

- **The goal of Clinical Pharmacy:**

- The primary goal of clinical pharmacy is to promote the rational and appropriate use of medicines. These activities mainly aim at the following:
 - Improving the clinical effect of medicines.
 - Minimizing the risk of treatment-induced adverse events.
 - Minimizing the expenditures for pharmacological treatments.

Clinical Pharmacist Requirements:

- Clinical pharmacists are specially trained practitioners who deliver comprehensive medication for management and direct patient care services. Clinical pharmacists work directly with physicians, other health professionals, and patients to guarantee that the medications prescribed for patients contribute towards the best possible health outcomes. Considering the important roles of clinical pharmacists in patient health care services, it is essential to have the following requirement with the clinical pharmacist:

- Knowledge of drug therapy.
- Knowledge of diseases.
- Knowledge of laboratory and diagnostic skills.
- Should have good communication skills.
- Should possess drug information skills.
- Should have therapeutic planning skills.
- Should know about non-drug therapy.
- Physical assessment skill.
- Patient monitoring skills.

- Clinical pharmacists play an important role at three different levels i.e. before the prescription, during the prescription, and after the writing of prescription in promoting the correct use of medicines. Following are given the key role of clinical pharmacists at a different level:

Before the Prescription:

- Involved in clinical trials.
- Preparation of formularies.
- Drug information services.
- Designing of drug-related policies.

During the Prescription:

- Involved in counseling activity.
- Involved in monitoring, detecting, and preventing a medication-related problem.
- Clinical Pharmacist gives special attention to the dosage of drugs that need therapeutic monitoring.

After the Prescription:

- Involved in Patient Counseling.
- Preparation of personalized formulation.
- Involved in the evaluation of the use of the drug.
- Responsible for outcome research.
- Associated in pharmacoeconomic studies.

Activities or Functions of Clinical Pharmacist:

- Ward round participation
- Treatment Chart Review
- Adverse drug reaction monitoring
- Drug information and poisons information
- Medication history
- Patient counselling
- Interprofessional collaboration

Role of Clinical Pharmacist in Ward Round Participation

- Ward round is nothing but the routine rounds by the health care provider to meet/visit the patient for a normal check up on daily basis to check the progress of health of patients. Mostly physician is the leading person along with their team who may be assistant, nurse, and pharmacist in the ward round to observe the patient condition and routine checkup and decide further therapeutic regimen for their patient.

Goals and Objectives of the Ward Round Participation:

- Monitors the patient's condition and take immediate decision on medication to improve the patient's condition and avoid death.
- To check the case history of patients and accordingly change the approaches of treatments.
- To ensure a safe and cost-effective treatment plan for the patients.

- **Role of Pharmacist:**

- Pharmacists should always associate as team members of health care professionals during ward round participation. A pharmacist is an expert person in the decision-making process in matters of dosage regimens, monitoring of adverse drug reactions, interaction with medications, and interpretation of prescription as well as associated with drug and poison information services.
- A pharmacist has a great role in the enrichment of treatment accuracy and uses several pharmaceutical services considering the patient safety and efficacy of treatment.
- A pharmacist is a qualified person in a hospital and should participate with the team to promote healthcare practice in the management of a disease.
- Pharmacists should prevent negative perspectives of therapeutic outcomes due to medication errors and incorporation of incorrect dosage regimens.

- **Responsibilities of the Pharmacists:**

- Pharmacists should participate with a physician during the ward round as well as they should do visit alone to provide information related to medication and its administration and necessity care to concerned patients.
- During ward rounds with a physician, the pharmacist should follow the treatment given by the physician as well as check the prescribed dose by referring to the formulary.
- A pharmacist may also think about the prescribed medication and assess the possible risk to the patients while drug administration and will report or alert the health care team to prevent further causality.
- A pharmacist must target the patients before discharge while his ward round and advice regarding the practice of drug administration which is necessary to take after discharge of the patient. Pharmacists should also motivate the patient while discharging regarding taking proper diet and exercise for disease management.

Role of Clinical Pharmacist in Medication Chart Review

- Medication chart review is the process that is conducted in a systemic way for all patients who have been prescribed medicines by the health care profession. Thus, it is a primary responsibility of the clinical pharmacist to ensure the correctness of medication ordering, transcribing, dispensing of medicines, procedure, and way of administration of medicines and monitoring of medication for potential adverse effects and therapeutic effects.
- Medication chart review has been considered the activities as a starting from activities of counseling, TDM, and ADR. The main objectives of medication chart review are to optimize the drug therapy, improve the health outcomes and reduce the medicine-related problems like untreated indications, inappropriate drug selection, drug interaction, an overdose of any medication; and any errors that may occur while prescribing drug therapy and administration. If the pharmacist found any errors or problems in the medication chart then should write annotations on the chart at the appropriate place where the medication order is unclear.

