Chapter 2

Safe and accurate drug administration

Learning outcomes

After completing this chapter, you will be able to
1. Describe the six rights of safe medication administration.
2. Explain the legal implications of medication administration.
3. Describe the routes of medication administration.
4. Identify common abbreviations used in medication administration.
5. Compare the proprietary (trade) names and non-proprietary (generic) name of drugs.
6. Describe the forms in which medications are supplied.
7. Identify and interpret the components of a drug prescription.
8. Interpret the information found on drug labels and drug package inserts.

This chapter introduces the process of safe and accurate medication administration. The rights of the patients and the responsibilities of the people involved in the administration of medication are described.

As patients may receive medications in a variety of forms, these various forms and routes of drugs are presented as well as abbreviations used in prescribing and documenting the administration of medications. You will learn how to interpret drug prescriptions, drug labels, medication administration records and package inserts. You may wish to refer to a good-quality pharmacology book on seeing some of the drug examples that will be used in this chapter and subsequent chapters, as pharmacological explanations are not provided (no space or scope in this text). The examples are used to illustrate the main points (names, labels, forms).

Diagnostic questions

Before commencing this chapter try to answer the following questions. Compare your answers with those in Appendix A in order to identify your strengths and areas to focus on.
1. What is a drug prescription?

2. Who are the main people involved in the prescription process?

3. How many RIGHTS of drug administration are there?

4. What is the role of a drug package insert?

5. What does the GENERIC name of a drug mean?

The drug administration process

Drug administration is a process involving a chain of healthcare professionals. The prescriber writes the drug prescription, the pharmacist dispenses the prescription and the nurse or other healthcare professional administers the drug to the patient; each is responsible for the accuracy of the prescription. The legal responsibility for the prescription lies with the person who signs the prescription (DoH 2008). Furthermore, there are a range of professional and non-healthcare individuals (e.g. in residential institutions, etc., including patients themselves) who may administer drugs.

To ensure patient safety, knowledge of how drugs act and interact in patients is important either for one’s own practice or for education, support and guidance of patients and colleagues. Drugs can be life-saving or life-threatening. Every year, thousands of deaths occur because of medication errors. Errors can occur at any point in the medication process from prescribing to dispensing or administration (Smith 2004).

Who administers drugs?

There are a range of healthcare professionals who can prescribe drugs from general practitioners, hospital doctors, pharmacist independent prescribers, optometrist independent prescribers, dentists and other independent prescribers (DoH 1999, 2008). Some nurse practitioners can also prescribe following qualification as independent prescribers. There are two groups of independent nurse prescribers: Community Practitioner Nurse Prescribers, who qualified under the original arrangements for nurse prescribing, and Nurse Independent Prescribers [PPD 2008]. In 2005 the Department of Health announced a wider range of health professionals who could prescribe under a category called: Supplementary prescribers, doing so in association with a doctor (DoH 2008).

Although prescribers may administer drugs to patients, other professionals, namely registered nurses, midwives and specialist community nurses, are usually responsible
for administering drugs. In some situations, designated non-professional personnel administer drugs or medications to clients (residential homes), and this is generally following training and preparation for competence whilst also following local policies and maintaining strict records of administration (RPSGB 2003).

Healthcare professionals who administer drugs or medications must be familiar with their professional body guidance. For nurses this is: the Nursing and Midwifery Council (NMC) Standards for Medicines Management (2007). Furthermore, healthcare professionals do need to be aware of specific local policies and procedures relative to the administration of medications, and that they have a legal and ethical responsibility to report medication errors. There are many organisations and groups that are striving to reduce medication errors, such as the Medicines and Healthcare products Regulatory Agency (MHRA), National Patient Safety Agency (NPSA), the Department of Health (DoH), National Institute for Health and Clinical Excellence (NICE), the Royal College of Nursing (RCN) and the NMC mentioned above. Professionals have a responsibility to be aware of their limitations and work towards addressing these with colleagues, workplace, professional bodies, education institutions and also resources such as this book.

In order to prepare and administer drugs, it is imperative that you understand and follow professional guidance (NMC 2007) and focus on the six rights of medication administration (Figure 2.1):

- right drug
- right dose
- right route
- right time
- right patient
- right documentation
These six ‘rights’ should be checked before administering any medications. Failure to achieve any of these rights constitutes a medication error.

Some institutions or clinical areas recognise additional rights, such as the right to know, the right to refuse and the right attitude. Patients need to be informed and educated about their medications as they are a partner in their care and treatment. If a patient refuses a medication, the reason must be documented and reported immediately.

The right drug

A drug is a chemical substance that acts on the physiological processes in the human body. For example, the drug insulin is given to patients whose pancreas cannot produce insulin. Some drugs have more than one action. Aspirin, for example, is an antipyretic (fever-reducing), analgesic (pain-relieving) and anti-inflammatory drug that also has anticoagulant properties (keeps the blood from clotting). A drug may be taken for one, some or all its therapeutic properties.

The generic or non-proprietary name is the official accepted name of a drug, as listed in the British National Formulary (BNF). A drug has only one non-proprietary name, but can have many proprietary or trade names. By law, the European Union (EU) directive on labelling of medicines 92/27/EEC requires the use of recommended international non-proprietary names (rINN) for drugs.

In many instances the British Approved Name (BAN) and the rINN were identical; where they were not, the BAN was modified to comply for consistency and safety (BNF 2008). Many companies may manufacture the same drug using different proprietary (trade, patented or brand) names. The drug’s proprietary name is followed by the trademark symbol ™ or the registration symbol ®. For example, Avodart® is the proprietary name and dutasteride is the non-proprietary name for the drug shown in Figure 2.2. Dosage strength indicates the amount of drug in a specific unit of measurement. The dosage strength of Avodart is 0.5 mg per capsule.
To help avoid errors, drugs should be prescribed using only the non-proprietary name. There are also economic implications. Proprietary brands and sophisticated or colourful packaging may cost more than simpler plain non-proprietary brands of drugs. This may require extra vigilance by the nurse or whoever is administering the drug or even the patient who may be self-administering. Do note that some drugs have names that sound alike, or have names or packaging that look similar, thus a working knowledge of the names is essential. If in doubt always consult a pharmacological text such as the BNF or the Electronic Medicines Compendium (EMC) or ask the local pharmacist. Table 2.1 includes a sample list of drugs whose names may be confused.

**Table 2.1** Look-alike/sound-alike drugs

<table>
<thead>
<tr>
<th>Drug name</th>
<th>Look-alike/sound-alike drug name</th>
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<tbody>
<tr>
<td>ceftazidime</td>
<td>cefotaxime</td>
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<tr>
<td>dactinomycin</td>
<td>daptomycin</td>
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<td>ephedrine</td>
<td>epinephrine</td>
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<td>fluconazole</td>
<td>fluorouracil</td>
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<td>folic acid</td>
<td>folinic acid</td>
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<td>Humalog</td>
<td>Humulin</td>
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<td>nifedipine</td>
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<tr>
<td>Retrovir</td>
<td>ritonavir</td>
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<tr>
<td>vinblastine</td>
<td>vincristine</td>
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</table>

**Practice point**

Patients may become confused with drug packaging changes, so it is important that the nurse understands the concepts of proprietary and non-proprietary forms of drugs and can advise, explain and support patients self-administering drugs to minimise anxiety and potential errors. There is a move to make the design of drug packaging and labels clearer, but patients still require support (NPSA 2007).
The right dose

A person prescribing or administering medications has the **legal responsibility** of knowing the correct dose. Since no two people are exactly alike, and no drug affects every human body in exactly the same way, drug doses must be individualised. Responses to drug actions differ according to the gender, race, genetics, nutritional and health status, age, and weight of the patient (especially children and the elderly), as well as the route and time of administration.

