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Role of clinical pharmacist in healthcare: An overview

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Abstract

Over the last few years, the clinical pharmacy has significantly expanded its professional offerings. The clinical pharmacist has evolved into an important part of the healthcare team, promoting patient care via interactions with physicians and patients. The purpose of this study is to

emphasize clinical pharmacists' importance in several areas. It is concluded that the characteristics of interactions between physicians and clinical pharmacists impact physician-pharmacist collaboration and improve patient care.

Keywords: Clinical pharmacist, Pharmaceutical care, Pharm D significant roles

Introduction

During the previous several years, the clinical pharmacy has significantly expanded its professional offerings. Clinical pharmacy is increasingly recognised as an essential profession in the interdisciplinary environment of health care. By working with physicians and patients, the clinical pharmacist becomes an important member of the healthcare team and supports patient care. Clinical pharmacists are well-positioned to fill the gap between patients and physicians since they have in-depth understanding of medicines and have regular interactions with prescribers. Clinical pharmacists and clinicians working together can offer a solid foundation for high-quality patient care. The availability of a CP on the ward was a game-changing aspect of pharmacy advancements.

CP take an active part in ward rounds with physicians and offer advice or recommendations when appropriate. Physicians write prescriptions, and pharmacists double-check them to verify that the medications are being used properly. They look to see whether the medicine has an indication, if it's the correct drug/dose/duration/dosage/time, and so on. They make necessary interventions, tell the prescriber, and document the actions if there is any departure from these. The physicians' unanimous agreement on the effects of the intervention suggests that the pharmacists' involvement had a verified effect on therapy.



Fig 1

Clinical pharmacists can provide their expertise in medication evaluation, drug-related issue diagnosis, treatment suggestions, and medication compliance promotion. They gather medical and medication information, check for medication mistakes such as prescription, dispensing, and administration errors, detect drug interactions, track adverse drug reactions (ADR), recommend dose regimen individualization, and give patient counselling, among other things. They also give instructions on how to utilise inhalers, insulin pens, eye drops, nasal sprays, and other medical equipment.

A clinical pharmacist's participation in ward/ICU rounds and clinical conversations aids in the identification, prevention, and reduction of medication interactions and adverse drug reactions (ADRs)^[1]. Furthermore, a clinical pharmacist can assist in the development of cost-effective, patient-compliant treatment. They can take part in clinical studies as well as building a database for each medication. Pharmacists are up to speed on the latest developments in medicine and may contribute successfully to clinical research projects and other current research initiatives. Clinical pharmacists also do medication dilutions,

extemporaneous formulations, dose estimates, and other tasks. Clinical pharmacy services work with medical and nursing staff to create and sustain a clinical practise with a patient care service, collaborating to improve the pharmacotherapeutic elements of patient care [2]. This allows for the best choice of pharmacologic agents and the creation of a regimen that optimizes therapeutic effect while minimizes toxicity. Clinical pharmacists monitor the regimen's clinical effects on a daily basis, making changes as needed to obtain the intended results.

Clinical pharmacists are required in a variety of disciplines

Clinical pharmacists are in charge of conducting a thorough patient interview that includes health history, social and family history, allergy history, OTC medication usage, dietary supplement use, and alternative medicine. Clinical pharmacists conduct drug therapy reviews to identify and correct drug-related issues such as duplication of therapeutic interventions, drug-drug and drug-food interactions, inappropriate dosage [frequency, strength], contraindications, lack of basic lab monitoring requirements, potential adverse drug reactions (ADRs), inappropriate drug selection, and drug therapy. By evaluating cost effectiveness, they can help with therapeutic decision-making and the development of antibiotic use recommendations.

Another significant role of a CP is to provide unbiased, up-to-date information on any aspect of medication use. They can provide information on medicine strength, drug formulation availability, brand, and pricing. They give advice on how to dose medications empirically in individuals with impaired renal or hepatic function. Clinical pharmacists can readily detect and warn lookalike and soundalike medicines since they have a good understanding of the drugs. They can take part in therapeutic drug monitoring, medical camps, and medicine utilization patient education programmes.

