

Chapter-8

Clinical Pharmacy

Clinical Pharmacy: Definition, scope and development - in India and other countries, Technical definitions, common terminologies used in clinical settings and their significance such as Paediatrics, Geriatric, Antenatal Care, Post-natal Care, etc.

Daily activities of clinical pharmacists: Definition, goal and procedure of

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

Pharmaceutical care: Definition, classification of drug related problems. Principles and procedure to provide pharmaceutical care Medication Therapy Management, Home Medication Review



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 in India:

- In hospitals the services regarding clinical pharmacy are of considerable value because the concerned clinical pharmacist serves as a guide to the physician for safe and rational use of drugs.
- He also assists to achieve economy in the hospital by planning safe drug policies, suggestive means of reduction of waste, by preventing misuse or pilferage of drugs.
- In addition to it the preparation of preventing forecasting future drug requirements of the hospital, based upon their drug utilization patterns.
- Clinical pharmacist enables rational drug use by providing correct drug information including the proper utilization of the drugs utilized as drug therapy, along with all the precautions to be taken as indicated or asked by the pharmacist or the physician.
- Clinical pharmacists practicing in the hospitals and the community pharmacies may obtain medication histories, counsel patients, review treatment regimens, monitor drug therapy, give drug information, report ADRs, conduct drug-use evaluations, and provide poison control services

Scope in Other Countries:

1. **United States:** Clinical pharmacy is a well-established practice in the United States, and clinical pharmacists are recognized as essential members of the healthcare team. Clinical pharmacists work in a variety of settings, including hospitals, clinics, and community pharmacies. They are involved in patient care and collaborate with other healthcare professionals to optimize medication therapy.
2. **Canada:** Clinical pharmacy is also well established in Canada, and clinical pharmacists play a vital role in patient care. Clinical pharmacists work in hospitals, community pharmacies, and other healthcare settings, and they are involved in medication management, drug therapy monitoring, and patient counseling.
3. **United Kingdom:** In the United Kingdom, clinical pharmacy is an emerging field, and clinical pharmacists work in hospitals and primary care settings. Clinical pharmacists are involved in medication management, drug therapy monitoring, and patient counseling.



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4. **Australia:** Clinical pharmacy is a recognized specialty in Australia, and clinical pharmacists work in hospitals, clinics, and community pharmacies. Clinical pharmacists are involved in medication management, drug therapy monitoring, and patient counseling.

Clinical pharmacy in developing countries:

- The pharmacy practice models significantly vary based on implementation of clinical pharmacy and practice.
- The profession is more industry oriented rather than patient oriented and the role of clinical pharmacist is still unclear among the healthcare professionals and community.
- Looking from the perspective of African countries like Ethiopia, there seems to be an acute shortage of pharmacists.
- Only 1088 pharmacists are serving 80 million people which is equal to 0.14/10,000 people. In 2007, the number of licensed pharmacies were 463, consisting of 143 hospital pharmacies, and 320 community pharmacies.

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:

1. **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.
2. **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.
3. **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.
4. **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).



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5. **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.
6. **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.
7. **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.
8. **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).
9. **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.
10. **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).

Common terminologies used in clinical settings and their significance such as Pediatrics

There are many terminologies used in clinical settings, including those specific to Pediatrics. Here are some of the most common terminologies used in Pediatric clinical settings and their significance:

1. **Growth charts:** These are charts that are used to track a child's growth and development over time. They are used to assess a child's weight, height, and head circumference, and to compare these measurements to those of other children of the same age and gender.



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2. **Vaccines:** These are substances that are given to children to help protect them against various infectious diseases. Vaccines work by stimulating the body's immune system to produce antibodies that can fight off the disease.
3. **Developmental milestones:** These are specific skills or behaviors that most children achieve by a certain age. Examples of developmental milestones include crawling, walking, and speaking.
4. **Pediatric dosing:** This refers to the amount of medication that should be given to a child based on their age, weight, and other factors. Pediatric dosing is different from adult dosing and is designed to ensure that children receive the appropriate amount of medication for their size and age.
5. **Respiratory distress:** This is a medical emergency that occurs when a child is having difficulty breathing. It can be caused by a variety of conditions, including asthma, pneumonia, and bronchiolitis.
6. **Failure to thrive:** This is a term used to describe a child who is not growing and developing as expected. It can be caused by a variety of factors, including malnutrition, gastrointestinal problems, and developmental delays.
7. **Neonatal intensive care unit (NICU):** This is a specialized unit within a hospital that provides care for premature or critically ill newborns. The NICU is equipped with advanced medical technology and staffed by specially trained healthcare professionals.

