

## CHAPTER – 1

### Prescriptions

#### Syllabus:

Various parts of prescriptions and their functions, handling of prescriptions, sources of errors, care required in dispensing procedures including labeling of dispensed products. Preliminary knowledge of important Latin terms used in prescriptions and their translation into English.

#### Reference Books:

1. Dispensing Pharmacy, R.M.Mehta
2. Pharmaceutics-II - R. M. Mehta [Diploma – 2nd year]
3. Cooper & Guns Dispensing
4. Dispensing of Medication, Hoover

#### DEFINITION

Prescription is an order written by a physician, dentist, veterinarian or a registered medical practitioner to a pharmacist to compound and dispense a specific medication for the patient.

#### Important features of a prescription:

- Directions are given to the pharmacist about what type of preparation (tablet, powder, mixture etc.) is to be prepared.
- It contains directions for the patients, the dose of the drug and the dose interval, and how it is to be taken.
- Prescriptions are generally written in Latin language, so that the prescription remains unknown to the patients to avoid self-medication.

#### PARTS OF A PRESCRIPTION

A typical prescription consists of the following parts:

##### 1. Date

Date on the prescription helps the pharmacists to know when the medicines were last dispensed if the prescription is brought for redispensing of the prescription. In case of habit forming drug the date prevents the misuse of the drug by the patient.

##### 2. Name, age, sex and address of the patient

By name and address the patient and the prescription can be identified. Age and sex of the patient is especially required for child patient to check the prescribed dose.

##### 3. Superscription

It is represented by a Latin symbol  $\mathcal{R}$ , an abbreviation of Latin term 'recipe' which means 'take thou' or 'you take'.

[N.B. In olden days, the symbol was considered to be originated from the sign of Jupiter, the Greek God of healing. This symbol was employed by the ancient in requesting God for the quick recovery of the patient.]

##### 4. Inscription

This is the main part of the prescription. It contains the names and quantities of the prescribed medicaments. The medicament may be official preparation or nonofficial preparation. If it is official preparation (i.e. from pharmacopoeia or formulary) then only the name of the preparation is written e.g. Piperazine Citrate Elixir IP.

If it is nonofficial preparation then the quantity of each ingredient will be given. The type of preparation will also be given e.g.

Sodium bicarbonate	3g
Simple Syrup	6ml
Purified Water q.s.	100ml

The inscription of prescriptions containing several ingredients are divided into the following parts:

- (a) *Base*: The active medicaments those are intended to produce the therapeutic effect.
- (b) *Adjuvants*: These are included either to enhance the action of the drug or to make the preparation more palatable.
- (c) *Vehicle*: It is the main carrier of the drug. In liquid preparations drugs are either dissolved or dispersed in the vehicle.

##### 5. Subscription

In this part the prescriber gives direction to the pharmacist regarding the dosage form to be prepared and the number of doses to be dispensed.

##### 6. Signatura

It is usually written as 'Sig.'. The instructions given in the prescription should be written in the label of the container so that the patient can follow them. The instructions may include:

- (a) The quantity to be taken
- (b) The frequency and timing of administration of the preparation
- (c) The route of administration
- (c) The special instruction (if any)

### 7. Renewal instructions

The prescriber indicates in every prescription, whether it should be renewed, and if renewed, for how many times. It is very important particularly for the case of habit forming drugs to prevent its misuse.

### 8. Signature, address and registration number of the prescriber

The prescription must be signed by the prescriber by his / her own hand. His/her address and registration number should be written in the case of dangerous and habit forming drugs.

An example of a typical prescription is given as follows:

SHARMA NURSING HOME		
New Delhi		
Name: Mr. N. Anand	Age: 42 years	Sex: Male
Address: 32, Azad Nagar, new Delhi		
<b>R</b> (Superscription)		
Inscription	Sodium bicarbonate Compound tincture of cardamom Simple Syrup Purified Water q.s.	3g 2ml 6ml 90ml
Fiat mixture. (Subscription)		
<b>Sig.</b> Cochleare magnum ter in die post cibos sumenda. (Signatura)		
Refill: _____		Sd/- Dr. Aswini Sharma Regn. No. 14328

### HANDLING OF PRESCRIPTION

The following procedures should be adopted by the pharmacist while handling the prescription for compounding and dispensing:

- (i) Receiving
- (ii) Reading and checking
- (iii) Collecting and weighing the materials
- (iv) Compounding, labeling and packaging

#### (i) Receiving

- The prescription should be received by the pharmacist himself / herself.
- While receiving a prescription from a patient a pharmacist should not change his/her facial expression that gives an impression to the patient that he/she is confused or surprised after seeing the prescription.

