

## ROLE OF CLINICAL PHARMACIST IN IMPROVING DRUG THERAPY

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### ABSTRACT

Clinical pharmacy came to an enrollment in 21<sup>st</sup> century.<sup>[1]</sup> Which is still in the initial stages of development in India. Then clinical pharmacy started as an evolution of patient oriented. The clinical pharmacist plays a role of bridge between the physician and other health professionals and the patient. The clinical pharmacist use in health care team may lead to decrease in ADR and increase the rational use of drug and enhance medication adherence. Although clinical pharmacist has a role in various departments like oncology, pediatric, intensive care unit, surgical ward, cardiac unit etc. The clinical pharmacist use decision making systems to improve clinical outcomes in a safety way.

**KEYWORDS:** clinical pharmacist, ADR, Drug therapy.

### INTRODUCTION

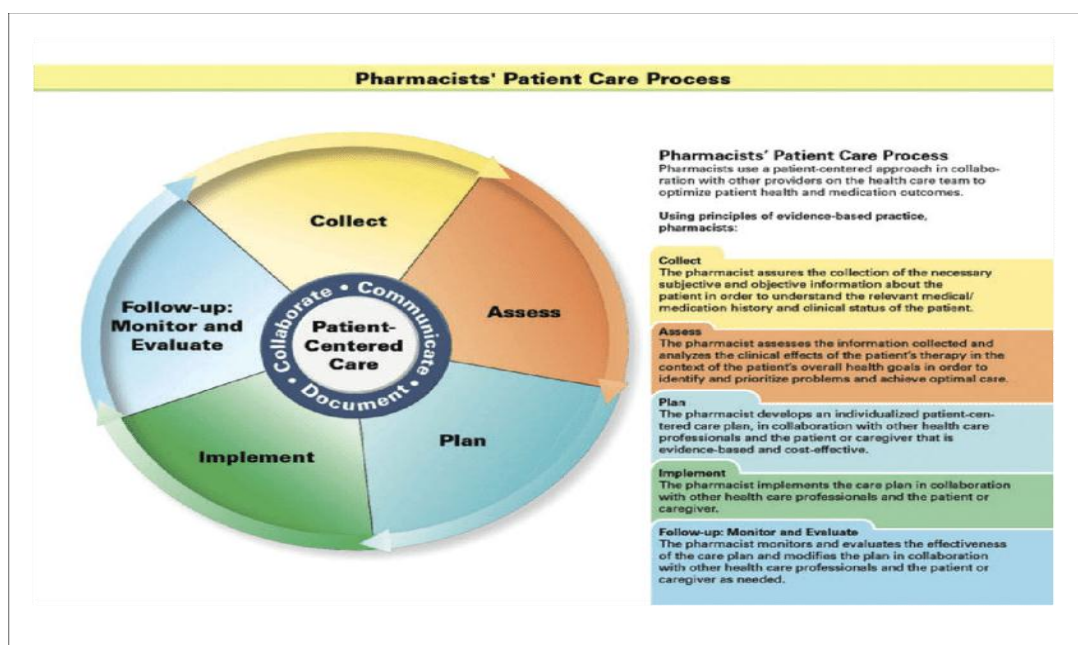
The clinical pharmacy was first used in 1953.<sup>[2]</sup> The concept of clinical pharmacology started in 1960s with 'thalidomide tragedy' the consumption of thalidomide resulted in birth of babies with sealed limbs in 1962 and the 'phenytoin toxicity' in 1968. In worldwide the clinical pharmacist are gaining attention towards the patient care team and the care of outpatient. Clinical pharmacist has an extensive education in Australia, us and Canada. Clinical pharmacy came to an enrollment in 21<sup>st</sup> century<sup>[1]</sup> which is still in the initial stages of development in India. Then clinical pharmacy started as an evolution of patient oriented.

The clinical pharmacist plays a role of bridge between the physician and other health professionals and the patient. To subside the patient harm, medicine management provided by clinical pharmacist in collaboration with health professionals to optimize medication treatment. Clinical pharmacist has a good knowledge in medication and drugs. Therefore, they play role in therapeutic drug monitoring, rationale drug use, reducing ADR, transition of care services. Certain studies say that clinical pharmacist participation improves the outcome of therapy, cost effectiveness, medication adherence to patients.