Procedure:

- Clinical pharmacists should check and ensure the medication administration as per the record of a patient medical record.
- Consideration of consultation report, treatment plan, and daily progress report while planning for patient care and medication appropriateness.
- Should review all current and recent medication orders.
- Following are given the components of the medication chart review. Clinical pharmacists should ensure patient care.
- Pharmacists should check the medication order is written as per legal and local requirements also ensure the order is understandable and used the appropriate name of the drug. A pharmacist may also review the order for the cost-effectiveness of medication. If there is an error observed in order then a mark should be provided for clarification.

Procedure:

- Make sure that the medication order is correct concerning the previous order, the specific condition of the patient (such as disease state, gender, pregnancy, age), dose and dosage schedules with considering the patient conditions, dosage form and route and method of medication administration.
- Pharmacists must check the order for duplication of medication, drug interactions as well as the time of drug administration concerning food and along with another drug.
- Check whether there requires an appropriate follow-up for any medication or therapy monitoring is recommended in the given order.

Role of Clinical Pharmacist in Clinical Review

- Clinical review is a systematic review/relevant information of all examinations done by clinical pharmacists on response and monitoring of drug treatment and safety aspects on daily basis. The main approach of clinical review is to assess the therapeutic outcome of the dosage regimen and its safety. It is one of the integral parts of the medication chart review.

Goals of Clinical Review:

Following are the primary goals of the clinical review:

- Evaluate the response and safety of drug treatment.
- Assess the improvement in the patient's condition and the need to change in drug therapy.
- Evaluate the need for therapeutic drug monitoring.
- Check for patient compliance to therapy

Criteria for Effective Pharmacist Clinical Review:

- Ensure adequate training is given to persons involved in clinical review.
- Main the good working relationship with all practitioners, other health care staff to permit clinical review of patient, assess the clinical report and for effective communication.
- Identify the expert to discuss any problems and options.
- Implements systematic approach for the clinical review and always involve the patient in interrogation.
- Decide the most reliable therapeutic intervention for the individual patients.
- Before any recommendation to patients or practitioners, a pharmacist must see the medical notes for any sensible issue related to recommendations.

MEDICATION HISTORY

- A medication history is a detailed , accurate and complete account of all prescribed and non-prescribed medications that a patient had taken or is currently taking prior to a initially institutionalized or ambulatory care .
- It provides valuable insights in to patient's allergic tendencies , adherence to pharmacological and non-pharmacological treatments and self medication with complementary and alternative medicines .
- Interviewing a patient in collecting the data medical history is called medication history interview.

Importance of accurate drug history

- Preventing prescription errors and consequent risk to patients.
- Useful in detecting drug –related pathology or changes in clinical signs that may be the result of drug therapy.
- It should encompass all currently and recently prescribed drugs, previous adverse drug reactions including herbal or alternative medicines and adherence to therapy for better care plan.

Goals

- The goal of medication history interview is to obtain information on aspects of drug use that may assist in over all care of patient . The information collected can be utilized to :
 1. Compare medication profile with the medication administration record and investigate the discrepancies
 2. Verify medication history taken by other staffs and provide additional information where appropriate.

- The following information is commonly recorded:
- 1.Currently or recently prescribed medicines
- 2.OTC medication
- 3.Vaccinations
- 4.Alternative or traditional remedies
- 5.Description of reactions and allergies to medicine
- 6.Medicines found to be ineffective
- 7.Adherence to past treatment and the use of adherence aids

- Information sources
- 1.Patient
- 2.Family or caregiver
- 3.Medication vials / bubble packs
- 4.Medication list
- 5. Community pharmacy
- 6.DPIN (Drug programs information network)

Clinical Pharmacist

Question to Ask

- Which community pharmacy do you use?
- Any allergies to medications and what was the reaction ?
- Which medications are you currently taking:
 - The name of the medication
 - The dosage form
 - The amount (specifically the dose)
 - How are the taking it(by which route)
 - How many times a day

- For what reason
- What prescription medications are you taking on a regular basis or as needed basis?
- What over the counter medications are you taking on a regular or as needed basis?
- What herbal or natural medicines are you taking on a regular or as needed basis?
- What vitamins or other supplement are you taking? Did a doctor change the dose or stop any of your medications recently?
- Did you change the dose or stopped any of your medications recently?
- Are any of the medications causing side effects
- Have you change the dose or stopped any medications because of unwanted effects ?
- Do you sometimes stop taking your medicine whenever you feel better?
- Do you stop taking your medicine if it makes you feel worse?

* Patient counselling

- Safe and effective drug therapy depends on patients being well-informed about their medication *Correct diagnosis and appropriate drug prescribed can be ineffective in case patient does not understand.
 - * Pharmacists – merely acting as dispensers!!
- * Many patients do not get enough information about use of their medication, including how and when to take the medication, how long to take it, what to do if side effect occurs or a dose is missed.

