

Position statement 18-01

Using Standardised Concentrations of Unlicensed Liquid Medicines in Children

Take home summary

NPPG and the Royal College of Paediatrics and Child Health (RCPCCH) strongly recommend that when children require unlicensed liquid medications, they should receive the RCPCCH and NPPG recommended concentration, where one exists. There are currently 12 such recommended concentrations detailed below, 11 of which are published in relevant drug monographs of the BNF for Children. Some medicines from the original version of this list have been removed as licensed preparations are now available.

By standardising the prescribed concentration of these medicines, we will reduce the risk of errors being made in the doses given to children and prevent hospitalisation from accidental under and overdoses.

Standard concentrations which should be prescribed

Drug name	Concentration
Azathioprine	50mg/5mL
Chloral Hydrate	500mg/5mL
Clopidogrel	25mg/5mL*
Ethambutol	400mg/5mL
Hydrocortisone	5mg/5mL
Isoniazid	50mg/5mL
Phenobarbital (alcohol free)	50mg/5mL
Pyrazinamide	500mg/5mL
Sertraline	50mg/5mL
Sodium chloride	5mmol/mL
Spirolactone	50mg/5mL
Tacrolimus	5mg/5mL

* Clopidogrel concentration is agreed, but as no monograph for this medication exists yet in the BNFC it is not yet published there.

Further Information

Every year there is harm to patients caused by accidental under and overdosing of medicines in children solely due to the fact that the concentration of their liquid medication changed and the person administering the medicine did not realise they needed to change the volume given. Furthermore there is a strong desire to improve the quality and control the cost of this group of medicines which still form a large proportion of the medicines supplied to children. It will be difficult to progress these quality improvements without first standardising the concentration.

A study by Rawlence *et al* was undertaken to establish through evidence and Delphi review of experts the most suitable concentration of each of the top 20 prescribed liquid special medications in children. When selecting initial concentration for review the following criteria were used:

1. Ideal : Dose for 1kg patient should not be less than 0.2mL and 50kg should not be more than 10mL
2. Satisfactory: Dose for 1kg patients should not be below 0.1mL and 50kg should not be above 20mL

Consensus on a standard concentration was found for 17 of the top 20 liquid special medications and these have been endorsed by the Medicines Committee at the RCPC and published through the BNF for Children which both organisations publish with the Royal Pharmaceutical Society.

This position statement has been written to highlight that these standardised concentrations exist and to encourage all prescribers to prescribe these concentrations. We also encourage the use of these concentrations to be supported through their inclusion in local guidance. This will help prevent errors in children whilst enabling further work to look at excipient suitability and cost control.

The recommended concentrations can be found in the BNFC monographs for each of the drugs. In the paper copy this is in the prescribing and dispensing section. In the app this can be found by clicking the medicines tab of the relevant drug monograph.

References

Rawlence E *et al*. Is the provision of paediatric oral liquid medicines safe? *Arch Dis Child Educ Pract Ed*. 2018;103(6):310-3. doi:

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Key changes from Version 5 (published April 2020):

- Change to use "concentration" rather than "strength" throughout

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