Clinical pharmacists make ensuring that medication reconstitution, stability, dilution, storage, compatibility, and administration are all done correctly. They make it easier to convert parenterals to oral dose forms when necessary. Another significant duty is the distribution of alert cards to patients with ADR or who are taking drugs that require extra caution or warning (cardiac problems, epilepsy, drug allergies, or using warfarin, insulin, aspirin, etc.).

They take an active role in general and specialty department medical professional rotations. They provide patients advice on how to take medications, how to utilise gadgets, and how to make necessary lifestyle adjustments. Clinical pharmacist training sessions and patient health programmes (pill box, diary logs, and follow-up calls) were shown to be effective in dramatically lowering mean FBS and HbA1c [3]. The endocrinology department's clinical pharmacist provided advice on how to use insulin pens properly, administer insulin injections, adhere to food restrictions, make lifestyle changes, and the significance of frequent checkups, among other things.

In pediatric and neonatology department clinical pharmacists assist with dose calculation and dosage form modification. The increasing demand for pediatric medicine calculations and dilutions, as well as the necessity to alter a patient's dosage depending on age, weight and surface area, creates more opportunities for a clinical pharmacist in the medication management process. They can assist in the preparation of a pediatric & neonatal formulary. They give medicine and

immunization guidance to parents.

In the stroke unit, clinical pharmacists can detect high-risk patients (bleeding), as well as potential medication interactions and side effects. After consultation with a doctor, they monitor the INR range of patients taking warfarin and provide appropriate recommendations for adjusting the dose of warfarin. They offer advice on nutrition, INR monitoring, side effects, and how to manage them, among other things. Based on their height and weight, a clinical pharmacist in the oncology department determines the body surface area (BSA) for patients who are due for their next treatment.

Clinical pharmacists should focus on medication dosage modifications in patients with renal impairment. Failure to modify dose will result in an increase in morbidity and mortality, as well as increased treatment expenses. Estimating creatinine clearance prior to ordering drugs and using a reliable dosage guideline are highly recommended in these situations. Interval extension or dosage decrease can be used to modify the dose. Renal function estimates are useful in identifying individuals who may require shorter dosage intervals (high clearance) or who can be treated well with lower dose quantity or longer dose durations (low clearance). Patients who have had organ transplants must also take a variety of medications, and strict adherence to these medications is critical to avoid graft rejection and high medical expenditures. A clinical pharmacist can play an important role in preventing the development of ESRD by offering patient counselling on lifestyle changes and educating and motivating patients in high-risk groups to get regular checkups and stick to their treatment plans.

Clinical pharmaceutical services do not stop at the actions listed above. Clinical pharmacists can take on ever-expanding responsibilities such as therapeutic drug monitoring (TDM) and patient pharmacotherapy management, all of which help to enhance patient care. The characteristics of interactions between clinical pharmacists and physicians have an impact on pharmacist-physician collaboration and patient care.

A clinical pharmacist might provide answers to a variety of questions, including medication profile, indication, and dose, adverse drug events, patient care, drug interactions, drug usage during pregnancy and breastfeeding, poisons, and drug storage information, among others. They collaborate with patients and other health professionals to help people achieve lifestyle changes that will enhance their health outcomes. Control of risk factors and a reduction in health-care expenditures arise from improvements in patient care, attention, and illness management.

In the hospital, clinical pharmacists play a significant role.

Interview on Medication History

To examine medical concordance, reason for previously given drugs, patient knowledge of medicines, signs of drug misuse, patient acceptance of therapy, and documentation of allergies and adverse drug responses, a complete medication history of the patient is required.

Clinical Review

Pharmacists must examine medication therapy during clinical review to verify that the patient is receiving the most suitable dose, dosage form, and duration of therapy for their medical/disease status.

In order to provide better patient care, he must also link the

patient's signs and symptoms, test results, medical diagnosis, and treatment goals with the drug history.

Patient Counselling

From the clinical pharmacist perspective, patient counselling is the most important work for patient's.

