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Diploma in Pharmacy 2nd Year
Hospital & Clinical Pharmacy
Chapter 8 : Clinical Pharmacy

Chapter 8
Clinical Pharmacy

- Clinical pharmacy is a branch of pharmacy that provides patient care by optimizing the medication therapy and promoting health, wellness, and disease prevention by means of pharmaceutical care.
- Clinical pharmacy is a health science discipline in which pharmacists provide patient care that optimizes medication therapy and promotes health, and disease prevention.
- Pharmaceutical care comprises of responsible provision of drug therapy for the purpose of achieving positive outcomes that improve a patient's quality of life.

Scope of Clinical Pharmacy

A Clinical pharmacist has many scope some of them are following :

- **Patient monitoring :** A clinical pharmacist monitors the symptoms of a patient if the disease is under control of pharmacist he tries to treat otherwise refer the patient to a senior doctor or physician.
- **Medication history :** The pharmacist interviews the patients and prepares their medication history which helps a doctor in treatment of those patient and save the doctor's time to interview the patient.
- **Treatment of patient :** A clinical pharmacist treats the minor ailments without performing a big surgery procedure.
- **Preparation of IV Admixture :** They prepare the IV admixtures under specific condition.
- **Training :** A clinical pharmacist trains the new pharmacist (fresher) .
- **Retail Pharmacy Store :** A clinical pharmacist can sale drugs after getting license
- **Patient Counselling :** Clinical pharmacist can perform patient counselling service
- **Clinical research and development :** A clinical takes parts in clinical research and development .
- **Drug formulary :** Pharmacist helps in formation of hospital formulary.
- **Drug consultant :** A clinical pharmacist can offer his services as a drug consultant

Development of Clinical Pharmacy

- The term "clinical pharmacy " is being used from 1953 . Before 1960s the work area of pharmacist was limited to drug relative services only (like production Compounding distribution , sale etc.) , they were not permitted to participate in patient care but in late 1960 the status and function of pharmacist revised and developed and involvement of pharmacist in patient care started .

In India

- Pharmacy education was started after implementation of drug and cosmetic act but these pharmacist were oriented towards production distribution and sale of drugs.
- During 1980s and 1990s many of drug misuse and poor health outcome and economic loss to patient are recorded , due to bad performance by both pharmacy and medical profession and according to population doctors were not sufficient.
- Now it is realized that the pharmacist should given those knowledge and skills that they can contribute in patient care effectively like pathophysiology , therapeutics , pharmacokinetics , patient counsellin etc.
- So in 1991 the education regulation was revised and hospital and clinical pharmacy , community pharmacy , health education and drug store and business management subjects were added in diploma in pharmacy.
- Seeing Lake of teaching personnel for clinical pharmacy first master i n pharmacy practice program started at JSS College of Pharmacy Mysore and Ooty with the support of Overseas academy In 1997 .
- Now there are numbers of institution in India which offer a clinical pharmacy degree .

Technical definitions

→ Clinical pharmacy is a specialized field within pharmacy that focuses on the application of pharmacotherapy and the provision of patient-centered care.

Technical definitions in clinical pharmacy may include:

- **Clinical pharmacy :**
  - A specialized field of pharmacy that focuses on the application of pharmaceutical knowledge, skills, and abilities to optimize patient outcomes. Clinical pharmacists work collaboratively with healthcare providers to ensure the safe and effective use of medication therapy.
- **Medication therapy management (MTM) :**
  - A comprehensive approach to optimizing medication use that involves assessing the patient's medication regimen, identifying any medication-related problems, and developing a plan to resolve them. MTM is typically provided by clinical pharmacists.
- **Pharmacotherapy :**
  - The use of medications to treat and manage disease. Pharmacotherapy involves selecting the appropriate medication, dosing it correctly, monitoring its effects, and adjusting therapy as needed to achieve therapeutic goals.

