production) and mixed with water for administration. Without crushing they disperse in one to five minutes. Use immediately.<sup>28</sup> (Unlicensed administration).</p>

Drug	Formulation Alternative / Administration Advice
<i>Mefenamic Acid</i>	<p>Licensed liquid formulation is <a href="#">Mefenamic acid 50mg/5ml oral suspension</a> (very expensive). The strength of the suspension is such that most adult doses would require large volumes. It is recommended that patients are switched to an alternative drug.</p> <p>Consider alternative licensed non-steroidal anti-inflammatory drug - see <a href="#">Ibuprofen / Meloxicam</a>.</p>
<i>Megestrol acetate</i>	<p>Licensed <a href="#">Megestrol acetate tablets</a> can be dispersed in water for administration<sup>28</sup></p> <p>N.B. Can take five minutes for tablet to completely disperse.</p> <p>Please note – may block enteral feeding tubes</p>
<i>Melatonin</i>	<p>Only licensed formulation is <a href="#">Circadin® 2mg modified release tablet</a>. Licensed for the <b>short term treatment of insomnia in adults over 55</b>. Circadin® tablets must be swallowed whole.</p> <p><b>Use of melatonin for other indications - please refer to the Traffic Light document</b></p>
<i>Meloxicam</i>	<p>No licensed liquid formulation available.</p> <p>Consider licensed <a href="#">Meloxicam orodispersible tablets sugar free</a></p> <p>or</p> <p>Consider alternative licensed non-steroidal anti-inflammatory drug</p> <p>NB Meloxicam suppositories are discontinued.</p>
<i>Memantine</i>	<p>Licensed formulations are:</p> <p><a href="#">Valios® 5mg, 10mg, 15mg or 20mg orodispersible tablets</a> (Alzhok® brand now discontinued)</p> <p>or</p> <p><a href="#">Memantine 10mg/ml oral solution sugar free</a> (Please check prices as price difference will vary between orodispersible tablets and liquid.)</p>
<i>Menthol in Aqueous Cream</i>	<p>Licensed formulations are <a href="#">Arjun® cream (0.5%, 1% and 2%)</a> <a href="#">Dermacool® (0.5%, 1%, 2% and 5%)</a> and <a href="#">AquaSoothe® (1% and 2%)</a></p> <p>Prescribe by brand to avoid unlicensed products being supplied.</p>

Drug	Formulation Alternative / Administration Advice
<p><i>Mercaptopurine 10mg</i></p> <p><i>(50mg tablets are licensed)</i></p>	<p><b>Cytotoxic Drug:</b> tablets should not be crushed/ dissolved in primary care</p> <p>Licensed liquid formulation available as <a href="#">Mercaptopurine 20mg/ml suspension (Xaluprine®)</a></p> <p>Comes with two syringes. The 1ml graduated syringe allows dose increments of 0.1ml to be measured. The 5ml syringe allows 0.2ml dose increments.</p> <p><b>Take care when switching from tablet to liquid formulations. See separate document for more details.<sup>27</sup></b></p> <p>See Traffic Light document - only prescribe for AMBER indications.</p> <p>Mercaptopurine is a <b>RED drug</b> when used for treatment of cancer.</p>
<p><i>Mesalazine</i></p>	<p>The delivery characteristics of oral mesalazine preparations may vary. For patients who are not able to swallow tablets or capsules, consider:</p> <p><a href="#">Salofalk® gastro-resistant prolonged-release granules (500g, 1g, 1.5g or 3g)</a></p> <p>The contents of the sachets of Salofalk® granules should not be chewed. The granules should be taken on the tongue and swallowed, without chewing, with plenty of liquid.</p> <p>or</p> <p><a href="#">Pentasa® Sachet prolonged release granules (1g, 2g, or 4g)</a></p> <p>Granules should be placed on tongue and washed down with water or orange juice without chewing. Granules are modified release and will contain small particles so may not be suitable for enteral feeding tubes.<sup>1</sup></p>
<p><i>Metformin</i></p>	<p>Licensed liquid formulations are:</p> <p><a href="#">Metformin 500mg oral powder sachets sugar free (Morningside Healthcare Ltd)</a> – most cost-effective option</p> <p>or</p> <p><a href="#">Metformin oral solution sugar free 500mg/5ml, 850mg/5ml and 1g/5ml</a></p>
<p><i>Methadone</i></p>	<p>Licensed formulations of 1mg/1ml solution include generic preparations and branded <a href="#">Physeptone®</a>. The green colour in methadone mixture is often E142 a dye found in desserts, gravy granules, ice cream, mint sauce, sweets, packet breadcrumbs, cake mixes and tinned peas.</p> <p>If for any reason patients cannot have E142, the Rosemont brand of methadone mixture (<a href="#">Metharose®</a>) is a sugar-free 1mg/ml strength which is brown – this colour is from caramel only.</p>

Drug	Formulation Alternative / Administration Advice
<i>Methotrexate</i>	<p><b>Cytotoxic Drug:</b> tablets should not be crushed/ dissolved in primary care.</p> <p>Licensed liquid formulation is <a href="#">Methotrexate 2mg/ml oral solution sugar free</a></p>
<i>Methenamine</i>	<p><a href="#">Methenamine hippurate (Hiprex®) tablets</a> can be halved or crushed and taken with a drink of milk or fruit juice.<sup>22</sup></p>
<i>Methylprednisolone</i>	<p><a href="#">Methylprednisolone tablets</a> can be dispersed in water for administration. They disperse within one minute.<sup>28</sup></p> <p>or</p> <p>Consider licensed <a href="#">Dexamethasone sugar-free oral solution 2mg/5ml (Dexsol®)</a></p>
<i>Methylphenidate</i>	<p>Immediate release formulations <a href="#">Medikinet®</a> and <a href="#">Ritalin®</a> tablets can be crushed and mixed with a small amount of soft food such as yogurt, honey or jam and then swallowed straight away, without chewing<sup>23</sup>.</p> <p><b>Methylphenidate XL (modified-release) tablets should not be crushed.</b></p> <p><b>Methylphenidate XL (modified-release) capsules:</b></p> <p><a href="#">Equasym XL®</a> capsules may be opened, and the capsule contents sprinkled onto a small amount (tablespoon) of apple sauce and given immediately, and not stored for future use. Drinking some fluids, e.g. water, should follow the intake of the sprinkles with apple sauce. The capsules and the capsule contents must not be crushed or chewed.<sup>29</sup></p> <p><a href="#">Ritalin XL®</a> capsules may be carefully opened and the beads sprinkled over soft food (e.g. apple sauce, jam, spread, yoghurt). The food should not be warm because this could affect the prolonged-release properties of this formulation. The mixture of drug and food should be consumed immediately in its entirety. The drug and food mixture should not be stored for future use.<sup>40</sup></p> <p>If liquid preparation required please discuss the option of using licensed <a href="#">lisdexamfetamine dimesylate (Elvanse®)</a> with secondary care (AMBER in Traffic Light Scheme)</p>
<i>Metoclopramide</i>	<p>Licensed liquid formulation is <a href="#">Metoclopramide 5mg/5ml oral solution sugar free</a></p>

Drug	Formulation Alternative / Administration Advice
<p><i>Metolazone</i></p>	<p>Licensed Metolazone 5mg tablets are now available as <a href="#">Xaqua®</a>.</p> <p><b>Important note:</b> Xaqua® tablets bioavailability may be different from other metolazone preparations (see SPC for further details)<sup>47</sup> See <a href="#">MHRA alert</a></p> <p>Metolazone tablets are formulary for consultant recommendation (AMBER drug in the Traffic Lights Guidance for treatment of heart failure on a named patient basis after initiation by a consultant cardiologist when indapamide and bendroflumethiazide have failed or are contra-indicated).</p> <p><a href="#">Metolazone tablets</a> can be crushed and dispersed in water for patients unable to swallow tablets<sup>28</sup>.</p> <p>No licensed liquid formulation available.</p>
<p><i>Metoprolol</i></p>	<p>Consider alternative licensed beta-blocker preparation: see <a href="#">Atenolol / Propranolol</a>.</p> <p>Unlicensed specials listed in the Drug Tariff are <a href="#">Metoprolol 12.5mg/5ml oral suspension</a>, <a href="#">12.5mg/5ml oral solution</a> (more expensive) and <a href="#">50mg/5ml oral solution</a>.</p>
<p><i>Midazolam (oral)</i></p>	<p>Licensed products:</p> <p><a href="#">Buccolam® oromucosal solution 10mg/2ml prefilled oral syringes</a> – various dose sizes available</p> <p><a href="#">Epistatus® oromucosal solution 10mg/1ml prefilled oral syringes</a> (note – these are a different strength to Buccolam®)</p> <p>Prescribe by brand for patient/carer continuity so the product is the same each time.</p>
<p><i>Minocycline</i></p>	<p>Consider alternative licensed tetracycline preparation: see <a href="#">Doxycycline</a>.</p>
<p><i>Mirtazepine</i></p>	<p>Prescribe licensed:</p> <p><a href="#">Mirtazepine orodispersible tablets</a> - available as 15mg, 30mg and 45mg</p> <p>or</p> <p>Licensed liquid formulation is <a href="#">Mirtazapine 15mg/ml oral solution sugar free</a> (more expensive than orodispersible tablets)</p>
<p><i>Misoprostol</i></p>	<p>Consider an alternative licensed therapy: see <a href="#">Lansoprazole / Omeprazole</a></p>