Clinical Pharmacists may offer information on the patient's present clinical condition/proceedings and educate him on the safe and proper use of medications, therefore improving his treatment results.

In general, patients have numerous inquiries concerning disease, medications, lifestyle changes, nutrition, treatment, therapy length, and medical equipment.

Metered-dose inhalers for asthmatics or insulin pens for diabetics, for example.

As part of their role as Clinical Pharmacists, Pharmacists can educate patients in all of these areas.

A Clinical Pharmacist may offer information on continuing treatment to the patient in order to assure drug supply, medication concordance aids, communication of particular issues, proper dose monitoring, and minimal disturbance.

The pharmacists may advise or educate the patient on the following aspects of the medicines.

- The medication's generic and brand names
- Dose of medication
- The medicine's indications / benefits, as well as the predicted action
- Proper storage of medication is essential.
- How should you take medication?
- When and for how long should you take your

medication?

- Information on a drug that has been discontinued or a medication that has been introduced.
- Precautions to be taken with the medication
- Adverse Drug Reactions that are common
- When a dosage is missing, what should you do?
- Avoiding certain drugs and/or meals
- Patient satisfaction, medication mistake reduction, and improved clinical outcomes are all advantages of patient counselling.
- Patient outcomes and psychosocial support
- In chronic illnesses, patient education is extremely crucial.
- Diabetes, hypertension, dyslipidemia, and patient education are among the key issues confronting India.
- Counseling is important in all of these diseases.

Ward Round Participation

- Pharmacists can participate in ward rounds as members of the healthcare team.
- The objectives are to get a better knowledge of the patient's history, progress, and clinical details, as well as to offer information on clinical features of the patient's care and enhance discharge planning.
- Pharmacists can also assist in decision-making to identify high-quality, low-cost medicines, improve the quality of patient care and clinical outcomes, and ensure that medicines are chosen in accordance with formulary and local standards.

