

INTRODUCTION AND DEFINITION OF COMMUNITY PHARMACY PRACTICE:-

- Community pharmacy: A community pharmacy often referred as retail pharmacy or a retail drug outlet; which is a place where medicines are stored and dispensed, supplied or sold. The general population usually calls community pharmacies as "medical stores".
- A community pharmacy is a pharmacy that deals directly with people in the local area. It has responsibilities such as compounding, counselling, checking and dispensing of prescription drugs to the patients with care, accuracy, and legality.

Scope of Community Pharmacy:-Community pharmacy is having a wide scope in field of pharmacy and it also play a crucial role for drug treatment therapy of community; some of these scopes are listed as follow.

- (a) Drug information and their actions.
 - (b) Drug utilization.
 - (c) Drug distribution.
 - (d) Drug selection (or) patient counselling.
- (a) Drug information and their actions :-Besides proper understanding of biological and physical science community pharmacy also provides grasp on pharmacology, toxicology, route of administration, stability and their information regarding drugs.
- (b) Drug utilization:-It helps for stock control reports on prescription and controlled drugs dispense, drug purchases, inspection and improvement in operations and such other aspects which demands attention.
- (c) Drug distribution:-Quantities of drugs are localized physically outside of the pharmacy to have control for the internal for patients.
- (d) Drug selection:-It helps for developing and understanding of following.
- i)Rational drug therapy.
 - ii) Training of health care professionals.
 - iii)Maintenance based on clinical guidelines.
 - iv) Essential drug concept.

History of Pharmacy Profession in India

History of pharmacy profession in India can be divided into three parts:

- (1) Ancient history
- (2) Pre-Independence
- (3) Post-Independence

(1) Ancient Pharmacy Profession

In India the source of drugs were of vegetables, animal and mineral origin. They were prepared empirically by few experienced persons. Knowledge of that medical system was usually kept secret within a family. There were no scientific methods of standardization of drugs. The Ayurveda work on internal medicine whereas Sushrute-Samhita deals with surgical medicine. Charaka and Sushruta were physicians and pharmacists who studied more than 1000 herbs. In Tamil Nadu during 900 A.D. discovered organized practice of hospital activity for the treatment of patients with diseases. India, being rich in flora and fauna, wide variety of herb was mainly used to treat disease like jaundice, haemorrhage etc., British traders brought the practice of allopathic system to India in 15th century.

2)Pre-Independence Pharmacy Profession

The first chemist shop was opened by Scotch Bathgate at Calcutta in 1811. The pharmacy activities were performed according to London Pharmacopoeia. This situation forced back traditional practice in India

and compelled to import drugs from European countries. In pre-independence period developing sequence for pharmacy was in following manner.

- 1840: Goa Medical College was started at Panjim.
- 1841: Bengal Dispensatory and Pharmacopoeia was published.
- 1870: The Madras Medical College were first to train the students to gain skills in pharmacy practice.
- 1878: The Opium Act was implemented the dealt with cultivation of poppy and the manufacture, transport, export, import and sale of opium.
- 1889: Indian Merchandise Act was implemented to avoid misbranding of goods in general.
- 1894: Indian Tariff Act passed for levy of customs duty on goods including foods, drinks, drugs, chemicals and medicines import to India or export.
- 1909: Bengal Excise Act was implemented.

Drug in India were mostly exported in crude form and imported in finished form. During World War-I the imports of drugs was slowed down but after war it was resumed to regular. There was no any restrictions on the quality of drugs imported, thus manufactures abroad took advantage of the situation. Markets were full of all sorts of useless and deleterious drugs and were sold by unqualified men.

In response to this situation and to control pharmacy practice in 1930 Dangerous Enquiry Committee (DEC) under the chairmanship of Late Col. R. N. Chopra to see into the problems in India and recommend the measures to taken to avoid unethical practices. Up to 1940 all the allopathic drugs were imported from Europe but in later years some of these drugs begun to be produced in India.