**Body surface area (BSA)** is an estimate of the total skin area of a person measured in metres squared (m²). Body surface area is determined by formulas based on height and weight or by the use of a BSA nomogram (see Chapter 5). Many drug doses administered to children or used for cancer therapy are calculated based on BSA.

Before administering drugs to patients there are some essential steps to take:

+ Carefully read the drug label to determine the **dosage strength**.
+ Perform and **check calculations** and pay special attention to decimal points.
+ When giving an IV drug to a paediatric patient or giving a high-alert drug (one that has a high risk of causing injury), **always double check the dosage and if using a pump, the pump settings**, and confirm these with a colleague according to your local policy. Be aware that many institutions or clinical areas may operate a single checking policy.
+ Be sure to check for the recommended **safe dosage range** based on the patient’s age, BSA or weight.
+ After you have calculated the dose, be certain to administer using standard measuring devices such as calibrated medicine droppers, syringes or cups.
The right route

Medications must be in the form and via the route specified by the prescriber. Medications are manufactured in a variety of forms: tablets, capsules, liquids, suppositories, creams, patches or injectable medications (which are supplied in solution or in a powdered form to be reconstituted). The route indicates the site of entry into the body and method of drug delivery.

Oral medications

Oral medications are administered by mouth (PO). Oral drugs are supplied in both solid and liquid form.

- The most common solid forms are tablets (tab), capsules (cap) and caplets (Figure 2.3).
- Scored tablets have a groove down the centre so that the tablet can be easily broken in half. To avoid an incorrect dose, unscored tablets should never be broken for administration (Lister 2008).
- Enteric-coated tablets are meant to dissolve in the intestine rather than in the stomach. Therefore, they should be neither chewed nor crushed.
- A capsule contains a powder, liquid or granules in a gelatin case. Sustained-release (SR) or extended-release (XR) tablets or capsules slowly release a controlled amount of medication into the body over a period of time. Therefore, these drugs should not be opened, chewed or crushed.
- Tablets for buccal administration (absorbed by the mucosa of the mouth) and tablets for sublingual (SL) administration (absorbed under the tongue) should never be swallowed.
- Oral drugs also come in liquid forms: elixir, syrup and suspension. An elixir is an alcohol solution, a syrup is a medication dissolved in a sugar and water solution and a suspension consists of an insoluble drug in a liquid base.
Parenteral medications

Parenteral medications are those that are injected (via needle) into the body by various routes. Drug forms for parenteral use are sterile and must be administered using aseptic (sterile) technique. The most common parenteral sites are the following:

✚ intramuscular (IM): into the muscle;
✚ subcutaneous (subcut): into the subcutaneous tissue;
✚ intravenous (IV): into the vein;
✚ intradermal (ID): beneath the skin.

Cutaneous medications

Cutaneous medications are those that are administered through the skin or mucous membrane. Cutaneous routes include the following:

✚ topical: administered on the skin surface;
✚ transdermal: contained in a patch or disk and applied to the skin;
✚ inhalation: breathed into the respiratory tract through the nose or mouth;
✚ solutions and ointments: applied to the mucosa of the eyes (optic), nose (nasal), ears (otic) and mouth;
✚ suppositories: shaped for insertion into a body cavity (vagina or rectum) and dissolve at body temperature.

Some drugs are supplied in multiple forms and therefore can be administered by a variety of routes. For example, Voltarol (Novartis) (diclofenac sodium) is supplied as a tablet, dispersible tablet, suppository, topical gel or solution for injection.

The right time

The prescriber will indicate when and how often a medication should be administered. Oral medications can be given either before or after meals, depending on the action of the drug. Medications can be prescribed once a day (daily/od), twice a day (b.i.d./bd), three times a day (t.i.d./tds) and four times a day (q.i.d./qds). Most health or clinical institutions indicate specific times for these administrations. To maintain a more stable level of the drug in the patient, the administration of the drug should be prescribed for regular intervals, such as every 4 hours, 6 hourly or 12 hourly.

It should be noted that the term b.i.d. (twice daily) is not necessarily the same as 12 hourly. B.i.d. may mean administer at 10 A.M. and 6 P.M., whereas 12 hourly may mean administer at 10 A.M. and 10 P.M. (depending on the particular local institutional policy). Drugs can also be prescribed to be administered as needed (pro re nata or prn).
CHAPTER 2 SAFE AND ACCURATE DRUG ADMINISTRATION

Stop and think

Timing of medication administration can be critical for maintaining a stable concentration of the drug in the blood and avoiding interactions with other drugs. Usually a dose should be given within 30 minutes of the time specified by the prescriber – up to 30 minutes before or 30 minutes after. For some medications this could be disastrous; for example, giving insulin too early with a time delay until a meal may result in a patient having a low blood sugar episode (hypoglycaemia) which could be dangerous. In addition, be aware of professional responsibilities: it is imperative that the patient is observed taking the drug; if it is left to take ‘later’ this constitutes negligence – once the administration process is commenced the steps should be followed all the way through.

Know the local policy and always administer the dose directly after it is prepared.

The right patient

Before administering any medication, it is essential to determine the identity of the recipient. The NMC clearly states in standard 8 of the Standards for Medicines Management (2007) that ‘you must be certain of the identity of the patient to whom the medication is to be administered.’ To be certain you must check:

✦ Verbally: ask the patient their name, date of birth, if an in-patient also the hospital number, if known.
✦ Visually: check the patient name band (if in-patient) against the name on the prescription chart.
✦ Never use the patient’s bed number or room number. After identifying the patient, match the prescription chart, patient’s name, age and hospital number or address.

The right documentation

Always check the prescription form for the correct legible name and dosage of the drug, as well as the route and time of administration. If one is being used also ensure the Medication Administration Record (MAR) is clearly completed and signed. Sign your initials immediately after, but never before, the dose is given. It is important to document any relevant information in the patient’s care plan. For example, document patient allergies to medications, specific measurement, e.g. heart rate (when giving digoxin) or blood pressure (when giving antihypertensive drugs). All documentation must be legible. Remember the old saying, ‘If it’s not documented, it’s not done.’

Anticipate side effects! A side effect is an undesired physiological response to a drug. For example, codeine relieves pain, but its side effects include constipation, nausea, drowsiness and itching. A nurse or whoever is administering the drug must be sure to record any observed side effects and discuss them with the prescriber.

