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Review Article

Evolving role of clinical pharmacists in assessment of clinical and modern health care services

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ABSTRACT

Clinical pharmacy is a pharmacy profession in which clinical pharmacists as health care professionals help and provide direct patient care with the medications. Clinical pharmacists work in many settings, including hospitals, clinics, long-term care facilities, and community pharmacies. Clinical pharmacists work directly with patients in a variety of ways. They utilise their understanding of pharmaceuticals (including dose, drug interactions, side effects, cost-effectiveness, and so on) to assess if a medication plan is appropriate for their patients. Patient education and counselling on effective pharmaceutical usage are critical components of pharmacists' increasingly important duties. Pharmacists can detect and address any drug-related issues during counselling, as well as offer information that enhances patients' treatment compliance and raises the standard of care. Pharmacists have a critical role in detecting, identifying, preventing, and managing adverse drug reactions. Pharmacists play a crucial role in reporting adverse drug reactions (ADRs), which can lead to product withdrawal or label modifications. Clinical pharmacist can improve medication review, identify drug-related issues, provide treatment suggestions, and promote medication compliance. Pharmacists can also help enhance drug safety by working with other healthcare providers to create patient-centered medication management regimens. In this position, chemists can analyse prescription histories, identify potential drug-related issues, and provide recommendations to optimise medication management.

Keywords: Patient counselling, Adverse drug reactions, Medication compliance, Drug safety

INTRODUCTION

Clinical pharmacists are healthcare professionals who help patients and individuals with their medications and healthcare services. The medical environment has undergone dramatic changes over the past few years, with more focus on patient-centred care, multidisciplinary collaboration, and individualized medicine. Clinical pharmacist role varies with a broad variety of important healthcare services alongside routine prescription dispensing. Clinical chemists are becoming more and more integral members of healthcare teams, providing assistance in the management of chronic disease care, identifying potential side effects, responding to drug information queries and patient education. Clinical

pharmacy by profession involves clinical pharmacists providing direct patient care to maximise medication use while also improving health, wellbeing, and disease prevention. They work in many health care settings, including hospitals, clinics, long-term care facilities, and community pharmacies.¹ Additionally, clinical pharmacists are essential in informing patients about possible adverse effects and drug interactions associated with their prescriptions. Medication management is a crucial component of clinical pharmacy. This entails checking prescription orders to make sure the drugs are suitable for the patient's health and any additional drugs they may be taking. Disease and specific drug treatment management programs, promoting healthy life styles, preventing long-term chronic illness and educating patients

about disease and management, have shown a reduction in the incidence of several medication-related issues, including medication nonadherence, reducing incidence of adverse drug reaction (ADR), and overall healthcare expenditures thereby improving patient's quality of life.^{2,3} In addition to medication management, clinical pharmacist participate in medication reconciliation, which is the process of examining a patient's prescription history to verify that the proper drugs and dosages are being administered. This is especially critical during care transitions, such as hospital admission or discharge. The following are the roles of clinical pharmacists in different healthcare systems:

PHARMACEUTICAL TREATMENT MANAGEMENT

Pharmaceutical treatment management is another approach used by clinical pharmacist to optimise pharmaceutical treatment.⁴ Clinical pharmacists work directly with patients in a variety of ways. They utilise understanding of drug pharmacology (including name of the drug, dose, drug interactions, side effects, cost-effectiveness, and so on) to assess if a medication plan is appropriate for their patients.⁵ They also assist physicians in providing drug therapy. They also educate patients on the importance of compliance towards therapy. Studies on pharmacist led chronic disease management reveal that it has benefits similar to standard treatment and may increase physiological target fulfilment.⁶

REVIEWING PRESCRIPTION

Clinical Pharmacist ensures patients receives appropriate drugs for their diagnoses with minimum or no ADR occurrence by reviewing the prescription, and reviewing

past and present medication history, by providing patient counselling, and detect medication-related errors. The chemist then works with the medical team to create a medication management strategy and track the agreed-upon medical. The patient, and their representative when relevant, is engaged in patient counselling, and told about their medication plan and reasons for changes to their prescriptions.⁷ During ward rounds pharmacist includes early medication history taking, medication reconciliation, collaborative decision making between the pharmacist and physician at the moment of admission, and reviewing treatment plan by the pharmacist. Early in-hospital pharmacist-led medication reviews have been shown to improve quality of life for high-risk patients in an emergency treatment pathway.⁸

