Section 24 - Safe Use & Control Of Medicines In Neonates & Paediatrics

Background

Patients at extremes of age are more vulnerable than others to medication errors and adverse effects. Whilst safe prescribing and medicine management are prerequisites for all patients, extra vigilance must be observed when prescribing and dispensing for, or administering medicines to, paediatric patients.

Medication errors are likely to occur in hospitals where potent drugs are used in the treatment of life threatening conditions. Causes of such errors include ignorance of appropriate dosage schedules, carelessness in calculating the dose, poor writing and failure to administer the correct drug.

Purpose and Scope of Guidelines

The purpose of these guidelines is to give practical guidance on error avoidance to all those involved in the prescribing, dispensing and administration of medicines for neonates and children.

The complexity of prescribing for paediatrics makes it difficult for doctors and nurses to gain familiarity with preparations and dosages except by working in specialised units. All staff who could be involved in the administration of medicines to children should receive adequate training in current good practice.

These guidelines apply to all situations in hospital where paediatric patients may be treated with medicines. Particular attention should be given when medicines are prescribed or administered in settings not exclusive to paediatric patients including Accident and Emergency, ITU, Short Stay Wards, Theatres and Recovery areas.

Individual sections of this document should not be read in isolation. The document should be read as a whole.

1. Drug stock holding

1.1 Agreement should be reached to reduce the variety of strengths of a preparation held in stock to minimise the possibility of error. This may not always be possible in some areas e.g. Accident and Emergency, in which case extra care must be t aken when selecting the product. Storage of different strengths of the same product should be arranged to minimise the likelihood of error, particularly where there are few distinguishing features between packs of different strengths.

1.2 **ALWAYS READ THE LABEL**

31. l .3 Wherever possible, commercially available preparations should be used to ensure product integrity and stability and to facilitate ongoing supplies. Pharmacy, however, may prepare or procure special dosage forms or strengths to meet individual patients needs and reduce the requirement for medical and nursing staff to perform complex calculations when administering medicines.

2. Selection of Medicine

2.1 Consideration must be given to the possible effects of drug therapy on growth and development. The possible risks must be carefully weighed against benefits of therapy.

2.2 Paediatric formulations must be used where possible. Many children can swallow tablets but when a liquid preparation is required, sucrose free formulations should be used where available. The choice between liquid and solid oral dose formulations will depend on both the child and medication since aversion to taste, colour or smell may result in non-compliance, and allergy to flavourings, colourings or preservatives may cause further problems.

2.3 Some drugs in tablet or capsule form may be opened, dissolved, suspended or crushed and disguised in e.g. juice before administration - the suitability of this method of administration must be confirmed with pharmacy. Enteric coated or sustained release preparations should, however, not be crushed – advice should be sought from pharmacy on administration.

2.4 Many medicines used in paediatrics are used outwith the terms of their product licence. The pharmacist will endeavour to inform the prescriber of these situations to ensure that they are fully aware of their responsibilities.

2.5 Many unlicensed medicines or 'specials' are also used in Paediatrics. The quality of these products will be assured by the Pharmacy department before supply. For drugs that are not prescribed in accordance with monographs within the current edition of BNF for Children written confirmation from the prescribing Consultant is required to indicate that he/she is aware of the licence status. In normal paediatric practice no additional steps, beyond those taken when prescribing licensed medicines, are required to obtain consent of patients and parents/carers for the use of unlicensed medicines. Most licensed medicines are dispensed in standard packages with a Patient Information Leaflet (PIL). When the license does not include indications for children, the PIL may caution against such use. To alleviate parent/carer concerns a generic PIL which explains why it may be necessary to prescribe unlicensed medicines or to use licensed medicines for unlicensed applications is available.

3. Route of administration

3.1 The oral route should be used where available. However, for neonates and children who are seriously ill, or where the oral route is contra-indicated or unreliable, the rectal route should be considered if a suitable preparation is available. Otherwise parenteral therapy, usually intravenous, is necessary.

3.2 Intramuscular injections are distressing for children and should be avoided where possible.

4. Dosage calculations

4.1 The recommended dose for each drug is usually based on either body weight or body surface area. The dose should be checked in the most recent edition of BNF for Children. For medicines prescribed in the Neonatal Unit the dose should be checked against the local Neonatal formulary.

Note: - Contact Pharmacy for assistance

4.2 BNF for Children is the preferred drug reference source within paediatrics in Lanarkshire. Other publication should only be used when insufficient information is available in the BNF for Children. Note different publications detail dosage schedules in different formats. Familiarity with the way that dosages are quoted in publications is essential to prevent errors.

4.3 The calculated dose should not exceed the usual adult dose.

4.4 Within reasonable limits, the calculated dose can be rounded off to make measurement and administration easier and more accurate.