Safe drug administration requires a knowledge of common abbreviations. For instance, when the prescriber writes ‘Pethidine 75 mg IM 4 hourly prn pain’, the person administering the drug reads this as ‘Pethidine, 75 milligrams, intramuscularly, every four hours, as needed for pain’. Only approved abbreviations should be used (Table 2.2).
Before anyone can administer any medication, there must be a legal prescription for the medication. A drug prescription is a directive for a drug to be given to a patient and is based on patient consent to the treatment, recently more commonly known as a patient specific directive. In order for a patient to receive a drug which is paid for by the NHS a particular prescription must be completed (FP10). Some medicines are normally only available on prescription and not surprisingly these are referred to as prescription only medicines (or POMs). In addition, patients receive products on prescription that are not licensed medicinal products, for example appliances or dressings. Other medicines can be bought in pharmacies or from general retail outlets, and this is a consideration.

### Table 2.2 Common abbreviations used for medication administration

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<th>Abbreviation</th>
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<td><strong>Route:</strong></td>
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<td><strong>Frequency:</strong></td>
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<td>ID</td>
<td>intradermal</td>
<td>ac</td>
<td>ante cibum (before food)</td>
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<tr>
<td>IM</td>
<td>intramuscular</td>
<td>pc</td>
<td>post cibum (after food)</td>
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<tr>
<td>IV</td>
<td>intravenous</td>
<td>od</td>
<td>omni die (every day)</td>
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<td>IV bolus</td>
<td>intravenous bolus</td>
<td>bd</td>
<td>bis die (twice daily)</td>
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<td>NG</td>
<td>nasogastric tube</td>
<td>tds</td>
<td>ter die sumendum (to be taken three times daily)</td>
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<tr>
<td>PEG</td>
<td>percutaneous endoscopic gastrostomy</td>
<td>tid</td>
<td>ter in die (three times daily)</td>
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<td>PO</td>
<td>by mouth</td>
<td>qds</td>
<td>quater die sumendum (to be taken four times daily)</td>
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<td>PR</td>
<td>by rectum</td>
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<td>SL</td>
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<td>omni mane (every morning)</td>
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<td>intravenous</td>
<td>on</td>
<td>omni nocte (every night)</td>
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<td>IV bolus</td>
<td>intravenous bolus</td>
<td>prn</td>
<td>pro re nata (when required)</td>
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for nurses when administering medications to patients to avoid situations of administering medications and patients self-administering their own purchased medication at the same time.

Patients who are an in-patient in a hospital will have medications prescribed on hospital prescription charts for use during the in-patient period only. These charts will be devised by and be specific for the local hospital to fulfil its requirements and possibly any specific speciality. As nurses move from hospital to hospital or between differing clinical areas they may become confused with the differing drug prescription charts and need to be familiar with the key aspects of them and their own specific responsibilities. Hospital in-patient prescription charts differ from the legal standard NHS FP10 prescription forms (FP10s). The hospital doctor may prescribe some medication to take away on discharge home (TTAs) on these, generally for a short period, but these are not routinely used in hospital situations.

The standard NHS FP10 prescription forms are available in a variety of formats so different types of prescribers use their own specific versions of this form. Each version is a different colour, which helps the dispenser and the Prescription Pricing Division to identify the prescriber’s profession. The different versions of the FP10 also have different codes to indicate the type of prescriber authorised to prescribe, e.g. Nurses – FP10P, FP10SS, FP10 MDA-SS.

Information necessary for inclusion is listed below.

✚ Further information.
✚ Date the prescription is written.
✚ For in-patient prescriptions include: the patient’s full name, date of birth and hospital number.
✚ Drug name (generic name should be used preferably), dosage, route, frequency and amount to be dispensed (i.e. duration of therapy – 5 days or 1 month, etc.).
✚ Allergies or previous drug sensitivities (adverse drug reactions).
✚ Number of refills permitted.

When writing and checking prescriptions one should also adhere to the following as advised by the BNF (2008) and Smith (2004):

✚ Unnecessary use of decimal points should be avoided, e.g. 5 mg, not 5.0 mg.
✚ Quantities less than 1 gram should be written in milligrams, e.g. 500 mg, not 0.5 g.
✚ Quantities less than 1 mg should be written in micrograms, e.g. 100 micrograms, not 0.1 mg.
✚ When decimals are unavoidable a zero should be written in front of the decimal point where there is no other figure, e.g. 0.5 mL, not .5 mL.
✚ Micrograms and nanograms should not be abbreviated. Similarly units should not be abbreviated.

If the prescriber has an objection to a generic drug substitute, the prescriber will write ‘do not substitute,’ ‘dispense as written,’ ‘no generic substitution,’ or ‘medically necessary.’ [Figure 2.4].
Directions to the patient for use maybe included, but this will be clearly identified by the pharmacist dispensing the drug or medication following NPSA guidance. This prescription is interpreted as follows:

**Prescriber:** Dr D O Good  
**Prescriber address:** 7 High Street, Anytown, KB1 CD2  
**Prescriber phone number:** 0111 222 333  
**Date prescription written:** 02/07/2009  
**Patient full name:** Mr Peter Patient  
**Patient address:** Flat 1, 50 Stanhope Street, Newtown, TE22 1ST  
**Drug name:** Amoxycillin  
**Dosage:** 125 mg  
**Route:** PO  
**Frequency:** Three times a day  
**Amount to be dispensed:** 7 days worth  
**Directions to the patient:** Take 125 mg three times a day for 7 days. Ensure the course is completed.  
**Refill instructions:** No more refills on this prescription.

---

**Figure 2.4** Drug prescription for Amoxycillin

| PHARMACY STAMP: | AGE: 17 | NAME (INCLUDING FORENAME) AND ADDRESS: Mr Peter Patient  
| Flat 1, 50 Stanhope Street  
| Newtown TE22 1ST |

| D.O.B | 02/04/1992 | NHS NUMBER: QY 123 |

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<th>DISPENSER'S ENDORSEMENT</th>
<th>NUMBER OF DAYS TREATMENT, N.B ENSURE DOSE IS STATED</th>
<th>NP</th>
<th>PRICING OFFICE</th>
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</thead>
</table>

**Pack & Quantity**

Amoxycillin 125 mg (syrup)  
PO 3 times a day for 7 days  
Complete the course of medication

**Signature of doctors** Dr. D.O. Good  
**Date:** 02/07/2009

**For Dispenser No. of Items on Form**  
**Doctor address and telephone number:**  
7 High Street  
Any Town, KB1 CD2  
0111 222 333

**Please read notes overleaf**
Read the prescription in Figure 2.5 and complete the following information.

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<th>PHARMACY STAMP:</th>
<th>AGE:</th>
<th>NAME (INCLUDING FORENAME) AND ADDRESS:</th>
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|                 | 46   | Maria Silvestri
|                 |      | 124 Windy Lane
|                 |      | Old Town
|                 |      | WD4 6 BT |

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<th>D.O.B</th>
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| PACK & QUANTITY          | Doxycycline 100 mg
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<thead>
<tr>
<th>SIGNATURE OF DOCTORS</th>
<th>DATE:</th>
</tr>
</thead>
<tbody>
<tr>
<td>A.J. Smith</td>
<td>10/01/09</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>FOR DISPENSER NO. OF ITEMS ON FORM</th>
<th>DOCTOR ADDRESS AND TELEPHONE NUMBER:</th>
</tr>
</thead>
</table>
|                                   | A.J. Smith
|                                   | 1234 Spring Street
|                                   | Old Town WD9 7GB                      |

Figure 2.5 Drug prescription for doxycycline

Date prescription written: ________________________________

Patient full name: ________________________________

Patient address: ________________________________

Patient date of birth: ________________________________

Generic drug name: ________________________________

Dosage: ________________________________

Route: ________________________________

Frequency: ________________________________

Amount to be dispensed: ________________________________
Directions to the patient: __________________________________________________________

Refill instructions: ______________________________________________________________

This is what you should have found:

Date prescription written: 10/01/09
Patient full name: Mary Silvestri
Patient address: 124 Windy Lane, Old Town, WD4 6 BT
Patient date of birth: 11/07/63
Generic drug name: Doxycycline
Dosage: 100 mg
Route: PO (orally)
Frequency: B.D. (twice daily)
Amount to be dispensed: 7 days worth
Directions to the patient: Take 100 mg orally twice a day for 7 days.
Refill instructions: None indicated.

