DRUG ADMINISTRATION

General Principles

1. To achieve safe administration of drugs the nurse must have a sound knowledge of the use, action, usual dose and side effects of the drugs being administered. It is of great importance that the BNF (British National Formulary) is available on the wards for reference.

2. All medicines are to be stored in a cupboard under lock and key.

3. The key is to be kept by a senior nurse.

4. The cupboard should be placed away from direct sunlight or excessive heat so that the drugs will not lose their efficacy.

5. Drugs should be placed in containers that are clearly labeled including the strength and expiry date.

6. Drug prescription charts of all patients in the ward should be kept in a folder clearly marked TREATMENT BOOK.

7. Prescription charts should accompany patients when out of the ward for procedures such as operations, invasive radiological examinations, consultations etc.

8. On discharge the prescription charts are to be filed in the patients' histories.

9. Check that the prescription chart has the patient full name and ID number and read the prescription to ascertain which medicines require administration.

Administration of Drugs

1. The nurse must acknowledge the **Five Rights of Medication Administration**, which are that the **right patient** is to receive the **right drug** with the **right dose** by the **right route** at the **right time**.

2. Drugs to be administered must be written clearly on the prescription sheet, indicating the date of commencement of treatment, route, dosage, strength, frequency and signed by medical officer. Any alterations in the treatment should be re-written and signed by the prescribing doctor. Nurses should abstain from administering drugs if any of this information is missing or not clearly indicated.

3. The patient's identity must be checked before any drugs are administered to ensure that the drugs are administered to the right patient.

4. The strength and dosage of the drug must be checked and matched with the prescription.

5. Before administering any prescribed drugs the nurse must make sure that the treatment is due and the time is correct. Drugs must be administered at the correct time.

6. The route of administration of drugs chosen must comply with the manufactures' intentions.

7. The expiry date of all medicines needs to be checked before being administered. If drugs are expired the nurse is to refrain from administering the medicine and return them to the pharmacy.

8. Hands have to be washed before engaging in drug administration.

9. The medicine trolley is prepared before beginning the procedure and ensures that all the drugs needed are available.

10. If a drug is not available on the ward, the nurse should ensure that the necessary procedure is followed so that the drug is available o the ward.

11. The medication and prescription chart are to be taken near the patient and the signature is entered in the appropriate slot.

12. Before administering any medication the nurse must make sure that the patient understands why he is taking the treatment.

13. Check any special observations, including the pulse, blood pressure etc or any special requirements related to medication, for example before or after meals.

14. If the nurse decides not to administer the medication, she is to inform the medical officer, record the omission and reason for omission on the treatment chart and nursing report.

15. If any side effects are observed the doctor should be informed and details should be documented in the nursing report.

16. In the following circumstances, two nurses may be involved in the administration of medication:
    16.1. In specialist clinical areas.
    16.2. Where the calculation of a dose is required.
    16.3. Where the nurse in charge deems checking is necessary.
    16.4. Where the administering nurse decides that she needs assistance.

17. Should an error occur in the administration process, it must be reported immediately to the doctor and nurse in charge. A record must be entered in the patient's notes and an incident report is to be written and handed to the Departmental Nursing Manager.

18. The administration of medicines on a verbal order is not permitted. In an emergency medication may be administered in accordance with the instruction of and supervision of the prescribing doctor. The prescription must be recorded in the patient's notes and signed by the doctor as soon as possible.

19. Medicine trolleys are not to be left unattended.

20. A student nurse is not permitted to prepare or administer drugs to a patient except under the direct supervision of a qualified nurse. The qualified nurse remains solely accountable and must sign the prescription accordingly.

Administration of Controlled Drugs

1. Controlled drugs should only be administered to patients in that unit when prescribed by a doctor and written on the treatment chart.

2. When a drug is used it should be entered under the appropriate heading purposely filled at the top of the page. A new page must be set for each preparation and the name of the drug, dosage form and strength should be written at the top of the page.