#### (ii) Reading and checking

- After receiving the prescription it should be screened behind the counter.
- The prescription is a hospital slip or from a nursing home or from a private practitioner and their authenticity should be checked. The signature of the prescriber and the date of prescription is checked.
- The pharmacist should read all the lines and words of the prescription. He/she must not guess any word. If there is any doubt, the pharmacist should consult with the other pharmacist or the prescriber over telephone.

### 3. Collecting and weighing the material

Before compounding a prescription all the materials required for it should be collected from the shelves or drawers and kept in the left hand side of the balance. After measuring each material should be kept on the right hand side of the balance. After compounding the prescription the materials are replaced back to the shelves / drawers where from they were collected.

While compounding the label of every container of material should be checked thrice in the following manner:

- (i) When collected from the shelves/drawers.
- (ii) When the materials are measured.
- (iii) When the containers are replaced back to the shelves/drawers.

### 4. Compounding, labeling and packaging

- Only one prescription should be compounded at a time.
- Compounding should be done on a clean table.
- All equipment required should be cleaned and dried.
- The preparation should be prepared according to the direction of the prescriber or as per methods given in pharmacopoeia or formulary are according to established pharmaceutical art of compounding.

- The compounded preparations should be filled in suitable containers.

Round vials	For tablets and capsules
Oval prescription bottles Narrow mouthed	For liquid of low viscosity e.g. mixtures, oral emulsions etc.
Wide mouthed bottles	For filling liquids of high viscosity, large quantities of tablets or capsules and bulk powders.
Colored fluted bottles	For external preparations e.g. liniment and lotions.
Ointment jars and collapsible tubes	For ointments, creams or any other semisolid dosage forms.
Paper wrappers and envelops	For oral powders in divided doses.
Dropper bottles	For eye drops and ear drops.
Sifter top containers	For dusting powders.

- The containers are labeled as per the prescriber. If required some additional instructions may also be given. The following information should be written on the label:

Type of preparation:	The Emulsion, The Mixture, The Powder etc. Its quantity should also be mentioned.
For:	Name, Age and Sex of the patient.
Date of dispensing:	Date on which the prescription is dispensed.
Expiry date if any:	e.g. 'Must be taken within 7 days of dispensing.'
Directions for use:	e.g. 'One teaspoonful thrice daily.'
Storage condition:	e.g. 'Keep in a cool place'
Secondary labeling:	e.g. 'SHAKE THE BOTTLE BEFORE USE' 'FOR EXTERNAL USE ONLY' etc.
Name and signature	of the pharmacist who dispensed
Name and Address	of the Pharmacy

- The container should be polished to remove any finger print.
- While delivering the preparation to the patient the pharmacist should explain the mode of administration, direction for use and storage.

## SOURCES OF ERROR IN PRESCRIPTIONS

### 1. Abbreviation

In most of the prescriptions abbreviated terms are used by the prescriber that leads to major errors during interpretation by the pharmacists. E.g. 'SSKI' is the abbreviated term of 'Saturated Solution of Potassium Iodide'. It is preferable to avoid this types of misleading abbreviations.

### 2. Name of the drugs

Names of some drugs (especially the brand names) either looks or sounds alike. So any error in the name of a drug will lead to major danger to the patient.

e.g. Althrocin – Eltroxin, Acidin – Apidin etc.

### 3. Strength of the preparation

Drugs are available in the market in various strengths. So a drug must not be dispensed if the strength is not written in the prescription. E.g. Paracetamol tablet 500mg should not be dispensed when no strength is mentioned in the prescription.

### 4. Dosage form of the drug prescribed

Many drug are available in more than one dosage forms e.g. liquid, tablets, injections or suppositories. The dosage form intended for the patient must be mentioned in the prescription to reduce ambiguity.

### 5. Dose

If unusually high or low dose is mentioned in the prescription then it must be consulted with the prescriber. Some time a sustained release (SR) dosage form is prescribed thrice or more times daily. Actually SR dosage forms should be given once or twice a day.

### 6. Instructions to the patient

Some times the instruction for a certain preparation is either omitted or mentioned partially. The route of administration should be mentioned clearly.

### 7. Incompatibilities

It is essential to check that there is no pharmaceutical or therapeutic incompatibilities in the prescription. If more than two medicines are prescribed then it is the duty of the pharmacist to see whether their interactions will produce any harm to the patient or not. Certain drugs has interactions with food. The pharmacist has to advise the patient about it. E.g, Tetracycline should not be taken with milk or antacid.