Drug	Formulation Alternative / Administration Advice
<p><i>Montelukast</i></p>	<p>Prescribe <a href="#">Montelukast chewable tablets sugar free</a></p> <p>These may be chewed or dispersed in water. <sup>2,28</sup></p> <p><a href="#">Montelukast granules</a> may be swallowed or mixed with cold, soft food (not liquid) and taken immediately. <sup>3</sup></p>
<p><i>Morphine Sulphate</i></p> <p><i>(Controlled Drug)</i></p>	<p>Prescribe licensed <a href="#">Morphine sulphate 10mg/5ml oral solution (Oramorph®)</a></p> <p>Or</p> <p><a href="#">Actimorph®</a> orodispersible tablets (1mg, 2.5mg, 5mg, 10mg, 20mg &amp; 30mg)</p> <p>(A higher strength <a href="#">20mg/ml concentrated oral solution</a> is also available but please <b>take care due to risk of accidental overdose</b> with this higher strength formulation.)</p> <p><b>Modified release formulations:</b> For patients who are unable to swallow capsules or tablets consider:</p> <p><a href="#">Zomorph® capsules</a> - The contents of the capsule can be administered directly in semi-solid food (puree, jam, yoghurt) or via gastric or gastrostomy tubes of a diameter of more than 16 F.G. with an open distal end or lateral pores. It is sufficient to rinse the tube with 30ml to 50ml of water<sup>41</sup>. <b>Do not crush contents.</b></p> <p>It is important to ensure that no part of the dose remains in the feeding tube, where the administration of the next drug or feed might cause an unexpected dose of morphine to be administered to the patient<sup>28</sup>.</p> <p>(All strengths of MST Continus® prolonged release granules for oral suspension now discontinued.)</p> <p>See BNF chapter 'Prescribing in Palliative Care' for advice on transfer from MR to oral solution of morphine.</p>
<p><i>Moxonidine</i></p>	<p><a href="#">Moxonidine tablets</a> can be crushed finely and dispersed in water for administration.</p> <p>Without crushing they disperse in around five minutes. The manufacturer recommends crushing one tablet and mixing it in 50ml of water, then allowing it to dissolve for 2 minutes before administering.<sup>28</sup></p>
<p><b>N</b></p>	



Drug	Formulation Alternative / Administration Advice
<i>Naftidrofuryl</i>	<p>If administering <u>via enteral tube</u>, prescribe <a href="#">Naftidrofuryl capsules</a> and label 'open capsule and disperse contents in water and give via enteral tube. Flush tube well before and after to ensure adequate hydration.'<sup>1</sup></p> <p>N.B. The powder is irritant and anaesthetic to the mouth and throat. There is a risk of oesophageal stricture if the capsules are opened for oral use in patients with swallowing difficulties. Review the need for this medication<sup>28</sup>.</p>
<i>Naproxen</i>	<p>Consider licensed <a href="#">Naproxen 250mg/5ml oral suspension</a></p> <p>or</p> <p><a href="#">Naproxen 250mg effervescent tablets (Stirlescent®)</a> (note the tablets contain 341.89mg sodium per tablet)</p> <p>As these are both high cost NSAID formulations consider an alternative licensed non-steroidal anti-inflammatory drug: see <a href="#">Ibuprofen</a> / <a href="#">Meloxicam</a>.</p>
<i>Nicardipine</i>	<p><a href="#">Nicardipine capsules</a> can be opened and the contents dispersed in orange juice before taking<sup>28</sup>.</p>
<i>Nicorandil</i>	<p>Prescribe <a href="#">Nicorandil tablets</a> and label 'crush tablet, mix with water to form a suspension and take immediately...' Tablets may take 5 minutes to disperse.<sup>1</sup></p>
<i>Nifedipine</i>	<p>Consider alternative licensed calcium channel blocker: see <a href="#">Verapamil</a></p> <p>or</p> <p>Consider unlicensed alternatives see: <a href="#">Amlodipine</a> / <a href="#">Diltiazem</a> / <a href="#">Nimodipine</a></p> <p>or</p> <p>Modified-release capsules (e.g. <a href="#">Coracten XL®</a>) can be opened and the contents flushed down enteral feeding tubes for administration.<sup>28</sup> The capsule contents should not be crushed as this will destroy their modified-release properties.</p> <p>There is no information available about oral administration of the opened capsules.</p> <p>Unlicensed special formulations listed in the Drug Tariff are <a href="#">Nifedipine oral suspension 10mg/5ml</a> and <a href="#">5mg/5ml</a></p>
<i>Nimodipine</i>	<p>Prescribe <a href="#">Nimodipine tablets</a> and label 'crush tablet, mix with water and take immediately...'<sup>1</sup></p> <p>N.B. Solution is light sensitive hence immediate administration.</p>

Drug	Formulation Alternative / Administration Advice
<i>Nitrazepam</i>	<p>For short term use only / if still appropriate:</p> <p>Licensed <a href="#">Nitrazepam 2.5mg/5ml oral suspension</a> is available but is very expensive. Consider alternative licensed hypnotic see: <a href="#">Temazepam</a> or consider licensed zolpidem tablets which can be crushed and dispersed in water (unlicensed administration).<sup>1</sup></p>
<a href="#">Nirmatrelvir &amp; ritonavir (Paxlovid®)</a>	<p><a href="#">Paxlovid▼® (nirmatrelvir and ritonavir) tablets</a> can be crushed or split and mixed with food or liquid, including dairy containing products immediately before administration.</p> <p><a href="#">Crushed tablets mixed with water</a> can also be considered for administration via feeding tubes (tube should be flushed with water after administration).<sup>48</sup></p>
<i>Nitrofurantoin</i>	<p>Licensed liquid formulation is <a href="#">Nitrofurantoin 25mg/5ml oral suspension sugar free (very expensive)</a>.</p> <p>Consider <a href="#">Methenamine hippurate (Hiprex®)</a> tablets for prophylaxis and long-term treatment of chronic or recurrent lower urinary-tract infections in adults. Tablets can be halved or crushed and taken with a drink of milk or fruit juice.<sup>22</sup></p>
<i>Nizatidine</i>	Consider alternative licensed H <sub>2</sub> -receptor antagonist: see <a href="#">Ranitidine</a> / <a href="#">Cimetidine</a>
<i>Nortriptyline</i>	<p>Consider alternative licensed tricyclic antidepressant: see <a href="#">Amitriptyline</a> / <a href="#">Lofepamine</a></p> <p>For depressive illness: Prescribe licensed <a href="#">Nortriptyline 25mg/5ml oral solution sugar free</a> (Colonis Pharma Ltd) – this is very high cost. (Licensed <a href="#">10mg/5ml oral solution sugar free</a> also available but it is more cost effective to prescribe the higher strength).</p>
<b>O</b>	
<i>Olanzapine</i>	Prescribe licensed <a href="#">Olanzapine orodispersible tablet sugar free</a>
<i>Olive Oil Eardrops</i>	<p>Suitable for self-care – available OTC</p> <p>If prescribing, prescribe as <a href="#">Otdrop® olive oil eardrops 10ml</a></p>