4.5 Particular care must be taken when calculations involve a decimal point. These calculations should be written on paper, not done by mental arithmetic or solely b y electronic calculator. Another appropriate member of staff should check them.

4.6 Wherever possible, details of the calculation and check should be recorded.

4.7 Where protocols are available to minimise calculations, these should be used.

4.8 For chronic treatment the dose of the medication should be re-evaluated at regular intervals based on changing weight and age.

5. Prescription writing

5.1 The child's weight, date of birth and gestational age for neonates must be written on the prescription.

5.2 The approved name of the medicine should be used whenever possible. An exception to using the approved name should be made in the case of those medicines with a unique formulation e.g. theophylline.

5.3 The drug should be written in BLOCK capitals.

5.4 Certain abbreviations are not acceptable, in particular; micrograms should never be abbreviated to prevent confusion with mg. Doses less than 1 mg must be written in micrograms.

5.5 Roman numerals should not be used.

5.6 Prescriptions for liquid preparations should, where possible, indicate the drug dose in milligrams or micrograms, and not just the number of ml required. An exception to this are compound preparations.

5.7 All staff can play an important part in preventing medication errors by vigilance in recognising when unusually small or large doses are prescribed and querying these with the prescriber.

5.8 If a drug is to be prescribed 'as required' this should be written in full across the prescription with an indication of the symptom being treated and the maximum number of doses in the treatment period e.g. Paracetamol 120mg as required for pain 4-6 hourly. Maximum 4 doses in 24 hours.

5.9 Any prescribed doses that include a decimal point must be written with extra care to ensure that the decimal point is clear and where relevant that the decimal point is preceded by a zero e.g. Abidec 0.6ml not Abidec .6ml.

5.10 Never use a trailing zero e.g. state 5mg NOT 5.0mg as this can lead to a ten fold overdose

5.11 The form and route of administration should be clearly specified.

31.6 Administration

31.6.1 Always read the label

31.6.2 Appropriate equipment should be used for the administration of medicines to paediatrics and neonates e.g. oral dose syringes.

31.6.3 All oral medication for outpatients or discharges will be supplied in child resistant containers unless otherwise specified by the prescriber.

31.6.4 **Non Parenteral**

- Administration of medicines to children should be in accordance with locally agreed procedures.
- These should be based on the recommendations of the Duthie report, 'Guidelines For The Safe And Secure Handling Of Medicines', which states 'Where a system of one nurse administration is used in hospitals, the nurse shall follow full hospital checking procedures and shall ensure that administration does not involve calculation of dose; administration to children under 12; weight related dose; or Controlled Drugs. In these instances a second Authorised Nurse shall check all aspects of administration'.

31.6.5 **Parenteral drugs**

In terms of risk management, this method of drug administration presents a greater risk than non-parenteral drug administration. It is essential that staff administering drugs by this route are fully conversant with the process which includes: -

- selection of the appropriate administration device
- calculation and setting of the rate of the infusion of parenteral drugs monitoring delivery of the parenteral solutions to the patients.

In line with HEI 198 it is recommended that "those unfamiliar with equipment should be forbidden to operate it unless supervised or until they are considered competent in its use".

a) Sufficient reference information on prescribed parenteral drugs should be available at ward level to enable safe administration of this high-risk group of medicines.

b) The responsibility to administer parenteral medication rests with the doctor. However, appropriately trained nurses as agreed by local policy may also carry out this procedure.

c) A second appropriate member of staff should check all parenteral drug calculations and attention paid to the rate of administration.

d) Most parenteral preparations are intended for adult use. Where less than a full vial of drug is being used for a dose, consideration should be given to the displacement value of powdered drugs requiring reconstitution.

e) Stability should be assured before any drugs are added to infusion fluids or where there are multiple drugs running through an IV line. Pharmacy should be contacted for advice where necessary.

f) When a drug requires further dilution before administration, the type and volume of fluid must be prescribed along with the duration of infusion. A label identifying

the patient, ward number, infusion fluid and volume, as well as the drug additive must be signed by those involved in the preparation and placed on the infusion bag, burette chamber or syringe if a syringe driver is being used.

g) It is good practice to label all drugs prepared for parenteral administration.

h) When several drugs of similar volume are being administered at the same time, labels identifying the drugs must be used to mark the syringes.

i) In case of variable rate prescriptions e.g. sliding scale insulin, each change in rate of administration should be documented. This may not always be practicable in emergency situations.

j) Luer lock administration systems and extension lengths should be used. This includes luer lock fitted syringes for syringe drivers.

k) Guidance should be sought from pharmacy on the storage and stability of parenteral drugs.