

Role Of Clinical Pharmacist in Clinical Departments

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Outline

- **Role of clinical pharmacist in clinical departments:**
 - ✓ **Patient education and counselling.**
 - ✓ **Medication reconciliation.**
 - ✓ **Therapeutic drug level monitoring.**

What is Clinical Pharmacy?

- It is a health specialty, which describes the activities and services of the clinical pharmacist to develop and promote the rational and appropriate use of medicinal products and devices.
- Clinical Pharmacy includes all the services performed by pharmacists practising in hospitals, community pharmacies, nursing homes, home-based care services, clinics and **any other setting where medicines are prescribed and used**.
- The term “clinical” does not necessarily imply an activity implemented in a hospital setting.
- A community pharmacist may perform clinical activities as well as a hospital practitioner.

How does clinical pharmacy differ from pharmacy?

- The discipline of pharmacy embraces the knowledge on synthesis, chemistry and preparation of drugs.
- Clinical pharmacy is more oriented to the analysis of population needs with regards to medicines, ways of administration, patterns of use and drugs effects on the patients.
- The focus of attention moves from the drug to the single patient or population receiving drugs (individualized approach).
- Care Pharmaceutical care: is the responsible provision of drug therapy for the purpose of achieving definite outcomes that improve a patient's quality of life.
- The outcomes are:
 - ✓ Cure of disease, elimination or reduction of a patient's symptoms, slowing of a disease process, preventing a disease or symptom.

Clinical Pharmacy - Goal

- The overall goal of clinical pharmacy activities is to promote the correct and appropriate use of medicinal products and devices.
- The activities aim at:
 - I. maximising the clinical effect of medicines, i.e., using the most effective treatment for each type of patient.
 - II. minimising the risk of treatment-induced adverse events, i.e., monitoring the therapy course.
 - III. the patient's compliance with therapy.
 - IV. minimising the expenditures for pharmacological treatments born by the national health systems and by the patients, i.e., trying to provide the best treatment alternative for the greatest number of patients.

Clinical Pharmacy Requirements

- I. Knowledge of drug therapy.
- II. Knowledge of the disease.
- III. Knowledge of laboratory and diagnostic skills.
- IV. Communication skills.
- V. **Patient monitoring skills:**
 - ✓ Physical assessment skills.
 - ✓ Drug Information Skills.
 - ✓ Therapeutic Planning skills.
 - ✓ Knowledge of non-drug therapy.

Level of Action of Clinical Pharmacists

- Clinical pharmacy activities may influence the correct use of medicines at three different levels: *before, during and after* the prescription is written.

(1) Before the prescription:

1. clinical trials.
2. Formularies.
3. drug information.

- Clinical pharmacists have the potential to implement and influence drug-related policies, i.e., making decisions on which drugs deserve to be marketed, which drugs should be included in national and local formularies, which prescribing policies and treatment guidelines should be implemented.
- Clinical pharmacists are also actively involved in clinical trials at different levels: participating in ethical committees; study monitoring; dispensation and preparation of investigational drugs.

Level of Action of Clinical Pharmacists

(2) During the prescription

1. Counselling activity.
 2. Clinical pharmacists can influence the attitudes and priorities of prescribers in their choice of correct treatments.
- The clinical pharmacist monitors, detects and prevents harmful drug interaction, adverse reactions and medication errors through evaluation of prescriptions' profiles.
 - The clinical pharmacist pays special attention to the dosage of drugs which need therapeutic monitoring.
 - Community pharmacists can also make prescription decisions directly, when over the counter drugs are counselled.

Level of Action of Clinical Pharmacists

Medication-related Problems 1. Untreated indications. 2. Improper drug selection. 3. Subtherapeutic dosage. 4. Medication Failure to receive. 5. Medication Overdosage.	Adverse drug reactions. 1. Drug interactions. 2. Medication use without indication.
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Level of Action of Clinical Pharmacists

(3) After the prescription

1. Counselling.
 2. Preparation of personalised formulation.
 3. Drug use evaluation.
 4. Outcome research.
 5. Pharmacoeconomic studies.
- Clinical pharmacists play a key role in communicating and counselling patients. Pharmacists can improve patients' awareness of their treatments, monitor treatment response, check and improve patients' compliance with their medications.
 - As members of a multidisciplinary team, clinical pharmacists also provide integrated care from 'hospital to community' and vice versa.

Activities of Clinical Pharmacists

The principle activities of a clinical pharmacist include:

- 1) **Consulting:** Analysing therapies, advising health care practitioners on the correctness of drug therapy, providing pharmaceutical care to patients both at hospital and at community level.
- 2) **Selection of drugs:** Defining "drug formularies" or "limited lists of drugs" in collaboration with hospital doctors, general practitioners and decision makers.
- 3) **Drug information:** Seeking information and critically evaluating scientific literature; organising information services for both the health care practitioners and the patients.
- 4) **Formulation and preparation:** Formulation and preparation of medicinal products and devices according to acceptable standards to meet specific patients' needs.
- 5) **Clinical Trials:** Planning, evaluating and participating in clinical trials.

