

## Standardised Concentrations of Liquid Medicines Across Cornwall and the Isles of Scilly (CIOS) for Adults and Children

In addition to the Neonatal Paediatric Pharmacists Group (NPPG) and the Royal College of Paediatrics and Child Health (RCPCH) [position statement on standardising strengths of liquid medicines](#), Royal Cornwall Hospital Trust (RCHT) have reviewed other liquid preparations for standardisation.

By standardising the prescribed concentration of these medicines, the risk of dosing errors for patients will be reduced. These medications have been highlighted for inclusion as they are available in multiple strengths.

Where a liquid formulation has been prescribed by RCHT is expected that a patient will remain on the strength they have been discharged on unless there is a clinical indication to switch. Clinicians can contact the medicines optimisation team at the ICB if there are any queries regarding stock availability. In exceptional circumstances, when all other options to maintain supply have been exhausted, and a patient must be switched to an alternative, the safety advice below must be followed.

Practices are also encouraged to review their patients on non-standardised strengths of these medications in line with the safety considerations documented below.

| Drug                                          | Strength           | Comments                                                                                                                                                                                                                                                       |
|-----------------------------------------------|--------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Alimemazine oral solution sugar free</b>   | 30mg in 5mL        | Itzenal brand is recommended due to suitable excipients for children.                                                                                                                                                                                          |
| <b>Amitriptyline oral solution sugar free</b> | 25mg in 5mL        |                                                                                                                                                                                                                                                                |
| <b>Clobazam oral suspension sugar free</b>    | 5mg in 5mL         | Clobazam is not prescribable in NHS primary care except for the treatment of epilepsy; endorse prescription 'SLS'                                                                                                                                              |
| <b>Colecalciferol oral drops (Thorens)</b>    | 10,000 unit per mL | The 25,000 units/mL preparation (InVita D3) may be prescribed for adult patients with swallowing difficulties who require vitamin D loading doses. For paediatric patients, please refer to the <a href="#">RCHT Paediatric Vitamin D Clinical Guideline</a> . |
| <b>Furosemide oral solution sugar free</b>    | 50mg in 5mL        |                                                                                                                                                                                                                                                                |

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|-------------------------------------------------------------------|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Glycopyrronium bromide oral solution sugar free (Sialanar)</b> | 400mcg in 1mL | Different formulations of glycopyrronium oral solution are not bioequivalent and brands are not interchangeable.<br>Prescribe by brand.<br>Please note the potential for dosing errors: Sialanar description on packaging and on GP prescribing systems is 320micrograms/ml – this is the amount of glycopyrronium BASE per ml and is equivalent to 400micrograms/ml of the SALT, glycopyrronium bromide.                                                                                                                                                                            |
| <b>Levothyroxine oral solution sugar free</b>                     | 50mcg in 5mL  | Levothyroxine tablets can be crushed and dispersed in water. This includes patients receiving their medication via feeding tubes.<br><br>The NEWT guidelines note: “There have been reports of treatment failure in patients receiving levothyroxine suspension, believed to be due to oxidation of the drug. If thyroid function deteriorates, consider crushing tablets and mixing with water immediately prior to administration to reduce oxidation”.<br><br>Please see the <a href="#">RCHT policy</a> for further information on babies treated for congenital hypothyroidism. |
| <b>Omeprazole oral suspension sugar free</b>                      | 20mg in 5mL   | Please also refer to Trust guidelines <a href="#">Proton Pump Inhibitor (PPI) Prescribing in Paediatric Patients Clinical Guideline</a>                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Propranolol oral solution sugar free</b>                       | 50mg in 5mL   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Spironolactone oral suspension</b>                             | 50mg in 5mL   | Qaialdo brand in use at RCHT. Other brands not suitable due to oil base                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>For paediatric patients only</b>                               |               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Sertraline</b>                                                 | 50mg in 5mL   | This strength is more expensive than the stronger preparation however the 100mg in 5mL concentrate needs diluting in a substantial volume of water prior to administration which makes it unsuitable for children and some patients with learning difficulties.                                                                                                                                                                                                                                                                                                                      |

## Reviewing the indication for a liquid medication

When reviewing patients, consider whether the patient actually requires a liquid medicine or could be switched to an alternative tablet/capsule formulation.

For most patients, tablets/capsules can have numerous advantages over liquid formulations for all parties concerned:

- For children and young people: tablets/capsules are less sickly and usually contain less sugar and children who swallow tablets/capsules tend to have better adherence to their medication regimen.
- For carers: tablets/capsules have a longer shelf-life (this is particularly useful for when-required medication which may expire before the medicine can be used), do not require a fridge for storage, are easier to transport and are more readily available in local pharmacies.
- For prescribers: less prone to errors when writing prescriptions.
- For dispensers: tablets/capsules are more commonly stocked in local pharmacies compared to liquid medicines.

Swallowing tablets/capsules is an important life skill for children to learn and an e-learning session has been developed to help healthcare professionals and carers teach children and young people how to swallow tablets/capsules. The [e-LFH website](#) contains a useful e-learning package and resources to support.

[The Medicines for Children website](#) also contains useful information on helping children learn to swallow pills.

## Safety considerations when switching

Where practicable and suitable for the patient, the strengths documented above should be prescribed. If a patient is identified as suitable for switching to a preferred concentration, consent must be obtained and the patient, parent, guardian and/or carer counselled on the change in volume. The dispenser should also be informed.

The advice should also be followed in exceptional circumstances when a patient is prescribed an alternative strength to that recommended within the table.

Prescribers must ensure that the new directions/volume represent a logical, practical dose that the patient/carers can administer. It is advisable for prescribers to seek a second check from an appropriately trained colleague when changing the product to ensure the correct dose is prescribed. This change, along with the rationale, must be clearly documented in the patient's notes.

Due to the high risk associated with changes in liquid medication dosing, it is not appropriate to notify patients/carers of changes by text or letter. The dispensing contractor must also be informed, as they can provide additional counselling to ensure the patient/carers understands the new directions and volume.

It is also recommended to ensure that all supplies of the current dose are used up (if possible) and replaced at the same time. For example, some patients keep supplies at a secondary location (second residential address, school etc).

The Specialist Pharmacy Service (SPS) has specific guidance on [medicine switches for solid dose and liquid formulations](#) for further information.

## Labelling of oral medications

[The NPPG position statement](#) for labelling of dispensed oral medicines for children should be followed where possible when prescribing liquid medicines. To ensure consistency, the labelling should be applied to medicines prescribed for children and adults:

1. The Dose must be expressed numerically in millilitres only.
  - a) The dose should not be expressed in mass or biological units (such as mg, micrograms, International Units).
  - b) The dose should not be expressed in “spoonfuls”.
  - c) The dispenser must ensure that the dose volume specified can be measured with the administration device provided.
  - d) It may be necessary for the dispenser to round the dose volume to allow accurate measurement with the administration device provided. In general, dose volumes less than 1mL must be rounded to a maximum of two decimal places and dose volumes greater than 1mL should be rounded to a maximum of one decimal place.
2. Frequency must be expressed in words, as the number of times “a day” the medicine should be taken rather than the number of times “daily”, e.g.: “ONCE a day”, “TWICE” a day, “THREE times a day” or “FOUR times a day”. In rare situations where more precise timing is needed, the time must also be given in words, e.g. “Every SIX hours”, “Every FOUR to SIX hours”.

## Version control

| Version number | Revision date  | Revision by       | Nature of revisions              |
|----------------|----------------|-------------------|----------------------------------|
| 1.0            | September 2025 | Stacie Tregonning | Initial version approved by CAPC |
|                |                |                   |                                  |