



Харківський національний університет
імені В.Н. Каразіна

V. N. Karazin Kharkiv National University
School of Medicine
Department of Internal Medicine

CARE OF PATIENTS:

Administration of Medicines

Babiy Olha

Definition

Medicine is a drug or other preparation for the treatment or prevention of disease

Drug is any substance which has a physiological effect when ingested or otherwise introduced into the body

Different Routes of Medicines Administration

- Oral
- Topical
- Parentral
 - Intradermal
 - Subcutaneous
 - Intramuscularly
 - Intravenous
- Rectal
- Vaginal
- Inhalation

Principles of Drug Storage

- Drugs are always stored in their original packaging, so the dosage, composition, expiration date and production serial number can be checked at any time
- All medicines should be stored in a cool (below 25°C) dry place unless refrigeration is required (between 2°C and 8°C)
- The expiry date of products can change once opened
- Record the date opened and the calculated expiry on the medicine package/label
- Store as recommended by the manufacturer
- Medication should be user specific and 'sharing' of medicines including creams and ointments is prohibited

Principles of Drug Storage

- Drugs in the ward medicinal cabinet are stored in alphabetical order, according to the method of use, internal and external use and injectable drugs
- Ointments and pastes are usually stored in the designated refrigerator
- Flammable liquids are stored in metal cabinets in the designated room with a ban on naked flames
- Poisons are stored outside the medicinal cabinet

Principles of Drug Storage

- Each group of medicinal products in the cabinet must be clearly sorted so that each box is clearly visible
- The nurse keeps the ward medicinal cabinet in order – regularly checks and maintains the content
- Any lack of drugs is reported to the ward nurse who places a new order
- The ward medicinal cabinet is located so that it cannot be accessed by unauthorized persons
- The ward medicinal cabinet must not be placed next to the central heating or in direct sunlight

Drug Label Requirements

1. Name of drug – production, brand name
2. Drug weight – in g, mg, in SI units, in %
3. Drug strength
 - Forte – a drug with higher active substance content
 - Biforte – a drug with a double strength effect
 - Mitte – a drug with a reduced active substance content
 - Retard – a drug that has a prolonged effect due to retarded absorption or conversion in the body.
4. Indication group – a group that is determined according to the intended drug use
5. Application – for internal or external use

Drug Label Requirements

6. Expiry date

EXP 3 590616

3 – indicates the expiration period in years; it is added to the last two digits

59 – production serial number

06 – month of production (June)

16 – year of production (2016)

To sum this up, the drug was manufactured in June 2016 and can be used up to June 2019.

11/2019

The date of expiry is directly marked

Drug Label Requirements

7. Drug composition – active substances, quantities, and adjuvants
8. Registration number – the number under which the drug is registered on the list of medicines
9. Package contents – number of capsules, tablets etc.
10. Storage information – the recommended temperature, protection from light, moisture etc.
11. Warning– to store out of the reach and sight of children, and to return unused drugs to the pharmacy

Storage of Opened Medicines

Tubs of creams / ointments	1 month
Pump dispenser packs of creams/ ointment	Manufacturer's expiry refer to expiry symbol
Tablets/ capsules in monitored dosage systems	2 months
Oral liquids in original container	6 months unless otherwise specified by manufacturer
Eye, Ear, Nose drops/ ointments	1 month
Inhalers	Manufacturer's expiry / refer to dose counter if available
Insulin	4 weeks for insulin vials and pens unless otherwise stated

ABBREVIATION USED REGARDING TIME OF MEDICINE ADMINISTRATION

- A.C :Before meals.
- P.C: After meals.
- W/F with meals
- Q.D: once a day.
- Q.N : Each night.
- H.S: At bed time.
- C.M : Tomorrow morning.
- P.R.N: When required.
- S.O.S: If necessary in emergency.
- BID: Twice a day.
- TID: Thrice a day.
- QID: Four times a day.
- STAT: At once/ Immediately.
- Q2H: every 2 hours

ABBREVIATIONS USED REGARDING PREPERATION OF THE MEDICINE

- Dil: Dilute.
- Liq: Liquid
- Lot: Lotion
- Mist: Mixture
- Ol : Oil
- Pulv: Powder
- Syr: Syrup
- Tr: Tincture
- Ung: Ointment.
- Inj: Injection.
- Sol. Solution

ABBREVIATIONS USED REGARDING AMOUNT OF THE MEDICINE

- Gr: Grain.
- Gtt: Drop
- M: Minim
- Cap :Capsule
- Tab : Tablet
- Tsp :Tea Spoon Full (5 ml)
- Tbsp: Table spoon (15 ml)

ABBREVIATIONS USED REGARDING ROUTE OF MEDICINE ADMINISTRATION

- ORAL: administration to or by way of the mouth
- IV: administration within or into a vein or veins
- IM: administration within a muscle
- CONJUNC: administration to the conjunctiva
- NASAL: administration to the nose
- OPHTHALM: administration to the external eye
- RESPIR: administration within the respiratory tract by inhaling orally or nasally for local or systemic effect (inhalation)
- TOPIC: administration to a particular spot on the outer surface of the body