**Prescriptions and medication administration records**

**Prescription forms**

*Prescription forms* are directives to the pharmacist for the drugs used in a hospital or other health institution. No medication should be given without a valid legible prescription form (FP10) or hospital-specific in-patient prescription chart. According to the standards set out by the NMC (2007) a verbal order on its own is not sufficient (Lister 2008). In exceptional circumstances medication – not including controlled drugs – which have been prescribed previously can be re-prescribed using information technology such as fax, text message or email. However, the changes must be followed up with a written prescription normally within 24 hours (72 hours maximum at weekends and bank holidays).

**Stop and think**

If persons administering drugs or medications have difficulty understanding, reading or interpreting the orders, they must clarify the orders with the prescriber. Consider the effect of administering Daonil (hypoglycaemic drug) instead of Amoxil (antibiotic) because the prescriber’s handwriting was illegible.

A *verbal* order must contain the same components as a written order or else it is invalid. In order to provide for the safety of the patient, generally verbal orders may be taken only in an emergency. Each medication order should follow a specific sequence:
drug name, dose, route and frequency. The verbal order must be written and signed by the physician within 24 hours.

处方变化

最常见的一种处方是普通FP10处方，如前所述，它表示药物应被直到停止、终止（签名和日期）或直到达到指定日期为止。如果住院，患者将根据特定的医院处方，该处方在那个特定区域开发并适应使用。药物的管理记录也可能在同样的形式中；这将根据区域的不同而有所不同，因此护士应检查所使用文件。

一种prn处方是由开处方者为患者开出的，当患者需要时；例如，'Codeine 30 mg PO 4 hourly prn for mild to moderate pain。'

一种stat处方是一种要立即执行的命令。Stat命令通常用于紧急情况或患者状况突然改变时；例如，'Lasix 80 mg IV stat'用于心力衰竭：Lasix应在第一次立即给予。

其他处方图上的变化可能包括特定的治疗和程序，例如，可能有一个疾病预防部分——防止问题发生的药物或药物，例如肝素药物或抗栓塞袜子。需要定期被评估和评估的程序，例如住院处方图，例如，胰岛素管理，抗凝血，氧气治疗或静脉输液。护士应熟悉所有方面的处方和相关管理需求。

根据最近的变化和发展，处方可以以传统的处方单的形式出现，由医生或其他训练有素并准备的开处方者（也称为非医疗独立开处方和补充开处方）在上述形式中完成。另一种变化是患者组方向（PGD）或临床管理计划（CMP）。患者组方向是法律允许给一群人开药的文件，例如在诊所（计划生育等）情况下——无需为每位患者单独开处方。它们不是处方，而是由医生和药剂师签名并由健康机构（NMC 2007）批准的本地同意的书面指示。它们允许一些合格的护士为特定条件下的特定患者群体使用其名称的药物（Lister 2008）。它们也可以用于授权除医生之外的工作人员（例如，护理人员和护士）合法地开出指定药物（DoH 2008；NPC 2004）。

处方的组成部分

处方的主要组成部分如下（图2.6）：

✦ 患者的全名和出生日期：这些信息可以打印在标签上，附加到处方单。额外的信息可能包括患者的住院号、宗教和顾问或全科医生的姓名。

✦ 开处方的时间和日期：这包括月份、日期、年份和时间。许多机构使用“24小时时钟”以提高精确度，不使用12小时时钟。
PRESCRIPTIONS AND MEDICATION ADMINISTRATION RECORDS

** figure 2.6** Drug prescription for captopril

** figure 2.7** Clocks showing 10:10 A.M. (1010 h) and 10:10 P.M. (2210 h)

A.M. or P.M. (Figure 2.7). The 24 hour clock times are written as four-digit numbers. Thus, 2:00 A.M. is 0200 h, 12 noon is 1200 h, 2:00 P.M. is 1400 h and midnight is 2400 h, also written as 0000 h.

+ **Name of the medication:** The generic name is recommended. If a prescriber wants to prescribe a trade name drug, ‘no generic substitution’ should be specified.
+ **Dosage of the medication:** The amount of the drug.
+ **Route of administration.**
+ **Time and frequency of administration.**
**CHAPTER 2  SAFE AND ACCURATE DRUG ADMINISTRATION**

- **Signature of the prescriber:** The prescription is not legal without the signature of the prescriber.
- **Signature of the person administering the prescription:** This may be the responsibility of a nurse or others identified by local policy.

The in-patient prescription in Figure 2.6 can be interpreted as follows:

- **Name of patient:** John Camden
- **Birth date:** 11/02/1955
- **Date of admission:** 20/11/2009
- **Hospital Number:** 602412
- **Religion:** Roman Catholic (RC)
- **Date and time the prescription was written:** 20/11/2009 at 0800 h or 8:00 A.M.
- **Name of the medication:** captopril
- **Dosage:** 25 mg
- **Route of administration:** PO (by mouth)
- **Frequency of administration:** t.i.d., three times a day for 7 days
- **Signature of person writing the prescription:** Dr I Patel
- **Person who administered the medication:** Mary Jones, RN

**Example 2.2**

Interpret the following prescription chart shown in Figure 2.8 and record the following information:

![Prescription Chart](image)

**Figure 2.8** Drug prescription for Cipro
Date prescription written: ________________________________

Time prescription written: ________________________________

Name of drug: ________________________________________

Dosage: ________________________________________________

Route of administration: ________________________________

Frequency of administration: ________________________________

Name of prescriber: ______________________________________

Name of patient: ________________________________________

Birth date: ______________________________________________

Religion: ________________________________________________

Person who administered the medication: ____________________

This is what you should have found:

Date prescription written: 22/11/2009

Time prescription written: 1800 h or 6:00 P.M.

Name of drug: ciprofloxacin

Dosage: 500 mg

Route of administration: by mouth

Frequency of administration: every 12 hours

Name of prescriber: Dr Mae Ling

Name of patient: Catherine Jones

Birth date: 01/12/1962

Religion: Protestant

Person who administered the medication: Sara Gordon, RN

The Clinical Management Plan (CMP) is the foundation stone of supplementary prescribing by a non-medical practitioner. Before supplementary prescribing can take place, it is obligatory for an agreed CMP to be in place (written or electronic) relating to a named patient and to that patient’s specific condition(s) to be managed by the supplementary prescriber. This should be included in the patient record.