Geriatric:

- Geriatrics is the medical specialty dedicated exclusively to providing high-quality, patient-centered 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.

Common terminologies used in clinical settings Geriatric:

- For older patients, developing a relationship with a pharmacist and using one pharmacy can help ensure consistency in care.
- A pharmacist can help prevent drug-related problems, which are a particular risk for older adults.
- For older patients, pharmacists are sometimes the most accessible health care practitioner. In addition to dispensing drugs, pharmacists provide drug information to patients and providers, monitor drug use (including adherence), and liaise between physicians or other health care practitioners and patients to ensure optimal pharmaceutical care.



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- Pharmacists also provide information about interactions between drugs and other substances, including over-the-counter drugs, dietary supplements (eg, medicinal herbs), and foods.

Significance:

Pharmacists can help improve patient adherence by doing the following:

- Assessing the patient's ability to adhere to a drug regimen by noticing certain impairments (eg, poor dexterity, lack of hand strength, cognitive impairment, loss of vision)
- Teaching patients how to take certain drugs (eg, inhalers, transdermal patches, injectable drugs, eye or ear drops) or how to measure doses of liquid drugs
- Supplying drugs in ways that are accessible to patients (eg, easy-open bottles, pills without wrappers)
- Making sure that drug labels and take-home printed materials are in large type and in the patient's native language
- Teaching patients how to use drug calendar reminders, commercially available drug boxes, electronic drug-dispensing devices, and pill splitters or crushers
- Eliminating unnecessary complexity and duplication from the overall drug regimen
- Completing a medication reconciliation when patients transition to and from various care settings

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.

The midwife or doctor providing your antenatal care will:

- Check the health of you and your baby.
- Give you useful information to help you have a healthy pregnancy, including advice about healthy eating and exercise.
- Discuss your options and choices for your care during pregnancy, labour and birth.

Some common terminologies used in clinical setting antenatal care:

- **Antenatal:** Refers to the period of time during pregnancy before the birth of the baby.
- **Prenatal:** Another term for antenatal care, which refers to medical care provided to pregnant women.



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- **Obstetrician:** A medical doctor who specializes in the care of pregnant women, childbirth, and the postpartum period.
- **Midwife:** A healthcare professional who provides care for pregnant women during pregnancy, childbirth, and the postpartum period.
- **Fetal development:** The process by which a fetus grows and develops during pregnancy.
- **Ultrasound:** A medical imaging technique that uses sound waves to produce images of the fetus in the womb.
- **Gestational age:** The age of the fetus calculated from the first day of the woman's last menstrual period.
- **Fundal height:** The measurement of the distance from the top of the uterus to the pubic bone, which helps estimate fetal growth.
- **Fetal heart rate:** The number of times the fetal heart beats per minute, which is monitored during antenatal care visits.
- **Amniocentesis:** A medical procedure in which a sample of amniotic fluid is taken from the uterus to test for genetic disorders or other abnormalities.

Significance of antenatal care:

- Pregnant women can also access micronutrient supplementation, treatment for hypertension to prevent eclampsia, as well as immunization against tetanus.
- Antenatal care can also provide HIV testing and medications to prevent mother-to-child transmission of HIV.

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.

Common terminologies used in clinical setting postnatal care:

- **Postnatal:** Refers to the period of time after the birth of the baby, also known as the postpartum period.
- **Postpartum depression:** A type of depression that can occur after childbirth, characterized by feelings of sadness, anxiety, and fatigue.



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- **Lactation consultant:** A healthcare professional who specializes in providing support and guidance to new mothers regarding breastfeeding.
- **Neonatal:** Refers to the period of time after birth up to 28 days of age.
- **Neonatal jaundice:** A condition in which a newborn's skin and eyes appear yellow due to a buildup of bilirubin in the blood.

Significance of postnatal care:

- Women and newborns require support and careful monitoring after birth.
- Most maternal and infant deaths occur in the first six weeks after delivery, yet this remains the most neglected phase in the provision of quality maternal and newborn care.