## CLINICAL PHARMACIST

The clinical pharmacist plays a very important role in improving drug therapy. In the study clinical pharmacist practitioners who are essential members of your clinical care team says that clinical pharmacist are the health science discipline where the pharmacist provide patient care that optimize medication therapy and promotes health wellness.<sup>[3]</sup> Eg in case of antihypertensive drug it leads to various side effects, in this the care of clinical pharmacist improves the drug therapy. The clinical pharmacist use in health care team may lead to decrease in ADR and increase the rational use of drug and enhance medication adherence.

In drug therapy improvement the clinical pharmacist collects all the data of medication and a medical history, family history, history of allergy from patient analysis and maintains drug therapy monitoring. As they have a clear knowledge, they can easily notify look alike and sound alike drug. Clinical pharmacist is expanding widely in improving drug therapy.



**Fig: 1 Patient care process.**

## **CLINICAL PHARMACIST ROLE IN IMPROVING DRUG THERAPY**

### **CLINICAL PHARMACIST IN INTENSIVE CARE UNIT**

In intensive care unit (ICU) the patient is considered as a standard of care in today's environment. According to the study, the clinical pharmacist role in intensive care unit says that the patients in ICU need a more decision-making systems to improve clinical outcomes in a safety way.<sup>[4]</sup> Clinical pharmacist provides an optimal care through avoidance and drug related problem. In this the drug related safety is considered as a main priority. Due to work load, shifts, miscommunication it leads to medication errors; here the role of clinical pharmacist is important to reduce errors and to improve drug therapy. To improve drug therapy the clinical pharmacist can make intervention include correcting, providing drug information, suggesting alternative therapy, therapeutic drug monitoring. The ICU patient as they are critically ill the pharmacokinetic parameter is altered it should also be monitored. In ICU the polypharmacy is common once dose adjustment is required. According to the study, the role of cp in ICU says that; pharmacist actions in the ICU should not be limited to providing advice to equip but also include proactive participation in decision making in the pharmacological treatment. And in the most priority way the clinical pharmacist must be applied.<sup>[4]</sup>

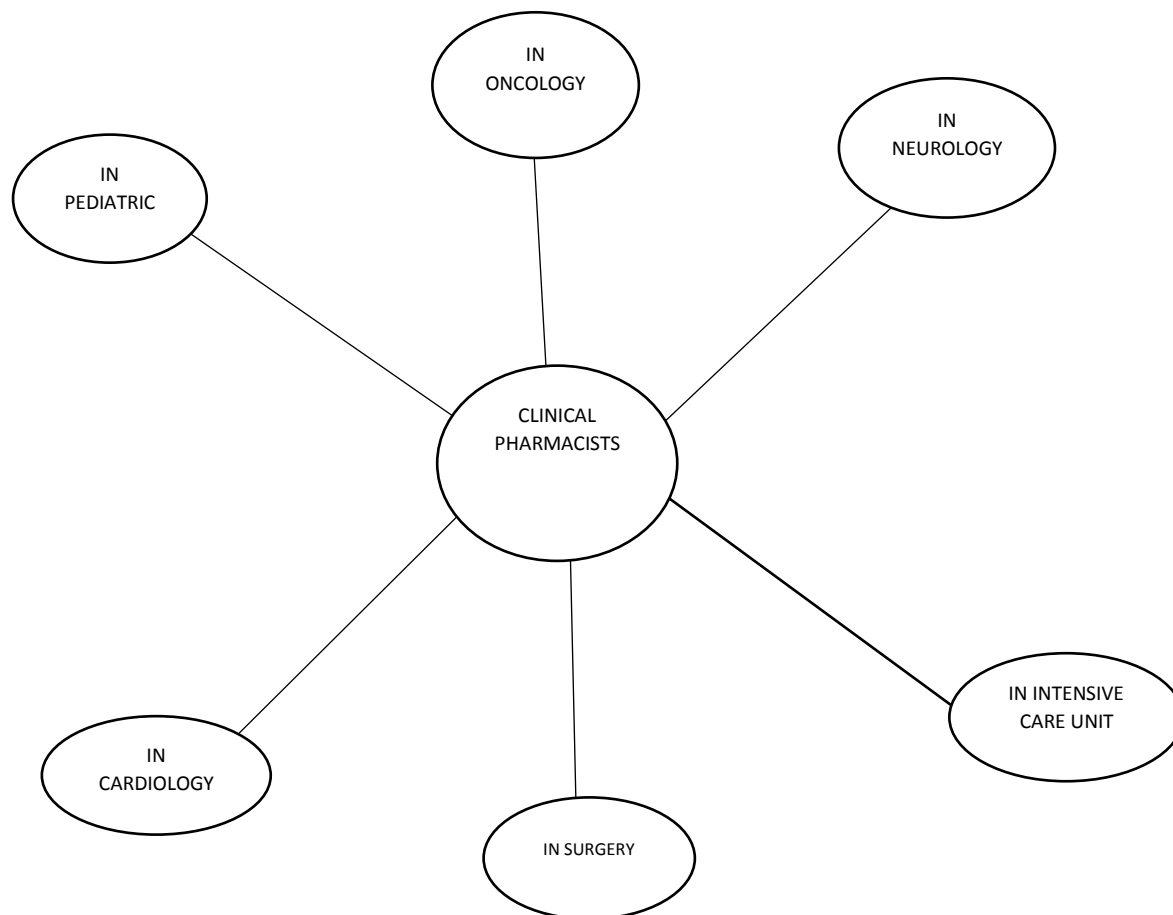
### **CLINICAL PHARMACIST IN SURGICAL WARD**