The Six Rights of Medication Administration

- Right medication
- Right patient
- Right time
- Right method/route of administration
- Right amount/dosage
- Right documentation

Oral Administration of Medicine

Type of Oral Medication

1. Lozenges (troches)

2. Tablets

3. Capsules

4. Syrups

5. Tinctures

6. Suspensions

7. Pills

8. Effervescence

9. Gargle

10. Powder

Equipment

1. Steel tray
2. Drinking water in jug
3. Prescription chart
4. Medicine prescribed
5. Medicine cup/ Measuring spoon
6. Pill crusher/
tablet cutter if needed
7. Kidney tray/
paper bag
(to discard the waste)



Oral Administration of Medicine

1. Perform hand hygiene

To prevent the spread of infection

2. Assemble all equipments

Organization facilitates accurate skill performances

3. Verify the medication order using the patient's prescription chart

To reduce the chance of medication errors

4. Prepare one patient's medication at a time

Lessen the chances for medication errors

5. Proceed from top to bottom of the prescription chart when preparing medications

This ensures that you do not miss any medication orders

Oral Administration Procedure

6. Select the correct medication from the shelf or drawer and compare the label to the medication order on the prescription chart

Comparing medication to the written order is a check that helps to prevent errors

- a. From the multidose bottle:

Pour a pill from the multidose bottle into the container lid and transfer the correct amount to a medicine cup.

Pouring medication into the lid eliminates handling it

- b. In the case of unit packing:

Leave unit dose medication in wrappers and place them in a medication cup

Unit dose wrappers keep medications clean and safe

- c. Liquid medications:

Measure liquid medications by holding the medicine cup at eye level and reading the level at the bottom of the meniscus. Pour from the bottle with the label uppermost and wipe the neck if necessary

Holding a cup at eye level to pour a liquid gives the most accurate measurement

Pouring away from the label and wiping the lip helps keep the label readable

Oral Administration of Medicine

7. Recheck each medication with the prescription chart

To ensure preparation of the correct dose

8. When you have prepared all medications on a tray, compare each one again to the medication order

To check all medications three times to prevent errors

9. Crush pills if the client is unable to swallow them:

1) Place the pill in a pill crusher and crush the pill until it is in powder form

Crushed medications are often easier to swallow

!!! Do not crush time-release capsules or enteric-coated tablets

Enteric-coated tablets that are crushed may irritate the stomach's mucosal lining

Opening and crushing the contents of a time-release capsule may interfere with its absorption

2) Dissolve substance in water or juice, or mix with applesauce to mask the taste

3) If no need to crush, cut tablets at score mark only

Oral Administration of Medicine

10. Bring medication to the patient you have prepared

11. Identify the patient before giving the medication:

To abide by Five rights to prevent medication errors

a. Ask the patient his/her name

b. Ask a staff member to identify the patient

c. Check the name on the identification bracelet if available

Checking the identification bracelet is the most reliable

12. Complete necessary assessments before giving medications

Additional checking includes taking vital signs and allergies to medications, depending on the medication's action

13. Assist the client to a comfortable position to take medications

Sitting as upright as possible makes swallowing medication easier and less likely to cause aspiration

Oral Administration of Medicine

14. Administer the medication:

a) Offer water or fluids with the medication

You should be aware of any fluid restrictions that exist

b) Open unit dose medication package and give the medication to the medicine cup

c) Review the medication's name and purpose

d) Discard any medication that falls on the floor

e) Mix powder medications with fluids at the bedside if needed

Powdered forms of drugs may thicken when mixed with fluid. You should give them immediately

f) Record fluid intake on the balance sheet

Recording fluid taken with medications maintains accurate documentation

15. Remain with the client until he/she has taken all medication.

Confirm the client's mouth if needed

Be sure that the patient takes the medication

Leaving medication at the bedside is unsafe

Oral Administration of Medicine

16. Perform hand hygiene

To prevent the spread of infection

17. Explain the purpose of the drug and ask if the patient has any questions

Improves the compliance with a drug therapy

18. Record medication administration on the appropriate form:

1) Sign after you have given the medication

Documentation provides coordination of care and giving signature maintains professional accountability

2) If a patient refused the medication, record according to your hospital/agency policy on the record

To verify the reason medications were omitted as well as the specific nursing assessments needed to safely administer medication

3) Document vital signs or particular assessments according to the hospital's form

To confirm medication's action

4) Sign in the narcotic record for controlled substances when you remove them from the locked area(e.g, drawer or shelf).

Federal law regulates special documentation for controlled narcotic substances

19. Check the client within 30 minutes after giving medication

To verify the client's response to the medication

Particularly, you should check the response after administered pain killer whether if the medication relieves pain or not.