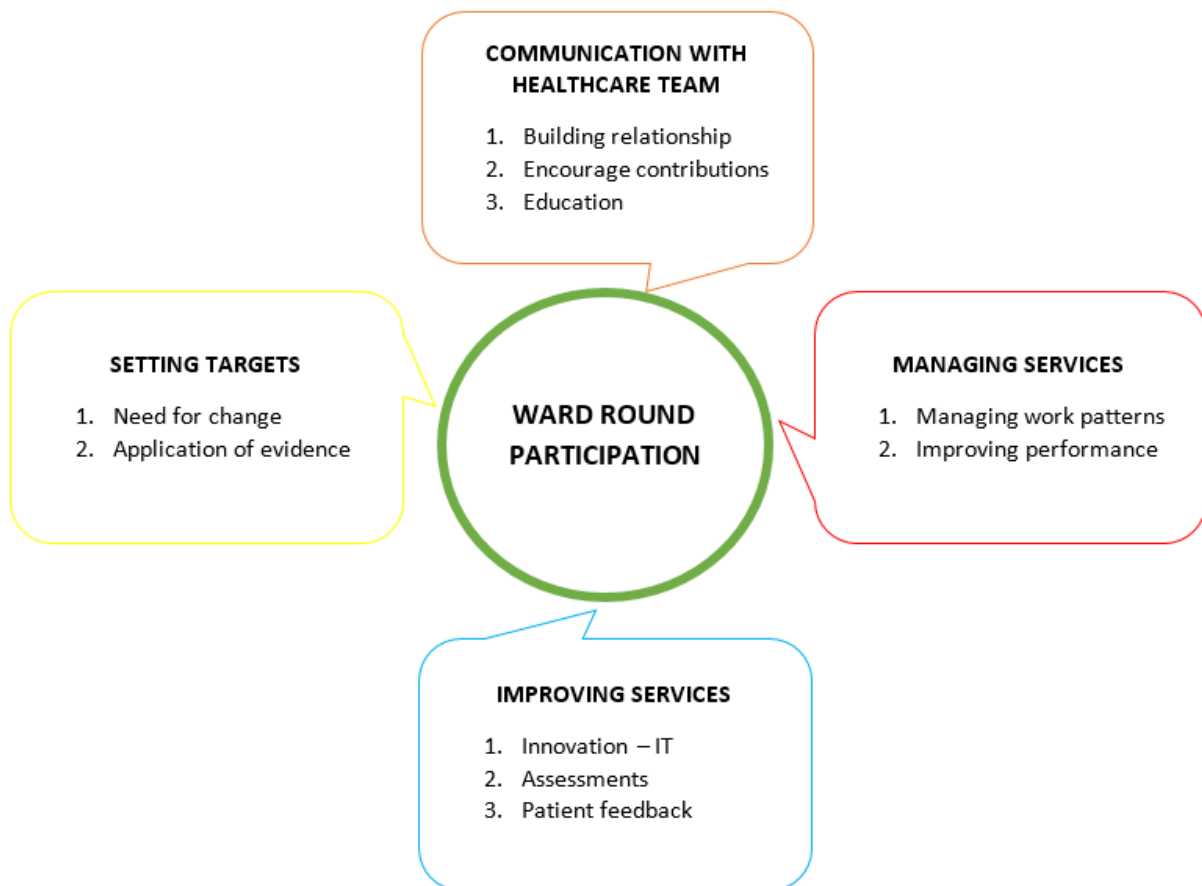


Fig 2

Community Pharmacy

- Dispensing of medications, promotion of healthy lifestyles, assistance for self-care, distribution of practise booklets to patients, medicine usage review, smoking/alcohol cessation programmes, and other services are all part of community pharmacy services.
- Clinical pharmacists can volunteer for a variety of community service initiatives, including smoking cessation, alcohol use cessation, health promotion, and nutrition.
- Because community pharmacy services are uncommon in India and are usually supplied by other specialists, their implementation will be extremely beneficial to the Indian common man.

- Pharmacovigilance is defined by the World Health Organization as "the science and activities concerned with the detection, assessment, understanding, and prevention of adverse effects or other medication-related problems."⁴
- For epidemiological research and patient safety, documentation, analysis, and prevention of ADRS are required.
- Currently, certain Indian hospitals are looking for candidates to work in Pharmacovigilance.
- Pharmacovigilance is being recruited by a number of BPOS/KPOS in India.
- Working in the field of pharmacovigilance necessitates a thorough understanding of pharmacology, ADRS, laboratory findings, and clinical research.⁵

Pharmacovigilance



Fig 3

Clinical Research and Drug Development

- Both of these items have much to do with clinical trials. In the United States, there are several clinical research organisations.
- Clinical research coordinator
- Clinical research Associate Clinical Pharmacists in Clinical Research Organizations should seek employment as statisticians or higher-level positions with the most experience.

- In clinical trials, clinical pharmacists can even serve as lead investigators and patient instructors.
- Pharmacists can help patients participate more fully in clinical trial research.
- Knowledge of analytical, pharmacological, and pharmacologic terminology, pharmacovigilance, honesty in documentation, and the capacity to travel widely are among the skills required to work in a clinical research organisation.⁵