Drug therapy problem with patient at the surgical ward the clinical pharmacist had a vital role. Surgery is the main component of healthcare. Here the antibiotics use in surgery plays major role and provide resistance. so to reduce the antibiotic resistance and promoting rational drug use the clinical pharmacist is needed. And also, the patient in a surgery ward receive medication before and after surgery so there may be a large drug-initiated problem. Clinical pharmacist should improve drug therapy by organization structures in identifying the drug related problem and the clinical pharmacist should make communication with physician.

### **CLINICAL PHARMACIST IN CARDIAC DEPARTMENT**

The clinical pharmacist can improve the patient outcomes associated with heart failure. In heart failure patient, primarily there may be more than 7 medicines per day. And there may be more ADR and drug interactions so, the drug monitoring and dose adjustment is needed to improve drug therapy. In case of medicines like anti-inflammatory drugs, calcium channel blockers and antiarrhythmic drugs cause major side effect, the clinical pharmacist should make counselling about the medicine. A review of the role of pharmacist in heart failure

transition care study says that the clinical pharmacist should ensure that all prescribed medications are for approved indications and patient receive clear and practical instructions for dosage and administration including duration of therapy.<sup>[5]</sup>



**Fig: 2 Clinical pharmacist in various departments.**

### **CLINICAL PHARMACIST IN ONCOLOGY DEPARTMENT**

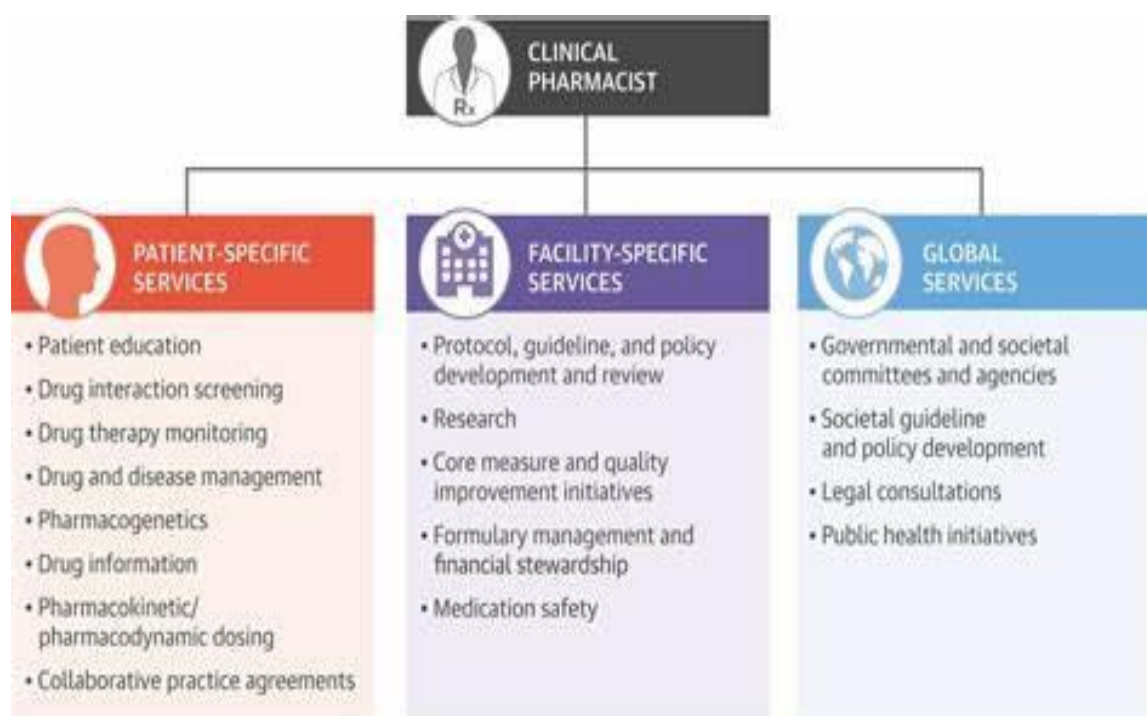
Clinical Pharmacist have a more supportive role to improve medication outcome and support physician in the analysis of patient care. The chemotherapy drug produces side effects so there may be decrease of patient's satisfaction. In cancer treatment the highly toxic drug is used and exposes the patient to a drug related problem. The clinical pharmacist should interview and identify the problems and also say about the multiple drug usage and high alert medication towards the patient. The clinical pharmacist has major role in safe effective and cost-effective drug therapy according to role of oncology clinical pharmacist study. sometimes it is lifesaving of people in improving drug therapy.<sup>[6]</sup>

