Opinion Article

Clinical Pharmacist Intervention in Improving Health Outcomes by Reducing Physician’s Burden and Medication Errors: A Proposed Model

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http://dx.doi.org/10.47890/IJPSCP/ShahidMasoodRaza/2020/24148306

Abstract

Healthcare is a team effort. Each healthcare provider is like a member of the team with a special role. Some team members are doctors or technicians who help in diagnosing disease. Others are experts who help in treating disease or care for patients’ physical and emotional needs. Understanding the role of each member in healthcare settings can reduce the burden of duties. According to World Health Organization (WHO) reports, burden of workload on physicians is the main cause of medical errors each day practice and thousands of people die as a result each year. Such errors can be minimized by reducing the workload on physicians and strengthening the role of clinical pharmacists in healthcare settings.

Keywords: Health care; Team Members; Physicians; Clinical Pharmacist

Introduction

Healthcare team consists of a group of people who coordinate their particular skills for the wellbeing of patients. A physician or medical practitioner is a member of a healthcare team who practices medicine, which is concerned with promoting, maintaining, restoring health through study, diagnosis, prognosis, and treatment of disease, injury and other physical or mental impairments. Several nursing staff may involve in health team and have their own nursing team. A nursing team is comprised of personnel who provide nursing services to patients. Other healthcare team members include dietitians, physiotherapists, pharmacists, pathologists, social healthcare workers, and technicians [1].

Clinical pharmacists work as part of the general practice team to improve value and outcomes from medicines and consult with and treat patients directly. Clinical pharmacists are mainly trained to work directly with patients in health care system, such as in hospitals or clinics. A clinical pharmacist has detailed knowledge and deep understanding of drugs and their effects, and doctors often give clinical pharmacists a great deal of controlling overprescribing medications and monitoring patients. Among other jobs, clinical pharmacists are responsible for selecting appropriate drugs, monitoring patients’ progress, diagnosing potentially untreated diseases, consulting with the patient on the effects of the drugs, and ensuring that patients following prescribed drug regimens [2].

WHO has set a global standard of one pharmacist per 50 beds. For the implement of this rule, National Drug Policy (NDP) of Pakistan stipulates that one hospital pharmacist should be appointed for every 50 beds in hospital facilities [3, 4]. It is about a decade still there is no improvement in clinical pharmacy profession and shortage of clinical pharmacists has been observed. Despite the shortage, clinical pharmacists in hospitals are not properly engaged in providing clinical services and pharmaceutical care to patients. Majority of pharmacists in hospitals are performing only conventional duties and responsibilities of recordkeeping, maintaining hospital formulary, and drug purchasing. Due to these conventional practices, doctors are overburdened and medical errors are part of each day practice ultimately results in high morbidity and mortality rates. Thus, the purpose of this article is to give a model in which clinical pharmacist

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Intervention can reduce the burden on physician's, thereby improving their work quality, reducing medical errors and improving patient health outcomes.

**Proposed Model**

When patients (adults, children, and geriatrics) visit hospital for treatment, the visit involves many more people than just the doctor. Here is a brief outline of the new proposed model in replacing conventional practices in Pakistan. Figure 1 shows the clinical pharmacist intervention and details of each step in the model. Table 1 summarizes the outcomes of clinical pharmacist intervention in healthcare settings. The important points concerning innovation in this topic are as follows:

![Diagram of Proposed Model](image)

**Figure 1:** Proposed model showing clinical pharmacist intervention
A member of the administrative staff schedule the appointment finds the medical record, make a reminder call, greet the patient, and verify insurance information and refer the case to the nursing station.

A nurse in the nursing station record the patient’s weight and vital signs, escort the patient to an exam room, and record the reason for the visit. If there is a minor ailment, encourage patients to take care of their health and be discharged. If there is a major ailment refering the case to the doctor.

The doctor and general practitioner (GP) examines and talks with the patient to develop a diagnosis and plan of care.

If laboratory tests are required before starting medication, refer the case to the pathologist. A technician may help to ship out the sample (blood, skin, saliva, urine, feces) and administrative staff performs analysis, write-up the results, and discuss with the doctor and GP.

If treatment, such as medication is prescribed, the doctor contacts the clinical pharmacist and fills the prescription.

The doctor sends a prescription filled out by the pharmacist to the nursing station. Pharmacist instructs nurses about medication therapy and management.

If any ADR reported, the pharmacist will discuss possible changes in therapy to the doctor and GP.

If there are mental health problems such as anxiety and depression, refer the case to a psychologist for patient counseling, and support mental health.

If there are motor abnormalities, refer the case to a physiotherapist for exercise, manual therapy, education, and advice.

If there is physical weakness, refer the case to a nutritionist for developing a diet plan and producing power and energy.

In the end, medical billing experts then bill the patient’s insurance for the office visit and either the test or the medication.

The pharmacist records the phone number and email for follow-up care to reduce hospital re-admission.

Discussion

Clinical pharmacist is an integral part of the healthcare team aiming to improve value and outcomes from medicines and consult with and treat patients directly. We intended to give a model in which clinical pharmacist intervention can reduce the workload on physicians; thereby improving their work quality, reducing medical errors, and improving patient health outcomes.

