



**CLINICAL PHARMACY PRACTICE IN HEALTH CARE SYSTEM: A REVIEW**

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**ABSTRACT**

Various problems associated with drug use such as adverse drug reactions (ADRs), medication errors and adverse drug events (ADEs) are very common. ADEs can lead to drug-related morbidity and mortality. Many studies show that from 7-30% of hospital admissions are directly related to drug treatment issues. Clinical pharmacy has developed as one of the latest branches of pharmacy. It is that specialization of pharmacy wherein pharmacists deal with various aspects of patient care, dispensing of drugs and advising patients on the safe and rational use of drugs. In health care system, the services regarding clinical pharmacy are of considerable importance because the concerned clinical pharmacist serves as a guide to the physician for effective, safe and rational use of drugs. A clinical Pharmacist also helps in achieving economy in the hospital by planning safe drug policies, suggestive means of reduction of waste, by preventing misuse or wastage of drugs. Hence, scope of clinical pharmacy covers areas to foster innovation, improve public health and provide a knowledge exchange. With this ever increasing role of clinical pharmacy practice, hospitals have started distinguishing the importance of clinical pharmacy and have taken steps for making it applicable. In this review article, we will briefly unfold the various aspects related to clinical Pharmacy services in health care.

**KEYWORDS:** Clinical pharmacy, Pharmacy practice, adverse events, health care team.

**INTRODUCTION**

Clinical Pharmacy Services are defined as professional services provided by pharmacists, who use their skills and knowledge to take an active participation in patient health, through effective interaction and communication with both patients and other healthcare professionals in a health care setting.<sup>[1]</sup> Health care sector and pharmacy profession are ever growing in order to keep serving the best to the patients and related health care professionals. Transition of pharmacy profession from product focused to patient focused in last few decades, rising population, rising prevalence of diseases and ageing have demanded more services from health care professionals, including pharmacists. With the implementation of pharmaceutical care concept, over a period of time, pharmacists have taken many new responsibilities in their daily activities like in clinical & community settings, immunization, Therapeutic drug monitoring and need based research to improve safe and quality use of medicines in daily practice.<sup>[2,3]</sup> These new responsibilities have directed pharmacists to emphasize more on certain aspects in their daily activities in order to ensure that rising demands of patient community are fulfilled. Based on practice goals, settings and demand, clinical pharmacists

also dedicate their services to a defined group of patients like cardiac patients, cancer patients, kidney patients and patients with infections. Many experts in the field have realized over a period that specialized training of clinical pharmacists may be essential in order to deliver clinical pharmacy services with high quality and standards in a specific medical specialty like cardiology, oncology and other specialties.<sup>[4,5]</sup> The demand for specialty pharmacy practice was also felt due to growing concept of specialist medical practitioners who usually expect other health care team members, to be trained in the respective clinical area of practice for the betterment of health care system. This has led to the development and implementation of residency programs in various specialties. Although the concept of pharmacy practice was restricted to the United States in the beginning, however, today it is spreading to all other countries across the globe at a rapid pace fast.<sup>[6]</sup>

**Global scenario**

Clinical Pharmacy practice is now moving away from its basic role of medicine supply towards a more inclusive focus on patient care. Now-a-days Pharmacists job is not limited to compounding and dispensing only but their

role has evolved now in improving patient care by actively taking part in providing services and information that positively impact overall patient health care. Increasingly, the pharmacist's job is to ensure that a patient's drug therapy is appropriately indicated such as the most cost effective, the safest possible, and convenient for the patient. By taking direct responsibility for individual patient's medicine-related needs, pharmacists can make a unique contribution to the outcome of drug therapy and to their patient's quality of life. Introduction of clinical pharmacy concept goes way back to 1960, however, the purpose of clinical pharmacy practice was served well after the introduction of philosophy of pharmaceutical care.<sup>[7,8,9]</sup> The American College of Clinical Pharmacy (ACCP) has described clinical pharmacy as that area of pharmacy concerned with the science and practice of rational medication use. ACCP also defined clinical pharmacists, as practitioners who provide comprehensive medication management and related care for patients in all health care settings. Clinical pharmacists work with physicians, other health professionals, and patients to ensure rational medicine prescribing to provide best treatment outcome possible for the patient. They are also used in supporting the health care team, and monitoring and evaluating therapies for their appropriateness and effectiveness.<sup>[10]</sup> The most generally accepted definition of —Pharmaceutical care is to improve the patient's quality of life by rational prescribing of drug therapy for the purpose of achieving definite outcomes. One significant amendment was added by the International Pharmaceutical Federation (FIP) in 1998 to adopt this definition that was to achieve definite outcome to improve or maintain patient's quality of life. Whatever definition we choose, the basic goal of clinical pharmacy is to ensure the type of patient care, which is different and more evolved form of hospital pharmacy services (which was product focused).<sup>[11,12,13]</sup>

Introduced by United States more than two decades ago, the concept of pharmaceutical care has become a dominant form of practice for thousands of pharmacists around the world. Pharmaceutical care is understood to maximize the benefit from pharmacological treatment through pharmacotherapy monitoring by clinical pharmacists. The profession of pharmacy has moved from product oriented dispensing of medication to evidence based medication. This move has expanded the clinical training requirement of pharmacists. This process which started from a philosophical point of view, in order to transform the concept of Pharmacy from commodity-based, mercantile operations into a clinical profession in the community pharmacies, is slow but ongoing process. Due to differences in pharmacy and health care system among different countries, there are several implementation barriers that hinder the advancement of pharmacy in healthcare. These differences attribute to problems in education, skills, resources and environment. It is a well-known fact that medication use results in side effects and various studies

reflect that drug use control is necessary since there is an important relationship between morbidity/mortality and pharmacotherapy. Thus, it is possible to evaluate the benefits of pharmaceutical care on patient health and ultimately on society.<sup>[11,12,13]</sup> Role of clinical pharmacists in primary care services like medication history interview, patient counseling, drug therapy review and patient referral to specialty care was well discussed both in hospital and community settings from British experiences.<sup>[14]</sup> Integrating clinical pharmacy services in ambulatory patient population was also found to be beneficial in terms of, improved centralized medication access through formulary expansion, improved medication reconciliation process, responsible patient follow up, sensitized reporting ADE and enhanced overall transition of patient care.<sup>[15]</sup> A study conducted in the United States across 584 hospitals, found that hospitals where pharmacy staffing is adequate and clinical pharmacists are responsible for overall adverse drug reactions reporting and management, they had 47.88% decline in ADRs due to clinical pharmacy services. Whereas those hospitals had inadequate clinical pharmacy staff, they reported 34.90% increase in ADR rate. Same study also justified reduction in overall cost of patient care due to provision of clinical pharmacy services.<sup>[16]</sup> As expected through provision of pharmaceutical care, pharmacists are expected to identify all drug related problems to improvise the drug use at the highest possible level. A study conducted at academic tertiary care hospital in Brazil<sup>[17]</sup> and India<sup>[18]</sup> reported prescription based drug related problems like inappropriate dosing, drug use without indication, drug duplication. These problems were mainly observed with use of common classes of drugs like antibiotics, anti-histamines, analgesics and anticoagulants. Clinical pharmacy interventions were well accepted by clinicians in both studies which led to positive changes in patient's drug therapy. Identifying and resolving such drug therapy problems not only provide therapeutic benefits but also reduces cost of overall treatment.<sup>[19]</sup>

Clinical pharmacy services are provided to both clinicians and patients. Clinical pharmacists are mainly responsible for providing education and counseling to patients on safe and effective use of medicines. Role of pharmacists has also been appreciated in preparing and providing education materials to patients for their better understanding on drug therapy. Clinical pharmacists managed patient counseling clinics for cancer chemotherapy; chronic kidney diseases, anti-coagulant therapy, asthma and chronic obstructive lung disease are well established and functioning in many countries. This is well described in a recent article from Japan.<sup>[20]</sup> Contribution of clinical pharmacists in patient education is also recognized by patient community. A study conducted to evaluate patient perception and satisfaction to medication counseling provided by clinical pharmacists confirmed that counseling and education by pharmacists improves understanding of patients about their disease and drug therapy resulting in improved

medication adherence and willingness to ensure continuity of care.<sup>[21,22]</sup> Different clinical pharmacy experiences have concluded that the positive outcomes obtained with different programs of pharmaceutical care are making a beneficial change in patient's health. However, more evidences are required to support this change uniformly across the globe.

Clinical pharmacists have increased in number throughout the world, and patients have benefited. A survey in 2005 described critical care clinical pharmacist roles in 24 countries outside North America. The majority 74.4% indicated that they attended medical rounds, almost all (90%) prospectively reviewed drug therapy and intervened to prevent drug interactions, ADE, and to optimize dosing and frequency of administration.<sup>[23]</sup> The practice of pharmaceutical care is relatively new, in contrast to what pharmacists have been doing for years. Because pharmacists often fail to assume responsibility for this care, they may not adequately document, monitor and review the care given. Accepting such responsibility is essential to the practice of pharmaceutical care and to fulfill this obligation, the pharmacist needs to be able to perform many different functions. The pharmacist is expected to be a caregiver, decision maker, teacher, lifelong learner, leader and manager as per the seven-star pharmacist concept introduced by World Health Organization (WHO). The health care delivery is changing and accordingly the roles and responsibilities of pharmacists as health care professionals are also changing. Pharmacist nowadays needs to develop/ acquire new skills to meet the demands better of healthcare. This will lead to change in curriculum taught to the pharmacy graduates during their training. These changes can successfully shift focus of pharmacy education from product focused to patient focused.<sup>[24,25,26]</sup>

## CONCLUSION

Clinical pharmacy services can serve as an important contributing factor in the betterment of health care system. The Participation of clinical pharmacists in discharge planning and advice to patients about their medicines could lead to the reduction of hospital re-admissions. Pharmacists should be involved in training the technicians or nurses about the uses and administration of medication to patients in a proper effective manner. Also, pharmacist should directly be involved in patient counseling and discussion regarding the rational use of medicines. Encouraging patients to take their medicines is an important objective for clinical pharmacy. The utilization of evidence based best practice could help in the improvement of patient outcomes. Pharmacists have a role both as team members and as individual practitioners ensuring that patients benefit from their pharmaceutical care.

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