3)Post-Independence

Pharmacy education in India traditionally has been industry and product oriented. In contrast to the situation in developed nations, graduate pharmacists prefer placements in the pharmaceutical industry. To practice as a pharmacist in India, one needs at least a diploma in pharmacy, which is awarded after only 2 years and 3 months of pharmacy studies. These diploma-trained pharmacists are the main stay of community pharmacy practice. In India, there have been number of institutions offering pharmacy degrees at various levels i.e., Diploma in Pharmacy (D.Pharm), Bachelor in Pharmacy (B.Pharm), Masters in Pharmacy (M. Pharm), and a practice- based doctor of pharmacy (Pharm. D) degree program which was started in some private institutions in 2008. However, relatively little information has been published describing the current status of complex pharmacy education of India.

Possible questions

A. Long Answer Questions

1. Explain in brief about Introduction and Scope of Community Pharmacy.
2. Describe briefly about History and development of Community pharmacy.

B. Short Answer Questions

1. Explain in short about Scope of Community Pharmacy.
2. What are different parts of History of pharmacy profession in India.

INTERNATIONAL AND INDIAN SCENARIO OF COMMUNITY PHARMACY PRACTICE

International Scenario of Community Pharmacy Practice

- Globally pharmacy profession has undergone significant changes in the recent decades.
 - It has shifted the focus from the product to the patient.
 - Now-a-day, the role of the pharmacist has changed from that of a commander and supplier of pharmaceutical products to that of a provider of services and information and ultimately as a provider of patient care through pharmaceutical care services.
 - Recently it was hugely stressed upon the importance of developing new roles for community pharmacists in order to meet the professional challenges and gain recognition as a health care professional.
 - As a result, community pharmacists in developed countries like Australia, U.S. and U.K. have accepted the new professional responsibilities apart from dispensing.
 - The new roles of the community pharmacists include medication record review, medication usage counselling, unbiased drug information, home medication review, health screening services, and education on smoking cessation and family planning.
 - In USA, practicing pharmacists have developed a smoking cessation program for the patients in cooperation with National Cancer Institute. They have also engaged in screening and counselling of Diabetes and Hypertension patients, detection, and prevention of Cancer, education on family planning and sexually transmitted diseases.
 - In U.K., pharmacists are engaged in health education programs to the public about safe use of medicines, dental health, prevention of coronary diseases and patient compliance with the help of posters, leaflets, badges, and audiovisual displays as information sources.
 - Other services they offered to the public were screening of blood pressure and cholesterol and providing necessary information to the patients. These services are showing a positive impact on the patient's health.
 - In Australia, community pharmacists are offering wide range of activities, such as home medication reviews, population screening and testing for hypertension, glaucoma, and diabetes apart from providing necessary patient counselling on drugs and diseases.
- In U.K. pharmacists are engaged in health education programs to the public about safe use of medicines, dental health, prevention of coronary diseases and patient compliance with the help of posters, leaflets, badges, and audiovisual displays as information sources.
- In Australia, community pharmacists are offering wide range of activities, such as home medication reviews, population screening and testing for hypertension, glaucoma, and diabetes apart from providing necessary patient counselling on drugs and diseases.

Indian Scenario of Community Pharmacy Practice

In India, community pharmacy is often referred as "Medical & General Store".

As per the legal requirement to open a pharmacy, a qualified person or "Registered Pharmacist" is required under section 42 of Drugs & Cosmetic Act and all dispensing activities are expected to be carried out in presence of the pharmacist.

In India, minimum qualification for registration as "pharmacist" is Diploma in Pharmacy (D.Pharm) where as in majority of developed countries, the minimum qualification required for registration is B.Pharm or Pharm D.

Possible questions

1) Write a brief note on Indian Scenario of Community Pharmacy Practice

Prescription and Prescription Handling

Definition: It is an order written by a physician, dentist, veterinarian or a registered medical practitioner (RMP) to a pharmacist to compound and dispense a specific drug formulation for the patient

PARTS OF PRESCRIPTION

Generally prescriptions are written on typical format but the main parts which are involved in prescriptions are as follow:

A typical prescription consists of the following parts:

1. Prescriber office information.
2. Date.
3. Patient information (Name, Age, Sex and Address of the Patient).
4. Superscription (symbol R.).
5. Inscription (Medication prescribed)-Main part of prescription.
6. Subscription (Direction to Pharmacist/Dispenser).
7. Signatura or Transcription (Direction for Patient).
8. Renewal instructions.
9. Prescriber's signature and registration number.

1. Physician (Prescriber) Office Information

➤ Information about physician is essential to be mentioned, so that the patient could be contact in case of emergency.

➤ Basically following information is mentioned on the prescription:

1. Doctor's or office name.
2. Address with phone number and e-mail.
3. In the case of prescriptions coming from a hospital or a multicenter clinic, the hospital or clinic's name, address and telephone numbers appear at the top.
4. Prescription number. (required when calling the pharmacy for a refill).

2. Date

➤ Every prescription must bear the date on which the particular medicines are prescribed, however it helps the pharmacist to understand the actual day of prescribing drugs.

➤ This helps the pharmacist to keep day-to-day Patient's record in chronological order which ultimately helps the pharmacist or a physician to refer the old case in future.

➤ Mentioned date on prescription will also helps to avoid the misuse of the prescription containing narcotic or other habit forming drugs by the patient for a number of times for dispensing.

3. Patient Information (Name, Age, Sex and Address of the Patient)

➤ Part of patient information is mainly used to identify the prescription.

➤ Name helps the pharmacist to identify the correct Patients avoiding any chance of giving the medicine to a person other than the one it is dispensed for.

Note: Patient's full name must be written instead of nicknames or surnames.

➤ Age of the patient becomes important in the case of the Pediatric (children) and Geriatric (old people) cases. Because the dose of drugs in such cases varies (due to their differences in ability to metabolize drugs).

➤ However dose of the drugs are calculated based on the age factor in such cases.

Note: In some cases weight and height of the patients are also required.

➤ Sex/Gender of the patient also plays major role in prescription because dose of drugs may also vary based on the sex/gender of the patient (as their abilities to metabolize/ response towards drugs may vary in many cases).

➤ Address of the patient is generally recorded to contact the person at the later stage or to deliver the medication personally.

4. Superscription (Rx)

➤ This part of the prescription is represented by the symbol Rx

➤ In the ancient times it is considered as a prayer to Jupiter the God of healing for the fast recovery of the patient.

➤ Now-a-days it is used as an abbreviation for the Latin term "Take Thou" which means "you take" or "recipe".

5. Inscription:(Medication prescribed)

➤ This is considered as the main part of the prescription order.

➤ It contains the names and quantities of the prescribed ingredients, either as its brand (proprietary) or generic (nonproprietary) name.

➤ This part of the prescription is further divided into following parts:

1.Base: It includes the active medicament of therapeutic action.

2.Adjuvant: Substances added to increase action of medicament or its palatability.

3. Corrective: These are added to improve the effect of formulation such as coloring agents, sweetening agents, flavoring agents etc.

4. Vehicle: These are the substances used to dissolve medicament/increase volume of preparation.

6. Subscription (Direction to Pharmacist)

➤ This part of the prescription contains directions of the prescriber to the pharmacist regarding the type and compounding of dosage form along with number of doses to be dispensed.

➤ This is important because dose of drug also depends on the type of the dosage form.

➤ For compounded prescriptions, the subscription part is written using English or Latin abbreviations.

7. Signatura or Transcription (Direction for Patient)

➤ Transcription part is required to be placed on the label.

➤ It is usually written as "Sig.".

➤ The signatura part is also written in English language and some Latin abbreviations are also used like t.i.d. (thrice a day), b.i.d. (twice a day) and o.d. (once a day)

➤ Instructions should be written on the label of container, so that the patient can follow them.

➤ The instructions may include

- Quantity to be taken (dose of drug)

Frequency and timing of administration of the preparation (dose interval)

- Route of administration

- Special instruction (if any)

8. Renewal instructions

➤ In this part, the prescriber mentions about whether the prescription can be renewed or not.

➤ This part also includes the specifications like how many times it can be renewed.

It is of utmost importance in case of narcotic/other habit-forming drugs.

9. Prescriber's signature and registration number:

➤ It is mandatory that such types of prescriptions must contain the address of the patient, the narcotic registry number of the prescriber and many more.

➤ Such prescription should be written by ink or typewriter.

➤ The quantities of the narcotic substance must be written in words and **numbers**.

LEGALITY OF PRESCRIPTION

In concern of legality of prescription, both the physician and pharmacist have to take consideration of following points:

1. Prescription should be written in indelible cannot erased ink (may be handwritten or computer generated).
2. Prescription must be signed in indelible ink by the practitioner using his own name.
3. Prescription must be dated by the prescriber.
4. Prescription should state address of the practitioner.
5. Prescription should state address of the patient.
6. The age of children's under 12 years and above 60 years must be mention.
7. If issued by a dentist the words "for dental use only", must be mentioned.
8. Avoid unnecessary use of decimals. Example: 3 mg not 3.0 mg.
9. Specify the strength and quantity of drug.
10. Unused space must be cancelled, or the end of the prescription must be indicated.
11. Prescription always space out words and numbers to avoid confusion.
12. Prescription always contains complete medication orders.
13. Write the generic names of the medicaments unless there is availability problem, however this will enable the pharmacist to dispense any suitable preparation, avoiding expense and delay.
14. Avoid abbreviations of drug names and preparations as these can be misinterpreted.

HANDLING OF PRESCRIPTION (PRESCRIPTION HANDLING)

➤ In general all the activities which were performed for compounding and dispensing of drug after receiving prescription where collectively called as handling of prescription.

➤ Following are certain steps which are required to be followed sequentially by the pharmacist while handling the prescription for compounding and dispensing.

1. Receiving.

2. Reading and checking.

3. Collecting and weighing the materials.

4. Compounding, packaging and labelling.

1. Receiving

➤ The prescription should be received by the pharmacist with smile.

➤ While receiving a prescription, a pharmacist should not change his/her facial expression; otherwise it may create confusing impression on patients mind.

➤ It gives an impression that he/she is confused or surprised after seeing the prescription.

➤ Also upon receiving the prescription, the pharmacist should confirm:

- Whether the client is the patient himself or has come on the patient's behalf.
- The relation of the client with the patient.
- Client may politely be requested to wait, while the pharmacist reviews the prescription.

2. Reading and Checking

➤ On receiving the prescription the pharmacist should check the prescription whether it is written in a proper format or not.

- After receiving of the prescription, appropriate time should be given for careful reading of prescription.
- If any problem is arises while reading the prescription, then pharmacist should make a direct consult with prescriber.
- Prescription should be checked out properly for following concerns:
 - Error in dosage.
 - Wrong drug or dosage form.
 - Contra indicated drugs.
 - Synergistic and Antagonistic drugs.
 - Drug interactions.
- The signature of the prescriber and the date of prescription should be checked.
- The pharmacist should read all the lines and words of the prescription.
- He/she must not guess any word.
- The prescription should always be screened behind the counter.
- Any doubts in case of prescription ingredients or drugs and directions he should discuss with another senior pharmacist or physician but not with the patient.
- While reading and checking the prescription, the dispenser should:
 - Be alert, and concentrate on the prescription.
 - Not be distracted.

Not engage in talking or chatting.

3. Collecting and weighing the material

- After complete checking of the prescription, pharmacist should take out all the ingredients (materials) which are required for compounding.

- Before compounding a prescription all the materials should be collected from the shelves or drawers.
- All the required materials should be kept on the left hand side of the balance.
- Then start to weigh the ingredients in a sequential manner and in appropriate quantities which was mentioned in the prescription.
- After measuring each material in sequential manner the bulk containers of the ingredients should be kept on the right hand side of the balance; in order to avoid confusion and mix-ups.
- After compounding of the prescription materials are replaced back to the shelves/drawers.
- While compounding every container of material should be checked thrice in the following manner:
 - When collected from the shelves/drawers.
 - When the materials are measured.
 - When the containers are replaced back to the shelves/drawers.

4. Compounding, packaging and labelling

- Only one prescription should be compounded at a time.
- Compounding should be done on a clean table

All equipment require 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.
- The compounded preparations should be filled/pack in suitable containers.
- For packaging different containers are uses like vials, bottles, collapsible tubes, paper wrappers etc.
- The filled containers should be suitably label.

- The label should display following information:
 - Type of prescription
 - Name, age and sex of patient.
 - Date of dispensing.
 - Storage condition.
 - Name and address of pharmacy.
 - Route of administration.
- Good quality of paper and adhesives should be used for labelling purpose.
- All essential and important instructions should be mentioned on the label.
- Instructions on the label should be neat and clear so that it is easy to read.
- Finally before dispensing of compounded package drugs, pharmacist should explain the mode of administration, direction of use and storage conditions.