- **Drug interaction :**
  - The effect that one medication has on another medication when they are taken together. Drug interactions can be beneficial (such as when two medications work together to enhance their therapeutic effects) or harmful (such as when two medications interact to cause side effects or reduce the effectiveness of one or both drugs).
- **Adverse drug event (ADE) :**
  - Any harm that occurs as a result of medication use, including medication errors, side effects, allergic reactions, and other adverse reactions. Clinical pharmacists play a key role in preventing and managing ADEs.
- **Pharmacokinetics :**
  - The study of how medications are absorbed, distributed, metabolized, and excreted by the body. Pharmacokinetics plays an important role in determining the appropriate dose and dosing regimen for a medication.
- **Pharmacodynamics :**
  - The study of how medications produce their therapeutic effects. Pharmacodynamics involves understanding the mechanisms of action of medications and how they interact with the body's physiological processes.
- **Therapeutic drug monitoring (TDM) :**
  - The measurement of medication concentrations in the blood to ensure that they are within a safe and effective range. TDM is commonly used for medications that have a narrow therapeutic index (i.e., a small difference between the therapeutic and toxic doses).
- **Clinical decision support (CDS) :**
  - Computerized tools and systems that provide healthcare providers with information and recommendations to support clinical decision-making. CDS is increasingly used in clinical pharmacy practice to improve medication safety and optimize patient outcomes.
- **Formulary management :**
  - The process of selecting, evaluating, and managing medications that are included on a healthcare organization's formulary (i.e., the list of medications that are approved for use). Formulary management is an important aspect of clinical pharmacy practice, as it helps to ensure that patients have access to safe, effective, and affordable medications.

Pediatrics

- Pediatrics is the branch of medicine dealing with the health and medical care of infants, children, and adolescents from birth up to the age of 18.
- The word “paediatrics” means “healer of children”; they are derived from two Greek words: (pais = child) and (iatros = doctor or healer).

Geriatric

- Geriatrics is the medical specialty dedicated exclusively to providing high-quality, patientcentered care for older adults.
- Older adults have a unique set of issues and concerns which geriatric clinicians are trained to focus upon.
- Illnesses, diseases, and medications may affect older people differently than younger adults, and older patients may have overlapping health problems that require multiple medications.

Antenatal Care

- Antenatal care is the care you get from health professionals during your pregnancy.
- It's sometimes called pregnancy care or maternity care.
- You'll be offered appointments with a midwife, or sometimes a doctor who specialises in pregnancy and birth (an obstetrician).
- This is the care you receive while you're pregnant to make sure you and your baby are as well as possible

Postnatal care

- Providing care to a woman during the 6-week time period beginning immediately after childbirth.
- Postnatal care should be a continuation of the care the woman has received through her pregnancy, labour and birth and take into account the woman's individual needs and preferences.

Daily Activity of Clinical Pharmacist

Flowing activities a pharmacist should perform :

- Ward Round Participation.
- Treatment chart review.
- Adverse drug reaction monitoring.
- Drug Information and poisons information.
- Medication history.
- Patient Counselling.
- Inter - Professional Collaboration.

Ward Round Participation

→ A ward round is a visit of medical practitioner (Alone or with a team of Health care professionals and medical student) to hospital inpatient at their bedside to review and increase the progress in their health.

Goals

- To review the patient and understand the patient condition
- To improve the patient health
- To provide appropriate drug related information on drugs availability , optimum and cost effective or alternate drug.
- To identify the medication compliance.
- For patient discharge planning.

Procedure

- Pre-Ward Round preparation : the doctor / pharmacist should prepare before participating in ward round , they should get up to date information on patient disease , disease management and patient medical history.
- During ward round the physician or pharmacist interview the patient and observe their symptoms and current status.
- The physician also consults the pharmacist regarding the effective and cheap drugs.
- A detailed medication history should be collected from a new inpatient.
- If required the patient existing profile can be updated.

Treatment Chart Review

→ Treatment Chart Review is a process where a pharmacist reviews the patient's drug treatment during his hospital admission and involves evaluation of the therapeutic efficacy of each drug and the progress of the conditions being treated.

Goals

- To minimize the risk of medication errors , that might occur during prescription writing or during drug administration.
- To provide economical and rational drugs.