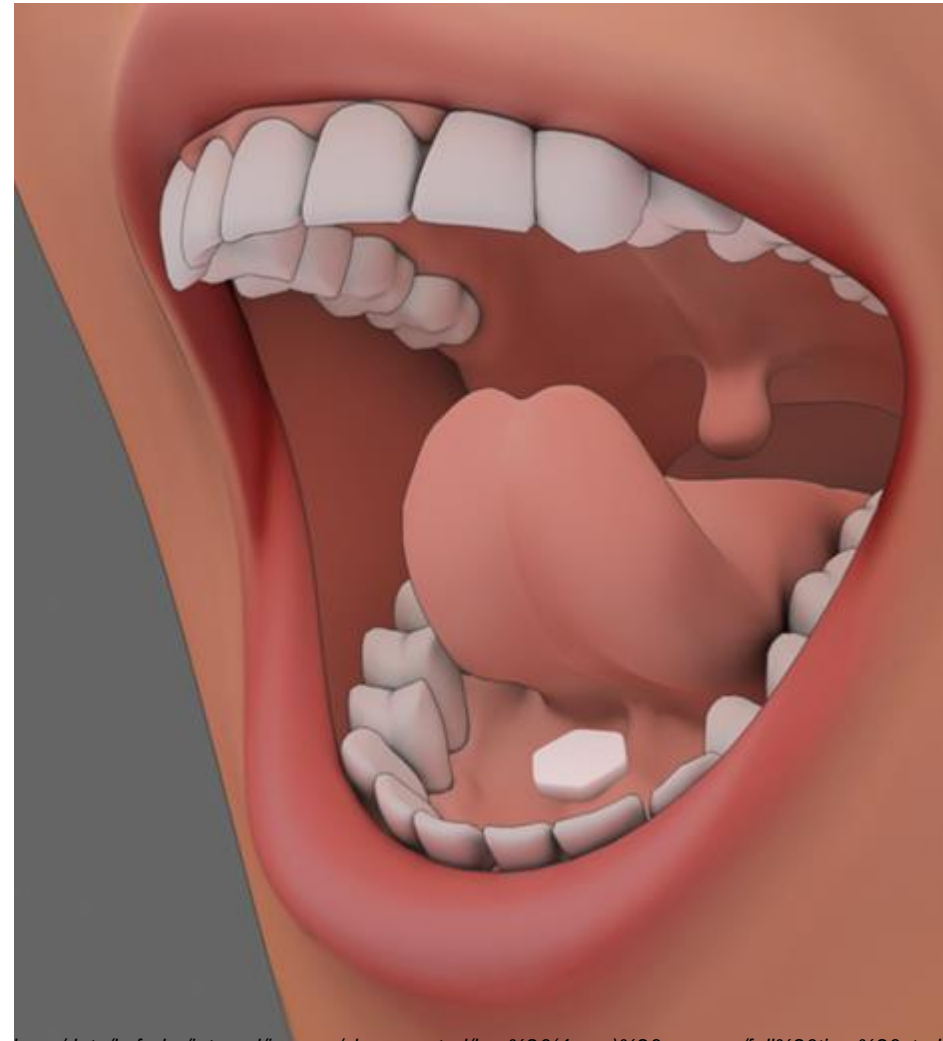
Monitored Dosage Systems



Sublingual Administration of Medicine

- Instruct the patient to place medication under the tongue and allow it to dissolve completely

Drug is absorbed through the mucous membranes into the blood vessels; if swallowed the drug may be destroyed by gastric juices or detoxified in the liver too quickly so that its intended effects will not occur



Buccal Administration of Medicine

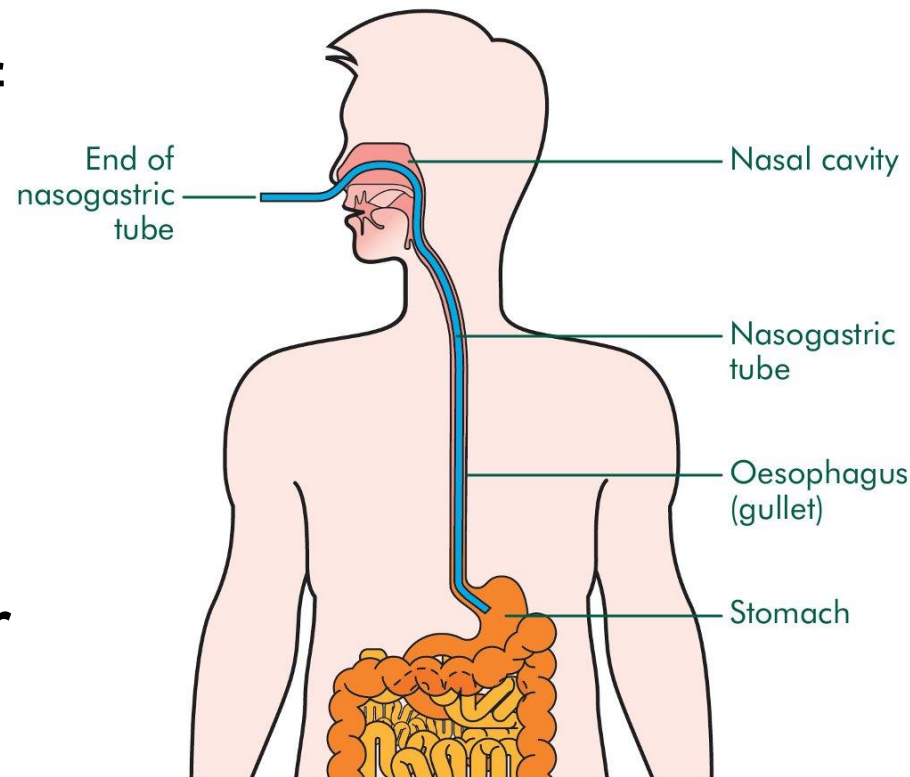
- Instruct the patient to place medication in the mouth against the cheek until it dissolves completely

