

The Impact of Clinical Pharmacy Services on Patient Outcomes in Chronic Disease Management

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ABSTRACT

Chronic illness possess about 60% of adults in the US suffer from, which accounts for 90% of the nation's yearly medical expenses. Pharmacological therapy accounted for 70% of outpatient medical visits in 2018, and over 860 million drugs were prescribed or administered in 2018. Long-term medication is a significant aspect of controlling chronic diseases (CDM). (Santo and Okeyode,2018).

KEYWORDS: controlling chronic diseases, Pharmacological therapy.

1. Introduction

Chronic illness possess about 60% of adults in the US suffer from, which accounts for 90% of the nation's yearly medical expenses. Pharmacological therapy accounted for 70% of outpatient medical visits in 2018, and over 860 million drugs were prescribed or administered in 2018. Long-term medication is a significant aspect of controlling chronic diseases (CDM). (Santo and Okeyode,2018).

Pharmacists have taken the lead in treating chronic illnesses by offering medication management services to improve CDM by encouraging safe and efficient drug intake in coordination with other medical professionals. This can lower hospital stays, medicine dosages, and medical expenses while also improving medication

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appropriateness.(Buttorff and others, 2017) Since Community Health Centers (FQHCs) offer primary care services in underprivileged regions, CDM is increasingly integrating pharmacy services into these facilities. The center's complete behavioral healthcare strategy includes behavioral health experts and behavioral therapists. HJAHC provides nutrition, podiatric ,dental, social work. (Shehab et al., 2013). To determine the effect of adding a chemist to the medical team, HJAHC started providing pharmacy services in August 2014. However, it is uncertain if pharmacists might help HJAHC patients in a variety of illness states achieve better clinical outcomes, or if the clinical staff would seek pharmacists' assistance with disease states. To better understand the role of pharmacists, the pharmacy team created a new CDM policy that allows any member of the medical staff to nominate a patient for CDM from a pharmacist. pharmacists in connection with the health center's requirements (NHC, 2018). Team of pharmacy introduced a new CDM policy that permits a member of medical staff to propose a patient for CDM from a pharmacist in order to reach a larger audience and get a better understanding of the pharmacists' role in connection to the health center's patient demands. The protocol's details are explained in this publication.

2. Aims and Objectives

To assess how clinical pharmacy services affect patient outcomes in the context of managing chronic illnesses. The study specifically seeks to:

3. Literature Review

The everyday care responsibilities associated with chronic illness fall mostly on patients. If they have positive working connections with healthcare professionals, they can perform self-care tasks more successfully. Chronic diseases like diabetes, cancer, heart disease, and arthritis are some of the most prevalent and costly medical problems in the world. Preventive measures, monitoring of disease activity and therapy, and patient education can all be accomplished through routine follow-up interactions. In addition to striving to prevent and manage complications, "the quality of life during the patients' remaining years," and the burden of the patients' illness and treatment on the social network, the medical care of chronic morbidity presents other challenges. (Van Weel ,1996).

Management of chronic diseases

Vast majority of patients with chronic illnesses, it is evident from the research that our ambulatory care systems need to be reorganized. With Primary care practices were largely established to provide patients with acute, diverse issues with convenient access and care. Families coping with long-term sickness; that prioritize function and preventing issues and worsening of existing conditions. This connection includes behaviorally complex support for the patient's participation in self-management, systematic evaluations, and adherence to treatment protocols. These

contacts must finally be connected by the medical practice. (Wagner, 2016).

Friedman, McCulloch, and others emphasize have a number of characteristics despite their variances. Based on our research, we developed a plan to improve the treatment of chronic illnesses that incorporates these and other successful strategies reviews of the literature and at Group Health Cooperative. (Figure 1). The model suggests that health systems that have well-designed processes and incentives for changing the way care is delivered and that ensure behaviorally sophisticated self-management support that puts an emphasis on enhancing patients' abilities and self-worth so they can be the ultimate managers of their illness are more likely to have patient-provider interactions that lead to care that improves outcomes.

