

Prescription

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Introduction

- Prescription is actually a direct link between physician, pharmacist & patient.
- Prescription is accompanied by direction for pharmacist and for patient.
- Prescription is an order written by a physician, dentist or any other medical practitioner to the pharmacist to compound & dispense a specific medication for individual patient .

- The prescriptions are generally written in the English but Latin words or abbreviations are frequently used in order to save time.
- So it becomes necessary for pharmacist, to become familiar with the Latin terms & abbreviations used by the physician.

Parts of Prescription

- Date
- Name, Age, Sex & Address of the patient
- Superscription
- Inscription
- Subscription
- Signatura
- Renewal Instructions
- Signature, address & registration number of the prescriber.

- Date: It helps a pharmacist to find out the date of prescribing & date of presentation for filling the prescription. It helps the pharmacist in redispensing a medicine and to guide patient.
- Name, Age, Sex & Address of the patient: It helps to identify the prescription. Especially in case of children Age & sex of the patient helps the pharmacist to check the prescriber dose of medication.



- Superscription : It is represented by symbol Rx. Rx is the abbreviation of Latin word recipe, meaning 'You Take'. In olden days, the symbol was considered from the sign of Jupiter, God of healing.

- Inscription: It is main part of prescription . It contain the name and quantity of prescribed ingredients & It also contain manner in which medicine should be taken. The name of ingredients are generally written in English but common abbreviation can be written in English & Latin languages.
- Inscription is divided into following parts:
 - Base: The active medicaments which are intended to produce the therapeutic effect.
 - Adjuvant: it is included used to enhance the action of medicaments or to improve the palatability of the prescription.
 - Vehicle: it is included for dissolve the solid ingredients or increase the volume of the preparation.

- Subscription: This part contains the prescriber's directions to the pharmacist .

It includes:

- Type dosage form to be prepared
- No of doses to be dispensed
- Signatura: In that consist of the direction to be given to the patient regarding the administration of the drug. It is usually written as 'Sig' on the prescription. The instruction given in the prescription are required to be transferred to the label of the container in which the medicaments is to be dispensed, so that the patient can follow it.

- Renewal instructions: The prescriber indicate on every prescription, whether it may be renewed & if so, how many times. It is very important for narcotics & other habit forming drugs to prevents its misuse.
- Signature, address & registration number of the prescriber : Signature, address & registration number of the prescriber is very important for narcotics & other habit forming drugs to prevents its misuse.

Example of Prescription



SWASTIK CLINICS

M-44, Block C-2, Janakpuri, New Delhi



Ph: 28479683

9996432121

Date : 04/01/2015

Name : Mr Hans Raj Age : 60 Yrs Sex : Male

Address : 145, Model Town, Delhi

R_x (Superscription)

<i>(Inscription)</i>	[Light Kaolin	12.0 ml
		Light Magnesium Carbonate	3.0 ml
		Sodium Bicarbonate	3.0 g
		Water ad upto	90 ml
		Peppermint Water ad upto	

Fiat mistura (Subscription)

Sig Cochleare magnum ter in die postcibos sumenda. (Signatura)

Sd/-

Refill : _____

Name of prescriber

M.B.B.S., M.D.

Regd. No.

Handling of Prescription

- Receiving
- Reading & Checking
- Collecting & Weighing the material
- Compounding, labeling & Packaging

- Receiving: Pharmacist should himself receive the Prescription. After receiving the prescription a pharmacist should not change their facial expression.
- Reading & Checking: on receiving a prescription, always check it that it is written in a proper format i.e on doctors pad & check the signature, name address & date on the prescription.

In case of any difficulty in reading or any doubt regarding prescription, the pharmacist should consult other pharmacist or prescriber.

- Collecting & Weighing the material: Before weighing the required materials for it, should collected on left hand side of the balance. After weighing the material it should be transfer to right hand side of the balance. This gives a check of ingredients which have been weighed.
- Compounding, labeling & Packaging : Before compounding should be clean all the equipments which are required for it & compounding should be carried out in a neat place. All the ingredients should be compounded according to the direction of the prescriber or pharmaceutical art. Only one prescription should be compounded at one time. After compounding the final preparation transfer into suitable container & according to the size of the container the white plain paper should be use for labeling. After stick the label on the container is polished to remove the finger print. While delivering the prescription to the patient, the pharmacist should explain the mode of Admin., Direct. & storage.

Modern Methods of Prescribing

- Nowadays, majority of the drugs are available in the market as ready-made formulations.
- Nowadays the role of pharmacist is to hand over the ready made formulations to the patients & provide advice if demanded.
- In the present day the prescription should be accurate, clear & easily readable & as far as possible, the Latin terms should be avoided.
- Now, the drugs should be prescribed by its official (generic) names or trade names.

Calculation Involved in Dispensing

- Calculation part which are involved in dispensing so that pharmacist should have a thorough regarding weights & measures which are used in calculation
 - The imperial System
 - The metric system

IMPERICAL SYSTEM

- It is an old system of weights & measures
 - Measurement of weight in imperial system: weight is a measure of the gravitational force acting on a body & is directly proportional to its mass.
 - The imperial system divided into 2 parts
 - a. Avoirdupois System
 - b. Apothecaries System

Avoirdupois System

- In this pound is standard unit for weight.
- All the measures of mass are derived from the imperial standard pond (Lb),

$$1 \text{ Lb} = 16 \text{ OZ (Avoir)}$$

$$\begin{aligned} 1 \text{ OZ (Avoir)} &= 7000/16 \text{ grains} \\ &= 437.5 \text{ grains} \end{aligned}$$

$$1 \text{ Lb} = 7000 \text{ grains}$$

Apothecaries System

- It is also called as Troy system.
- In that grain is the standard weight in this system & all others weights are derived from it.