Procedure

- First of all he should try to get information about patient
- He should verify that the medication order is completed or not or is there any mistake such as in terminologies used , drugs name , administration route.
- He should identify Drug Related Disorders if find he should record them in patient medication profile .
- He should provide medication care information to nurses who take care of the patient.
- When medication therapy supposed to finish , the pharmacist should double check that the order is cancelled in all part of the Drug administration record

Adverse drug reaction monitoring

- → World Health Organization (WHO) defines that adverse drug reactions (ADRs) are noxious and unwanted effects produced by the drug, when it is applied for the ailment of disease or diagnosis (Shukla etal.2012).
- → The most common examples of drugs that produce ADRs include paracetamol and nimesulide (hepatotoxic effects) (Rehan et al.2002).
- → It is a well-known fact that no drug is completely free from side effects

Goals

- To detect adverse drug reaction in a early stage.
- To control the adverse drug reaction.
- To inform the drug regulatory authority to identify the risk factors that can cause severe health damage.

Procedure

- ➢ Information about the patient
- ➢ Continuous monitoring the suspected patient
- ➢ Recording and informing the drug regulatory authority.

Drug information and poisons information

Drug information

- → Drug information means providing clinically relevant information on any aspect of drug use relating to individual patients, or general information on how best to use drugs for populations.
- → Drug information service can be applied to any activity where information about drug use is transferred, and includes patient related aspects of pharmaceutical care.

Poison information:

- → Poison information is a specialised area of drug information which includes information about the toxic effects of chemicals and pesticides, hazardous material spills, household products, overdose, of therapeutic medicines including mushrooms, animal toxins from bites of snakes, spiders and other venomous creature and stings

Goals

- To prevent patient from poisoning effect of drugs or animals
- To provide appropriate and exact drug to patient to increase the therapeutic effect.

Procedure

- ➢ The pharmacist should get information about the drugs are going to be administered.
- ➢ The physician can consult the pharmacist about drug and poisons information.
- ➢ Pharmacist can get these information from manufacturers through leaflet or electronic medium or any other authentic sources.

Medication history

- → Medication history is a detailed, accurate, and complete information of all the prescribed and nonprescribed medications that a patient had taken or currently taking in a hospital, ambulatory, or OP care.
- → It identifies patient's needs and helps to improve the efficiency of medication by rendering medication errors and concerns of illness and treatment.

Goals

- It provides the patient's previous History which helps the physician for choosing appropriate drug therapy.
- It can reduce drug reaction , (if patient is staking a drug before).
- It provides an information about drug related allergies.

Procedure

- ➢ Pharmacist should introduce himself to patient.
- ➢ He should get details on diseases , prescribed and non prescribed treatment. and record all the information.
- ➢ He should notice the duration of therapy.
- ➢ He should understand the patient's behaviour regarding taking drug

Patient counselling

- → Patient counseling is defined to the process of providing information, advice and assistance to help patients use their medications.
- → Counseling patients regarding their medications is an important responsibility for pharmacists and an excellent learning opportunity for students.
- → Pharmacists are often the only health care providers focusing patient education on medication: how to take it, what to expect, and side effects and drug interactions.
- → Many pharmacists have been trained to use a counseling method developed by the Indian Health Service (IHS)

Goals

- To provide a better knowledge to the patient about disease and drugs.
- To make treatment more effective.
- To reduce chances of drug reaction.

Procedure

- ➢ **Preparation for Counselling session :** In this stage pharmacist collects information about patients disease and the drugs prescribed for patients.
- ➢ **Opening Session :** In this stage Pharmacist start taking with patients and ask questions , to know their understanding about disease.
- ➢ **Counselleng Content :** In this session Pharmacist gives information to the patients or their attendant orally or in written form regarding proper use of medications.
- ➢ **Closing Session :** In this session Pharmacist get Feedback , to know if patients have any doubt

