

PHARMACEUTICAL TECHNOLOGY

DOSAGE FORMS

Sashidhar Mulugu

Associate Professor

Department of Biomedical Science

Bharathidasan University

DOSAGE FORMS

1. Drugs are rarely administered in their pure forms and more often they are admixed with various kinds of adjuncts thus transforming into an acceptable ‘ **Dosage Forms** ‘. So every dosage form irrespective of its final structure and nature is a combination of drug components and non – drug components collectively called as additives designed to serve a specific purpose.
2. Design of a dosage form is important just like an ‘ architect builds a building ‘ it should have elegance, stability and purposefulness --- similarly specific qualities should be there, specified type of action pattern backed by scientific skill matched with innovation and imagination. So various dosage forms should be studied before finalizing one that will satisfy scientists, physicians and patients.

3. Physician's Viewpoint : Requires a dosage form that can provide drug in a preordained pattern to execute a pharmacologic action. Thus with so many drugs in the market his job is difficult ---- so he is guided by
- a) Onset time --- Gap between time of administration of drug and beginning of action. Depends on not only route of administration but also linked to type and composition of dosage forms. Different tablets by different manufacturers may show different onset times depending on disintegration times and sizes of their constituent particles.
 - b) Intensity of action – Qualitative relationship with the amount of drug available in the body at any given time. This influences absorption, biotransformation and excretion rates. These pharmacokinetic parameters can be manipulated by formulative techniques.
 - c) Total Duration of action of drug depends upon rate of absorption, metabolism and excretion. So as long as they are there action is guaranteed.

4. Pharmaceutical Scientists Concern : Manufacturers of products are morally, legally and socially responsible for the qualities of their products, not only at the time of manufacture but must guarantee continuity of the chemical composition and physical structure of the dosage form from the time of manufacture till use by patients. Thus it may have to endure lot of time on the shelf before being used. Adverse reactions should not be there with packaging material or with additives used. Stability should be ensured against microbial action or any other oxidative degradation.

5. Patient's Expectation : Every formulator must ask himself as to what is the patient looking for in a medicament before deciding on the dosage form. Earlier nobody bothered whether the patient liked the medicine or not, whether it is bitter or bad smelling etc. but today it has changed. Today formulators would design formulations that have an agreeable appearance and Desirable sensual characteristics

Such as likeable taste, good flavour, attractive color, etc. qualities which can be imparted by additives with some understanding of human psychology. Every patient would like to be treated with a convenient dosage form meaning minimum difficulty and effort in using the medicine. Eg. Ointment – just apply and wash it off. Similarly less pill swallowing treatments.

- Dosage forms --- Solid, Liquid and Semi – Solid

Solid Dosage Forms (DF) – Broadly divided into Unit DF and Bulk DF

Unit DF – Tablets, Pills, Capsules, Cachets and Powders

Tablets – Oral, Lozenge, Buccal, Sublingual, Chewable, Soluble, Hypodermic

Capsules – Soft (Oral, Suppositories, Ointments) and Hard

Cachets – Dry and Wet Seal

Bulk DF – For Internal Use and For External Use

For Internal Use – Fine Powders and Granules (Effervescent and Non-Effervescent)

For External Use – Ear Powders, Snuff Powders, Ophthalmic Powders, Dusting Powders, Tooth Powders.

- **Liquid Dosage Forms (DF)** – Monophasic and Biphasic
- **Monophasic** – Internal (Drops and Elixirs) and External (Lotions, Liniments, Gargles, Mouth Washes, Eye Drops, Ear Drops, Nose Drops, Inhalations)
- **Biphasic** – Emulsions (Oral, External, Parenteral, Ophthalmic) and Suspensions (Oral, External, Parenteral and Ophthalmic)
- **Semi-Solid Dosage Forms (DF)** – For External Use and For Internal Use
- **For External Use** – Ointments, Plasters and Suppositories
- Ointments – Oleaginous, Water Washable (Pastes/Jellies), Absorption Emulsions (creams)
- Suppositories – Rectal (Suppositories), Vaginal (Pessaries), Urethral (Urethral Bougies), Nasal (Nasal Bougies), Ear Cones, Eye Discs.
- **For Internal Use** – Electuaries