3. Whenever a drug is administered the details should be filled in the register:
   3.1. Date when drug is administered
   3.2. Time of drug administration
   3.3. Patient's name who is receiving the treatment
   3.4. Name of doctor prescribing the drug
   3.5. Amount of grms./drug given and the amount of drug discarded if any
   3.6. Signature of the authorized person administering the treatment
   3.7. Signature of the authorized person acting as a witness to the whole process of the drug administration

4. When a phial/ampoule of a controlled drug is accidentally broken, syrup spilled, or tablets crumbled, it should be registered by the nurse involved and double signed by the nurse in charge at the time or another nurse.

5. Full registers are to be kept in the ward for ten years from the date of the last entry.

6. The stock balance is to be written down after the drug has been administered. Any discrepancies in the balance should be immediately reported to the nurse in charge. An official incident report is to be written immediately which should be handed to the Departmental Nursing Manager, the Manager Nursing Services and the Hospital Medical Administrator.

7. No cancellations or obliteration of an entry should be made. Corrections should be made by neatly crossing a line across the part being corrected and dated and signed.

8. Once the drug is administered, the prescription chart should be clearly signed or initialized in the space provided by the authorized person administering the medication. The only official prescription chart in the hospital is the patient's treatment chart.

9. All entries should be clearly legible.

Oral Treatment

Oral treatment can be in the form of tablets, capsules, lozenges or pastilles and mixtures of syrups.

1. Before administering the any prescribed drug, the nurse must check that it is due and has not already been given.

2. Select the required medication and check the expiry date.

3. Empty the required dose into a medicine container. Avoid touching the preparation to prevent cross-infection and self-harm.

4. Take the medication and prescription chart to the patient. Check the patient's identity and the dose to be given.

5. Make sure that the patient is in an appropriate position to swallow the medication.

6. Administer the drug as prescribed. Medicines are not to be left idle on bed lockers or else where as the patient might forget to take them or another patient might take them by mistake. It is important to make sure that the patient will take the medication at the correct time.

7. Offer a glass of water, if the patient is allowed to drink, to facilitate the swallowing of the mediation.

8. Record the dose given in the prescription chart and in any other place made necessary by the hospital policy.

9. Place the used container in a receiver. Medicine containers are to be washed thoroughly and dried after the medicine round.

10. Known irritating drugs are to be administered with meals or snacks.

11. Known drugs that interfere with food or drugs destroyed in significant proportions by digestive enzymes should be administered between meals.

12. Do not break a tablet unless scored. Scored tablets are to be broken by a file.

13. Do not interfere with time-release capsules and enteric-coated tablets. Patients are instructed to swallow these as a whole and not chew them.

14. Sublingual tablets must be placed under the tongue and buccal tablets between the gum and cheek.

15. When administering liquids or when accurately measuring doses in multiples of 1ml a measuring cup is needed and an oral syringe should be used in preference to a spoon or measure.

16. The tip of the syringe should be gently pushed into and towards the side of the mouth. The contents are then slowly discharged, pausing if necessary to allow the liquid to be swallowed.

Intra-muscular Injections

Injections come either in already prepared liquid solution or in a form of sterile powder that will need to be re-constituted with sterile distilled water or saline for administration. Administration by this route provides rapid absorption of the medication and can produce blood levels comparable to those achieved by intravenous bolus injection. Whenever possible intra-muscular injections should be avoided in thrombocytopaenic patients.

1. Only qualified nurses or medical officers should administer intra-muscular injections.

2. The procedure should be explained to the patient to gain his consent.

3. Make sure that the patient is not allergic to the drug by asking the patient and checking in the patient history.

4. Ask the patient's name to ensure that the drug is administered to the correct patient.

5. Check from the prescription chart that the correct drug, dose and time are appropriate.

6. The prescription chart is to be signed in the appropriate place.

7. Injections are to be given by the same person who prepares it or by the person who is present in its preparation.

8. Ensure privacy to the patient.

9. Intra-muscular injections are to be administered in the upper outer quadrant of the buttocks, the anterior lateral aspect of the thigh or the deltoid area of the arm.

10. Intra-muscular injections are an invasive procedure. Therefore sterility should be maintained throughout the whole procedure.

11. Medication in a form of powder should be reconstituted and diluted with the instructed amount of sterile water or saline for injections.

12. The medication required should be withdrawn into the syringe making sure that no air is trapped into the syringe. All air should be expelled from the syringe prior to administration.