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Daily activities of clinical pharmacists: Definition, goal and procedure of

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

Ward round participation:

Definition:

- A ward round is a visit by a medical professional to hospital in-patients at their bedside to review and follow-up on the progress in their health, either alone or with a team of health professionals and medical students.
- Patients can learn about and participate in healthcare delivery during ward rounds.
- Additionally, it offers a chance for the medical personnel involved in patient care to learn together.
- Every day, at least one ward round is often held to assess how each patient's outcome is progressing.
- It enables pharmacists to prospectively contribute to patient care through the dissemination of drug information and encouragement of sensible drug use.

Goal:

- The main goal of ward round participation is to assess and manage the patient's medical condition and progress.
- It involves a team of healthcare professionals, including doctors, nurses, and other allied health workers, reviewing the patient's medical status, evaluating treatment options, and making decisions about the patient's care plan.

Objectives:

- To better comprehend the patient's clinical status, progression, and next scheduled studies.
- To give pertinent data on a range of drug therapy topics, including pharmacology, pharmacokinetics, drug availability, pricing, drug interaction, and adverse drug reactions



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Influence drug therapy selection, drug administration, monitoring, and follow-up to improve therapeutic management.

- Examine any strange medicine orders or dosages
- Find out more about the patient's co morbidities, medication compliance, or use of alternative medicines that may be important for their care.
- Medication interactions and adverse drug reactions are detected, managed, and prevented

Procedure:

- The procedure for ward rounds usually involves the healthcare team visiting the patient at their bedside, reviewing their medical history, examining their vital signs and physical condition, and discussing the patient's progress and treatment options.
- The healthcare team may also discuss any concerns or issues that have arisen during the patient's hospital stay.
- Ward round participation is an important opportunity for healthcare professionals to communicate with each other and ensure that the patient receives the best possible care.
- It also provides an opportunity for patients and their families to ask questions and be involved in decisions about their care.
- The participation of all members of the healthcare team is essential to ensure that patients receive coordinated and effective care.

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.
- It addresses issues such as adverse drug reactions, drug-drug interactions, and medication errors, lack of efficacy, suboptimal patient adherence, poor quality of life, economic consequences and patient experience as well as understanding of the condition.
- Recommendations from a pharmacist to a clinician and framing a good rapport between them are essential for rendering better clinical services to the patients.

Goal:

- The goal of treatment chart review is to minimize the risk of medication errors that might occur at the level of prescribing or drug administration.



Procedure

The following points should be considered when performing Treatment Chart Review

- Evaluate whether all of the patient's medications are appropriately indicated, the most effective, the safest possible and affordable and if the patient is able and willing to take the medication as intended to rule out some medication problems.
- With other members of the health care team, assess the appropriateness of the current medications on the basis of health conditions, indications, and the therapeutic goals of each medication. Check whether the medicine order is comprehensive and unambiguous, that appropriate terminology is used, and that medicine names are not abbreviated.
- Make sure, if necessary medications are ordered and the patient has access to it, whether administration times are appropriate, e.g. with respect to food, other medicines, and procedures.
- Discuss patient-specific recommendations with the physician.
- Perform calculations form dosage adjustments, aid in the reconstitution for parenteral preparations, and follow-up on the stability after reconstitution
- Evaluate medication-taking behaviors and adherence to each medication.
- Detect actual and potential DTPs (drug related problems), record and document any identified DTPs on the Inpatient Medication Profile Form and report the identified adverse drug event (ADE) to the “yellow form” (Adverse Drug Event Reporting).
- Based on the agreed goals of therapy, prepare pharmaceutical care plan (PCP) based on patient progression that addresses the medicine therapy needs and prioritized DTPs, according to the patient’s disease condition, age, co-morbidity, renal and liver functions, pregnancy status, etc in collaboration with other health care professionals to optimize the patient’s health outcomes. The PCP should include follow up, monitoring, and evaluation components.
- Provide key medication care information to the nurses taking care of the patient, and encourage the nurses to report any ADEs identified.
- Review whether infusion solution is used with regard to concentrations, compatibilities, rate, and clinical targets, e.g. blood sugar levels, and blood pressure.
- Evaluate the patient's outcome, determine the patient's progress toward the achievement of the goals of therapy, determine whether any safety or adherence issues are present, and assess whether any new DTPs have developed.
- Follow up of the patient must be done on day to day basis.
- Check that the order is cancelled in all sections of the medication administration record when medicine therapy is intended to cease.
- The Treatment Chart Review Form is enclosed for your reference.



TREATMENT CHART REVIEW FORM

PATIENT NAME:

AGE:

GENDER:

DOA:

WARD:

IP No:

REASON FOR ADMISSION:

DIAGNOSIS:

PAST MEDICAL/MEDICATION HISTORY:

DAY	DRUG (DOSE, FREQUENCY, FORM)	DRUG GIVEN (YES/NO)	TIME OF ADMIN	POSSIBLE SIDE EFFECTS	EXPECTED OUTCOMES	REMARKS

Preceptor Comments:

Student Name:

Preceptor Signature:

Class:



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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 et al.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

Classification of Adverse drug reaction monitoring:

- Type A (Augmented)
- Type B (Bizarre)
- Type C (Chemical)
- Type D (Delayed)
- Type E (Exit/End of treatment)
- Type F (Familial)
- Type G (Genotoxicity)
- Type H (Hypersensitivity)
- Type U (Un classified)

Procedure:

Methods for Identifying ADRs

1. Case Record Review
2. Drug Chart Review
3. Laboratory Data
4. Computerized ADR Reporting System
5. Attendance at Ward Rounds
6. Interviewing Patients

Drug information and poisons 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.
- A Drug information center is an area where pharmacists(or other health care professionals) specialise in providing information to health professionals or public. TM



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- The drug information centre provides authentic, unbiased information to healthcare professionals, provide tailor-made counselling and health information to patients/consumer as well as monitor and document adverse drug reactions.
- The first drug information centre was opened in 1962 at the university of Kentucky medical centre and was intended to be utilised as a source of selected, comprehensive drug information.
- A drug information centre can also contribute to pharmacovigilance(adverse drug reaction reporting), drug use reviews, health education programmes and clinical research.

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

Procedure:

The procedures for drug information and poison information may differ slightly depending on the specific organization or institution providing these services, but here are the general steps:

Drug Information:

1. Request: A healthcare provider or patient may request drug information from a drug information service.
2. Gathering information: The drug information specialist will gather information about the drug in question, such as its pharmacology, indications, contraindications, adverse effects, dosing, and administration.
3. Evaluation: The specialist will evaluate the available information and provide recommendations or answer any questions.
4. Communication: The specialist will communicate the drug information to the healthcare provider or patient in a clear and understandable way.

Poison Information:

1. Initial assessment: The poison information specialist will ask a series of questions to assess the situation, including the name of the substance, the amount ingested, and the person's age, weight, and symptoms.
2. Information gathering: The specialist will gather information about the toxicology of the substance, including its effects on the body, treatment options, and potential complications.



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3. **Treatment recommendations:** Based on the information gathered, the specialist will provide recommendations for treatment, such as inducing vomiting, administering activated charcoal, or referring the patient to a healthcare facility.
4. **Follow-up:** The specialist may follow up with the patient or healthcare provider to ensure that the recommended treatment was effective and to answer any further questions or concerns.

Medication history:

- Medication history is a detailed, accurate, and complete information of all the prescribed and non-prescribed 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.

Goal:

- To gather information to be utilized to case discussion.
- Compare medication profiles with the medication administration record and investigate discrepancies.
- Verify medication histories taken by other staff and provide additional information where appropriate.
- Document allergies and adverse reactions.
- Screen for drug interactions assess patient medication compliance.
- Assess the rationale for drugs prescribed.
- Assess for evidence of drug abuse.
- Appraise drug administration techniques.

Procedure:

The procedure for taking a medication history involves several steps, including:

1. **Introduction:** Introduce yourself to the patient and explain the purpose of the medication history. Ask for the patient's name, age, and any other relevant information.
2. **Current Medications:** Ask the patient to provide a list of all medications they are currently taking, including prescription drugs, over-the-counter medications, herbal supplements, and vitamins.



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3. **Dosage and Frequency:** For each medication, ask the patient to provide the dosage and frequency at which they are taking it. This will help you understand whether the patient is taking the medication as prescribed.
4. **Reason for Taking:** Ask the patient why they are taking each medication. This will help you understand the medical condition for which the medication has been prescribed.
5. **Adverse Effects:** Ask the patient if they have experienced any adverse effects from any of the medications they are taking.
6. **Medication History:** Ask the patient if they have a history of allergies or adverse reactions to any medications in the past. This will help you identify any potential drug allergies or interactions.
7. **Medical History:** Ask the patient about any medical conditions they have been diagnosed with in the past or currently. This information will help you understand why certain medications have been prescribed.