Advantages of clinical pharmacist intervention

Multidisciplinary teamwork is the best way to ensure patient safety. For many years, pharmacists in the United States (U.S) and United Kingdom (UK) were restricted to the management of hospital pharmacies. However, every day, the demand for this profession in clinical units is becoming clearer and clearer. Our proposed model will bring the following outcomes:

Reduce workload on physician and GPs

Clinical pharmacists are experts in the therapeutic use of medications. They regularly provide medication therapy evaluations and recommendations to patients and other healthcare professionals. Clinical pharmacists are the main source of scientifically valid information and advice on the safe, appropriate, and cost-effective use. Having clinical pharmacist in healthcare settings means that physicians and GPs can focus their skills where they are most needed, such as diagnosing and treating patients with more complex conditions of medications. This helps doctors and GPs to manage the demands on their time [2].

Reduce medical errors and ADRs

Prescription errors are the main cause of ADRs. Studies have shown that majority of medication errors occur during medication...
prescription and administration processes [5-8]. Therefore, intervention of clinical pharmacist may have a greater impact on the use of proper prescription towards quality in medication use. In Europe, the clinical pharmacist intervention in the monitoring of therapeutic plans and preventing medication errors was investigated. The study showed that, the clinical pharmacist intervention might prevent 58% of all and 72% of potentially harmful medical errors and that improved physician-pharmacist communication might prevent 47.4% of errors [9]. A study conducted by Kim et al., in USA, showed that 76% of prescriptions did not reach patient demands but had the significant potential to cause morbidity or mortality. The study showed that 22% of medical orders were duplicate, 19% of prescriptions had wrong doses, 16% were with wrong frequencies [10]. The study concluded that clinical pharmacists intervene in reviewing medical orders and prescription by physicians to make sure the rational use of medication in right dose, duration, and time, and if any modification is needed they inform the prescriber and make appropriate changes might reduce morbidity and mortality rates. Contrary to this, in Pakistan, the role of clinical pharmacists in helping physicians while making decision on drug therapy, monitoring prescribed drug therapy, and solving drug-related problems and thereby; providing pharmaceutical care is neglected or underestimated. In absence of these guidelines, the patients are not getting the benefit of clinical pharmacy services, and drug-related problems are at an alarming stage.

Reporting and monitoring ADRs are an essential part of activities performing in healthcare settings. ADRs are unpleasant and harmful effects occur due to medication errors. Several studies have found that majority of the ADRs could be detected and prevented [11, 12]. Clinical pharmacists in hospitals play a vital role in the detection, identification, prevention, and proper management of ADRs [13]. Khalili H et al. addressed in their study that clinical pharmacists' intervention has resulted in increasing the number of reported ADRs [14]. A study from Iran conducted on clinical pharmacy residents revealed that involving clinical pharmacy residents in ADR reporting program could improve the ADR reporting system [15]. In another study from Iran reported that intervention of clinical pharmacists regarding ADR committees' establishment in hospitals resulted in an improved output of the Pharmacovigilance system [16].

Patient's education

Clinical pharmacist interacts directly with patients. In order to have positive impact on the patients' medication experience, clinical pharmacists and other healthcare professionals need to provide general information about medication and simply expecting patients to comply with prescribed therapy. WHO uses the term “therapeutic patient education” to describe this activity, defining it as education that is designed “to train patients in the skills of self-managing or adapting treatment for their particular chronic disease, and in coping processes and skills” [17, 18].

Follow-up care

In high-risk patients, follow-up care is a significant part of patient-centered care. Within 30 days after discharge from the hospital, about 14% of overall patients and 17% of Medicare patients readmitted to the hospital [19]. Clinical pharmacists can play an important role in decreasing hospital visits and readmission rates, minimizing ADRs, and improving patients’ compliance with medication. Our proposed model demonstrates that follow-up care by the clinical pharmacist is an integral part of successful therapy. The competent authorities should dictate about the importance and ensuring that patients have proper follow-up care by the clinical pharmacist after being discharged from the hospital.

The model we presented has limitation worth mentioning. The proposed model has not explained the fact that clinical pharmacist participation in clinical rounds with physicians and GPs. Further studies should be conducted in exploring the importance and outcomes of clinical pharmacist participation in clinical rounds.

Conclusion

A collaborative, inter-professional teamwork supports high quality and safe care, patient satisfaction, and engagement. The proposed model and literature suggest that having clinical pharmacists in healthcare settings can reduce the workload on physicians and GPs and they can focus on their skills where they most needed. Besides, clinical pharmacist intervention reduces the rate of drug-related problems when patients admitted to the hospital through medication reconciliation and patient readmission by education and proper follow-up care.

Acknowledgment:

We are thankful to our colleagues to address the attention to this issue.

Author contributions

MAR and SA were engaged in reviewing the literature, writing, designing the model, and drafting the manuscript. SS and SMR were responsible for the conception and critical revision of the manuscript.

Funding

None

Conflict of interest

None

References:


