

## 2 Guidance on prescribing

**Medicines Use Review** The Medicines Use Review (MUR) service consists of structured adherence-centred reviews with children on multiple medicines, particularly those receiving medicines for long-term conditions. The service is undertaken periodically, or when there is a need to make an adherence-focused intervention due to a problem identified while providing the dispensing service.

The pharmacist providing the service is required to ensure that at least 70% of all MURs undertaken in a year are for children who fall into one or more of the national target groups. The national target groups for MURs in England are:

- children taking high-risk medicines (NSAIDs, anticoagulants (including low molecular weight heparin), antiplatelets, or diuretics);
- children recently discharged from hospital who have had changes made to their medicines;
- children prescribed certain respiratory medicines;
- children with, or at risk of cardiovascular disease, and are regularly prescribed at least four medicines.

For further information, see: [psnc.org.uk/services-commissioning/advanced-services/murs/](http://psnc.org.uk/services-commissioning/advanced-services/murs/).

Wales, Northern Ireland, and Scotland have variations on this service, including different national target groups.

In Wales, see [www.cpwales.org.uk/Contract-support-and-IT/Advanced-Services/Medicines-Use-review-MUR.aspx](http://www.cpwales.org.uk/Contract-support-and-IT/Advanced-Services/Medicines-Use-review-MUR.aspx)

In Northern Ireland, see [www.hscbusiness.hscni.net/services/2427.htm](http://www.hscbusiness.hscni.net/services/2427.htm).

In Scotland, see [www.communitypharmacyscotland.org.uk/nhs-care-services/services/chronic-medication-service/](http://www.communitypharmacyscotland.org.uk/nhs-care-services/services/chronic-medication-service/).

### Drug treatment in children

Children, and particularly neonates, differ from adults in their response to drugs. Special care is needed in the neonatal period (first 28 days of life) and doses should always be calculated with care; the risk of toxicity is increased by a reduced rate of drug clearance and differing target organ sensitivity. The terms infant, child and adolescent are used inconsistently in the literature. However, **for reference purposes only**, the terms generally used to describe the paediatric stages of development are:

Preterm neonate	Born at < 37 weeks gestation
Term neonate	Born at 37 to 42 weeks gestation
Post-term neonate	Born at ≥42 weeks gestation
Neonate	From 0 up to 28 days of age (or first 4 weeks of life)
Infant	From 28 days up to 24 months of age
Child	From 2 years up to 12 years of age
Adolescent	From 12 years up to 18 years of age

In *BNF for Children*, the term neonate is used to describe a newborn infant aged 0–28 days. The terms child or children are used generically to describe the entire range from infant to adolescent (1 month–17 years). An age range is specified when the dose information applies to a narrower age range than a child from 1 month–17 years.

### Administration of medicines to children

Children should be involved in decisions about taking medicines and encouraged to take responsibility for using them correctly. The degree of such involvement will depend on the child's age, understanding, and personal circumstances.

Occasionally a medicine or its taste has to be disguised or masked with small quantities of food. However, unless specifically permitted (e.g. some formulations of pancreatin p. 74), a medicine should **not** be mixed with large quantities of food because the full dose might not be taken and the child might develop an aversion to food if the medicine

imparts an unpleasant taste. Medicines should not be mixed or administered in a baby's feeding bottle.

Children under 5 years (and some older children) find a liquid formulation more acceptable than tablets or capsules. However, for long-term treatment it may be possible for a child to be taught to take tablets or capsules.

An oral syringe should be used for accurate measurement and controlled administration of an oral liquid medicine. The unpleasant taste of an oral liquid can be disguised by flavouring it or by giving a favourite food or drink immediately afterwards, but the potential for food–drug interactions should be considered.

Advice should be given on dental hygiene to those receiving medicines containing cariogenic sugars for long-term treatment; sugar-free medicines should be provided whenever possible.

Children with nasal feeding tubes in place for prolonged periods should be encouraged to take medicines by mouth if possible; enteric feeding should generally be interrupted before the medicine is given (particularly if enteral feeds reduce the absorption of a particular drug). Oral liquids can be given through the tube provided that precautions are taken to guard against blockage; the dose should be washed down with warm water. When a medicine is given through a nasogastric tube to a neonate, **sterile water** must be used to accompany the medicine or to wash it down.

The intravenous route is generally chosen when a medicine cannot be given by mouth; reliable access, often a central vein, should be used for children whose treatment involves irritant or inotropic drugs or who need to receive the medicine over a long period or for home therapy. The subcutaneous route is used most commonly for insulin administration. Intramuscular injections should preferably be **avoided** in children, particularly neonates, infants, and young children. However, the intramuscular route may be advantageous for administration of single doses of medicines when intravenous cannulation would be more problematic or painful to the child. Certain drugs, e.g. some vaccines, are only administered intramuscularly.

The intrathecal, epidural and intraosseous routes should be used **only** by staff specially trained to administer medicines by these routes. Local protocols for the management of intrathecal injections must be in place.

### Managing medicines in school

Administration of a medicine during schooltime should be avoided if possible; medicines should be prescribed for once or twice-daily administration whenever practicable. If the medicine needs to be taken in school, this should be discussed with parents or carers and the necessary arrangements made in advance; where appropriate, involvement of a school nurse should be sought. *Managing Medicines in Schools and Early Years Settings* produced by the Department of Health provides guidance on using medicines in schools ([www.dh.gov.uk](http://www.dh.gov.uk)).

### Patient information leaflets

Manufacturers' patient information leaflets that accompany a medicine, cover only the licensed use of the medicine. Therefore, when a medicine is used outside its licence, it may be appropriate to advise the child and the child's parent or carer that some of the information in the leaflet might not apply to the child's treatment. Where necessary, inappropriate advice in the patient information leaflet should be identified and reassurance provided about the correct use in the context of the child's condition.

### Biological medicines

**Biological medicines** are medicines that are made by or derived from a biological source using biotechnology processes, such as recombinant DNA technology. The size and complexity of biological medicines, as well as the way