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).



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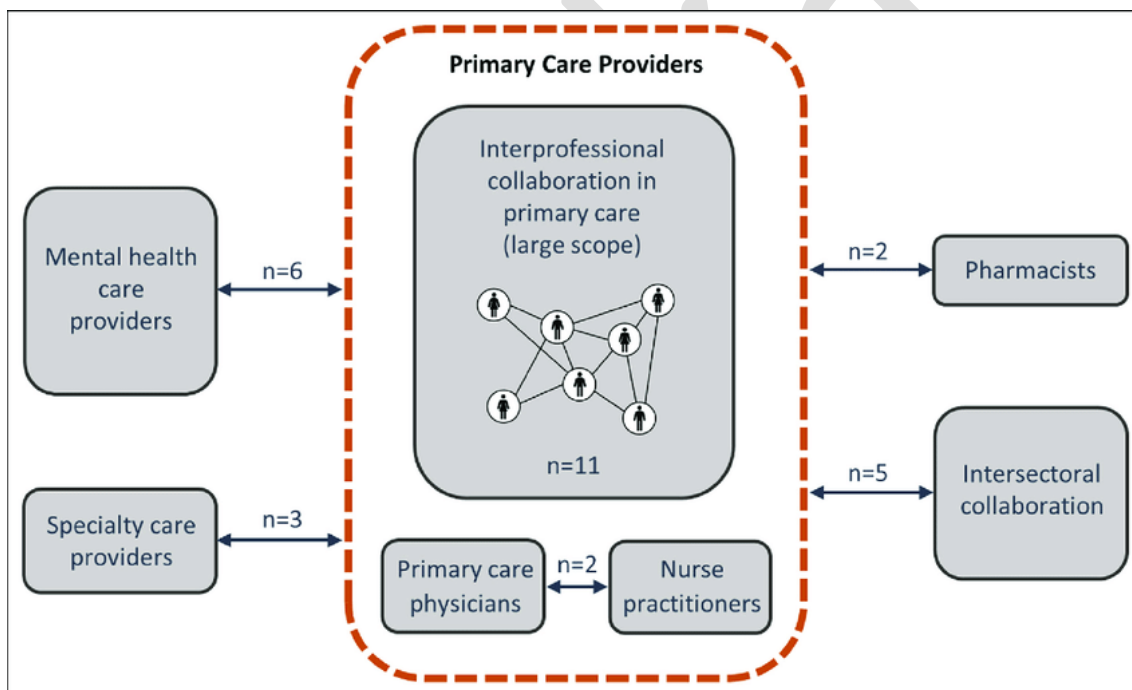
Interprofessional collaboration:

- 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:



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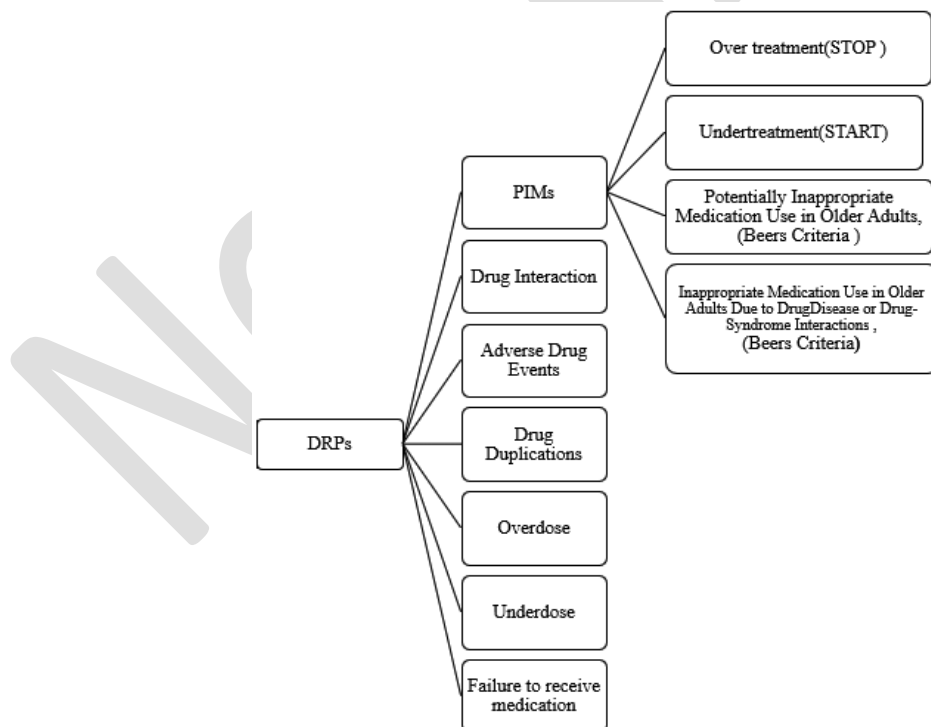
Pharmaceutical care: Definition, classification of drug related problems. Principles and procedure to provide pharmaceutical care, Medication Therapy Management, Home Medication Review