It is essential that prescriptions should contain the following necessary elements (following the guidance from the British National Formulary):
CHAPTER 2 SAFE AND ACCURATE DRUG ADMINISTRATION

✚ Should be written legibly in ink or otherwise so as to be indelible.
✚ Should be dated, should state the full name and address of the patient and should be signed in ink by the prescriber.

The age and the date of birth of the patient should preferably be stated, and it is a legal requirement in the case of prescription-only medicines to state the age for children under 12 years.

Medication administration records

Medication administration records are often used in homes and residential care institutions, which should also be referred to in association with the patient’s prescription and care plan. A Medication Administration Record (MAR) is a form that some healthcare institutions and other areas such as care homes and residential institutions increasingly use to document all the drugs administered to a patient. It is important to note that nurses or anyone else routinely administering medication should be prepared and informed of the responsibilities of drug and medicine administration. Invariably, non-professional colleagues will administer oral or topical medications, as injectable or other routes require specific training.

The national minimum standard for all care homes is set by the Care Home Regulations (2001, cited in CSCI 2008) is that the records detail for each person:
✚ what is received;
✚ what is currently prescribed (including those self-administering medicines);
✚ what is given by care workers;
✚ what is disposed of.

Routine, PRN and STAT medications all may be written in separate locations on the MAR. If a medication is to be given regularly, a complete schedule is written for all administration times. Each time a dose is administered, the person administering the medication initials the time of administration. The initials of the person who gave the medication must be recorded on the MAR. However, a record of the full name, title and initials of all persons administering medication should be maintained in the patient’s care plan, especially in a long-term care institution where only designated persons can administer the medications.

This should not be confused with prescription sheets but recognised as a record of medication administration. After the prescription has been verified, a nurse or other healthcare worker administers the medication. The MAR may be used to check the prescription, prepare the correct medication dose and record the date, time and route of administration.

The essential components of the MAR include the following:
✚ Patient information: a printed label with patient identification [name, date of birth, hospital number]. If a printed label is not available this may be hand-written in block capitals.
✚ Dates: when the prescription was written, when to start the medication and when to discontinue it.
✚ Medication information: full name of the drug, dose, route and frequency of administration.
**Time of administration:** frequency as stated in the prescriber’s prescription; for example, t.i.d. Times for prn and one-time doses are recorded precisely at the time they are administered.

**Initials:** the initials and the signature of the person who administered the medication are recorded.

**Special instructions:** instructions relating to the medication; for example, ‘Omit if systolic BP is less than 100.’

---

**Example 2.3**

Study the MAR in Figure 2.9 then complete the following chart and answer the questions.

<table>
<thead>
<tr>
<th>Name of drug</th>
<th>Dose</th>
<th>Route of administration</th>
<th>Time of administration</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1. Identify the drugs and their doses administered at 9:00 A.M.

2. Identify the drugs and their doses administered at 9:00 P.M.

3. What is the route of administration for famotidine?

4. What is the time of administration for famotidine?
### CHAPTER 2 SAFE AND ACCURATE DRUG ADMINISTRATION

**UNIVERSITY HOSPITAL**

**DAILY MEDICATION ADMINISTRATION RECORD**

<table>
<thead>
<tr>
<th>PATIENT NAME</th>
<th>Wendy Kim</th>
</tr>
</thead>
<tbody>
<tr>
<td>ROOM</td>
<td>422</td>
</tr>
<tr>
<td>ALLERGIC TO (RECORD IN RED):</td>
<td>tomato, codeine</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>DRUG: Tamotidine</th>
<th>TIME:</th>
<th>DATE:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>09/12/09</td>
<td>10/12/09</td>
</tr>
<tr>
<td>ROUTE: Po</td>
<td>DOSE: 20 mg</td>
<td>START DATE: 09/12/2009</td>
</tr>
<tr>
<td>SIGNATURE:</td>
<td>ADDITIONAL INSTRUCTIONS:</td>
<td></td>
</tr>
<tr>
<td>PHARMACY/STOCK</td>
<td>06.00</td>
<td>X</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>DRUG: Digoxin</th>
<th>TIME:</th>
<th>DATE:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>09/12/09</td>
<td>10/12/09</td>
</tr>
<tr>
<td>ROUTE: Po</td>
<td>DOSE: 0.125 mg</td>
<td>START DATE: 09/12/2009</td>
</tr>
<tr>
<td>SIGNATURE:</td>
<td>ADDITIONAL INSTRUCTIONS:</td>
<td></td>
</tr>
<tr>
<td>PHARMACY/STOCK</td>
<td>09.00</td>
<td>FF</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>DRUG: Captopril</th>
<th>TIME:</th>
<th>DATE:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>09/12/09</td>
<td>10/12/09</td>
</tr>
<tr>
<td>SIGNATURE:</td>
<td>ADDITIONAL INSTRUCTIONS:</td>
<td></td>
</tr>
<tr>
<td>PHARMACY/STOCK</td>
<td>09.00</td>
<td>FF</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>DRUG: Alprazolam</th>
<th>TIME:</th>
<th>DATE:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>09/12/09</td>
<td>10/12/09</td>
</tr>
<tr>
<td>ROUTE: Po</td>
<td>DOSE: 0.5 mg</td>
<td>START DATE: 09/12/2009</td>
</tr>
<tr>
<td>SIGNATURE:</td>
<td>ADDITIONAL INSTRUCTIONS:</td>
<td></td>
</tr>
<tr>
<td>PHARMACY/STOCK</td>
<td>21.00</td>
<td>FF</td>
</tr>
</tbody>
</table>

*Figure 2.9* MAR for Wendy Kim
This is what you should have found:

<table>
<thead>
<tr>
<th>Name of drug</th>
<th>Dose</th>
<th>Route of administration</th>
<th>Time of administration</th>
</tr>
</thead>
<tbody>
<tr>
<td>famotidine</td>
<td>20 mg</td>
<td>PO</td>
<td>0600 h (6 A.M.) and 1800 h (6 P.M.)</td>
</tr>
<tr>
<td>digoxin</td>
<td>0.125 mg</td>
<td>PO</td>
<td>0900 h (9 A.M.)</td>
</tr>
<tr>
<td>captopril</td>
<td>25 mg</td>
<td>PO</td>
<td>0900 h (9 A.M.) and 2100 h (9 P.M.)</td>
</tr>
<tr>
<td>alprazolam</td>
<td>0.5 mg</td>
<td>PO</td>
<td>2100 h (9 P.M.)</td>
</tr>
</tbody>
</table>

1. Digoxin 0.125 mg; captopril 25 mg.
2. Captopril 25 mg; alprazolam 0.5 mg.
3. PO.
4. 0600 h (6 A.M.) and 1800 h (6 P.M.).

**Computerised recordkeeping**

In the future many health institutions or areas may computerise the medication process; at present this is sometimes seen at family doctors or general practitioner practices. Those who prescribe or administer medications must use security codes and passwords to access the computer system. Prescribers input information regarding prescriptions and all other essential patient information directly into a computer terminal. The prescription is received in the pharmacy, where a patient’s drug profile (list of drugs) is maintained. A computer printout replaces the handwritten prescription.