PATIENT COUNSELLING AND EDUCATION

Patient education and counselling on effective pharmaceutical usage are critical components of pharmacists' increasingly important duties. Clinical Pharmacists are better equipped than any other health-care practitioner to counsel and educate patients on the current medical condition, about the drug therapy, providing patient education about the safe and appropriate use of medicines, improving quality of life and importance of adherence towards drug therapy, life style modifications if required, diet, side effects and any drug interactions with prescribed medications, risk factors, complications, prevention and management of diseases because of their knowledge and competenc.⁹ Providing patient counselling through information on their condition, lifestyle changes, and the safe, sensible, and efficient use of medications—either verbally or in writing—is an important part of patient counselling and education.^{10,11}

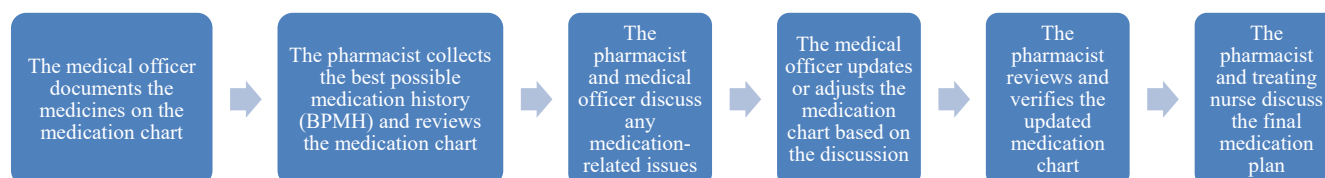


Figure 1: Comparison of steps in medical charting models.

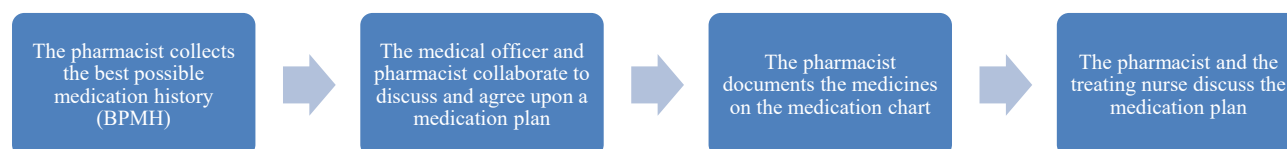


Figure 2: Comparison of steps in medical charting models.

Pharmacists can detect and address any drug-related issues during counselling, as well as offer information that enhances patients' treatment compliance and raises the standard of care.¹² Studies have indicated that the general public is either unaware of or slow to accept and take

advantage of the expanded roles and responsibilities of pharmacists, despite the clear benefits that pharmacists' counselling and education appear to offer patients. Additionally, patients have not given these services the recognition they deserve. Pharmacists' lack of patient

counselling while dispensing because of time constraints and a heavy workload has been blamed for this separation.^{13,14} Patients benefit greatly from patient counselling, which includes anything from medication dosage to lifestyle modification suggestions. Patient counselling is the most effective way to lower drug-related issues and medication adherence. Patients should be able to get information from the chemist at any time. Most significantly, patients really value effective communication. Effective communication requires not just clear speech but also attentive listening and comprehension. The pharmacist time should be extremely apparent when conversing with the patient, and the volume should be set appropriately.¹⁵

MEDICATION ADHERENCE

Pharmacists will become more involved in-patient education and compliance as their clinical roles and patient care skills provide verbal education and written individualised information for the patient.¹⁶

The term "adherence" is increasingly preferred over "compliance" since compliance indicates that the health-care provider's instructions must be followed passively and that the patient is not expected to engage in a therapeutic relationship or agreement with the healthcare provider.¹⁷

Medication adherence or patient compliance is the degree to which a person's conduct in terms of taking medicine, following diets, or implementing lifestyle changes is consistent with the medical or health experts. The causes contributing to noncompliance include the patient's unsolved issues, including diagnosis, absence of symptoms, interval between treatment and its impact, and the fear of unwanted consequences.¹⁸

