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Dosage Forms

Definition: Dosage forms are the means by which drug molecules are delivered to sites of action within the body

The effectiveness of a pharmacological agent depends on its form and route of administration; therefore it is important to understand the various forms in which drugs are dispensed.

Dosage Forms

Include:-solid, semisolid, liquid

A. Solid dosage forms

1. the tablet. In prescription usually abbreviated as tab or tabs - contains active drug in dried powder form as well as binders and fillers to give the tablet bulk and ensure the proper size

a. Scored tablets have indented lines, usually dividing the tablet into two equal halves, sometime three or four parts

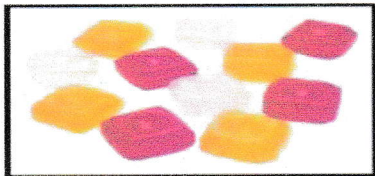
b. Enteric coated tablets have special coating designed to allow tablet to pass through acid in stomach and not dissolve until in

alkaline environment of small intestine – this avoids irritating the stomach, e.g. Aspirin.

c. **Slow-release tablets** designed to provide continuous, sustained release of a certain drug over time

d. **Caplets** – coated tablets in form of tablets; elongated shape may make it easier for some to swallow.

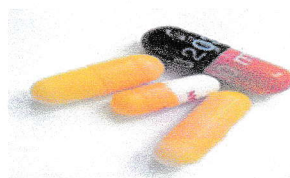
e-**Lozenges** – tablets formed from hardened base or sugar and water containing drug and other flavors. They are designed to dissolve slowly in the mouth and release the drug topically to the tissues of mouth and throat; they are not to be swallowed.



2. Capsule: in prescription usually abbreviated as *cap* or *caps*, comes basically in two varieties

1. **Soft gelatin shell** manufactured in one piece with drug usually in liquid form inside the shell, e.g. fat-soluble vitamins A and E.

2. **hard shell** manufactured in two pieces that fit together and hold the drug, either in powdered or granular form.



3. powder: a finely ground form of an active drug

1. Can be contained in capsules for oral administration
2. Can be used for topical application
3. Can be found in glass vials as dried form of the drug where it must be reconstituted by adding sterile water or sterile NaCL for purpose of injection, e.g. I/V. ampicillin

4- Suppository: a solid base of glycerin containing the drug

1. Manufactured in appropriate size for rectal and vaginal insertion
 - a. **Vaginal suppositories (Peccaries)** most often used to treat vaginal infections.
 - b. **Rectal suppositories** offer alternate route of administration for patients who are vomiting, e.g. Tylenol (antipyretic and analgesic).

II. Semi-solid dosage forms

dosage forms that are too soft in structure to qualify for solids but too thick to be considered liquid; while most creams and ointments are applied to the skin like nitroglycerin ointment (antianginal)

A. Cream – a semisolid emulsion of oil and water, the main ingredient being water

1. **Oil and Water** remain well mixed by adding emulsifying agents

2. a large number of topical drugs are manufactured in a cream base, e.g. hydrocortisone cream

3- easy to apply and appear to vanish when rubbed into skin.

B. Ointment – a semisolid emulsion of oil and water, the main ingredient being oil

1. Many topical drugs are produced in ointment form

2. Specially formulated ophthalmic ointments are made to be applied topically to the eye without causing irritation

3- difficult to wash off.

C. Pastes: e.g. ZnO combines three agents oil, water and powder .its an ointment in which a powder is suspended

■ **D-Lotion:-**

■ Are similar to creams but contain more water. They are actually suspension of finely dispersed powdered material in a base of water or oil and water .lotion are easy to apply useful for cooling and drying the skin.

■ **E-Gel** :-are water –based substances thickened without oil or fat .

III. Liquid dosage forms:

come in solutions and suspensions; generally described as either **Aqueous** from the Latin meaning watery consistency

- **Viscous** designating a non-watery or thick liquid

A. Solution: never need to be mixed as the drug-to-water concentration remains the same in every part of the solution.

1. **Elixirs:** solutions that contain an alcohol and water base, added sugar and flavorings, e.g. Tylenol; commonly used for pediatric and elderly patients who have difficulty swallowing tablets or capsules

2. **Syrups:** do not contain alcohol and are concentrated solutions of sugar, water, and flavorings. They are sweeter and more viscous than elixirs. Most cough medications are syrup based.

3. **Tinctures:** solutions that have an alcohol and water base and are applied topically, e.g. tincture of iodine

4. **Liquid sprays:** solutions of a drug combined with water or alcohol

- **Mouth Washes:** Hydroalcoholic solutions. used for two purposes therapeutic and cosmetic.
- Therapeutic to reduce plaque, gingivitis, dental caries.
- Cosmetic to reduce bad breath through the use of antimicrobial and/ or flavoring agents.

B. Suspensions: contain fine, un dissolved particles of drug suspended in a liquid base. These particles will settle to the bottom of the container. making it necessary to shake the

suspension well before use to evenly distribute the drug particles. e.g. antacids.

1. Emulsion: a suspension of fat particles in a watery base.

2. Lotion: topically applied suspension of an active drug in a water base, usually some skin-moisturizing agent added; sometimes may be without moisturizer, e.g. Calamine lotion

3. Gel: a suspension in which the drug particles are suspended in a thickened water medium.

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Prescription writing

Prescription is a written order from a physician to a pharmacist to supply certain quantity of a specific substance(s) or drug(s) to a specific patient..

The image shows a sample prescription form. At the top, it says 'PRESCRIPTION HAS AN ENCRYPTED BACKGROUND'. Below that, there are fields for 'Prescriber Name, M.D.', 'License No.', 'Clinic Name', 'Specialty', '22 West Street, Ste. A', 'Anytown, CA 90000', and '555-123-4567 • Fax 555-987-6543'. There is a section for 'R' with 'Name' and 'Address' fields. Below that, there are several rows for drug information, each with columns for 'Quantity', 'Drug', 'Strength', and 'Directions'. The form also includes a section for 'Prescription is valid for the number of days prescribed to the patient' and a 'Date' field.

Parts of prescription

Superscription: name, professional degree, contact no. address of prescriber,

Date when order is written.

Name, address & age of patient; & symbol Rx (an abbreviation for "recipe," ! Latin for "take thou." _

Inscription : ! body of ! Pres. containing ! name, strength of each drug, & dosage form of ! Tr.

Subscription: quantity to be dispensed. ! directions to ! pharmacist, usually consisting of a short sentence: "make a solution," "mix & place into 10 capsules," or "dispense 10 tablets."

Transcription : labeling of instruction to ! Patient,
prescriber's signature.

When writing ! drug name:

either **generic name (nonproprietary name)** is used.

OR ! **brand name (proprietary name)**

- ! strength of ! medication should be written in **metric units** (Not apothecary).

1 gr = 60 mg

15 gr = 1 g

1 ounce (oz) by volume = 30 ml

1 tsp = 5 ml

1 tbsp = 15 ml

20 drops = 1 ml

2.2 pounds (lb) = 1 kg.

Example ; - Doctor name:

Doctors address

Patient name :-

Adress/

Date:

Rx

Phenoxymethylpenicillin tablet 250
mg/tablet

Send 40 tablets.

2 tablets to be taken 4 times / day

Doctor signature