One advantage of a computerised system is that handwritten orders do not need to be deciphered or transcribed. The computer program can also identify possible interactions among the patient’s medications and automatically alert the pharmacist and persons administering the drugs. However, until this is widespread, human error may occur and attention to detail with the drug or medication administration process is crucial.
You will need to read, interpret and understand the information found on drug labels in order to calculate drug dosages. There are several important features of a drug label, and the Medicines and Healthcare Products Regulatory Agency (MHRA 2003) published best practice guidance for drug labels and drug package inserts or patient information leaflets (PiLs) in response to the concerns by the Department of Health and Chief Medical Officers for patient safety.

As part of a wider initiative to reduce medication errors, the Committee on Safety of Medicines (CoSM) reviewed the factors that are involved in labelling and packaging and, as a result of their work, agreed the principles that should be used when labelling medicines. The main objective was to make improvements to medicines labelling within the current regulatory framework, to assist healthcare professionals and patients/carers to select the correct drug or medicine and use it safely, thereby helping to minimise medication errors.

Labelling must contain all elements required by article 54 of Council Directive 2001/83/EEC (MHRA 2003: 5). Nevertheless, certain items of information are deemed critical for the safe use of the medicine. These items are:

- **name of the medicine**
- **strength of the medicine/drug** (where relevant)
- **route of administration**
- **posology** (pharmacological information about appropriate doses of drugs)
- **specific warnings** (not for IV use or dilute with water).

There is also guidance on font type and size so that critical information should be in as large a font as possible to maximise legibility. For further information refer to MHRA guidance.
The label for Epivir in Figure 2.10 indicates the following:

1. **Name of drug:** Epivir is the trade name. In this case, the name is in large type and is boldly visible on the label. The generic name is Lamivudine (rINN name).

2. **Form of drug:** The drug is in the form of a tablet.

3. **Dosage strength:** 300 mg of the drug are contained in one tablet.

4. **Storage directions:** Some drugs have to be stored under controlled conditions if they are to retain their effectiveness. This drug should be stored below 30°C.

5. **Expiration date:** The expiration date specifies when the drug should be discarded. For the sake of simplicity, not every drug label in this textbook will have an expiration date.

6. **Manufacturer:** Glaxo Group.

**Practice point**

Always read the expiration date! This is important because, after the expiration date, the drug may lose its potency or act differently in a patient’s body. Expired drugs should be discarded either in the clinical area or given to the pharmacy for disposal. Never give expired drugs to patients and patients should be advised not to keep drugs for a long time ‘just in case’ as they will not be as effective.
CHAPTER 2 SAFE AND ACCURATE DRUG ADMINISTRATION

Figure 2.11 Drug label for metoprolol tartrate

The label for the antihypertensive drug metoprolol tartrate in Figure 2.11 indicates the following:

1. **Generic name:** metoprolol tartrate
2. **Form:** tablets
3. **Dosage strength:** 50 mg per tablet
4. **Expiration:** discard after 31/12/10
5. **Instructions for dispensing:** protect from moisture and dispense in tight, light-resistant container.

Examine the label shown in Figure 2.12 and record the following information:

1. **Trade name:** __________________________________________________________________________
2. **Generic name:** _________________________________________________________________________
3. **Form:** ________________________________________________________________________________
4. **Dosage strength:** _______________________________________________________________________
5. **Amount of drug in container:** _______________________________________________________________________
6. **Storage temperature:** _______________________________________________________________________
7. **Special instructions:** _______________________________________________________________________

Examine the label shown in Figure 2.12 and record the following information:

1. **Trade name:** ___________________________________________________________________________
2. **Generic name:** _________________________________________________________________________
3. **Form:** ________________________________________________________________________________
4. **Dosage strength:** _______________________________________________________________________
5. **Amount of drug in container:** _______________________________________________________________________
6. **Storage temperature:** _______________________________________________________________________
7. **Special instructions:** _______________________________________________________________________

Figure 2.12 Drug label for Norvir
(Reproduced with permission of Abbott Laboratories)
This is what you should have found:

1. **Trade name:** Norvir
2. **Generic name:** ritonavir
3. **Form:** oral solution
4. **Dosage strength:** 80 mg per mL
5. **Amount of drug in container:** 90 mL
6. **Storage temperature:** at room temperature, between 20°C – 25°C
7. **Special instructions:** shake well before use. Keep out of reach of children.

**Drug package inserts**

Sometimes information needed to safely prepare, administer and store medications is not located on the drug label. In such cases, you may need to read the **summary of product characteristics (SPC)** or the **Patient Information Leaflet (PiL)**. SPCs are used by healthcare professionals and explain how to use and prescribe a medicine. SPCs are written and updated by pharmaceutical companies, based on their research and product knowledge. The PiL is also written by the pharmaceutical company and is a patient-friendly version of the SPC. SPCs and PiLs are checked and approved by the UK or European medicines licensing agency. Figure 2.13 shows an excerpt from the PiL for Avodart.

![Avodart 0.5 mg soft capsules dytasteride](image_url)

**WHAT AVODART IS AND WHAT IT’S USED FOR**

Avodart is used to treat men with an enlarged prostate (benign prostatic hyperplasia) – a non-cancerous growth of the prostate gland, caused by producing too much of a hormone called dihydrotestosterone. The active ingredient is dytasteride. It belongs to a group of medicines called 5-alpha reductase inhibitors. As the prostate grows, it can lead to urinary problems, such as difficulty in passing urine and a need to go to the toilet frequently. It can also cause the flow of the urine to be slower and less forceful. If left untreated, there is a risk that your urine flow will be completely blocked (acute urinary retention). This requires immediate medical treatment. In some situations surgery is necessary to remove or reduce the size of the prostate gland. Avodart lowers the production of dihydrotestosterone, which helps to shrink the prostate and relieve the symptoms. This will reduce the risk of acute urinary retention and the need for surgery.

Avodart may also be used with another medicine called tamsulosin (used to treat the symptoms of an enlarged prostate).

**HOW TO TAKE AVODART**

Always take Avodart exactly as your doctor has told you to. Check with your doctor or pharmacist if you are not sure.

How much to take

- The usual dose is one capsule (0.5 mg) taken once a day.
- Swallow the capsules whole with water. Do not chew or break open the capsule. Contact with the contents of the capsules may make your mouth or throat sore.
- Avodart is a long term treatment. Some men notice an early improvement in their symptoms. However, others may need to take Avodart for 6 months or more before it begins to have an effect. Keep taking Avodart for as long as your doctor tells you.

**Figure 2.13** Excerpts from Avodart package insert

(Reproduced with the permission of SmithKlineBeecham. See http://emc.medicines.org.uk for full text)
If you take too much Avodart
Contact your doctor or pharmacist for advice if you take too many Avodart capsules.
If you forget to take Avodart
Don’t take extra capsules to make up for a missed dose. Just take your next dose at the usual time.
Don’t stop Avodart without advice
Don’t stop taking Avodart without talking to your doctor first. It may take up to 6 months or more for you to notice an effect.
If you have any further questions on the use of this product, ask your doctor or pharmacist.