LABELLING OF DISPENSED MEDICATION (MAIN LABEL, ANCILLARY LABEL AND PICTOGRAMS)

In pharmacy, a label can be defined as a display of written, printed or graphic data on the immediate container of a pharmaceutical product or the wrapper of a drug package.

Importance of Labels in Pharmacy

Labels on final package is having a critical importance in process of dispensing, administration and safe utilization.

1. Labels show the list of the active pharmaceutical ingredients and excipients used in the preparation.
2. Labels contain warnings and precautions for the patient to adhere to.

3. Labels also contain information on how to administer a drug and the dosage regimen to be used.
4. Labels help to differentiate between same drugs produced by a company but having different strengths.
5. Labels help in the identification of a drug.

A).Main Label

Basically main labels of pharmaceutical formulations are categorized in two categories which are mentioned as follow:

1. Manufacturer Label
2. Dispensing Label

1. Manufacturer Label

- According to the FDA, a manufacturer label is a label which contains drug information for use by medical practitioners, pharmacists or nurse supplied by the manufacturer of the drug.
- Following are certain legal requirements for manufacturer labels:
 - The name of preparation.
 - Strength and dosage form.
 - Quantity.
 - Instructions for the use.
 - Precautions and warnings.
 - Registration number.
 - Batch number.
 - Manufacturing and Expiry date.
 - Price.
 - The name and address of pharmaceutical industry.

2. Dispensing Label:

- The dispensing label is the label that the pharmacist attaches to a prescription medicine.
- It usually contains the name of the drug being dispensed, the strength, the quantity and the dosage regimen.
- Dispensing labels on prescribed medicines provide administration instructions and important warnings for patients.
- Certain legal Requirements of a Dispensing Label are mentioned as follow:

- Name of patient.
- Date of dispensing.

Prescription number.

- Phone number.
- Name and Address of the pharmacy/medical practitioner.
- Trade or generic name of the medicine along with quantity.
- Dosage per unit.

Method and Dosage of administration.

- Precaution where applicable.

B)Auxiliary Label (Ancillary Label)

- An auxiliary label (also called cautionary and advisory label or prescription drug warning label).
- It is a label added on to a dispensed medication package by a pharmacist in addition to the usual prescription label.
- These labels are intended to provide supplementary information regarding safe administration, use, and storage of the medication.
- Auxiliary labels provide information which can augment but not replace verbal counselling from a pharmacist.