Indirect methods of measuring adherence include asking the patient how easy it is for him or her to take prescribed medication, assessing clinical response, counting pills, determining prescription refill rates, collecting patient questionnaires, using electronic medication monitors, measuring physiologic markers, and asking the patient to keep a medication diary. Questioning the patient (or using a questionnaire), keeping patient diaries, and assessing clinical response are all relatively simple methods to use; however, questioning the patient can lead to misrepresentation and trends, resulting in the health care provider overestimating the patient's compliance. Other than patient questioning, pill counts have been the most often utilised tool for measuring adherence. For these reasons, pill counts should not be regarded to be a reliable indicator of compliance.¹⁹⁻²¹ Physicians prescribe medications, while pharmacist examine the prescriptions to ensure that drugs are used appropriately. They determine whether the medicine has an indication, if it is the correct drug/dose/duration/dosage/time, and so on. If there is a divergence from these, they implement relevant treatments, notify the prescriber, and document the same information. Clinical pharmacist can improve medication review, identify drug-related issues, provide treatment

suggestions, and promote medication compliance in form of patient information leaflets. They collect medical and pharmaceutical histories, check for medication mistakes such as prescription, dispensing, and administration errors, detect drug interactions, monitor ADR, recommend dose regimen individualisation, and give patient counselling, among other tasks. They also include advice on the usage of medications and medical equipment such as inhalers, insulin pens, eye drops, nasal sprays, and so on. Participation of a clinical chemist in ward/ICU rounds and clinical talks aids in the identification, prevention, or reduction of medication interactions and ADRs.²²

ADVERSE DRUG REACTION MONITORING

Pharmacists have a critical role in detecting, identifying, preventing, and managing ADRs.²³ Pharmacists can conduct these services in inpatient settings, including chart review during ward rounds and reviewing drug therapy in with prescription.²⁴

Pharmacists play a crucial role in reporting ADRs, which can lead to product withdrawal or drug label modifications.²⁵ Pharmacists play a crucial role in reducing the incidence of ADRs by discovering, analysing, and reporting any suspected cases. Reporting ADRs is crucial for monitoring and assessing hospital operations.²⁶ A hospital-based reporting mechanism provides valuable insights into medication consumption issues in healthcare facilities. Identifying and resolving issues improves patient care.^{27,28}

THERAPEUTIC DRUG MONITORING

Clinical pharmacists in developed countries have a range of responsibilities, including Therapeutic Drug Monitoring (TDM) based on patient pharmacotherapy, disease progression, risk factors, and treatment goals.²⁹ The clinical pharmacist should provide advice to the medical staff on the appropriate use and timing of TDM and assist with the interpretation of results. To calculate about initial selection of drug regimen, drug choice, dose, dosing interval, dosing schedules, drug concentrations should be used to estimate individualised pharmacokinetic parameters. However, relevant demographic, pharmacotherapeutic, pathophysiological, clinical, and biochemical data should also be considered. It's crucial to involve hospital and clinical pharmacists in individualised pharmaceutical therapy and recognise their advantages.³⁰⁻³² Effective TDM services require collaboration among nurses, physicians, pharmacists, and technical personnel. However, clinical pharmacists play a crucial role in advising medical professionals on monitoring frequency and timing, as well as interpreting data. A clinical pharmacokinetics or drug monitoring service often involves the following responsibilities.^{33,34}

When selecting a drug regimen, consider factors such as gender, age, body weight, physiological status, renal function, liver function, serum albumin concentration, use of other drugs, and laboratory results. This includes drug

choice, dose, dosing interval, route of administration, and dosage form. Dosing regimens are adjusted based on medication concentration measurements and patient response. Possible sources of surprising outcomes include patient non-compliance, drug bioavailability, prescription mistakes, drug-drug interactions, and interindividual/pharmacogenetic variability. Communicate medication therapy information to doctors, nurses, and patients, both orally and in writing. Document this in the patient's clinical record. Provide training on pharmacokinetic concepts and clinical monitoring to chemists, physicians, nurses, and other healthcare workers. Emphasise the cost-effectiveness of using drug concentration measures. Encourage collaboration with other pharmacotherapy monitoring departments to improve the application of pharmacokinetic concepts in pharmaceutical treatment.