13. The needle should be changed after dilution and withdrawing of the solution into the syringe.

14. Choose the appropriate needle to be used on the patient.

15. Clean the skin with the alcohol swab and allow to dry.

16. Stretch the skin slightly with your non-dominant hand.

17. Holding the syringe like a dart in your dominant hand, inform the patient, and then insert the needle swiftly and firmly at an angle of 90degrees to the skin, leaving about 1cm of the needle showing.

18. With the ulnar border of the hand against the skin, hold the coloured part of the needle to prevent movement.

19. Withdraw the plunger slightly, to check the needle has not inadvertently entered a blood vessel. In this case the position of the needle should be changed without completely withdrawing the needle from the patient.

20. Depress the plunger steadily, but not too quickly, until the syringe is empty.

21. Quickly and smoothly withdraw the needle from the skin and press firmly on the site with the swab until the bleeding stops.

22. Do not re-sheath the needle. Discard it, still attached to the syringe into the sharps' container.

The above can also be applied to subcutaneous injections with exception to the following:

1. The sites for administration are the upper arms, abdomen and thighs.

2. It is not necessary to clean the skin unless it is visibly obvious that it is unclean. Pinch up the skin using the thumb and first finger of your non-dominant hand and insert the short needle into the subcutaneous tissue at an angle of 90degrees.

3. It is not necessary to withdraw the piston, as it is unlikely that a blood vessel of any size will be punctured.

4. Inject the solution slowly. On completion, pause briefly before withdrawing the needle as this helps to prevent backtracking.

5. Do not massage the site. If necessary, use the tissue to wipe any blood.

Topical Applications

Creams
These are semisolid emulsions containing a high proportion of water. When applied they are quickly absorbed into the skin leaving little or no greasy residue. They may be used as a base in which a variety of drugs may be applied for local therapy.

Ointments
These are similar to cream but contain a higher proportion of oil. They are more slowly absorbed into the skin and leave a greasy residue. They have similar uses to creams and are particularly suitable for dry, scaly lesions.

1. Explain the procedure to the patient.

2. Use aseptic technique if the skin is broken.

3. Remove semisolid or stiff preparations from their containers with a flat wooden spatula. Use a different spatula each time if more of the preparation is required.

4. If the medication is to be rubbed into the skin, the preparation should be placed on a sterile topical swab. The wearing of gloves may be necessary.

5. If the preparation causes staining, advise the patient of this.

Inhalations

The term inhalation refers to two techniques, nebulisation and aerosolisation, which permits that a range of drugs provide a localized therapeutic effect. *Nebulisation* involves the passage of air (or oxygen) through a solution of the drug concerned to create a fine spray. Some antibiotics and bronchodilators can be given in this way. *Aerosolisation* involves the use of a solution of drug in an inert diluent. Passing a metered volume of this solution through a valve under pressure allows the delivery to the patient of a measured dose of drug in a very fine spray of controlled particle size. Bronchodilators and steroids are

commonly administered in this way. Although a very small total dose of drug is administered the concentration achieved at the site of action is high. Rapid and effective control of symptoms is achieved but without the side effects commonly associated with an equivalent systemic (oral or parenteral) dose of the drug.

1. Seat the patient in an upright position if possible.

2. Administer only one drug at a time unless specifically instructed to the contrary.

3. Measure any liquid medication with a syringe.

4. Clean any equipment used after use.

5. Correct use of aerosol inhalers is essential and will only be achieved if this is carefully explained and demonstrated to the patient.

Gargles

Throat irrigations should not be warmer than 49 degrees Celsius as any liquid warmer than this will destroy or damage tissue.

Nasal Drops

1. Have paper tissues available.

2. Clean the patient's nasal passages.

3. Hyperextend the patient's neck.

4. Avoid touching the external nares with the dropper.

5. Request the patient to maintain his/her position for 1-2 minutes.

6. Each patient should have his/her own medication and dropper.

Eye Medications

Drugs may be given either systemically or topically to exert an effect on the eye. If given systemically the prescribing doctor needs to take into account the physiological barrier and blood/aqueous barrier which exists within the eye and which is selective in allowing drugs to pass into the intraocular fluids. Permeability of this barrier may be altered in inflammatory conditions and following paracentesis.