Activities of Clinical Pharmacists

- 6) **Drug use studies and outcome research:** Collecting data on drug therapies, their costs and patient outcome through structured and scientific methods.
- 7) **Pharmacokinetics/ therapeutic drug monitoring:** Studying the kinetics of drugs and optimising the dosage.
- 8) **Pharmacoeconomy:** Using the results of clinical trials and outcome studies to determine cost-effectiveness evaluations.
- 9) **Dispensation & Administration:** studying and developing systems for the dispensing and administration of medicinal products and devices that can guarantee a higher security in administration, a reduction of expenditure and a reduction in medication errors.
- 10) **Teaching & Training:** Pre- and post-graduate teaching and activities to provide training and education programmes for pharmacists and other health care practitioners.
- 11) **Information Source:** Medical record, patient, family, health care team.

Information Source

From medical record you can find the following: ▪ Admission Information. ▪ Initial history. ▪ Physical examination. ▪ Progress notes. ▪ Consultations.	Nursing notes ▪ Laboratory data. ▪ Diagnostic Procedures. ▪ Radiology. ▪ Surgery. ▪ Orders.	Medication ▪ Administration orders. ▪ Consent forms.
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Clinical Pharmacy Practice areas

➤ Ambulatory care, Critical care, Drug Information, Geriatrics and long –term care, Internal medicine.

➤ Subspecialties

Cardiology, Endocrinology, Gastroenterology, Infectious disease, Neurology, Nephrology, Obstetrics and gynecology, Pulmonary disease, Psychiatry, Rheumatology, Nuclear pharmacy, Nutrition, Pediatrics, Pharmacokinetics, Surgery.

Practice Guidelines for Pharmacotherapy Specialists

- The pharmacotherapy specialist designs, implements, monitors, evaluates, and modifies patient pharmacotherapy to ensure effective, safe and economical patient care.
- The pharmacotherapy specialist retrieves , analyses, evaluates, and interprets the scientific literature as a means of providing patient- and population-specific drug information to health professionals and patients.
- The pharmacotherapy specialist participates in the generation of new knowledge relevant to the practice of pharmacotherapy, clinical pharmacy and medicine.
- The pharmacotherapy specialist educate health care professionals and students, patients, and the public regarding rational drug therapy.
- The pharmacotherapy specialist continually develops his/her knowledge and skills in applicable practice areas and demonstrates a commitment to continued professional growth by engaging in a lifelong process.

How to Pursue a Profession in Clinical Pharmacy

- Clinical pharmacists have any of the following degree:
 - Doctor of Pharmacy (Pharm.D.) degree.
 - Master degree in clinical pharmacy.
 - Pharmacists who completed one or more years of post- graduated training (e.g. a general and/or specialty pharmacy residency).
- Many clinical pharmacists also choose to become Board Certified:
 - ✓ Board Certified Pharmacotherapy Specialist (BCPS).
 - ✓ Board Certified Oncology Pharmacist (BCOP).
 - ✓ Board Certified Nuclear Pharmacist (BCNP).

Medication Reconciliation

- Medication Reconciliation is a standardized process whereby the most complete and accurate list possible of a patient's medications is communicated to the next provider of service.
- Importance: to reduce duplicate medications listed in patient records,
- Medication Reconciliation occurs at:
 - Time of Admission.
 - Change in level of care.
 - Upon Discharge.
- The compilation of a complete and accurate list of medications the patient is currently taking at home.

Medication Reconciliation

- Unless previously documented for the patient's current visit, a Medication History should be obtained upon first contact with the patient.
- In most cases, patients in the ED will have a med history obtained by the primary nurse or pharmacy.
- Direct floor admits will have a med. history completed by the admitting physician.

Medication Reconciliation comprises five steps:

(1) develop a list of current medications.

(2) develop a list of medications to be prescribed.

(3) compare the medications on the two lists.

(4) make clinical decisions based on the comparison.

(5) communicate the new list to appropriate caregivers and to the patient.

MEDICATION RECONCILIATION FORM

Name:	DOB:
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Drug Allergies/ Describe Reaction:

LIST BELOW ALL OF THE PATIENT'S MEDICATIONS PRIOR TO ADMISSION INCLUDING OVER-THE-COUNTER AND HERBAL MEDS

NAME OF MEDICATION/DOSE	ROUTE/FREQUENCY	DATE STOPPED	REASON/MD NAME	DATE RE-STARTED

NEW MEDICATIONS ADDED

DATE	NAME OF MEDICATION/DOSE	ROUTE/FREQUENCY	REASON	MD NAME

Source of Medication List:

☐	Patient Medication List
☐	Patient/Family Recall
☐	Pharmacy:
☐	Primary Care Physician List
☐	Previous Discharge Paperwork

Reviewed:

Date:		By:		Date:		By:	
Date:		By:		Date:		By:	
Date:		By:		Date:		By:	
Date:		By:		Date:		By:	

THIS IS AN ADDENDUM TO OR REVISION OF PREVIOUSLY COMPLETED MED LIST

Clinical pharmacokinetics

- Clinical pharmacokinetics is the process of applying pharmacokinetic principles to determine the dosage regimens of specific drug products for specific patients to maximize pharmacotherapeutic effects and minimize toxic effects.
- TDM: stands for therapeutic drug monitoring.
- Application of these principles requires an understanding of the absorption, distribution, metabolism, and excretion characteristics of specific drug products in specific diseases and patient populations.
- **Drugs that can be monitored:** when the range between minimal effectiveness and toxicity is narrow.

Why request TDM?

- Noncompliance Inappropriate dosage:
- ✓ Poor bioavailability.
- ✓ Drug interaction.
- ✓ Kidney and liver disease
- Altered protein binding:
- ✓ Fever.
- ✓ Cytokines.
- ✓ Genetically determined fast or slow metabolizers.

Thank you

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