Drug is absorbed through the mucous membranes and enter directly into the bloodstream; buccal administration may provide better bioavailability of some drugs and a more rapid onset of action compared to oral administration because the medication does not pass through the digestive system and thereby avoids first pass metabolism



Medications Given through the Nasogastric Tube

- Crush tablets or open capsules and dissolve powder with 20-30 ml of warm water in a cup
- Check placement of a the feeding tube or nasogastric tube before instilling anything but air into the tube



Inhalations

Inhalation Systems

1. Aerosol dispensers (PMDI - pressure metered dose inhaler)



2. Powder inhalers



3. Nebulaizer



Administration of Aerosol Dispensers

1. Perform hand hygiene

To prevent the spread of infection

2. Prepare the medication

Strictly observe safety precautions to decrease the possibility of medication error

3. Explain to the patient what you are going to do

Providing explanation fosters his/her cooperation and allays anxiety

4. Assist the patient to make comfortable position in sitting or semi-Fowler position

Upright position can help expanding the chest

5. Shake the inhaler well immediately prior to use

Shaking aerosolizes the fine particles

6. Spray once into the air

To fill the mouthpiece

Administration of Aerosol Dispensers

7. Instruction to the patient:

- I) Instruct the patient to take a deep breath and exhale completely through the nose
- II) The patient should grip the mouthpiece with the lips, push down on the bottle, and inhale as slowly and deeply as possible through the mouth
- III) Instruct the patient to hold his/her breath for 10 seconds and then to slowly exhale with pursed lips

The procedure is designed to allow the medication to come into contact with the lungs for the maximum amount of time

- IV) Repeat the above steps for each ordered “puffs”, waiting 5-10 seconds or as prescribed between puffs

This method achieve maximum benefits

- V) Instruct the patient to gargle and wipe the face if needed

Gargling cleanse the mouth; when steroid remains inside the mouth, infection of fungus may occur



Administration of Aerosol Dispensers

8. Replace equipments used properly and discard dirt

To prepare for the next procedure prevent the spread of infection and

9. Perform hand hygiene

To prevent the spread of infection

10. Document the date, time, amount of puffs, and response; sign on the documentation

Documentation provides continuity of care

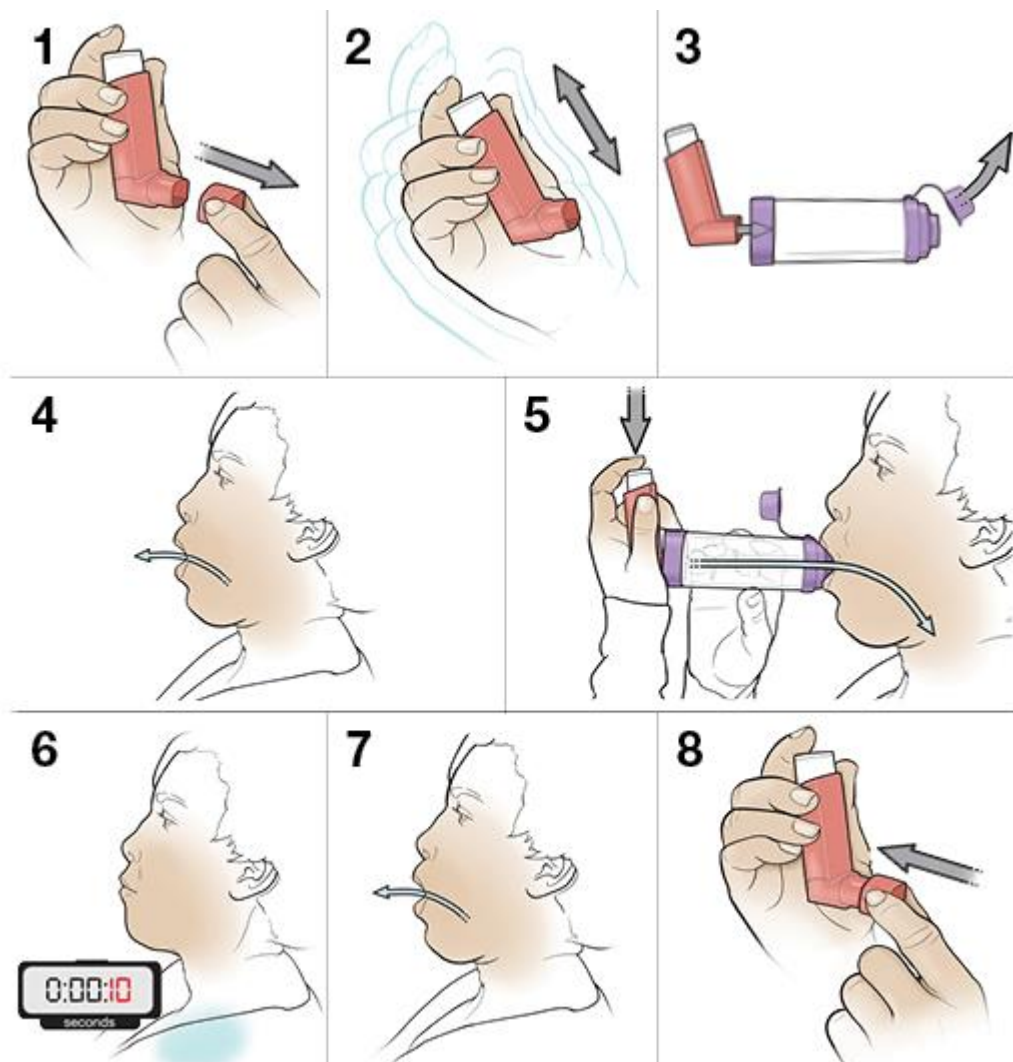
Giving signature maintains professional accountability