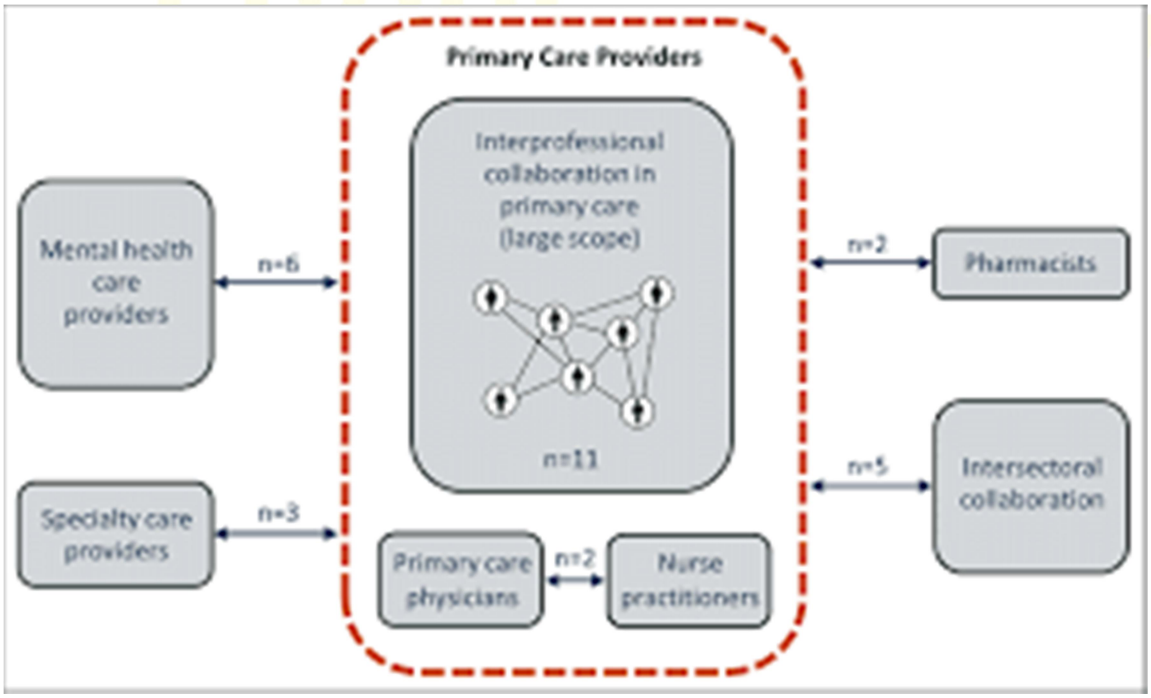
Interprofessional Collaboration

- → Interprofessional collaboration occurs when 2 or more professions work together to achieve common goals and is often used as a means for solving a variety of problems and complex issues.
- → The benefits of collaboration allow participants to achieve together more than they can individually, serve larger groups of people, and grow on individual and organizational levels.

Goal

- The goal of interprofessional collaboration is to improve patient care and outcomes by bringing together healthcare professionals from different disciplines to work together as a team.
- By leveraging the knowledge and expertise of each team member, interprofessional collaboration aims to deliver comprehensive and coordinated care that addresses the physical, emotional, and social needs of the patient.