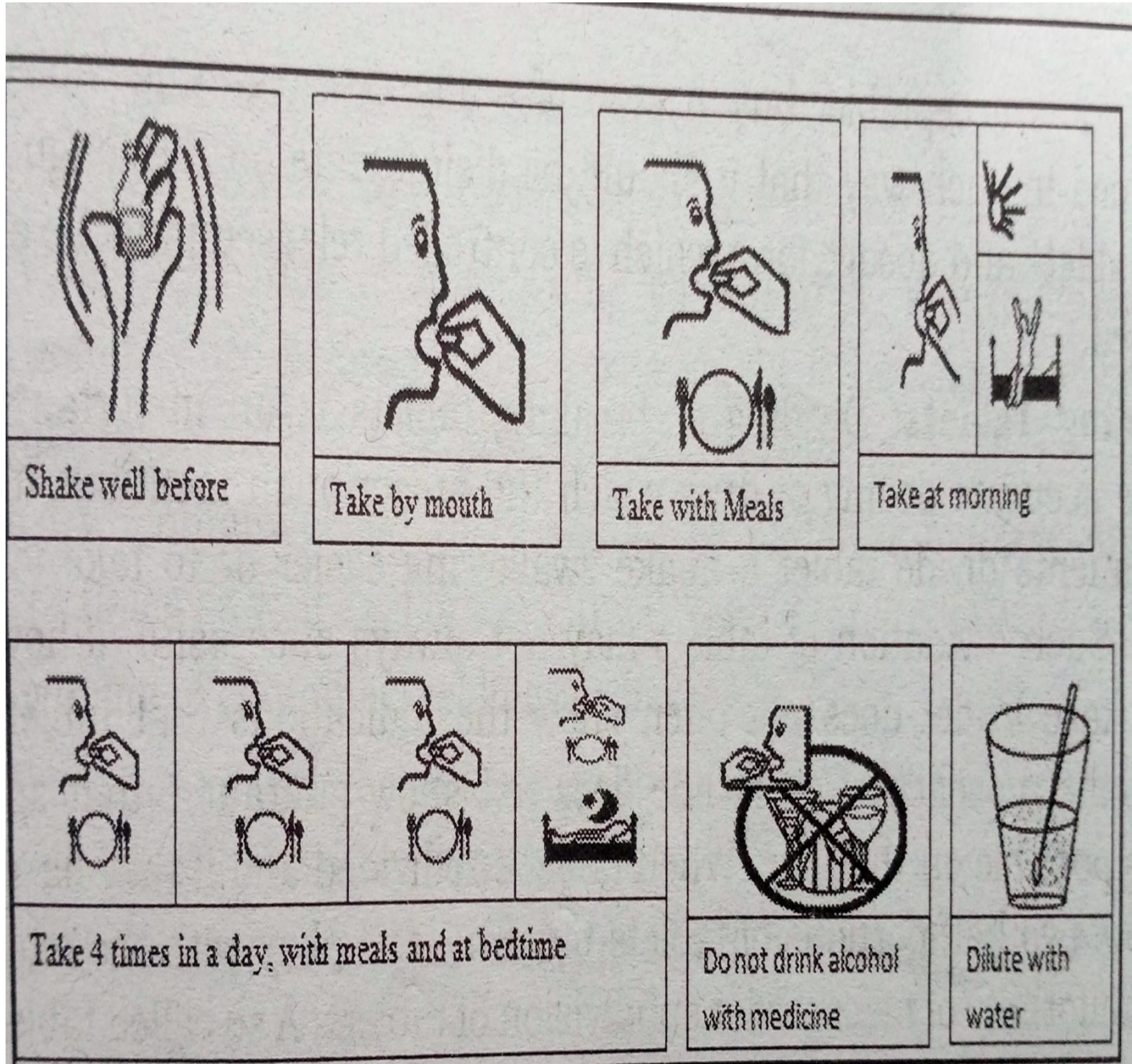
- Auxiliary labels are generally small stickers consisting of a pictogram and one or more lines of text intended to enhance patient knowledge.
- They generally contain information not contained in the "directions" on the prescription label itself.
- This can include supplementary directions for administration, whether the medication can be chewed, crushed, or cut, and information on side effects or drug/ food interactions.
- All auxiliary labels contain information which is important to proper medication adherence, or to avoid adverse drug reactions.
- There is not any specific guideline for how to best formulate auxiliary labels on a prescription, but the label should be as simple as possible and written in plain language.
- Hence auxiliary labels are medication labels that contain warnings, dietary information, instructions for administering medicine, or cautionary details.
- Some auxiliary labels are used not to add additional information to the package, but to provide a picture representation of the instructions for use. Picture representations of directions can be useful for patients with low literacy, or who have trouble reading and comprehending text instructions due to age, eyesight, or other factors.

Pictograms

- Pictograms are a standardized graphic image that helps to convey medication instructions, precautions, and/or warnings to patients and consumers.
- Pictograms are particularly helpful in passing on important information to patients with a lower level reading ability and patients for whom English is a second language.
- Definition: Pictograms are called as images representing proper ways to take or store medications, precautions, or other important information about a medication that a health care provider should provide to his or her patient. These

pictograms are available for use by health care professionals and others to reinforce printed or oral instructions.

► Some examples of Pictograms are mentioned as follow:



Brief instructions on medication usage

1.Oral and Written Instructions

When dispensing medicines, oral instructions on use should incline within the pharmacy along with additional written information as appropriate. The way patients (or caregivers) receive instructions is one in every of the factors determining the standard of their manipulations with the medication. Also it's important to know a patient's capabilities, language skills and situation. According to study demonstrating, followed by copying by the patient, and extra written instructions all result in better results.

Most of countries have their websites where patients can find instructions. Drug manufacturer give information on website with videos for specific medication usage. This product information isn't often true for drugs used in off label situations, so in those cases advice of pharmacist is more important.