20 grains(gr) = 1 scruple

60 grains = 1 drachm

480 grains = 1 ounce (apothecary)

12 ounces = 1 pound (Lb)

5760 grains = 1 pound (apothecary)

Measurement of capacity in Imperial system

- gallon is the standard unit use for the measurement for capacity in both the avoirdupois & apothecaries system.

160 fluid ounce = 1 gallon

1 quart = $1/4^{\text{th}}$ of a gallon

40 fl ounce = 1 quart

The Metric System

- The metric system is used in the IP for the measurements of weight & capacity.
- The metric system in India was implemented from 1st April 1964 in pharmacy profession.
- Measurements of weight in metric system:
A kilogram is the standard unit for measurements of weight & all other measures derived from it.
- Measurements of capacity : A liter is the standard unit for measurement of capacity & all measures of capacity are derived from it.

Calculations

- **Calculation based on density:**

Density: It is defined as the mass of a substance per unit volume.

Specific gravity: It is defined as the ratio of the mass of a substance in air to that of an equal volume of water.

In the metric system, both density & specific gravity are numerically equal.

Density = Weight/ Volume

Weight = Density x Volume

Volume = Weight/ Density

Alcohol Dilution

- E.g. calculate the amount of 95 per cent alcohol required to prepare 400 ml of 45 per cent alcohol

Ans: Volume required= 400ml

Percentage of alcohol required = 45

Percentage of alcohol used = 95

Formula :

Volume of stronger = Volume required x Percentage required / alcohol to be used Percentage used

$$= 400 \times 45/95$$

$$= 18000/95$$

$$= 189.47 \text{ ml}$$

$$= 190 \text{ ml (approx.)}$$

Alligation Method

- When the calculation involves mixing of two similar preparations of different strength, the alligation method is used. The method is recommended for the purpose of checking the calculations.
- **E.g.** Calculate the volume of each 90%,60%,30% & water are required to produce 500ml of 50% alcohol.
- **Ans.**

When 50 parts of 90% alcohol, 20 parts of 60% alcohol, 10 parts of 30 % alcohol & 40 parts of water are mixed together, the resulting solution will produce 50% alcohol.

1. Volume of 90% alcohol required= 120 parts: 500 ml: : 50 parts : v
so, $v = 500 \times 50 / 120 = 2500 / 12 = 208.33 \text{ ml}$
2. Volume of 60% alcohol required = 120 parts: 500 ml: : 20 parts : v
so, $v = 500 \times 20 / 120 = 1000 / 120 = 83.33 \text{ ml}$
3. Volume of 30% alcohol required = 120 parts: 500 ml: : 10 parts : v
so, $v = 500 \times 10 / 120 = 500 / 12 = 41.67 \text{ ml}$
4. Volume of water required = $500 - 208.33 + 83.33 + 41.67 \text{ ml} = 166.67 \text{ ml}$

Isotonic Solutions

- If a red blood cell is in contact with a solution that has the same osmotic pressure as that of blood plasma, the cell wall neither swell nor shrink i.e it will retain its tone & therefore the solution is said to be isotonic.
- To determine whether or not a solution is isotonic with erythrocytes, it is necessary to determine the conc. Of the solute at which the cells retain their normal size & shape.
- The parental & ophthalmic preparations need adjustment to iso-osmoticity & iso-tonicity.
- The solutions having the same osmotic pressure are called iso-osmotic solutions.
- A solution containing 0.9% of sodium chloride is therefore practically isotonic & solution containing higher than 0.9 % sodium chloride those called hypertonic solutions & solution containing less than 0.9% sodium chloride those called hypotonic solution.

General principles for adjustment to isotonicity

- Solutions for iv injections : isotonicity desirable
- Solutions for sc injections : isotonicity is needed but it is not essential bec. They are injected into fatty tissues.
- Solutions for im injection: the aq. Solution slightly hypertonic to promote rapid absorption.
- Solution for intra-cutaneous injection: required isotonicity. For diagnostic purpose.
- Solution used for nasal drops: it required isotonic solution.
- Solutions used for eye drops & eye lotion: for eye lotion it is essential to for isotonic solution but for eye drops its not be required bec. A small volume is used.

Temperature Measurements

- The temperature is generally measured in pharmacy by using either Fahrenheit or Centigrade thermometers.
- The relationship of Centigrade (C) & Fahrenheit (F) degree is

$$9(^{\circ}\text{C}) = 5(^{\circ}\text{F}) - 160$$

Where, $^{\circ}\text{C}$ is the number of degree centigrade.

$^{\circ}\text{F}$ is the number of degree Fahrenheit.

- E.g. Convert 120°F into $^{\circ}\text{C}$

Ans.

$$9(^{\circ}\text{C}) = 5(^{\circ}\text{F}) - 160$$

$$= 5 (120) - 160$$

$$= 600 - 160$$

$$= 440$$

$$^{\circ}\text{C} = 440 / 9 = 48.9^{\circ}\text{C}$$

THANK

YOU