Improving medication safety

- Good lighting for selecting and checking drugs;
- Consistent storage in each theatre suite;
- All drugs to be stored in the manufacturer’s packaging;
- Syringes needing to be prepared in advance to be labelled with the name and strength of the drug;
- Prefilling of syringes to be carried out in a pharmacy unit wherever possible;
- Emergency medication to be stored away from the immediate work area.

### Neonatal and paediatrics

Drug dosing for children is often based on calculations of weight or surface area. The most frequent causes of errors in children are the misreading of decimal points and calculation errors (NPSA, 2003). Inaccuracies in dosing are more significant where very small volumes are involved (DoH, 2004). The impact of errors in children, especially in neonates, may be more clinically significant. Recommendations to improve practice include:

- Weights to be expressed as kilogrammes (Kg);
- Nursing staff to demonstrate competence in calculating paediatric drug doses;
- Oral syringes to be used where appropriate;
- Small or difficult-to-measure doses to be prepared centrally in pharmacy;
- Particular care to be taken with decimal points in paediatric medication.

### Critical care and surgery

Administration errors are more common in complex clinical areas where patients may have multiple lines accessing various sites for drug administration (DoH, 2004). It is important for nurses to be aware of the high risk of administering a drug by the wrong route. Recommendations to improve practice include:

- Use of oral syringes for the administration of oral medicines only;
- Drugs to be administered by the oral and intravenous route to be taken to patient’s bedside separately;
- Pumps intended for intravenous medications not to be used for enteral fluids;
- Route of administration always to be confirmed;
- Distal ends of all lines to be labelled to identify access.

### Allergy

Allergic drug reactions are a serious risk and a common source of error (DoH, 2004). Nurses should be aware of the drugs that most commonly cause this type of reaction (Box 2) as well as the fact that additives used in the formulation of medicines, for example colours, may also cause severe reactions. Recommendations to improve practice include:

- Written standards for documentation of drug allergies;
- Audit of allergy documentation;
- Prominent recording of allergy status of patients even if they have no known allergies.

The report recommends consideration of a universal symbol denoting penicillin allergy and labelling of products with a warning when they contain penicillin.

### Other measures to improve safety

Using information technology to reduce medication errors such as bar coding, automated medication administration records and robotic dispensing systems have the potential to reduce the number of medication errors (DoH, 2004).

Measures to improve safety through improved labelling and packaging are recommended. The role of effective communication between health care settings and the need for education and training in medication safety are also highlighted in the report.

Prevention of medication errors is dependent on comprehensive reporting of all errors including near misses and those that do not result in harm.

Nurses have an important role to play in the implementation of the new guidance and also in the reporting of medication errors.

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**Box 1. Definition of Medication Error**

The National Patient Safety Agency defines medication error as:

‘A medication error is any preventable event that may cause or lead to inappropriate medication use or patient harm while the medication is in the control of health professional, patient or consumer.’
AUTHOR Terry Hainsworth, BSc, RGN, is acting clinical editor, Nursing Times.


Errors in prescribing and administering medication can have serious consequences. A Department of Health report highlights common medication errors and high-risk clinical areas. It includes many practical suggestions for the prevention of errors.

It is thought that many incidents of medication error in the NHS are either not detected or not reported (DoH, 2004). Most medication errors do not result in harm to patients but by definition they are all preventable (Box 1). To reduce errors it is important to be aware of common areas of occurrence and causes.

Medications of highest risk of error

The report Building a Safer NHS for Patients: Improving Medication Safety (DoH, 2004) highlights six medicines that are associated with a high number of errors and outlines recommendations to improve safety.

Oral anticoagulants

Anticoagulants have a narrow therapeutic margin and are safe only if monitored closely. Drugs in this class frequently cause preventable adverse effects (DoH, 2004).

Recommendations to improve nursing practice include:

- Local policy to follow the British Committee for Standards in Haematology (1998) guidelines on oral anticoagulation;
- Patients to receive an anticoagulant booklet;
- Patients to be made aware of the importance of informing other health care professionals that they are on anticoagulant therapy;
- Routine audits to identify over-anticoagulated and under-anticoagulated patients and prompt a review;
- Use of computer decision-support systems.

Cytotoxic drugs

Drugs used in the treatment of cancer are highly toxic and errors can have tragic consequences. Common causes of error are complexity of calculations, similarity of drug names and use of abbreviations for drug names (DoH, 2004).

Recommendations to improve practice include:

- Training in the risk of medication errors;
- Standardisation of calculations of body surface area;
- Preparation of injectable chemotherapy centrally within the pharmacy;
- Rigorous implementation of national guidance on intrathecal chemotherapy;
- Adoption of a patient-held card to alert health care staff to the possibility of immunosuppression, lowered white blood count or sepsiscaemia.

Intravenous infusions

User error is the most frequent cause of incidents involving infusion devices, for example setting the wrong rate, not confirming the pump type or syringe size and not stopping the pump correctly (DoH, 2004).

Recommendations to improve practice include:

- Adoption of a patient-held card to alert health care staff to the possibility of immunosuppression, lowered white blood count or sepsiscaemia;