

Review Article

Clinical Pharmacists on Medication Therapy Management: Description of India's Present Scenario

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A B S T R A C T

Objective: The present review describes and analyzes the role of clinical pharmacists in the Medication Therapy Management (MTM) services.

Clinical Pharmacists in MTM Services: Medication Therapy Management (MTM) mainly focuses on patients and their therapy. This service engirds the evaluation and appraisal of patient's therapeutic regimen and the Clinical pharmacists play a key role in this service which include: Therapeutic Drug Monitoring, Adverse Drug Reaction (ADR) reporting, medication error prevention, medication adherence, drug and poison information, drug utilization review and evaluation and last but not the least, the most important thing is patient counselling.

Conclusion: Clinical Pharmacists have a greater knowledge of pharmacology and pharmacotherapeutics. It can surely improve the patient's therapeutic outcome and turn down the morbidity rate along with hospital expenditures. Government sectors are facing a lack of healthcare workers. So, the recruitments of Clinical Pharmacists in govt. healthcare sectors might fulfil the shortage of healthcare workers and work as an expert in medication therapy management and disease state management also.

Keywords: Medication Therapy Management (MTM), Adverse Drug Reaction (ADR), Therapeutic Drug Monitoring (TDM), Medication Adherence

Introduction

Clinical Pharmacists play a pivotal role in medication therapy management (MTM), therapeutic drug monitoring (TDM), pharmaceutical care as well as patient counselling. Their role in medication adherence, medication error management, and pharmacovigilance are of much importance in the health care system¹. This article focuses on and analyses

the role of the Clinical Pharmacists in Medication Therapy Management Services (MTM).

Clinical Pharmacist

Clinical Pharmacists are the persons qualifying Doctor of Pharmacy or Master's in Pharmacy Practice works in collaboration with physicians, nurses, paramedical staffs, and other health care professionals². Their joint efforts

provide patient care that optimizes the use of medication properly and promote health care along with the prevention of different ailments³.

Medication Therapy Management (MTM)

It's a medical approach consistently done by clinical pharmacists to improve better therapeutic outcomes. Medication Therapy Management (MTM) is designed to maximize the rate of cure and minimize the probability of adverse drug events⁴. This service reduces the total annual health expenditure^{5,6}. There are five fundamental elements in Medication Therapy Management services⁷ such as:

- *Medication Therapy Review (MTR)*: well-ordered plan for collection and documentation of the patient's health and medication history, to evaluate medication-related issues, make essential medicine lists, and a well-developed plan to resolve them.
- *Patient Medication Record (PMR)*: This up-to-date record is helpful for patients or their caregivers during multiple drug therapy to avoid dose and frequency related mistakes.
- *Medication Action Plan (MAP)*: It resolves medication-related problems and hems up non-pharmacological management as well as home remedies, screening assessments.
- *Intervention and Referral*: Consultative services about medication-related issues and refer the patients to physicians if necessary.
- *Documentation & follow-up*: MTM services are documented in the patients and health care professionals and follow-up are scheduled based program on patient's medication-related needs or patient transitions from one care setting to another⁸.

Role of Clinical Pharmacists in Medication Therapy Management

Clinical Pharmacists and Pharmaceutical Care

Pharmaceutical care is patient-oriented and involves the responsibility of actively participating in the care of the patient. They interact with patients and physicians to make a triad in the healthcare system and work as an active participant to ameliorate the quality of patient's therapeutic outcome, assure the safe and rational use of medication and focus on the patient's drug-related queries, frequency, dose and timings of drugs⁹.

Clinical Pharmacists in Hospital Premises

Clinical Pharmacists actively join inward round participation to regularly monitor the accuracy and completeness of prescriptions, adverse drug reactions, drug interactions with drugs, food, and other chemical products. Moreover, they collect the patient's past and present health-related history along with medication history; monitor the therapeutic drug

events especially for drugs with narrow therapeutic index or drugs administered in patients having chronic diseases. They are aware of administering the drugs, their frequency, dose calculation, desired and undesired therapeutic outcome and their side-effects. They also measure pharmacokinetic parameters based on plasma-drug concentration with time profile to monitor the safety and efficacy of a drug which reduce medication error, patient's hospital stays as well as the health cost. Apart from this, they are efficient in proper drug distribution, dispensing, and management of the specific diseases.^{10,11}

Clinical Pharmacists in Community

Community-based pharmacists dispense drugs and fulfil the patient's needs. A recent study revealed that approximately 5,000,000 deaths occur in India yearly due to medication error¹². People having OTC (over the counter) drugs from retail drug store have more potential to interact with prescribed drugs. So, Clinical Pharmacists in retail drug stores can maintain the patient's health history and drug profiles, then it would be helpful for them in choosing the OTC drug and counselling the patient in a regular basis to avoid medication error along with irrational use of drugs¹³.

Relationship of Clinical Pharmacists with Medical Practitioners and other Healthcare Professionals

Every healthcare worker is important and plays a significant part in the whole healthcare system. Collaboration among physicians, pharmacists, and other healthcare professionals and their working relationships are necessary to provide quality services for improving patient's therapeutic outcomes and maintain the decorum of the healthcare system. Co-operation from medical practitioners is helpful for intervention in therapy and implementation of significant changes in therapy endorsed by clinical pharmacists. Good collaborative relationships on mutual respect with healthcare professionals can also be strengthened by research, educational, and non-patient care activities¹⁴. Figure 1 illustrates the roles of a clinical pharmacist as a medication therapy management (MTM) expert.