### CLINICAL PHARMACIST NEUROLOGY DEPARTMENT

Neurological illness are the one among common causes of hospitalization. The clinical pharmacist in neurology department can make no of medical intervention to reduce harm. There are numerous errors in this department. Medication review ward rounds, education to patient improve drug therapy.

### CLINICAL PHARMACIST PEDIATRIC DEPARTMENT

Clinical pharmacist in pediatric and neonatal are less characterized. As children are more sensitive towards drug the clinical pharmacist should ensure the safety and then dose adjustment is done to improve drug therapy. To detect drug related problem and ADR the clinical pharmacist is needed. clinical pharmacist in pediatrics units says that clinical pharmacist into the patient centered medical home to provide comprehensive medication management for children can improve outcome adherence the care and reduce cost.<sup>[7]</sup>



Dunn, S.P. et al. *J Am Coll Cardiol.* 2015; 66(19):2129-39.

**Fig: 3 Clinical pharmacist in cardiac unit.**

### POLYPHARMACY

It is the concurrent use of medication by a patient. It is not ill advised but it may lead to negative instances and poor outcomes. It is associated with decrease quality of life including

mobility and cognition. Therefore, clinical pharmacist considers it as a situation that requires monitoring and to review all medications are necessary.

### **ADVERSE DRUG REACTION**

It is any untoward medical occurrence. In a patient or clinical investigation subject administered a pharmaceutical product and which does not have a causal relationship with this treatment. Therefore, here also the monitoring is required.

### **THE CLINICAL PHARMACIST AND COVID-19**

COVID-19 is pandemic and it spreads throughout the world. As the condition is getting worse, as the infection spreads globally the clinical pharmacist plays a major role in a health care team to support and give care to the patient. The drugs are under investigation, some recent studies says that pharmacist are essential in facilitating the investigational drug studies in health system.<sup>[8]</sup> when there is a huge no patient, the pharmacist plays the key role to review and interpret the patient. According to certain studies the pharmacist role to provide accurate data to the providers about safe drug delivery, drug- drug interaction and adverse effects.<sup>[8]</sup>

When there is limited supplies of drug the clinical pharmacist should identify and report it in this pandemic condition. To reduce the spread of infection and to educate patients about covid-19 the pharmacist plays a key role.

### **CONCLUSION**

In India the clinical pharmacist are going to be major support to the health care team in future. The clinical pharmacist are assets for drug therapy management. They act as a bond between the physician and the patient to improve the drug therapy. There is a need for clinical pharmacist in every healthcare to reduce drug errors and to improve the patients quality of life.

### **CONFLICT OF INTEREST**

The author (s) declared no conflict of interest with respect to the authorship, research or publication of the article.