Aim of Patient Counselling

- Better patient understanding of their illness and the role of medication in its treatment
- *Improved medication adherence
- *More effective drug treatment *Reduced incidence of adverse effects and unnecessary healthcare costs
- *Improve quality of life for the patient
- *Better coping strategies to deal with medication related adverse effects
- *Improved professional rapport between the patient and pharmacist

NEED????/

- Pharmacist and patient rapport.
- *Patient increased knowledge, attitude and practice.
- *Patient compliance.
- *Safe and effective therapy.
- *Skill during therapy

Clinical Pharmacist

Type of Counselling

- Individual counselling
- Group counselling Modes of providing the counselling
- Verbal
- Written/ printed (pamphlets/ patient information leaflets)
- Counselling aid such as poster presentations
- Audio-visuals

Communication Skill for effective counselling

- Language
- Tone
- Volume
- Speed
- Proximity
- Eye contact
- Facial expression

Clinical Pharmacist

Preparing for the session

- * Obtain all the information about the patients from the prescriptions, medication orders, hospital medical records, medication history, healthcare professionals etc.
- * Present medical condition of the patient (physical state). Whether able to undergo the counselling session or not.

Clinical Pharmacist

Steps involved in session

- Opening session:
- Introduce yourself and identify the patient.
- Try to deal with the time barrier concerns.
- Explain the purpose of the session, any concerns or issues of the patients should clarified in case that is a distraction to the session, eg; new drug concerns or the health plan concerns.
- B, Assessments and counselling:
- Update the patient medication profile to know about the recent changes that can effect the patient's current drug therapy viz; the new drugs, disease condition, allergies, discontinuation of therapy, non-prescription medicines, life style changes etc.
- Assess the patient's knowledge about the drugs prescribed to him and reason for prescribing. Correct any misconceptions, help the patients to identify the medications, and review medications given to the patients.

- Assess whether the patient know how to take the medications. The time, dosing regimen, plan, and storing of the drugs.
- Assess patient's understanding of what to expect from the medication, their outcomes and adverse drug reactions.
- Additional information to the patients such as interactions, missed doses, monitoring information, refill information, storage and lifestyle modifications
- Ask for any concerns of the patients that requires further clarifications that has not been discussed previously or requires further explanation.
- Check the understanding of the patients information discussed in the counselling session.

Counselling contents

- Name and strength of the medication
- Reason why it has been prescribed (of known) or how it works
- How to take the medication (how much and how often)
- Expected duration of treatment *Expected benefits of treatment
- Possible adverse effects *Possible medication or dietary interactions
- Advice on correct dosage
- Minimum time duration required to show therapeutic benefit *What to do if a dose is missed
- Special monitoring requirements, eg. Blood tests
- Arrangements for obtaining further supplies

C.closing session

- Closing session
- Summarize the counselling points
- Written counselling if required
- How to contact the pharmacist
- Reinforce on the positive outcomes of the therapy
- Confirm about the follow up session with the prescription in case of refill and with the physicians

Drug information and poisons information

- **Drug Information:**

- Drug information is the provision of unbiased ,well referenced and critically evaluated information on any aspect of pharmacy practice.

- **Need of drug information:**

- The number of drugs in the international market has increased very much
- The newer drugs are generally more potent and selective, and formulation becoming increasingly complex.
- The literature on drugs has also expanded and covers a wide range of information.
- To introduce a new drug into the practice, the professionals need to evaluate the given information.
- A simple ,quick reference to a pharmacopoeia or formulary is no longer sufficient.

- **Aims and objectives of drug information services:**

- The provision of information to health professionals on specific problems related to the use of drugs particular patients.
- The provision of information to officials in government agencies to optimize the decision making process
- The preparation and development of guidelines and formularies.
- To improve patient compliance and to provide a guide to responsible self medication
- To develop and participate in continuing education programs.
- To participate in undergraduate and graduate teaching program.
- To develop education activities regarding the appropriate use of drugs for patients in the community.
- To prepare and distribute material on drugs to health personnel in the form of a drug information bulletin and other media.
- To develop and participate in research programs.

SOURCE	EXPLANATION	ADVANTAGES	DISADVANTAGES
Primary source	<p>Information is presented by authors without any evaluation by a second party. Provides must current information about drugs.</p> <p>Ex: Articles published in journals(British medical journal). taxis</p>	<p>Adapted information recent, Up-to-date Not available to competitors</p>	<p>Costly Difficult to collect Time consuming</p>
Secondary source	<p>The original source has been evaluated by second party other than the publisher Modified and rearranged form Example: Review articles like lexis - nexis, Medline. Text books</p>	<p>Low in cost Diversity Available Problem definition Familiar with market</p>	<p>Incomplete ,outdated Inadequate False information Difficult to control</p>
Tertiary source	<p>Information obtained from primary and secondary source and arranged in a manner to represent a composite of the available information. Example: Representative from pharmacopeias-BP,USP,IP,Encyclopedia</p>	<p>Easy and convenient access to a broad spectrum of topics. Background information on drugs and diseases. Answer many drug related problem, excellent first line resources.</p>	<p>Lag time associated with publication Incomplete information, human bias Lack of expertise by authors misinterpretation of primary and secondary literature.</p>