POSSIBLE SIDE EFFECTS
Like all medicines, Avodart can cause side effects, although not everybody gets them.
Very rare allergic reaction
The signs of allergic reactions can include:
• skin rash (which can be itchy)
• hives (like a nettle rash)
• swelling of the eyelids, face, lips, arms or legs.
→ Contact you doctor immediately if you get any of these symptoms, and stop using Avodart.
Common side effects
These may affect up to 1 in 10 men taking Avodart:
• impotence (not able to achieve or maintain an erection)
• decreased sex drive (libido)
• difficulty with ejaculation
• breast enlargement or tenderness (gynaecomastia)
• dizziness when taken with tamsulosin.
→ If any of the side effects gets serious, or if you notice any side effects not listed in this leaflet, please tell your doctor or pharmacist.

HOW TO STORE AVODART
Keep out of the reach and sight of children.
Don’t store Avodart above 30°C.
Don’t use Avodart after the expiry date which is stated on the carton or the foil blister strip. The expiry date refers to the last day of that month.
If you have any unwanted Avodart capsules, don’t dispose of them in waste water or household rubbish. Take them back to your pharmacist, who will dispose of them in a way that won’t harm the environment.

FURTHER INFORMATION
What Avodart contains
The active substance is dutasteride. Each soft capsule contains 0.5 mg dutasteride.
The other ingredients are:
• Inside the capsule: mono and diglycerides of caprylic/capric acid and butylated hydroxytoluene (E321),
• capsule shell: gelatin, glycerol, titanium dioxide (E171), iron oxide yellow (E172), triglycerides (medium chain), lecithin
• printed ink: iron oxide red (E172) as the colourant, polyvinyl acetate phthalate, propylene glycol and macrogol.
What Avodart looks like and contents of the pack
Avodart soft capsules are oblong opaque, yellow, soft gelatin capsules printed with GX CE2 on one side in red ink.
They are available in packs of 30 capsules.
Marketing Authorisation Holder
GlaxoSmithKline UK
Stockley Park West
Uxbridge
Middlesex
UB8 1BT
Manufacturer:
Catalent France Beinheim SA
74 rue Principale
67930 Beinheim
France
Always consult the package information insert when you need information about:
+ mixing and storing a drug
+ preparing a drug dose
+ recommended safe dose and range
+ indications, contraindications, and warnings
+ side effects and adverse reactions

Read the package insert for Avodart in Figure 2.13 and fill in the requested information:

1. What is the generic name of the drug?

______________________________________________________________________________

2. For what condition is Avodart (dutasteride) used?

______________________________________________________________________________

3. How long after Avodart (dutasteride) has been started might a patient wait for affects?

______________________________________________________________________________

4. What is the recommended dose of the drug?

______________________________________________________________________________

5. What is the drug form?

______________________________________________________________________________

This is what you should have found:

1. Dutasteride.
2. Benign prostatic hyperplasia (BPH).
3. Men being treated with dutasteride may not see results until 6 months have passed.
4. The recommended dose of Avodart (dutasteride) is 1 capsule (0.5 mg) orally once a day.
5. The drug is supplied in the form of soft gelatin capsules.
In this chapter, the Medication Administration Process was discussed, including those who may administer drugs; the ‘six rights’ and ‘three checks’ of medication administration; how to interpret prescriptions and medication administration records, drug labels and drug package inserts.

**How to administer drugs**

- The six rights of medication administration serve as a guide for safe administration of medications to patients.
- Failure to achieve any of the six rights constitutes a medication error.
- A person administering medications has a legal, ethical and moral responsibility to report medication errors.
- Medication errors can occur at any point in the medication process.
- A drug should be prescribed using its generic name.
- Understanding drug orders requires the interpretation of common abbreviations.
- Read drug labels carefully; many drugs have look-alike/sound-alike names.
- Carefully read the label to determine dosage strength and check calculations, paying special attention to decimal points.
- Medications must be administered in the form and via the route specified by the prescriber.
- Before administering any medication, it is essential to identify the patient.
- Medications should be documented immediately after, but never before, they are administered.
- No medication should be given without a prescription order.
- If persons administering medications have difficulty understanding or interpreting the order, they must clarify the order with the prescriber.
- Medication administration is rapidly becoming computerised.
- Drug package inserts contain detailed information about the drug, including mixing, storing a drug, preparing a drug dose, indications, contraindications, warnings, side effects, adverse reactions and the recommended safe dose range.
- If in doubt about any of the steps in the process do not administer the drug but seek expert help from the prescriber or pharmacist.

**References**

REFERENCES


Chapter 2: Safe and Accurate Drug Administration

Practice sets

The answers to Try these for practice and Exercises appear in Appendix A at the end of the book.

Try these for practice

Test your comprehension after reading the chapter.

Study the drug labels in Figures 2.14 to 2.17 and answer the following four questions.

Figure 2.14 Drug label for Zocor
(From Merck Sharp & Dohme Ltd, reproduced with permission)

Figure 2.15 Drug label for Singulair
(Reproduced with permission, Merck Sharp & Dohme Ltd)

Figure 2.16 Drug label for imatinib mesilate

Figure 2.17 Drug label for Kaletra
(Reproduced with permission of Abbott Laboratories)
1. What is the route of administration for montelukast sodium?

______________________________________________________________________________

2. How many tablets are contained in the container for Zocor?

______________________________________________________________________________

3. What is the tablet dose of imatinib mesylate?

______________________________________________________________________________

4. What is contained in 1 mL of the drug Kaletra?

______________________________________________________________________________

Reinforce your understanding in class or at home.

Use the information from drug labels in Figures 2.14 to 2.17 to complete the following two exercises.

1. Write the generic name for Kaletra.

______________________________________________________________________________

2. What is the dosage strength of Zocor?

______________________________________________________________________________

3. Study the Medicine Administration Record for Jane Ambery in Figure 2.18. Fill in the following chart and answer the questions.

   (a) Which drugs were administered at 10 P.M. on 10/12/09?

______________________________________________________________________________

   (b) Designate the time of the day the patient received ibandronic acid.

______________________________________________________________________________

   (c) How many doses of phenytoin were administered to the patient by nurse Young?

______________________________________________________________________________

   (d) What drugs must be taken before breakfast?

______________________________________________________________________________

   (e) What is the last date on which the patient will receive Trimethoprim?

______________________________________________________________________________
<table>
<thead>
<tr>
<th>DRUG</th>
<th>TIME</th>
<th>DATE</th>
<th>STOP DATE</th>
<th>MC</th>
<th>MC</th>
<th>MC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phenytoin</td>
<td>09/12/09</td>
<td>10/12/09</td>
<td>11/12/09</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trimethoprim</td>
<td>09/12/09</td>
<td>10/12/09</td>
<td>11/12/09</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Ibandronic acid</td>
<td>09/12/09</td>
<td>10/12/09</td>
<td>11/12/09</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anusol</td>
<td>09/12/09</td>
<td>10/12/09</td>
<td>11/12/09</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Figure 2.18 MAR for Jane Ambery
4. Study the Prescription Chart for Jane Myers in Figure 2.19 and then answer the following questions.

| PHARMACY STAMP: | AGE: | 57 | NAME (INCLUDING FORENAME) AND ADDRESS: Jane Myers 23 College Ave Anytown AT 555 999 |
| D.O.B | 28/02/52 | NHS NUMBER: B7 1234 |
| DISPENSER'S ENDORSEMENT | NUMBER OF DAYS TREATMENT. N.B ENSURE DOSE IS STATED | NP | PRICING OFFICE |
| PACK & QUANTITY | Cefalexin 500 mg PO 12 hourly for ten (10) days | | |
| | Digoxin 0.125 mg PO once daily | | |
| | Metformin 850 mg PO BD with breakfast and evening meal | | |
| | Metoclopramide 10 mg PO 30 minutes before meals and at bedtime | | |
| | Fentanyl transdermal patch 25 mg per hour. Remove after 72 hours. one (1) | | |
| | Turosamide 40 mg PO once daily | | |