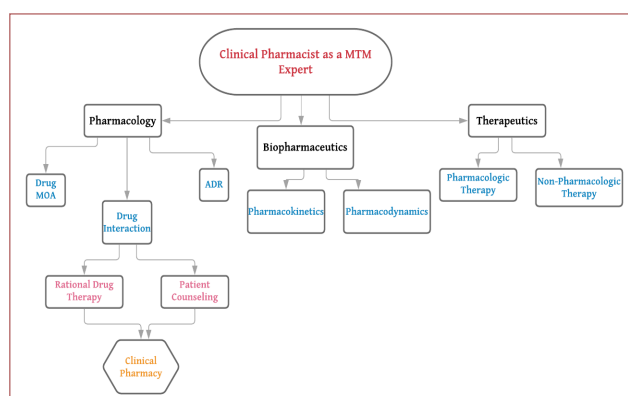


Figure 1. Role of Clinical Pharmacist as a MTM Expert

Medical Coding

Medical coding is a state-of-the-art method of the healthcare system that is transforming diagnosis, medical services, equipment, documentation, medical billing system into universal alphanumeric code. Medical coder reviews and assigns clinical documentation by using the codes such as ICD-10-CM (International Classification of Diseases, 10th Edition, Clinically Modified), ICD-10-PCS (International Classification of Diseases, 10th Edition, Procedural Coding System), CPT (Current Procedure Terminology), NDC (National Drug Codes), HCPCS Level II (Health Care Procedural Coding System, Level II), MS-DRG (Medical Severity Diagnosis Related Groups) and APC (Ambulatory Payment Categories)^{15,16}. In the healthcare revenue stream, diagnosis report of the patients, their test results, treatment, and medical history must be kept in a documented form for easy tracking and reporting in future, which has been made possible with the help of medical coding.^{11,15}

Pharmacovigilance

Pharmacovigilance is the science for assessing, detecting, and monitoring the drug-oriented adverse effects or any other possible problems regarding medicine. The Uppsala Monitoring Center in Sweden was set up only for this purpose to document the international database of ADR reports. Pharm D personnel as a clinical pharmacist has the efficiency to monitor and report ADRs, that is optimally avoided. This includes the irrational use of drugs, drug-related side-effects, and illness as well.^{17,18}

Patient Counseling

Clinical Pharmacists are bridging the gap between patients and clinicians by counselling patients. Clinical Pharmacists promotes the quality of public health management and patient care by counselling the patients with a visual, hearing problem, psychic patients, co-morbid patients at certain time-interval that provides them with a proper dose, frequency and timing for multiple drug-taking, avoid irritation drug use and prevents from the multiple drug resistance.¹⁹

PHARM.D Personnel as a Clinical Pharmacist

Pharm D personnel can work on numerous fields for the welfare of patients and healthcare systems including:²⁰

- Clinical Research
- Pharmacovigilance/ ADR Monitoring and Reporting
- Medication History Interview
- Drug Utilization Review
- Therapeutic Drug Monitoring
- Pharmaceutical Interventions
- Management of Diseases
- Pharmacoeconomics and Pharmacoepidemiology

- Ward Round Participation
- Patient Counseling etc.

Importance of Drug Information Center (DIC) in MTM

Drug information centres provide unbiased, authentic, and accurate written or verbal information about drugs to healthcare professionals, patients, and their representatives. Drug information services promote the rational use of drugs and prevent adverse drug events. The first DIC was started in India by the Karnataka State Pharmacy Council registered with the International Register of Drug Information Services (IRDIS). There are five DICs in India: Haryana (Sirsa), Chhattisgarh (Raipur), Rajasthan (Jaipur), Assam (Dibrugarh), and Goa (Panaji)^{21,22}. The establishment of more DICs for the sake of the betterment of patient's healthcare should be on the main focus and if MTM may become hi-tech by implementing automated web-based software that can ensure the accuracy and reliability of the medication information²³.

Conclusion and Future Aspects

As per Rural Health Statistics Bulletin (RHS) 2014, there are 25020 primary health care centres, 152326 sub-centres, and 5363 CHCs (Community Health Center) in India²⁴, but the country facing a scarcity of 600,000 doctors, 2 million nurses. There is one government doctor for 10,189 people whereas the World Health Organization (WHO) recommends a ratio of doctor and patient is 1:1000²⁵. Since Clinical pharmacists have a treasure trove of knowledge about medication, their recruitment in government sectors might be fulfilled the shortage of doctors and nurses in the healthcare system. The pharmaceutical case-based study identified that approximately 85% of patients have 1 or more drug-related confusions and 29% of patients are facing 5 or more drug-related problems²⁶. Medication Therapy Management services satisfy the patients and improve the patient's therapeutic outcome and reduce the mortality, morbidity rate along with the hospital stay and healthcare expenditure.

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Conflicts of Interest: None

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