2. Packaging

Opening a package of container in right way may require explanation such as Eye drop bottles, Suppository strip, and orally disintegrating tablets. Sometime user may prefer particular container, for example instead of tube they prefer jar in case of ointment.

3. Way of Use

a) Tablet Types: The solid oral dosage type necessitates a description of the tablet type. Effervescent tablet to be dissolve before use, but small dispersible tablet should be swallowed as a whole, with a glass of water. To take medicine with water is acceptable, but in case of orally disintegrating tablets, which is designed in such way that it should be disintegrate on the tongue. Enteric coated tablets and dosage form which is controlled released must be absolutely swallowed.

b) Dividing Tablets: Dividing or breaking tablets is an important point to measure accurate dosing of drug which the prescription mentions it. Most of times patients divide tablet to make swallowing easier or to take lower dose of drug. Such divication of tablets may not always successful. (Shown in fig) The package leaflet does not often show the indications that tablet may be divided, the presence of

score line does not show guarantee that splitting of tablet is possible on that line. When tablet subdivided and if they have a break mark, the two half portions of tablets must have to obey with the requirement on the uniformity of mass under subdivision of tablets. A so called tablet splitter can be useful. When the tablets break into unequal halves it is clinically not acceptable.

C) Measuring Liquids: In pharmacy preparations most attention shall be included in the feasibility of measuring the required quantities with the available measuring device. In case of licensed medicines the pharmacist should supply better measuring device. In case of childrens administration of liquids using oral syringe is always easier than measuring with spoon. Pharmacist should give cleaning instructions regarding the measuring devices to patients. In case of nebulizers sterile syringes are necessary to measure a right dose

Dispensing process

Good dispensing practice guarantees that the right medications of the required quality are supplied to the right patient at the right time, with the correct amount, strength, frequency, dosage form, and quantity, as well as clear written and spoken instructions. Appropriate packaging suitable for preserving the medicine's quality and efficacy.

The foundation for successful dispensing practice is a safe, clean, and well-organized working environment. The dispensing environment consists of the following elements:

1. Appropriate physical surroundings Qualified / skilled employees.
2. Shelving and storage facilities that are adequate.
3. Work surfaces that are suitable.
4. Equipment that is appropriate.
5. Packaging materials that are required.

The people in charge of the dispensing procedure are responsible for the accuracy and quality of the drugs they provide. It is critical that employees dispensing medicines be properly trained and equipped with the technical knowledge and abilities required to deliver the full spectrum of medications recommended as well as communicate effectively with patients and carers.

Dispensing Errors

Types of Dispensing Error

Basically dispensing error is classified into two classes, i.e., Content Error and Labelling Error

1. Content errors

Following are certain examples of Content Error:

- Wrong medicine dispensed.
- Wrong drug strength dispensed.
- Wrong dosage form dispensed.
- Expired medicine dispensed.
- Omission of item.
- Wrong quantity dispensed.

2. Labelling errors

Examples of Labeling error are mentioned as follow:

- Wrong patient name.

Wrong medicine name.

- Wrong medicine strength.
- Wrong frequency.
- Wrong dosage form.

Wrong date.

- Completely wrong label.
- Wrong instructions.
- Incomplete information.

Strategies for Minimizing Dispensing Errors

- Dispensing errors include any inconsistencies or deviations from the prescription order, such as dispensing the incorrect drug, dose, dosage form, wrong quantity, or inappropriate, incorrect, or inadequate labelling.
- Also includes confusing or inadequate directions for use, incorrect or inappropriate preparation, packaging, or storage of medication prior to dispensing is considered to be error.
- Thus it becomes necessary that one has to adopt or one has to prepared strategies to overcome such problems.
- The following is a list of strategies for minimizing dispensing errors:

1. Ensure correct entry of the prescription

- Transcription errors (e.g., omissions, inaccuracies) are responsible for around 15% of all dispensing errors.
- These errors can be reduced by consistently using reliable methods, to verify patient identity while entering the prescription into the computer.
- This is also useful to have information about the patient, such as the age of the patient, allergies, concomitant medications, contraindications, therapeutic duplications etc.