Drugs applied locally meet some resistance at the tear film. The cornea allows the passage of water but not of drugs. This resistance may alter where there are corneal epithelial changes. Wetting agents may be employed to alter corneal permeability.

Many drugs will produce similar effects on diseased or healthy eye. Drugs for use in the eye are usually classified according to their action.

Mydriatics and Cycloplegics
These drugs produce their effects by paralyzing the sphincter, by stimulating the dilator muscle of the pupil or by a combination of both. Atropine 1% is the most commonly used mydriatic. It is usually administered as drops but can be used as an ointment. It takes half an hour to dilate the pupil after instillation and about 2 hours to paralyse the sphincter. Its mydriatic effect may last for over a week and cycloplegia for 2-4 days.

Miotics
These drugs produce their effects by constricting the pupil and contracting the ciliary muscle. Miotics are used primarily in the treatment of glaucoma.

Local Anaesthetics
These render the eye and the inner surfaces of the lids insensitive. They are used prior to minor surgery, removal of foreign bodies and tonometry.

Anti-inflammatories
These may be steroids, antihistamines or pyrazole derivatives, such as oxyphenabutazone 10%.

Antibiotics
Antibiotics can be used in the active treatment of infection as prophylactics both pre- and postoperatively, following the removal of a foreign body or following an injury. Antibiotic preparations in common use are framycetin 0.5%, sulphacetamide 10, 20 and 30%, neomycin 0.5% and chloramphenicol 0.5%.

Instillation of Drops
Most types of drops are instilled into the outer side of the lower fornix as the conjuctiva is less sensitive than the cornea and the outer side avoids loss of drops into the nasolacrimal passage. Exceptions to this are as follows:

1. *Drops used to lubricate the cornea*: these should be directed onto the cornea. Oil-based drops produce less corneal reaction than aqueous ones as they do not feel as cold to the cornea when administered.

2. *Anaesthetic drops*: The first drops should be instilled into the conjunctiva and then directly on to the cornea until the patient is no longer able to feel the drops.

3. *Drops used to treat the nasal passage*: These should be instilled at the punctual end of the eye.

The number of drops to be instilled depends on the type of solution used and its purpose. Usually one drop only is ordered and will be sufficient if it is instilled correctly. The exceptions to the "one drop" rule are:

1. *Oil-based solutions, ex. paroleine :* This is used for lubricating the eyeball and several drops are usually ordered.

2. *Anaesthetic drops:* It is usual to instill two or three drops at a time at intervals, until the drop cannot be felt on the eye.

The dropper should be held as close to the eye as possible without touching either the lids of the cornea, approx. 2.5cm. This will avoid corneal damage and the risk of infection. If the drop falls from too great a distance it is difficult to control and will also be uncomfortable for the patient.

There are a variety of droppers and bottles, including pipettes, pipettes incorporated into the eye drop bottle, plastic bottles and single dose packs. Pipettes are easy to use but need drying and sterilizing between doses. The disposable varieties are also expensive. The bottles that incorporate a pipette have an advantage that the flow drops are easily controlled. Plastic bottles can be squeezed and so avoid the need for a pipette but again, they are expensive. Ideally, single-dose containers should be used if they do not prove too expensive for routine use.

Ear Drops

1. Ask the patient to lie on his/her side with the ear to be treated uppermost.

2. Warm the drops to body temperature if allowed.

3. Pull the cartilaginous part of the pinna backwards and upwards.

4. Allow the drops to fall in the direction of the external canal.

5. Request the patient to remain in this position for 1-2 minutes.

Rectal and Vaginal Preparations

Vaginal Pessaries

1. Explain the procedure to the patient.

2. Select the appropriate pessary and check it with the prescription chart and another nurse.

3. Assist the patient into the appropriate position, either left lateral with buttocks to the edge of the bed or supine the knees drawn up and legs parted.

4. Wash hands and put on gloves.

5. Apply lubricating jelly to a topical swab and from the swab on to the pessary.

6. Insert the pessary along the posterior vaginal wall and into the top of the vagina. This procedure is best performed late in the evening when the patient is unlikely to get out of bed.