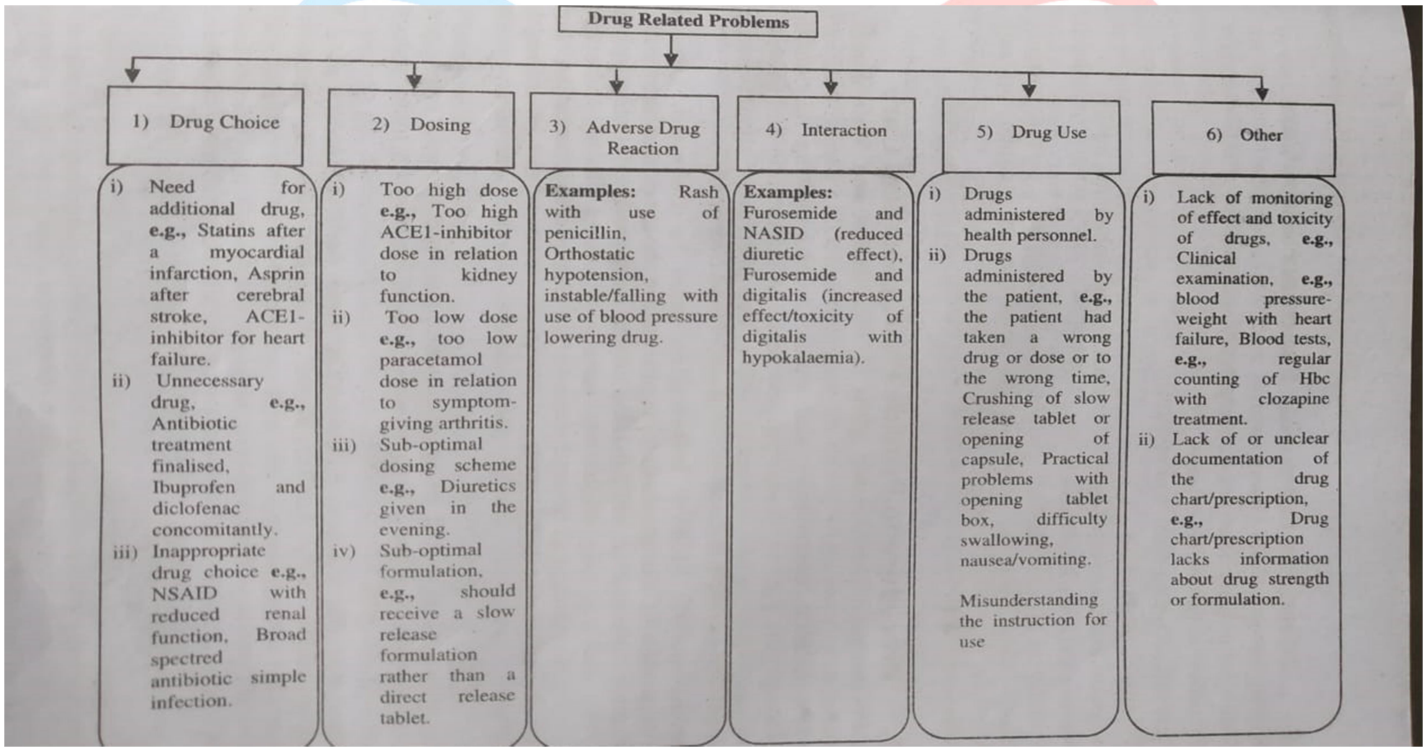
Procedure



Pharmaceutical Care

→ Pharmaceutical care is specific services and activities by which pharmacist Cooperates with a patients and other Healthcare professionals in designing , Implementing , monitoring a therapeutic plan to produce best therapeutic outcomes (results) for patients

Classification of Drug Related Problems (DRPs)



Principles to provide pharmaceutical care

- Knowledge and skillful staffs.
- Equipment and Resources.
- Communication skill
- Proper data collection and documentation system.
- Collaboration with patient and other healthcare Professionals.
- Effective workflow management.

Procedure to Provide Pharmaceutical Care

- Interaction with patient must be maintained to get patient's important information.
- Patient' s medical information should be collected and a record should be maintained.
- Evaluation(Check out) of medical information Collected by patient.
- Formation of Therapeutic Plan.
- Determination of patient' s Consent that patient is ready or not for the therapy planned for him/ her.
- Implementation of Plane.
- Pharmacist Reviews , Monitoring , and modification of therapeutic plan if needs.

Medication therapy Management (MTM)

→ MTM is a set of services provided by a pharmacist which maximizes the therapeutic results for Certain patients , through using safe and effective Medication.

→ MTM promotes Collaboration between the pharmacist , patient and Prescriber for better therapeutic outcomes.

Goals

- To Solve medication related problems.
- To reduce adverse drug effects.
- To help those patients who have multiple healthcare problems , and taking multiple medication and require a close monitoring , and have queries regarding medication.

Home Medication Review

→ A program, called Home Drug Review (HMR), was created to help consumers who live at home make the most of their medication regimen and avoid medication-related issues.

→ It is a customer-focused, organised, and cooperative service provided to customers living at home in the community.

→ HMR takes a collaborative approach, including the patient, their general practitioner, their pharmacist, and other pertinent healthcare professionals in a thorough examination of drugs used at home.

Goals

- To improve patients medication Knowledge.
- To reduce the adverse drug effects.
- To solve the patient's drug related queries.

Need of HMR

✓ Takes maore than five medication per day.

✓ He forgets to take medication or has some confusion.

✓ Requires a close monitoring.

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