Drug	Formulation Alternative / Administration Advice
<p><i>Olmesartan</i></p>	<p>Consider changing to licensed</p> <p><a href="#">Lisinopril 5mg/5ml oral solution sugar free</a></p> <p>or</p> <p><a href="#">Ramipril 2.5mg/5ml oral solution sugar free</a></p> <p><a href="#">See also: ACEI and ARB suggestions for adults with swallowing difficulties – SPS - Specialist Pharmacy Service – The first stop for professional medicines advice</a></p>
<p><i>Omeprazole (Adult)</i></p>	<p>Prescribe licensed <a href="#">Omeprazole dispersible tablets</a></p> <p><a href="#">Mezzopram®</a> is the cost effective brand. The tablet can be dispersed in a spoonful of non-carbonated water or mixed with some fruit juices or apple sauce. The dispersion should be taken immediately (or within 15 minutes) and always be stirred just before drinking and rinsed down with half a glass of water. <b>DO NOT USE</b> milk or carbonated water. The enteric-coated pellets must not be chewed. The tablets can be dispersed in non-carbonated water and administered through a gastric tube. It is important that the appropriateness of the selected syringe and tube is carefully tested<sup>21</sup>. See SPC for further details.</p> <p>or</p> <p>Consider alternative licensed <a href="#">Lansoprazole orodispersible tablet</a></p> <p>or</p> <p>Licensed <a href="#">Nexium® Esomeprazole 10mg gastro-resistant granules sachets</a>.</p> <p><a href="#">For a 10 mg dose empty the contents of a 10 mg sachet into a glass containing 15 ml water. For a 20 mg dose empty the contents of two 10 mg sachets into a glass containing 30 ml water. Do not use carbonated water. Stir the contents until the granulate has been dispersed and leave for a few minutes to thicken. Stir again and drink within 30 minutes. The granules must not be chewed or crushed. Rinse with 15 ml water to obtain all granules.</a></p> <p><a href="#">Licensed for NG tube or gastric tube administration – see SPC for details.</a></p> <p>or</p> <p>Licensed <a href="#">Emozul®</a> capsules (available as 20mg and 40mg esomeprazole capsules). The capsules should not be chewed or crushed. However, they can be opened and the pellets mixed with half a glass of non-carbonated water and the liquid swallowed within 30 minutes. Alternatively, the contents of the capsules can be mixed with water and administered via an appropriate tube.<sup>15,16</sup></p> <p><a href="#">See also: PPI suggestions for adults with swallowing difficulties – SPS - Specialist Pharmacy Service – The first stop for professional medicines advice</a></p>

Drug	Formulation Alternative / Administration Advice
<p><i>Omeprazole (Paediatric)</i></p>	<p>Prescribe licensed <a href="#">Omeprazole dispersible tablets</a></p> <p><a href="#">Mezzopram®</a> is the cost effective brand and is licensed for children over 1 year of age and ≥ 10 kg. The tablet can be dispersed in a spoonful of non-carbonated water or mixed with some fruit juices or apple sauce. The dispersion should be taken immediately (or within 15 minutes) and always be stirred just before drinking and rinsed down with half a glass of water. <b>DO NOT USE</b> milk or carbonated water. The enteric-coated pellets must not be chewed. The tablets can be dispersed in non-carbonated water and administered through a gastric tube. It is important that the appropriateness of the selected syringe and tube is carefully tested<sup>21</sup>. See SPC for further details.</p> <p>or</p> <p>Licensed <a href="#">Nexium® Eesomeprazole 10mg gastro-resistant granules sachets</a>.</p> <p>For a 10 mg dose empty the contents of a 10 mg sachet into a glass containing 15 ml water. For a 20 mg dose empty the contents of two 10 mg sachets into a glass containing 30 ml water. Do not use carbonated water. Stir the contents until the granulate has been dispersed and leave for a few minutes to thicken. Stir again and drink within 30 minutes. The granules must not be chewed or crushed. Rinse with 15 ml water to obtain all granules.</p> <p>Licensed for NG tube or gastric tube administration – see SPC for details.</p> <p>NB Not licensed for use in children &lt;1 year old</p> <p>or</p> <p>Licensed <a href="#">Omeprazole 10mg/5ml oral suspension sugar free (Rosemont)</a> which is licensed for children &gt; 1 month old (more expensive than dispersible tablets).</p> <p><a href="#">See also: PPI suggestions for adults with swallowing difficulties – SPS - Specialist Pharmacy Service – The first stop for professional medicines advice</a></p>
<p><i>Ondansetron</i></p>	<p>RED or AMBER medication depending on indication – please check Traffic Light Guidance.</p> <p><a href="#">Ondansetron orodispersible films sugar-free (Setofilm®)</a> (The film is placed on the tongue and should disintegrate in a few seconds without water.)</p> <p>Please note that use of ondansetron for treating women with hyperemesis gravidarum is outside the product license. A recent drug safety bulletin details the small increased risk of oral clefts associated with its use in the first 12 weeks of pregnancy.<sup>30, 34</sup></p>
<p><i>Orphenadrine</i></p>	<p>Licensed liquid formulation is</p> <p><a href="#">Orphenadrine 50mg/5ml oral solution sugar free</a></p>

Drug	Formulation Alternative / Administration Advice
<p><i>Oseltamivir</i></p>	<p>Licensed liquid formulation is <a href="#">Tamiflu® 6 mg/ml powder for oral suspension</a></p> <p>or</p> <p>The capsules can be opened and the contents mixed with a small amount (1 teaspoon) of an appropriate sweetened food, e.g. chocolate syrup, honey, sugar-water, dessert-toppings, sweetened condensed milk, apple sauce, or yogurt. The capsule contents have a bitter taste. The whole dose should be given immediately.<sup>28,35</sup></p> <p><u>Administration via enteral tubes:</u> The capsules can be opened and the contents dispersed in water for administration via an enteral feeding tube. <sup>1,28</sup> There is no information on administration of the suspension via enteral feeding tubes.</p>
<p><i>Oxcarbazepine</i></p>	<p>Prescribe licensed <a href="#">Oxcarbazepine 60mg/ml oral suspension sugar free (Trileptal®)</a></p>
<p><i>Oxybutynin</i></p>	<p>Tablets are small – see if child can swallow before prescribing very expensive liquid formulation.</p> <p><b>If oxybutynin tablets cannot be swallowed then licensed solifenacin liquid is more cost effective than licensed oxybutynin liquid.</b></p> <p><a href="#">Vesicare® (solifenacin succinate) 1mg/ml oral suspension</a> is licensed for the indication of neurogenic detrusor overactivity in paediatric patients aged 2-18 yrs.</p> <p><b>Please note that licensed Oxybutynin oral solution sugar free (5mg in 5ml or 2.5mg in 5ml) costs almost 7 times as much as Vesicare oral suspension so is no longer recommended as an option.</b></p> <p><a href="#">Oxybutynin patches (Kentera®)</a> for adults are a similar price to <a href="#">Vesicare® (solifenacin succinate) oral suspension 1mg/ml</a></p>
<p><i>Oxycodone</i> <i>(Controlled Drug)</i></p>	<p>Prescribe licensed <a href="#">Oxycodone 5mg/5ml oral solution sugar free</a></p> <p>or higher strength <a href="#">OxyNorm® 10mg/ml concentrate oral solution</a></p> <p><u>Feeding tubes:</u></p> <p>No information on suitability via feeding tube.</p>
<p><i>Oxytetracycline</i></p>	<p>Consider alternative licensed once daily tetracycline preparation: see <a href="#">Doxycycline</a>.</p> <p>The tablets <u>should not</u> be crushed for administration to patients with swallowing difficulties due to the risk of oesophageal ulceration and oesophagitis<sup>28</sup></p>

Drug	Formulation Alternative / Administration Advice
<b>P</b>	
<i>Pantoprazole</i>	<p>No suitable licensed formulations and not suitable for crushing. Other PPIs are available in suitable formulations - see Lansoprazole, Omeprazole or Esomeprazole.</p> <p>See also: <a href="#">PPI suggestions for adults with swallowing difficulties – SPS - Specialist Pharmacy Service – The first stop for professional medicines advice</a></p>
<i>Paracetamol</i>	<p>Prescribe licensed Paracetamol 120mg/5ml, 250mg/5ml or 500mg/5ml sugar free oral suspensions or sugar free oral solutions (compare prices)</p> <p>or</p> <p>Licensed Paracetamol soluble tablets 500mg (Please note: Soluble tablets have a high sodium content)</p> <p>Paracetamol 500mg suppositories are very high cost.</p>
<i>Paroxetine</i>	<p>No licensed liquid formulation available (Paroxetine 10mg/5ml oral suspension sugar free (Seroxat<sup>®</sup>) discontinued July 2022).</p> <p>Paroxetine tablets can be crushed and/or dispersed in water, or crushed and given with soft food. The tablets are film-coated and contents may taste bitter or unpleasant. Crushed paroxetine tablets may have a local anaesthetic effect on the tongue.</p> <p>See: <a href="#">SSRI suggestions for adults with swallowing difficulties – SPS - Specialist Pharmacy Service – The first stop for professional medicines advice</a></p> <p><u>Enteral feeding tube:</u></p> <p>The tablets can be crushed and mixed with water for administration. They must be crushed well and the tube flushed well as the tablets are film-coated<sup>28</sup></p>
<i>Paxlovid<sup>®</sup></i>	See Nirmatrelvir/ritonavir