• To accommodate patients with chronic diseases, reorganize team operations and protocols (such as follow-up and appointments). By means of provider education, reminders, and improved communication between specialists and generalists, evidence-based recommendations may be developed, implemented, and promoted. To facilitate the creation of illness registries, tracking systems, reminders, and performance reviews, information systems should be improved. (Wagner, 2016).

The Chronic Care Model (CCM)



Fig.1 A chronic care model. (Wagner, 2016)

The role of clinical pharmacy technicians in the healthcare industry

Clinical pharmacists specifically expertise in therapeutics and support patients and providers (such as physicians and other members of the care team) with complete drug management. The outcomes of pharmacist interventions include adverse drug events (ADEs), adverse drug reactions (ADRs), patient satisfaction, prescription

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appropriateness, health-related quality of life, and economic considerations. Drug reaction (ADE) "an injury resulting from medical intervention related to a drug," whereas an adverse drug reaction (ADR) is defined as "an effect that is noxious and unintended and which occurs at doses used in man for prophylaxis, diagnosis, or therapy." (Kaboli et al., 2006).

Patient-centered care is given precedence over medicine product-focused care in this area of pharmacy practice. Unhappiness with antiquated The specialty was created in response to practice requirements and the increasing need for a skilled medical professional with in-depth knowledge of pharmacotherapy. Hospital-based pharmacists have a relatively long history of conducting clinical practice across the globe. The physician-pharmacist in the industrialized world, professional partnerships are becoming more and more desirable. There is a lot of interaction amongst doctors in these nations.

and pharmacists, which results in medication therapy that is safer, more efficient, and less costly. However, there are still many challenges facing the pharmacy profession in developing nations, such as a serious shortage of licensed pharmacists, a lack of standard practice guidelines, and the belief that pharmacists and doctors are rivals rather than partners. (Farid and Sabry ,2014).

One strategy to reduce pharmaceutical-related harm is to make use of pharmacist services, which have proven to be an essential tool for optimizing drug usage and improving health outcomes. Previous studies have shown that primary care clinics have hired pharmacists to improve the standard of services they provide. In clinics for primary care, pharmacists and To provide medicine management services, medical professionals collaborate. The effectiveness and satisfaction of adding pharmacist services to primary care clinics have been the subject of numerous research, with favorable results in terms of managing chronic illnesses and improving the quality of medications. Prior studies have shown that the number of patient risk factors for medication-related problems significantly decreased as a result of the comprehensive intervention of pharmacist-led medication reviews and consultations in general practice clinics. (Li et al., 2033).

Primary care clinics can help eliminate service gaps and ensure that quality measure standards are fulfilled by integrating pharmacists. These clinical and financial implications later enhance collaboration between primary care physicians and pharmacists. However, primary care centers frequently lack the funding they require.

personnel as well as facilities. Its widespread acceptance is limited by the fact that the mechanism for the long-term growth of pharmacist services in primary care clinics is yet in its infancy. Previous qualitative studies have identified a few of the barriers and facilitators to pharmacists' integration into general practice clinics. The interdisciplinary environment and colocation in primary care settings were found to be facilitators, but inadequate access to patient health records, insufficient Weak interprofessional communication and time were identified as obstacles. (Li et al., 2022).

Controlling chronic diseases is a significant concern for health care systems since

many diseases lack primary prevention or treatment, and because chronic issues are causing individuals to live longer. Applying what is known about primary prevention—such as changing food, physical activity, smoking, and other behavioral behaviors—is equally as difficult as applying what is known about secondary prevention, or preventing and managing the effects of illness. Controlling chronic disease is a significant concern for health care systems because many diseases lack primary prevention or treatment, and because chronic issues are causing individuals to live longer. For the sake of this discussion, ideal disease control by the patient is characterized as the methods employed to attain optimal functioning and the least number of symptoms considering the severity of a condition.(Clark,2003).