Spacers



Administration of Aerosol Dispensers through Spacer

- Connect spacer tightly to the inhaler.
- Presses the bottom of the container and takes about 10 slow breaths using the attachment.
- Wash and dry the attachment after use



Powder Inhalers



Administration of Powder Inhalers

1. The patient sits or stands upright
2. Instruct the patient to exhale
3. Clamp his/her lips around the mouthpiece
4. Take a quick deep breath through the inhaler
5. Remove the inhaler from the mouth and hold their breath for 10 seconds
6. Exhale

Administration of Nebulaizer

Equipments required:

1. Prescription chart
2. Nebulizer
3. Circulating set-up
4. Sterile water
5. Mouthpiece or oxygenmask
6. Prescribed medication
7. Sputum mug if available
8. Tissue paper
9. Water, lip cream as required



Administration of Nebulaizer

1. Check the medication order

To ensure that you give the correct medication to the correct patient

2. Perform hand hygiene

To prevent the spread of infection

3. Prepare the medication

Strictly observe safety precautions to decrease the possibility of a medication error

4. Explain to the patient what you are going to do

Providing explanation fosters his/her cooperation and allays anxiety

5. Assist to the patient to make a comfortable position in sitting or semi-Fowler position

Upright position can help expanding the chest

6. Setting the nebulizer:

I) Plug the cord into an electrical outlet

II) Fill the nebulizer cup with the ordered amount of medication

To ensure that you give the correct amount of medication

III) Turn on the nebulizer at the prescribed time

Administration of Nebulaizer

7. Instructing the patient during nebulization

- I) Instruct the patient to close the lips around the mouthpiece and to breathe through the mouth
- II) If the patient is using a mask, he/she may breathe normally
- III) Instructing the patient to continue the treatment until he/she can no longer see a mist on exhalation from the opposite end of the mouthpiece or vent holes in the mask

To ensure that the patient inhales the entire dose

!!! Discontinue when the patient feel ill and you find side effects

Side effect includes nausea, vomiting, palpitation, difficult breathing, cyanosis and cold sweat

- IV) Encourage the client to partially cough and expectorate any secretions loosed during the treatment



Administration of Nebulaizer

8. After nebulization finished,

- 1) Turn off the nebulizer and take off the cord from the electrical outlet
- 2) Instruct the client to gargle and wipe the face if needed

Apply lip cream if needed

Gargling cleanse the mouth; when steroid remains inside the mouth, infection of fungus may occur

Applying lip cream provide moisture on lips

- 3) Soak the nebulizer cup and mouthpiece or oxygen mask in warm saline water for an hour; disinfect the nebulizer by spirit swab

To avoid contamination

- 4) Rinse and dry it after each use

To prepare for the next procedure

- 5) Replace equipments used properly and discard dirt

To prepare for the next procedure and prevent the spread of infection

Administration of Nebulaizer

9. Perform hand hygiene

To prevent the spread of infection

10. Document the date, time, type and dose of medication, and response; sign on the documentation

Documentation provides continuity of care

Giving signature maintains professional accountability

Administration of Suppository



Purpose

- To produce a laxative effect
- To produce local sedative in the treatment of hemorrhoids or rectal abscess.
- When medications cannot be taken by mouth

Equipment

- Suppository (as ordered)
- Gauze square
- Rectal glove or finger cot
- Toilet paper
- Receiver for soiled swabs
- Bedpan, if the treatment is in order to produce defecation
- Screen
- Mackintosh and towel

Administration of Suppository

1. Check medication order.
2. Review client's medical record for rectal surgery/ bleeding.
3. Wash hands.
4. Prepare needed equipment and supplies.
5. Apply disposable gloves.
6. Identify client.
7. Explain procedure to client.
8. Arrange supplies at client's bedside.
9. Provide privacy.