Drug	Formulation Alternative / Administration Advice
<p><i>Perindopril</i></p>	<p>No licensed liquid formulation available. Consider changing to licensed</p> <p><a href="#">Lisinopril 5mg/5ml oral solution sugar free</a></p> <p>or</p> <p><a href="#">Ramipril 2.5mg/5ml oral solution sugar free</a></p> <p>or</p> <p><a href="#">Perindopril erbumine tablets can be crushed and mixed with water or given with soft food ('off-label' use). Perindopril absorption might be reduced by food but this may not be clinically relevant; give the medicine the same way each day, monitor for effect and adjust the dose if necessary.</a></p> <p><a href="#">See: ACEI suggestions for adults with swallowing difficulties – SPS - Specialist Pharmacy Service – The first stop for professional medicines advice</a></p> <p>or</p> <p>Last resort - use an unlicensed special listed in the Drug Tariff. Prescribe <a href="#">Perindopril erbumine 4mg/5ml oral solution</a> (suspension also available but more expensive)</p> <p><u>Feeding tube:</u></p> <p>If perindopril erbumine is given via enteral tube, stop feed 30 minutes before and after administration.<sup>28,36</sup></p>
<p><i>Phenelzine</i></p>	<p>Phenelzine tablets and capsules are both only available as unlicensed specials (Nardil® was discontinued in 2019)</p> <p>Consider changing to another antidepressant (seek specialist advice)</p> <p>or</p> <p>As a last resort - prescribe <a href="#">Phenelzine tablets</a> and label 'crush tablet, disperse in water and take immediately...' (Unstable in water hence immediate administration).</p>

Drug	Formulation Alternative / Administration Advice
<p><i>Phenobarbital</i></p>	<p>Prescribe licensed <a href="#">Phenobarbital 15mg/5mL elixir</a> (contains 38% alcohol).</p> <p>Alcohol-free formulations are available from specials manufacturers on request.</p> <p>Note <a href="#">MHRA guidance</a> on changing formulation/manufacturers for epileptic patients.</p> <p>N.B. When managing patients with enteral tubes or swallowing difficulties 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, and where possible patients should be maintained from then onwards on a single manufacturer's product.<sup>28</sup></p> <p>See BNF section 4.8.2 for further information.</p> <p>See also <a href="#">Managing the risks of using liquid oral phenobarbital – SPS - Specialist Pharmacy Service – The first stop for professional medicines advice</a></p>
<p><i>Phenytoin</i></p>	<p>Prescribe licensed <a href="#">Phenytoin 30mg/5ml oral suspension (Epanutin®)</a></p> <p>N.B. Bioavailability is different between forms: 100mg capsule = 92mg (15mL) syrup.<sup>17</sup></p> <p><b>Take care when switching from tablet to liquid formulations. See separate document for more details.</b><sup>27</sup></p> <p>Note <a href="#">MHRA guidance</a> on changing formulation/manufacturers for epileptic patients.</p> <p><u>Feeding tubes</u>: it is recommended that phenytoin should <b>NEVER</b> be administered via an enteral feeding tube. <sup>28</sup></p>
<p><i>Piroxicam</i></p>	<p>Consider alternative licensed non-steroidal anti-inflammatory drug: see <a href="#">Ibuprofen</a> / <a href="#">Meloxicam</a></p>
<p><i>Pilocarpine Eye drops (preservative-free)</i></p>	<p>Prescribe as licensed <a href="#">Minims Pilocarpine nitrate 2% eye drops 0.5ml unit dose</a></p> <p>0.1%, 0.25%, 0.5% strengths are unlikely to be of benefit - query strength.<sup>10</sup></p> <p>0.1% w/v normally used for diagnosis only. <sup>10</sup></p> <p>1 to 4% pilocarpine - <a href="#">Minims® 2% w/v</a> available if appropriate (no potentially sensitising excipients)</p> <p>6% and 8% - very high strengths - check with prescriber.<sup>10</sup></p>



Drug	Formulation Alternative / Administration Advice
<i>Pizotifen</i>	<p>No licensed liquid formulation available.</p> <p>Unlicensed liquid formulation listed in the Drug Tariff is <a href="#">Pizotifen 250micrograms/5ml oral suspension</a> (oral solution is 8 times more expensive.)</p>
<i>Potassium</i>	<p>Prescribe licensed <a href="#">Kay-Cee-L liquid</a> (highly concentrated 1mmol/ml needs to be diluted before use) or <a href="#">Sando K effervescent tablets</a>.</p> <p><a href="#">Kay-Cee-L liquid</a> dilute with 50-100ml water before administration. If given via a feeding tube then flush post dose with 15-30ml water. Can cause diarrhoea. <sup>1</sup></p> <p><a href="#">Sando-K</a> add to 50 -100ml of water if given via feeding tubes.<sup>1</sup></p> <p>(Please note that licensed generic potassium effervescent 6.5mmol BPC 1968 tablets are also available but this formulation is much more expensive than Sando–K effervescent tablets.) <b>(Slow K tablets and Kloref effervescent tablets have been discontinued.)</b></p> <p><u>Feeding tubes</u> – there is a potential for a physical interaction between the feed and potassium if the potassium is not suitably dilute. <sup>1</sup></p>
<i>Pramipexole</i>	<p>Prescribe <a href="#">Pramipexole tablets</a> and label ‘crush tablet, mix with water or mix with soft food and take ...’<sup>2</sup>Light sensitive so use immediately.<sup>2</sup></p> <p>Modified release tablets should not be chewed, divided or crushed.</p> <p>See also: <a href="#">Parkinson’s disease medicines in swallowing difficulties – SPS - Specialist Pharmacy Service – The first stop for professional medicines advice</a></p>
<i>Pravastatin</i>	<p><b>Low intensity statin – please consider whether still clinically appropriate:</b></p> <p><b>Atorvastatin and rosuvastatin are first line statins unless contra-indicated</b></p> <p>See entries for: <a href="#">Atorvastatin and rosuvastatin</a></p> <p>See also: <a href="#">Statin suggestions for adults with swallowing difficulties – SPS - Specialist Pharmacy Service – The first stop for professional medicines advice</a></p>
<i>Prazosin</i>	<p><a href="#">Prazosin tablets</a> can be dispersed in water for administration. The 500microgram tablet disperses immediately. The 1mg tablet disperses within one minute<sup>28</sup>.</p> <p><u>Feeding tube</u>: The drug is very insoluble, so flush well after each dose.</p>
<i>Prednisolone (Oral)</i>	<p>Prescribe licensed <a href="#">Prednisolone 5mg/5ml oral solution unit dose (Prednisolone Dompé®)</a> or <a href="#">Prednisolone 5mg soluble tablets</a>.</p> <p><b>Please note there is now a licensed higher strength liquid formulation available as <a href="#">Prednisolone 10mg/1ml oral solution sugar-free</a>. Please be aware of the potential for error.</b></p>

Drug	Formulation Alternative / Administration Advice
<p><i>Prednisolone Sodium Phosphate Eye Drops</i></p>	<p>Licensed options:</p> <p><a href="#">Prednisolone sodium phosphate 0.5% ear/eye drops</a> or <a href="#">Minims® Prednisolone Sodium Phosphate 0.5% eye drops unit dose 0.5ml</a></p> <p>(Predsol® 0.5% ear/eye drops now discontinued)</p> <p>Prednisolone sodium phosphate 1% is not equivalent in potency to prednisolone acetate 1% (PredForte®), ascertain prescriber is aware.</p> <p>Consider <a href="#">preservative-free dexamethasone eye drops</a> as alternatives for patients who require <b>preservative-free formulations</b>.<sup>10</sup></p> <p>No licensed alternative if strength <b>below 0.5%</b> has been prescribed/dictated by eye specialist.</p> <p>Unlicensed specials listed in Drug Tariff in 10ml bottles in the following strengths: 0.03%, 0.05%, 0.1%, 0.3% and 1% all in standard as well as preservative-free formulations.</p> <p>(Query strengths below 0.1% as 0.1% prednisolone is the preferred strength for patients who require low strength topical corticosteroid).</p>
<p><i>Pregabalin</i></p>	<p>Licensed liquid formulation is <a href="#">Pregabalin 20mg/ml oral solution sugar free</a></p> <p><a href="#">Pregabalin capsules</a> can be opened and dispersed in water<sup>8</sup> although this is not recommended given the availability of the licensed liquid formulation.</p> <p><u>Feeding tube:</u></p> <p>Open the capsules and dissolve the contents in water for administration. No information on administering the oral solution via enteral feeding tube<sup>28</sup>.</p>
<p><i>Primidone</i></p>	<p>No licensed liquid formulation available.</p> <p><a href="#">Primidone tablets</a> can be crushed and dispersed in water for administration. Without crushing they will disperse in two to five minutes. The drug is poorly soluble<sup>28</sup>.</p> <p>Last resort - use an unlicensed special listed in the Drug Tariff. Prescribe <a href="#">Primidone 50mg/5ml oral suspension</a>. (The 62.5mg/5ml and 250mg/5ml formulations are more expensive.)</p> <p>Note <a href="#">MHRA guidance</a> on changing formulation/manufacturers for epileptic patients.</p>
<p><i>Prochlorperazine</i></p>	<p>Prescribe licensed <a href="#">Prochlorperazine 3mg buccal tablets</a></p> <p><a href="#">(Prochlorperazine 5mg/5ml oral solution has been discontinued)</a></p>