Pharmaceutical care:

Definition:

- Pharmaceutical care is the direct, responsible provision of medication-related care for the purpose of achieving definite outcomes that improve a patient's quality of life.
- It is a collaborative process that involves the pharmacist, the patient, and other healthcare professionals, with the goal of optimizing medication use and ensuring the safe and effective use of medications.
- Pharmaceutical care encompasses a range of activities, including medication therapy management, patient counseling, drug utilization review, and monitoring for adverse drug reactions.
- The pharmacist, as a medication expert, plays a key role in ensuring that patients receive the most appropriate medication therapy for their individual needs and health conditions.

Classification of drug related problems:



Principles and procedure to provide pharmaceutical 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. Here are some principles and procedures to provide pharmaceutical care:

1. **Assessment:** The first step in providing pharmaceutical care is to assess the patient's medical history, current medications, allergies, and other relevant information. This will help the pharmacist to identify potential drug therapy problems.
2. **Goal setting:** Once the assessment is complete, the pharmacist sets goals for therapy in consultation with the patient. Goals may include improving symptoms, preventing adverse drug events, or reducing medication costs.
3. **Plan development:** The pharmacist develops a plan to achieve the therapy goals, taking into account the patient's needs, preferences, and medical history. The plan should be individualized and evidence-based.
4. **Implementation:** The pharmacist works with the patient and other healthcare providers to implement the plan. This may involve dispensing medications, counseling the patient on proper use, and monitoring for drug interactions and side effects.
5. **Evaluation:** The pharmacist evaluates the patient's progress towards the therapy goals and adjusts the plan as needed. The pharmacist also monitors for adverse drug events and communicates with other healthcare providers as necessary.

Medication Therapy Management:

Medication Therapy Management (MTM) is a comprehensive approach to patient care that optimizes medication use for improved patient outcomes. MTM involves a range of services that pharmacists can provide to patients to help them better understand their medication therapy and improve their adherence to treatment.

Requirements for Medication Therapy Management (MTM) Programs: Under 423.153(d), a Part D sponsor must have established a MTM program that:

- Ensures optimum therapeutic outcomes for targeted beneficiaries through improved medication use
- Reduces the risk of adverse events
- Is developed in cooperation with licensed and practicing pharmacists and physicians



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- Describes the resources and time required to implement the program if using outside personnel and establishes the fees for pharmacists or others
- May be furnished by pharmacists or other qualified providers
- May distinguish between services in ambulatory and institutional settings
- Is coordinated with any care management plan established for a targeted individual under a chronic care improvement program (CCIP)

Home Medication Review:

A Home Medicines Review (HMR) is when an accredited pharmacist checks the medicines you are taking at home.

Taking lots of different medicines can be complicated. A Home Medicines Review makes sure that your medicines are safe. A Home Medicines Review also checks that:

- you are taking your medicines correctly
- your medicines are working for you

An HMR involves your doctor and your preferred community pharmacy. It may also involve other health care team members, such as carers or nurses in community practice.

During a Home Medicines Review (HMR), the accredited pharmacist will typically check the following:

1. The patient's medication history, including any prescription medications, over-the-counter medications, supplements, and vitamins.
2. The patient's current medical history, including any health conditions, allergies, or previous adverse reactions to medications.
3. The patient's medication adherence and any potential barriers to taking medications as prescribed.
4. Any potential drug interactions or duplications in the patient's medication regimen.
5. The appropriateness of each medication for the patient's individual needs and health status.
6. Any potential side effects of medications and how to manage them.
7. The patient's understanding of how to take their medications correctly and safely.
8. The storage and disposal of medications in the patient's home.
9. The patient's use of medication aids, such as pill boxes or inhalers.
10. The patient's overall medication management plan, including any changes or adjustments that may be necessary.