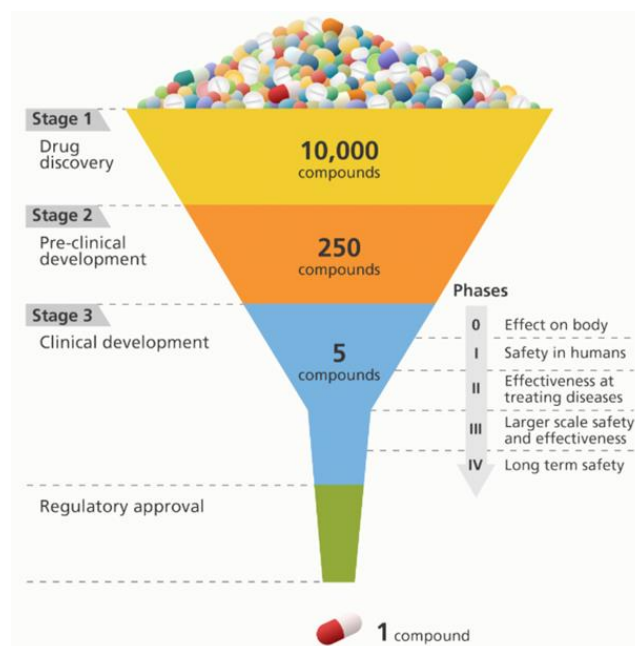


Fig 4

Medical Writing

- Scientific writing or medical communications are other terms for the same thing.
- Medical writing entails the creation of a variety of healthcare papers for a variety of purposes and audiences.
- Pharmaceutical and healthcare firms, as well as CROS, require medical writers.
- (CROS), firms that specialise in business process outsourcing and knowledge process outsourcing (BPOS/KPOS).
- Medical communication firms, media and publishing companies, medical journals, and medical societies are all examples of healthcare communication companies.
- The following abilities are required to become a skilled medical writer:
- Language of domain knowledge
- Grammar abilities
- Medical data may be interpreted quickly.



Fig 5

In a Hospital, Academics, and Further Education

- A Clinical Pharmacists would be known to deliver Clinical Pharmacy Services in India, much as a Surgeon is renowned for surgery and a Physician is renowned for illness diagnosis and treatment.
- A Clinical Pharmacist's first and most important job is to provide Clinical Pharmacy Services.
- Clinical Pharmacy Services might function as an academic institute's faculty member.
- They might also work as a Professor, Head of Department, Head of Institution, Principal, or Director, Lecturer, Assistant Professor, Associate Professor in a Diploma / Degree / Post-Graduate Pharmacy Institute if they have the necessary expertise.
- In terms of non-teaching hospitals, certain elite and US-based hospitals in India are now hiring Clinical Pharmacists.
- Clinical pharmacists may also serve on hospital management teams, pharmacy / therapeutic committees, and other committees.



Fig 5

Clinical Pharmacist's Advantages

- Exposure to various subjects like Clinical pharmacokinetics, pharmacoepidemiology, biostatistics, pharmacotherapeutics, clinical pharmacy, hospital pharmacy, clinical toxicology, community pharmacy, pharmacoeconomics, and other advanced disciplines.
- There has been sufficient hospital exposure. As the number of pharm D colleges in the country grows, so does the number of graduates.
- Capability to function successfully in clinical settings in both hospitals and companies.
- Professionally qualified.
- People with a PharmD degree can use the prefix Dr in their names.
- Knowledge about diseases and how to treat them.
- Can devote sufficient time to patients and address their concerns regarding sickness, medications, and lifestyle changes.
- Clinical Pharmacy Services can be provided in a variety of hospital speciality wards.

Advantages for the Patient

- Pharmaceutical treatment is given to patients.
- Patient counselling on correct medication usage, illness, lifestyle changes, and food.
- Support for the patient's mental health.
- Drug misuse prevention.
- To avoid pharmaceutical mistakes, patients should be educated.
- Counseling is aided by medication.

Physicians, nurses, and other healthcare workers will benefit

- Obtaining impartial knowledge about drugs and poisons.
- Adverse medication responses are reported and evaluated.
- Drug-drug and drug-food interactions are identified and prevented.
- Monitoring of drug treatment.
- Drug incompatibilities are determined.
- Medication mistakes are avoided.

Benefits to pharmaceutical industries

- Industries may be able to attract employees with clinical experience and understanding.
- In India, new industries with fresh concepts in pharmacy practise may emerge.
- Pharmacoeconomics, health technology evaluation, contract research organisations, and other fields are examples.

Medical Transcription

- Medical transcription is the process of transcribing (typing) doctors' reports from dictated audio recordings.
- In industrialised nations, after conducting procedures on a patient, the health practitioner dictates what he did, and a medical transcriptionist (MT) (also known as a medical language specialist) transcribes and/or edits the reports.
- Such patient-specific health information is translated into a written text document and stored in patient record files.
- Nowadays, voice recognition software is utilised to improve medical transcribing practise.
- The hospital may engage medical transcriptionists.
- Medical transcriptionists must have a thorough understanding of medical terminology, illness conditions, anatomy, physiology, pharmacology, medical language, grammar, typing abilities, and good communication skills, among other things.