Chronic illness management issues without a pharmacist's assistance

Managing chronic illnesses is one of the main problems that healthcare systems face globally. Despite the need for more efficient management and treatment of the growing number of people with various chronic illnesses through interventions, strategies, and policies, there is still a significant lack of progress in policymakers' efforts to address the issue of chronic disease. Pharmacists are capable of playing a wider range of roles in the medical industry. Assuming patient-centered responsibilities is actually appropriate given the high level of education and expertise needed for the field, even though they are currently "retailers." Although national educational requirements vary, formal education typically lasts five to six years, with an additional two to three years needed for specialization or to earn a higher degree. Additionally, a license is usually acquired by a national or regional exam prior to being permitted to practice. Traditionally, community pharmacists have worked independently and are primarily responsible for dispensing and retailing drugs. In contrast to hospital pharmacists, who are more They are distinct from the other primary care staff members and are more included into clinical care teams.

They are distinct from the other primary care staff, in contrast to hospital pharmacists who are increasingly incorporated into clinical care teams. and paid for the services rendered to patients. Pharmacists are the only medical professionals who do not receive main payment for their services. (Mossialos et al., 2015).

Realizing this untapped potential, a number of countries have recently passed laws to give community pharmacists more duties in order to promote integrated care delivery. Despite differences in scope and focus, these interventions aim to assist pharmacists as primary healthcare practitioners. To provide a more comprehensive role and to align the responsibilities, objectives, and motivations of health professionals For pharmacists in the community, An agenda for system-wide policy It is necessary to have a system-wide policy agenda. Though slowly, these techniques are starting to emerge. In this study, we look at recent reform efforts in the US, Australia, Canada, England, the Netherlands, and Scotland. To supply Community pharmacists have extra duties and responsibilities while caring for patients with a range of chronic conditions. These countries have recently enacted several reforms. (Mossialos and Colleagues 2015).

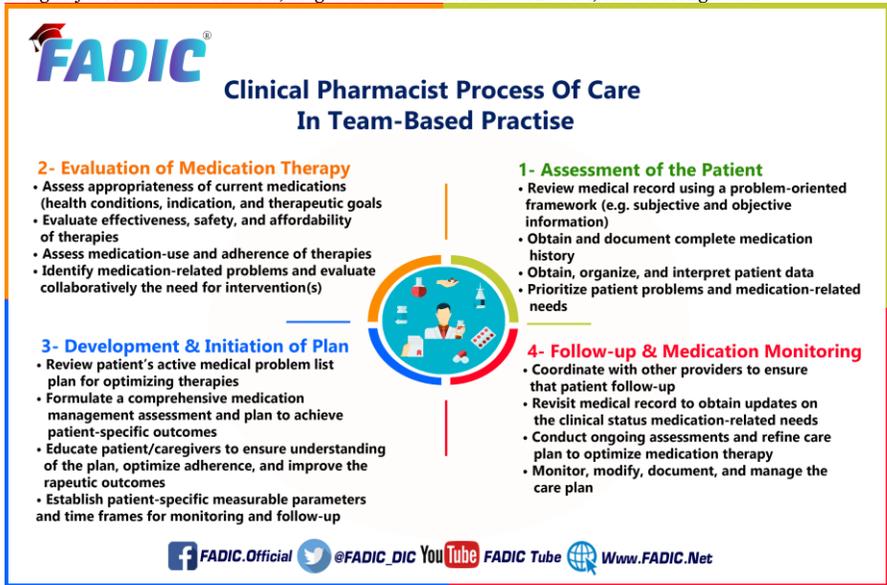


Fig.2.Pharmacists’ role in Management of Chronic Disease (Toka_Editting, 2024).