### **REFERENCES**

1. Mazhar M, Ansari A, Rajput SK. Clinical pharmacy in India: Recent advances and perspective.

2. Dr.R.S.Thakur. Devolpment of clinical pharmacy. 2016.
3. Judith Jacobi. Clinical pharmacists: practitioners who are essential members of your clinical care team. 2016.
4. Clarence Chant, Norman F.Dewhurst. clinical pharmacist role in the ICU. 2016.
5. Sarah Anderson and Joel C.Marrs. A review of the pharmacist in heart failure transition care. 2018.
6. Osama M.Al Quteimat, Mariam A.Al-Badaineh. Role of oncology clinical pharmacist: a case of life saving intervention. 2013.
7. Abdul Kader Mohiuddin. Clinical pharmacist in pediatric units. 2019.
8. Alan E.Gross, Conan MacDoughall. Roles of the clinical pharmacist during the covid-19 pandemic. 2020.
9. Jose J Arenas-Villafranceavier, Juan Manuel Rodriguez-Camacho, Maeria Antonia Perez Moreno, Manwela Morena-Santamaria, Francisco de Asis Martos-perez, and Begona Tortajada-Goitia. The role of clinical pharmacist in the optimization of medication prescription and reconciliation on admission in an emergency department.
10. PharmD, BCPS Ryan G.Davis, PharmD, BCPS Charley A.Hepfinger, PharmD, MSPH Karen Ann Sauer, PharmD Michelle S.Wilhard' Retrospective evaluation of medication appropriateness and clinical pharmacist drug therapy recommendations for home-based primary care vetrens. 2007.
11. Mawhibah Mohammed Ali Alqurbi, Mohammed Ali Quassim Atiah.The role of clinical pharmacist in reducing adverse drug reaction. 2020.
12. Trine Graabaek and Lene Juel Kjeldsen. Medication reviews by clinical pharmacist at hospital lead to improved patient outcomes: A systemic review. 2013.
13. Bhupathy Alagiriswami, Madhan Ramesh, Gurumurthy Parthasarathi and Hatthur Basavanagowdappa. A study of clinical pharmacist initiated changes in drug therapy in a teaching hospital. 2009.
14. Chuan Zhang, Lingli Zhang, Liang Haung, Rong Luo, Jin Wen.Clinical pharmacist on medical care of pediatric inpatients: A single-center randomized controlled trial. 2012.
15. G. Fornasier, M. Taborelli, P.Baldo. Targeted therapies and adverse drug reactions in oncology: the role of clinical pharmacist in pharmacovigilance. 2018.
16. Wendy A Gattis, pharm D, BCPS; Vic Hasselblad, phd; David J. Whellam, MD; Christoper M. O'Connor, MD. Reduction in heart failure events by the addition of a clinical pharmacist to the heart failure management team.

17. Muhammad Haroon Sarwar, Muhammad Farhan Sarwar, Muhammad Taimoorkhalid and Muhammad Sarwar. The roles of pharmacy and clinical pharmacy in providing healthcare services to the people. 2020.
18. Fabio Teixeira Ferracini, Silvana Maria de Almeida, Juliana Locatelli, Sandra Petriccione, Celina Setsuko Haga. Implementation and progress of clinical pharmacy in the rational medication use in a large tertiary hospital. 2011.
19. S.V Chordiya. Role of pharmacist in rational drug therapy. 2019.
20. Clinical pharmacists in oncology practice. 2008.
21. Zhan-Miao Yi. Shu-sen sun. Xiao-Xiao Li. Ming Lu. Suo-Di Zhai. An evaluation of clinical pharmacist service in neurology care unit. 2015.
22. C.Dhanapani, Manikandan. T, Geisha Merin Varghese, Jeethu Joby, Annette Babu and DR.V. Arulsevana. Role of clinical pharmacist in management of neurological disorder. 2017.
23. Sandeep Tripathi, MD HeidinM.Crabtree, PharmD, Karen R.Fryer, RN, Kevin k.Graner, BsPharm, and Grace M Arteaga, MD. Impact of clinical pharmacist on the pediatric intensive care practice: An 11-year tertiary center experience. 2015.
24. Gosaye Mekonen Tefera, Ameha Zewudie Zeleke, Yitagesu Mmo jima, Tsegaye Melaku Kebede. Drug therapy problems and the role of clinical pharmacist in surgery ward: prospective observational and interventional study. 2020.
25. Alexandra Weber, Chelsey Schneider, Eva Grill, Ralf Strobel. Interventions by clinical pharmacist on surgical wards-impact on antibiotic therapy. 2011.
26. Elinor C Chumney, Leslie C Robinson. The effects of pharmacist on patient with polypharmacy.
27. Fatima Tahniyath. clinical pharmacist – A need for the society. 2017.