7. Wipe away any excess lubricating jelly from the patient's vulval and/or perineal area with a topical swab.

8. Make the patient comfortable and apply a fresh sanitary pad.

9. Record in the appropriate documents that the pessary has been given.

Enemas

1. Explain the procedure to the patient.

2. Ensure privacy.

3. Ensure that a toilet, bedpan or commode is readily available.

4. Warm the enema to the required temperature, testing with a bath thermometer. A temperature of 40.5 – 43.3 degrees Celsius is recommended for adults. Oil retention enemas should be warmed to 37.8 degrees Celsius.

5. Assist the patient to lie in the required position, i.e. on the left side, with knees well flexed, the upper higher than the lower one, and with the buttocks near the edge of the bed.

6. Place a disposable incontinence pad beneath the patient's hips and buttocks.

7. Wash hands and put on disposable gloves.

8. Place some lubricating jelly on a topical swab and lubricate the nozzle of the enema or the rectal tube.

9. Expel excessive air and introduce the nozzle or tube slowly into the anal canal while separating the buttocks.

10. Slowly introduce the tube or nozzle to a depth of 10 – 12.5cm.

11. If a retention enema is used, introduce the fluid slowly and leave the patient in bed with the foot of the bed elevated by 45 degrees for as long as prescribed.

12. If an evacuant enema is used, introduce the fluid slowly until the pack is empty or the solution is completely finished.

13. If using a funnel and rectal tube, adjust the height of the funnel according to the rate of flow desired.

14. Clamp the tubing before all the fluid has run in.

15. Slowly withdraw the tube or nozzle.

16. Dry the patient's perineal area with a gauze swab.

17. Ask the patient to retain the enema for 10 –15 minutes before evacuating the bowel.

18. Ensure that the patient has access to the nurse call system, is near to a bedpan, commode or toilet and has adequate toilet paper.

19. Remove and dispose of equipment.

20. Wash hands.

21. Record in the appropriate documents that the enema has been given, its effects on the patient and its results (colour, consistency, content and amount of faeces produced).

Suppositories

1. Explain the procedure to the patient. It is best to administer a medicated suppository after the patient has emptied his/her bowels.

2. Ensure privacy.

3. Ensure that a bedpan, commode or the toilet is readily available.

4. Assist the patient to lie in the required position, i.e. on the left side, with his/her knees flexed, the upper higher than the lower one, with the buttocks near the edge of the bed.

5. Place a disposable incontinence pad beneath the patient's hips and buttocks.

6. Wash hands and put on gloves.

7. Place some lubricating jelly on the topical swab and lubricate the blunt of the suppository if it is being used to obtain systemic action. Separate the patient's buttocks and insert the suppository, blunt end first, advancing it about 2-4 cm. Repeat this procedure if a second suppository is to be inserted.

8. Once the suppository has been inserted, clean any excess lubricating jelly from the patient's perineal area.

9. Ask the patient to retain the suppository if it is an evacuant type. If it is medicated, ask the patient to retain the suppository for 20 minutes or until he/she is no longer able to do so.

10. Remove and dispose of equipment.

11. Record that the suppository has been given, the effect on the patient and the result (amount, colour, consistency and content) in the appropriate documents.

Abbreviations

Before meals – ac	Right eye - od
Twice a day – bd	Left eye - os
Capsule – cap	Each eye - ou
Daily – dly	After meals – pc
Gram – g	By mouth - PO
Drops – gtt	As required - prn
Hour – hr	Powder - pwd
Intra-muscular – IM	Four times daily - qid
Infusion – INF	Every other day - qod
Inhalation – INH	At bedtime - nocte
Injection – inj	Rectal - RECT
Intermittent – INT	Right lower quadrant - RLQ
Intravenous – IV	Right upper quadrant - RUQ
Kilogram – kg	Subcutaneous - sc
Left lower quadrant – LLQ	Sublingual - SL
Left upper quadrant – LUQ	Solution - sol
Nil by mouth – NBM	Suppository - suppos
Syrup – syr	Three times daily - tds
Tablet – tab	Topical - top
Tablespoon – tbsp	Vaginal – vag
Greater than - >	Less than - <