Drug	Formulation Alternative / Administration Advice
<i>Procyclidine</i>	Prescribe licensed <a href="#">Procyclidine oral solution sugar-free 2.5mg/5ml or 5mg/5ml</a>
<i>Promazine</i>	Prescribe licensed <a href="#">Promazine oral solution 25mg/5ml or 50mg/5ml</a>
<i>Promethazine hydrochloride</i>	Prescribe licensed <a href="#">Promethazine 5mg/5ml oral solution sugar free (Phenergan®)</a>
<i>Propranolol</i>	Consider changing to once daily <a href="#">Atenolol</a> if clinically appropriate  or  Prescribe as licensed <a href="#">Propranolol oral solution sugar free 5mg/5ml, 10mg/5ml 40mg/5ml or 50mg/5ml</a>
<i>Pyridostigmine</i>	Crush or disperse tablet in water ( <a href="#">Mestinon®</a> )  Dispersion occurs slowly (at least 5 minutes) with fine powder sediment. <sup>1</sup>  or  Licensed <a href="#">Pyridostigmine bromide 12mg/1ml oral solution sugar free</a> (Viatris UK Healthcare Ltd). Licensed for administration via NG and PEG tube – see SPC for further information <sup>44</sup> .
<i>Pyridoxine</i>	No licensed liquid available.  Tablets can be crushed and mixed with water to make a dispersion but slow to disperse and forms a coarse suspension. <sup>1</sup>  Unlicensed liquid formulation listed in the Drug Tariff <a href="#">Pyridoxine 100mg/5ml oral solution</a> (the oral suspension is more expensive).
<b>Q</b>	
<i>Quetiapine</i>	Prescribe licensed <a href="#">Quetiapine 20mg/ml oral suspension sugar-free</a>  or  Prescribe <a href="#">Quetiapine tablets (non-MR)</a> and label 'mix crushed tablet with yoghurt and take...' (not soluble). <sup>2</sup>  or  Last resort - use an unlicensed special listed in the Drug Tariff. Prescribe <a href="#">Quetiapine 12.5mg/5ml, 25mg/5ml or 50mg/5ml oral suspension</a>
<b>R</b>	

Drug	Formulation Alternative / Administration Advice
<i>Rabeprazole</i>	<p>No suitable licensed formulations. Other PPIs are available in suitable formulations - see Lansoprazole, Omeprazole or Esomeprazole.</p> <p>See also: <a href="#">PPI suggestions for adults with swallowing difficulties – SPS - Specialist Pharmacy Service – The first stop for professional medicines advice</a></p>
<i>Ramipril</i>	<p>Licensed liquid formulation is: Ramipril 2.5mg/5ml oral solution sugar free</p> <p>It has a one-month expiry once opened and requires fridge storage</p> <p>See also: <a href="#">ACEI suggestions for adults with swallowing difficulties – SPS - Specialist Pharmacy Service – The first stop for professional medicines advice</a></p>
<i>Ranitidine</i>	<p><b>Following advice from the EMA, the MHRA have suspended all licenses for ranitidine products.</b></p> <p><b>All formulations of ranitidine are affected due to the presence of low levels of an impurity called N-nitrosodimethylamine (NDMA).</b></p> <p><b>Until regulatory investigations are complete, and an uncontaminated supplier of ranitidine active ingredient has been found, no further supplies of ranitidine will be manufactured.</b></p> <p>Use an alternative product e.g. omeprazole, lansoprazole</p>
<i>Rifampicin</i>	<p>Prescribe licensed Rifampicin 100mg/5ml oral suspension (Rifadin® Syrup)</p> <p><u>Feeding tubes</u>: dilute with an equal volume of water before administration.</p>
<i>Riluzole</i>	<p>Licensed liquid formulation is Riluzole 5mg/ml oral suspension (Teglutik®)</p> <p>or</p> <p>Riluzole tablets can be crushed and mixed with soft food e.g. yogurt or puree, to aid swallowing. Tablets crushed onto food should be eaten within fifteen minutes as there is no stability data available for this method of administration. Use crushed tablets with care as they may have a local anaesthetic effect in the mouth.<sup>28</sup></p>

Drug	Formulation Alternative / Administration Advice
<i>Risedronate</i>	<p>If liquid preparation required, consider switching to:</p> <p>Licensed Alendronic acid oral solution sugar-free 70mg/100ml</p> <p>or</p> <p>Alendronic acid 70mg effervescent tablet (Binosto®) dissolved in at least 120ml water</p> <p>or</p> <p>Denosumab (Prolia®) 60mg/1ml solution for injection pre-filled syringe</p>
<i>Risperidone</i>	<p>Prescribe licensed Risperidone 1mg/ml oral solution sugar-free</p> <p>or</p> <p>Prescribe licensed Risperidone orodispersible tablets (more expensive than the liquid).</p>
<i>Rivaroxaban</i>	<p>Rivaroxaban tablets are film coated but are licensed to be crushed and mixed with water or apple puree immediately prior to use and administered orally.<sup>49</sup></p> <p>Crushed rivaroxaban tablets may also be given through gastric tubes – see SPC for further details.</p> <p>After the administration of crushed 15 mg or 20 mg film-coated tablets, the dose should then be immediately followed by food / enteral feeding as appropriate.</p> <p>or</p> <p>Licensed liquid formulation is Xarelto® 1mg/ml granules for oral suspension. Licensed for the treatment of venous thromboembolism (VTE) and prevention of VTE recurrence in term neonates, infants and toddlers, children, and adolescents aged less than 18 years after at least 5 days of initial parenteral anticoagulation treatment.</p> <p>The suspension may be given through a nasogastric or gastric feeding tube (licensed to be administered in this way)<sup>38</sup>. See SPC for further information</p> <p><a href="#">See also: Anticoagulant suggestions for adults with swallowing difficulties – SPS - Specialist Pharmacy Service – The first stop for professional medicines advice</a></p>

Drug	Formulation Alternative / Administration Advice
<p><i>Rosuvastatin</i></p>	<p>No licensed liquid formulation available.</p> <p><b>Consider age of patient and if still clinically appropriate.</b></p> <p><a href="#">Rosuvastatin hard capsules</a> (Sun Pharmaceutical) can be opened and the granules sprinkled on 1 teaspoonful of soft food e.g. apple sauce or chocolate/vanilla flavoured pudding. The mixture should be swallowed within 60 minutes followed by drinking at least 240ml water. The granules should not be chewed<sup>39</sup>.</p> <p>The granules are also licensed to be administered via nasogastric tubing (see SPC for instructions)<sup>39</sup>.</p> <p>or</p> <p>Consider licensed <a href="#">Atorvastatin chewable tablets sugar free (Lipitor®)</a> available as 10mg and 20mg chewable tablets. (Please note high intensity statin reduction action is associated with doses of 20mg daily or more)</p> <p>or</p> <p><b>Rosuvastatin tablets</b> can be crushed and/or dispersed in water or crushed and given with soft food. The tablets are film-coated and contents may taste bitter or unpleasant.</p> <p><a href="#">See: Statin suggestions for adults with swallowing difficulties – SPS - Specialist Pharmacy Service – The first stop for professional medicines advice</a></p>
<b>S</b>	
<p><i>Selegiline</i></p>	<p><a href="#">Selegiline tablets</a> can be dispersed in water for administration. They disperse within one minute. <sup>28</sup></p> <p>(Selegiline (Zelapar®) 1.25mg oral lyophilisates are discontinued)</p> <p><a href="#">See also: Parkinson's disease medicines in swallowing difficulties – SPS - Specialist Pharmacy Service – The first stop for professional medicines advice</a></p>