SIGNATURE OF DOCTORS A.J. Rodriguez |

DATE: 10/04/09

FOR DISPENSER NO. OF ITEMS ON FORM DOCTOR ADDRESS AND TELEPHONE NUMBER: A.J. Rodriguez 1234 Hope Street Old Town WD9 7GB

PLEASE READ NOTES OVERLEAF

Figure 2.19 Drug prescription for Jane Myers
(a) Which drugs are ordered to be given once daily?
__________________________________________________________________________

(b) Which drug should be given four times a day?
__________________________________________________________________________

(c) What is the dose and route of administration of metoclopramide?
__________________________________________________________________________

(d) What is the route of administration for fentanyl?
__________________________________________________________________________

(e) Which drug is given every 12 hours?
__________________________________________________________________________

5. Use the package insert shown for Diazepam in Figure 2.20 to answer the following questions.
(a) What is an appropriate dose for relief of children with muscle spasm?
__________________________________________________________________________

(b) Treatment should not usually exceed how long?
__________________________________________________________________________

(c) What is the dosage strength of the Diazepam Oral Solution?
__________________________________________________________________________

6. Fill in the following table with the equivalent times.

<table>
<thead>
<tr>
<th>Standard time</th>
<th>24 hour clock</th>
</tr>
</thead>
<tbody>
<tr>
<td>9 a.m.</td>
<td>1500 h</td>
</tr>
<tr>
<td>__________</td>
<td>1200 h</td>
</tr>
<tr>
<td>__________</td>
<td>__________</td>
</tr>
<tr>
<td>6 p.m.</td>
<td>2015 h</td>
</tr>
<tr>
<td>__________</td>
<td>__________</td>
</tr>
<tr>
<td>2:30 a.m.</td>
<td>1645 h</td>
</tr>
<tr>
<td>__________</td>
<td>__________</td>
</tr>
<tr>
<td>6 a.m.</td>
<td>0000 h</td>
</tr>
<tr>
<td>__________</td>
<td>__________</td>
</tr>
</tbody>
</table>
actavis
Diazepam Oral Solution 2mg/5ml

- Please read this leaflet carefully before you start to take your medicine.
- It gives you important information about your medicine.
- If you want to know more, or you are not sure about anything, ask your pharmacist or doctor.
- Keep the leaflet until you have finished the medicine.

WHAT’S IN YOUR MEDICINE
Diazepam Oral Solution comes in one strength containing 2 mg of the active ingredient diazepam per 5 ml solution. It is a pink syrup with an odour of raspberries. The solution also contains: dichlorotetramine, sodium, magnesium aluminium silicate, propylene glycol, raspberry flavour, saccharin sodium, erythrose (E127), sorbitol (E420), propylhydroxybenzoate (E216), methyl hydroxybenzoate (E219), sorbitol (E420), glycerol (E422). Diazepam Oral Solution is available in a pack size of 100 ml.

Diazepam is one of a group of medicines called benzodiazepine tranquillisers. These medicines act on brain transmitters and help in the treatment of anxiety and muscle spasms.

MA holder: Actavis, Barnstaple, EX32 8NS, UK.
Manufacturer: Pinewood Laboratories Ltd, Ballymacarbery, Glenmal, Ireland.

ABOUT YOUR MEDICINE
The name of your medicine is Diazepam Oral Solution which is the generic (common) name. Your doctor may have given you this medicine before from another company and it may have looked slightly different. Either brand will have the same effect. Diazepam Oral Solution may be used:
- for the short term (2 weeks) relief of anxiety, which is severe, disabling, distressing and may be associated with sleeplessness or with other mental illnesses.
- to relieve muscle spasms in cerebral palsy, tetanus or other causes of muscular spasm.
- to relieve muscle weakness.
- to help in the treatment of certain forms of epilepsy (usually epilepsy associated with muscular spasms).
- to relieve the symptoms of acute alcohol withdrawal.
- as an oral pre-medication for nervous dental patients.
- in children with spasticity to control tension and irritability.
- as an oral pre-medication in children.

TAKING YOUR MEDICINE
Your doctor has decided the dose which is best for you. Always follow your doctor’s instructions exactly, and those on the pharmacy label. If you do not understand anything ask your doctor or pharmacist.

The usual dosage is described below.

Indication/Dosage
Anxiety, obsession & other mental illnesses: 2–30 mg (5–75 ml solution) daily in divided doses.
Anxiety associated with sleeplessness: 5–30 mg (12.5–75 ml solution) before going to bed.

Cerebral palsy:
2–60 mg (5–150 ml solution) daily in divided doses.
Other causes of muscle spasms:
2–60 mg (5–150 ml solution) daily in divided doses.

Epilpsy:
As a pre-medication 2–60 mg (5–150 ml solution) daily in divided doses.
- in adults 5–20 mg (7.5–50 ml solution) daily.
- in children 2–10 mg (5–25 ml solution) daily.

Alcohol withdrawal:
5–20 mg (12.5–50 ml solution), repeated if necessary in 2–4 hours.

Pre-medication in dental patients:
5 mg (12.5 ml solution) the night before treatment, 5 mg (12.5 ml solution) on waking and 5 mg (12.5 ml solution) two hours before the appointment.

Elderly and debilitated patients:
Dose should be half the recommended doses.

Spastic children with a little amount of brain damage:
2–60 mg (5–150 ml solution) daily in divided doses.

Children with muscle spasms:
2–40 mg (5–100 ml solution) daily in divided doses. If associated with tetanus the adult dose should be given.

If you are elderly, it is particularly important to take this medicine exactly as directed by the doctor.

This solution should be taken by mouth as instructed. Shake the bottle before use and make sure that the bottle is always kept tightly shut when not in use. Continue to take it for as long as your doctor tells you to. It may be dangerous to stop without their advice. Treatment should not usually exceed 2 weeks and should be gradually withdrawn as adverse effects, such as difficulty sleeping, irritability, nervousness, sweating, diarrhoea and depression, have been observed on abrupt withdrawal. If you forget to take a dose, take another as soon as you remember and then your next dose at the usual time. NEVER take two doses at the same time. If you accidentally take more than your prescribed dose, contact your nearest hospital casualty department, or tell your doctor, immediately. Take any remaining solution and the container with you.

STORING YOUR MEDICINE
Do not use the solution after the expiry date shown on the product packaging. Do not store above 25°C. Keep container in the outer carton: and keep the container tightly closed. KEEP IT IN A SECURE PLACE WHERE CHILDREN CANNOT GET AT OR SEE IT. REMEMBER, this medicine is for YOU only; NEVER give it to anyone else. It may harm them, even if their symptoms are the same as yours. Unless your doctor tells you to, do not keep medicines that you no longer need – give them back to your pharmacist for safe disposal.

Date of last revision: January 2007

actavis
Actavis, Barnstaple, EX32 8NS, UK