Pharmacists should give accurate, full, and timely replies to medication information requests to ensure optimum clinical value and trust. Maintaining ongoing contact with medical and nursing personnel, as well as the clinical biochemistry laboratory, helps chemists integrate into the healthcare team.

DRUG INFORMATION SERVICES

Drug information service (DIS) is a service that includes the actions of professionally trained personnel who give reliable, unbiased, factual information, typically in response to patient-oriented concerns reported by healthcare professionals.³⁵ Drug information is the supply of written and/or vocal information regarding pharmaceuticals and drug therapies in response to a request from other healthcare providers, committees, patients, or the general public. Drug information services may also be described as knowledge of facts gained by reading, research, or practical experience of any chemical substance intended for use in illness diagnosis, prevention, or therapy. It encompasses all forms of information supply, including subjective and objective information, as well as knowledge obtained via scientific observation or practical experience.³⁶

The clinical pharmacist's role in DIS involves: communicating information about available services; respond to requests based on urgency; maintains a documented system to record question and enquirer details; maintains documents to record replies to questions; keeps records of enquiries and responses; maintains drug information service records; conducts frequent service evaluations; encourages regular user input to ensure timely and satisfactory medication information service delivery; ensure information quality for better service delivery. passive involvement refers to a clinical chemist's contribution to the establishment of drug information services that are most valuable to prescribers and/or other healthcare practitioners.³⁷

STRATEGIES TO REDUCE MEDICATION ERRORS

Pharmacists can reduce pharmaceutical mistakes in a variety of ways. They can undertake medication reconciliation to uncover differences in prescription regimens, educate patients on correct dosages and administration, and evaluate patients' responses to medications to ensure that they are successful. Furthermore, chemists can detect drug interactions and avoid medication-related side effects.³⁸

Pharmacists can also help enhance drug safety by working with other healthcare providers to create patient-centered medication management regimens. In this position, chemists can analyse prescription histories, identify potential drug-related issues, and provide recommendations to optimise medication management.³⁹

Another approach pharmacists might prevent prescription mistakes is to encourage drug adherence. Noncompliance with drugs is a major worry among patients, and it can lead to negative health effects. Pharmacists can help patients identify challenges to drug adherence and devise ways to overcome them.⁴⁰

DAILY ACTIVITIES OF CLINICAL PHARMACISTS

Clinical pharmacists in industrialised nations vary their activity based on available resources and healthcare systems. Activities include reviewing prescriptions and prescribing medications.⁴¹

Ward round participation

Pharmacists contribute effectively to patient care by providing drug information and promoting rational drug therapy.

Patient medication history

It involves gathering and recording of information regarding past and present medications used by the patient through interview and reviewing of past medical records.⁴²

Patient profile review

Clinical pharmacists evaluate patients' medical records.⁴³

Adverse drug reaction management

Clinical pharmacists handle ADRs by counselling patients, reviewing their profiles and medication history.⁴⁴

Drug information management

The process entails evaluating, collecting, using, and presenting drug-related information. A clinical chemist's primary responsibilities include managing drug information.⁴⁵

Discharge patient counselling

It includes patient counselling on medication usage at the time of discharge in.⁴⁶

PHARMACIST'S FUNCTION IN VARIOUS HEALTHCARE SETTINGS

Prescription review

Ensures that patients receive the appropriate medications for their medical condition with minimum or no side effects.

Health and safety

They ensure that prescriptions are proper by evaluating each patient's medication history, and that prescriptions are up to date by verifying the patient's last visit to the doctor.

Hospital pharmacy

Participates in ward rounds and obtains the patient's drug history. Respect and protect the patient's privacy and confidentiality. Providing information about medications and poisons.

Community pharmacy

There they usually engage in drug dispensing, healthy lifestyle promotion, support for self-care, utilizes patient leaflets, smoking/alcohol cessation programs etc.

Clinical research

They are involved in clinical trials and research procedures to discover how these medicines can impact the human body.⁴⁷

CONCLUSION

In conclusion, clinical pharmacists play a vital role in modern healthcare by ensuring the safe, effective, and cost-efficient use of medications. Through direct patient care, they provide valuable counselling, identify and resolve drug-related problems, and collaborate with other healthcare professionals to optimize treatment outcomes. Their contributions not only improve individual patient health but also enhance the overall quality and safety of healthcare delivery.

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