Drug	Formulation Alternative / Administration Advice
<p><i>Sertraline</i></p>	<p>Licensed liquid formulations are:</p> <p><b>Sertraline 50mg/5ml oral suspension</b></p> <p>The SPC advises it should be administered with a glass of water. The suspension has an expiry of two months once opened and does not require fridge storage.</p> <p><b>Sertraline 100mg/5ml concentrate for oral solution</b></p> <p>Must be diluted before use. Each dose should be diluted with around 120ml (one glass) of water, ginger ale, lemon/lime soda, lemonade or orange juice and given immediately. The concentrate has an expiry of 30 days once opened and does not require fridge storage.</p> <p>See: <a href="#">SSRI suggestions for adults with swallowing difficulties – SPS - Specialist Pharmacy Service – The first stop for professional medicines advice</a></p>
<p><i>Simvastatin</i></p>	<p>Simvastatin is only a high intensity statin at doses of 80mg or above and as <a href="#">MHRA</a> report an increased risk of myopathy associated with high dose (80 mg) simvastatin, this no longer a preferred option.</p> <p><b>Consider age of patient and if still clinically appropriate</b></p> <p><b>Atorvastatin and rosuvastatin are first line statins unless contra-indicated</b>  See entries for: <b>Atorvastatin and rosuvastatin</b></p> <p>or</p> <p>Licensed liquid formulations: <b>Simvastatin oral suspension sugar free 20mg/5ml and 40mg/5ml.</b></p> <p>Expiry of one month once opened and do not require fridge storage.</p> <p>See also: <a href="#">Statin suggestions for adults with swallowing difficulties – SPS - Specialist Pharmacy Service – The first stop for professional medicines advice</a></p>
<p><i>Sodium Bicarbonate Oral Solution</i></p>	<p>Licensed <b>Sodium bicarbonate 500mg capsules</b> can be opened and the contents mixed in a glass of water as per instructions in the PIL.<sup>25</sup> <b>This is the most cost-effective option for patients who are unable to swallow tablets or capsules.</b></p> <p>Licensed liquid formulations are:</p> <p><b>Bidex® 84mg/ml oral solution</b>  100ml bottle: Discard 7 days after first opening<sup>42</sup></p> <p><b>Thamicarb® 84mg/ml oral solution</b>  100ml bottle: Discard 3 days after first opening.  500ml bottle: Discard 7 days after first opening<sup>20</sup>.</p> <p>Sodium Bicarbonate 1mmol/ml = Sodium Bicarbonate 8.4% = Sodium Bicarbonate 420mg/5ml = Sodium Bicarbonate 84mg/ml</p>

Drug	Formulation Alternative / Administration Advice
<i>Sodium Chloride 0.9% Eye Drops Preservative-free</i>	<p>Prescribe <a href="#">Minims® Saline 0.9% eye drops 0.5ml unit dose</a></p> <p>Other lubricants may be more suitable<sup>10</sup> see formulary options.</p>
<i>Sodium Chloride 5% Eye Ointment and Eye drops</i>	<p>For corneal oedema, recurrent corneal erosion syndrome.</p> <p><u><a href="#">Sodium Chloride 5% eye ointment</a></u></p> <p><b>Licensed product is</b></p> <p><a href="#">Sodium Chloride 5% eye ointment preservative free (Alissa Healthcare)</a> £22.50</p> <p><b>Unlicensed special listed in the Drug Tariff:</b></p> <p><a href="#">Sodium Chloride 5% eye ointment</a> - preserved with methyl parahydroxybenzoate and propyl parahydroxybenzoate, also contains lanolin.<sup>10</sup> Avoid as unlicensed and very expensive £113.92</p> <p><u><a href="#">Sodium Chloride 5% eye drops</a> are available with and without preservative</u></p> <p><b>Licensed products (Appliances not medicines) – with preservatives:</b></p> <p><a href="#">Hypersal® 5%</a> 10ml bottle (contains preservatives) £25.25</p> <p><b>Licensed products (Appliances not medicines) – preservative free 10ml bottle:</b></p> <p><a href="#">ODM5®</a> 10ml bottle preservative free (28 day product expiry once opened) £24.00</p> <p><a href="#">PF Drops® Sodium Chloride 5%</a> 10ml bottle preservative free (56 day product expiry once opened) £25.20</p> <p><a href="#">SodiEye® 5%</a> 10ml bottle preservative free (12 months of shelf life from the time of opening) £15.98</p>
<i>Sodium Chloride Oral Solution</i>	<p>Licensed formulations:</p> <p><a href="#">SodiClor® 1mmol/ml (5.85%)</a> contains 292.5mg in 5ml</p> <p>and</p> <p><a href="#">SodiClor® 5mmol/ml (29.25%)</a> contains 1.46g in 5ml</p> <p>(Licensed with the MHRA as a food supplement) 100ml bottles. Expiry date of 7 days after opening.</p>
<i>Sodium Cromoglycate Eye Drops Preservative-free</i>	<p><b>Hayfever remedies are considered to be selfcare treatments and are not for FP10 prescribing</b></p> <p>If preservative-free Sodium cromoglycate eye drops are required on FP10 please prescribe as licensed <a href="#">Catacrom® 2% eye drops 0.3ml unit dose</a></p>



Drug	Formulation Alternative / Administration Advice
Sodium Valproate	<p>Licensed liquid formulation is <a href="#">Sodium Valproate 200mg/5ml oral solution sugar free (generic)</a></p> <p>(Epilim® available as crushable tablets, Chronosphere MR granule sachets, liquid (sugar-free) or syrup.</p> <p><b>Take care when switching. See separate document for more details.</b><sup>27</sup></p>
Solifenacin	<p>Licensed liquid formulation is <a href="#">Vesicare® (Solifenacin) 1mg/1ml oral suspension</a> or <a href="#">Solifenacin 5mg/5ml oral solution sugar free</a></p> <p>Crushing the tablets is not recommended as the powder released is irritant to the eyes<sup>28</sup>.</p>
Sotalol	<p>No licensed liquid formulation available.</p> <p>Consider alternative licensed beta-blocker preparation: see <a href="#">Atenolol</a> / <a href="#">Propranolol</a></p> <p>or</p> <p>Prescribe <a href="#">Sotalol tablets</a> and label 'crush tablet, mix with water and take...'<sup>1</sup></p> <p>or</p> <p>Prescribe unlicensed special listed in the Drug Tariff - <a href="#">Sotalol 25mg/5ml oral suspension</a> (unlicensed but price controlled)</p>
Spironolactone	<p>Prescribe licensed <a href="#">Spironolactone tablets</a> and label 'crush tablet, disperse in water and take...'<sup>1</sup></p> <p>N.B. Can take five minutes for tablet to completely disperse.</p> <p>or</p> <p>Unlicensed specials listed in the Drug Tariff - <a href="#">Spironolactone oral suspension 5mg/5ml, 25mg/5ml</a></p>
Sucralfate	<p>Licensed liquid formulation is <a href="#">Sucralfate 1g/5ml oral suspension sugar free</a></p>
Sulfasalazine	<p>Licensed liquid formulation is <a href="#">Sulfasalazine 250mg/5ml oral suspension sugar free</a>.</p>
Sulpiride	<p>Licensed liquid formulation is <a href="#">Sulpiride 200mg/5ml oral solution sugar free</a></p>
<b>T</b>	
Tacrolimus	<p>Secondary care to prescribe as it is a RED drug</p>

