

The Role of Pharmacists in Improving Patient Outcomes through Medication Therapy Management

Abstract

Medication therapy management (MTM) is an essential component of healthcare, particularly in managing chronic diseases. It involves a comprehensive and collaborative approach to optimize medication use and improve patient outcomes. Pharmacists play a critical role in the delivery of MTM services. They are the medication experts who can ensure safe and effective drug therapy through various interventions, such as medication reviews, counseling, and monitoring. This article discusses the importance of MTM, the role of pharmacists in providing MTM services, and the benefits of MTM in improving patient outcomes.

Introduction

Medication-related problems (MRPs) are prevalent in the United States, affecting millions of patients each year. MRPs can result in adverse drug events, hospitalization, and even death. MTM has been shown to reduce MRPs and improve patient outcomes, particularly in patients with chronic diseases, such as diabetes, hypertension, and heart failure. MTM involves a systematic approach to medication therapy, which includes assessing the patient's medication regimen, identifying potential MRPs, and implementing interventions to address them. MTM also involves patient education and counseling to ensure proper medication use and adherence[1].

Pharmacists play a crucial role in providing MTM services. They are trained to identify and resolve medication-related problems, such as drug interactions, dosing errors, and adverse drug reactions. Pharmacists can conduct comprehensive medication reviews to assess the patient's medication regimen, identify potential MRPs, and recommend interventions to address them. They can also provide patient education and counseling to improve medication adherence and ensure proper medication use[2].

Pharmacists can also monitor patients' medication therapy to ensure effectiveness and safety. They can collaborate with other healthcare providers, such as physicians and nurses, to ensure that the patient's medication therapy is consistent with the treatment plan. Pharmacists can also assist in transitions of care, such as from hospital to home, by ensuring that the patient's medication regimen is appropriate and safe. MTM has numerous benefits for patients, healthcare providers, and the healthcare system. For patients, MTM can improve medication adherence, reduce MRPs, and improve overall health outcomes. MTM can also reduce healthcare costs by reducing hospitalizations, emergency department visits, and other healthcare-related expenses[3].

For healthcare providers, MTM can improve the quality of care, enhance patient satisfaction, and increase revenue. MTM can also help providers meet quality measures and performance standards, such as those established by the Centers for Medicare and Medicaid Services (CMS). For the healthcare system, MTM can reduce overall healthcare costs by improving medication use and reducing healthcare-related expenses. MTM can also improve patient outcomes, which can lead to a healthier population and a more productive workforce[4].

Discussion

Despite the numerous benefits of MTM, several challenges exist in implementing MTM services. One of the main challenges is reimbursement. Many MTM services are not reimbursed by third-

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party payers, such as insurance companies and Medicare. This lack of reimbursement can make it challenging for pharmacies to provide MTM services and can limit access to these services for patients. Another challenge is the lack of standardization in MTM services. There is currently no standardized approach to providing MTM services, and the services offered can vary significantly among pharmacies and healthcare providers. This lack of standardization can make it challenging to compare and evaluate the effectiveness of MTM services [5-8].

MTM is a critical component of healthcare, particularly in managing chronic diseases. Pharmacists play a crucial role in providing MTM services, which can improve patient outcomes, reduce healthcare costs, and enhance the quality of care. Despite the numerous benefits of MTM, several chronic diseases such as hypertension, diabetes, and heart disease are responsible for a significant burden of morbidity and mortality globally. Despite the availability of effective pharmacological interventions, medication non-adherence is a widespread problem among chronic disease patients, which leads to poor health outcomes, increased healthcare costs, and reduced quality of life. The World Health Organization estimates that medication non-adherence accounts for 50% of treatment failures and 125,000 preventable deaths annually in the United States alone [9,10].

Pharmacists are healthcare professionals who are trained to manage medication therapy and promote medication adherence. They play a crucial role in the healthcare system by ensuring safe and effective use of medications, identifying and resolving medication-related problems, and providing patient education on medication use. This article will discuss the role of pharmacists in improving medication adherence among chronic disease patients and the strategies they can use to enhance medication adherence.

Medication adherence is defined as the extent to which patients take medications as prescribed by their healthcare provider. It is a critical factor in the management of chronic diseases, as non-adherence can lead to poor disease control, disease progression, and increased healthcare costs. Non-adherence can occur for various reasons, including forgetfulness, medication side effects, lack of understanding of the medication regimen, and medication cost.

Medication adherence has been shown to be a significant predictor of improved health

outcomes in chronic disease patients. For example, in patients with hypertension, medication adherence has been associated with lower blood pressure and reduced risk of cardiovascular events. Similarly, in patients with diabetes, medication adherence has been associated with improved glycemic control and reduced risk of diabetes-related complications.

Pharmacists play a crucial role in improving medication adherence among chronic disease patients. They have unique expertise in medication therapy management and are ideally positioned to identify and address medication-related problems that may contribute to non-adherence. Pharmacists can use a variety of strategies to promote medication adherence, including Medication Review: Pharmacists can conduct medication reviews to identify any medication-related problems that may contribute to non-adherence, such as medication side effects, drug interactions, or inappropriate medication dosing.

Patient Education: Pharmacists can provide patient education on medication use, including proper administration, potential side effects, and the importance of adherence to the medication regimen. Medication Synchronization: Pharmacists can synchronize medication refills to reduce the burden of multiple visits to the pharmacy and help patients remember to take their medications. Adherence Monitoring: Pharmacists can use medication adherence monitoring tools such as pill boxes, medication diaries, and medication reminder apps to help patients remember to take their medications.