**CARE REQUIRED IN DISPENSING PRESCRIPTION**

Following precautions should be taken while dispensing a prescription.

1. The prescription must be carried with the pharmacist while taking the medicine out of the shelves. It will constantly remind the name and strength of the preparation required.
2. The dispensing balance should always be checked before weighing any ingredient.
3. All the chemicals and stock preparations should be replaced back in to their original positions in the shelf.
4. While pouring or measuring a liquid ingredient care must be taken to prevent surplus liquid running down of the bottle and staining the label.
5. Care should be taken to keep the balance clean after each measurement. The powders should be transferred by a clean spatula.
6. Liquid preparations for external use should be supplied in a fluted bottle and the label must display FOR EXTERNAL USE ONLY in red ink.
7. Before handing over the medicine to the patient, again the preparation should be checked that the correct preparation, in the correct strength, has been supplied and the correct direction has been stated on the label.

**LABELING OF DISPENSED MEDICINES**

After dispensing the medicine in a container, a label is attached by adhesive. The label on the dispensed medicines should provide the following information:–

**1. Name of the preparation**

When the prescriber mentions the name in the prescription the same name must be displayed on the label.

e.g. PIPERAZINE CITRATE ELIXIR IP

If it is a non-official preparation then the name of the dosage form should be given on the label.

e.g. THE MIXTURE, THE EMULSION, THE DUSTING POWDER

**2. The strength of the medicine**

The strength of the active ingredient in the preparation must be displayed if it is intended for internal (oral) purpose.

The amount in each unit of dose should be mentioned.

e.g. In case of oral liquids “Each 5ml contains 250mg”

e.g. In case of tablet “Each tablet contains 500mg”.

The values must be written in whole numbers and if decimal is not avoidable then a zero is placed before the decimal point. E.g. instead of 0.1g it should be 100mg, and instead of .5% it should be 0.5%.

In case of an official preparation the strength is not required to be given, because the name with reference to the pharmacopoeia is sufficient. E.g. CHLORAMPHENICOL ORAL SUSPENSION IP.

**3. The quantity supplied in the container**

The total quantity of the product dispensed in the container should be indicated on the label. E.g. 50ml, 4tabs etc.

**5. Storage conditions and shelf life (expiry date) of the product**

- (a) *Temperature*: Many preparations are required to be kept below 15°C. In these cases the label should indicate KEEP IN A COOL PLACE.

Suppositories and pessaries melts at 37°C so the label should indicate KEEP IN A COOL PLACE.

Insulin injections should be stored at 2 to 8°C so the label should indicate KEEP IN REFRIGERATOR.

- (b) *Humidity*: Powders, tablets and capsules should be stored in an air-tight container. The label should indicate KEEP THE BOTTLE TIGHTLY CLOSED.

- (c) *Light*: Drugs those degrade in presence of light should be stored in dark place. The label should indicate KEEP IN A DARK PLACE.

**6. Instructions to the patient****(a) Directions**

The directions are normally written by the prescriber. These include

- (i) the quantity to be taken
- (ii) the frequency or timing of administration
- (iii) the route of administration
- (iv) or the method of use

The phrases used are generally ‘to be taken’, ‘to be given’, or ‘to be used’.

e.g. One tablet to be taken thrice daily after meal.

**(b) Warning label:**

For external use only.	In case of external preparations like ointment, pastes, dusting powders etc.
Drowsiness warning.	<i>Warning</i> : May cause drowsiness. Do not drive or operate machinery or car.
Potential interactions with food or drink	(i) Drugs in which absorption improves if taken before food: <i>Warning</i> : To be taken an hour before meal or in empty stomach. (ii) Drugs causing gastrointestinal irritation <i>Warning</i> : To be taken with or after meal. (iii) In case of metronidazole <i>Warning</i> : Avoid alcoholic drink.