Protocols Developed by Pharmacists

The United States has a significant healthcare burden, with 60% of adults suffering from chronic diseases. Although treating chronic illness presents many difficulties for the US, with the right treatment, morbidity and death will decrease. One of controlling chronic illnesses (CDM) is long-term medication. Pharmacological therapy accounted for almost 70% of outpatient doctor visits in 2018, with over 860 million drugs being administered or prescribed in the US. Nearly half of Americans reported taking at least one prescription, and retail prescription drug sales totaled 456.3 billion US dollars. Declared that throughout the preceding 30 days, they had taken at least one prescription drug.

Costs and usage of prescription drugs are rising. Taking into account that people with chronic illnesses use prescription medications more frequently than those without, as well as the number of chronic illnesses that a person has concurrently. (Buttorff et al.,2017) Despite being widely used, prescription medications can still be hazardous and might be challenging to grasp from the perspectives of the patient and the doctor. In 2018, 861 000 ED visits in the US were attributed to a primary diagnosis of drug toxicity, improper dosage, or drug-related reactions. Based on statistics from 2013–2014, it was projected that unfavorable pharmaceutical effects would result in four ED visits per 1000 people year. were expected to consist of four emergency departments.

The impact of clinical pharmacist-developed protocols on health outcomes Scholarly research has mostly aimed to demonstrate the value and effectiveness of certain therapeutic interventions, or patient care services, supplied by neighborhood pharmacies. Evidence of a patient care service's value and efficacy must be

produced, but this does not ensure that the service will be extensively used in clinical settings.

Previous studies have demonstrated that patients with diabetes, heart failure, hypertension, or hyperlipidemia benefit from pharmacist therapy. Recent systematic reviews, however, have raised questions about the actual efficacy of these pharmacist treatments. To ensure strong evidence, the quality of systematic reviews needs to be carefully evaluated. Heterogeneity is an issue when the evaluation covers multiple services or even just one pharmacist service, such drug therapy management.

Pharmacy professionals can drastically lower healthcare costs and take on a more significant part in the treatment of long-term conditions. Community pharmacists have received specialized training in reducing the severity of diseases, monitoring medication therapy to achieve desired clinical effects, reducing adverse health events, and, when necessary, recommending pharmacotherapy to patients or prescribers. They are frontline healthcare providers who frequently interact with this patient population.

Community pharmacists are in a unique position to perform health checks for disease prevention and progression, in addition to assisting with the identification of new diseases.

The benefits of pharmacists in managing chronic illnesses

Pharmacists play a crucial role in managing chronic illnesses, as they can significantly reduce healthcare expenses and take on a larger role in the treatment of these conditions. Community pharmacists are frontline healthcare providers who interact with patients regularly and have received specialized training in reducing disease severity, monitoring medication therapy, reducing adverse health events, and recommending pharmacotherapy when necessary. They can help manage patients with long-term ailments like diabetes, cardiovascular disease, and chronic obstructive pulmonary disease. (Dalton & Byrne, 2017).

Pharmacists also assist with the diagnosis of new conditions, conduct health screenings for disease prevention and progression, and provide point-of-care testing for chronic disease management. This can decrease patient attendance at time-constrained general practitioner offices, even though it may come with upfront costs like training and equipment purchases. Patients can easily check clinical parameters like blood glucose, cholesterol, and HbA1c, which can be used to track their chronic condition management and enhance clinical results. (Goble & Rocafort, 2015).

Pharmacists have been shown to enhance patient outcomes and offer a more affordable option than doctors in treating hypertension. Community pharmacy managed anticoagulation services have been shown to improve chronic anticoagulation control by reducing thromboembolic and bleeding episodes. Pharmacist-run services saved \$647,024 by reducing hospitalizations and ED visits compared to standard medical care.