2. Confirm that the prescription is correct and complete

- Pharmacists' "second guessing" of illegible and/or ambiguous prescriptions, nonstandard abbreviations, acronyms, decimals, and call-in prescriptions are frequently associated with medication errors.
- If any problem in prescription, it is important to call the prescriber to clarify any uncertainties or doubts regarding the prescription.
- Clarification obtained from the physician should be promptly documented.
- All verbal prescriptions should be immediately transcribed to a blank prescription pad and read back to the caller to ensure that the prescription has been transcribed correctly.

3. Beware of look-alike, sound alike drugs

- Similar drug names are basically responsible for one-third of medication errors.
- These types of errors are attributed to confirmation bias;

which means a tendency to interpret information in a way that confirms one's preconceptions and avoids information and interpretations that contradict prior beliefs.

- Such errors can be reduced by placing reminders on the stock bottle or in the computer system to alert staff about these commonly confused drug names.

4. Be careful with zeros and abbreviations

- Misplaced zeros, decimal points, and faulty units are common causes of medication errors due to misinterpretation.
- A transcription or interpretation error involving a zero or a decimal point means that the patient may receive at least 10 times more medication than indicated, which can result in serious consequences.
- These errors may be prevented by using computer alerts or by stocking a single strength of the medication in the pharmacy.

5. Organize the workplace

- Organizing work space, work environment, and workflow has been shown to markedly reduce dispensing errors.
- Proper lighting, adequate counter space, and comfortable temperature and humidity can help and facilitate a smooth flow from one task to the next, thus reducing the chances of dispensing errors.
- Developing a routine for entering, filling, and checking prescriptions will help in organizing the flow of work.
- In addition, working with one drug product at a time and affixing the label to the patient's prescription container before working on the next prescription will help to prevent mix-ups.
- It is also important not to leave any drug containers unlabelled.

6. Reduce distraction when possible

- Multitasking and distraction during work is the leading cause of dispensing errors.
- Automatic-refill requests can reduce some of the distractions and thereby reduce dispensing errors.
- Also, having pharmacy technicians assist the pharmacists by performing routine functions will help to minimize distractions.
- Perception of dispensing errors by pharmacists is influenced by factors such as design of workflow, window services, and automatic dispensing.

7. Focus on reducing stress and balancing heavy workloads

- Workload increase is often cited as a contributing factor in dispensing errors.
- Sufficient staffing and appropriate workload will help to reduce errors.
- Regular breaks and time off for meal breaks may help to reduce some of the dispensing errors.
- Sharing responsibilities by clearly assigning duties to the staff will help them to understand the expectations of the flow of work and may ultimately aid in reducing workplace stress, and, therefore, reduce medication errors.

8. Take the time to store drugs properly

- To avoid mix-ups among look-a-like drugs is important to store them away from each other in the medication storage area.
- Medication bottles should be properly organized with labels facing forward.
- It is also a good idea to routinely check all medications on the shelves and discard any expired medications.
- Use of storage bins, cabinets, or drawers can result in misplacement of look-alike drugs.
- It is also advisable to lock up or sequester drugs with high potential of causing errors.

9. Thoroughly check all prescriptions

- Repeated checking and counter checking is an important strategy to minimize dispensing errors.
- Comparing the written prescription with the product that appears in the computer, with the label being printed, and with the medication that is being filled will help to reduce errors.
- Whenever possible, it is advisable to have the rechecking done by another person, typically a pharmacist.
- If this is not possible, delayed self-checking rather than continuous self-checking is an alternate strategy.
- A delayed verification will allow the pharmacist to study the prescription from a fresh perspective, which will help in identifying the error that may not have caught his/ her attention the first time the prescription was handled.

10. Always provide thorough patient counselling

- Approximately 83% of errors are discovered during counselling and are corrected before the patient leaves the pharmacy.
- Therefore, it is important to go beyond offering to counsel and provide counselling for each patient.
- It is considered good practice to open the container and show the actual medication to the patient during counselling rather than deliver it to the patient in a sealed bag.
- Completing this process will provide an opportunity for the patient to see the medication and ask questions if it looks different from what he or she has been taking.
- Counselling should also include the instructions on how to take the medication and appropriate route of administration. However many dispensing errors are attributed to misunderstood directions for use. Educating patients about safe and effective use of their medication promotes patient involvement in their health care, which will likely reduce medication errors.