Pharmaceutical Preparations for External Use
Preparations for External Use

“For External Use Only”

✓ Should neither be swallowed

✓ Nor injected
Types of Externally used preparations:

✓ Preparations which are applied to the skin. (Topical preparations)

✓ Preparations which are applied to the mucus membranes.

✓ Local effect

✓ Systemic effect
The *stratum conium* (the superficial skin layer) is the principle barrier to penetration of drugs to the skin.

But also, it is a reservoir for drugs.

**Topical preparations consist of:**

1- The **active** ingredient (drug).

2- The **Vehicle**.
Preparations applied to the skin

✓ Lotion.
✓ Cream.
✓ Ointment.
✓ Liniment.
✓ Gel.
✓ Solution.
✓ Shampoo.
✓ Dermal patch.
✓ Spray.
✓ Dusting powder.
Ointment:
A semi solid preparation consisting of a fatty (greasy) substance mixed with the active drug.

✓ Soft paraffin
✓ Wax
✓ Vaseline

Ointments are generally **immiscible** with water.
Used for **Dry** surfaces
ex. eczema
Cream:

A semisolid preparation in which the drug is mixed with a fatty base in form of emulsion which is **miscible** with water.

Applied on **wet** surfaces because they mix well with secretions.

E.g. Fusidic acid cream
Lotion:

- Is a liquid preparation
- Contains a cooling substance like menthol.
- Used to cleans, cool, & relieve pruritus in acutely inflamed lesions.
- Applied frequently to the skin.

E.g. Calamine lotion.
Liniment:

A semisolid or liquid preparation thinner than ointment.

Applied to the skin by friction.

Contains irritant substance such as camphor, salicylates, menthol, capsaicin.

Leads to vasodilatation & pain relieve.
Transdermal delivery of drugs: 
(Transdermal Patch)

Drug is released by a rate-controlling membrane

It provides a relatively stable plasma concentration of the drug.
It overcomes 1st pass elimination.

e.g. postmenopausal hormone replacement therapy.

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Preparations applied to the mucus membranes

✓ **Eye, nose, and ear preparations:**
  - Eye drop.
  - Eye ointment.
  - Ear drop.
  - Nasal drop, Nasal spray.

✓ **Local mouth preparations:**
  - Mouthwashes (gargles).
  - Oral gel.
  - Spray.
Preparations applied to the mucus membranes

✓ **Rectal preparations:**
  - Suppository
  - Cream
  - enema

✓ **Vaginal preparations:**
  - vaginal tablet (ovule)
  - vaginal cream
  - vagina douche
Eye drop
Is an isotonic sterile solution.
Instilled into the eye by dropper

Nasal drop
Isotonic solution instilled into the nose by a dropper.

Nasal spray can be used to give polypeptide hormones e.g. calcitonin, hr-PTH

Ear drop contains watery or oily solution
It can be used to solublise the wax.

✓ Never prescribe without proper otoscopic examination
Eye, ear, and nose preparations:

**Eye ointment:**
- same as skin ointment but should be sterile, non-irritant, and usually contains less concentration of the active ingredient.
Mouth preparations:

**Mouth washes** (gargles) are used for local antiseptic effect in treatment of mouth infections.

Not suitable for children under 6 years.

**Gels or jellies** are semisolid colloidal solutions or suspensions can be used as a vehicle to drugs, e.g. antifungal agents.
Rectal preparations:

**Suppository:**
Conical shaped preparation containing a fatty base which melt at body temperature.

- **Local action:**
  Laxative
  Treatment of hemorrhoids

- **Systemic action:**
  e.g. paracetamol suppository
Advantages of suppository:

✓ Avoids stomach irritation e.g. indomethacin supp

✓ To get sustained action during night. e.g. aminophyllin.

✓ Used in uncooperative patient e.g. children.

✓ To get local action

✓ Patient who can not take oral therapy e.g. metoclopramide.
Enema:

Enema is a liquid that is forced into the rectum

✓ To induce bowel movement (laxative effect)

✓ Prednisolone enema is used in treatment of ulcerative colitis. (local and systemic effect).

✓ Barium enema is used as a diagnostic procedure.
Vaginal preparations:

✓ Vaginal tablet (ovule, pessary) e.g. metronidazole

✓ Vaginal cream e.g. triple sulfa

✓ Vagina douche.

Certain applicator is used to insert the medication

Always take time to explain to the patient.
A 4 years old child with diarrhea and fever is in need of paracetamol to lower the body temperature, the best pharmaceutical form of paracetamol would be:

A : suppository.
B : syrup.
C : injection.
F : tablet.

Answer
Syrup
Clinical problem solving

A patient with bacterial infection at his face, is in need of local antibiotic treatment, what is the most suitable pharmaceutical form for him?

A: ointment
B: cream
C: liniment
D: solution

Answer
Cream
Clinical problem solving

A patient with a dry scaly psoriatic skin lesion is in need of local steroid treatment, what would be the most suitable preparation used?

Answer
Ointment
Clinical problem solving

A 70 years old patient with diabetes, hypertension, and heart failure, is having simple musculoskeletal pain at his right arm, and he is asking for treatment, what would be the most suitable pharmaceutical form for him?

A: tablet
B: capsule
C: Injection
D: liniment

Answer
A patient with pyogenic infection (bacterial infection) in his left nostril is in need of local antibiotic treatment, what would be the most suitable pharmaceutical form of antibiotic?
Eye ointment
Clinical problem solving

A 2 years old boy with **septic meningitis** is having high fever and in need of paracetamol, what is the most suitable pharmaceutical form for him?

**Answer**
Suppository
Clinical problem solving

A 6 years old child is having acute otitis media and is in need for antibiotic, the best pharmaceutical form for him would be:

A: Ear drop.
B: Syrup.
C: Injection.
D: Ointment.

Answer
Syrup