In the future, community pharmacists will play larger roles in managing chronic illnesses and contribute to significant cost reductions in healthcare. Clinical pharmacists play a crucial role in interdisciplinary healthcare teams, using their

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specific skills to improve pharmaceutical therapy and advance patient welfare. They are in a unique position to close the gap between patients, prescribers, and pharmacotherapy, handling everything from medication reconciliation to pharmaceutical treatment management. (Dalton & Byrne, 2017).

Challenges Facing Community-Based Pharmacists

There is no integration between the electronic health record (EHR) and pharmacy systems in general. Numerous recent studies have detailed the advantages of integrating EHRs. Furthermore, there is a push to implement pharmacist e-care plans for medical services and documentation. In order to properly code and record patient care, new systems that facilitate standards and technical systems should help address these challenges, with a primary focus on uniform techniques and ways for electronic documentation.

(Goode et al., 2019).

Additionally, the location operations of the established pharmacy might act as a roadblock to team-based care and integration. However, as community-based pharmacist practitioners expand beyond the traditional community pharmacy's four walls, team-based care will be easier to deliver. Furthermore, the field does not have a referral process that is on par with that of other medical specialties. Pharmacists and other healthcare professionals themselves must adhere to a specific protocol when making interprofessional referrals. Team-based treatment and the referral process may be made easier with the use of technology. (Goode and others, 2019).

Opportunities and Advancements in Pharmacy-Led Chronic Illness Management

No country has been able to completely convert community-oriented pharmacy practice into a sustainable medical center without the product that powers the business model.

as the US, have advanced significantly in a few areas of innovation. This gives community-based pharmacists the chance to gain knowledge from improvements in other nations' methods. In 2016, the Worldwide Pharmaceutical Federation published an essay on the global impact of pharmacy-based immunization. In 2016, a study on the worldwide impact of pharmacy-based immunizations was published by the Worldwide Pharmaceutical Federation.

Pharmacists in Australia, Canada, England, the Netherlands, and Scotland have expanded the role of the community-based pharmacist. In Scotland, the Netherlands, England, Canada, and Australia, the number of pharmacists has grown. The neighborhood pharmacist's function (Taylor & Joubert, 2016).

Drug formulation or dose modifications, prescription renewals or extensions, therapeutic substitution, and emergency refills are all examples of medication optimization services.

In addition, community-based pharmacists in the UK and Canada provide comprehensive care for mild ailments. With a new financing paradigm, New Zealand has a chance to increase pharmacy

services in local areas. (Smith et al., 2018)

One change to the requirements for South African pharmacists that will help the growth of community-based pharmacy services is prescriptive authority. Other Middle Eastern nations are still having difficulty establishing pharmacies, but the United Arab Emirates is taking steps to encourage the growth of the community pharmacist's role. Throughout Asia, the community-based pharmacist's function has changed.

grown erratically, although health promotion, medication usage reviews, and health assessments have increased their prevalence. (Sadek et al., 2015). The European Union's Pharmaceutical Group (PGEU) unveiled its 2030 strategy for neighborhood pharmacies across the continent. This vision includes developing pharmacy services as part of a collaborative primary care team to improve access and optimize medication use, identifying public health risks, lowering the burden of chronic illness through wellness, prevention, and education, integrating digital health solutions into practice, demonstrating leadership in personalized medicine, and offering creative and effective services to reduce the workload of other services. The developments in community-based pharmacy practice in the United States covered in this book are similar to these practice extension elements. The developments that were discussed These practice extension features are similar to the developments covered in this book on community-based pharmacy practice in the United States. The developments in community-based pharmacy practice in the United States covered in this book are similar to these practice extension elements.(Goode et al., 2019).

4. Conclusion

Pharmacists were able to enhance clinical and humanistic results and CDM for a range of physical and mental conditions by being given prescription power and collaborating with a primary interdisciplinary team of care, those linked to particular clinical outcome measures that were monitored that external organizations, those for which the pharmacy team had previously shown their expertise and abilities, such as through targeted presentations and prior research, and those with inadequate baseline control in order to maintain high standards of clinical care.

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