Drug	Formulation Alternative / Administration Advice
<i>Tamoxifen</i>	Licensed liquid formulation is <a href="#">Tamoxifen 10mg/5ml oral solution sugar free</a>
<i>Tamsulosin</i>	<p>No licensed liquid formulation.</p> <p>Consider prescribing alternative – see <a href="#">Doxazosin</a> or <a href="#">Indoramin</a></p> <p>or</p> <p>If no suitable alternative, <a href="#">Tamsulosin MR Capsules</a> contain granules which should not be crushed. There is anecdotal evidence that they can be given to patients by opening the capsule and the medication administered with water without crushing.<sup>31</sup> Do not crush modified release formulations. <sup>1</sup> Not suitable for opening for tube administration. There are reports of tamsulosin blocking enteral feeding tubes<sup>28</sup>.</p> <p>or</p> <p>Last resort – unlicensed special listed in the Drug Tariff - <a href="#">Tamsulosin 400micrograms/5ml oral solution</a> (approx. £127 per 100ml. Oral suspension also available but more expensive – avoid.)</p>
<i>Telmisartan</i>	<p>No liquid formulation available.</p> <p>Depending on indication, consider changing to:</p> <p><a href="#">Licensed Lisinopril 5mg/5ml oral solution sugar free</a></p> <p>or</p> <p><a href="#">Licensed Ramipril 2.5mg/5ml oral solution sugar free</a></p> <p>or</p> <p><a href="#">Telmisartan tablets can be crushed and/or dispersed in water or crushed and given with food ('off-label' use).</a></p> <p><a href="#">See: ARB suggestions for adults with swallowing difficulties – SPS - Specialist Pharmacy Service – The first stop for professional medicines advice</a></p>
<i>Temazepam</i>	<p>Licensed liquid formulation is <a href="#">Temazepam 10mg/5ml oral solution sugar free</a></p> <p>Please note that this is very high cost. Please consider licensed <a href="#">Zolpidem tablets</a> which can be crushed and dispersed in water (unlicensed administration). <sup>1</sup></p>
<i>Terbinafine</i>	<p>No licensed liquid available.</p> <p>Prescribe <a href="#">Terbinafine tablets</a> and label 'crush tablet, mix with water and take...'<sup>28</sup></p> <p>Last resort – Unlicensed special listed in the Drug Tariff is <a href="#">Terbinafine 250mg/5ml oral suspension</a></p>

Drug	Formulation Alternative / Administration Advice
<i>Tetracycline</i>	<p>No licensed liquid formulation available.</p> <p>Consider alternative licensed tetracycline preparation: see <a href="#">Doxycycline</a> - which is available as a dispersible tablet.</p>
<i>Thiamine</i>	<p>Please review clinical indication – see guidance about use in the prevention of Wernicke's Encephalopathy.<sup>32</sup></p> <p>If still required, prescribe <a href="#">Thiamine tablets</a> and label 'crush tablet, mix with water and take...<sup>1,2</sup></p> <p>Tablets disperse quickly and easily.</p>
<i>Ticagrelor</i>	<p>Prescribe licensed <a href="#">Ticagrelor 90mg orodispersible tablets sugar free (Brilique®)</a></p> <p>The tablet should be placed on the tongue, where it will rapidly disperse in saliva. It can also be dispersed in water and administered via a nasogastric tube (CH8 or greater). It is important to flush the nasogastric tube through with water after administration of the mixture<sup>26</sup>. <a href="#">See SPC for further details.</a></p> <p><a href="#">See also: Antiplatelet suggestions for adults with swallowing difficulties – SPS - Specialist Pharmacy Service – The first stop for professional medicines advice</a></p>
<i>Tocopherol</i>	See <a href="#">Vitamin E</a>
<i>Tolbutamide</i>	Consider changing to an alternative sulphonylurea - see formulary.
<i>Tolterodine</i>	<p>Consider changing to licensed <a href="#">Vesicare® 1mg/1ml oral suspension</a> or <a href="#">Solifenacin 5mg/5ml oral solution sugar free</a></p> <p>or</p> <p>Prescribe <a href="#">Tolterodine tablets</a> which can be dispersed in water for administration. They disperse within one minute. Use immediately<sup>28</sup>.</p>
<i>Topiramate</i>	<p>Prescribe licensed <a href="#">Topamax® Sprinkle Capsules</a> that can be sprinkled onto soft food.</p> <p>(Please note that <a href="#">Sprinkle Capsules</a> may block an enteral tube. <a href="#">Topiramate tablets</a> can be crushed and dispersed in water for administration via an enteral feeding tube<sup>28</sup>)</p> <p>or</p> <p>Licensed <a href="#">Topiramate 50mg/5ml oral suspension sugar free</a> (higher cost per dose compared with <a href="#">Topamax® Sprinkle Capsules</a>)</p>

Drug	Formulation Alternative / Administration Advice
<i>Tramadol</i>	<p>Prescribe licensed Tramadol 50mg soluble tablets sugar free</p> <p>Or</p> <p>Tramadol 50mg/5ml oral solution sugar free (Morningside Healthcare Ltd)</p>
<i>Trandolapril</i>	<p>No liquid formulation available.</p> <p>Trandolapril capsules can be opened and the contents dispersed in water before administration ('off-label' use). The capsule contents have a bitter taste which can be masked by fruit squash<sup>28</sup></p> <p>or</p> <p>Consider changing to</p> <p>Licensed Lisinopril 5mg/5ml oral solution sugar free</p> <p>or</p> <p>Licensed Ramipril 2.5mg/5ml oral solution sugar free</p> <p><a href="#">See also: ACEI suggestions for adults with swallowing difficulties – SPS - Specialist Pharmacy Service – The first stop for professional medicines advice</a></p>
<i>Tranexamic acid</i>	<p>Tranexamic acid tablets can be crushed and mixed with water for administration. Without crushing they disperse in two to five minutes<sup>28</sup>.</p> <p>or</p> <p>Unlicensed specials listed in the Drug Tariff are Tranexamic acid 500mg/5ml oral suspension and Tranexamic acid 500mg/5ml oral solution (250mg/5ml oral suspension also available but more expensive).</p>
<i>Tranexamic acid mouthwash</i>	<p>Tranexamic acid 5% mouthwash is listed as an unlicensed special in the Drug Tariff.</p>
<i>Trazodone</i>	<p>Licensed liquid formulation is Trazodone 50mg/5ml oral solution sugar free (licensed 100mg/5ml oral solution also available but much more expensive – avoid).</p>
<i>Trihexyphenidyl (Benzhexol)</i>	<p>Licensed liquid formulation is Trihexyphenidyl 5mg/5ml oral solution</p>
<i>Trifluoperazine</i>	<p>Licensed liquid formulation is Trifluoperazine 5mg/5ml oral solution sugar free (licensed 1mg/5ml oral solution also available but much more expensive - avoid).</p>

Drug	Formulation Alternative / Administration Advice
<i>Trimipramine</i>	<p>No licensed liquid formulation available.</p> <p>The cost of oral trimipramine has increased massively – please consider alternative licensed tricyclic antidepressant: see <a href="#">Amitriptyline / Lofepamine</a></p>
<b>U</b>	
<i>Ursodeoxycholic acid</i>	Licensed liquid formulation is <a href="#">Ursodeoxycholic Acid 250mg/5ml oral suspension sugar free (Ursofalk®)</a>
<b>V</b>	
<i>Valaciclovir</i>	<p>No licensed liquid formulation available. Tablets are not dispersible.</p> <p>Consider using <a href="#">Aciclovir dispersible tablets</a></p>
<i>Valproic acid</i>	<p>No licensed liquid available.</p> <p><b>See Sodium Valproate – take care when switching from Valproic acid to Sodium Valproate formulations. See separate guidance.<sup>27</sup></b></p>
<i>Valsartan</i>	<p>Licensed liquid formulation is <a href="#">Valsartan 3mg/ml oral solution (Diovan®)</a>. <b>Not dose equivalent to tablets.</b> When converting from tablets to oral solution halve the tablet dose (see dose conversion table in the SPC).<sup>1</sup></p> <p>Or</p> <p><a href="#">Valsartan tablets can be crushed and mixed with water or given with soft food. Tablets are film-coated and may taste bitter once crushed ('off-label' use).</a></p> <p>Or</p> <p><a href="#">Valsartan capsules can be opened and dispersed in water or given with food ('off-label' use)</a></p> <p><a href="#">See: ARB suggestions for adults with swallowing difficulties – SPS - Specialist Pharmacy Service – The first stop for professional medicines advice</a></p>
<i>Vancomycin</i>	<p>Please refer to Specialist Pharmacy Service guidance:</p> <p><a href="#">Choosing between oral vancomycin options – SPS - Specialist Pharmacy Service – The first stop for professional medicines advice</a></p>