Fig 6

Business opportunities and market research

- A Clinical Pharmacist can establish a business with any product with the right market knowledge, expertise, and funding.
- of the concepts
- They can assess the medicines' comparative effectiveness and distinctive marketing features.
- Clinical pharmacists also work in product management, team leadership, market research, and pharmaceutical marketing.

Conclusion

In India, clinical pharmacy education programmes are flourishing. To extend the advantages of clinical pharmacy practise to a large swath of Indian society, more effort is required to develop and grow this system.

Furthermore, the clinical pharmacy system in India must obtain approval from the medical profession in order to survive and develop, and the result of this task will be determined by the quality and skill of current pharmacy students and recent Pharm D. graduates.

Academic pharmacists, community pharmacists, industrial pharmacists, clinical pharmacists, hospital pharmacists, and

veterinary pharmacists are among the first people in the health-care system.

All pharmacists, regardless of their specialty, are directly or indirectly involved with the nation's health. Finally, pharmacists must ensure that "the appropriate medicine is given to the right patient at the right time in the right amount via the right channel in the right way."⁷

As a result, pharmacists are an important element of the health-care system.

The pharmacy profession is at a traffic junction between its traditional drug-dispensing identity and a pioneering clinical position as a health-care provider.

Pharmacists are likely to have a larger role in the health-care system in the coming decades. Pharmacists are increasingly being rewarded for their patient care abilities, rather than just delivering medicine.

Medication Therapy Management, in particular, refers to the medicinal packages that pharmacists might offer their patients.

These services include a thorough assessment of all medications (prescription, non-prescription, and herbals) that a client is currently taking. As a result, there is a better knowledge of medications and patient learning, which leads to better patient outcomes and lower health-care costs.

Furthermore, a Doctor of Pharmacy (Pharm. D.) degree is now required before practising pharmacy, and many pharmacists are required to undergo one or two years of residency or fellowship training after graduation.

Furthermore, under the banner of "Senior Care Pharmacy," consultant pharmacists, who often work in nursing homes, are becoming increasingly hooked to direct interaction with patients.

New responsibilities for pharmacists might be defined to help them serve the ever-growing patient population and requirements of the modern health-care system.

Pharmacists should be required to demonstrate their importance within the health-care system in the future.

Their significance within the health-care system might result in changes ranging from new career opportunities to the expansion of services offered.

References

- Kucukarslan SN, Peters M, Mlynarek M, Nafziger DA. Pharmacists on rounding teams reduce preventable adverse drug events in hospital general medicine units. *Arch Intern Med.* 2003;163(17):2014-8.
- Makowsky MJ, Schindel TJ, Rosenthal M, Campbell K, Tsuyuki RT, Madill HM. Collaboration between pharmacists, physicians and nurse practitioners: a qualitative investigation of working relationships in the inpatient medical setting. *J Interprof Care.* 2009; 23(2):169-84.
- Farsaei S, Sabzghabae AM, Zargarzadeh AH, Amini M. Effect of pharmacist-led patient education on glycemic control of type 2 diabetics: a randomized controlled trial. *J Res Med Sci.* 2011; 16(1):43-9.
- Access to Medicines and Health Products. The importance of pharmacovigilance [Internet]. *Who.int.* World Health Organization; 2002. [cited 2021 Sep 15]. Available from: <https://www.who.int/publications/i/item/10665-42493>
- Arulmani R, Rajendran SD, Suresh B. Adverse drug reaction monitoring in a secondary care hospital in South India. *Br J Clin Pharmacol.* 2008; 65(2):210-6.

6. Pharm D. New Delhi; 10th May: Ministry of Health and Family Welfare (Pharmacy Council of India); 2008. [Last cited on 2013 May 27]. Regulations. The Gazette of India. 2008; 19(3)4:1-97.
7. Chauhan N, Moin S, Pandey A, Mittal A, Bajaj U. Indian aspects of drug information resources and impact of drug information centre on community. J Adv Pharm Technol Res. 2013; 4(2):84-93.