Interactions with other medicine	Tetracycline complexes with calcium, iron, magnesium and inhibits its absorption, <i>Do not take milk, iron preparation or antacids with this medicine.</i>
Special methods of administration	(i) The drug formulation that is required to be dissolved in the mouth <i>To be sucked or chewed.</i> (ii) Oral powders or granules are required to be dissolved in water <i>To be dissolved in water before taking.</i> (iii) Drugs causing gastro-intestinal irritation <i>To be taken with plenty of water.</i>
Cautions	(i) Preparation that may produce photosensitization <i>Avoid exposure of skin to direct sunlight.</i> (ii) The preparation that may produce unusual effect. <i>The preparation may color the urine or stool.</i> (iii) In case of inflammable preparation <i>Keep away from naked flame.</i>

#### Special instructions to particular dosage form

Application	<i>For external use only.</i>
Capsules	<i>Swallow with a draught of water.</i>
Creams	<i>For external use only. Keep in a cool place.</i>
Dusting powder	<i>For external use only. Not to be applied to open wounds or weeping surfaces.</i>
Ear drops	<i>For external use only.</i>
Emulsions	<i>Shake the bottle before use.</i>
Enemas	<i>For rectal use only. Warm to body temperature before use.</i>
Eye drops	<i>To be used within 30days after first opening.</i>
Gargles and mouthwashes	<i>Not to be swallowed in large amount.</i>
Linctuses	<i>To be sipped and swallowed slowly without addition of water.</i>
Liniments and lotions	<i>For external use only. Shake the bottle before use. Do not apply on broken skin. ( Because it will produce irritation)</i>
Mixtures	<i>Shake well before use.</i>
Nasal drops	<i>For nasal use only</i>
Ointments, Pastes and Paints	<i>For external use only.</i>
Pessaries	<i>For vaginal use only</i>
Suppositories	<i>For rectal use only. Store in a cool place.</i>

#### LATIN TERMS AND ABBREVIATIONS AND THEIR ENGLISH TRANSLATION

##### Quantities of ingredients:

<u>Latin term</u>	<u>Abbreviation</u>	<u>English Translation</u>
Quantum sufficiat	q.s.	As much as is sufficient.
Quantum sufficit		
Quantitatem sufficientem		

##### Dosage forms

<u>Latin term</u>	<u>Abbreviation</u>	<u>English Translation</u>
Auristillae	auristill.	Ear drops
Capsula	caps.	A Capsule
Charta	chart.	A powder
Collunarium	collun.	A nose wash
Collutorium	collut.	A mouth wash
Collyrium	collyr.	An eye lotion
Cremor	crem.	Cream

**Dosage form continued**

<u>Latin term</u>	<u>Abbreviation</u>	<u>English Translation</u>
Gargarisma	garg.	A gargle
Gelatina	gelat.	A jelly
Guttae	gtt.	Drops
Haustus	ht.	A draught
Inhalatio	inhal.	An inhalation
Injectio	inj.	An injection
Insufflatio	insuff.	An insufflation
Linctus	linct.	A linctus
Linimentum	lin.	A liniment
Liqor	liq.	A solution
Lotio	lot.	A lotion
Mistura	mist., m.	A mixture
Naristillae	narist.	Nasal drops
Nebula	neb.	A spray solution
Pasta	past.	A paste
Pignemtum	pigm.	A paint
Pulvis	pulv.	A powder, dusting powder
Tabella	tab.	A tablet
Unguentum	ung.	An ointment

**Instruction related to preparation**

<u>Latin term / phrases</u>	<u>Abbreviation</u>	<u>English Translation</u>
Fiat	ft.	Let (it) be made
Misce	m.	Let (it) be mixed
Misce fiat mistura	m.ft.m.	Mix to make a mixture
Solve		Dissolve

**Quantity to be sent and the manner of sending**

<u>Latin term / phrases</u>	<u>Abbreviation</u>	<u>English Translation</u>
Duplum	duplum	Twice the quantity
In phiala		In a bottle
Mitte	mitt.	Send
Phiala prius agitata	p.p.a.	Shake the bottle
Talis, Tales, Talia	tal.	Such

**Method of administration**

<u>Latin term / phrases</u>	<u>Abbreviation</u>	<u>English Translation</u>
Addendus	addend.	To be added
Applicandus	applicand.	To be applied
Applicat		Let (him/her) apply
Capiendus	capiend.	To be taken
Dandus	dand.	To be given
Deglutiendus	deglut.	To be swallowed
Infraicandus	infricand.	To be rubbed in
Miscendus	miscend.	To be mixed
Signa	sig.	Label
Sumendus	sum. or s.	To be taken
Ut antea	u.a.	As before
Utendus	u. or utend.	To be used

**Time of administration or application**

<u>Latin term / phrases</u>	<u>Abbreviation</u>	<u>English Translation</u>
Semel in die	sem. in die, or sem. die	Once a day
Bis in die, Bis die	b.i.d. or b.d.	Twice a day
Ter in die, Ter die	t.i.d. or t.d.	Thrice a day
Quartar in die	q.i.d., q.d.	Four times a day