Drug	Formulation Alternative / Administration Advice
Venlafaxine	<p>Licensed liquid formulation is <a href="#">Venlafaxine oral solution sugar free 37.5mg/5ml</a> or <a href="#">75mg/5ml</a> – licensed for administration via nasogastric (NG) or percutaneous endoscopic gastrostomy (PEG) tubes (Note: very expensive)</p> <p>For major depression consider alternative licensed <a href="#">Mirtazepine orodispersible tablets</a> or <a href="#">Mirtazepine oral solution 15mg/1ml</a>.</p> <p>or</p> <p>Prescribe <a href="#">Venlafaxine tablets (non-MR)</a> and label 'crush tablet, mix with water and take...'<sup>1</sup></p>
Verapamil	Licensed liquid formulation is <a href="#">Verapamil 40mg/5ml oral solution sugar free</a>
Vitamin D	See <a href="#">Colecalciferol</a>
Vitamin E (tocopherol, alpha tocopherol)	<p><a href="#">Valupak Vitamin E 100unit capsules</a> are a cost-effective formulation with fixed NHS prices - use these where possible.</p> <p>Licensed liquid formulation: <a href="#">Alpha tocopheryl acetate 500mg/5ml oral suspension</a> (Approx £73 per 100ml - please avoid if possible).</p> <p>Chewable tablets 100mg are high cost compared to Valupak capsules.</p> <p><a href="#">Ephynal chewable tablets</a> are unlicensed and imported so are therefore expensive.</p> <p><b>Take care when switching. See separate document for more details.</b><sup>27</sup></p>
<b>W</b>	
Warfarin	<p>Licensed liquid formulation is <a href="#">Warfarin 1mg/ml oral suspension sugar free</a></p> <p><a href="#">It does not require fridge storage and has an expiry of 28 days once opened.</a></p> <p>or</p> <p><a href="#">Warfarin tablets can be crushed and/or dispersed in water or crushed and given with soft food</a></p> <p><a href="#">See: Anticoagulant suggestions for adults with swallowing difficulties – SPS - Specialist Pharmacy Service – The first stop for professional medicines advice</a></p>
<b>Z</b>	
Zolmitriptan	<p>Licensed <a href="#">Zolmitriptan orodispersible tablets</a> 2.5mg and 5mg available</p> <p>A nasal spray is available but is a much more expensive option.</p>

Drug	Formulation Alternative / Administration Advice
<i>Zolpidem</i>	<p>For short term use only / if still appropriate:</p> <p><a href="#">Zolpidem tablets</a> can be crushed and dispersed in water.<sup>1</sup></p> <p>or</p> <p>Consider licensed <a href="#">Temazepam 10mg/5ml oral solution sugar free</a> - please note that this is very expensive.</p>
<i>Zonisamide</i>	<p>Licensed liquid formulation is <a href="#">Zonisamide 20mg/ml oral suspension (Desizon®)</a></p> <p>If desired the suspension can be diluted in water, orange juice or yogurt for administration. Carbonated beverages should not be used<sup>37</sup>.</p> <p>Feeding tube:</p> <p><a href="#">Desizon®</a> oral suspension is licensed for administration via enteral feeding tubes. The enteral feeding tube should be flushed three times with 5mL of water each time after each dosage<sup>37</sup>. See SPC for further details.</p>
<i>Zopiclone</i>	<p>No licensed liquid formulation available. Manufacturers recommend that zopiclone tablets should not be crushed. (Tablets are hard and difficult to crush and have a bitter taste.)<sup>1</sup></p> <p>For short term use only / if still appropriate</p> <p>Consider alternative licensed hypnotic see: <a href="#">Temazepam</a></p> <p>or</p> <p>Consider licensed zolpidem tablets which can be crushed and dispersed in water (unlicensed administration).<sup>1</sup></p> <p>or</p> <p>Unlicensed zopiclone specials listed in the Drug Tariff are:</p> <p><a href="#">Zopiclone oral solution 3.75mg/5ml or 7.5mg/5ml</a></p> <p><a href="#">Zopiclone oral suspension 3.75mg/5ml or 7.5mg/5ml</a></p>

## Appendix i

### How to use an Oral Syringe

Use of an oral syringe is considered to be more accurate than a medicine spoon or cup.

For a Great Ormand Street Hospital video showing how to give liquid medicines via an oral syringe please see the following link:

<http://www.youtube.com/watch?v=S67bNkcSVfs&feature=youtu.be>

Position Statement by the Neonatal & Paediatric Pharmacist Group (NPPG) regarding the Administration of Medicines Using ENFit Syringes: [NPPG-Position-Statement-ENFit-V1.pdf](#)



## Appendix ii

### Administration of Drugs via Feeding Tubes - General Guidelines:

Position Statement by the Neonatal & Paediatric Pharmacist Group (NPPG) regarding the Administration of Medicines Using ENFit Syringes: [NPPG-Position-Statement-ENFit-V1.pdf](#)

Administering drugs via feeding tubes is an unlicensed activity. There is little published data and most recommendations are theoretical and/or based on local policy. An alternative licensed option is therefore always preferable e.g. rectal or parenteral formulations.

#### Types of Feeding Tubes

There are several types of feeding tubes. (N.B. These can be further classified according to lumen size, number of lumen and length of use).

Nasogastric (NG)	Inserted into the stomach via the nose
Nasojejunal (NJ)	Inserted into the jejunum via the nose
Percutaneous endoscopic gastrostomy (PEG)	Inserted into the stomach via the abdominal wall
Percutaneous endoscopic jejunostomy (PEJ)	Inserted into the jejunum via the abdominal wall
Percutaneous endoscopic gastro-jejunostomy (PEGJ)	Inserted into the jejunum via the abdominal wall and through the stomach

#### General Guidelines for Administration

The following should be considered when giving drugs via feeding tubes:

1.	Ensure route of administration has been specified
2.	Ensure the siting of the tube has been medically confirmed
3.	Oral syringes (i.e. a syringe to which a needle cannot be attached) should be used to prevent accidental parenteral administration.
4.	Stop the infusion of a feed when administering drugs. Refer to 'Drug Interactions' for further guidance.
5.	Flush the tube slowly with at least 15mL of water (sterile water if jejunal tube) using either a 30mL or 50mL oral syringe.
6.	Administer each drug separately (by gravity flow) as a sediment free liquid. Flush in between and afterwards with at least 15mL of water (sterile water if jejunal tube) using either a 30mL or 50mL oral syringe.
7.	Monitor clinical response if <ul style="list-style-type: none"> <li>Changing from modified release to normal release preparations</li> <li>A drug has a narrow therapeutic index</li> <li>The bio-availability of the drug differs between tablet and liquid.</li> </ul>
8.	Do not administer bulk-forming laxatives because they block the tubes; use an enteral feed with a high-fibre content instead
9.	Do not add drugs to feeds; this increases the risk of incompatibility, microbial contamination, tube blockage and underdosing or overdosing if the feed rate is altered.
<b>Also consider:</b>	
<i>Size of lumen</i>	Narrow lumen tubes are more likely to block, particularly with thick oral syrups; dilute with 30-60mL of water before administration.
<i>Number of lumens</i>	Ensure correct lumen is used with multilumen tubes; do not use an aspiration gastric decompression port for drug administration.
<i>Function of tube</i>	Drugs should not be administered by tube if it is on free-drainage or suction

### Choosing a Suitable Formulation

Commercially available oral solutions/ suspensions/ syrups are not always suitable for administration into feeding tubes because:

Problem	Reason	Preventive measures that can be taken
<b>Osmotic diarrhoea</b>	Due to high osmolarity and sorbitol content	Osmolarity can be reduced in some preparations by diluting with as much as much water as practical.
<b>Altered bio-availability and/or pharmacokinetics</b>	When converting from tablets to oral solution, e.g. digoxin and Phenytoin or from modified release preparations to oral solution.	The dose and/or frequency may need to be changed according to clinical response
<b>Tube blockage/ caking</b>	Caused by high viscosity preparations e.g. co-amoxiclav	Minimise by diluting with 30-60mL water or use suspensions rather than syrups.
<b>Clumping of the feed</b>	Particularly if the formulation is acidic, i.e. pH<4	Find alternative route/ preparation if possible Dilute the drug as much as possible to minimise drug-feed contact and flush with 30-60mL of water
<b>Binding to the Plastic Tubing</b>	e.g. Carbamazepine, clonazepam, diazepam, Phenytoin	Dilute the drug with at least 30-60mL water and flush well.

#### Tablets/capsules

Many tablets and capsule contents will disperse completely when crushed and mixed with water, even though they are not marketed as dispersible.

- Do not administer crushed tablets or capsule contents which have not completely dispersed in water; sediment increases the risk of blocking the tube.
- The liquid contents of some capsules can be drawn out with a syringe, but should be administered immediately in case of light sensitivity.

#### Injections

This is generally an expensive option and should therefore be considered only for the short term.

- Before administering an injectable formulation via a feeding tube, check osmolarity. Many injections are hypertonic and therefore unsuitable.
- Some injections may also contain additives unsuitable for oral administration. e.g. polyethylene glycol in amiodarone.
- All injections should be further diluted with 30-60mL of water before administration.

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