Collaboration with Healthcare Providers: Pharmacists can collaborate with healthcare providers to optimize medication therapy and address any medication-related problems that may contribute to non-adherence. Numerous studies have demonstrated the effectiveness of pharmacist-led interventions in improving medication adherence among chronic disease patients. A systematic review of 40 randomized controlled trials found that pharmacist-led interventions significantly improved medication adherence in patients with hypertension, diabetes, and hyperlipidemia.

Another study examined the impact of a pharmacist-led intervention on medication adherence in patients with hypertension. The intervention involved a comprehensive medication review, patient education, medication synchronization, and medication

adherence monitoring. The study found that the pharmacist-led intervention significantly improved medication adherence and blood pressure control compared to usual care.

A meta-analysis of 19 studies involving patients with type 2 diabetes found that pharmacist-led interventions significantly improved medication adherence, glycemic control, and quality of life compared to usual care. Technology is rapidly transforming the healthcare industry, and pharmacy practice is no exception. From electronic prescribing to automated dispensing systems, technology is revolutionizing the way pharmacists provide patient care. In this article, we will explore the impact of technology on the future of pharmacy practice, including the benefits and challenges of integrating new technologies into the pharmacy workflow.

Electronic prescribing, or e-prescribing, is the process of using electronic systems to generate and transmit prescription orders to pharmacies. E-prescribing offers many benefits over traditional paper prescriptions, including improved accuracy, efficiency, and patient safety. With e-prescribing, pharmacists receive electronic prescriptions directly from prescribers, eliminating the need for phone calls, faxes, or paper copies. This results in fewer errors and faster processing times, which can lead to improved patient outcomes. E-prescribing also allows pharmacists to access patients' medication histories and clinical data, enabling them to make more informed decisions about medication therapy. With the ability to view a patient's medication history, pharmacists can identify potential drug interactions, allergies, or other medication-related problems, and take appropriate action to prevent harm.

Automated dispensing systems (ADS) are computerized systems that store, dispense, and track medications in healthcare settings. ADS are used in hospitals, long-term care facilities, and other healthcare settings to streamline medication distribution and reduce errors. ADS can help reduce medication errors by providing pharmacists with accurate and up-to-date information about medication orders, dosage requirements, and dispensing instructions. ADS also provide real-time inventory management, reducing the risk of medication shortages or overstocks. With the ability to track medication usage and reorder medications as needed, ADS can help ensure that medications are available when they are needed, reducing the risk of delays

or disruptions in care.

Telepharmacy is the use of telecommunications technology to deliver pharmacy services to patients remotely. Telepharmacy can be used to provide medication therapy management (MTM) services, medication counseling, and medication reviews to patients in remote or underserved areas. Telepharmacy can also be used to provide medication dispensing services to patients in hospitals or long-term care facilities.

Telepharmacy offers many benefits, including increased access to pharmacy services, improved medication adherence, and reduced healthcare costs. With telepharmacy, patients can receive pharmacy services without having to travel long distances or wait for appointments. This can be especially important for patients in rural or underserved areas who may not have easy access to pharmacy services. Pharmacy information systems (PIS) are computerized systems that manage and track medication-related data in healthcare settings. PIS are used to manage medication orders, dispensing, and administration, as well as medication-related clinical data, such as lab results, vital signs, and allergies.

PIS can help pharmacists improve patient care by providing them with real-time access to medication-related data. With the ability to view medication orders, dispensing records, and patient clinical data in real-time, pharmacists can make informed decisions about medication therapy and monitor patients for potential medication-related problems.

For example, a study published in the *Journal of the American Pharmacists Association* found that pharmacist counseling and education for patients with asthma resulted in significant improvements in asthma control and quality of life. Patients who received counseling and education had fewer asthma symptoms and better quality of life compared to those who did not receive these services. Another study published in the *Annals of Pharmacotherapy* found that pharmacist counseling and education for patients with hypertension resulted in significant improvements in blood pressure control. Patients who received counseling and education had lower blood pressure and were more likely to achieve their blood pressure goals compared to those who did not receive these services.

Pharmacists also perform drug utilization review

(DUR) to identify potential drug interactions or adverse effects. DUR involves reviewing a patient's medication regimen to identify any issues with drug interactions or duplicate therapies. Several studies have demonstrated the impact of DUR on patient outcomes. For example, a study published in the Journal of Managed Care Pharmacy found that pharmacist-led DUR resulted in significant reductions in drug-related problems and hospitalizations for patients with heart failure. Patients who received pharmacist-led DUR had a 38% reduction in hospitalizations compared to those who did not receive these services. Another study published in the Journal of Clinical Pharmacy.

Conclusion

Therapeutics found that pharmacist-led DUR for patients with diabetes resulted in significant improvements in medication adherence and reductions in hospitalizations. Patients who received pharmacist-led DUR had a 56% reduction in hospitalizations compared to those who did not receive these services. As healthcare professionals, pharmacists play a critical role in the management of drug toxicity. Understanding the mechanisms of toxicity, as well as the factors that contribute to it, is essential in providing effective treatment and preventing harm to patients. This article will provide an overview of toxicity and its various forms, as well as highlight the role of pharmacists in managing toxicities.

Conflict of Interest

None

Acknowledgement

None

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