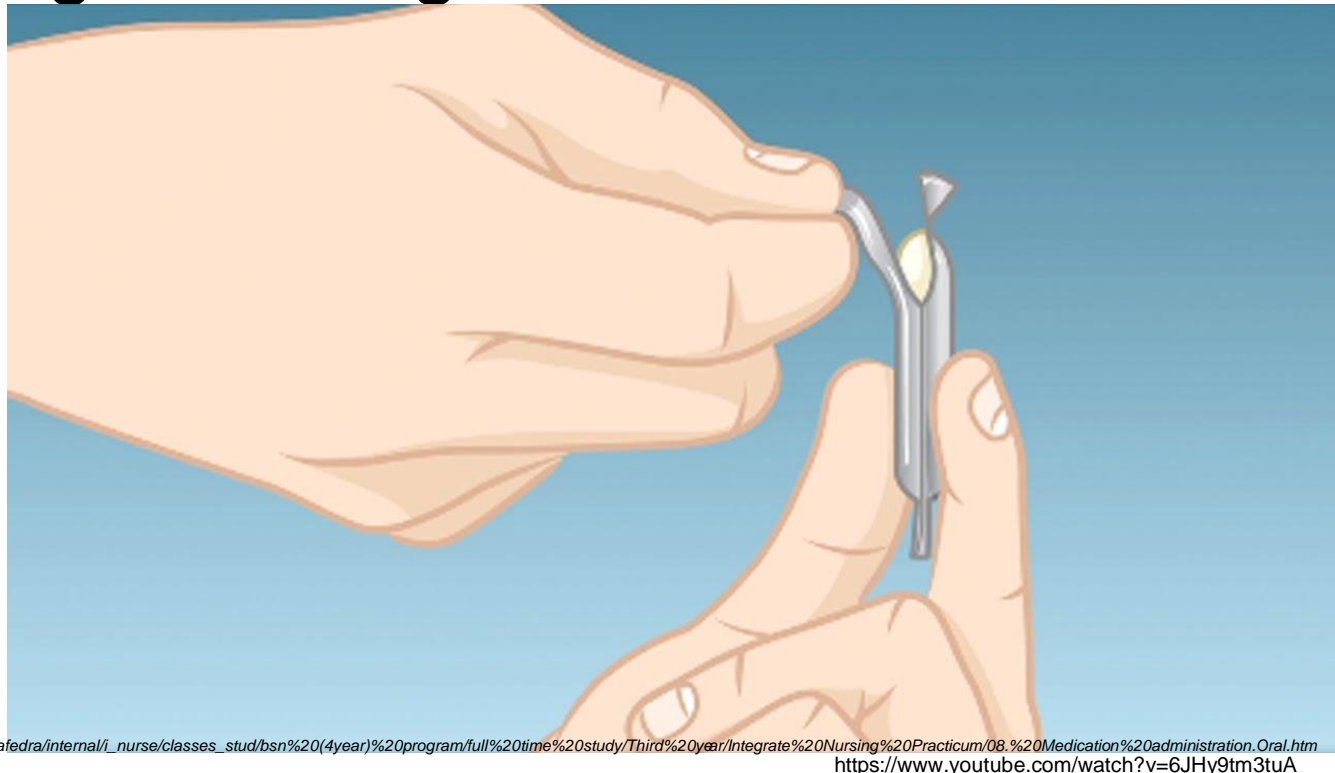
Administration of Suppository

10. Position patient in Sims' position
11. Keep client draped, except for anal area
12. Examine external condition of client's anus; palpate rectal walls
13. Dispose of gloves, if soiled, and reapply new gloves



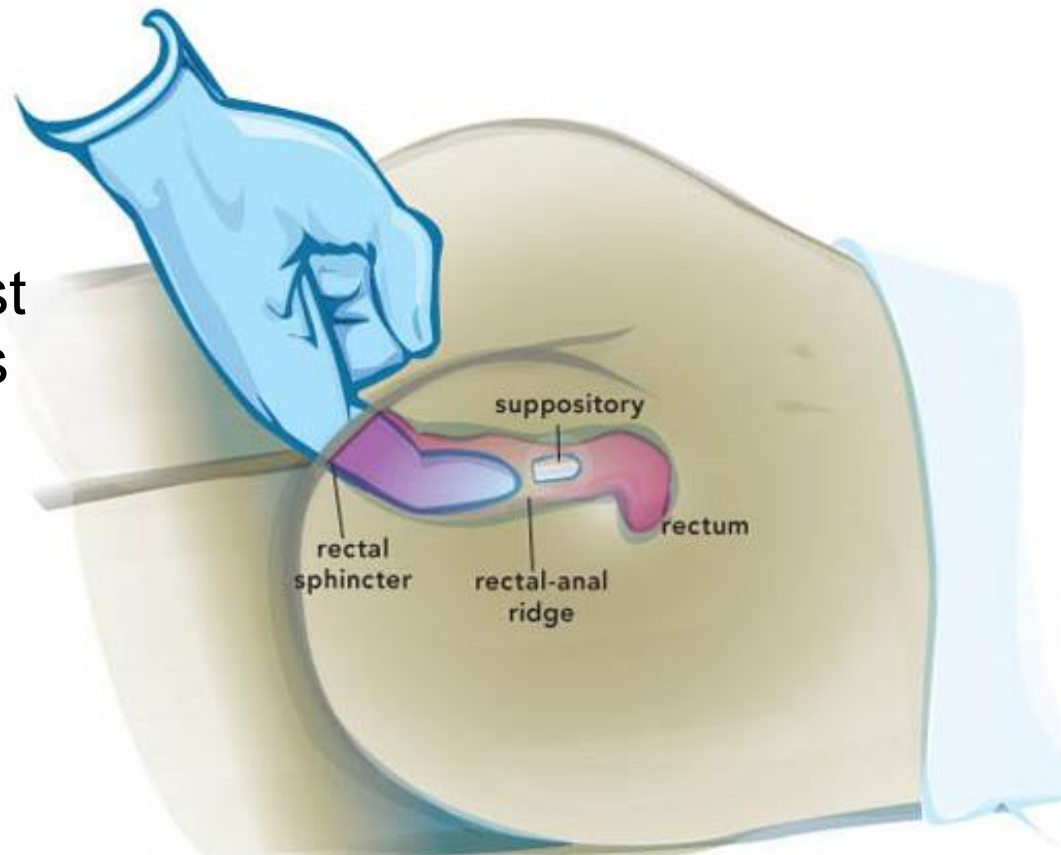
Administration of Suppository

14. Remove suppository from wrapper and lubricate rounded end.
15. Lubricate gloved finger of dominant hand.



Administration of Suppository

16. Ask client to take slow, deep breaths through mouth and to relax anal sphincter
17. Retract client's buttocks with nondominant hand
18. With index finger of dominant hand, gently insert suppository through anus, past the internal sphincter, and place against rectal wall, 10 cm for adults or 5 cm for children and infants
19. Withdraw finger and wipe client's anal area clean



Administration of Suppository

20. Remove and dispose of gloves

21. Wash hands

22. If suppository contains a laxative or fecal softener, be sure that client will receive help to reach bedpan or toilet

23. Keep client flat on back or on side for 5 minutes

24. Return in 5 minutes to determine if suppository has been expelled

25. Observe client for effects of suppository 30 minutes after administration

26. Record medication administration

Administration of Topical Medications



General principles of applying drugs to the skin

- Applied to the skin with a wooden or plastic spatula
- Never put the spatula back in the ointment or the cream container once it has touched the patient's skin!
- Applied in sufficient quantities at an exactly specified time
- Gently wash the skin with warm water before reapplying the drug
- Sprays and powders can cause asthma attacks in asthmatic patients
- When applying to the face, protect the patient's eyes
- If necessary, replace the bed linen and the patient's pyjamas

Equipment

Prescribed dermatological medication

Hot water or another solution to clean the skin

Gauze squares

Spatulas

Hydrofile bandages

Scissors

Strips of tape

Kidney bowl

Disposable gloves

Clean pyjamas

Daily report with drug record



Procedure

- Check the prescription, and the identity of the patient
- Put the patient in the appropriate position
- Expose the part of the area to be treated
- Assess the condition of the patient's skin
- Put on the gloves
- Clean the area with warm water or herbal decoctions, use hypoallergenic soap, oil etc.
Clean any previous residues
- Dry the skin thoroughly using hydrofile squares
Do not rub the skin!
- Apply the dermatological medication to the dry skin
- All changes in the skin are recorded during the course of treatment



Application of Ointment

- Use a spatula to scoop the ointment out of the container or squeeze it out of the tube directly onto the skin
- Smear the ointment gently
- Smaller areas are treated with ointment applied to a hydrofile square, placed on the skin and fixed with a hydrofile bandage and plaster tape

Application of Ointment

When the medication is in the form of an ointment or cream, such as is the case with nitroglycerin/ estrogen/ nicotine ointment, the order usually calls for applying a particular length of it

Each tube of medication comes with a special pad of measuring strips marked in in/cm for administering an accurate dose

Do not massage or rub the ointment into the skin as this can cause the medication to be absorbed too rapidly



Application of Talcum Powder

- Talcum powder is applied directly from the bottle to the affected area or by using a cotton swab
- Skin areas that are touching must be separated with gauze squares

Administering Ophthalmic Medications

Equipment

- Prescribed medicine, eye drops, ointment
- Kidney bowl
- Light source



Instilling Drugs to the Eyes

1. Review prescription chart
2. Assess condition of patient's external eye structures
3. Determine whether patient has any known allergies to eye medications
4. Assess patient's level of consciousness and ability to follow directions
5. Assess patient's knowledge regarding drug therapy and desire to self-administer medication

Instilling Drugs to the Eyes

6. Explain procedure to patient
7. Wash your hands
8. Arrange supplies at patient's bedside
9. Apply clean gloves
10. Ask patient to lie supine or to sit back in chair with head slightly hyperextended
11. Wash away any crusts or drainage along patient's eyelid margins or inner canthus; soak any crusts that are dried and difficult to remove by applying a damp washcloth or cotton ball over eye for a few minutes

Instilling Drugs to the Eyes

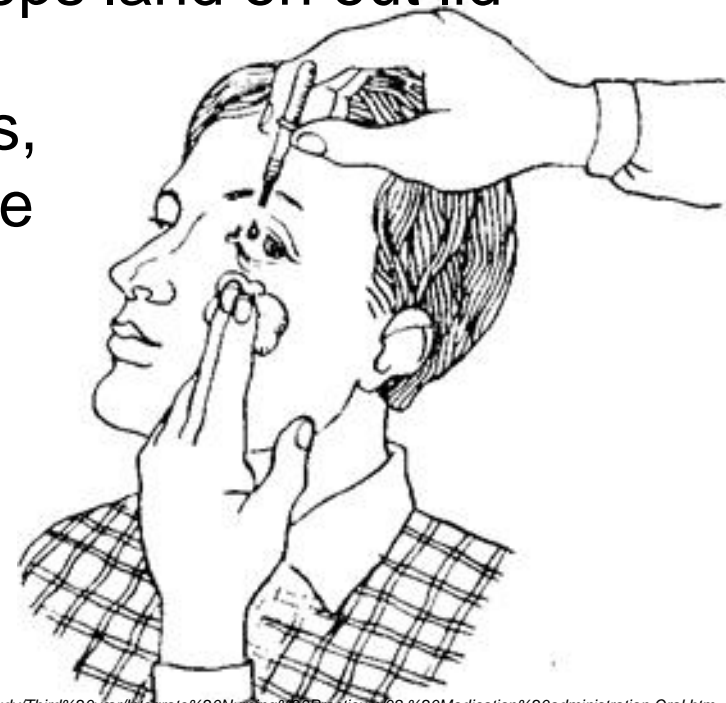
12. Hold cotton ball or clean tissue in nondominant hand on patient's cheekbone just below lower eyelid
13. With tissue or cotton ball resting below lower lid, gently press downward with thumb or fore-finger against bony orbit
14. Ask patient to look at ceiling



Administration of Eye Drops

Instill eye drops while explaining steps to patient:

- A. With dominant hand resting on client's forehead, hold filled medication eye dropper or ophthalmic solution approximately 1 to 2 cm above conjunctival sac
- B. Drop prescribed number of medication drops into conjunctival sac
- C. If patient blinks or closes eye or if drops land on out lid margins, repeat procedure
- D. For drugs that cause systemic effects, with a clean tissue apply gentle pressure with your finger and clean tissue on the patient's nasolacrimal duct for 30 to 60 seconds
- E. After instilling drops, ask patient to close eye gently



Administration of Eye Ointment

Instill eye ointment while explaining steps to patient:

- A. Ask patient to look at ceiling
- B. Holding ointment applicator above lower lid margin, apply thin stream of ointment evenly along inner edge of lower eyelid on conjunctiva from inner canthus to outer canthus
- C. Have patient close eye and rub lid gently in circular motion with cotton ball, if rubbing is not contraindicated



Instilling Drugs to the Eyes

15. If excess medication is on eyelid, gently wipe eyelid from inner to outer canthus
16. If patient had an eye patch, apply clean patch by placing it over affected eye so entire eye is covered; tape securely without applying pressure to eye
17. Remove gloves
18. Dispose of soiled supplies in proper receptacle
19. Wash hands



Instilling Drugs to the Eyes

20. Note patient's response to instillation; ask if any discomfort was felt
21. Observe patient's response to medication by assessing visual changes and noting any side effect
22. Ask patient to discuss drug's purpose, action, side effect, and technique of administration
23. Have patient demonstrate self-administration of next dose
24. Record drug administration and appearance of client's eye
25. Record and report and undesirable side effects

Administering Ear Medications



Equipment

- Disposable tissues
- Medication
- Cotton ball
- Gloves



Instilling Drugs to the Ears

1. Check the prescription, and the identity of the patient
2. Wash hands carefully.
3. Prepare the medication
4. Put on gloves
5. Ask the patient to lie on the side of unaffected ear
6. Remove excess drainage with a dry wipe

Instilling Drugs to the Ears

7. Expose the external ear canal by properly adjusting the client's ear lobe; for adults, pull the lobe up, back, and outward



Instilling Drugs to the Ears

9. Hold the dropper or the tip of the squeeze bottle above the opening of the external auditory canal

Allow the prescribed number of drops to fall on the side of the canal

Do not touch any part of the ear with the dropper or squeeze bottle during administration

10. Instruct the patient to remain the side-lying position for 5-10 minutes with the affect ear upward



Instilling Drugs to the Ears

11. If the procedure is ordered for both ears,
allow 5-10 minutes between instillation

Report the above steps for the other ear

12. Dispose of gloves and wash hands

13. Document the procedure